



The Backwoods Home Magazine

CD-ROM ANTHOLOGY (Years 7-10)

7th Year
1996

8th Year
1997

9th Year
1998

10th Year
1999

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1

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3

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2

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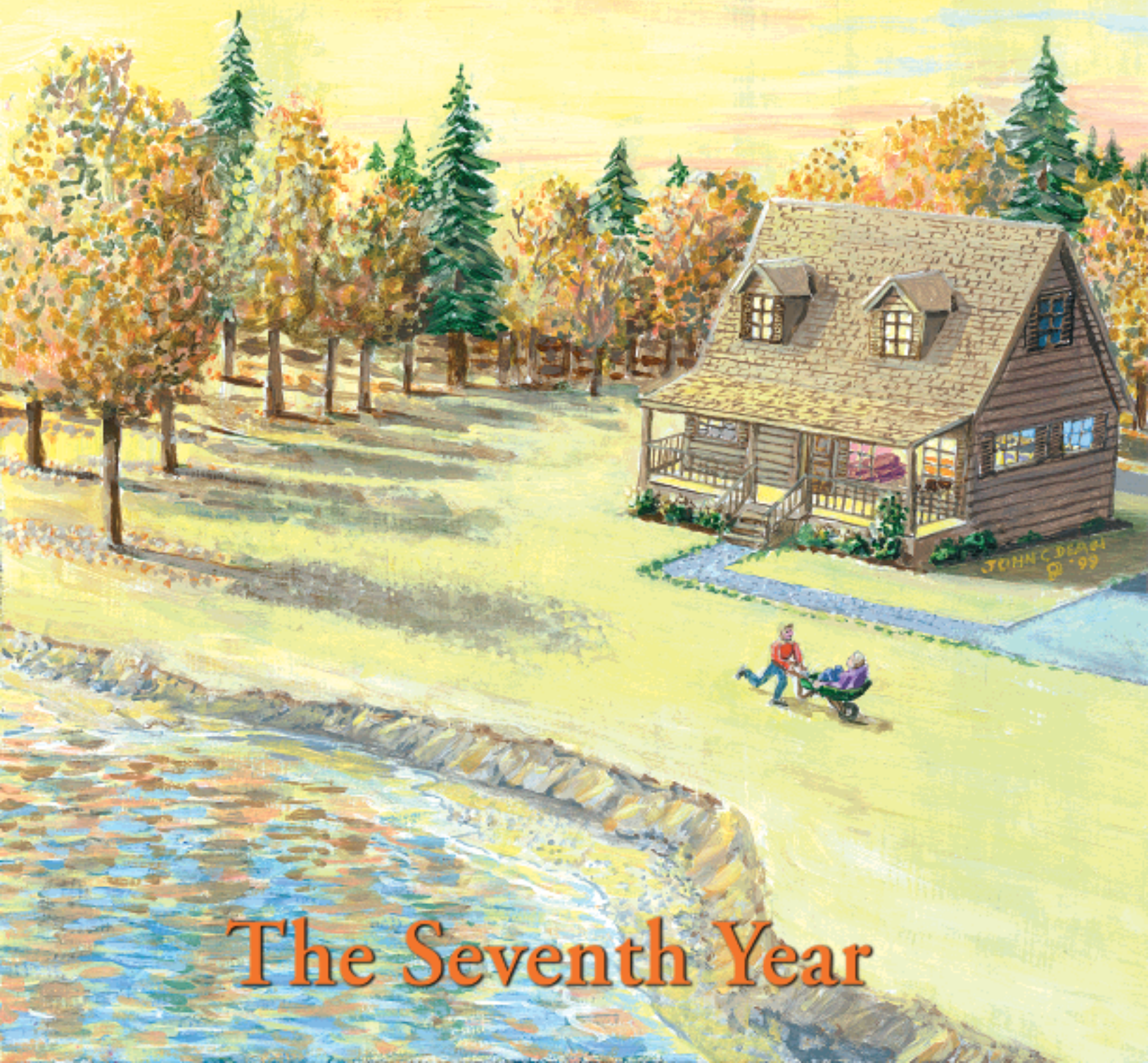
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A Backwoods Home Anthology



The Seventh Year

A Backwoods Home Anthology:
The Seventh Year

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Introduction

As I write this introduction to the Seventh Year Anthology, we are completing our tenth year as *Backwoods Home Magazine*. In these ten years we've watched the hysteria come and go about the ways the world as we know it will end. There's been global warming, the New World Order, and a collision with an asteroid, among other things. Most recently, there was Y2K. But we're all still here, the world is still intact, and our lives go on.

In all this time *BHM* has refused to ride any of the bandwagons of doom and gloom. We have instead stayed with our basic philosophy of independence and self-reliance, knowing full well that this is not just the proper way to prepare for bad times, it is the recipe for everyday living.

Quality how-to articles involving building, growing and storing food, alternative energy, homeschooling, guns, etc., with a sprinkling of the self-reliant philosophy of Libertarians like ourselves, have been our mainstay since issue Number 1 and will remain so in the foreseeable future.

So we are hoping that within these pages you will find articles that will enrich your life, make you more self-sufficient, and, if the world does end, ensure you are the first on your block to be the last on your block.

John Silveira
Senior Editor

This anthology is dedicated to

*Ruth Bosco of North Hutchinson Island, Florida,
who kept her son, John Silveira, on the straight and
narrow despite his friend, Dave Duffy.*

Profiles

Massad Ayoob	23	Angela Jenkins	123
Dave Duffy	30	Craig Russell	123
Annie Duffy	30	Mary Kenyon	126
Maurcia DeLean Houck	33	Robert Bumpus	126
Anita Evangelista	36	Terrie Clark	129
Don Fallick	36	Carolyn Beck	129
Rev. J.D. Hooker	36	Steve Anderson	133
Connie Glasheen	41	Carole Perlick	144
Harry Nemec	41	Judith Monroe	157
Dynah Geissal	41	Jeff Fowler	159
Jan Cook	47	Bill Palmroth	159
Martin Waterman	47	Allan and Marjorie Harrison	168
Don Childers	47	Mark and Lynn Klammer	174
Alice Yeager	51	Mary Jo Bratton	185
James O. Yeager	51	Darlene Campbell	202
Charles Sanders	56	Tom Kovach	206
Marjorie Burris	67	Edith Helmich	206
Richard Blunt	67	Jean L'Heureux	208
Ilene Duffy	68	Michael Clayton	208
Jennifer Stein Barker	72	Dana Martin Batory	210
M.C. Wright	81	Albert H. Carlson	218
Skip Thomsen	86	Dorothy Ainsworth	233
Robert L. Williams	90	Ron Graham	236
Robert L. Williams III	90	Mark S. Cogan	253
John Silveira	93	Muriel Sutherland	256
Olivia Miller	99	Nathele Graham	256
Darlene Polachic	99	John C. Dean	271
Mark and Jacqueline Tresl	110	Teri-Lynn Hook	289
Christopher Nyerges	110	Oliver Del Signore	324
Edna Norrell	119	Salley Denney	343
Allyn Uptain	119	Robert K. Henderson	343
Linda Gabris	121	Linda Wallin Smith	352
Ruth Adler	121		

Contents —

Issue Number 37

- My View: The new frontier — 14*
- NASA says these plants will help clean the air in your home — 15*
- It took a lot of weed-eating fish & work to make our lake usable — 16*
- Commonsense precautions help keep kids safe — 21*
- Feeling nostalgic? Now you'll rave! Here's the story of Burma Shave — 24*
- The Fuyugaki persimmon—it really is “food for the gods” — 27*
- Ayooob on Firearms: My choice for the ideal backwoods gun is the four inch .44 Magnum handgun — 29*
- Homesteading on the electronic frontier: Find information fast on the Internet — 31*
- When it comes to land contracts — be careful! Here are some critical points to consider — 34*
- Where I live: Salvaged wood makes a good goat shed — 37*
- These are Jacob's sheep — 38*
- How I've started my child in a program of homeschooling — 42*
- Think of it this way: Just how good of a bet are those lotto tickets? — 45*
- Shiitake mushrooms for food and for cash — you “plant” them by inoculating logs — 46*
- Try these bread recipes that are part of our heritage — and still delicious today — 48*
- Here's a cold storage house as good as our ancestors built — 52*
- Our homestead motto: Make-do — 55*
- The saga of Benjamin, the backwoods, homeschooled boy who wanted to get a job — 57*
- For this resourceful couple, primitive survival skills are a path to self-sufficiency — 59*
- Beans — they may be a poor man's meat, but they are also the gourmet's delight — 63*
- The amazing aloe — 68*
- Everybody talks about lightning—and yes, there are things you can do about it — 69*
- Propane is a multi-purpose fuel, and it has many key advantages — 73*
- Try these smaller breeds of multi-purpose cattle — 75*

Issue Number 38

- My view: The tax problem — 78*
- It's cheap and easy to multiply plants by using these propagation techniques — 79*
- Soil pH is the secret of a good garden — 82*
- Here are some thoughts on finding your dream place—garden and all — 84*
- PV pioneer describes his successful solar home — 87*

- Homesteading on the electronic frontier:
Harvesting the Internet for gardening information — 91*
- Eating crow isn't that bad — 94*
- Protect those young trees from frost and vermin — 94*
- Don't have a cow! (Get a steer instead.) — 95*
- Try these organic controls for garden pests — 99*
- Stop bugs Nature's way — 100*
- Combat aphids by planting garlic — 101*
- From humble stew to curried root soup,
root vegetables are an overlooked delight — 102*
- Be a purple martin landlord—and find lots of uses for gourds — 106*
- It's springtime in Montana — 108*
- You definitely want to grow your own asparagus — 109*
- The Ichiban Hybrid eggplant is a real producer — 111*
- For something different in your garden, try ground cherries — 113*
- Homeschooling—What you do to one side of the equation, you
do to the other to keep it balanced — 114*
- High altitude gardening—it's a challenge
but these helpful tips can get you started — 118*
- Goats don't eat zucchini — 120*
- Grow horehound for the health of it — 122*
- Blueberries are an affordable luxury — 124*
- The duck dilemma: they're a lot of fun,
and they do eat those slugs—but... — 127*
- Scrap poly pipe can be transformed into "training wheels for trees" — 130*
- Lilacs can provide a reliable "thermometer" for planting — 131*
- When you're laying out your farm, careful planning pays big dividends — 132*
- Follow these eight easy steps to a successful eggplant harvest — 134*
- Tobacco has some uses that might surprise you — 135*
- Whose garden is this anyway? — 137*
- For some surprises in your garden, grow potatoes from seed — 138*

Issue Number 39

- My view — The age of misinformation — 140*
- Make your own lumber with a chainsaw lumber mill — 141*
- Here's a "helping hand" for your chainsaw mill — 145*
- You have to look beyond the building code
to create really pleasing stairs — 146*
- Here's a mighty creative way
to protect your plants from animals — 150*
- Your family can afford a computer: buy it used — 152*
- Would you believe...a canvas roof?
It's simple, quick, durable, and cheap — 153*

- There are lots of tomato varieties — choose the ones that suit your garden and your taste — 155*
- A brick walk with little work and less money — 158*
- Lessons I learned while building my log home — 160*
- Ayoob on Firearms: The Marlin Model 60 — It's the classic backwoods home rifle — 167*
- Think of it this way: Just how smart is that computer on your desk? — 169*
- Ducks contribute to a homestead in many ways — 173*
- Concrete domes have some impressive advantages — 175*
- Cob construction is literally dirt cheap — 179*
- Make quick and easy pasta — 184*
- White sage — the quintessential chaparral herb — 186*
- Safe, delicious, and inexpensive home preserves — 187*
- Plan your energy-independent home before you begin construction — 193*

Issue Number 40

- My view — Born of desperation — 198*
- If you have some solid how-to knowledge to sell, writing and publishing a book is not that hard — 199*
- Here are two country couples who diversified to make a living — 203*
- The “night crawler condo” is a great way to make money — 207*
- Got some weekend residents in your area? Then your home business is waiting to open — 209*
- Raising rabbits — for meat and making money, it's hard to beat this creature on the homestead — 211*
- This family started a used bookstore for under \$2,000 — 215*
- For headache, fever, or even rheumatism, relief is as near as the familiar willow plant — 217*
- You can have a good career as a nurse practitioner no matter where you live — 219*
- Consider small-scale hog production for delicious food and reliable income — 223*
- Felting is an ancient art that's still useful today — 226*
- Simplify, save, grow food, and trade and you too can afford to work for yourself — 230*
- Ayoob on Firearms: The price of machismo — 232*
- You can make extra money as a stringer — 234*
- Forage for wood lettuce and ground coral and you can spice up your outdoor eating — 237*
- Perfect whole wheat breads...some troubleshooting ideas — 239*
- Think of it this way: Want proof of luck, ESP, and psychic powers? — 242*
- Money doesn't grow on trees, but you can grow it in your garden — 247*
- Where I live: Working for a dad who works at home — 250*

- Homesteading on the electronic frontier: Cybrarian—a great Internet job — 251*
- Using trot lines, set lines, and jug fishing will increase your fish catch substantially — 254*
- You can make this effective gray water disposal system — 257*

Issue Number 41

- My view — The “Leave Us Alone” coalition — 260*
- For large quantity food dehydration try this homemade gem from the past — 261*
- Cracking walnuts — “almost fun” — 263*
- Keep your onions fresh...with panty hose! — 263*
- Pectin — You can rely on the grocer, or you can learn to make it yourself — 264*
- A few strings attached — 264*
- Those leftover fall tomatoes are a delicious bounty that should be put aside for the future — 265*
- Apple-dapples — fun to make and even more fun to snack on — 267*
- It’s easy to build your own milking stanchion — 268*
- You can make delicious meals all winter with stored vegetables and dried spices — 269*
- Ten off-beat metal cleaning tricks — 271*
- Here are some simple tips on how to store apples for a long, long time — 272*
- Careful planning will make harvesting and preserving food a year-long process — 273*
- Make “recycled wine” from leftover fruit pulp — 276*
- Solve chinking woes with a mortar-sawdust mix — 277*
- Sheet composting saves work —279*
- Based on years of personal experience, here are 10 good tips for homeschooling your children — 280*
- A unit study on birds — 283*
- Teach your kids math with the banking game — 284*
- Improve your poultry with selective breeding — 285*
- Here are some cucumber pickles to make at home — 286*
- Enrich your soil with cover crops — 290*
- Here are some tasty ways to use those end-of-season green tomatoes — 293*
- Make grape juice the easy way — 297*
- Where I live: Walking the woods with friends and family— 298*
- Keep fresh greens in your garden — even in the snow — by using row cover — 299*
- Traditional ways of keeping your corn crop and seed corn are still very effective — 302*
- Use plastic to get a head start on corn in the fall — 305*
- Squash seeds are a delicious, nutritious snack — 306*

- Mugwort — From aiding digestion to relieving fatigue, this flavorful plant has many good uses — 308*
- Ayoob on Firearms: The backwoods hunter — 310*
- Leaf mold is another way to build your soil — 311*
- Venison deserves gourmet treatment — 312*
- Southern cooking that doesn't just whistle Dixie — 314*

Issue Number 42

- Keep the cooks happy with these easy-to-make kitchen helpers — 320*
- Close encounters with the white deer — 323*
- Here are five quick and easy craft projects — 325*
- I heat my house by burning corn — 328*
- Save time and money, and get that custom look, with hinges you make yourself — 331*
- Listening to shortwave radio broadcasts from around the world is informative and fun — 334*
- These chocolate treats make great gifts and delicious holiday desserts — 337*
- Custom crafted toiletries make very special gifts — 340*
- Protect your land title before you buy — 344*
- Next year, grow your own holiday turkey — 346*
- Here are 10 ways to beat corrosion in the garage — 347*
- Make this classic Shaker-style butcher block — 348*
- Seed art — it's fun to collect the seeds and to create these unusual pictures — 350*
- Make delicious, eye-catching holiday breads — 353*
- Where I live: Chasing down cows at Jenny Creek — 359*
- This method lets you make quilts that are artistic and very personal — 360*
- Make your own nifty gift bags — 361*
- You can make these beautiful pinecone wreaths at home — 362*
- Use these tips to avoid problems with your sewing machine — 363*
- Delicious holiday cakes don't have to be diet-busters— 365*
- Ayoob on Firearms: The best deal in home-defense guns — 367*
- For many people, these natural remedies can reduce high blood pressure — 369*
- With papier mache, you can make treasures from trash — 371*
- Here's how to make a musical bamboo flute — 373*
- Homesteading on the electronic frontier: Looking for love in cyberspace — 374*
- In the classroom and at home, this system will help you grow self-reliant kids — 376*
- Grow winter salad greens on your windowsill —379*

JAN/FEB 1996
No. 37

Backwoods Home

magazine

practical ideas for self-reliant living

- Earn a college degree at home**
- \$-Saving home food storage**
- Successful homeschooling**
- Quilt making is fine art**
- Plants to purify your home**
- Protect yourself from lightning**
- Rid your pond of annoying weeds**
- Grow mouth watering persimmons**



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My view

The new frontier

A week before putting this issue to bed, John Silveira, Lance Bisaccia, Don Childers, Richard Blunt, Martin Waterman, and I engaged in a furious exchange of ideas, stories, and art that affected a half dozen key articles in the issue. Not surprisingly, we made decisions quickly and effectively, much like any capable group of managers would make decisions about the business of any successful company.

Surprisingly, to many people, we made them while participating in what futurists like to call “the virtual office,” an office created purely by electronics. We communicated by computer, FAX, and phone. Rarely were any of us in the same building; in fact, Bisaccia was 40 miles away in Ashland, Childers was 700 miles away in southern California, Blunt 3,000 miles away in Connecticut, and Waterman 3,300 miles away in New Brunswick, Canada. Unfortunately, every time I turned around, Silveira was right there behind me.

This wasn't some kind of experiment we were engaged in. It has just evolved as a convenient and quick way to put together the magazine, without any of us having to leave home. What is most remarkable about it is the fact that only six years ago, when this magazine was founded, almost no one was conducting business this way, let alone a small business like us with only four full-time employees.

This virtual office is part of the new technological frontier that is currently being settled, not just by businesses like this magazine, but by entire families engaged in the most ordinary pursuits. My daughter, Annie, regularly communicates via computer and modem with her friends across the country, and my wife, Lenie, keeps the family checkbook on the computer. *BHM*'s column about the electronic frontier, which started last issue, will show you many other ordinary things done with the new technology.

A lot of people who live in the country, however, seem to shy away from this new frontier, in part because it appears threatening and complicated, terribly unlike that simpler, less complicated way of life the country often promises.

The fact is that this new technology is not only pretty simple to use, once you take that initial step to try it out, but it is also fairly inescapable. It is changing the entire landscape of our future every bit as much as previous frontiers we encountered changed things. You can no more escape it than you can escape the fact the world is round, rather than flat.

Luckily, it's not something you want to escape anyway. Computers, modems, FAXs, and the rest of the new technology are the new improved tools of the future. If we think



Dave Duffy

we're too old to use them, our children certainly aren't. And just as, 150 years ago, we wouldn't have sent someone from Massachusetts out to the frontier without the proper tools—a plow, a woodstove, and a rifle—because you'd be ensuring the likelihood they'd fail, nowadays you'd be irresponsible to send your children out into the world without ensuring they were armed with the ability to use a computer.

Remember that old saying: “God created man, but Colt made them equal.” That's how I feel about computers, especially when it comes to making a living. Today, entire businesses are being run by ordinary people out of their living rooms with nothing more than a computer and perhaps a connection to the Internet. Thanks to the computer this magazine is able to compete successfully with much bigger ones. Only 10 years ago it took a small fortune to start a magazine; today it takes a \$1500 computer.

Just as the early days of the western frontier were a place where an individual could cut out a fortune for himself, in these early days of the electronic frontier, there are thousands of places where enterprising men and women can make a living—or fortune—for themselves.

But, for everyone who went west in the early days of our country, hundreds—even thousands—of others played it safe and stayed behind in Boston, New York, Baltimore, and other safe cities. And, just as the western frontier was finally pronounced closed, someday the electronic frontier will lose its vastness and promise, and all the opportunities for the little guy will be gone.

I suppose this is especially good advice for anyone contemplating a move to the country but having trouble figuring out a way to make a living. Take a hard look at creating a job with a computer. We'll try to help with our new column.

NASA says these plants will help clean the air in your home

By Tommy Kovach

In researching ways to clean the air in space stations, NASA (the National Aeronautics and Space Administration) discovered that many common houseplants and blooming potted plants eliminate significant amounts of harmful airborne gases.

In addition to absorbing carbon dioxide and releasing oxygen into the air as part of the photosynthesis process, plants also absorb benzene, formaldehyde, and trichloroethylene. These are three of the worst offenders polluting the air of new homes and offices, or those with new furnishings.

Synthetic building materials and furnishings such as carpet, fabrics, laminated counters, plastic-coated wallpaper, and other materials can "off-gas" pollutants into the interior environment. When buildings are well insulated and sealed tightly to conserve heat or air-conditioning, the pollutants are trapped indoors.

If you live in a newer, energy-efficient, tightly sealed home, or if you work in a building with new furnishings or where the air feels stale and circulation seems poor, the liberal use of houseplants can help.

Most of the plants on the NASA list evolved in tropical or subtropical forests, where they received light filtered through branches of taller trees. Because of this, their leaf composition allows them to photosynthesize efficiently under relatively low-light conditions, which in turn allows them to process gases efficiently.

Soil and roots also play an important role in removing airborne pollutants. Microorganisms in the soil become more adept at using trace amounts of these materials as a food source when exposed to them for longer periods of time. Effectiveness can be increased if

lower leaves covering the soil are removed so as much soil as possible is in contact with the air.

The best results in air purification were obtained when small fans pulled air through a charcoal filter in the soil. This cleaned better than foliage alone or in combination with a passive pot of soil. However, even without the fan and filter, houseplants did remove trace pollutants from the air.

The recommendation generated by the NASA studies is to use 15 to 18 good-sized houseplants in six- to eight-inch diameter containers to improve the air quality in an average 1,800-square-foot house. The more vigorously they grow, the better job they'll do.

Although all houseplants probably are beneficial, not all are equally efficient cleaners, and one cannot assume they will remove all harmful pollutants. For example, no plant is of much help in removing tobacco smoke.

But plants do a good enough job of removing air pollutants to cause us to view houseplants as more than just an attractive feature in decorating the interior environment of homes and offices.

Here is the list of indoor air-cleaning plants compiled by NASA:

- **English ivy** (*Hedera helix*)
- **Spider plant** (*Chlorophytum comosum*)

- **Golden pothos** (*Epipremnum aureum*)
- **Peace lily** (*Spathiphyllum "Mauna Loa"*)
- **Chinese evergreen** (*Aglaonema modestum*)
- **Bamboo or reed plant** (*Chamaedorea sefritzii*)
- **Snake plant** (*Sansevieria trifasciata*)
- **Heartleaf philodendron** (*Philodendron scandens "oxycardium"*)
- **Selloum philodendron** (*Philodendron selloum*)
- **Elephant ear philodendron** (*Philodendron domesticum*)
- **Red-edged dracaena** (*Dracaena marginata*)
- **Cornstalk dracaena** (*Dracaena fragrans Massangeana*)
- **Janet Craig dracaena** (*Dracaena deremensis "Janet Craig"*)
- **Warneck dracaena** (*Dracaena deremensis Warneckii*)
- **Weeping fig** (*Ficus benjamina*) Δ



It took a lot of weed-eating fish & work to make our lake usable

By Martha Belding

Do you have a pond or lake so choked with weeds you can't put a hook in it? We've been there. We live on Silver Lake, a four-mile long lake with an average depth of 10 feet, in southwest Washington. Three years ago it had aquatic weed to the surface on most of it. It was lost to weeds.

The local teacher of marine biology identified 97 varieties of aquatic weed in Silver Lake over the summer months. Not all species of weed grow at the same season. Aquatic weed in the lake grow like vegetables in a garden; each has a predominate season. But by July Silver Lake was unusable with aquatic weed to the surface on most of the lake.

A study by Washington State University (WSU) in 1989 said Silver

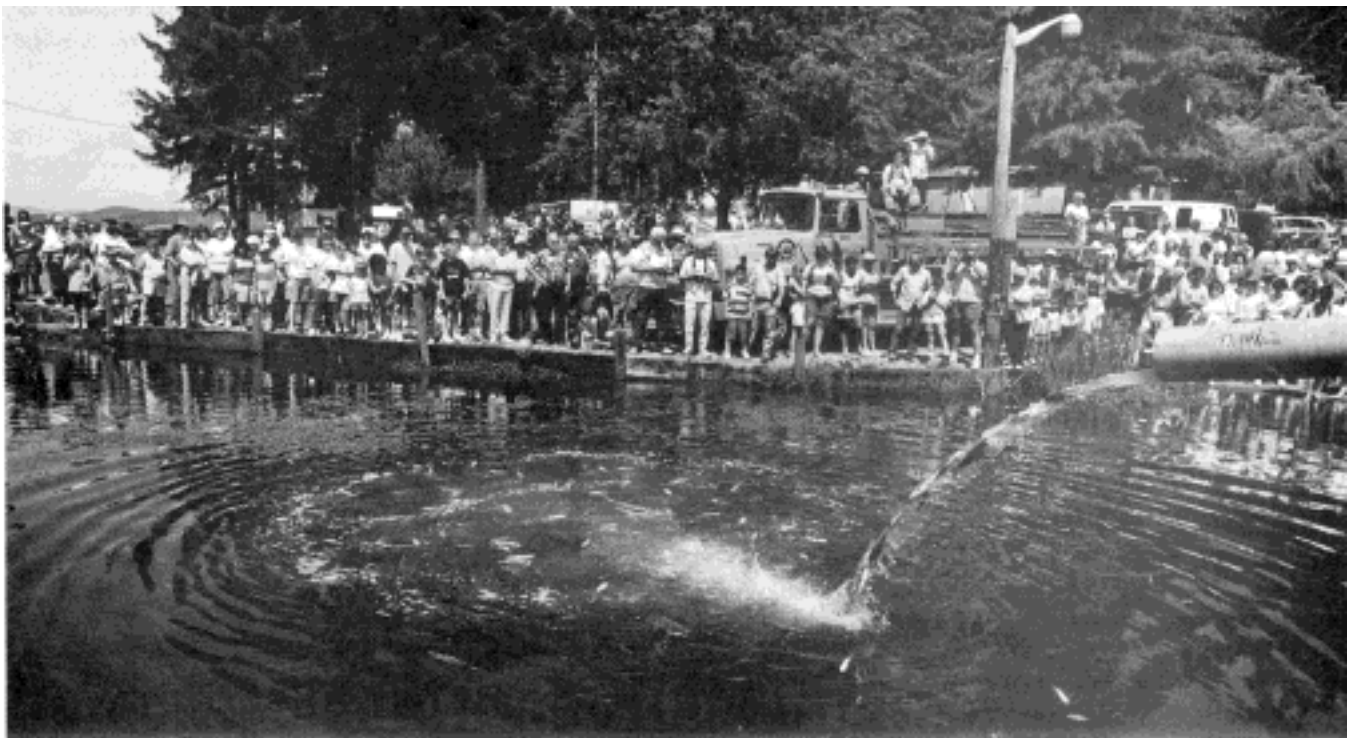
Lake would be a meadow in 10 years. We who live on the shore figured its demise would come much sooner, for weed had covered the lake bottom and grew to the surface on most of it. Weed growth had stopped fishing and restricted boating. The WSU study said Silver Lake was in a state of eutrophication, a word none of us ever heard of but we learned that eutrophication means dying from lack of oxygen, caused by excessive weed growth. We learned eutrophication can be a natural event usually taking many years to accomplish, but often hastened by actions of man, such as fertilizing tree farms, gardens, and lawns around the lake.

We tried everything to get rid of the weeds. We had weeds cut with a weed cutter, which the salesman was more than happy to demonstrate. The cutter

and barge, which we would need in order to haul weed to shore, cost \$75,000. But the weeds grew back more dense the next year after our demonstration of weed cutting, for each piece of weed left in the lake grew.

Some tried chemicals. One man living on the east shore put a commercial herbicide in the lake in front of his house and his neighbors almost had apoplexy. We are a diversified group of retired people, mill workers, and loggers. The chemical drifted. It was expensive, costing several thousand dollars, so he told us, for he had a large frontage. The weed grew back in a year and the applicator came back to add more. He needed a state permit for this and several neighbors were up in arms when a sign was posted, "Don't eat the fish for four days."

We looked into dredging. Our state says water from dredge spoils must not drain back into the lake. We pointed out that the water in the spoils came from the lake, but our Department of Ecology said spoils



Dumping amur in Silver Lake to rid the lake of weeds

must be deposited outside the watershed. This would take a lot of hauling of mud. Dredging itself was estimated to cost five-million dollars.

Mowing weeds with fish

Then we investigated the white amur. The amur is a fish labeled exotic, non native to the United States, so requires a permit from your State Fisheries to use. The amur (*Ctenopharyngodon Idellus*) “grass carp” originally comes from the Amur River between Russia and China and were written about in Marco Polo time as a vegetarian fish. They are said to be a tasty fish of white meat with not as many bones as a common carp, and amur have been used in Europe for



*Author scooping weeds
from Silver Lake*

centuries as a food fish. Amur have scales like the European carp, but are silver with the face of a Bass. They mow weed rather than pull it by the root.

They are strong and can break a five-pound test line at the sight of a net. They are curious and will strike at lures and jump when cornered. We have seen them jump three feet over a net when we tried to remove some to weigh them. They jumped over the net, around it, and under it. We sent the video of the operation to the T.V. show, America’s Funniest Video, but nothing came of it. Otto Cunningham, a commercial fisherman in Melba,

Idaho says he has seen amur jump six feet when cornered.

We obtained from the Washington Department of Wildlife a permit to put 8” amur in a pen in the lake to see if they would eat the weed. After all the weed in a pen was gone, none jumped the fence to a place where the weed was abundant. They apparently only jump to escape.

They have predators. When 8 to 10-inch amur were first introduced at Silver Lake we lost many to the Eagles and Osprey which live on the south shore. We also lost some to otter in the creeks which feed the lake, but as the amur grew larger, and they grew 18 inches in 2 years, the Eagles could not lift them and amur became too quick for them.

They are sterile

Triploids, an amur with three chromosomes, thus sterile, are now required by most states. The Diploid, or original two-chromosome amur, was used in Florida in experimental areas and in other southern states in the Sixties and Seventies, but because one amur can produce a million eggs, the threat of over-production has been held over the head of the amur since its introduction into the United States.

However, we can find no proof of reproduction in the United States except in strict laboratory settings. Here the eggs are stripped from the hen and fertilized with sperm from the male, and the chromosomes of the eggs are altered by pressure.

When seeking approval for the amur, we had to run down many “It’s rumored that” theories about reproduction to get the amur into Washington. But the specter of over production raised its head until a fellow named Steve Malone in Lonoke, Arkansas, incorporated a method of altering the chromosomes in the egg of the amur which made the egg produce a Triploid. Now, only the Triploid is permitted in most states.

The powers that be—Fisheries Departments, both state and national— are taking no chances with over production and each amur which leaves Arkansas to be shipped to a state permitting Triploids must be certified by the U. S. Department of Fisheries as disease free and sterile.

But, you may ask, how do I get amur for my lake or pond? Getting them may depend upon where you live. Check with your own Fisheries Department and your local fish biologist.

California requires approval by the Legislature, and only three southern California counties use them under the term research. That system, we are told by those working with amur in California, will change as soon as the California Fisheries Department sets a policy regarding the amur permitting process. Resistance to using the amur is strong in some areas. We are told that in northern California it is the commercial salmon fishermen most concerned about the impact of the amur on the salmon industry. Those working with the amur in California feel this will change in a few years as more is made known of the effects of amur on all types of fisheries.

Stocking your pond

For you who live in a permitted state or one of the three counties in California where amur are permitted, here’s how you rid your pond or lake of weed using the amur.

1. Contact your local District of State Fisheries and Game and apply for a permit to use amur. In Washington this costs \$22. You will have papers to fill out listing location and size of pond, etc.

2. You must prove the amur cannot escape into another body of water. You may need to build a fence or retaining structure if your body of water drains into another.

3. Decide how many fish you need. It’s better to under stock than over

stock. Our Fish and Wildlife says it is very happy with the results here.

Some of us feel we may be overstocked and have contacted a commercial fisherman to advise us on removal of surplus fish, if necessary. He tells us he wouldn't try to remove amur in summer or spring, when they are lively and very difficult to catch but rather work in winter when amur are lethargic and he would try to net them.

You stock per vegetated acre. If you have a two-acre pond with one acre of it in weed, you consider only the one acre when discussing stocking. Ten fish per vegetated acre seems to be pretty standard, but all ponds and all weeds are different. If you start with five per vegetated acre, you can always add more. You will want cover for other fish.

Eight to ten inches is a good size for amur. Early spring is the best time to stock. It has been our experience that the amur will hibernate when weeds die down or water temperature drops below 55 degrees.

4. Order amur from a supplier. We got ours from Bob Hooper, at Hooper-Stephens, Route 2 Highway 31 So, Lonoke, Arkansas, 72086, phone: 501-676-2435. Our cost was \$3.37 each, delivered, and we got a lot of them. If you have only a few, yours will cost more per fish. A short order may cost as much as \$8 a fish. Amur can be air-freighted or delivered by truck supplied by the seller. In southern California call Mike Mesometo at the Imperial Valley Water Resource Lab in Brawley, California, 619-339-9565. His supply is limited, and as I write, he has only 1,000 amur in the 8" to 10" size for sale. Paul Beatty, PO Box 13212, Palm Desert, CA, 92261, Phone 619-568-5499, supplies for small ponds in that area. In Idaho contact Otto or Richard Cunningham, Cunningham Fish Farms, H.C. 79 Box 100, Melba, Idaho 83641. Phone: 208-495-2654. The Cunninghams have many kinds of fish for sale, but spring is the best time to place an order. In other states ask your Fisheries

Department for addresses of suppliers. Many states have wholesalers.

Soft weeds only

If your stocking rate is right, your pond should be free of weed in two years. We're talking soft weed here, Milfoil, Elodea, etc. The amur's teeth are in their throat and they don't eat lily pads or hard stems. We've watched them suck in the weed and spit out the stem. If the lake is overstocked and they have absolutely nothing else to eat they will uproot a Lily Pad bulb for the new shoots, but its not a preferred food. Preferred foods vary with the water content. What is preferred in Silver Lake may not be the preferred aquatic weed in yours, but we didn't find any "soft" weed they would not eat. We were told by Brad Caldwell, who did the Colorado study, that the same species of weed in two ponds side by side supplied by two different water sources resulted in different plant species preferred. He wonders if it was the chemicals in the weed which caused this.

Life expectancy of the amur seems to be about 10 years, although some have lived 15, but we've been told they eat their weight each day and can eat themselves into a short life span. You will eventually need to restock. Most users we've talked with who have used the amur for several years recommend one or two per vegetated acre for maintenance restocking.

All of this is well and good for those in states which permit the amur.

For you who are not fortunate enough to live in a state where the amur are permitted, take heart. Until four years ago, Washington, where we live, was such a state, and we worked to get the amur approved for the state and thus Silver Lake by educating agencies. This is how we did it.

We told them all, by letter and phone, that Silver Lake, with 3200 surface acres of water, is well known as primarily a bass lake which also has

abundant pan fish such as perch, trout, blue gill, and crappie. But no one could fish it, for the aquatic weed grew to the surface on 90 percent of the lake and we couldn't travel 1,000 feet in a boat without cleaning the motor of weed. We couldn't fish, even with a "weed" hook we used a year earlier. Sailing was out, and we wanted the amur in Silver Lake.

Some time ago, I read an article in a magazine about Bill Whiting in Arkansas raising an aquatic weed eating fish, the white amur.

I wrote to Bill Whiting and asked. "How can we get amur in Silver Lake?" Bill answered, "In



The amur are 8" to 10" when released into the lake

Washington, you won't. It's illegal." He added, "from your letter it sounds like you have milfoil." (He was right.) He wrote, "Milfoil will spread like cancer..." (It did). "...and there is no way to stop it without the fish." This was a blow. He added, "Amur do not eat anything other than vegetable matter, and they will not reproduce. The real reason the fish are not being used is that vast amounts of federal and state monies are available to do and re-do the same research over and over. As long as the money is there they will keep funding their own research."

Boy, was he right on that one.

Form a citizens group

It was soon obvious that we would need clout to deal with bureaucrats and agencies who either never heard of the amur or who wanted status quo, so we formed a citizens group with one goal, to put the amur in Silver Lake. We named our group COWSLIP, an acronym for Clean Out Weeds Silver Lake IS Possible. A Cowslip is a plant which grows in a swamp and we were rapidly getting a four-mile swamp in our front yard. Our slogan was "Save Silver Lake for the Generations Which Will Follow." And we used it.

We soon had 90 families as members. We sent letters to our state senator, Department of Fisheries, Wildlife Department, Department of Ecology, and the county commissioners, saying we want the amur.

Fighting the "studies"

Then we ran smack dab into the world of studies that Bill Whiting told us about. We learned that companies are built on money from studies and universities thrive on them. Studies are big bucks. Results of studies make books, which we doubt many people read. We were stymied while Washington College of Fisheries studied the amur, with hefty million dollar grants from the Washington Department of Ecology (DOE). California people who worked with the amur told us Washington was reinventing the wheel. We moaned and we waited.

DOE had \$45 million a year for clean water grants, much of it going to studies and a small part earmarked for rivers and lakes. We found the track record for implementing studies and actually cleaning up lakes was dismal to say the least.

DOE said we must update the last study of Silver Lake if we wanted to apply for a grant to buy amur. An earlier study said the lake was dying from too many weeds. The new study by

WSU said, sure enough, the lake was dying from too many weeds. But this study gave us a chance to educate the WSU team about the advantages of using the amur. WSU agreed the amur was the way to clean up Silver Lake and said so in the conclusion of their study, though they still could not be used legally in Washington. About this time the people at Devils Lake in Lincoln City, Oregon, wanted to use the amur and we went to their meeting. They paid for the air flight of Scot Henderson, Director of Arkansas Fisheries, to Oregon to explain the use of the amur in Arkansas. We heard him tell them he felt, 10 or 12 amur per vegetated acre would clean up Devils Lake in two years. The citizens formed a group, named it PAL, and arranged to pay the group doing the Washington study, Washington College of Fisheries, a sum, we heard, of \$200,000 to become a study lake so they could stock Devils Lake with the amur. They were told to by the College of Fisheries study team to use 40 amur per acre.

Our own study

While waiting for studies to be finished so we could proceed, we got a permit from the Washington Department of Wildlife to build a pen, in the name of research, in Silver Lake and stock it with amur to learn if amur would eat the weed which covered all of that area. COWSLIP stood the cost of \$600 for fencing in two pens 100 feet by 40 feet in two different areas of the lake, using chicken wire, iron posts, rock and a lot of labor. Bob Hooper sent us seven amur by air freight. The board of COWSLIP celebrated with champagne as the first amur were put in Silver Lake.

In two years the area inside our pen where we had six amur was completely free of weed and was home to large schools of fry, bass, crappie, perch, and blue gill. In our pens they were safe from predators. And the hungry

amur, with all grass gone, did not touch them.

"But the amur will eat other fish," some doubters told us. We answered, "They're vegetarians; if you put a cow and a horse in a pasture, when the grass runs out the cow won't eat the horse." We proved the hungry amur would not eat fry. We also proved we overstocked the area, for **all** the grass was gone, and we wanted some for habitat. Finally, the five-year study of the amur by the College of Fisheries was finished. The conclusion? They need to study a larger lake and DOE obliged with another half-million dollars to study a lake near the DOE office, for five more years they said.

This was a low point of our project, and we called all those people we had been writing to and said "NO WAY" would we wait another five years. We started a campaign for pledges for \$70,000 to buy 17,000 amur, which we decided would be a good starting number. Some of our more imaginative neighbors said we would use the local Volunteer Fire Departments' water wagon and go to Arkansas and get the amur and volunteered to do so. The Lake was unusable and what did we have to lose other than our freedom? Our 92-year-old neighbor volunteered to be the patsy and go to jail. We wrote to all those we had asked for help in the past. Our state senator, Linda Smith, called a meeting of all the agencies to meet at Silver Lake. Members of those agencies, including the state Director of Wildlife came to Silver Lake and it was decided we would not need to wait another five years but could get the amur the next spring. Our stocking rate must be set by the College of Fisheries who did the five-year study. After studying the amur five years they should be the experts. Right? Those doing the study said we should use 50 amur per vegetated acre and every acre in the lake was vegetated by this time. Fifty fish per acre was a long way from the 10 we expected to use. They decided Silver Lake had 1,610 acres of surface

water. We knew we had 3,200 acres which meant we would get 26.6 amur per acre not 50.

Financing

Now we needed money to buy the fish. Our donations and pledges would not stretch to cover 50 or even 26 per amur acre, plus a retaining structure. So, we went after the state grant money in the Clean Water Fund, much of which had been going for studies. We made an application which gave points for approval of a grant and we scored very high on public participation. We scored very high on need. We scored low on public access, an absolute necessity, said DOE, for a grant, for the only public access was the Washington Fish and Wildlife boat launch. The grant money was to be distributed and granted through the Washington Department of Ecology, (DOE) which held the purse strings, and DOE said our county must participate by furnishing 25% of the funding, one half of which could be in in-kind services, such as use of an office, etc.

Our county commissioner said no. The county would not provide public access to Silver Lake or pay 25% of the cost of providing fish. We pointed out to him that the WSU study said the project should cost \$675,000 including the cost of a new study of \$198,000, and the county would be reimbursed for administering the grant. The county said okay and hired a project manager at \$50 an hour. DOE was willing to loan \$1.2 million for the project. So the cost of the project was budgeted—not the \$675,000 proposed by WSU but \$1,701,500, with the county to pay \$425,375, one half of which was to be cash or \$212,688.

Studies which were estimated by WSU to be \$198,000 went to \$555,000. When we asked why, we were told because the money was there. We were told by the county administrator of the grant that we were “going for the whole thing.”

But unless you get involved with studies you won't need money in that large amount to put amur in your pond or lake. The people at Ilwaco, Washington, determined they needed amur for their county lake, Black Lake. They figured they could clean it of weed with amur for \$4,500, and were going to do it with community fund raisers. We had no problem getting pledges (which we released when DOE came in with a grant.) The determination to save our waterways and lakes is strong with the general public, and once the word is out that someone is doing something about it, you have no problem getting support; we didn't.

Success

May 16, 1992, 83,000 amur 8 to 10-inches long were put in Silver Lake with much fan fare. A parade proceeded the delivery truck, which came from Lonoke, Arkansas, and arrived five minutes before the start of the parade. COWSLIP outfitted it with a sign, “Silver Lake or Bust.” The local volunteer firemen led the parade with the fire truck covered with kids and balloons. Honking vintage cars followed, and on a barge in the lake local Old Time Fiddlers played ‘Turkey in the Straw.’ COWSLIP fed the crowd 400 hamburgers, 400 hot dogs, and 400 sodas, all of which were paid for with money COWSLIP members earned working at the Freeway Rest Stop giving out cookies and coffee for donations from travelers. The introduction of amur in Silver Lake and the celebration accompanying it made the headlines of the local weekly paper.

Two years after introduction of the amur, all the weed was gone. The WDFW fish biologist in charge of Silver Lake says that there has been no impact on other fish. In fact more and larger fry abound for they have more oxygen and more chance at getting to “critters” they eat. Bass fishing has never been so good as the first year of weed removal. A recent count shocked the WDFW, as they found

more bass and pan fish and larger bass than they expected. The eight to ten-inch amur which we put in the lake grew to 24 inches in two years and weighed an average of six pounds. They ate a lot of weed.

Pitfalls

Don't overstock or you'll have a mud hole. Amur are mowing machines. Start small and add amur as needed. The fish are sterile and you will eventually need to restock.

The amurs' natural habitat is a river and its natural instinct is to go up river to spawn. Though the Triploids' chromosomes have been altered to make it sterile, the urge to spawn is apparently still there. Be certain your retaining structure is especially secure in the spring. In May we saw thousands of amur (it seemed like every amur in the lake) at our retaining structure nudging the iron posts. Some escaped. We had a diver replace moved rock.

Unless the structure is firmly planted in the hard pan, amur can dig under it. They dig under Lily Pads for roots, so it stands to reason they can dig in soft mud under your retaining structure. In the pen COWSLIP constructed, we used chicken wire fencing bent outward one foot at the lake bottom so rock of at least 10 inches in diameter could be placed on it. This confined amur in a pen even when grass was gone and they could see weed on the other side. They can dig and will, so secure the bottom of your retaining structure with rock.

As I write, I'm looking at water skiers, fishermen, and kids swimming and laughing. Was it worth it? You bet. We got our lake back. You can too. Δ

The power to tax involves the power to destroy.

—John Marshall
1755-1835

Chief Justice, U.S. Supreme Court

Commonsense precautions help keep kids safe

By Margaret Wright

Children in nature are like little peas in a pod, safe as long as they are secure in their little shells . . . but they can get in serious trouble when the shell is open. Having raised children in backwoods and suburban settings, I can attest to the fact that there is no better place to raise a bunch of happy, healthy offspring than a country home. Usually the only time problems come up is when complacency sneaks in and we become too comfortable with our surroundings. Even though we live far off the “beaten path,” away from the busy streets and all the terrible possibilities that lurk there, we still have to be careful. Children, in their innocence, need special care and training to enjoy the freedom associated with the backwoods lifestyle.

Toddlers are always at risk of wandering away. They can disappear in seconds and can travel great distances. Our neighbor’s two-year-old daughter was lost between the place her dad was cutting wood and the family home, a distance of about 300 feet. In just a matter of minutes, her parents knew she was missing. After a massive search, she was located about three miles away in the opposite direction from the house. Those little legs can go a long way in a big hurry.

Bells on the shoes and bright clothes are two ways to see and hear the child easily. Fences, of course, are a good barrier to keep them from following the family dog or the pretty butterfly off into the trees, but a fence will only contain the child who consents to be contained. For us, it seems that a red-headed youngster cannot be confined no matter what we do, so we just watch him closely.

If for any reason you think your toddler is out of his safe area and you cannot find him, call for help right away. Emergency personnel would



much rather help locate an “easy find” than one who is seriously lost.

Are they safe to eat?

Keeping the children’s play area free of not-so-healthy plants can be an ongoing problem. I am especially wary of the mushrooms that flourish after the rains of spring. Some of them really do look quite appetizing, but would be pretty hard on the tummy. Rake in hand, I go on mushroom patrol regularly. I mash them up and spread the mess around for compost.

My grandson picked all the beautiful red peony flowers this year. Of course they were in full bloom and he said “Yummy.” I tried to convey to him all the reasons why we do not pick Mamaw’s flowers, and I asked him if he was going to do it again. He promptly said “Yes!” They did look good enough to eat, but I never dreamed someone would try it.

Children learn quickly that sweet peas and raspberries right off the vine

taste real good, but they can’t tell the difference between the good and the bad plants. We teach them they are not to pick anything to eat unless they ask first. Of course, Papaw’s strawberries are taboo under any circumstances. He is the only person allowed to pick them. (Wonder why he is not the only person allowed to *weed* them.)

I always planted a bed of Little Marvel peas for my children, and they loved to stand in the garden eating them. Now they are teaching *their* children to eat Mamaw’s peas. We have to watch closely that they don’t pick them too soon, but it’s fun. The little fellows can pick any raspberries they can reach. The older kids have to help me pick, and then they can glean the leftovers for the day.

Every year we have an ongoing lesson on edible plants. Children like to go hiking, looking and comparing all the plants they find with the pictures in the book. I use the books, [A Golden Guide to Weeds](#) from Golden Press

and *A Field Guide To Rocky Mountain Wildflowers*, published by Houghton Mifflin. They have color pictures, and the descriptions give a lot of useful information. You can find both books in used book stores for a couple of dollars each. Making a notebook with pressed plants, each labeled with its name and use, has been a school assignment for each of my children. They really enjoyed doing the project, and they learned a lot.

It is necessary to adjust perimeters as the children get older. Our four-year-old is allowed to ride his bike on the paths and in the lane that goes from his house to Great-Grandma's. We spray-painted a big red line across the driveway about 30 feet from the main road, and this keeps the kids away from the traffic. Bright clothes are a good idea at this age, too. The four- to six-year-olds are probably more apt to wander out of curiosity.

Lost? Wear a whistle, hug a tree, sing a song

We taught our son to "hug a tree": if he is lost, the child is to find a big, friendly tree, then sit and hug it till someone finds him. We also taught Benjamin to sing "Row, Row, Row Your Boat" if he was scared or lost. Most children know this song, and a singing child is easier to find than a quiet one. (It works, even though I never expected the proving ground to be K-Mart.) Also, a child tired from screaming for help is more apt to go to sleep and will be harder to find.

Woods have animals. When we move into the wildlife's territory, we need to be very careful not to intrude too much. Never are children to interfere with the wildlife in any way. If they think something is sick or hurt, they come tell an adult, and we investigate and decide what needs to be done. We took care of an orphaned "Bambi" one year, and that was a neat experience. Only under extreme circumstances should we have to intervene where nature is concerned.

My children always wore a whistle when going out to help dad cut firewood. We knew they would be in alien territory, and a whistle would come in handy if they became separated. We still use whistles a lot if we are going out of our safe zone. Adults can become lost, too.

We have all heard the stories of survival when the victim said, "I remembered my mom said...." So I never hesitated to remind the budding woodsmen of some little safety tip as they went off to be Daniel Boones. The reply was always, "Aw Mom," but several times they used some tid-bit I had reminded them of, to keep themselves safe and healthy.

A big cow bell hangs by the front door. I use it for calling in the troops. When I haven't seen or heard from someone in a while, I just step out and shake that old bell. Voices respond from all over. It has saved me a lot of steps, not to mention wear and tear on the throat. The bell also works great in an emergency. After cutting my hand cleaning veggies one morning, I was a little woozy. I rang that old bell and had plenty of help in a flash. In the reverse case, if the child is in the house and I am outside, they can ring the bell for attention. I do get a little upset if they ring the bell because they want a treat, but I can live with a few false alarms.

Tree houses are fine but make them safe

Tree houses are an absolute requirement for a backwoods home with children. Make sure they are a reasonable height. (The house, not the kids.) I didn't think we needed one like Swiss Family Robinson, so we had a building inspector (me) keep a watch on the progress of the construction. Walls are important. The height of the walls should be such that the kids cannot easily fall over them. Clearing out from under the structure is critical. A stack of firewood or building lumber can increase the injuries if a construc-

tion worker should tumble. It helps to fill in under the tree with sand or other materials that can soften the fall if it happens. When Benjamin fell out of his tree house, the doctor told us he sees several kids a year that have tumbled out of tree houses. I personally think safety harnesses and hard hats should be required, but that probably would be hard to enforce. We do have two absolute rules: No throwing things off the tree house, and you have to come in the house to go potty (or at least down on the ground).

You shoot it, you eat it

The tree house age also seems to be the BB gun stage. Gun safety should be in effect no matter what the type of gun or its potential for causing injury. Our hard and fast rule is: If you shoot something, you *will* be prepared to clean it and eat it. I know for a fact that rule has saved many a little bird's feathers (though it did not help big sister's car window).

Older (elementary school age) kids need wider spaces, and we taught them to stay where they could see the house. It depended on the direction they took, but usually they could wander off a safe distance and still feel independent. Remember that the look of the terrain changes with the seasons, and the children need to be reminded of that. Several winters ago, Benjamin became lost in a snow storm because the neighbor's fence, ten acres away, was buried in the snow.

We are very careful to respect the neighbors. The young explorers are repeatedly warned about going on private property, and we never go over, under, or around a fence. We always try to be good neighbors, and teaching the children "neighbor etiquette" can prevent problems.

Teenagers, those invincible people who cannot get hurt (yeah right) are a special concern. Teaching them woods safety should be initiated from the time they are little, but if they're new

to the woods, you have to play catch-up.

Since firewood is our source of heat, we have to maintain chain-saw and ax safety procedures. To maintain chain-saw safety, there is one law in effect: they are not allowed to touch it. Just a simple *No!* The ax is OK after they are taught how to use it. We make sure they never chop wood with other kids around.

Keeping the tools picked up is an ongoing problem, but we try real hard. I made a fence out of wood pallets around the wood pile area, and that makes a great place to store the tools. I put the handles down through the top of the pallets so they are out of the way and I can find them. This also protects my garden tools from the little ones dragging them off.

Wood piles are dangerous

A wood pile is an accident waiting to happen. Never let any child climb on a wood pile. We try real hard to keep them away from the stacked wood altogether. Woodpiles, no matter how well stacked, can shift and fall. A little body cannot withstand the crush of the wood. (Every parent and older child should learn CPR. First

Aid is a nifty mini-class for a home-school support group.)

With the tree house injury, I learned that emergency personnel are not equipped with radar to find me way back in the boonies. We measured with the car, from the main highway to the county road and then from the county road to our drive, so we could tell them exactly how to find us. We also put red plastic streamers on the newspaper boxes out by the county road, so there is no room for misunderstanding where we are located. (This also helps if you are selling eggs, etc.)

The perimeter for the older kids was expanded as they grew. Starting out with the fenced yard, it grew to be the area around the house. Then their area was the confines of our property. Being bordered by National Forest can present a problem, so be sure the landmarks are visible year-round. A season-by-season hike will help kids become acclimated to the new appearance of things.

Now that Benjamin is a teenager, he is woods smart, but we are still careful. Rules are in place not only for his safety, but for other people also. He always rides his motorcycle with a

buddy. They are only allowed to have two people on a cycle in an emergency. (Yes, running out of gas is acceptable.) Even if it's Dad, they always have to tell someone where they are going and an approximate return time.

Whether he's hiking, hunting, or riding his motorcycle, we make sure Benjamin has all the proper gear. I also include a small fanny pack with identification, a first aid kit, and a personal alarm. He can turn on the alarm if he crashes and needs help or if he is lost. I think it might also deter a bear or other beast if necessary. Even if it serves no purpose, it makes me feel better.

No matter how well prepared we are, something will always come along to remind us how vulnerable we are. Each new experience teaches something useful, and we just regroup and add the new information to the old.

While not taking away the freedom and innocence of childhood, we need to teach our kids as much as we can to take care of themselves. Caution, not paranoia, should be the guide. Give 'em a big hug and turn them loose to learn and enjoy their environment. Δ

A BHM Writer's Profile : Massad Ayoob

In June of 1998, Massad Ayoob received the Outstanding American Handgunner of the Year award, by vote of his peers. It was the culmination of a body of work that had begun in 1971.

Ayoob has published over two thousand articles on firearms, self defense, law enforcement and related topics. He has been handgun editor for *Guns* magazine for more than 20 years, law enforcement editor of *American Handgunner* for nearly as long, and also serves today as contributing editor to *Combat Hanguns*, *Gun Week*, and *Guns & Weapons for Law Enforcement*. He has been a contributor to *Backwoods Home* since 1993. He is the author of several books, including the authoritative text on deadly force "In the Gravest Extreme: the Role of the Firearm in Personal Protection."

Previously, Ayoob had received the Roy Rogers Award for promotion of responsible firearms ownership and the James Madison Award for his advocacy of the right of law-abiding citizens to own and carry guns. He has been a part-time but fully-sworn police officer for almost 25 years, presently serv-

ing as a captain with a municipal PD in Northern New England.

He has won several state combat pistol championships and two regional championships. He is present New Hampshire State Champion in the Stock Service Revolver class of international Defensive Pistol Association (IDPA) shooting.

Since 1981, Massad has been the full-time director of Lethal Force Institute, PO Box 122, Concord, NH 03302, an organization that offers training in judicious use of deadly force and firearms at locations around the country. Law-abiding private citizens are welcome there. Finally, Ayoob has chaired the Firearms/Deadly Force Training Committee of the American Society of Law Enforcement Trainers (ASLET) for more than a decade, and is a long-time member in good standing of, and frequent lecturer for, the International Association of Law Enforcement Firearms Instructors (IALEFI).



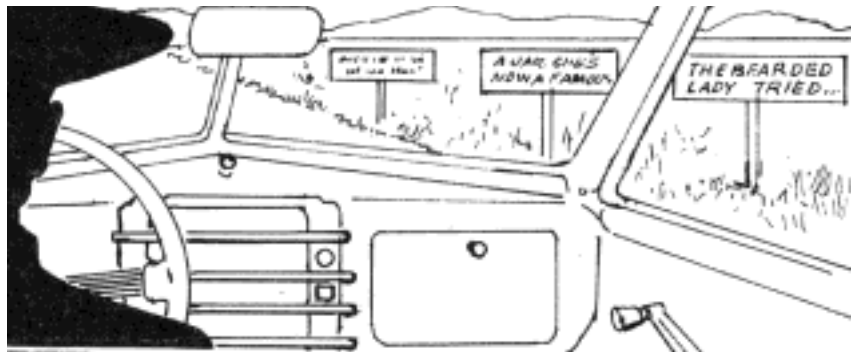
Feeling nostalgic? Now you'll rave! Here's the story of Burma Shave.

By Martin Waterman

I can remember taking a trip as a child and seeing my first Burma Shave signs. Technically speaking, after 1963 all the 7,000 or so sets of signs were supposed to have been taken down. Still, my discovery may not have been unusual, since even today sightings abound (though they're not as frequent as Elvis sightings). It could be possible that some of the thousands of signs that dotted the countryside were never taken down, or perhaps (and more likely) they are the work of some nostalgic farmers who recreated them.

Like many great success stories, Burma Shave started by happenstance. Burma Shave, a brushless shaving cream, was concocted by the Odell family. Its predecessor product, a liniment called Burma Vita, was not doing very well in sales, due to competition and to the fact that it could only be sold to people who were ill. It was suggested that it would be more profitable to market a product that could be used every day, such as Lloyd's Euxesis from England. This was the original brushless shaving cream that was available world-wide. A chemist was hired (Burma-Vita was one of grandfather Odell's homemade concoctions) and after about 300 mixtures were tried, Burma Shave was born.

However, inventing the product was not the key to success, and the product almost died several times because of poor marketing. One of the marketing schemes was called "Jars on Approval," in which the Odell boys would enter a man's office and give him a jar of Burma Shave on this basis: if he liked the product he would pay them 50¢ the next time they saw



him. If he didn't like Burma Shave they would take back the unused portion and "remain friends."

Then one day, Alan Odell came up with a suggestion. He suggested roadside signs like the ones he had seen on road trips when he was out trying to sell Burma-Shave. However, his father would not hear of such an idea, and was sure that the boy was just homesick because of all the travelling he was doing. Alan continued to lobby for his idea and finally his father gave in and gave him \$200 to try out his idea.

The year was 1925, and the automobile had people beginning to take to the roads of America. Second-hand boards were purchased, cut into 36-inch lengths, and painted. The original signs did not have a rhyme. Typically, four consecutive signs would read,

SHAVE THE MODERN WAY
FINE FOR THE SKIN
DRUGGISTS HAVE IT
BURMA SHAVE

The signs were put up in a hurry before the ground froze solid on the two roads leading out of Minneapolis. There were about a dozen sets of signs put up on the two roads.

Not too long after that, the first repeat orders for Burma Shave were received from drugstores because the people who travelled the two roads

where the signs had been installed were purchasing Burma Shave from area drugstores. At this time, the business was broke, so the company was incorporated and 49% of the stock was sold to raise capital. Within three weeks, the shares had been sold, and in early 1926 the first sign shop was set up.

The signs continued to bring success and became more and more humorous. The six consecutive signs, when placed 100 paces apart, created something unique in advertising. Of course, in later years as the roads got better and cars got faster, the size of the signs and the distance between them had to be increased.

The consecutive signs commanded the attention of those reading them longer than any single sign could ever hope to do. The entertaining signs helped make long journeys more entertaining, and people became addicted to reading them.

By having the rhymes build suspense until the fifth sign, Burma Shave forced those reading the signs to focus their attention on reading the full series of signs so that the message could be understood and savored like a good joke. For instance:

THE BEARDED LADY / TRIED A JAR
SHE'S NOW / A FAMOUS
MOVIE STAR
BURMA SHAVE

or

IF YOU THINK / SHE LIKES
YOUR BRISTLES
WALK BARE-FOOTED
THROUGH SOME THISTLES
BURMA SHAVE

Eventually, the signs spread to every state, with a few exceptions. No “official” signs appeared in Arizona, New Mexico, or Nevada because of low traffic density. Massachusetts received no signs because winding roads and excessive foliage made it hard to find enough locations to justify placing them there.

The slogans were very powerful, so much so that the Burma Shave Company did not even feel the effects of the Depression. The rhymes aimed at motivating potential purchasers of Burma Shave were not just cute, but were probably some of the best advertising slogans ever written. Some of them suggested to men that they would do better with the women if they used Burma Shave:

SHE EYED / HIS BEARD
AND SAID NO DICE
THE WEDDING’S OFF
I’LL COOK THE RICE
BURMA SHAVE

or

A CHIN / WHERE BARBED WIRE
BRISTLES STAND
IS BOUND TO BE
A NO MA’AMS LAND
BURMA SHAVE

Another good example is

USE THIS CREAM / A DAY / OR TWO
THEN DON’T CALL HER —
SHE’LL CALL YOU
BURMA SHAVE

Not overlooking the spending power of women, the company put up rhymes to lure them to purchase Burma Shave for the men in their lives:

A CHRISTMAS HUG
A BIRTHDAY KISS
AWAITS / THE WOMAN
WHO GIVES THIS
BURMA SHAVE

Others slogans suggested that there was no better product or substitute for Burma-Shave:

SUBSTITUTES / ARE LIKE A GIRDLE
THEY FIND SOME JOBS
THEY JUST / CAN’T HURDLE
BURMA SHAVE

Though the Burma Shave Company prospered, there were many challenges, too. Not only was there fierce competition, there was also the need to come up with a continuous supply of superior verses. This was solved with an annual contest that paid \$100 for each verse used. There were thousands of entries sent in, resulting in many rhymes of high quality. Judging the entries eventually became difficult because in some years there would be more than 50,000 entries. This forced Burma Shave to hire some advertising copywriters to help in the selection process.

With the trend toward better automobiles and roads, the traffic accident rate began to climb. In response, the company created some slogans stressing traffic safety. In fact, some of the best Burma Shave rhymes were written with public service in mind:

PAST / SCHOOLHOUSES
TAKE IT SLOW
LET THE LITTLE / SHAVERS GROW
BURMA-SHAVE

or

IS HE LONESOME / OR JUST BLIND
THIS GUY WHO / DRIVES
SO CLOSE BEHIND?
BURMA-SHAVE.

Still other good examples include

MANY A FOREST / USED TO STAND
WHERE A / LIGHTED MATCH
GOT OUT OF HAND
BURMA SHAVE

and

THE ONE WHO / DRIVES WHEN
HE’S BEEN DRINKING
DEPENDS ON YOU
TO DO HIS THINKING
BURMA SHAVE

There are some funny stories in the history of the Burma Shave Company.

In Los Angeles, free sample jars were handed out to men as they entered a wrestling match. However, when one of the wrestlers angered the crowd, some of them started to throw their jars into the ring. Fortunately (and probably miraculously) no one was hurt . . . a close shave for the company, so to speak.

A similar occurrence happened at Ebbets Field in New York. Tubes of Burma Shave were handed out to fans entering the game, but when the umpire made a call unfavorable to the Dodgers, he was pelted with the tubes. The game had to be interrupted until the groundskeepers could remove the tubes.

Another problem that arose was that the Burma Shave signs had a tendency to disappear near college towns. To remedy this, special bolts were used, so that a special tool was necessary to unbolt the signs, and the posts had crosspieces attached to the bottoms to act as anchors.

Another problem in rural areas was the tendency for hunters to use the signs for target practice. Some destruction was also caused by small animals that took to chewing on the signs. However, much more damage was attributed to horses that found them to be an ideal height for back scratching. A horse would maneuver itself beneath the bottom edge of a sign and then begin to scratch the itch. This would often result in a broken sign. This problem was solved when many of the signs were raised from nine feet to ten.

Still another problem occurred when the Burma Shave Company tried to mock the rising trend of coupon advertising with the following rhyme:

FREE OFFER! FREE OFFER!
RIP A FENDER / OFF YOUR CAR
MAIL IT IN FOR
A HALF-POUND JAR
BURMA-SHAVE

Fenders began to arrive in the mail and by express, and local people scavenged the Minnesota junkyards and

brought in fenders. Some fenders from toy cars also came in, and without exception, everyone who brought or sent in a fender received a free half-pound jar of Burma Shave. Of course, the publicity from the bumper offer was priceless and further helped to establish the company as part of America's roadside culture.

Perhaps the company went too far with the following rhyme spoofing science fiction and curiosity about outer space:

FREE - FREE / A TRIP / TO MARS
FOR 900 / EMPTY JARS
BURMA-SHAVE

The manager of a supermarket in Appleton, Wisconsin, took up the challenge and wrote to the company asking where he should send the 900 jars for his free trip. The company sent back the following reply: "If a trip to Mars you'd earn, remember, friend, there's no return."

In reply, the enterprising supermarket manager accepted. He turned the project into a fantastic promotion for Burma Shave that had children and adults swarming the supermarket. The promotion included no less than a rocket plane on display and little green men on the roof firing toy rocket gliders into the parking lot.

It was decided by the Burma Shave company to send the manager and his family to Mars. The real destination was to be Mars, Germany. (Even though it is spelled *Moers*, it is pronounced *Mars*.) Again, the publicity was enormous, especially when the manager showed up wearing a silvery space suit and a bubble on his head. The company, of course, provided him with extra jars of Burma Shave so that he could barter with the Martians.

Another reason the ad campaign was so successful is that the company would not put up any signs that offended anyone. Some of the signs showed a measure of humility:

ALTHO / WE'VE SOLD
SIX MILLION OTHERS
WE STILL CAN'T SELL
THOSE COUGH DROP BROTHERS
BURMA SHAVE

It is said that all good things must come to an end, and this was the case with Burma Shave. There were a number of factors that led to the decline of the product. After World War II, increasing costs and decreasing sales began to be felt by the company. People were travelling faster on the highways and times were changing. The signs just weren't working anymore, and the company started to advertise with other media.

The real end to the roadside rhymes came in 1963, when the company was sold to Phillip Morris to become an operating division of American Safety Razor Products. The decision was made to remove all the signs as soon as possible, especially since any remaining signs would mean that rent money would still be owed to farmers. The end of the signs was popular fodder for the news media, and many stories were written about the demise of this American institution. A set of signs was donated to the Smithsonian Institution to preserve this part of Americana. Below are a few more of the 600 rhymes that were used on roadways throughout the country.

WE'VE MADE / GRANDPA
LOOK SO TRIM / THE LOCAL
DRAFT BOARD'S AFTER HIM
BURMA SHAVE

OUR FORTUNE / IS YOUR
SHAVEN FACE / IT'S OUR BEST
ADVERTISING SPACE
BURMA SHAVE

PEDRO / WALKED
BACK HOME, BY GOLLY
HIS BRISTLY CHIN
WAS HOT-TO-MOLLY
BURMA SHAVE

WHEN THE STORK
DELIVERS A BOY
OUR WHOLE / DARN FACTORY
JUMPS FOR JOY
BURMA SHAVE

THE POOREST GUY
IN THE HUMAN RACE
CAN HAVE A
MILLION DOLLAR FACE
BURMA SHAVE

THIRTY DAYS / HATH SEPTEMBER
APRIL / JUNE AND THE
SPEED OFFENDER
BURMA SHAVE

IF DAISIES / ARE YOUR
FAVORITE FLOWER
KEEP PUSHIN' UP THOSE
MILES-PER-HOUR
BURMA SHAVE

SUBSTITUTES
CAN LET YOU DOWN
QUICKER / THAN A
STRAPLESS GOWN
BURMA SHAVE

THE BIG BLUE TUBE'S
JUST LIKE LOUISE
YOU GET / A THRILL
FROM EVERY SQUEEZE
BURMA SHAVE

"NO, NO," / SHE SAID
TO HER BRISTLY BEAU
"I'D RATHER / EAT THE MISTLETOE"
BURMA SHAVE

TRAIN APPROACHING
WHISTLE SQUEALING
PAUSE!
AVOID THAT / RUNDOWN FEELING!
BURMA SHAVE

UNLESS / YOUR FACE
IS STINGER FREE
YOU'D BETTER LET
YOUR HONEY BE
BURMA SHAVE

THIS CREAM / MAKES THE
GARDENER'S DAUGHTER
PLANT HER TU-LIPS
WHERE SHE OUGHTER
BURMA SHAVE

IF YOUR PEACH
KEEPS OUT / OF REACH
BETTER PRACTICE
WHAT WE PREACH
BURMA SHAVE

TO KISS / A MUG
THAT'S LIKE A CACTUS
TAKES MORE NERVE
THAN IT DOES PRACTICE
BURMA SHAVE Δ

The Fuyugaki persimmon — it really is “food for the gods”

By Alice B. Yeager
Photos by James O. Yeager

In our small orchard there is one tree bearing fruit that can only be described as *luscious*. This is the Fuyugaki variety of Japanese persimmons. The taste of a ripe Fuyugaki persimmon bears a faint resemblance to that of an American wild persimmon. Fuyugaki fruit has a flavor all its own—sweet and wonderful—something to be anticipated and enjoyed. The scientific name for the genus of these trees is *Diospyros*, meaning “food for the gods”—a very appropriate description.

Fuyugaki flesh has a good texture, and the fruit may be eaten before it's fully ripe without any puckering effect, as it is non-astringent. When ready for harvesting, the fruit will turn a dark red with a blue blush and be slightly soft to the touch. The interior is reddish-orange and holds its color well when cooked or frozen. Keep a napkin handy when eating a Fuyugaki persimmon, as the fruit is juicy—kind of like a ripe Elberta peach or a mango. The persimmons are large, often weighing a pound or more apiece.

The Fuyugaki tree is a medium height tree maturing to about 25 to 30 feet high. It is an excellent summer shade tree, as well as a fruit tree, and it is not necessary to plant more than one tree for pollination. Fuyugaki is self-pollinating, as are most Japanese persimmon trees.

The leaves are a little larger than those of the American native persimmons, but they have the same oblong shape, sharp-pointed with smooth margins. This is a deciduous tree, and with the coming of cold weather, the

leaves turn a vibrant orange-bronze color.

Trees bloom in mid-spring after leaves have appeared. The flowers are somewhat inconspicuous, being small, cream colored, four-lobed, and semi-bell-shaped. However, bees are drawn to them, making persimmon trees—both wild and tame—a boon to beekeepers.

Japanese varieties of persimmons do not have the wide climatic range of the common American persimmons, which cover a large range of territory from Connecticut to the Gulf states and as far west as Southeast Iowa and West Texas. The Japanese cultivars are mainly recommended for Zones 7 to 10.

In our part of Zone 8 (southwest Arkansas), we have had only one fruitless season. In 1987, due to a freak late-April freeze, fruit of all kinds was wiped out in a large portion of the South and Southwest. That freeze killed all of the tender foliage on our Fuyugaki tree, and although the tree did renew its leaves a month later, it produced no flowers.

Soil requirements for Japanese persimmon trees are about the same as for peach trees, and persimmon trees will thrive in ordinary soil. Rich soil or soil high in nitrogen causes these trees to produce more foliage than fruit. A well-drained sandy loam is ideal. The pH preference is 6.0 to 8.0. Trees should be planted about 20 feet apart, making them suitable for most home orchards. First fruits should be harvested in three to four years, depending on growing conditions.

Once established, Japanese persimmons don't seem to require a great deal of care, as they are relatively disease- and insect-free. As with all trees,

there will be an occasional dead limb or one that is weak and sagging toward the ground. These should be removed to promote good health and appearance.

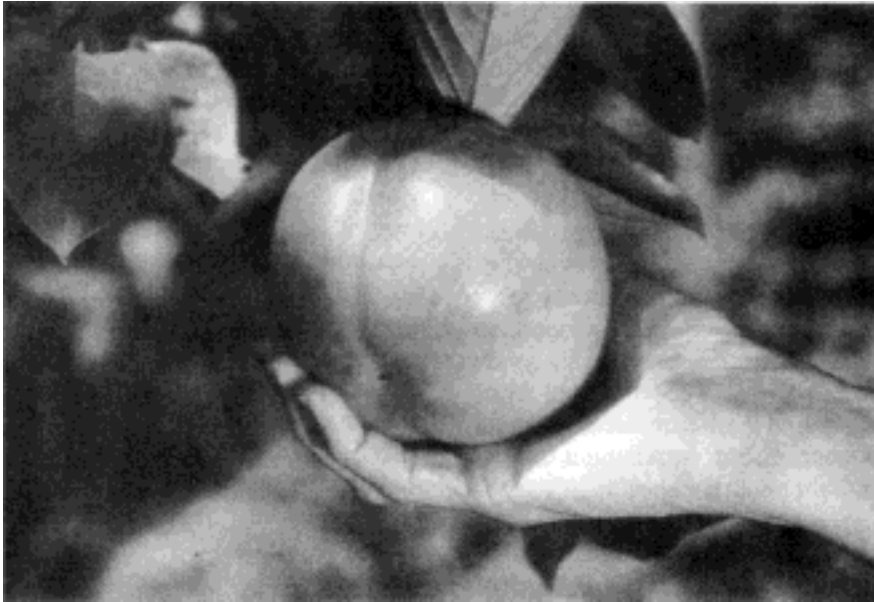
The only pest problem we have had with the Fuyugaki tree has come in the form of fall webworms. These one-inch-long caterpillars form weblike nests (similar to those of the Eastern tent caterpillar) on the ends of branches. If not brought quickly under control, these culprits will proceed to defoliate a goodly portion of the branches. We break their webs with a stick, puff some Sevin dust at them and that's usually the end of the caterpillars.

For some reason, we seldom see a bird-pecked fruit. Maybe the native birds haven't developed a taste for this foreign import.

Unless cross pollination occurs because of wild trees in the area, fruits will be almost seedless. Usually seeds are very small and useless as far as propagation is concerned. To secure a worthwhile tree, a gardener should purchase a grafted variety from a reputable nursery.

When ordering trees by mail, I always request that roots *not* be severely pruned. Some nurseries insist on following a practice of close root-cropping, but I have found from experience that trees with only a stub of a root are very slow to take hold and grow when planted and may even die. That's money down the drain, to say nothing of the time and effort involved. However, most reputable nurseries will replace plants if the gardener reports the problem within a reasonable length of time.

A good example of the negative side of severe root-pruning occurred when I ordered our Fuyugaki tree. The tree arrived with only a stub of a tap root and did not put out a leaf for an entire year. During the summer, I kept the soil moist and mulched. To be sure the tree was still alive, I checked from time to time, gently rubbing the trunk in a small area until I could see the



The hand in this picture gives the scale: this fruit is big.

green life color just beneath the surface of the young skin-like bark. I was encouraged by the fact that the trunk felt cool to my hand—not dry and lifeless. The next year, leaves appeared and the tree slowly began to recover and grow. (In gardening circles this type of human behavior is known as *keeping the faith*.)

When planting a Japanese persimmon tree, remember to give it plenty of root space—*i.e.*, dig the hole somewhat larger than actually needed. Notice the soil line at the base of the trunk and plant accordingly. When placing the soil around the tree, fill the hole about halfway and then water generously. Put in the remainder of the soil and water again. This will remove any air pockets, and soil will settle in around the roots.

A young tree needs plenty of moisture to carry it through prolonged dry spells. Until it can develop a good root system, a small dam about 18 inches in diameter should be made around the tree so that water may be directed to developing roots. A thick mulch of organic matter—straw, grass clippings, etc.—is very beneficial during the summer. Not only does mulch shade the soil, but it keeps grass and

weeds from infringing on the tree's moisture supply.

Fuyugaki fruit is versatile. Besides being eaten fresh, it may also be used in other delectable ways, such as pies (see recipe), puddings, fruit salads, and so on. The persimmons may also be pureed and frozen for later use. (Discard skins before processing.) Japanese persimmons rank high in



Two ripe Fuyugaki persimmons weigh in at a little over a pound apiece.

Vitamin A and potassium, making them a very healthful fruit to eat fresh.

Food for the gods! What more can I say?

This nursery carries at least 17 varieties of Japanese persimmons, among them the Fuyugaki:

Chestnut Hill Nursery
Route 1, Box 341
Alachua, FL 32615

And here's the recipe I promised you:

Fuyugaki persimmon pie

- 1 unbaked 9-inch pie shell
- 1/2 cup sugar
- 2 tablespoons flour
- 1/2 teaspoon ginger
- 1/2 teaspoon nutmeg
- 1 1/2 cups pureed Fuyugaki pulp
(Do not puree skins.)
- 1/4 cup evaporated milk
- 1 egg, slightly beaten
- 1/3 cup chopped pecans (optional)

Sift dry ingredients together and combine with persimmon pulp. Add milk and egg. Stir until smooth and pour into unbaked pie shell. Bake at 375° F for 45 to 50 minutes, or until knife inserted in center comes out clean. Optional: Pie may be taken from oven just before completely done, sprinkled with chopped pecans (or other nuts) and returned to oven to finish baking. Δ

If all mankind minus one
were of one opinion, and only
one person were of the con-
trary opinion, mankind would
be no more justified in silenc-
ing that one person than he, if
he had the power, would be
justified in silencing mankind
—John Stuart Mill
1806-1873

Ayoob on firearms

By Massad Ayoob

My choice for the ideal backwoods gun is the four-inch .44 Magnum handgun

I've packed many a handgun from the backwoods to the plains to the desert and the bushveld, but as middle age and experience (the collected aggregate of our mistakes) come together for me, I'm down to one primary backwoods handgun. It's the Smith & Wesson .44 Magnum with four-inch barrel.

Yes, this handgun can kick—but hear me out. First, in the same sense that you can load a .357 Magnum revolver with light .38 Special ammo, you can load the .44 Magnum with mild .44 Special. The latter cartridges give you about the power of an old Army .45 automatic, and very mild recoil in the big Smith & Wesson revolver. It feels like you're shooting .38s.

You can load the gun with .44 Special Winchester Silvertip hollow-points and have an excellent home defense handgun. I've seen 10-year-old girls and arthritic older women fire this round from .44 Magnum S&Ws with no discomfort or fear. Will it be powerful enough? Col. Jeff Cooper, the master gunfighting instructor, has publicly recommended the .44 Special revolver as the ideal police service handgun. One of Cooper's contemporaries was Elden Carl, the famous combat master. Carl shot his way to fame with the Colt .45 automatic, but the revolver he actually carried on patrol as a deputy sheriff was a Smith & Wesson .44 Special with four-inch barrel.

When you've paid your shooting dues and have learned to tolerate more recoil, you can move up to the Magnum loads for hunting, long range

shooting, and protection from large animals. Ross Seyfried, former world champion combat shooter and professional big game hunter, carried a four-inch Model 29 .44 Magnum behind his right hip every day when he made his living as a cattleman. His big concern wasn't shooting a deer while out in the pasture; it was having to shoot a big steer if one went berserk.

A similar job description was in the mind of Seyfried's mentor Elmer Keith, the legendary gun expert who was almost single-handedly responsible for the development of the .44 Magnum by Smith & Wesson. As both a cowboy and a professional hunter, Keith had multiple occasions to shoot maddened horses, livestock, and in at least one case a game animal, off his body. A rifle was too long or too far from reach to bring to bear in these situations. Each time, the gun that saved Keith's life was a heavy caliber sixgun.

When the .44 Magnum came along, the Smith & Wesson factory presented Keith, the developer, with the very first one, a blue steel specimen with four-inch barrel. This or one identical was his carry gun virtually daily for the rest of his long, rich life.

Why the .44? First, it is very accurate at long range and retains its power there. In 1987 in the Eastern Transvaal in South Africa, I shot an impala with my 4" 629. The 320-grain SSK hunting bullet drilled completely through him and knocked him flat, at a range of 117 yards. Keith reported much bigger animals shot through and through at much greater ranges with his own .44 Magnum handloads.



Massad Ayoob

Handgun hunting experts feel that within a hundred yards, a .44 Magnum revolver puts about the killing power of a .30/30 rifle on your hip. The better ones will shoot four- to six-inch groups or tighter at that distance, which is better than most experienced hunters can do with an open-sighted .30/30 rifle at the same distance.

Second, if you run a risk of being threatened by large, dangerous animals—the livestock-turned-bad that Keith and Seyfried had to deal with, or bears, or big feral dogs—the .44 Magnum gives you the punch you'll need to stop a sudden, close threat before you or yours get mangled.

The four-inch barrel gives daily portability when holstered on a sturdy belt, and the holstered revolver is short enough that it doesn't get in the way on horseback or when sitting in a vehicle. The shorter barrel also allows for a quicker draw in an emergency.

Numerous single action revolvers are made in this caliber, but they're slow to load or reload in an emergency (punch out the empties one at a time, reload the fresh cartridges one at

a time), and the hammer has to be thumb-cocked before each shot. The swing-out cylinder of the Smith & Wesson lets you load two rounds at a time—or all six with a speedloader—and you punch all the empties out at once with a single stroke of the ejector rod. The double action design lets you rip off six shots as fast as you can pull the trigger in a short-range emergency, without having to cock your Smith & Wesson.

There are other emergencies the gun can handle. A friend who's a farmer had a hand badly mangled in a machine accident. To this day he's convinced that if he had been carrying one of his .41 or .44 Magnums, he could have hammered six shots into the motor of the device and "killed the machine" before it maimed him for life. Unfortunately, he didn't have it on. Today, one of the big S&W Magnums is constantly on his hip as he goes about his farm duties.

There are other double action revolvers that take the big Magnum cartridge, the Ruger and the recently discontinued Dan Wesson, but they're both larger, bulkier guns than the S&W. I've found the Model 29 (blue or nickel finish) and Model 629 (stainless) to be the lightest and most compact when fitted with four-inch barrel.

I now switch off between two S&W .44s for backwoods use. Both are the stainless 629 format. One is standard out of the box, and particularly accurate; it delivered that 117 yard shot for me in

Africa and is my preference during hunting season.

The rest of the time, the version I use is S&W's Mountain Gun, now back in production. It's the lightest of the big Magnum revolvers, with its four-inch barrel gracefully tapered, the edges of its cylinder radiused, and the grip frame rounded off to a .38-size round butt configuration. Recoil isn't that bad once you're used to it, and it's very comfortable to carry. I normally wear it discreetly concealed in an ARG (Ayoob Rear Guard) inside-the-waistband holster from Mitchell Rosen. The reasons for this, and the "etiquette" of carrying handguns in backwoods environments, are things we'll discuss in more depth in this space before too long.

For me, I can't think of a better back-trail companion. The versatile ammunition options in the full range of .44 Special through the most potent .44 Magnum rounds give you a single gun that can cover any emergency,

from a rampaging grizzly bear to trespassers who think *Deliverance* was a training film and have their eye on the lady of the house. Δ

A BHM Writer's Profile: Dave Duffy



Dave Duffy is the founder, publisher, and editor of *Backwoods Home Magazine*. He built his own home in a remote area of the Siskiyou Mountains of southern Oregon while launching the magazine, and that served as BHM's first office. Since the home was 10 miles from the nearest electric utility pole, Duffy installed a photovoltaic system to produce sun-generated electricity to run the computers and printers to publish the magazine.

Born in Boston, Duffy spent his first 29 years there, where he worked as a journalist for several daily newspapers. He then moved to Nevada and California, working as a journalist for newspapers and later as a writer and editor for the Department of Defense.

Unhappy with working for others and living near cities, he spent several years of vacations and long weekends building his hideaway in southern Oregon. He eventually fled the rat race for the woods. In 1989, he started *Backwoods Home Magazine* to help others do the same.

A BHM Writer's Profile: Annie Duffy

Annie Duffy, age 17, grew up with *Backwoods Home Magazine*. As publisher Dave Duffy's daughter, she began working with the magazine at age 6 by helping to stuff envelopes for mailings to potential subscribers.

At age 7 she wrote her first small article for the magazine, and at age 13 originated the magazine's "Where I live" column for teenage readers.

Since then she has worked in every aspect of the magazine, including writing and editing articles, working in the mailroom, tending the magazine's booth at the many trade shows we do around the country, and setting articles in the desktop publishing program used for final copy.

Now 17 and a high school senior, her main interests are singing (she takes voice lessons and is a member of her high school choir), dancing (she takes an after school swing dance class), writing, and computers.



Homesteading on the electronic frontier

By Martin Waterman

Find information fast on the Internet

This is just a personal observation, but I've noticed that many of my rural-based friends tend to favor using the Internet *news groups* while friends from the city favor the *World Wide Web*. Perhaps this gives credence to the idea that country folk are more friendly than city folk, since participating in a news group is more like going over to your neighbor's and chatting over coffee,



while the Web tends to be more commercial and impersonal...more like getting coffee at the drive-thru at a fast food restaurant.

Using the Internet

On the other hand, perhaps this country preference for news groups comes about because of the new learning challenges making the change to backwoods living presents. Many people who make the change have to start from scratch as they learn about producing their own food, power, buildings, and the other things they need. This requires a lot of information, much of which is not readily available. Even those who have been living

the rural lifestyle are continually seeking information, as they consider new technology (as well as valuable older technology) for various projects.

Fortunately, the Information Highway can provide ample amounts of information in a short amount of time. In the majority of instances, this is a cost-effective and efficient way to receive information, since it only takes a few moments to post your questions on the appropriate news group, and then you can get on with your affairs. When you check your e-mail or news group postings later, you will probably be surprised at the wide range of responses, as well as the areas from which they came.

Independent energy

Like most people, when I need answers to my questions, I don't want to have to wait weeks for a catalog, or run up my long distance phone bill, or spend time hunting at the library. I want the answer *now*. Recently, I've been assembling information on independent energy and have found the Internet to be most obliging.

One news group which I find particularly useful is **alt.energy.renewable**. Topics usually include the latest technology and uses of wind- and solar-generated power. There is always information on other aspects of producing your own energy as well, and recently there was a fascinating discussion on how to build a wind generator from oil drums for either pumping water or charging batteries. Another very important topic that is discussed in this news group is where to go on the Internet for related information or to find suppliers. That

makes it a good starting point to find information about renewable energy resources or to supplement your knowledge.

The best thing about the site is that people post messages to give reports or to ask questions about their alternative energy experiences, installations, and plans. You can often learn more from reading about other people's personal experiences than you can from studying other types of technical media.

Using the Web

You can also find a great deal of useful information on the World Wide Web. Using *Webcrawler*, a popular and easy-to-use Internet *search engine* on the Web, I entered the words "alternative energy" and clicked on the Search button. It instantly returned a list of 662 Internet sites.

The first one I visited was the Alternative Energy Equipment Exchange, a very useful site located at <http://www.wetlabs.com/aeex/sintro.html>. AEEEX has a free service in the form of *alternative energy classifieds*. You can post equipment you have for sale or look for equipment that you may require. AEEEX provides classifications for solar energy (photovoltaics, solar hot water, solar cooking, solar heating, etc.), wind power (wind generators), storage batteries (lead-acid, nickel-iron, nickel cadmium, alkaline, fuel cells, etc.), hydro-electric power (water power), and other independent energy resources. All ads remain on the system for one month, and you can repost as often as you like.

I found another interesting independent-energy-related Web site at Solstice: Sustainable Energy and Development Online. It's located at <http://solstice.crest.org/index.html>.

Solstice bills itself as “the site for energy efficiency, renewable energy, and sustainable technology information and connections.” Solstice is sponsored by the Center for Renewable Energy and Sustainable Technology in Washington, DC, and in addition to being a site with lots of information, there are also links to other related sites on the Web.

(Editor’s note: the Net Links page of our *BHM* Web site will take you to the energy-related Internet addresses mentioned here, among others. Our Web address appears at the end of this article.)

Your own news group

You can’t please everyone, so inevitably there will be those who have a need for a news group that is not already available. In some cases, there may be a demand for just the type of news group you’re looking for. Let’s say you want to start a news group called **rec.icefishing**. The first thing to find out is if the group already exists in one form or another, or if a similar group such as a fishing news group has a constituency of frost-loving fisherfolk. If the proposed group is of local interest, without wide appeal, your next line of action is to see if your local provider wants to set up a local group for you and your ice-fishing friends.

If you want your news group to be distributed on a world-wide basis, things get a little more complex. There is a formal procedure which usually includes voting by a panel. If you want information about how to start your own news group, you can get it by going to the news group called **news.announce.newusers**. You will find an article posted there called “How to create a new USENET news group.” This is a very good news group to visit, because it has many documents for beginners that tell about the “netiquette” of posting messages and replying to postings, as well as general information about USENET News.

Web weather

Everyone seems to be spending more and more time on the World Wide Web. My *Web browser*, *Netscape* (the program that allows me to see the Web), also allows me to see the Web), also allows me to *Bookmark* my favorite sites. This is important, since many Web sites have inconveniently long addresses, and often, if you find a site you like, you may not be able to find it again. I have about 50 sites Bookmarked. I just click on “Bookmark” on the Menu Bar, and the Bookmark Menu opens, displaying the list of sites I’ve marked. Then I click on the Web site I want to go to on the list. This also saves online charges, and you don’t have to remember layers of linked sites or how you cyber-surfed to the site the last time.

The Web site that I frequent the most is the weather site for my area. I find that it is very accurate, since it is updated three times a day. It is the same information that our goofy weatherman receives, and I like the idea that I don’t have to synchronize my day so that I can turn on the idiot box to catch his routine, just to find out if we will have frost or rain. In addition, I only need the particulars for my area, and most weathermen focus on city weather, where most of the population resides; they don’t pay much attention to the rural areas. At one time, one of the most popular sites on the Internet was the satellite weather maps, because they look so cool. However, they are really not much use to the average person.

You can easily find a weather site for your area by doing a search using the *keyword* “weather.” I like the convenience of being able to get the weather when I need it. For the last few years, I’ve planted my crops using the rain and frost forecasts given on the Internet. I have found that they are very accurate. We have a short growing season here, so being able to get my crops planted as early as possible without risk makes a big difference in

how much I will harvest throughout the season.

E-mail from hell

I am often asked about the Internet, and people say to me things like, “You must love computers.” If fact, I hate the bloody things. I would rather be outside on a sunny day tearing up the field with a plow, planting, or being with friends and family. I look at computers and the Internet as tools that enhance my rural existence and allow me to make a living, just like a tractor does. But no one comes up to me and says, “You sure must love your tractor.”

What does this have to do with e-mail? I’ll tell you. Electronic mail has saved me a bundle on postage, and it’s faster than the conventional “snail mail.” However, I recently had an experience which reminded me how frustrating computers and the new information technology can be.

I had always thought of e-mail as an uneventful way to send and receive messages, until I experienced what can best be described as The E-Mail from hell. It all started innocently enough. An editor wanted to borrow a piece of software so that he could take some screen shots of it for a review I had done. I had done a lot of customizing on this software, including many add-on components. I used Norton Desktop to compress the file, but it was still over five megabytes in size. I sent the file as an *attachment* to an e-mail message. As sometimes happens, I got knocked off the Internet. I have never tracked down the reason for this, but it seems to occur most often during high-traffic times. This was Sunday evening, and it took me three tries to send my e-mail.

A few hours later, I logged on to check my e-mail and found that the address I sent it to was incorrect, so the *Mailer Daemon* wanted to send the file back to me. (That’s its real name; it’s a program that bounces

back messages that have technical problems.) There was nothing I could do. I kept trying to receive the file, but I kept getting knocked off the Internet before the half hour needed for transferring the file was up. I knew that if I did not accept this e-mail, I would not get any of my other e-mail that was backing up behind it.

Finally, I called my provider and he hunted down that e-mail message in the bowels of their computer server and unceremoniously killed it on my behalf. I would have loved to see it die. This simple exercise had ended up costing me several hours, with about three hours of wasted on-line charges. This story has two morals: (1) electronic communication is not a perfect science, and (2) if you are e-mailing

large files, make sure you have the right address.

The Internet is really changing social structures, and many people are meeting who normally would never come in contact with each other. Recently I visited a friend who'd met her current boyfriend on the Internet. I asked her if it was serious, and she nodded and said, "I'll say, we're even sharing a hard drive."

(Questions, comments, and information of interest to *Backwoods Home* readers can be sent via the Internet to Martin Waterman at

A BHM Writer's Profile: Maurcia DeLean Houck

Maurcia DeLean Houck is a nationally known author with more than 1,500 credits in a variety of national magazines and newspapers. She is a 1999 inductee in the *Marquis Who's Who in the East* and is an active member of the National Writer's Association. Maurcia is a contributor to two books, *Family Travel Guides* (Carousel Press, 1995) and *The Grandparent's Answer Book* (Chariot-Victor, 1999). Her first solo book project, *If These Walls Could Talk*, is scheduled for release later this year by Picton Press.

waterman@nbnet.nb.ca, or to other editors of *Backwoods Home Magazine* at backwood@snowcrest.net. BHM's Internet address on the World Wide Web is <http://www.snowcrest.net/backwood/index.html>) Δ

E-mail from readers

It caught us a bit off guard: we never anticipated that our Electronic Frontier column would draw so many responses so fast. So far, most of the responses are concerned with getting connected with the Internet and finding information on it. Here are a few examples.

Andrew G., from New Brunswick, Canada, wanted to know what resources were available to those who were interested in a "backwoods home" type of lifestyle. I told him that the *Backwoods Home* Web Page (<http://www.snowcrest.net/backwood/index.html>) would be continually adding links to sites that would be useful to those contemplating the move, or those already enjoying the lifestyle. This column will also offer useful sites. Upcoming topics include homeschooling and doing business on the Web.

Heidi M. wrote, "A little over a year ago, my husband, our dog and I

moved from Los Angeles to the Rocky Mountains. Our goal is a ranch, upon which we can be self sufficient." Heidi works from home for a California-based computer training and consulting company, but like many people, she has found being online intimidating. One of her questions was how to get on the Internet.

The first—and one of the best—sources of information is the nearest computer store. Someone there will know who the Internet providers are for your area. However, some computer shops become agents for some of the providers, so shop around and make sure you're getting the best possible prices and services.

One of the hottest e-mail topics was finding connectivity at a reasonable price in rural areas. Many of the messages came from people who already had access to the Internet via America Online and Compuserve but

found the access to be expensive and complicated. John D., from Arizona, was frustrated because he uses Compuserve, and although he uses an 800 number, it is not toll free.

If you are already on the Internet, check out the Web site <http://www.tagsys.com:80/Providers/>. You can also ask people and businesses in your town that have Web sites, since they probably have arrangements with providers that are close at hand.

The business of being an Internet provider is growing by leaps and bounds, and although most of the growth has taken place in the cities, it is spreading fast to rural areas. Only recently did *Backwoods Home Magazine* find an Internet provider with a toll free dial-up near them, but you probably don't live as remote as they do.

Around the corner is wireless and cable technology, which I will write about in future columns. Δ

When it comes to land contracts — be careful! Here are some critical points to consider.

By Harry Styron

You've finally found your country dream place. The seller has treated you with great courtesy. What's more, he'll finance your purchase with a land contract.

No need to deal with the endless fees, requirements, and delays of lenders. Even if you qualify for a loan, the broken-down farmhouse won't meet most lenders' guidelines. And the bank or mortgage company has absolutely no interest in financing the unconventional house you're dying to build.

The land contract, or *contract for deed*, seems to be just what you need. The real estate broker tells you that it is the customary device in the area for owner-financing. Just put 15% down, move in and start making payments.

But did you ask these questions?

1. What happens if the seller gets Alzheimer's disease or a divorce or dies or goes bankrupt?
2. What happens if you pay on the property for nine years on a ten-year contract, then are disabled and cannot continue? Do you have any equity? If so, do you have to file a lawsuit to get it?
3. If a highway comes through and takes part of the property, who gets the condemnation money? If a neighbor files a re-zoning application, who gets notified? Do you have any right to protest?
4. Is there another way to do the deal with owner-financing?

If you asked these questions and obtained clear answers, you may be having serious doubts as to whether you want to buy land on contract. The

truth is that courts look on such contracts with disfavor because of all the grief they cause for sellers and buyers. The statutes and case law regarding such contracts vary from state to state. Even within a state, it may be impossible for a lawyer to give a clear answer to one or more of these questions, because the law on that point is unsettled.

What happens when the seller's capacity changes?

A land contract looks much like a contract to purchase real estate with a long-delayed closing. So you sign it, make a down payment, and begin making payments. Now who owns the property?

Ownership has suddenly become complicated. In the best possible arrangement for a land contract, the seller signs a deed to the property in your favor when you make the down payment and sign the contract. The deed is held by a reputable escrow company whose job is to collect your payments and to record the deed when you have made all the required payments. At this point, the seller has legal title to the property and *record title* (your name doesn't show up in the county land records), and you possibly have equitable title, or a right of unknown extent that it would be unfair to deprive you of.

Suppose the seller, two years later, becomes mentally incapacitated due to disease, injury, or age, and suppose he has never signed the deed and placed it in escrow. He is put in a nursing home, and Medicaid picks up part of the tab for his care, thereby obtaining the right to reimbursement from his assets. He dies. Medicaid searches the land records and finds that he owns the property where you live. Medicaid

wants to sell the property at auction. You find that your payments have been cashed by the seller's son. Maybe you can get it all straightened out, but it costs you \$15,000 in legal fees and months or years of anxiety.

Maybe you make ten years' worth of payments on the ten-year contract, then find out the seller doesn't remember who you are. His son (or somebody) was cashing your checks. You want your deed, but the record owner of the land can no longer write or tell anyone what your deal was. The son wants the land for himself.

Suppose the seller's son or spouse claims that the seller was not legally competent at the time you signed the contract. Though it was not apparent to you at the time, because you didn't know the seller personally or the true value of property in the area, he truly had been slipping and sold the property to you well below market value. The real estate broker collected a commission out of the down payment and is now difficult to locate. The court agrees with the seller's family and orders them to return your money and a little more and rescinds the purchase. You have no title insurance, so you get a nice bill from a nice lawyer.

Maybe the seller has all his marbles, but gets into financial trouble elsewhere. He is forced to file for liquidation in bankruptcy court. The bankruptcy trustee doesn't like your land contract and begins legal wrangling to get you out so he can liquidate the seller's interest in the property to get money to pay the seller's creditors. Maybe you "win" in court, after a drawn-out, expensive battle.

The seller gets a divorce. The divorce decree fails to mention the property. You need the ex-wife's signature on the deed to get good title, if only so you can sell the property. You

can't find her. Or you find her and she wants to know what's in it for her. Or you learn that she's disabled or dead.

I once encountered a situation in which both selling spouses had signed the deed, but there was a mistake in it. Meanwhile the wife had died, so obtaining a corrected deed was impossible without opening a probate court case and having a personal representative appointed for the sole purpose of signing the corrected deed.

Where's the equity?

You've paid 173 of the 180 payments, but you can't continue. Using an ordinary amortization schedule, you would have paid off 95% of the principal. You miss a couple of payments and get an eviction notice. Where's your equity?

The answer is very much dependent on the state the land is in. For example, land contracts caused so much trouble in Oklahoma that the legislature determined that they were the equivalent of a deed, note, and mortgage, giving the buyer-borrower the same right to his equity as though he had financed the property with a note and mortgage. The buyer-borrower would get to prove his equity in court.

In Missouri, however, some judges say that the buyer-borrower forfeits all equity if he misses even the last payment, if that's what the contract says, and it usually does.

This is one of the reasons sellers who provide financing do so with land contracts. They can get a higher than market price and interest, and if the buyer cannot keep it up, the seller gets to keep the down payment and equity. Often this type of seller will never sign a deed, much less put one in escrow; the defaulting buyer finds out that he has no easily-realized rights and simply disappears. The seller can then do the same transaction again.

The seller may have another motive. He may not have clear title to the land, and he knows that on a land contract the eager buyer is less likely to obtain



a title search. He may be attempting to evade the effect of a "due-on-sale" clause in an existing mortgage on the property, which would require him to pay off the existing mortgage when he sells the property. If you buy the property and the seller defaults on his first mortgage, you must immediately pay off the seller's mortgage to avoid losing the property.

Who gets the condemnation money?

What does the contract say? If it says anything, it will say that the seller gets it. That's because people with both money and brains don't buy property under such contracts. It may say nothing about condemnation or fire insurance proceeds or such matters: the seller feels secure because the property remains in his name at the courthouse and the poor schmoe who bought it won't have the money to assert his rights.

Unless the land contract is recorded in the land records at the courthouse, or a memorandum of the land contract is recorded, the highway department won't have any reason to notify the buyer of the condemnation. The seller may sell some of the buyer's land to the state without the buyer knowing about it. If the buyer finds out, he is faced with suing both the seller and the state.

If the buyer's name doesn't show up in the county land records, the buyer won't receive notice of nearby re-zoning applications. If the buyer tries to protest, he may have to overcome the hurdle of proving his interest before his protest will be heard.

Another problem is property taxes. The contract probably obligates the buyer to pay them, but the owner receives the tax bill (as well as reassessment notices). The buyer forgets about the obligation. The owner doesn't pay the taxes. The property is sold at tax sale without the buyer being aware. The buyer finds out, but has an uphill battle to prove his redemption rights.

Is there another way to do owner-financing?

Of course. Many owner-financings are accomplished in the conventional manner. The owner-seller conveys the property to the buyer-borrower by *warranty deed*. The buyer obtains an *owner's policy of title insurance*. The buyer signs a *note* and *mortgage* (called a *deed of trust* in some states) in favor of the owner-seller. Some sellers don't want to do it this way because they never have; the way they've done it has worked real well for them each time they sold the property and then took it back and sold it again.

Installment sale agreements and *leases with options to purchase* are common ways to document transactions in which title stays with the seller and the agreements clearly specify the requirements for conveying the property to the buyer. These agreements should also clearly establish the buyer's equity in the property as payments are made, as well as specify who is obligated to pay taxes and insurance and who is entitled to insurance and condemnation proceeds. From the buyer's point of view, it's advisable for the buyer and seller to sign a *memorandum of the contract*, if the contract is not to be recorded, which states that the buyer has an interest in the land and is entitled to notice of legal proceedings affecting the land. This memorandum should contain a *legal description* of the real estate and the buyer's mailing address,

A BHM Writer's Profile: Anita Evangelista

In 1985, Anita Evangelista moved to a farm in the Missouri Ozark Mountains from a house



not far from downtown Los Angeles, and has been there ever since. Over the years she, her husband Nick, and their two children, Jamie and Justin, have raised everything from sheep to rabbits. Anita has written for a variety of magazines, everything from *The Twilight Zone* to *The Los Angeles Times* to *Fate* to (of course) *Backwoods Home*. She has also written six books, including the best-selling [How to Develop a Low-Cost Family Food System](#), [How to Live Without Electricity—And Like It](#), and [Backyard Meat Production](#). Much of her writing is based on personal experience. She is also a registered nurse and a licensed EMT. Anita is listed in [Who's Who in the Midwest](#), [Who's Who Among American Women](#), and [Who's Who in America](#).

and it should be recorded in the county land records.

If a land contract or contract for deed is the only and last resort, make sure that the seller places a deed to the property in escrow, with all necessary signatures and notary acknowledgments, along with instructions for the escrow agent to record the deed upon your satisfying the terms of the contract.

Be sure to get competent legal advice before signing checks or con-

tracts. Office supply forms are usually biased heavily in favor of the seller and are often very difficult to interpret. Real estate brokers are generally fountains of legal misinformation. If you don't get informed answers to the questions posed in this article, ask someone else. Law and custom vary so much from place to place that the experience and knowledge you gained in one place may only mislead you in another place. Δ

A BHM Writer's Profile: Don Fallick

Don Fallick has been writing for *Backwoods Home Magazine* since issue number eight, but he's been reading *BHM* since the first year. He built his own home on his first homestead in western Colorado in 1976. Since then, Fallick has lived in Wisconsin, Washington State, and Utah. His homesteading activities have included owner-built construction, homeschooling, independent energy, horse-power, harvesting wild foods and game, home-based business, cooking, and "raising everything but his standard of living."



Fallick and his bride Barbara have 10 children between them. All have been homeschooled. When he is not writing for *BHM*, Don works as a surveyor and substitute school teacher. At one time or another, he has also been a carpenter, nurse aide, factory worker, locksmith, editor, and commercial pilot. He has a wide range of interests, and says that he tries to do "everything that interests him." Current projects include a lengthy "how to" book, three books of guitar music, and two children's stories.

A BHM Writer's Profile: Rev. J.D. Hooker

Rev. J.D. Hooker is a longtime contributor to *BHM* and one of our most prolific writers. He draws on his backwoods experiences of gardening, building, fishing, hunting, and making an independent living. Home for him is back off a gravel road in rural Dekalb County, Indiana, along with his wife of 26 years. They have four daughters, one granddaughter, and two grandsons. On their small acreage they raise burros, and wolf/German shepherd hybrids—a unique and highly competent type of working dog. Rev. Hooker also serves as the voluntary head of a Baptist Youth Ministry in the area.

"I see so awfully many kids living in towns" Hooker says, "who've never had any concept of life away from the sidewalks and the crowds, that every day I'm even more convinced that living an enjoyable backwoods lifestyle really is the best possible way to raise a family. Fortunately for me, my wife has always agreed with that philosophy as well; which is why we now have decades of experience in independent living."



Where I live

By Annie Duffy

Salvaged wood makes a good goat shed

Last September I acquired three Nubian goats, a doe named Missy, and two kids named Tara and Peter, from my neighbor, Sue Tickle. I was planning to keep them with my horse, Buddy, and my donkey, Donna Quixote, but as hardy as the horse and donkey were, the goats needed shelter from the cold weather, wind, and the threat of cougar. So I decided to build them a goat shed.

For several evenings in a row I planned, after dinner, the specific characteristics that I wanted to build into the shed.

- It had to be big enough to house six goats (I have three more in Utah that will be coming here soon.).
- It needed a sturdy feeder since goats often like to jump right inside the feeder when they eat.
- A shelf inside would be nice, because goats like to sleep above the ground.
- It would need a tall fence of its own, inside the corral, because the goats are such good jumpers they would jump over the corral fence.
- It also needed ventilation, but not so much that it created a draft.

I finally came up with a 6 by 16 1/2-foot building design with a shed roof and windows on two sides.



Since I didn't have much money, I salvaged some long, wide boards my dad had laying around from previous building projects. Most of them were loaded with bent nails. While I pulled nails out, Dad ripped the wood down to size with his table saw. I only had enough scrap wood for a foundation, so when two by fours went on sale at a lumber store in town, we stocked up.

Although I helped my dad build our Oregon office, I still needed help in building the shed, so I volunteered my dad for the job. We finally built the shed inside our horse corral nearest to my bedroom window. We built the foundation on top of cinder blocks and homemade concrete piers. When Dad and I finished the foundation, my friend Rich Perrigo took over while my dad went off to install a septic tank for the house.

I built the shed out of two by fours and some old plywood siding my dad had laying around. The wall studs and roof joists were built two feet apart. I even used the siding for the floor, because my dad didn't have any regular flooring. Dad found some 1/2-inch plywood for the roof, and we bought some asphalt shingles to cover it.

I made several mistakes that I learned from:

- The shed size (6x16 1/2) is not sized correctly to nail on the standard 4-foot wide sheets of plywood easily, so Rich and I had to cut a lot of small pieces of plywood. I should have made the shed 8x16.
- The shed is only 6 feet deep, which made it difficult to build an 8-foot wall while it lay on its side on top of the foundation.
- I also nailed the siding of one of the walls on before it had been raised, which was a mistake



Annie pulls nails out of salvaged lumber.

because the wall became so heavy it was difficult for Rich and me to raise it. After that we waited until the wall was up to nail on the siding.

But the shed came out great anyway. While Rich and I were nailing shingles onto the roof, I kept my longeing whip with me, since my horse had already decided that the shed was for him.

When we finished the shingles, Rich cut pieces of 1x1 pine to trim the windows and door. On the inside of the windows, we stapled chicken wire to keep the goats in at night and to discourage predators from entering. On real cold nights we will nail plastic over the opening, and cut sheets of plywood to fit.

Right now, a few old lawn chairs are serving as shelves for the goats, and a couple of buckets serve as feeders, but in the spring we'll build some permanent furniture. The shed looks great, and the goats love it. Δ

These are Jacob's sheep

By Anita Evangelista

A city-dwelling visitor to an Ozark “hobby” farm looks over the green, rolling hillside at the grazing flock of white commercial sheep.

“How pastoral,” he says with a touch of wistfulness. (He has no idea of the labor that has gone into making that pretty picture a reality—the seeding of the field, the hay mowing, the sheep worming, the shearing and hoof trimming, the nights spent shivering in the cold, waiting for lambs to be born.)

“I wish I could be...” He stops and stares at the flock. “Is that a goat? Or what?”

“Or What” raises his black-and-white spotted head again, and the spectacular set of horns becomes visible, even at this distance.

“Wow!” the visitor says. “It’s an antelope or something!”

“It’s a Jacob sheep,” the farmer says, trying to keep his voice level. “Jacob sheep.”

The visitor looks hard at the four-horned spotted animal.

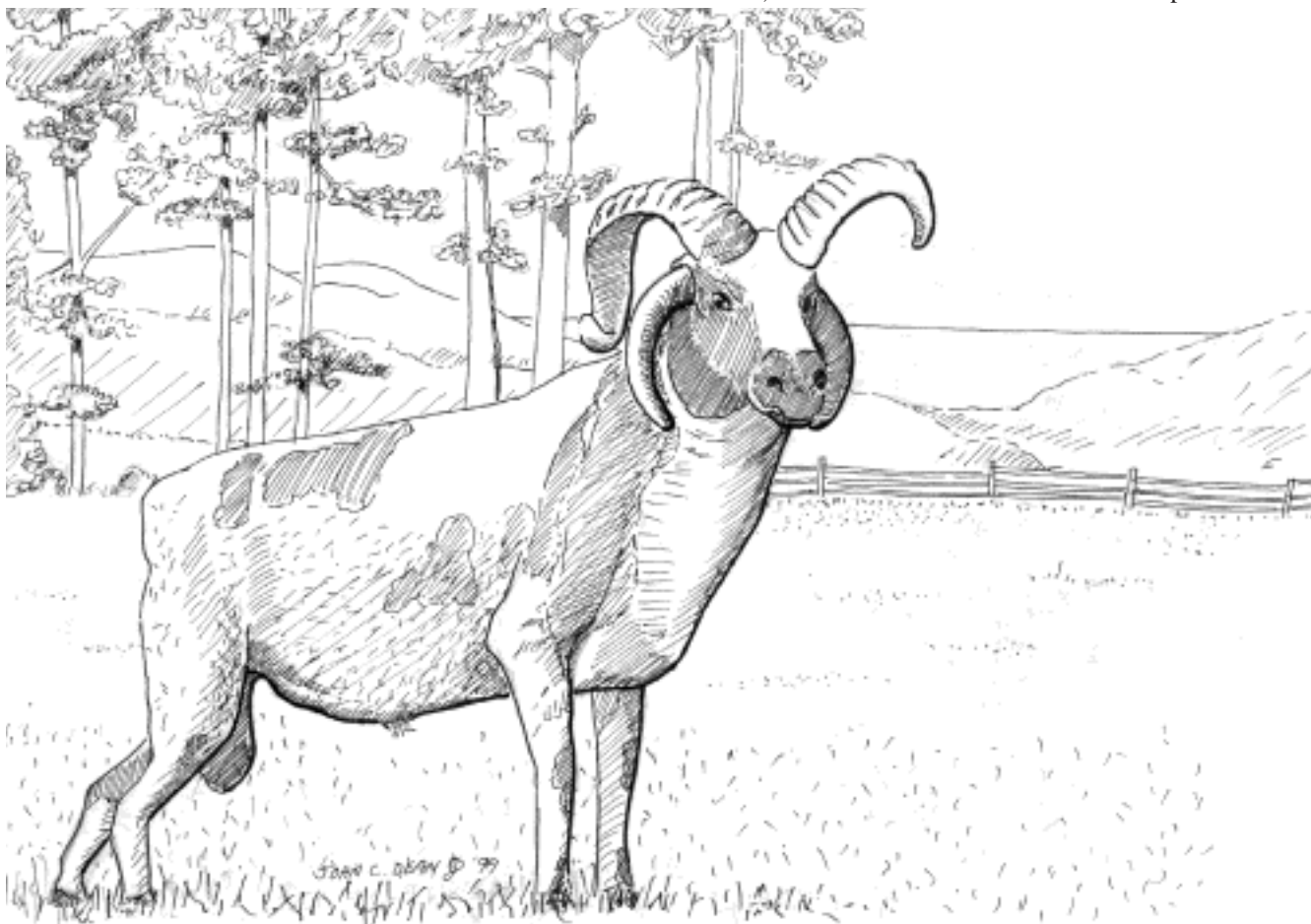
“Jacob who?”

Jakes have been known, at least as a unique color variation, since Biblical times. The story in Genesis tells how Jacob worked for his father-in-law and was allowed to take all the spotted animals from the solid-colored herd for his own use. In a dream, God told

Jacob that the use of spotted rams on those solid-colored ewes would produce spotted offspring and increase his flock—and the first recorded instance of genetic selection occurred.

While no one knows if today’s Jacobs are descendants of this original line (there are spotted sheep with drooping ears and “fat tails” still living in the Middle East), the name of the first purposeful breeder of spotted sheep lives on in these animals.

Jacobs have been raised as estate sheep and “lawn mowers” in England for centuries. These sheep may be the result of cross-breeding British breeds with a spotted African sheep, or they may be a Spanish breed washed ashore during the wreck of the Spanish Armada. In 1970, there were so few Jakes remaining in England that a breed-preservation registry was formed. Recently, British breeders introduced Dorset sheep blood into a



number of their lines, resulting in a much larger, meatier animal than the original sheep.

North American Jakes

In North America, Jakes vary significantly from their European cousins, probably from the introduction of domestic lines such as the Navaho-Churro. They've been known in this country at least since the turn of the century, with several importations from England and Scotland taking place in the interval.

As a four-horned (*multi-cerate*) sheep, Jacobs are dramatic examples of diversity among breeds and a living testimony to the vast genetic stores available to commercial breeders. The breed is unusual in that two-horned, no-horned (naturally polled), and even individuals with up to five or six horns may appear within bloodlines. Females (ewes) also are horned, though theirs are significantly smaller than ram's horns and are easier to break off during head butting contests.

Because the American breed has only in the past several years acquired a "breed standard" or "typical look," many lines of Jakes show considerable variation in spotting, head shape, body conformation, and even in ear size. (There are lines with ears so tiny that they appear to have no ears.) Some lines are tall and angular, some are short and tubby. It is not unusual for Jacobs to have crystal-blue eyes as well, although brown shades are more common.

The six-pound fleece of a typical Jacob ram is open and can be parted to reveal a medium-fine, lustrous, soft wool three to seven inches long. Unlike many other breeds of British origin, there is no heavy undercoat.

The spots are what set Jacobs apart in any flock. Basically a white-colored sheep with black (often surface-faded to brown) spots, the color of the fleece is a reflection of the animal's underlying skin color: pink under white wool, grey or black under dark wool. Pure

Jacobs also carry black eye or cheek patches, a dark nose or muzzle, and black knee spots, although there is considerable variation within lines on this, too. There is no wool on the animal's face or forehead, just hair; animals with wool before the horns probably are the product of a recent outcrossing to some commercial breed.

Just because a sheep carries four horns and has spots doesn't make it a Jacob. A number of other minor breeds have four horns, including the Navaho-Churro, and spots occur with a certain regularity in offspring of Dorset and Merino origins. Both sellers and buyers have traded all sorts of odd lots, including Barbados hair sheep crosses, as Jacobs.

The American Livestock Breeds Conservancy was instrumental in initial preservation efforts for this breed. As early as 1985, when a nationwide survey found that fewer than 5,000 Jacobs were born annually, Jakes were put on the ALBC's "Watch List." In 1988, a separate Jacob Sheep Breeder's Association grew out of the ALBC's efforts, and a specific breed description was established to help standardize the breed, and to provide guidelines for breeders and buyers.

Jacobs are a small to medium sheep, with rams weighing between 120 and 180 pounds, ewes slightly smaller at 80 to 120 pounds. Animals are fine-boned, long-framed, and smoothly muscled, with straight backs. Legs must be free of wool below the hocks and white in color, with or without black patches. Ears are small and erect.

On adult sheep, the white patches should be white—that is, without significant "freckling," and the black patches as dark and sun-resistant as possible. The wool shouldn't have "quilting," a difference in length between white and black fibers. The wool should be about 60% white and 40% black, with a fleece weight of around three to six pounds. The fleece is low in natural oils, lustrous, and has little or no hair and no *kemp* (thin,

wiry hairs). Occasionally, pure Jake lambs are completely white, including their horns (but this is not desirable).

Rams should carry two or four black or black/white horns growing clear of the face in a wide, sweeping curl, with flesh between the upper and lower set of horns. Although some lines produce offspring with "fused" horns, where two horns are growing together on one or both sides, this is not desirable. The ram's scrotal sack is short, with testicles held closer to the body than in modern breeds. Some rams have the large "Roman" or bulging nose typical of improved modern breeds, and are acceptable as such—but they are considered "less primitive" than rams with the more slender, triangular head of the earlier breed.

What you don't see

What you don't see in Jacobs is their internal or innate qualities: the breed is hardy, thrifty, and produces a very lean meat. A typical lamb carcass, processed when the animal weighs between 60 and 80 pounds, can readily produce between 30 and 40 pounds of nearly fat-free meat, especially if the lamb was raised without grain supplements. The meat is generally a darker red, almost baby-beef-like, in comparison with paler commercial meats. In spite of its natural leanness, the meat is quite tender and delicious. It should be cooked at 325°F with moisture for best results.

Most Jacob ewes lamb successfully without much intervention, the result of the breed having remained fairly primitive through the years. (Commercial sheep producers may have to "pull" a third of their lambs.) Ewes produce sufficient milk for their single or twin lambs, but not so much milk that udder problems develop. Triplets are not common, with twins more usual with this breed. Lambs are often born with a hairy-looking coat to start with (depending on lines), or even a combination hairy-wooly coat. This grows out into ordinary wool before

long. Hairy lambs, in my flock at least, seem to take the early spring cold a little better than wooly ones—but all the Jake lambs are significantly hardier, quicker to get to their feet, faster to nurse, and more lively than lambs of commercial breeds.

An interesting thing about crossing spotted Jacobs with white commercial sheep is that the offspring will often be mostly-black woolled. A white “cap,” white heel patches, and white tail are often the only pale areas on the resulting animals—and that particular coloration is a sure indicator of a first-generation Jacob cross. If these crosses are then bred back to a spotted Jacob, a high percentage of these second-generation offspring will be spotted, too.

One animal geneticist has suggested that Jacobs are not actually a “white sheep with black spots,” but are a “black sheep with white marks.” Even though this seems to deny the evidence of our eyes, it appears to be a genetic truth. It’s perfectly apparent every time one of those mostly-black crosses arrives in the world. The same geneticist has opined that, since all-white Jacobs are fairly rare in a genetically black-wooled breed, folks should hang on to any all-white Jake lambs and try to produce all-white lines.

In terms of general health, the breed as a whole is remarkably vigorous and long-lived. It’s not uncommon to find productive Jacob ewes well into their teens, while most commercial sheep are washed up at eight years of age, and some more modern breeds are pooped out by the time they’re six. We recently suffered the loss of one of our oldest ewes, who was by all accounts over eighteen—and she’d produced a lamb last year!

There are, however, inheritable problems in these sheep, as there are in all breeds. Probably the most significant of these is “split eyelid deformity.” While there are variations of how extreme this condition becomes, it is

simply a division in the sheep’s upper eyelid. It may occur in one or both eyes. It appears to be the result of a stage in fetal development during which the lamb’s horns and skull are forming. Skulls of animals with the deformity show a division line running from the eyeball socket to the base of the horn. It’s seen more often in four-horned animals.

In the mildest cases, there is only a slight “bump” or “dip” in the edge of the lid. In the worst cases, the eyelid is divided clear to the animal’s “eyebrow” area. The sheep can experience irritation to its cornea or eyeball if the deformity causes eyelashes to rub on the eye—and with a severe split, the eyeball is exposed to dust, weed seeds, and other damaging irritants. The worst possible effect from split eyelid is blindness, which may take years to become evident.

It’s not quite known how this condition is passed on, since from year to year its incidence in lambs may vary. Some years, all the lambs in the flock will be free of the condition; other years half or more lambs may be varying affected. In extremely severe split eyelids, veterinarians can suture the division together—there’s no long-term damage to the lambs. It is probably wisest to not use animals for breeding that continuously or frequently produce lambs with split eyelids.

On the plus side, Jacobs appear to be fairly resistant to parasitic intestinal worms—they often require less de-worming than commercial sheep in the same flocks. They also have particularly sturdy hooves, so there is less susceptibility to “foot rot” and other hoof problems; very little hoof trimming needs to be done.

Most commercial sheep producers vaccinate their stock for numerous contagious sheep diseases, including vibriosis, clostridia, black leg, red water, tetanus, rabies, and so forth. Organic sheep raisers may or may not vaccinate as consistently. If a particular sheep disease is endemic in your

area (ask vets and local University Extension officers), I’d suggest vaccinating against it. As mostly-organic sheep raisers, in the past we’ve only vaccinated against overeating disease and tetanus (CD/T)—and infrequently at that. However, with the rise of antibiotic-resistance in many livestock and human diseases, we may make greater use of the preventive value of vaccinations in the future. Vaccinations can be mail ordered from vet suppliers, if you don’t mind giving shots yourself.

The fleece is unique

That fancy Jacob fleece is, perhaps, what makes the breed most desirable for the small backyard flock—not only is the wool unique, it is also particularly easy to hand spin into yarn or felt into thick pads. Because it’s low in natural grease, the wool can be spun directly “off the sheep,” without initial washing, carding, or special handling. I’ve spun Jacob wool using a simple drop spindle and a regular spinning wheel, and it is a delight because of its natural lightness, springy body, and just enough oil to make it flexible.

While wool prices vary from year to year, Jacob fleeces are not that common and tend to command higher prices. I’ve seen clean “raw” or freshly-shorn Jacob wool sell for \$3 to \$8 per pound to handspinners—but that’s at private “niche-market” sales. Commercial wool co-ops, where most of the nation’s shepherds sell their white fleeces, discount colored wools and may only offer 10 to 15 cents per pound for your fancy Jacob fleece—so most Jake owners either use their wool at home or sell it to handspinners.

As a minor (or heirloom) breed, Jacobs also represent a genetic base which is significantly different from the majority of commercial breeds. Where commercial sheep must grow quickly to a marketable size—and consequently require grain and quality

hay inputs—the Jacob is slower-growing and can do quite well on pasture and occasional supplementation when fields are sparse. This thriftiness is one of the features of Jakes which endeared them to the hill shepherds of Scotland. It may also become an important trait for crossbreeding into commercial lines of sheep, if costs of grain and hay should increase in the future. Furthermore, the characteristic Jacob leanness could become very desirable if consumers demand lean lamb that is both juicy and tender. With agriculture changing constantly, the hardy Jake may hold an unsuspected answer in crossbreeding programs.

Heterosis is the term used to describe the result of crossbreeding two dissimilar lines or breeds, which produces offspring which are superior in specific traits to either parent. In heterosis, we often find such offspring to be both hardier and quicker to mature than either parent. This hybridization effect can produce the maximum heterosis when a two-breed crossbred animal is bred to a pure animal of another breed—and, to my knowledge, there are virtually no Jacob breeders engaged in this kind of experimentation. Would it be possible to produce a black fine-wooled sheep the size and meat quality of a 300-pound Suffolk, by crossing Jacobs to Suffolk-crosses? With time and careful selection, the resultant prolific, fancy-wooled animal could revitalize the small flocks on many “hobby” farms — but no one has yet undertaken this particular venture. There’s room for an incredible amount of crossbreeding experimentation with

Jacobs; it will probably fall to backwoods producers to do this work.

At a typical \$100 to \$350 for purebred Jakes, the cost of these animals is comparable with purebreds of other breeds. As a sheep with an unusual look, special fleece, and innate traits of remarkable hardiness and productivity, they are *not* comparable...they excel!

For more information

American Livestock Breeds
Conservancy
PO Box 477

Pittsboro, NC 27312
(919) 542-5704

Jacob Sheep Breeders Association
Janine Fenton, Secretary
6350 ECR 56
Fort Collins, CO 80524
(303) 484-3344

Jeffers Veterinary Supply
PO Box 948
West Plains, MO 65775
1-800-JEFFERS (533-3377)
24-hour Fax: (417) 256-1550
Ask for a catalog. Δ

A BHM Writer’s Profile: Dynah Geissal

Dynah Geissal is 48-years old, is married, has three grown children, a son-in-law, and one grandchild. She and husband Bob have been subsistence farmers for 21 years and figure they are 90% food self-sufficient.

On August 1, 1994, they bought 40 acres of bare land in the mountains of western Montana. Since then they have lived in a tipi at 4600 feet while building shelters and pens for the livestock and beginning work on their home. They carry water from their hand-dug well and their only electricity is from a single solar panel, providing two lights and a radio.



A BHM Writer’s Profile: Connie Glasheen

Connie Glasheen is a wife, mother, and grandmother who loves to garden. A large orchard, vegetable and flower gardens keep her busy, along with tending to her sheep and cats. One of her goals is to become as self-sufficient as possible.



A BHM Writer’s Profile: Harry Nemeč

Harry is the father of Chester and husband to Elizabeth Nemeč. He is a self-reliant reconstruction engineer, farmer, fabrication & welder, volunteer firefighter, instructor, and poet. Nemeč prides himself as an author who paints pictures with words and enjoys writing from actual experience.



How I've started my child in a program of homeschooling

By John Silveira

(This is the first of many articles on homeschooling that will be written by the staff at *BHM*. In future articles we will discuss hands-on approaches to teaching reading, writing, and arithmetic along with science, history, geography, and everything else your child is expecting you to provide in the way of an education before you send them off into the world. — Editor.)

Homeschooling? I'd considered it for my daughter for years but I worked full time in an office for a defense contractor. With all the hours I spent either there or on travel, I didn't have the opportunity. So her birthdays passed like a progression of lemmings marching off a cliff, each one irrevocably lost, and the chance to ever homeschool her was slipping away.

Then, one day I was out of that job and I was working full time for *Backwoods Home Magazine*. This new job took me 700 miles away from home for several weeks each month. But the working conditions were different and after about a year I realized I could make time for homeschooling.

The decision to do so came at the end of the last school year. But with it came the realization that I didn't know quite how to start. I spoke with a lot of people. I listened to what was said, and the advice boiled down to a practical approach:

- Assess your child
- Assess yourself
- Have a plan

Assess your child

In assessing my daughter, I first wanted to find where her weaknesses lay. I met with her eighth grade teacher. She told me Mary's math skills were poor. This surprised me because, when she was very young, it

was her math skills that made me realize she wasn't retarded.

Nine years earlier, when she was entering kindergarten, Mary was diagnosed as having childhood schizophrenia with symptoms of autism and



several learning disorders. But over the years many people had been impressed with her math skills and her ability to calculate numbers in her head. Now I was being told she's not good with numbers. How could that be?

I discovered that every time she wanted to multiply numbers, she did the calculations from scratch. No one had ever bothered to have her memorize a multiplication table. I asked how she could reach the age of 15 and not know a standard multiplication table. I also asked where I had been while she wasn't learning it. This is a skill that should be committed to memory in childhood. Even as a mathematician, I never recalculated something so fundamental. I had all the basic stuff memorized.

This became the initial focus of my attack. I started out teaching her the multiplication table from 1 to 12. I wrote all the permutations of multipli-

cation of two integers, from 1 to 12, on index cards. There are 144 of them. And she's being tested on them. It's one of the things we go over on our long drive to Oregon and our return to Ojai. She has other weaknesses, from her penmanship to her reading comprehension. I've made it my business to know these things so we can work on them.

Next, I wanted to find what she's good at. I want to focus on her skills so I can encourage her. I also want to make use of them.

For example, I was surprised to find out she can write stories. She had been writing them one after another for several years—then she'd throw them away.

"I didn't know you wrote stories."

"Well, I like to write, Dad."

"Why do you throw them away?"

"You'd get bored with them after you'd read them 20 times, too, you know."

Her logic was at once both compelling and annoying. But I wanted to see her stories and gauge her progress.

"From now on," I announced. "Everything you write goes into your binder."

She still throws some away, but channeling this skill of hers makes it easier for me to help develop her language skills. It also makes an unusual

Using index cards

Index cards become a way for you to collect a lot of the factual data your child should know. They become a convenient way for him or her to review the information and an easy way to quiz them.

way for me to test her. For one thing, though most students hate essay questions, for Mary it's a natural way for me to quiz her.

So, for her first history quiz, she had to write me a story about a typical day of an indentured servant girl in Colonial America—and include all the detail from the readings I had given her.

Assess yourself

I found that I had a mixed bag of skills and drawbacks—as any parent is going to have—when I started homeschooling. On the plus side, I used to be a math teacher. When I got my college education, I thought I was going to become a physicist, so I have a background in the hard sciences. This part of her education will be easy. How I teach her math and science will become part of future columns.

On the minus side, though I now write for a living, I'm a self-taught writer. Worse yet, I know little if anything about grammar and punctuation. And I'm a lousy speller. (Dave, the publisher, thinks it's funny that to teach my daughter punctuation I'm finally going to have to learn how to do it myself.)

I was also a terrible student and, though I write a great deal about history, there are incredible holes in my education. So, along with punctuation, I'm going to have to teach my daughter things I don't know.

In future columns, we will deal with strategies of how to teach subjects you don't know.

Have a plan

I decided there are six areas of concentration this year:

1. I want Mary to develop her math skills. I want her to learn algebra.

2. I want her to read with comprehension.

I once read that literacy among white Americans 150 years ago was 98%—though most Americans didn't go beyond the sixth grade. (Blacks are excluded from this figure because they usually weren't even allowed to read in those days.) We think of time bringing progress and it would seem that in a century and a half the gap between 98% and 100% would have narrowed. Instead, it's widened. Literacy among high school graduates today is dismally low. Even a large percentage of college graduates have poor reading skills.

This is despite the fact that the way people get most of the information in their lives—even if they're sitting in front of a computer screen—is by reading.

Use No. 1 for index cards

There is a list of things you should know off the top of your head. One is the multiplication table through 12x12. Use them to quiz your child until he or she knows them cold.

So, if you can't think of a lesson today, make 'em read.

3. I want to expand her practical vocabulary skills. Not simply to add to her mental baggage a plethora of hyperpedalian polysyllabics, but to learn the precise use of words including the proper use of everyday words, such as when to use *well* instead of *good*, *may* instead of *can*, *ensure* instead of *insure*. When I was a boy, my mother hounded me with the differences between commonly used words. If your parents did this also, then it's time you started too.

I also want her to expand her everyday vocabulary. I give her two words a day. I don't pull them out of thin air. Any time she asks what a word means, it automatically becomes a word on her list. The first two words were *escalate* and *vocabulary*. Last

night's words were *interior* and *exterior*.

4. I want her to develop her writing skills. After 15 years working for Department of Defense contractors, I've discovered that most people cannot convey their thoughts clearly and concisely in writing. How are you, as a homeschooling parent, going to instill this in your child? You'll find that just as you don't have to be able to cook to know when something doesn't taste right, you don't have to be able to write to know when something doesn't read right. We are going to cover the *who*, *what*, *when*, *where*, *why* and *how* of writing.

5. I want her to have a feel for history and understand the significance of the impact of that history on our culture.

6. I want her to understand the concept that has done more to make the modern world "modern" than any other concept—the "scientific method." I want her to understand what science is, and what it is not.

Among the things that rankle me more than anything are statements people make about science that betray their ignorance. Among them is: "Science and religion are just alike; they are no more than sets of beliefs we choose to take on faith." Another is: "Science is just a bunch of statistics."

But the worst are the "alternative sciences" of various political and social movements that serve only to blind your child to an understanding of the real world. It's long been my plan to write a piece for *BHM* titled, *How we know what we know*. It's about what science is and what it is

Use No. 2 for index cards

Everyday, find two words your child doesn't know and put them on index cards. Do this seven days a week, 52 weeks a year, and you have 730 spelling and vocabulary words. In four years of high school, this is almost 3,000 words. See how your child does on the SATs then.

Use No. 3 for index cards

My daughter knew the capitals of about five states when I started homeschooling. We are now making 50 index cards with the name of each state on one side and its capital on the other. Later, the cards will be useful for adding more information about the individual states when we study them in detail.

not, the problems it can solve and the problems it can't. Mary will help me write it.

There's one more thing I plan to do. I plan to get Mary involved in my job. In the past we've had articles about how to involve your child in your job to further his or her homeschooling. Recently, we even had an article about using apprenticeships (Issue 31).

For my part, since I do research for my feature pieces, Mary's become part of the researching. She has to help look things up and tell me why they're relevant to my article. The little girl who had no idea how to use an encyclopedia was suddenly looking up the information on the Prohibition era.

The daughter of the *BHM* publisher, Annie Duffy, is being homeschooled and part of her homeschooling is to write a teen column for the magazine.

Cultural literacy

Not included above, and one of the hardest things I'm going to face is making my daughter familiar with her culture—what's recently become known as cultural literacy. It used to go by the name of general knowledge, except it's not so general anymore.

I found this out while working for one defense contractor in the '80s. I had brought in a quiz from a magazine. The headline asked, "What do you know that your high school-aged children don't." It was simple questions from geography and world history and included such questions as: To the nearest half-century, when did the Civil War take place? Who was

Calvin Coolidge? On what continent is Kenya located?

"According to this article," I said to my fellow employees, "less than half of all high schoolers can answer more than half of these questions." I read the 20-odd questions.

One fellow, who had just received his degree in math, laughed and said, "I hate to say it, but I don't know the answers to most of those questions."

In turn, several others made the same admission. Many of them also had degrees. But what they all had in common was that they were young.

It was the older people in the group who could answer almost everything. Many of them weren't degreed, and one was a high school dropout. Yet, they generally knew the answers. How could this be?

The answer came quickly. The older people remembered learning these things in school. The younger people had never heard of them.

Resources and tools

Your local school system. When I started this, the good news for me was that California has made provisions for homeschooling. The bad news is that the school district where we live gives no support to homeschoolers after the 8th grade. My daughter is entering the 9th.

Still, I've found ways to take advantage of the school system. They've told me what books they're using and two teachers even gave me copies of their syllabuses for the school year.

Homeschooling or not, I want to at least come close to tracking what they're doing in the public school I took her from. Something unforeseen may mean I have to put her back into the school system and I'd like her to at least be familiar with the material her fellow students are studying.

Also, even though I'm a mathematician, I'm not going to try to set up her entire math curriculum. Others have already put a great deal of time and effort into composing problems and

If your child learns nothing else, she should learn:

- (1) to read with comprehension
- (2) to write clearly and concisely
- (3) to be able to solve problems algebraically
- (4) what science is and is not
- (5) enough to be culturally literate
- (6) how to use a computer

the sequence of lessons, and some of them have done very well. I'm not going to try to reinvent those. Geometry, if we get to it, is such a subject.

Computers. Those awful machines we're so afraid of are here to stay. Maybe we, as adults, can ignore them. But our children can't. They're going to be part of the world they're growing into. Ignoring computers would be seriously shortchanging them because computers are going to be the tools of survival in the future.

There's another aspect of computers that make them useful. There's a tremendous amount of educational software out there and more and better software is being developed—typing programs, programs that test spelling and math skills, even games that require a certain knowledge of history to play.

The online services have educational interest groups where you can meet parents like yourself, and your children can meet other students.

Nowadays, you can even find the *Encyclopedia Britannica* on the Internet.

If you can afford a computer, buy one. If you can't, see if you can get your kid access to one at the local library, at a friendly local school, or even through a friend.

In another week Mary and I will drive south for home. Maybe you'll see us go by. I'll be steering. She'll be going through her index cards.

Next issue, I'll show you how to teach your child a fundamental concept in algebra—what an equation really is, and how to use equations to solve problems. Δ

Think of it this way...

By John Silveira

Just how good of a bet are those lotto tickets?

I looked at the newspaper and tried to match up the lotto results printed there with my picks. I sighed. “Boy, I sure would’ve liked to have won that one.”

O.E. MacDougal, the poker player, was on the other side of the office disassembling his shotgun to put a plug in. We were going duck hunting in the morning. “Ever buy any of these lottery tickets?” I asked him. “The pot last night was worth about \$20 million.”

He looked across the office and I held up my ticket so he could see it.

“Is that one of those California Lotto tickets?” he asked.

“Yeah. Ever buy them?”

He smiled. “Every once in a great while.” He went back to disassembling his shotgun.

“Do you think they’re a good bet?”

He looked up again. “No.”

“Then why do you buy them?”

“I don’t buy them often, but when the jackpot’s way up there, even I get suckered in.”

“Suckered in? Why, aren’t they such a good deal?”

“Well, in the first place, half the money in the pool goes right to the state. So your return is already cut in half.”

“Well, at least they give you the other half. And you’ve got to admit that the other half goes to a worthy cause—education.”

He paused for just a moment. “Well...” I thought he was going to say something but he just said, “Okay,” and went back to putting the plug in his shotgun.

“What were you going to say?”

“Well...” I could see he was still reluctant to say it. “In the first place, they actually keep all the money.”

“No they don’t. They pay out prizes. On this jackpot—\$20 million—they’ll pay it out at \$1 million a year for 20 years.” I could tell by the way he was looking at me there was something I wasn’t getting.

“Okay,” he said, “but look at it this way. What if you had \$20 million and you felt inclined to loan it to me at 5% interest and all I had to do was make interest payments for 20 years?”

“That would be a pretty low interest rate.”

“That’s right.”

“Let me see...” I did the calculation in my head. “That would mean you’d give me \$1 million a year.”

“Correct. And with the final payment I’d give you \$1 million and what else?”

“The principal. The original \$20 million.”

“Now, consider the lottery. The state holds the \$20 million prize money and gets to use it at 5% a year. In the 20th year they give you the last 5% payment and...”

I thought a few seconds. “And nothing.”

He just looked at me.

“They get to use your money at 5% a year and, after 20 years they keep the principal,” I said.

“You could look at it that way.”

I looked at my ticket again. “I never thought of it like that before.”

The plug was in the shotgun and he was reassembling it.

“You know, you have a way of throwing cold water on a lot of things. I’ll bet now you’re going to say that

there’s something fishy about the money they give to the schools.”

He worked the slide a few times. “Well, actually, the money doesn’t go to education—though I know they say it does.”

“What do you mean?”

“The way the lottery was presented to the voters was that the proceeds were going to be added to the school budgets, over and above the taxes that were collected for the schools. But what happened was that they saw how much lottery money was going to the schools, then they cut the existing state contributions to the schools by roughly the same amount. The schools don’t actually get any more money.”

“How do they get away with that?”

“It’s the way government works. The same thing happened with the funds raised by the civil forfeiture laws. Supposedly, the funds raised by civil forfeiture—that is, the money and property raised from suspected criminals—was going to be added on top of police budgets. But what happened was that the police budgets were cut by the exact same amount as the money the police raised by confiscations.

“It created a situation where the police in some police departments now have to make civil forfeiture quotas. Otherwise, their budgets will come up short and jobs will be lost.”

I threw the losing lotto ticket into the trash. “So you’re saying that the state runs a lottery to raise money for education, but they don’t actually give any extra money to education, and they only pay interest on the prize money—for 20 years—before they confiscate the principal?”

“You could think of it that way.” Δ

Shiitake mushrooms for food and for cash — you “plant” them by inoculating logs

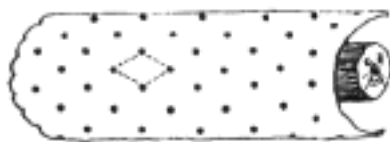
By Lee Harbert

The Japanese have been growing mushrooms for their nutritional and medicinal value for over 2000 years. They eliminated the work and worry of growing them on compost by cultivating Shiitake mushrooms on the logs of deciduous trees. Today, Shiitake mushrooms (*Lentinus edodes*), are exported from Southeast Asia and grown all over the world. They are used in Chinese and Japanese cuisine (in both fresh and dried form), sold by health food stores, and used for a variety of medicinal purposes. The ancient process of cultivating Shiitake mushrooms has not changed; only a few of the techniques have been updated and modified to accommodate different growing conditions.

You begin by *inoculating* a log with the Shiitake *spawn*. The log should be a hardwood: white oak, red oak, chestnut oak, sugar maple, sassafras, sweet or black gum, and other members of the oak family work well. Shiitake *does not* grow well on soft hardwoods like aspen and willow, or on conifers. The log should come from a healthy tree, and be three to eight inches in diameter, and three to five feet long. You cannot use old or diseased wood, and it should be a log that has been cut recently. The best time to cut the tree is between early fall and early spring, just before the buds begin to open.

Inoculation of the log should be done in early spring. Outside daytime temperatures should be above 40° F, but temperatures falling below freezing at night are fine. Drill 20 to 40 holes in the log, one inch deep. Holes should be drilled at six- to eight-inch intervals within the row, along the length of the log. The rows need to be

spaced one to two inches apart, and offset to form a diamond pattern (see illustration). If you are using *dowel spawn*, drill a $\frac{5}{16}$ inch hole, and lightly tap the spawn into the hole with a hammer. If you are using *sawdust spawn*, drill your hole $\frac{7}{16}$ inch and insert the spawn with your fingers. Using an inoculation tool works best when inserting sawdust spawn. The



“Diamond” drilling pattern used to make holes for inoculation. (Surface of log is shown in “exploded” view only for purposes of illustration.)

spawn should be packed into the hole until it is level with the bark surface.

Now you must immediately seal the holes, using cheese wax melted at about 300° F. Do not overheat the wax. The flashpoint of wax is 450° F, and overheating can occur easily. If the wax starts to smoke, turn down the heat. Use a wax dauber, or wax baster, to apply a thin layer of hot cheese wax over the spawn, making sure the surface is sealed. A tag may be attached to the log showing the month, year, and variety of spawn used. You will find it handy to identify the log with a lot number or serial number, if you are cultivating for commercial sale.

Once the log is inoculated with the spawn, place it outdoors in a shaded area, where it will remain for about a year. The area should be close to where you live, with cold running water available. The logs may be covered lightly with burlap or pine

boughs to retain moisture. They should be stood on end, crowded together against a sawhorse or other support, on a wettable surface of sod, bare earth, or leaf duff. This allows them to soak up ground moisture from rain and snow. The upper ends of the logs will be moistened by dew, snow, frost, and rain. During this period (known as the *spawn run*), provide extra moisture as needed. If the tops of the logs develop cracks from drying, provide moisture to them. Re-stand or reposition any logs that fall.

It takes about a year for the Shiitake fungus to *colonize* the log. When the fungus is ready to produce mushrooms, white patches will appear on the ends and around the inoculation holes. A temperature change, like that produced by a thunderstorm or rainfall, will induce fruiting (appearance of mushrooms) naturally. You can force the fruiting by submerging a warm log (about 85° F) in cold water (about 65° F) for 12 to 36 hours.

Restack the logs in a way that will allow for ease in picking the mushrooms. Your mushrooms should be ready to pick within one to two weeks. It is possible to induce fruiting two or three times a year, in six- to twelve-week intervals. A log should produce two to three pounds of Shiitake mushrooms over a period of three to six years. Once the log is decayed, it will not produce mushrooms, and it should be left to decompose on the forest floor or in your compost pile.

If you are interested in growing Shiitake mushrooms for your own use or for profit, here are some helpful books:

[Shiitake: The Healing Mushroom](#), by Kenneth Jones, published by Healing Arts Press.

Medicinal Mushrooms, by Christopher Hobbs, published by Botanica Press.

Growing Shiitake Mushrooms in a Continental Climate, by Joe Krawczyk and Mary Ellen Kozak.

And here are four sources for Shiitake mushroom spawn, cultivation tools, reference books, processed Shiitake mushroom products, and just plain good advice:

Paul Goland
Hardscrabble Enterprises
HC 71, Box 42
Circleville, West Virginia 26804
304-358-2921

Joe Krawczyk & Mary Ellen Kozak
Field & Forest Products, Inc.
N3296 Kozuzek Road
Peshtigo, WI 54157
715-582-4997 (M-F 8-5 Central)
Fax 715-582-0101

Persimmon Hill Farm
HCR 1, Box 220 SFT
Lampe, MO 65681

Greenwood Nursery
Box 686-A
McMinnville, TN 37110.

Successfully cultivating a Shiitake mushroom crop takes time, patience, and persistence. Paul at Hardscrabble Enterprises and Joe and Mary Ellen at Field & Forest Products have started thousands of interested growers and would be happy to talk with you. Δ

A BHM Writer's Profile: Martin Waterman

Martin P. Waterman, a frequent contributor to *Backwoods Home Magazine*, writes on the science of gardening and horticulture. He also writes on technology such as computers, communications, and genetics, and how these sciences influence our lives.

Waterman is a rural based writer living in British Columbia, Canada. He spends much of his time writing, gardening, breeding hardy fruit for the north, or on the Internet where he can be reached at:

martin_waterman@bc.sympatico.ca.

A BHM Writer's Profile: Jan Cook

Jan Cook has been with *BHM* since the beginning, as a writer, an editor, and was the principal typist for entire issues. She is still the crafts editor for the magazine.

A technical writer for the Department of Defense for 17 years she is also completely addicted to machine embroidery and will write about it for future issues.

Jan says she's a cut-to-the-chase kind of person with little tolerance for things that are supposed to work but don't. She believes in life's simpler things, like poems should rhyme and people should be as good as their word.



A BHM Artist's Profile: Don Childers

Don Childers, who retired from the magazine in 1999, is the artist who painted most of *BHM's* scenic covers. He had spent many years working for the Defense Industry, painting mock-ups of military equipment still in the planning stage. The stealth bomber and fighter, the HARPOON and TOMAHAWK cruise missiles, and a variety of other once secret weapons are among the many mock-ups he painted at various stages of their development.

He is also an amateur astronomer who has built many of his own telescopes, an amateur inventor of a graphic arts tool to sharpen exacto knives, and has illustrated various historical books. Many of his paintings have been sold to private collectors, and many more hang on the walls of admirals and generals around the country. The Dijon Museum in France exhibits one of his paintings, and several hang in English pubs. Don is moving to Colorado to retire.



Try these bread recipes that are part of our heritage — and still delicious today

By Thomas C. Tabor

Of all the pleasing culinary odors emanating from a homemaker's kitchen, possibly the most enticing of all is the aroma of fresh-baked bread. What could be better than trying to get a bite before the melting butter has a chance to slip off the edge and onto the plate? I know from my own experience that loaves of homemade bread seldom have a chance to cool before someone is tempted into taking the first slice.

Somehow the pleasures and rewards of home bread baking go beyond the smells and flavors of the product itself. Most of us relate bread baking to early times when life was less complicated and an individual's worth was assessed in terms of the truth and of the basics. For good reason, a lot of us cling to those times, even though they were not really as easy and carefree as we choose to remember them.

Historically, bread baking was not just confined to the home and did not always take the shape of today's loaves. Unleavened breads were often prepared for soldiers and sailors, as well as for cowhands and explorers. In the mid-1800s, army forts sometimes employed full-time bakers who supplied the men and their families with daily rations of bread. Possibly the most common product they produced was called the *sea biscuit*, or *hardtack*. Outside of a firearm, this was one of most important survival items anyone could have in those days. It could be kept for months or even years without preservatives or refrigeration. As long as these hard biscuits were kept free from moisture and bugs, they would last almost indefinitely. In some cases, sea biscuits have been uncovered in archaeological digs, biscuits that were baked over 100 years before. Many times these were perfectly preserved and probably could still have been eaten. If moisture got in, however, it would encourage the growth of bacteria and result in quick spoilage. For that reason, proper packaging was imperative for survival.

Some leavened varieties of loaf breads were produced as well, but these were sometimes considered more of a delicacy, particularly in the case of sailors, scouts, cowboys, trappers, and soldiers. Homesteaders probably used more leavened loaf breads than anyone else during these early years. Due to the yeast and the moisture within this type of bread, it could not be kept more than a few days after baking, making it impractical for those on the high seas or on the trail.

By today's standards, a few of these early forms of bread aren't all that tasty. For example, hardtack is something that you might want to try, but to prepare it for the family on a



Like most kids, Laura Borgman of Ridgefield, WA, enjoys a piece of fresh homemade bread with jelly.

steady basis . . . I think not. On the contrary, however, breads like bannock, soda biscuits, gritted and sourdough breads are still considered quite good. In most cases, these aren't really all that difficult to make. The following are a few time-proven recipes that you might like to try for yourself.

Hardtack or sea biscuits

2 cups of whole wheat flour
1 cup of water
1/2 tablespoon of salt
1 tablespoon of butter



Mrs. Edna Grover of Vancouver, WA, still bakes bread the old fashioned way in her wood cook stove.

Note: If you want to extend the life almost indefinitely, leave out the salt and butter.

Gradually add the water to the flour and other ingredients and mix or knead the dough only until clear of lumps, no longer. Continued kneading beyond this point will cause the bread to be not as light, flaky, and brittle.

Roll the dough out to a thickness of around $\frac{3}{8}$ inch, then stamp or cut into

whatever shapes you prefer. Traditionally, the most popular shape seems to be squares, but sometimes they were made in round shapes as well. These should be three or four inches in diameter. After cutting, make perforations by sticking a fork or other sharp object in the surface repeatedly. This helps to prevent puffing. Puffing causes air voids to form, and in early times these areas were inviting places for insects to set up housekeeping. Place on a greased cookie sheet and bake at 450° F for 25 to 30 minutes. The finished product should be light yellow or tan in color.

When struck on a hard surface it will actually “ring,” and it will float in water, a sign of a “good” product.

A word of warning: If you decide to give hardtack a try, you should understand that these are extremely hard little biscuits. Many a broken tooth has resulted from trying to bite one. The proper way to eat hardtack is first to soak or dip it in some form of drink. For example, give it a dunk or two in your coffee, tea, or water first. You don’t want this visit to the past to be followed by a visit to the modern-day dentist.

Bannock

Another form of frontier bread is *bannock*. It originated in the north country and is still commonly used by many people today. I have prepared this type of bread many times while camping and on hunting trips. Unlike hardtack, which requires some form of oven for baking, bannock is cooked over the fire in a frying pan, and if properly prepared can be

quite tasty. In many cases, the mix was made up beforehand and carried on the trail either in saddlebags or inside the bedroll. When it was time to eat, the mix could be added to a little water and cooked in a skillet over the campfire. While not necessarily a requirement for good bannock, a cast iron skillet seems to produce the best product. Bannock is easy to make and requires very little expertise to turn out a great product.

1½ cups of flour
½ tablespoon baking soda
½ tablespoon salt
¾ cup of water

Simply mix the dry ingredients thoroughly, then add the water. Knead until all lumps and dry spots have disappeared. Form into a patty and place in a hot, greased frying pan. Fry until it is cooked through. Bannock tastes best right out of the pan, while still warm, but it’s also good cold.

Parker House Rolls

The American tradition of Parker House Rolls dates back to 1855, when Boston’s famous Parker House Restaurant was opened. Here’s one version of this roll:

6 to 6½ cups of flour
½ cup of sugar
2 teaspoons of salt
2 packages of active dry yeast
½ cup butter
1 egg

Combine in a large bowl 2¼ cups of flour, sugar, salt, and yeast. In another bowl combine 2 cups of hot water (130° to 150° F), ½ cup butter and 1 egg. When the butter is softened, pour the wet ingredients over the dry ingredients and beat two minutes, occasionally scraping the bowl. Fold in one cup of flour, or enough to make a thick batter. With a spoon, stir in the additional two cups of flour to make a soft dough. Turn the dough onto a lightly floured surface and knead for approximately 15 minutes. Place the dough in a greased bowl and let rise for 1½ hours. Then punch the dough down and shape it into rolls. Let it rise until rolls have doubled in size. Bake in 375° F oven for 18 to 20 minutes. This recipe makes about 3½ dozen.

Sourdough bread

An old favorite, sourdough bread has been with us for many years and is many peoples’ idea of the perfect accompaniment to a meal. In Alaska during the gold rush it

became the preferred bread of the miners. Soon the label “sourdough” was attached to the miners themselves.

Step one

1/2 cup of sugar
1 cup of water
1 1/2 cup of flour

Mix above ingredients into your starter. (See below for starter.) Cover and let stand at room temperature for 10 to 12 hours. Remove 1 1/2 cups and place in a covered jar in the refrigerator to replenish your stored starter.

Step two

1/3 cup of sugar
1/2 cup of vegetable oil
2 teaspoons of salt
1 1/2 cups of water
4 cups of flour

Mix sugar, vegetable oil, salt, and water gradually with approximately four cups of flour or until a hearty dough is made. Knead thoroughly until no lumps remain. There is no such thing as “too much kneading” — the more the better. Place dough in an oversized, greased bowl and cover with a towel. The dough should be allowed to rise at room temperature. This is best accomplished overnight. The next morning, punch your dough down and divide into loaves. This recipe will make about three normal sized loaves. Place in greased baking pans and allow to rise again until size has doubled. Bake at 350° F for 45 minutes. A little butter allowed to melt over the top of the loaves is the final stage and will add flavor.

Corn bread

Corn breads have been around as long as our country, particularly in the southern states. Try this recipe for a tasty addition to your country meal.

2 1/2 cups corn meal or stone ground meal
1/2 cup flour
1 teaspoon of salt
2 teaspoons of baking powder
1/2 teaspoon of soda
2 tablespoons of melted margarine or shortening
1 cup of buttermilk (approximately)

Mix ingredients, adding enough buttermilk to make a thick batter. Pour into greased baking pan. Bake in a 425° to

450° F oven for approximately 30 minutes or until brown. An iron skillet will help ensure excellent results.

Soda biscuits

Biscuits similar to these can be found on many a country table throughout rural America and are great for sopping up gravy. Soda biscuits seem to have their roots in the southern states, where the delicacy of biscuits and gravy are a top seller on most restaurants’ breakfast menus.

2 cups of flour
1 teaspoon of salt
3 teaspoons of baking powder
1/4 teaspoon soda
1/3 cup shortening
1/2 to 3/4 cup of buttermilk

Mix flour, salt, baking powder, and soda. Cut in shortening until thoroughly mixed. Add just enough buttermilk to make a soft dough. On a floured board, knead six to seven times. Roll out and cut into biscuits. Melt about two tablespoons of shortening in a baking pan. Put in biscuits and turn immediately to grease the tops. Bake for 10 minutes or until brown.

Grittied bread

Corn has been added to breads for many years, either as a substitute for flour or as a supplement. Here is an example of a distinctively different product as a result.

2 cups gritted corn (see below*)
1/2 cup sweet milk
1 teaspoon of sugar
1 teaspoon salt
2 tablespoons of soft butter
1/2 teaspoon baking soda
1/4 cup flour

Mix ingredients together, adding flour as needed. Bake in greased iron pan at 400° F for approximately 25 minutes.

*Grittied corn is made by scraping ear corn with a grater. The corn must be past roasting ear maturity, but not too hard. If a grater was not available, homesteaders sometimes made one by puncturing a piece of tin with a nail. This porous scraper was then used to grate the corn while still on the cob.

Sourdough starter

Maintaining a starter was an important responsibility for the early American homemakers. The recipes—and starters—were generally passed from mother to daughter. In

the event a homesteader's starter turned bad or was lost for any one of many reasons, it was sometimes necessary to travel great distances in order to get one from a neighboring family.

Here is a more modern starter that uses a small amount of yeast to get started. While the yeast gives you a jump ahead, the end product is much the same as any other, more traditionally begun starter.

1 tablespoon of active dry yeast
2¹/₂ cups of warm water
2¹/₂ cups of unbleached white flour

Dissolve the yeast in a glass bowl containing one cup of lukewarm water. Stir in the flour and remaining warm water and mix well. Cover and let stand four to five days in a warm place. Temperature should be between 75 to 90° F. A windowsill is a great place, as long as it doesn't get too warm. If it gets too hot, the yeast will be killed. Until it's needed, the starter can be stabilized in the refrigerator.

Sourdough potato starter

After boiling several potatoes for your evening meal, pour off the still-warm water. Allow to cool until lukewarm and add flour to produce a thick batter. Let stand for at least 24 hours or until it smells yeasty. The starter can be stabilized in the refrigerator. This method was commonly used historically when potatoes were available.

△

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A BHM Writer's Profile: Alice Brantley Yeager

Alice Brantley Yeager was born near Akron, Ohio, to parents who were "plant people" and she was introduced to plants at an early age. Her family moved to Texarkana, Arkansas, when the Great Depression came along, money was still in short supply, and gardening was almost a necessity for most folks if they had space for a garden and Alice displayed her natural gifts with plants including wild food plants.

After two years of college, Alice worked for the Navy Department in Washington, DC, before World War II, and the Southwestern Proving Ground in Hope, Arkansas during the war.

After the war, she worked as a freight agent for some commercial trucking companies and as an Arkansas real estate agent. She is now concentrating on being an artist and a garden writer as these are the things that give her the most personal satisfaction. "When you think about it, there are few occupations wherein one is allowed to eat one's subjects and what is better than a juicy tomato or cool cuke?"

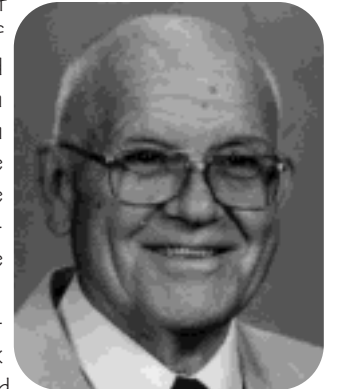
Alice married her photographer husband, James Yeager in 1955 and they have one daughter, Leah Y. Gray, living near Houston, TX. Leah and her husband, John, have two daughters Sarah Kathleen and Alexandra Hope, ages 8 and 11.



A BHM Writer's Profile: James O. Yeager

James O. Yeager is retired from 35 years of government employment with the Department of the Army as an engineer. He has fallen on hard times and is now employed by his wife, Alice, as a not-too-well paid photographer. He was born in Morgan City, LA, but shortly after his birth the family moved to Texarkana, Arkansas, to settle on a portion of the original Yeager estate homesteaded by his grandfather. James and Alice live on an inherited 20 acres of the same property.

An interest in photography was kindled in childhood when box and bellows cameras and black and white photos were the norm. After he and Alice married, she began writing for a small gardening magazine and used him as her photographer. He bought more and more expensive equipment: lenses, flashes, reflectors, tripod, monopod and other accessories. "Full gear with accessory vest is comparable to someone going on safari." His present career proves there's life after retirement. "Photography teaches both patience and to quickly take advantage of the moment. Butterflies flutter. Shadows move. Breezes won't let plants stand still. Harvested greens and flowers wilt. Bugs never cooperate. People get disgruntled when asked to stand too long in the sun." James has seen it all.



Here's a cold storage house as good as our ancestors built

By Harry G. Nemec

Back in the early seventies, my wife and I decided to invest in our own ideas to “get ahead.” I was not earning enough money. We had tried second jobs, but that wasn't cutting it either. We could exist and plod along, I could see that. It took every cent I was earning to pay our living expenses. That meant we would not have any savings. We needed a way to use our talents as an investment.

We decided to venture out into the woods of central Pennsylvania. We purchased a five-acre parcel of mountain land and a cabin, since we could afford it. The reason we could afford it was because there was no electricity, no running water, and no plumbing. An old cookstove was the source of heat and cooking. Water was available from a spring a short walk from the house.

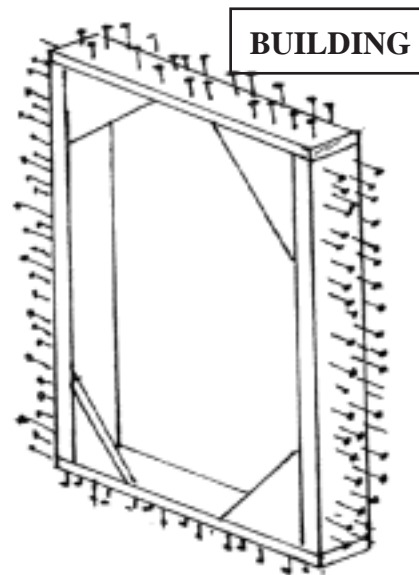
The property was far enough away from the mainstream of life to be a cheap place to live. It was a desolate hunting area, and as such, a luxury for some people, an extra place to get away to at times. For us, it was an

opportunity to have a place to get out of the rain until we could afford to fix it up for year-round living. We discussed the best way to capitalize on our investment. We could clear some land, grow our own food and sell the excess, raise chickens and sell eggs. We would make it into a five-acre farm.

During the first year, we obtained electricity, and with that, power to run the pump (which meant running water and inside plumbing) and automatic heat. We were becoming civilized. We had an acre of level woods cleared, and we planted a general crop. We were becoming a farm, and no farm is complete without a place to store potatoes and root vegetables.

I was determined to make the hunting cabin and mountain ground into a five-acre farm. All I needed was a barn, a storage house, a tractor, and a patch.

With the completion of the inside plumbing and automatic heat, we could move on to the next projects. The second was the patch, which involved clearing land and planting crops. With our crops planted, we



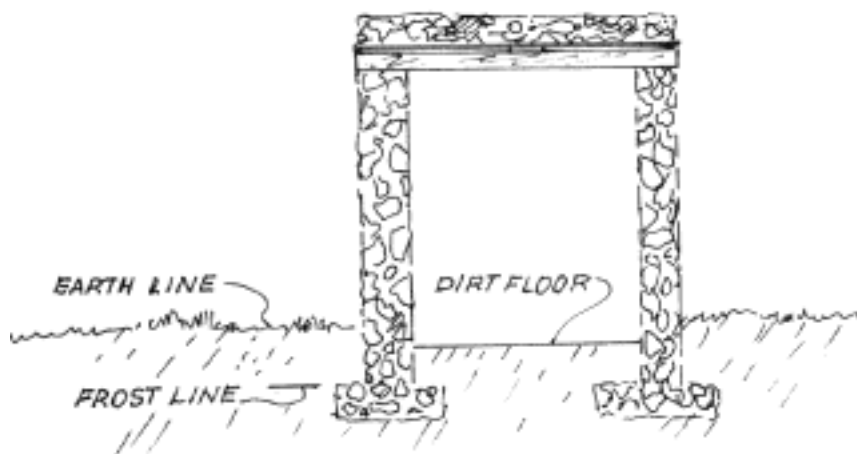
“Porcupine” door frame

needed a storage facility so they would feed us all year and until the next crop came in.

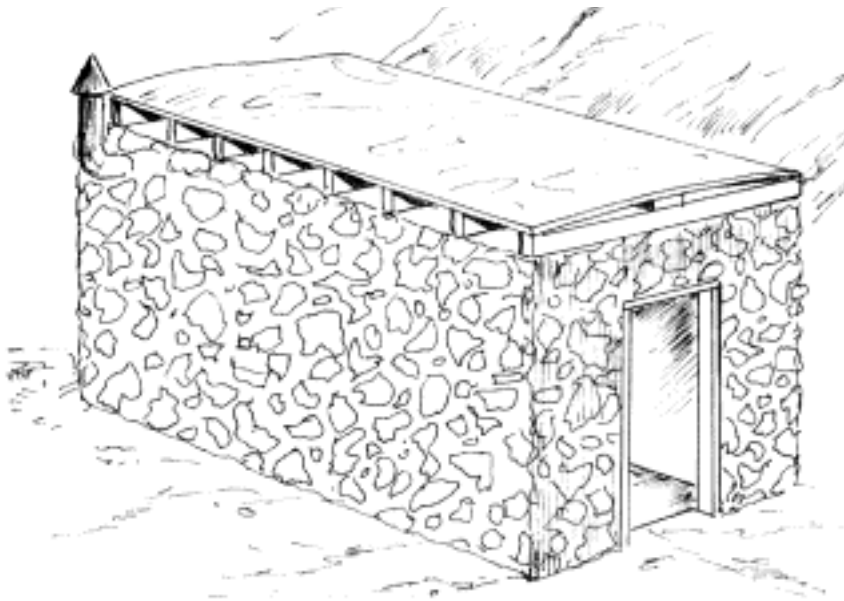
After considerable study on the subject of food storage, moisture, ventilation, and rodents, I went on to look at the many types of construction. I chose to use what I had at hand—natural mountain field stone.

I was told that the stone found on the ground wasn't good enough for the project because it had been weathered and wouldn't hold the concrete. Since I had all that stone just lying around, it didn't matter to me if they were right or wrong; I was going to do it my way. The way I figured it, since our ancestors built barns, houses, fence rows, and everything else using the stones that were lying around, I could too. Their buildings and fence rows are still around. Maybe the roofs have caved in and wood rotted away, leaving the shells of what were buildings years ago. I could use the same material they used and have a storage house for the cost of concrete and some sweat.

My mind was made up. I was going to use the stones that were all over the place. Next I had to figure how many stones I needed, but that meant I had to know how big this thing was going to be. How much of what was to be stored? Now the real thinking began. I reverted back to the basics: What do we buy that we can grow? I studied



Cross section of cold storage house, seen from the end



This view of the cold storage house shows the 2x4s on top of the walls, supporting the plywood roof. The concrete roof was poured on top of this plywood.

our shopping habits: potatoes, carrots, beets, apples, yams, cabbage, onions, and the like. I could grow them and store them. I computed the mainstays and came up with 400 pounds of potatoes. (We usually used five pounds per week, and I added some to plant, and surplus). I then went to the store and looked at the pile of 20-pound bags, and measured the volume that made up 400 pounds. I figured that I could put 400 pounds of potatoes into a bin measuring two feet wide and five feet tall by three feet deep, or thirty cubic feet.

I measured in the same fashion for everything I was planning to store in the building. I then converted the total cubic feet into dimensions that would comprise the inside of the building. The result of my calculations showed that the cold storage house would have to be six feet by eight feet, with a six-foot ceiling, or 288 cubic feet. This measurement included walk-in space.

The next part of the project involved building materials. To determine how much stone I would need for this project, I used the same measuring technique as I had used to measure the space requirements for the contents of the cold storage house. I had to determine the thickness of the walls and

make an allowance for the depth of the wall into the ground to the footer (or foundation), minus the space for the door. I had enough stone to start, and I would find more while digging.

I chose a portion of the land that had been used previously as a place to push unused ground while leveling for the house, since it faced the patch. I staked off the area, allowing for the thickness of the walls. Then I grabbed the pick, shovel, friendly digging iron, and gloves.

The initial day's digging went fast, as I was digging from the side of a small depression into a steep rise. I did not need shoring, since the rise was only six feet or so. I was able to throw the dirt right into the patch.

Because of the purpose of the building and the design of the walls (more than a foot thick), the footer had to be 24 inches wide and 6 inches thick, and it had to be down below the frost line (in our area, 34 inches).

The dirt floor acts like a chimney, permitting earth-temperature, moisture-laden air to flow into the cold storage building. It is this moisture-laden air that prevents the stored food from drying out or freezing.

The design calls for a ventilation pipe to provide an air passage for the ventilation of the moisture coming out

of the ground through the dirt floor. If the footer isn't deep enough, frost will use the passage through the vent pipe, freezing everything in its path.

In a couple of weeks I had the footer dug, and a sizable pile of rocks that I'd found in the digging.

I mixed the concrete for the footer, using the same formula I had used for an earlier septic tank project (one part concrete, two parts sand, three parts stone), and reinforced it with scraps of re-bar, stones, and fence wire.

The stones were protruding out of the footer, ready to accept more stones that would make up the wall.

Since I was using concrete rather than mortar, I had to let each day's mixing set before I could continue. I was thankful for that.

I placed the stones vertically, in such a fashion that there was a space between them. I was building two walls with a small space between them. When that concrete hardened, I filled that space and put up more vertical stones, creating another space. Before I set each stone in place, I tried it several ways to get the most vertical coverage out of each stone. Then I wet the stone and set it into a "cushion" of concrete and propped it into place so the concrete could set.

Every day I would come home from work and mix up a batch of concrete and set some stones. Eventually, the ugly hole began to take the shape of a crude building sticking out of the side of the rise in the ground.

I began in the corners, setting stone that would comprise the walls against the dirt sides of the hole first, since all I had to do was climb over the footer rather than go around the wall to work on the other wall. (I had figured that the raw stone would hold the concrete just as well a few months later as it would right that instant, just as long as I had used a wet concrete mixture and a dampened stone.) It got to the point that I was sorting rocks to find the perfect rock for the next placement. I then began to try breaking off some of the rock imperfections, rather than

spending so much time finding the best fit.

Sorting a pile of football-sized rocks every time I needed another rock seemed like a waste of time, so I drafted my wife to assist. She sorted while I set the rocks. That lasted for a couple of hours; then I was sorting and setting the rocks by myself again. (I may have insulted her by discarding a rock that didn't fit where I had wanted it. She was better at sorting the laundry and stuff like that, anyway. I remember some words about where I could find more rocks that she didn't need to hand me.)

By that time, the structure was taking shape, and the walls were high enough that I could begin planning for the roof and ventilation pipe. The pipe hole had to be planned so that varmints couldn't gain access to the food that was going to be stored inside. I used a three-inch pipe and put a quarter-inch wire mesh screen inside the pipe to keep varmints out. The ground floor of the structure would provide a "warming" effect in the cold winter weather and circulate the natural moisture around the food that was stored. The vent pipe permitted this air flow. Failure to have air circulation permits fungus to grow and ruin the stored food.

Getting back to the roof construction: Once the vent pipe was positioned, I straddled the six-feet-apart

upright walls with 2x4s on edge about a foot apart and put a furring strip lengthwise in the middle (to pre-stress the poured roof). I covered that with half-inch plywood, tacking it on the edges to form a slight bow.

Since the 2x4s were on top of the walls, there were open gaps between them at the ends, between the top of the wall and the plywood roof. I filled in these gaps with concrete and small stones. I was now ready to work on the front wall, which would contain the door.

I measured the door frame using an old door I found out back. I made a 2x8 frame around the door and tacked it together so that it would remain square (or as square as the door, anyway) by nailing triangle pieces on all four corners.

I had left a roughed-out opening in the front wall, and I placed the 2x8 frame in the opening to be sure of the fit. Then I removed it and carefully drove 20-penny nails halfway into it from the outside, all the way around it, so that the heads would hold onto the concrete. The frame resembled a porcupine until it was set into place. This frame was first held in place by bracing, and then by filling in the voids in the stone wall with a concrete mixture between the stone wall and the nails. I then installed the doorstep trim on the inside of the frame, using a common furring strip.

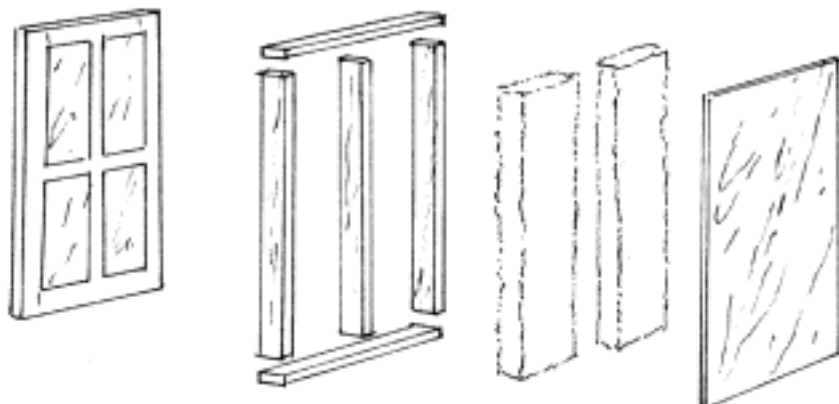
The door I used was now going to fit into the 2x8 frame. Next, I had to frame it out to make it into a thick insulated door. I made a 2x4 frame on it, filled the openings in the frame with insulation, then put a piece of half-inch plywood on the open side of the frame. Before I fastened it all together, I put the door in place and tried to open it. I discovered the side that opened out needed a bevel to ensure a snug fit. I removed the screws holding the panel to the frame, made the bevel adjustment (hitting the opening-side 2x4 a couple of times with my hammer) and trimmed the plywood after it was fastened. I put on strap hinges and rope for a handle.

With the door on and the plywood roof not yet completed, I had an opportunity to remeasure and determine if I needed more head room. I was pleased to find that my measurements had worked out perfectly.

The final stage in the completion of the cold storage building was to pour concrete onto the roof. I nailed some scrap lumber around the edges of the form to prevent the concrete mixture from running off. I gathered all the scrap metal I could find, including an old bed spring. I cut everything into appropriate sizes and laid it all in a checkerboard weave pattern in the roof form. I mixed a batch of concrete and poured it into the form over the metal pieces, which I had wet down pretty well. I then put a layer of wet rocks into the still-wet cement, pushing them as far down into the concrete as I could.

At the end of the week, I removed the form edges and examined the seal. I even hit it a couple of times with a hammer to check it out. It was "rock solid." Time to build the bins and shelves.

That year we filled the cold storage house and had pears until after Christmas, tomatoes until February, potatoes until March, and some to plant. We also had beets, carrots, turnips, and apples. We ate healthier from then until we left our farm. Δ



"Exploded" view of the insulated door, showing the old door, the framing, the insulation, and the plywood panel

Our homestead motto: Make-do

By Marjorie Burris

During the Depression years of the late 1920s and the early 1930s, there was a common saying in our part of the country: “Use it up, make-do, or do without.” “Use it up” meant don’t waste anything. “Do without”—well, we all know what that means. But *make-do*—ah, *that* was the challenge.

Make-do in 1995 lingo is almost explained by “recycle”—but not quite. “Recycle,” to most minds, means “Turn it back to the manufacturers so they can melt it down and use it again.” *Make-do* has a broader meaning: it requires a bit of imagination, a bit of ingenuity, and sometimes a bit of humor. It can even have a spirit of adventure about it.

When I was a girl, if we needed anything, we didn’t just go down to the store and buy it . . . Oh, no! We were very careful how we spent the few dollars we managed to earn, so we looked around to see if we had anything on hand we could utilize to do the job. This make-do spirit has lived with me all these years, and we find it is still a very good motto on our old homestead today. In fact, we enjoy seeing how creative we can be to use whatever we happen to have on hand. Here are five examples of our make-do philosophy.

Bed springs fence

After we bought our land, we found 50 metal army cots of World War II vintage crammed into the barn loft, all with springs too saggy to use as beds. When we needed angle iron, we would cut a bed apart and hang the springs on a nail on the side of the barn. We had quite a collection of springs.

Early one April morning, as we were making garden, the rancher who ran cattle on the Forest Service land

around us stopped by and said he was turning his herd into our range the next day. We had no fence around our garden, and since this is open range country, it was up to us to either make a fence or give up on gardening. Having neither the time, the money, nor the inclination to rush to town for barbed wire, we decided to use the bed springs to make a “temporary” fence. That was 20 years ago. Our bed-springs fence still stands, and since it is the only section of the garden fence which has never been breached by range cattle or jumped by the local deer, we have no immediate plans for replacing it. What is “temporary,” anyway? A month? Twenty years? A lifetime? I suppose it depends on where you stand to view the universe.

And we’ve not had a remark about our fence for at least ten years now. It used to be the unimaginative visitor would say, “What’s that?” The imaginative visitor would say, “What a good idea!” And the smart-aleck visitor would say, “I know some people like to sleep on their side, but isn’t this a bit much?” Yep, make-do sometimes requires a sense of humor.



Bathtub raised garden

We found ourselves short of time early one spring when an unexpected break in the weather made an early planting possible. A heavy blanket of unmelted snow prevented us from tilling the garden, and since we had always wanted to try a raised garden bed, we thought this would be a good time to make one. But what to use?

We didn’t have the time to stop and cut boards on the sawmill for a frame, and go to the store and buy concrete blocks? Heavens, no! Then we spied the bathtub our son Duane had hauled up to the homestead when he remodeled his bathroom. Why not?

We leveled a place on the sunny south side of my little wash house, set the tub close to the house and hid the ugly ends with a false rock wall. I covered the bottom of the tub with fist-size rocks, then we filled the tub with topsoil. Since the tub held only a small amount of dirt, I could easily amend our very acid soil with a sack of limestone, and for the first time I could raise lettuce. We quickly found out that the birds and ground squirrels like lettuce, too, so Husband made a tall wire frame to cover the top of the tub and attached the frame to the side of the building,

Our funny raised garden is only a few steps from our kitchen door, so it is easy to plant and tend even when we can't get to the big garden. Fresh lettuce early in the spring is such a treat. (But yes, I still do have to wash the lettuce before eating it, even if it is raised in a bathtub.)

Big tank wood bins

With the purchase of our land, we also inherited two big metal tanks that had once been used for water storage. Time and neglect had turned the bottoms of the tanks into lace, making them unusable when they stood upright. But tipped over . . . well, we needed a woodshed, anyway. The problem was, how to get the big tanks off their six-foot-high platforms and down the hill, then down the road to a place near the buzz saw where we cut wood.

Husband and I were finally able to hook chains and cables around a tank and pull it off the platform with the tractor, but the big, awkward thing refused to be pulled meekly along behind the tractor. Every rock or root it hit rolled it sideways or endways until finally it got away from us completely and rolled downhill and got wedged between a rock and a tree, which squashed it out-of-round.

We were not happy. We shoved, pushed and tugged, dripped sweat, and almost cried until we got tank number one into place. Took half a day.

Then we sat down with a glass of iced tea and were pondering how to move the second tank when two of our sons, their wives, and two good friends drove in and wanted to know what was going on. We explained. They laughed, "Pull it off the platform and we will move it." We pulled the tank down, they swept all the debris out of it, and then all six adventurous young adults lined up in the tank and began walking, making the tank roll. When they came to a steep downhill slope, part of the team turned around and walked uphill, making an effec-

tive brake. In no time at all they jockeyed that big tank into place exactly where we wanted it. I could tell from the squeals and laughter coming from inside the tank that our "Big Tank Walk" was every bit as much fun as any carnival ride.

We positioned the tanks facing south, so not much rain and snow blow onto the wood. The tanks' lacy bottoms allow the wind to circulate through the wood and dry our fuel. And when we have both tanks full we know we have enough wood cut for the winter. We like our big tank wood bins.

Barrel & rock fence posts

We needed to put up a pig fence, but *fence* meant *posts*, and *posts* meant *digging*, and *digging* meant *hitting rock and rock . . . Rock?! We've got lots of rock!*

But rock has to be contained somehow. We used all the wire mesh concrete reinforcing we had to make cylinders for rock posts, but we still needed more posts. What about all those barrels stashed away in a far corner of the pasture? Yes, the ones that some thoughtless hunter had used for target practice some time or another. Not much good for holding liquids, but perfect for holding rocks.

We put the more attractive wire cylinder fence posts on the front side of the pig pen and used the barrels on the back side where they don't show much. The pigs did not knock down any of the posts, so we considered our make-do fence posts well done. They certainly saved us a lot of time and energy.

Wheels for hose hangers

We are blessed with a good spring with gravity flow pressure, but we have to use lots of hoses and sprinklers to spread the water around. That means we have hoses distributed all over the place, and when cold weather sets in we have to drain all those hoses

and hang them up. That takes *many* hose hangers.

Also on our property we found about 20 old wheels (yes, this was a *junky* place) that had lain so long the tires were almost fused onto them. We couldn't get the tires off, so we took the wheels to the service station and the attendant removed the tires on his machine for two dollars a wheel. We thought this was a good price considering the work involved, and the station disposed of our old tires as well.

The wheels make perfect hose hangers and it makes us proud that we are able to use the antiques instead of letting them lie around.

This is just a sample of our make-do. Perhaps you have an interesting make-do project you'd like to share with *Backwoods Home*. Why don't you write Dave a letter and tell him about it? Maybe you can give the rest of us some ideas, too. Δ

A BHM Writer's Profile: Charles Sanders

Charles A. Sanders, 44, his wife Patti, and three children live in southern Indiana on 39 acres of pasture and timberland. They raise beef, poultry, an



orchard, and a large garden. The surrounding countryside and woodlands provide the addition of deer, squirrel, rabbit, and wild turkey for the family. He has been an Indiana Conservation Officer for over 23 years.

In addition to having articles in *BHM*, he has been published in *Back Home*, *Fur-Fish-Game*, *Good Old Days*, *Outdoor Indiana Magazine*, and several local newspapers and publications. Other writing projects are underway.

In addition to writing, his other interests include fur-trapping, American history, radio, winemaking, and devising handy projects in the workshop.

The saga of Benjamin, the backwoods, homeschooled boy who wanted to get a job

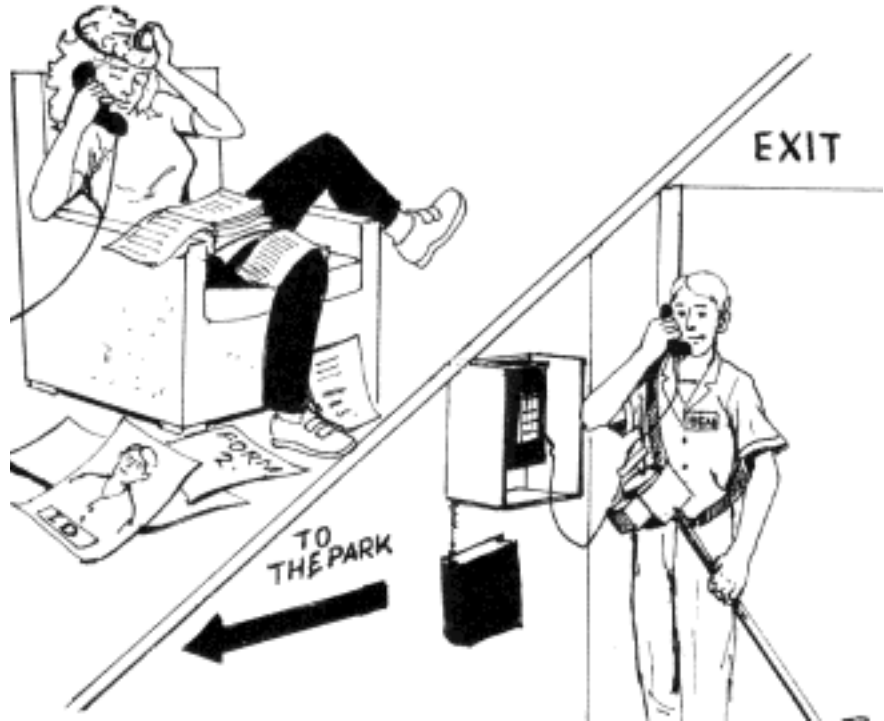
By Margaret Wright

Raised in the woods of Northern Idaho, home schooled by loving, protective parents, he was a happy, carefree child for the first sixteen years of life. The sixteenth summer, reality hit, and he discovered his “toys” were costing more, and Mom and Dad were expecting contributions of a higher percentage than in the past. Hence, the idea to get a real job came into Benjamin’s mind.

Odd jobs for people in the area around our home no longer brought in the amount of money needed to support his hobbies. After searching the newspapers for several weeks, he found an ad for a job that sounded suitable for his training, with a schedule that would fit his lifestyle. The local theme park (15 miles away) was hiring teens to fill in for the regular summer workers who were leaving for school and college.

We stopped one day on the way home from town to pick up an application. I was always on the lookout for learning experiences, so I figured it would be good practice filling out the forms. After all, we always knew the day would come when our offspring would be ready to fly from the nest. I helped him fill in all the little lines with the details of his existence. Pretty basic stuff.

However, I cringed when we came to the “education” part. I have an unshakable belief in keeping the children at home under the care of their parents. Benjamin’s older sister was home schooled and has done very well, but this was the first test of how the outside world would react to *this* child—and I was a wee bit nervous. Our son was going to be judged on a decision that we, his parents, had made when he was a little bitty thing



so many years ago. We just wrote in the two words “home schooled” across the “education” blanks.

The paper sat around for a few days. He reminded me for the umpteenth time, “Did you mail it yet?” Oh well, it would be a disappointment for him, but that’s learning, too, so I sent it in.

I had actually forgotten it when the phone rang a few days later and a gentleman asked for Benjamin. I took the message that Benjamin was to meet him at his office the next day at eight a.m. for an interview. I could have swooned at that point. I wanted to yell at him, “No, no, you cannot take my child from me,” but I controlled myself and got the information.

We were up earlier than usual. Benjamin was in a high state of anticipation. I was suffering from an extreme condition called anxiety. OK, I told myself, there is a slim possibility of his being hired. What do we need

as far as paper work? I had no idea, so I called the park’s personnel office. We were told to bring his birth certificate, social security card, and a picture ID.

Picture ID? Why would he need that? The office lady says, “The federal government says everyone has to have one before they can be employed.”

“No, we don’t have a school picture ID.” (I always knew the same kid would come down the stairs every day to do his school work.)

“Well, what about a year book?” Yeah, right, for one kid. (We did draw his picture a long time ago and write a story about him.)

“OK,” she says, “He can work one day without the ID,” while Mom figures something out.

Off to the theme park we went. After a 15-minute interview, Benjamin came back to the truck with his

work schedule and announced he was going to be rich. One of the managers told me he'd had several home schoolers work for him over the years and they work out just fine and are very self-motivated. I was relieved to hear that. At least now I know it's not a permanent scar on my child's unblemished record.

Actually, most people do give good recommendations for home schoolers. I don't know why I was anticipating problems.

We were sent over to Personnel to fill out the mountain of paper work and produce our documentation that this child exists. I produced his birth certificate, social security card, immunization records, and a picture ID with fingerprints. It had been made by the Sheriff's Department and was to be used in the event he was ever stolen and we decided we wanted him back.

Well, everything was in order, but the ID would not work. *Fingerprints*, no less, and the government says No. It might not be him. Well then, why did the Sheriff's Department put their seal on it?

Plan B: Into town to the driver's license bureau. Yes, we could get a picture ID, but we needed three proofs of who he is, along with a certified, homogenized, and pasteurized birth certificate from Boise. I had one, but it wasn't the right kind of copy. They want the kind that costs \$10 and takes 30 days to get here. OK, I've got "my copy" of the birth certificate, birth announcement that was in the paper, church blessing certificate, immunization record, and a Medic Alert Card I carry in my wallet that matches the number on the bracelet he wears. Nope, not enough proof he's who I said he was. (Look, do you want to see the Caesarean scar; it's a beaut.)

Plan C: Go get a passport! Now that's simple compared to Plan B. We can get the pictures made, only \$30. Yes, I can get them that day. Then to the courthouse with my folder of info and the clerk there says, "No problem." Pay them \$40 and he will have a

passport in two weeks. Let me get this straight: I can't get this kid a personal ID card from Kootenai County to work in a local theme park, but I can get him a passport that will let him travel all over the world? The answer to that was, "Go figure!"

If not for the time frame involved, I would have done the passport thing. After all, isn't a mother supposed to pull out all the stops for her child?

Benjamin is showing signs of wilting by now, but that's OK. "Don't worry son, I'll get you that job if I have to call the Governor."

We stopped by the Sheriff's Department on the way out of town, and the sweet, portly gentleman safely hidden behind six inches of bullet-proof glass just smiled and said, "Sorry, we don't do personal ID's any more. We have 15 or 20 parents a month needing help with the same problem." (At this point, I can see why he's behind that glass.)

Back to the theme park (on the second tank of gas for the pickup that morning). I tell the Personnel Manager my tale of woe, and she is as distressed as I am at this injustice. She digs out the Federal Regulations Book that has all these rules, and as we are reading down the list of items that so far have given me nothing but a headache, we find that a person under the age of 17 can use a statement of identity from their personal physician as to who they are and the date of their birth. This will circumvent the requirement for a Personal Picture ID!

OK...Plan D: Back to town, (22 miles) to storm the doctor's office. (Hang in son, we're on a mission!)

The receptionist could probably tell by my demeanor that I was getting close to murder or suicide (depending on the outcome of our visit), and she proceeded to offer all kinds of help. She made several copies of Benjamin's records and stamped them with the doctor's "stamp of approval." She even signed with her own name, saying that might help.

By now Benjamin was tired and hungry and even said maybe he didn't want a job.

"Are you kidding? This is a matter of pride and principle, and I will get you hired and working if it kills both of us!" This from a devoted mother who just a few hours earlier was close to tears because her little fledgling was going out into the big bad world.

Back to the theme park, and through the gate for the thousandth time. Except this time they just waved us through without any questions. (By the way, this time the parking attendant had me park in the handicapped space. Go figure.)

Down to personnel. . . . Well praise be to the gods that watch out over fools and children with kamikaze mothers, all the paperwork passed inspection and he got his coveralls with a T-shirt and a little badge that had his name on it.

Back home after nine hours of our (my) non-stop mission, I settled down with two aspirins and a coke, when reality hit. "Oh, no! What have I done?" My sweet, innocent child whom I have protected with my life has been thrust out into society to fight the tigers, and I'm the one that made sure it happened.

Just then the phone rings and that sweet little voice says, "Hi Mom, it's Benjamin." (Like I didn't know who he was . . . after all, now I have proof!) "I'm having a blast. They let me use the big weed eater!"

It's official, my fledgling has flown the nest and I am so glad we kept him at home as long as we could. Δ

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For this resourceful couple, primitive survival skills are a path to self sufficiency

By Terrie Clark

“Just do it!” says John McPherson, echoing the ad for athletic gear. He’s not referring to aerobics, though: he’s talking about deciding to live a more self-reliant lifestyle. He speaks from experience, and he knows that some of the biggest obstacles are the fears that can come when you temporarily lose sight of your goal.

John says making that decision, that initial break, is the hardest part of making such a lifestyle change. He concedes that making that decision for himself may have been easier than for most. John made his choice shortly after being discharged from the Army in 1972. He was 28 years old and single. He’d been around the world a couple of times and, like an 18-year-old just out of school, he was without responsibilities or obligations to anyone except himself.

Today John and his wife Geri are living the lifestyle of their choice in a log cabin they built on 40 acres of native prairie in northeast Kansas.

Some of the first visible indications of the McPhersons’ lifestyle as you approach their home are the rail and pole fences, the windmill and water tank, and the solar panels on the roof. A further look around reveals the semi-permanent grass shelter (9x9x17) they built three summers ago, and right in front of the house you see John’s flint-knapping area. Inside the house, you find the primitive stone tools they used to hollow out a 20-foot log canoe, the earthenware pots and the baskets Geri has made from materials she gathers within 200 yards of their house, and the wood stoves and kerosene lamps.

John and Geri strive for the ultimate in self-sufficiency, reaching back to primitive skills. In earlier times, people lived by making whatever they needed from materials the natural



John and Geri McPherson
(Photo by Ann Turbin)

world provided. They made traps, cordage, cookware, and tools. This level of self-sufficiency has always been John and Geri’s goal. It has led them to acquire the necessary knowledge and mastery of the day-to-day skills required to provide for themselves should they unexpectedly find themselves “naked in the wilderness.” Although they don’t live at this level continuously, they consistently use the primitive skills they’ve mastered, keeping them as natural as flipping a light switch or starting a car.

As a boy growing up in New York state in the Appalachian mountain area, John spent his free time camping, hunting, fishing, and daydreaming of living a wilderness life in a self-built log cabin. In 1964, he joined the Army Paratroopers, and those boyhood dreams seemed forgotten.

While in the Army, John was injured during maneuvers and suffered a ruptured disc in his back. He underwent surgery to correct this condition. Fourteen months later, he was serving a tour in Viet Nam. The injury, the subsequent surgery, and the tour in Viet Nam combined to limit his activities. Unable to continue jumping, he was transferred out of his airborne unit and re-assigned as a platoon sergeant of a headquarters company.

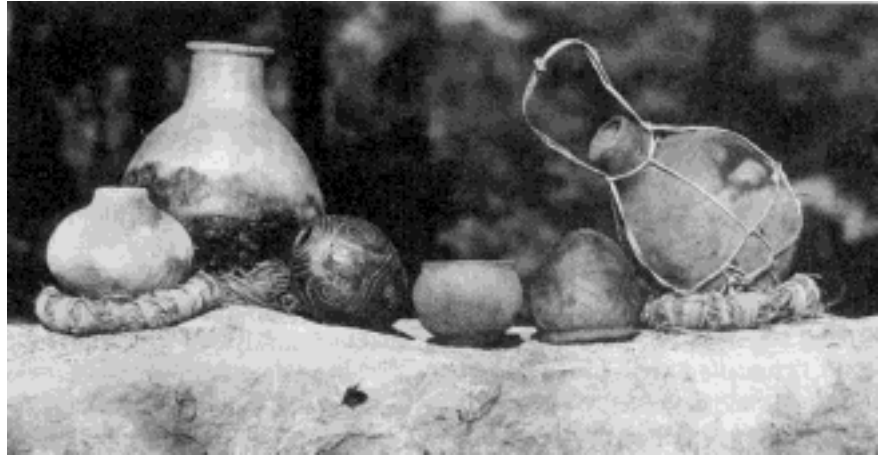


Geri in the kitchen

After his discharge from the Army, John again had serious trouble with his back and was assessed as partially disabled. Two years later he underwent a second surgery, and three years after that was assessed 100% disabled retroactive to his last hospitalization. His back is a condition he's learned to live with. In almost constant pain, he wears a back brace and has learned his limitations — what he cannot do at all and what he can do within limits. The disability check he receives from the Veterans Administration pays for the physical work he can't do himself and has to hire out.

After eight years of military life, John found himself out of the Army and alone. In only a few months he went from being a gainfully employed family man with a wife and son to being unemployed and single.

The next several months were a time of transition. John went back to college for a semester before getting a job as a newspaper photographer. During that time he contemplated what he wanted to do for a living, and his thoughts kept returning to the wilderness. He realized a rare opportunity lay before him: responsible only to and for himself he could freely ask,



A selection of earthenware containers used for cooking and storing water

“What do I want to do for the rest of my life? What am I looking for?” He had seen different jobs, lifestyles, and cultures. He had some knowledge and talent. His answers kept taking him back to the wilderness, and to a free, independent, self-sufficient lifestyle. He knew he wanted that log cabin from his boyhood dreams, but the next question was more specific: “What exactly do I need to know?”

Although John had grown up appreciating the wilderness, he realized he had no knowledge of living self-sufficiently. He didn't know how to cut logs, build a cabin, produce or gather his own food, or live without electricity. His plan was to support himself as a newspaper photographer while he learned what he needed.

He hit the library and the newsstands, looking for information on living self-sufficiently. *Mother Earth News* became a primary source of information. Living in a small, rural Kansas town provided an opportunity to learn from older people. He started gathering old tools and working for local farmers, helping them with crops, fences, tending livestock. He spent a summer helping a friend build a house, and he learned about pouring concrete. He installed a wood stove in his house, both as supplemental heat and to begin the transition away from gas. He bought a chain saw and started learning which trees made good

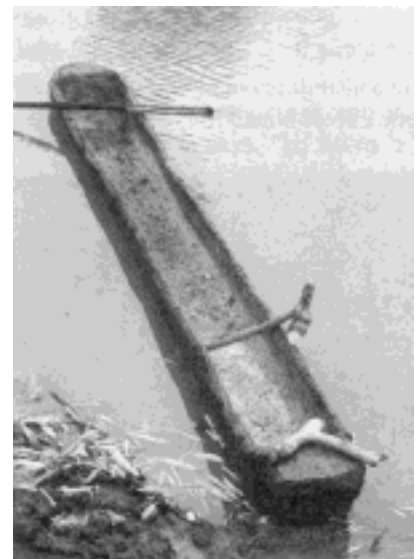
firewood and how to cut them. He planted a garden and started learning to preserve his own food.

An early milestone came for John in 1975 when he got rid of his television. He found he had been spending more time watching what he wanted to do than he spent doing it. That same year he made his first bow, tanned a calf skin, and made his first friction fire.

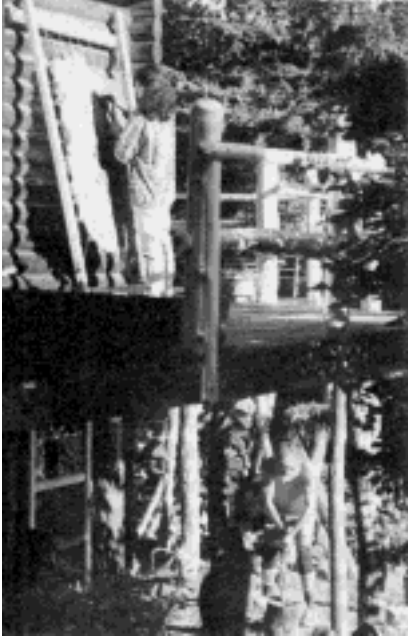
A lump sum payment from the Veterans Administration in 1977 provided the small down payment John



A stairway made from logs, using a chain saw, hammer, and chisel. The steps are set into the split log.



A 20-foot dugout canoe nearing completion. It started as a 30" diameter cottonwood, chopped down, squared into a beam, and hollowed out— all with stone tools.



Geri de-hairs a skin while John splits wood

needed to buy the land where he now lives. He had become self-sufficient and knowledgeable enough to start building his own house and to raise his own food.

One of John's goals was to build the house without using electricity, to use



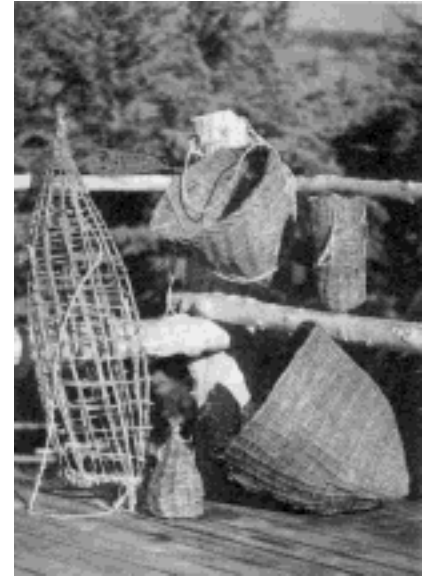
A collection of tools used in various projects. Nearly all of them were made using primitive methods (such as burning holes with fire made with a hand drill).

only chain saws and hand tools. In 1978, John's back was still strong enough to cut the trees he needed for the first course of logs. He cut the trees, squared them off, and laid the logs on the concrete walls. He made the roof flat, planning to build up from it sometime in the future.

The initial house was a 736 square-foot walk-out basement. Planning to build in stages, John moved in the next year (1978), as soon as he had a floor and roof. It was another milestone. He and his (former) wife were living without electricity. They had a large garden (40' x 100') and canned all their food, and they raised and butchered their own hogs and steers. They used a propane refrigerator, wood heating and cooking stoves, and kerosene lamps.

They hauled water in gallon milk containers from the town of Randolph, two miles away, until the water system was completed three years later. Planning a simple gravity-flow system, John had a well drilled and purchased a windmill for \$300 from a friend. The base of the windmill is 10 feet above the floor level of the house. The hardest part of installing the system was jackhammering the 142-foot water line trench from the tank to the house. Three feet of limestone and flint had to be cut through to lay the line. Unable to do that work himself, John recalls, "I rented the jackhammer and bought a lot of beer for my friends."

In 1985, John and his second wife parted ways. She began moving more into the modern world and John, moving more toward the primitive, began making the Mountain Man Rendezvous circuit. For the next couple of years, John attended the Rendezvous and taught brain tanning, bow-making, and friction fire techniques. It was following one of these rendezvous that John wrote and published his first book, Brain Tan Buckskin. In 1987, he wrote and published his second book, Primitive Fire and Cordage. It was also at one of these Rendezvous



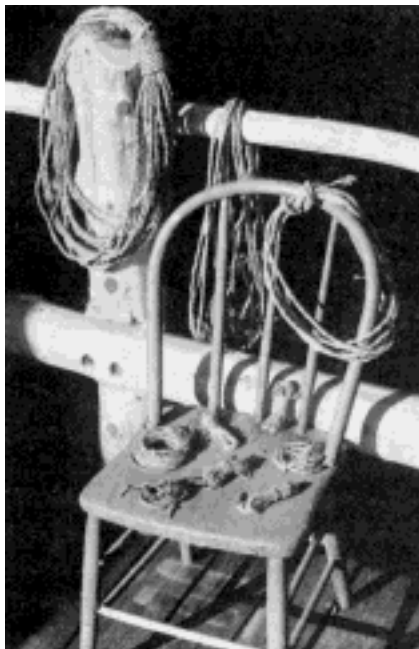
When gathering, you need a way to carry things. Here are some of the couple's baskets, most of which can be made in a short time. The large one on the left took about three hours, including the carrying strap.

that he and Geri met. Traveling the same road, they were married in December 1987.

Construction on the upper level of the house was begun in 1990. Unable to cut and haul the logs, John purchased milled logs. John and one of his older friends, 70-year-old Argel Pultz, were the only full-time workers. The work took its toll on John's back,



Sharp, useful tools can be made using the ancient art of flint knapping. Here are some examples of John's work.



Making cordage is an essential primitive skill. Here are examples ranging from a short fishing line to a 60-foot 3/8-inch rope—all made by hand from locally-gathered natural fibers.

and he almost had to hire the work done. He learned his limits: as long as he didn't do too much at one time and quit whenever his back told him to, John found he could do the work. The addition, including a loft, added another 976 square feet of living space to the house. Later, John and Geri added another bedroom and library (448 square feet) making the complete house 2,160 square feet.

Although John would still like to retreat to the mountains and live a truly primitive life in the wilderness, his back condition doesn't permit further withdrawal from modern society and medicine. The success of his first two books convinced him, instead, to write a series of how-to books on primitive skills. Because there was such a lack of information available when John began his quest for self-sufficiency, sharing what he and Geri have learned is very important to them.

John chose to publish his books under the name Prairie Wolf, the

Indian name for the coyote, because the coyote hasn't just adapted to the modern world, it has thrived.

The original series contains ten how-to books covering the subjects of tanning, fire and cordage, bows and arrows, obtaining sustenance, cooking methods, containers, tools, and semi-permanent shelters, all done primitively, directly from nature. John wrote the first two books himself, and he and Geri together wrote the others. The series was consolidated in 1994 into one large volume: Primitive Wilderness Living & Survival Skills.

As a complement to the book, John and Geri have also produced six videos showing the skills of brain tanning, primitive fire and cordage, the primitive bow and arrow, dressing a deer, primitive shelters, and the Asiatic composite bow.

Writing and publishing challenged the McPhersons' electricity-free lifestyle. At first John wrote the books using a typewriter and took the manuscript to a typesetter. That proved to be inefficient, but running a computer without reliable energy was worse. After their third book, the McPhersons purchased a home computer system. The computer reduced production costs and gave them more control of their final product, but getting power to it was a problem.

They began by using a generator, but soon tired of the noise. Someone offered to set them up with a solar system at cost, in trade for a week of Primitive training, and they jumped at the opportunity. Their system consists of two 4-foot-square sections of panels and six, 6-volt golf cart batteries. This provides ample power for the two computers and for the VCR system they added for their video production.

Along with writing the books come the tasks of publishing and marketing. Unable to find a publisher willing to buy and produce the books the way John wanted it done—with all the photographs included—John began marketing the books himself. He has



Naturally made buckskin

built mailing lists, identified retail outlets, and learned to utilize direct mail advertising. (More self sufficiency.)

Teaching primitive skills and tending to the details of marketing their books and videos consumes much of John and Geri's time . . . more than they would like. They prefer to spend their time perfecting and enhancing their primitive skills or researching, through doing, material for their next book.

This fall John will gather cedar logs to start a new project, a 10x12 log cabin. A nearby landowner wants to take down some trees, so John will take advantage of the harvest. He and Geri will also spend some time perfecting the log canoe that they and local youngsters have spent the last two summers making, using only stone tools.

With the onset of cold weather, indoor activities will resume: making pottery, bows, and arrows, tanning hides, reading and writing. Geri is currently writing a novel that is set during the Stone Age. The work calls upon her knowledge of primitive skills, lending a unique perspective to her descriptions of the daily activities of aboriginal people. John and Geri are also researching Volume II of their how-to book, the next phase of their journey to self-sufficiency.

The McPhersons' book, Primitive Wilderness Living & Survival Skills, and their videos are available by writing to Prairie Wolf, PO Box 96C, Randolph, KS 66554. You can also order their book through *Backwoods Home*. Δ

Beans — they may be a poor man's meat, but they are also the gourmet's delight

By Richard Blunt

During the last half of the 20th century people have become as concerned with nutritional value as they are with the quality of taste and pleasure in the food they buy. Before the last World War most of us didn't know the difference between a vitamin and calorie. Today it is a familiar sight to see folks waltzing through the supermarket and spending more time comparing the nutritional information of various foods than actually shopping. My 10-year-old daughter can recite the names of the eight essential amino acids in one breath, without mispronouncing one of them. I don't even know who taught her.

With all of the nutritional awareness in this country, it baffles me that beans don't seem to be fully recognized as an inexpensive, very available food source that is low in fat and calories, and high in complex carbohydrates and fiber. It also has enough essential amino acids to qualify as a fair source of usable protein. Beans can easily be prepared using simple basic recipes that will produce some wonderful tasting hors d'oeuvres, soups, salads, casseroles, stews, and desserts. There are few other foods that are so versatile.

For those model gourmards striving to etch their name in the great book of gastronomical mythology, you can enter the holy war of the French cassoulet and create your own version of this classic meat and bean casserole, baked in an earthenware pot. The French will spend whole evenings discussing the virtues of a true cassoulet, with the same dedication that football fans exhibit when defending their favorite team in the Super Bowl. Not only that, but they do it in French.

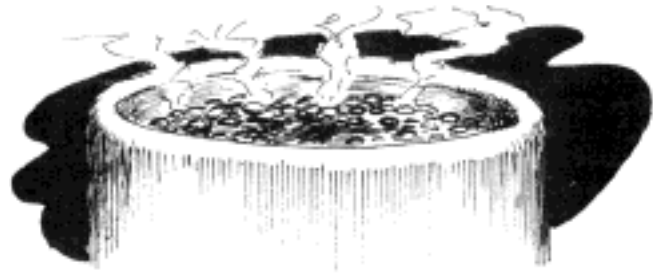
In the recipe section I have included a version of the Castelnau dry cassoulet. It doesn't fall into the "easy to prepare" category of bean recipes, but I assure you that every minute spent in preparation of this classic dish will be returned twice-fold in taste, aroma, and absolute eating pleasure.

Poor man's meat?

At one time beans were called "poor man's meat," but the sweeping interest in Mexican and Mediterranean food in this country has taught us that beans are everybody's food. At one time if asked how we ate beans, many of us would answer, "baked," instantly calling to mind the old franks and beans tradition. Without a doubt Boston Baked Beans has been a signature of American cuisine as few other dishes have been. But I find many folks can't deal with the

syrupey sweetness of this dish and will avoid beans in general because of this association. My daughter Sarah was one of these people until I started experimenting with different bean recipe concepts while working on this column.

Baked beans are a favorite item around our house, and poor Sarah was often forced to eat a second choice on the nights when baked beans were on the menu. When she found out that I was writing this month's column on beans, she was not happy. It finally dawned on me to ask her what it was that turned her off to beans. She answered, "They're too sweet and a little bitter."



I reminded her that one of her favorite snack foods was the spicy bean dip, hummus. She looked surprised and said, "That's not beans."

After realizing that beans were not the culprit, Sarah and I went to work and created a recipe called, Beans for Sarah. If baked beans offend your palate, and you would like to create a simple dish that accents the natural sweetness and hardy flavor of the common bean, you will love this recipe.

Flatulence

At the risk of sounding inappropriate, I would like to say a few words about an often embarrassing consequence of consuming any variety of dried bean. Flatulence is not life threatening, although I was once in a crowded elevator in Boston's Harbor Towers when the area suddenly filled with that mixture of hydrogen, methane, and hydrogen sulfide gases, carrying those offensive skatole and indole odors. After only one minute of exposure in such a confined space, I confess that I was a little concerned for personal safety.

Intestinal gas is the result of sugars, starches, and fiber reaching the large intestine without being digested. Once there, the harmless bacteria residing in the bowel eat them and give off those bothersome gases as a byproduct of this process. One of the most prolific sources of intestinal gas are what scientists call raffinose sugars. Unfortunately they are found in large amounts in dried beans. These sugars require a specialized enzyme (alpha-galactosidase) to break

them down. However, our bodies don't produce this enzyme, so our intestinal bacteria are left to the task and produce the gases as a byproduct.

There are a number of "gas preventer" products on the market that may help if you are troubled by flatulence. Being one who is troubled with gas, I decided to try one. One company makes little bean-shaped pills that, much to my surprise, cut down on the volume of gas and eliminated that uncomfortable bloated feeling. Unfortunately, odor was still a problem. Over the last few months I have learned a few tips that also help to reduce gas generated by bean consumption.

1. Cook your beans completely. By completely I mean soft without being mushy.
2. Discard the water that you soak the beans in. This water is loaded with raffinose sugars.
3. Many bean recipes call for the addition of onions, cabbage, and other potential gas producing vegetables like broccoli. Try reducing some of these ingredients.
4. Always carry a book of matches (no joke). A lit match produces ozone which oxidizes those mortifying odors.
5. Learn to point to someone smaller than yourself when you're the culprit.
6. If all else fails, make friends with other bean lovers, and hang with them as much as possible.

Cooking tips

As I stated above, beans benefit most from simple, basic cooking techniques. With this in mind you will find my list of cooking tips short and uncomplicated. To develop the best flavor and consistency in all of your bean recipes:

1. Spend a few minutes to plan your bean usage for any period of time. Cook a large enough quantity of beans to cover your needs. Drain, cool, cover, and refrigerate or freeze them until you are ready to use them. This is called the "bean pot method." When the pot is empty repeat the process. Keep in mind that most beans always taste better and have a better texture a couple of days after being cooked.
2. Do not soak beans overnight. There is no advantage to soaking beans for more than four hours. I have discovered that black beans require as much cooking when soaked as they do without soaking.
3. Invest in a couple of earthenware bean pots and casserole dishes. Beans cooked in this type of pot have a flavor that cannot be achieved using a metal pot. As a matter of fact, the great authority of Mexican cuisine, Diana Kennedy, suggests that beans should never be stirred with a metal spoon. When the great ones speak, I listen.
4. Do not add salt or any acid sauce to beans until they are thoroughly cooked. Accomplished chili and Boston Baked Bean makers have discovered that adding partially cooked beans to the acid environments of tomatoes or molasses will

prevent the beans from getting any softer no matter how long they are cooked.

5. Cook beans very slowly in a covered pot. Most beans require 1 1/2 to 2 1/2 hours of slow cooking time. Faba, garbanzo, and soy beans will need about 3 hours.

The recipes that I have selected to share with you all call for a type bean, and these recipes are selected and developed to suit my personal taste preferences. If you do not have the type of bean that is called for, replace it with the bean of your choice.

Not all beans are created equal; each type has a special flavor and texture. I am sure that if you have not already developed a preference for any particular type of bean, it will not be long before you do. I prefer the taste of any variety of common bean (navy bean, pea bean, pinto bean, mung bean, kidney bean to name just a few) over the taste of the broad bean (lima bean or faba bean). I avoid faba beans because my father's side of our family has had problems with Favism, which is a type of anemia caused by the consumption of faba beans. In severe cases, simply inhaling the pollen of this bean's flowers is enough to cause problems.

Because of my own preferences and concern for my health, the cassoulet recipe I am going to present is far from being classic. The classic version calls for faba beans as a first choice, with lima beans as a distant second. Having said that let's begin the recipes with this French classic.

Cassoulet

Despite the fact that this dish can cost big bucks at any French restaurant, it is in reality a basic country food that calls for ingredients that are common in many French kitchens. Even if you decide to pass on preparing this for your next family get-together, I think that you will enjoy reading about how complex simple food can be.

This recipe calls for a goose confit (pronounced con-fi) which is another name for preserved goose. When prepared properly, this stuff holds in the refrigerator for months.

Most recipes suggest that it be held in the refrigerator for 3 or 4 months before using it. Even though the meat is cooked in, and preserved in, a large volume of fat, the finished product is fairly low in fat and has a wonderful flavor. I included this in the recipe because it is one of the few luxury foods that I enjoy. But I don't feel that a cassoulet will fail without the inclusion of the goose confit so you will see that I have listed it as optional in the list of ingredients for the cassoulet.

Ingredients for Goose Confit

- | |
|---------------------------|
| 1 goose (about 10 pounds) |
| 2 Tbsp Kosher salt |
| 6 whole black peppercorns |
| 1 bay leaf |

Method

1. Cut the goose into quarters and remove as much fat as possible. Place the fat in a heavy-bottom pot and melt it slowly. Add the goose quarters, salt, peppercorns, and bay leaf. Cover the pot and cook over low heat for two hours. Remove from the heat and allow to cool without stirring.

2. When the goose has cooled and the fat settled but is not yet stiff, spoon some of the fat into a large preserve jar or stone crock. Lay one of the goose quarters in the jar and cover it with more fat. Continue this sequence until all of the goose quarters are in the jar and covered with about a half inch of fat. Use only the fat, do not disturb the meat juices. Cover the jar tightly and age in the refrigerator for at least 4 months. I recommend 5 months.

3. Now, pretend it is five months later, and you are ready at last to create your classic Castelnau dry cassoulet. If you really want your cassoulet to be a winner, I suggest that you carefully consider the sausages you select. The character, taste and texture of the sausage selection, is in my opinion, the signature of the individual cook. The taste and texture of sausage mixtures vary according to continent, country, region, town, hamlet, neighborhood, street, as well as religious, ethnic background, and taste preferences. So please feel free to use the type of sausages that represents your region and personal tastes. Keep in mind one type of sausage should be a type that will hold its character when cooked in liquid for a long period of time. The other should be somewhat spicy and roast well.

Ingredients for cassoulet

- 1 pound of dried white kidney beans (or other white beans)
- water to soak the beans
- 2 Tbsp salt free butter
- 4 Tbsp extra virgin olive oil
- 2 medium white onions diced fine
- 4 cloves of minced garlic
- 1 Tbsp flour
- 4 raw ham hocks
- 1 pound kielbasa (boiling sausage)
- 4 oz lean salt pork
- 8 oz piece of fresh pork shoulder or butt
- 1 1/2 cup fresh diced plum tomatoes (peeled and seeded)
- 1 large bouquet garni (fresh basil, thyme, flat leaf parsley tied together in a piece of cheesecloth)
- 2 whole cloves
- 4 whole black peppercorns
- 3 cups fresh beef stock
- 3 4 oz center cut pork chops
- 3 4 oz loin lamb chops
- 1 pound venison sausage or other course textured spiced sausage
- 4 pieces preserved goose (this is the optional confit)
- 2 medium white onions sliced

- 2 medium carrots chopped
- 1 cup bread crumbs
- 3 Tbsp soft unsalted butter

Method

1. Pick over the beans and discard any that don't look right, then soak the beans in cold water for at least 4 hours.

2. Heat the butter and olive oil in a heavy-bottom pan, add the diced onion and garlic and cook over a medium heat until the onions are translucent. Stir in the flour with a wooden spoon and cook the mixture for five more minutes.

3. In a large earthenware casserole (at least 4 quarts or larger) combine the onion mixture, ham hocks, kielbasa sausage, salt pork, pork shoulder, fresh tomatoes, drained beans, bouquet garni, whole cloves, peppercorns, and enough beef stock to just cover the mixture. Cover tightly and bake in a preheated 325 degree oven for 2 to 2 1/2 hours or until the beans are completely cooked.

4. Remove the beans from the oven and reset the oven to 375 degrees. Combine the pork chops, lamb chops, venison sausage, preserved goose, sliced onions and carrots, and 4 oz of beef stock in a large roasting pan.

5. Roast them all together removing each meat as it becomes cooked, and setting it aside in a covered container. Discard the onion and carrot. Since the goose is already cooked, it can be removed as soon as it becomes hot.

6. Remove the kielbasa sausage, ham hocks, and pork shoulder from the beans. Cut the fat from the ham hocks and discard it. Scrape off any meat from the hocks and return it to the beans.

7. Add any pan juices from the roasted meats, along with the venison sausage, pork chops, and lamb chops. Cover the casserole and return it to a 325 degree oven for one hour.

Final Preparation

8. Remove the casserole from the oven and separate all the meats. Spread the beans in a large shallow casserole; slice the sausages, and pork butt to desired thickness. Arrange the meats on top of beans in a desired order. Make it cute.

9. Mix the bread crumbs with soft butter and spread evenly on top of the cassoulet. Bake in a 375 degree oven until brown. Serve immediately. It will serve 5 to 6 adults

One final word: Try not to cut any corners when you make this for the first time. If you do, you will never experience the real delight of this wonderful dish. Good luck.

Beans for Sarah

This is one of those bench-job recipes that gives me a tremendous sense accomplishment and satisfaction when they turn out right. The recipe also marks a milestone in my life. My daughter offered to help me research and assemble a recipe for the first time ever. The delicate balance between

the strong taste of cabbage and the light sweetness of Granny Smith apples is a result of her natural ability to taste a food and suggest accurately what is missing.

Ingredients

- 1 1/4 cups dried pinto beans
- Water to soak beans
- 3 Tbsp extra virgin olive oil
- 12 oz green cabbage (diced small)
- 2 cloves minced garlic
- 1 1/2 cups low salt chicken stock (fresh or canned)
- 1 cup apple cider
- 1 large onion (diced medium)
- 1 large carrot (peeled and diced medium)
- 1 stalk of celery (diced medium)
- 1 bay leaf
- 3 whole cloves
- 4 oz piece of lean salt pork (optional, for additional flavor)
- 1 cup peeled, seeded, and diced fresh plum tomatoes
- 1 cinnamon stick (broken in half)
- 1/4 cup apple brandy (optional)
- 3 Granny Smith apples (peeled, cored, and diced medium)

Method

1. Soak the beans for 4 hours in water. Drain and discard water.
2. In a heavy-bottom pan heat the olive oil and saute the cabbage and garlic until the cabbage is tender.
3. In a large heavy-bottom pot, combine beans, chicken stock, apple cider, onion, carrot, celery, bay leaf, and cloves. Bring to a boil over high heat and remove from the heat immediately.
4. Transfer the bean mixture to a bean pot or earthenware casserole, add the salt pork, cabbage mixture, tomato, cinnamon stick, and apple brandy.
5. Cover the casserole, place it in a 325 degree oven for one hour, then add the apples and bake until the beans are tender, about 1 1/2 hours. Total cooking time 2 to 2 1/2 hours.

Poor man's pierogi with red beans

Here is what seems to be an unlikely combination. I first tasted this hearty meal in October of '65 while fishing for striped bass on Race Point Beach on Cape Cod with four market fisherman during a midnight high tide. The bass hung in, chasing bait fish for about two hours, and I nearly worked myself into a coma trying to match these pros cast for cast. At about 2:30 A.M. things started to quiet down and I walked out of the surf and collapsed from exhaustion on the sand. After my unknown fishing companions stopped laughing, one of them came over and asked me if I would

like to share some "poor man's food" with them. I was cold, wet, and very hungry; plus they had a warm fire and I didn't. A giant man with a ragged graying beard, and a soft friendly voice, reached out to shake my hand, "How ya doin' big guy, my name is Howard. Hope you like Pierogi and red beans, cause that's all we got." The five of us sat for the next half hour and feasted on this wonderful and simple dish, spooning cold noodles onto our plates from a large casserole and topping them with hot kidney beans seasoned with smoked chourico sausage.

This brief interlude was suddenly interrupted when a bunch of hovering sea gulls signaled the return of a school of bait fish. This meant that the stripers were not far behind. So I was left sitting next to a waning fire and an empty pot of beans, while these supermen returned to the surf. I laid down and went to sleep.

I fished with Howard every fall for about ten years, and badgered him until he taught me to make his "poor man's food." Both of these recipes are best when prepared and allowed to mellow in the refrigerator for a couple of days.

Ingredients for the noodles

- 12 oz (dry) medium egg noodles
- 4 oz unsalted butter
- 1 1/2 lb green cabbage (diced medium)
- 1 large white onion (diced medium)
- 4 cloves of minced garlic
- 1 Tbsp fresh ground black pepper (no kidding)
- 1/4 tsp ground nutmeg
- 6 dried juniper berries (crushed)
- 1 oz warm gin
- 1/2 cup fresh beef stock

Method

1. Cook the noodles in lightly salted boiling water until just tender, drain and cool under running water. Set aside.
2. Melt the butter in a large fry pan over medium heat and add the cabbage, onion, garlic, black pepper, and nutmeg. Saute until the cabbage is tender and translucent.
3. Combine the juniper berries with the warm gin in a flame proof bowl. Ignite the gin with a match and allow the flame to burn out. Combine this with the beef stock and add to the cabbage mixture.
4. Reduce the heat and cook the cabbage mixture for about 30 minutes, or until the cabbage is very tender. Stir every few minutes to prevent burning.
5. Combine cabbage with noodles in a large casserole, cover and refrigerate until the beans and sausage are ready.

Ingredients for the red beans and sausage

- 1/2 lb dry red kidney beans
- water to soak the beans
- 3 large ham hocks
- 2 cups water

- 1 cup light fresh beef stock
- 1 cup of your favorite beer or ale
- 1 cup celery (diced medium)
- 1 1/2 cup onion (diced medium)
- 1 cup red bell pepper (diced medium)
- 2 bay leaves
- 8 oz smoked chourico sausage (cut into 1/2 inch pieces)
- 2 tsp dried cilantro
- 2 cloves minced fresh garlic
- 1 tsp chopped fresh mint
- 1 tsp dried oregano leaves
- 1 tsp ground coriander
- 1/2 tsp cumin powder
- 1/2 tsp cayenne pepper
- 1/2 tsp black pepper
- 2 fresh tomatoes (peeled, seeded, and chopped)

Method

1. Soak the beans for at least 4 hours in cold water 2 inches above the beans. Drain and discard soak water.
 2. Place the ham hocks, water, beef stock, ale, celery, onion, red pepper, and bay leaves, in a large heavy-bottom pot, cover, bring to a boil, reduce the heat and simmer until the meat is fork tender.
 3. Remove the ham hocks and set them aside. Add the beans to the stock, bring to a boil, cover, reduce the heat and cook the beans over a low heat until just tender.
 4. Remove the meat from the ham hocks and combine with the sausage. Stir these meats into the beans along with the remaining ingredients. Transfer this mixture to a large earthenware casserole, cover and place into a preheated 300 degree oven. Bake until the beans are very tender and the sauce has thickened. This should take from 1 1/2 to 2 hours. Check the casserole occasionally and, if the beans become dry, add more beef stock as needed.
 5. During the last half hour that the beans are cooking, place the noodle mixture in the oven to heat.
 6. Serve the red beans and sausage over the noodles.
- Before closing, let me add that you shouldn't be alarmed by the heavy seasoning in these dishes. Beans are a heavy carbohydrate food. Strong flavors like the soy based sauces of China, the curries of India, and the chillies of Peru and Mexico are designed to flavor beans and other starches. These starchy foods both absorb and dilute the strong flavor of the seasonings in the sauces. On the other hand, these same sauces, when served with meats, are really potent. So don't be bashful with the flavor enhancers when cooking with beans.

Good luck until next issue. Δ

A BHM Writer's Profile



Richard Blunt

Richard Blunt is the *BHM* Food Editor. His articles in *Backwoods Home Magazine* are more than just collections of recipes, they are instructions for how to create a dish then how to vary it to suit your tastes with explanations of how each step and ingredient affects the final product. His column is written to appeal to all readers, from beginners who want to learn how to cook well to experienced chefs who want to experiment and broaden their horizons.

Blunt is well qualified for the task. His career in the food industry spans more than three decades. What began as a desperation job as a teenage pot washer in Cambridge, Massachusetts, developed into a thirty-year learning experience that has found him presiding over the kitchens of exclusive restaurants in the Greater Boston area. Since then, he has worked as senior manager for three large food management companies, and he is currently Assistant Director of food service at a large hospital in Massachusetts. He lives in Connecticut with his wife and three children.

**A BHM Writer's Profile:
Marjorie Burris**



Since 1970, when Marjorie Burris and her husband bought their 40-acre homestead in the central Arizona mountains, necessity has forced them to learn self-sufficiency. They use native plants for medicine, cure their own meat, and maintain and repair all their equipment.

Burris grew up in southern Illinois, but has lived most of her adult life in the west. She is a registered nurse, specializing in operating room nursing. Her greatest pleasure has been watching her three boys grow up in the backwoods. Now they bring their own children to the homestead to pass along backwoods values and skills.

Burris began writing after she retired from nursing. Her articles and stories have appeared in *Backwoods Home Magazine* and other publications.

The amazing aloe

By Ruth Adler

“Ouch,” shouted Mary, as she inadvertently spilled hot coffee on her hand. Instead of running to the medicine chest for a commercial ointment, she snipped off a large leaf from the aloe vera plant on her kitchen windowsill ledge and squeezed the gel-like liquid on the burn on her hand.

Silly? An old wives tale? Perhaps, but aloe has proven effective for Mary and many others to soothe minor burns or even sunburn. Prompt application of the clear gelatinous interior of a split stalk of aloe to burns and cuts almost guarantees a fast, painless, no-scar recovery.

The versatile aloe plant is native to South Africa, where it grows in tall, grass-like stalks. The plant belongs to the lily family and varies from species a few inches high to giant forms growing 30 feet tall. The thick, fleshy leaves are armed with spines along the edges and are sharply pointed at the tip. In mild climates, they are used in landscape planting, and they are familiar greenhouse perennials in cooler sections of the country.



In herbal medicine, the raw pulp of the aloe is used as a balm for burns, scrapes, sunburn, and insect bites, as well as to promote healing of these injuries. A university research team even found the aloe to be the most efficacious treatment for minor radiation burns.

The aloe today is renowned for its use in skin care products, burn salves, and suntan lotions. Some cosmetic companies recommend their products for smoothing wrinkles on the face and neck.

Test the legendary power of the aloe yourself by growing this Biblical plant in your own home. It is easy to grow, readily available at any nursery, and simply thrives under all conditions, even the warm atmosphere of dry air and central heating in our homes. Give it lots of sun, and water it moderately during summer and winter. There is no need to keep the plant almost dry

during the cold months, as there is with other succulents.

When watering, avoid dropping moisture into its rosette of leaves. Feed it with a 20-20-20 fertilizer mixture once every few months.

If you would like to retain some of the gel in the refrigerator for your convenience, here is how to go about it: Remove a large leaf, cutting it off close to the base, and wrap it in plastic, but leave the cut end open. Use a rolling pin to press the gel out of the plant onto a piece of foil. Then, using a spoon, carefully scrape the gel into a clean, covered container and put it in the refrigerator until it's needed. When you use it, spoon a small amount out of the jar and then put it back in the refrigerator.

The aloe plant is capable of sending out large clusters of bell-shaped blossoms from early March until July, but it is rare to have this occur in your home.

You can easily propagate new plants, too. The aloes send up suckers from their base. These small plants can be dug up with some roots attached and then placed into their own pots filled with a light well-drained soil.

Enjoy the versatile aloe plant in your own home and judge for yourself its healing attributes, its easy care, and its beauty. Δ

A BHM Writer's Profile: Ilene Duffy

Ilene Duffy is the Business Manager for Backwoods Home Magazine, and she also has written articles and book and video reviews. As the main proofreader for each issue, she is responsible for the remarkably low number of typographical errors that appear in BHM.

Ilene formerly worked as a bilingual kindergarten and first grade teacher for nine years in California. She gave up teaching to become BHM's business manager shortly after she married the magazine's publisher, Dave Duffy. She says the biggest benefit of working with the magazine is the freedom it offers her to work at home so she can be with her three young sons, and to raise her family in a quiet, country setting.

Since the magazine has moved to Gold Beach in Oregon she has become a fresh and salt water fishing enthusiast, catching and cooking king salmon from the Rogue River and catching and cooking the many bottom fish from near the Gold Beach Reef, located a few miles offshore. She buries the fish carcasses in her big garden to help her vegetables grow.



Everybody *talks* about lightning — and yes, there *are* things you can *do* about it

By Albert H. Carlson

What was a beautiful sunny day with large white billowing clouds low on the horizon has turned progressively darker. The clouds are now almost black, and the temperature has dropped. You are now sure that you are in for a real storm . . . but not just any storm: a *thunderstorm*. One with a spectacular light show and driving rain. In fact you are about to come face to face with nature's largest and most regular display of electricity, *lightning*.

Static electricity builds up on the clouds as they move through the sky. Charges of *several million volts* are not uncommon. Whenever a charge builds up, it will seek to neutralize itself. This is because all systems attempt to come to rest in the state that requires the lowest energy. In the case of the earth and the surrounding environment—of which the sky is a part—the lowest state for electricity is usually found in the earth itself. This is normally called *earth ground*.

Because the air itself is an *insulator* —meaning that current does not readily flow through open air—the charge in the clouds must reach large values before it will *arc* across the air. Another example of this type of phenomenon is the spark jumping the gap of a spark plug in your car. When electricity arcs, it is visible to the

naked eye and can be heard. When it happens in the sky, it's called lightning and thunder.

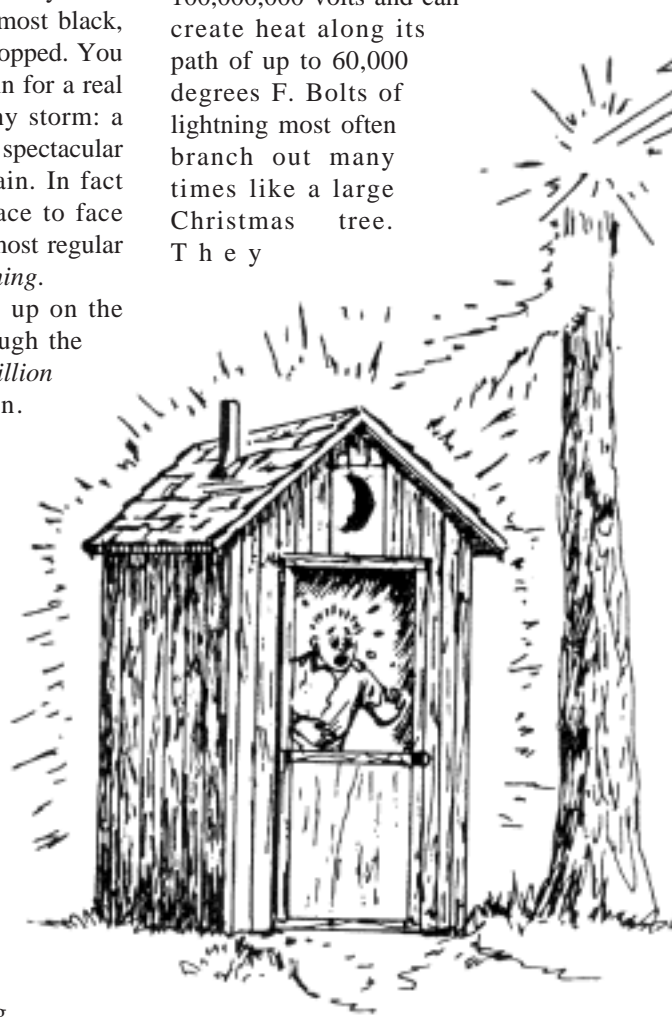
Lightning contains *a lot* of power. Lightning typically delivers 100,000,000 volts and can create heat along its path of up to 60,000 degrees F. Bolts of lightning most often branch out many times like a large Christmas tree. T h e y

cloud to another. This is to be expected, because there is a smaller distance from cloud to cloud than there is from a typical cloud to the ground. The resulting lightning can come in sheets and light the sky. Ground strikes are less common, but much more frightening. They frighten us because cloud-to-cloud strikes don't hit us (or things near us), whereas ground strikes may.

Air as insulator

Air belongs to a class of materials called *insulators*. All materials fall under one or the other of the following classes: *conductor*, *semiconductor*, and *insulator*. *Conductors* allow electrical current to flow easily. *Semiconductors* resist electrical current flow unless a foreign substance, called a *dopant*, is added. Dopants are usually phosphorus or boron. *Insulators* resist electrical current flow vigorously.

Current *will* flow through an insulator *if* there is a sufficient voltage difference at either end of the insulator. We can measure how well an insulator resists the flow of current; the resistance is measured in *ohms* per unit area. If an insulator has a rating of 10 ohms per unit area and is 15 units long, the total resistance is 150 ohms. It's easy to see that if the distance between two clouds is 1000 meters, while the distance between a cloud and the ground is 3000 meters, then the resistance



usually occur singly, but occurrences of two and three simultaneous bolts have been captured on film.

Lightning usually takes one of two forms: *cloud-to-cloud* and *ground strikes*. Most lightning is from one

between the clouds is smaller than the resistance between the cloud and the ground.

Because air is an insulator, in order for lightning to arc to the ground, there has to be a *whole lot* of power behind it to break down the insulator and create an intermediate state of air called *plasma*. Lightning follows a path that it continuously creates in front of itself made out of plasma. A small bolt reaches the ground, and then a *much larger return bolt* flows from the ground (or the object struck), back along the exact same path. Therefore, anything that gets hit by lightning gets hit *twice* . . . double the fun and double the damage.

Light, heat, ionization, explosion

In a lightning strike, electrical power can manifest in one of four ways: *light*, *heat*, *ionization*, and *explosion*. Lightning is very bright, of course. Some of the power in the lightning bolt is *dissipated*, or used up, in the characteristic light associated with it. A similar phenomenon is used to make light in light bulbs. As current flow through the bulb's filament, light is produced, along with heat. Remember that when a tree is struck by lightning it usually catches fire. That's the *heat* in the lightning bolt. Think of the lightning bolt as the filament. Heat isn't as big an effect as it might be (given all that power), because lightning is a *transient*, or temporary, occurrence.

Sometimes a smell of *ozone* is in the air after a lightning strike. Ozone is a form of oxygen in a different configuration than the one we're used to. It has the chemical formula O_3 (that is, the ozone molecule is made up of three oxygen atoms), while normal air is O_2 . So much power is dumped into the air that it actually rips air molecules apart (an example of *ionization*) and rearranges them.

The last sign is *explosion*. When lightning strikes something, so much power enters the thing that is struck that the power can't all be absorbed. The object of the strike tries to convert the power into heat and can't handle all the heat. The result is an explosion.

When lightning strikes an object, a great deal of current suddenly flows through the object being hit. Current has several by-products, including heat, fire, explosion, vaporization, and electrocution. Heat results because everything has electrical resistance. Even metal (a conductor) has a minute amount of resistance, although it is much smaller than in non-conductors. Power is dissipated across a resistor, and the power that is used up changes form and becomes heat.

Since all materials have some kind of resistance, when lightning strikes an object, an enormous amount of heat can be created. Whenever the heat exceeds the *flash point* of a flammable material, it will catch fire and burn. Paper, for example, burns at 451 degrees F, hence the name of the classic novel Fahrenheit 451. This explains why trees and wooden buildings catch fire when hit by lightning. If sufficient energy is transferred (as heat) from the lightning bolt to the object that is struck, the moisture in the object becomes gas. That gas expands so rapidly that pressure builds up, and the object explodes. A tree that gets hit and explodes suddenly becomes a wooden grenade, complete with shrapnel, and may drop large limbs on someone standing beneath it.

With sufficient current, the muscles in the body contract. When the muscles contract, the body can involuntarily strike things. This can result in secondary injuries if something hard or sharp is hit, and you could conceivably hit yourself. Muscle contraction begins at about 0.02 amps, less than the current required to light up one light-emitting diode. As long as the current is applied, the muscles remain contracted. The same mechanism is used by the brain to make the body

move. Only 0.07 amps are required to stop the heart, a condition known as *electrocution*. As little as 175 volts can stop the heart if the victim is wet with sweat or other ionized moisture. Electrocution can happen quickly and be complicated by burning and destruction of tissue along the path of the current.

If you feel it coming, *dive!*

Can you tell when you are about to be struck by lightning? There is often a warning: a feeling similar to what happens when you touch a static electricity generator, or when you take the clothes out of the dryer and separate a staticky sock from a towel. This is to be expected, since lightning starts as static electricity that breaks down the air to neutralize the charge. The result is that people about to be hit can feel the hair on their bodies stand on end and sometimes report a tingling sensation.

If you are in a storm and feel this, *act immediately*. This is all the warning you are going to get. Get as low as you can to the ground. If you are not the highest point around, you are less likely to be hit. If you can find a nearby ditch or draw, get into it. *Rolling* to the ditch is much smarter than *running* there. Rolling in something wet will also help to get rid of the charge accumulation on your body. Avoid holding on to anything metal. If you have a tool in your hand, drop it. If you are touching a metal object, get away from it. If you are on a roof, get off. Don't do anything that will make you a more attractive target for the lightning.

It's easy to detect an oncoming storm with your TV. Turn on your set to Channel 2 and turn the sound all the way down. Next, adjust the set so that the contrast turns the screen just barely black. Lightning will cause the screen to flash white. This works because lightning emits energy on a lot of frequencies at the same time (*broad band emissions*). Since even

the small portion of the lightning energy emitted as radio frequencies is huge, your TV antenna picks this up and tries to interpret it as a picture. The worse the lightning, the more frequent and brighter the screen flashes will be. This will give you some idea when a bad storm is heading your way without having to expose yourself to the weather.

Lightning rods

Some damage to buildings and land can be averted by employing *lightning rods*. The role of lightning rods is to *attract* lightning and direct its energy to a safe target: the ground. The idea is that you can control where the lightning hits and steer it away from people, property, trees, and livestock. The key to using the lightning rod effectively is to put it up high and *ground* it well. Plan on using three or four on a building to make it really safe.

Lightning rods are lengths of heavy metal, sometimes with radiating metal fingers, that are mounted at the highest point of a building or other structure. They are connected to ground with a heavy wire cable through a stake or ground rod. There is a range of commercially available rods with mounting brackets that work well. See your local hardware or building supply dealer.

After mounting your rod on the highest point of the structure, you must connect it to the ground. Actual earth is the ground that you need. Remember that there will be a *whole lot* of power running through the cable. If you use a small wire, *it will melt*, and then the only path to ground from the lightning rod will be the structure you are trying to protect—so don't skimp. You need to use a large cable to connect the lightning rod to the ground. Cable is used, instead of wire, because of the large current that will have to pass to ground if the lightning rod is struck. Since the resistance of wire or cable is directly related to its diameter (higher resistance

for lower diameter), and since the purpose of the unit is to attract lightning by making the path to ground as easy as possible, it stands to reason that the larger the cable, the better. Large lightning rods have cables as large as $\frac{3}{4}$ " to 1" in diameter. Smaller rods typically use $\frac{1}{8}$ " to $\frac{1}{4}$ " diameter cables. Rods that pound right into the roof of a house can usually get away with $\frac{1}{8}$ " diameter cable. Rods that mount to the roof with a bracket should have $\frac{1}{4}$ " diameter cable, minimum.

Almost all cable used for lightning rods is stranded cable made of steel. Copper cable is sometimes used when and where available. Although copper tends to have less resistance than steel, it also tends to be more expensive. The difference in resistance is minimal in practice, so use whatever is cheaper. Smaller-diameter wire may be insulated, but don't count on larger cable having any insulation. When mounting the rods, connect the cable and loop it around the base of the rod and then through the mount, if there is one.

Usually the cable is terminated to either a stake in the ground or a buried ground rod. The best metal to use for this purpose is copper. Stakes should be at least four feet long and $\frac{1}{2}$ inch in diameter. Rods should be at least six feet long and $\frac{1}{2}$ inch in diameter. Count on changing these every four to eight years, depending on the amount of moisture in the ground.

Do lightning rods work? You bet! They are in use from Chicago to Florida. Wherever you have frequent lightning you will find—and should be using—lightning rods.

Power surges

Lightning can hit a power grid or generator. This happens all the time throughout the world. Lightning is attracted by the alternating voltage when it drops to its negative value. Typical power grids are 110/120 volt three-wire systems (although there are

also 220 and 440 volt systems). Part of the regular variation in voltage in the system is one of the wires going to the negative peak. In a 110 volt system, voltages will vary between 110 and minus 110 volts. Normally the earth is at *ground* (0 volts), so called because that is the normal voltage of a plot of dirt. As the power lines go below 0 volts, lightning will be more strongly attracted to them. When lightning hits the grid or generator, the energy has to go somewhere, and that somewhere is right into your house! If you haven't protected your home and electronics, there is a good chance that components in one or more of your electrical devices will be destroyed. The more common lightning strikes are in your area, the greater the chance that this will happen to you.

These *power surges*, or *transients* (so called because they are short and powerful), can be handled by using a couple of strategies. The first is to use a *surge protector* on all of the electrical appliances in the house. Many commercial models are available at Radio Shack, building supply stores, and other electrical or computer supply houses. These detect surges and react in a very short time, usually from *micro-* ($1/1,000,000$) to *nano-* ($1/1,000,000,000$) *seconds*. You must manually reset the protector each time it is tripped. Costs range from \$10 to \$100 for five outlets on the strip.

More electrically handy people put *dual transorbs* and *metal oxide varistors (MOVs)* between the power lines and the point of entry to the house. *Note:* Don't attempt this yourself, unless you really know what you're doing; otherwise, call in a professional.

Transorbs are components that carry current after a certain voltage is exceeded. This is called the *trip voltage*. The transorb keeps the voltage between the two lines at a set voltage and won't allow it to go any higher. This prevents your appliances from being damaged by the application of too great a voltage at their inputs.

Transorbs can absorb a lot of current but turn on more slowly than MOVs. They are rated in the number of kilovolts that they can handle. Never use a smaller-rated unit than 1.5 kV. The 5kV units are good all around choices to maximize protection and minimize cost. Most power grids, or power distribution systems, have voltage variations of 10% - 20%. This means that a 110V grid can vary between 88V and 132V, so rate the trip voltage for the transorbs at least 30% above the *nominal*, or rated normal voltage, for your grid. Make sure that you use the type of transorbs for AC (alternating current) lines.

MOVs react very quickly to surges but have the tendency to allow the voltage between power lines to get further apart. In other words, they don't clamp well if the inputs vary slowly. Their operational characteristics specify the normal voltage applied to them. As with transorbs, specify the operational voltage at least 30% over the nominal grid voltage.

MOVs and transorbs are placed between individual power lines. And it's worth saying again: Don't attempt this if you are unsure or unfamiliar with electricity. Remember always put **SAFETY FIRST**.

Counting the distance

There's an old saying that you can tell how far away lightning is by counting the time between seeing the flash of lightning and hearing the thunder. This is absolutely true. The propagation of sound through the air is about 300 meters/second (about 1000 feet/second). Light travels much faster, about 30,000,000,000 meters/second (just over 186,000 miles/second) and is in effect instantaneous. Counting each second ("one one thousand one, one one thousand two") will give you a rough idea of the time elapsed. Dividing the number of seconds by five will give the distance to the lightning in miles.

Protect yourself

Protecting yourself during a lightning storm is easy. All you need to do is remember a few simple rules:

1. If possible, don't go out in a thunderstorm. This means that you need to be aware enough of the weather to know when one is coming.

2. If you *are* out in a storm, make sure that you are not the highest point. Stay off the top of hills. Don't make yourself look taller to the lightning by holding things up or holding on to trees or structures. Stay off roofs.

3. In a thunderstorm, don't take refuge under a tree. The tree may be hit and explode and turn into shrapnel, or fall on you.

4. Stay away from metal. Metal generally attracts lightning. This also means that you should not shower or bathe during storms. Your pipes are made of metal, and current flows through wet things, including people.

5. Don't sit on the toilet if you can help it. You're sitting right in the way of a direct ground.

6. Pay attention to your body. It will tell you if you are about to be hit. When you feel the warning signs (a feeling of static electricity, hair standing on end, a tingling sensation), take action **immediately**: get low (roll into a ditch if possible).

7. Don't talk on the telephone. The phone lines are not immune to lightning strikes.

8. If you are in a high-lightning area, such as Florida, use lightning rods on your buildings and install surge protection for your house and electronics.

You might survive a lightning strike (many people have), but it's a heck of a lot nicer if you don't have to try.

(Albert Carlson is an electrical and computer engineer. He is currently designing control systems with embedded computers and finishing work on an advanced degree in artificial intelligence.) Δ

A BHM Writer's Profile: Jennifer Stein Barker

Jennifer Stein Barker has been cooking since she was a youngster in Vermont. She has always loved the backwoods, and moved to a rural site six weeks after arriving in the Pacific Northwest in 1973. Since settling down in remote eastern Oregon with her husband, Lance, she has spent her time working as a part-time botanist, cook, and writer. In 1994, she wrote and published The Morning Hill Cookbook.

Jennifer and Lance have a large garden in an area where summer frosts are common. Meeting this challenge has been a learning experience. With row cover, early and late-season techniques, and selection of frost-tolerant types, they are able to grow a large selection of berry crops, leafy greens, cabbage-family vegetables, alliums (onions and garlic), and root vegetables. Growing the food with which she cooks has shaped Jennifer's whole foods recipes. You won't usually find recipes for corn, beans, and squash in her articles because she doesn't very often have them. What you will find is recipes for foods often ignored by cookbook writers: carbohydrate-based recipes with greens and roots, and whole grain baked goods. They are often cooked in the ethnic styles of the areas where they grow the best. In the last few years, Jennifer has become very interested in solar cookery. She has an array of solar cookers at her home in the Blue Mountains. She has been working on a second cookbook, The Morning Hill Solar Cookery Book, which is now being home published.



Propane is a multi-purpose fuel, and it has many key advantages

By Matt McEachran

Propane—or L.P.G. (Liquefied Petroleum Gas)—can be a wise fuel choice for you and your backwoods home, barn, or garage for a variety of reasons. It's fairly cheap, environmentally friendly, and best of all, you don't have to live near town, as with natural gas, because there are no pipes to run.

Propane is a by-product of oil. When you burn it, you are mainly releasing water, carbon dioxide, and hydrogen back into the air instead pollutants. It burns much cleaner in your car than gasoline, and a lot cleaner than your oil furnace.

It is also much cheaper to use in your home than electricity. Propane itself is not cheaper than natural gas, but to install natural gas pipelines in a backwoods home can cost thousands of dollars, compared to the couple hundred that propane will cost to install.

Where I live in Ontario, the price of propane varies from around 28 cents a liter to 40 cents a liter, depending on your usage and the local economy. It varies widely in the United States as well, from 80 cents per gallon to \$1.20 per gallon. Depending on your particular region, you may save a lot compared to oil.

Another factor to consider with propane is that most companies will give you a greater discount, the more propane you use in your home and vehicles. So buying more appliances that use L.P.G. will actively save you money.

Propane appliances today are much more efficient than they were even 10 years ago. You can buy propane-powered furnaces, water heaters, stoves, refrigerators, fireplaces, room heaters,

clothes dryers, barn/garage heaters, lights, and even air conditioners.

Another plus is that these appliances can be converted to natural gas very easily. If natural gas *does* come by your house in a few years, it's a lot easier and cheaper to convert your propane appliances than to sell your oil appliances and buy new ones.

Most propane appliances today offer high efficiency (80 to 85% efficiency). Also, direct vent appliances can be installed without the use of your chimney. Instead, they can be vented with B-vent directly through an outside wall. This is great if you are heating your house with a woodstove and can't share the chimney.

Another great thing about propane is this: if you heat your house with a woodstove but that one room in the

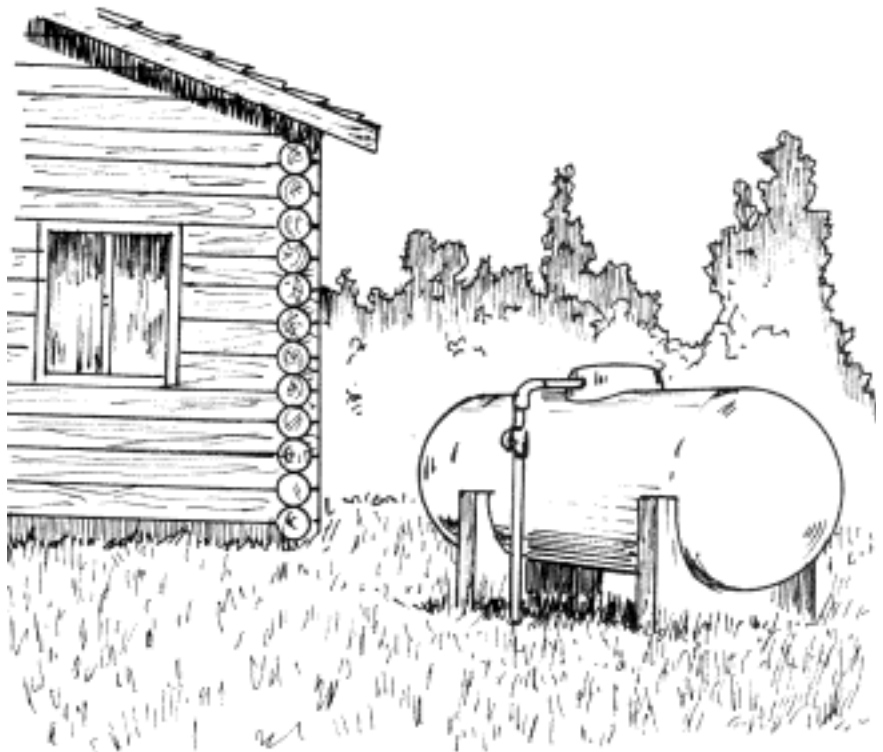
basement is always cold, it is easy to install a room heater.

Whenever possible, buy as many appliances as possible at once, or let the salesmen know that you plan to buy more in the near future. Most places give good discounts when you buy several appliances at once.

Power failure no problem

Another great advantage of propane is if there is a power failure, you still have heat and a refrigerator and a cookstove that work. A couple of years ago, a winter storm knocked out the power in our neighborhood. We suffered no hardships, as our appliances burned propane, but our friends weren't so lucky. They called us around 8:30 AM to tell us that they were all in winter jackets and blankets. They had no heat and they could see their breath in their house. They came over and ended up staying with us until late that night, when the power was restored.

Propane fuel is great—but how much does it cost to get it? That too



will vary, depending on where you live. In Ontario, the average price to set in a tank and put 10 feet of copper underground to your house is around \$100. Then to be safe, add \$2 a foot to run copper from your furnace, stove, etc. to your outside wall. Depending on the number of appliances being installed, your hours of labor will vary, at an average of \$30 to \$45 an hour.

It's good to have a salesman give you an estimate. He should be able to come to your house and give an accurate estimate as to how long it will take to install and how much it will cost. He can also tell you the best locations for your appliances, according to safety regulations and cost.

When planning your system, be sure to allow for add-ons to your system. The salesman or installer should already have this planned, but be sure and ask. All this usually means is installing a larger size of copper pipe than currently required and adding a tee or two in the copper line near possible expansion sites.

For your vehicles, too

Not only is propane an inexpensive and clean way to fuel your *home*, but it is also an alternative fuel for your *vehicles*. In Ontario, propane is almost half the price of gas, but in some states it is more expensive than gas. However, as with your home, a larger volume used will give greater savings. If you buy propane for your car from a gas station that sells propane on the side, they likely won't give you a discount at all. If you use 75 to 100 liters and up, go to a store that mainly sells propane. A discount of a few cents a liter can save a lot of money at the end of the month.

You may decide that your car does not use enough gas to bother to switch over to propane, and if it's anything like mine (which barely holds 30 liters), you'd probably be right. But that old pickup truck that gets 15

miles per gallon is a great candidate to save some major cash.

Propane is especially good for homesteaders because the tanks are usually much larger than a regular gas tank. My little car holds 30 liters, but it's not uncommon for me to pump 250 liters into a truck. Obviously, this can save on the trips to town. Also, because propane burns cleaner, you can save on oil changes, spark plugs, and engine tune-ups, and even have fewer muffler replacements.

Pay attention to safety

While propane is perfectly safe to use in your home and vehicles, it can be dangerous if used improperly, just like any other fuel.

It's highly flammable but has an odor added to it so that you can tell if it is leaking. If you do smell propane in your house, turn off the tank and then call the company from your neighbor's house. Even the spark that sometimes happens when you turn off a light switch is enough to ignite propane.

When doing construction on or around your house, be sure you know where the propane lines are. You don't want to hammer a nail through a copper line as you hang a picture or put down a floor in your kitchen.

All lines in the house should be labeled as propane, and the copper from the tank to your house should be at least 15 inches deep, and you should keep this line in mind when digging or doing construction.

In a town not far from where I live, a man unknowingly drove a stake into his propane line, cutting it in half, while adding a porch to his house. The vapor eased its way through the ground and through a crack in the wall and filled his basement with vapor. When he went downstairs half an hour later to stoke the woodstove, a spark ignited the vapor, and both the man and his wife were killed. Windows exploded to 30 meters away, and the

first story floor was blown up to the ceiling.

Things you can do yourself

There are some repairs that you can do yourself, and at \$40 per hour you can save a lot of money.

One easy way to save is to have the installer show you how to light the pilot light on your appliances. Pilot lights shouldn't go out unless you turn them off, but occasionally they do, and it always seems to happen after 5 pm on a cold winter night. It'll take you about a minute to light it yourself, which is a lot easier and cheaper than paying the after-hours call-out fee.

Another simple thing is to check the level of propane in your tank. Many propane companies have automatic delivery, but if your company doesn't, or if you live too far away, calling in a few days early, when your tank is around 25 to 30% full, can save you from running out on a weekend or at night.

By now you know that calling a repair man after 5 pm or on a weekend costs you extra. If your furnace or stove gives you trouble at one of these times, try to wait until the next business day before calling the repairman. It's amazing how many people call in on weekends for minor problems that could have waited until Monday, and therefore have to pay the extra call-out fee.

Paying bills on time is a good way to get breaks when you need them and even some discounts. Good customers get good deals on repairs and extra time when something comes up and they need to pay their bill a little late.

For the most economical, environmentally friendly, and convenient way to heat your backwoods home, cook your food, and even light up your porch, be sure and check out the advantages propane can give you. Δ

Try these smaller breeds of multi-purpose cattle

By Jan Palmer

In 1902, Rand, McNally & Co. published a book entitled Practical Farming and Gardening. Although many things have changed over the past 93 years, many things have remained the same.

Some of the changes? In the book, one of the top beef breeds listed is the Polled Durham. Among the top dairy breeds was the Dutch Belted. Today those breeds are revered by only a handful of “rare breed” enthusiasts. Also in the cattle section was a section for “dual purpose cattle,” which might be better described as “multi-purpose,” in that they do more than two things. These breeds are the Brown Swiss, Red Polled, and Devon. All three breeds excel at producing meat and milk, as well as draft oxen. Ninety-three years later, these three breeds can still earn their keep on a small farm.

Brown Swiss cattle

The Brown Swiss was described then as “gray or brown with dark extremities except muzzle which is ‘mealy.’ Bulls are usually darker colored than cows.” Cows weighed from 1,200 to 1,400 pounds, with bulls from 1,600 to 2,100 pounds. That isn’t much different from the description of today’s Brown Swiss. The book describes their disposition as “dull,” but “docile” might be a better word today.

Brown Swiss cows are money-makers in the milk race. Their disposition makes them good family cows, and they’re known for their longevity. It’s not unusual to see mother, daughter, and granddaughter in the same herd. One of the breed’s production leaders is “High Spruce Stretchy Eve,” an “elite” cow with an average production per day of 59.4 pounds of milk

since two years of age. She tested in one lactation at 1,668 pounds of butterfat and 1,037 pounds of protein.

According to the Brown Swiss Breeders Association, consumers today are looking for low-fat milk without compromising taste and nutrition. A look at the grocery store dairy case confirms this. Within the span of ten years, they predict that demand for skim milk will increase nearly 60%, while low-fat milk will claim an additional 27% of the market. Demand for cheese is also expected to increase.

A brochure from the Association contains a quote that many farmers will applaud: “Type conformation today means more than just a pretty cow. It means she is functional and she is sound. It means she will be in the herd for more than just a few years.” Many Swiss breeders in the breed directory have under 30 cow dairies.

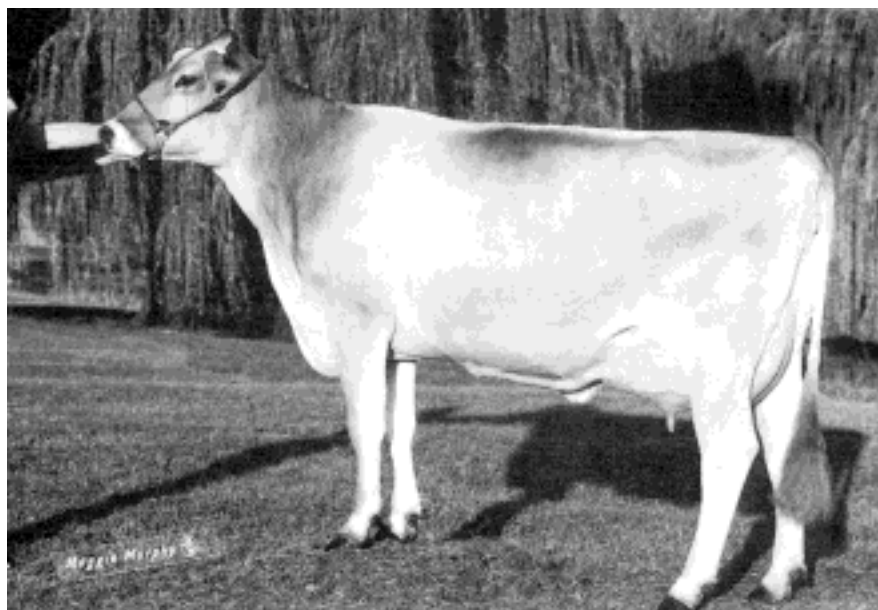
If you’re interested in finding out more about the Brown Swiss breed, write to the Brown Swiss Cattle

Breeders’ Association, P.O. Box 1038, Beloit, WI 53512-1038. They can give you more in-depth information and a list of breeders.

Devon cattle

The Brown Swiss has plenty of beef, but that often gets overlooked because of the emphasis on that breed for dairy production. The opposite is true of another of the breeds, which has been developed for beef instead of dairy. The Devon has a long history of multi-purpose talents. According to the Devon Association, records of the red cattle in the Devon section of England (their homeland) date from as early as 23 B.C. In 1850, Colonel John T. Davy of “Rose Ash” in north Devon published the first herd book. His people had been involved in the breeding of purebred Devons for at least 150 years prior to that.

The British favored the Devon for its adaptability, foraging ability, and high quality, tender meat. In 1623, the Pilgrims brought the Devon to America. Their hardy foraging ability fit the questionable grass conditions that the settlers were unsure of. Their moderate but rich milk production



Brown Swiss milking cow. Photo courtesy of the Brown Swiss Cattle Breeder’s Association

gave them the ability to feed a calf and a family, and their docility and strength made them useful oxen. The Devon made the westward push, and in 1884 the American Devon Cattle Club was established.

The ability to use forage instead of grain, ease of calving, good conformation, and good beef are important characteristics the Devon still possesses today. A good yearling bull was advertised at 50 inches at the shoulder, 58 inches from the point of the shoulder to the pins, and 1,020 pounds. Thus, like the Swiss, the Devon is a larger breed suitable for use as a draft animal, as well as for milk and meat.

Added to the above characteristics are the points of fertility, early maturity, disease resistance, and hardiness, as well as climate tolerance, and the Devon shows qualities that are still fashionable today, despite being in the “rare breed” status. For more information on these useful cattle, write to the American Minor Breed Conservatory, P.O. Box 477, Pittsboro, NC, 27312.

Red poll cattle

A slogan adopted by the Red Poll cattle producers perhaps best testifies to the breed’s multi-purpose billing: “More red meat—The milk to make it pay.” In the final quarter of the 18th



Red poll bull. Photo courtesy of the American Red Poll Association.

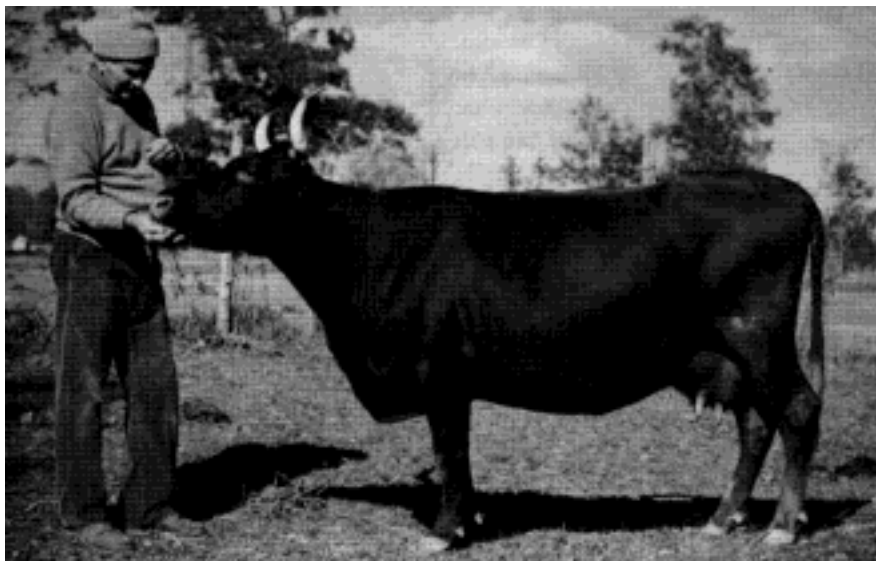
century, English farmers of Norfolk and Suffolk counties had selectively bred two strains or stocks of cattle for their area. The Norfolk cattle were excellent beef cattle, while the Suffolks were known for milk production. About 1880, a tenant farmer, John Reeve, wanted to upgrade his cattle and mated a Suffolk bull to his polled red cow of Norfolk blood. This started a trend.

Polled red cattle were recorded as far back as Biblical times. F.G. Taber of New York imported four foundation cattle in 1873. Before 1900, about

300 Red Polls were imported, and the breed’s popularity soared. Numbers diminished with the onset of the world wars, and by the 1960s breeders had adapted to breeding for meat to keep up with demand. In 1972, Red Polls were moved to a beef-emphasis breed.

They are all red, of any shade except with a yellow hue. White is acceptable in but not above the switch of the tail. They are relatively short-haired and polled. In breeding condition, bulls are 1,800 to 2,000 pounds, with cows being 1,200 to 1,500 pounds. Red Polls are well muscled and alert, vigorous and hardy with good temperaments. A century or more of selection for manners has culled out mean, nervous, or flighty animals, making them safe for personal care in a small, family owned situation. The milk is small curd, fine fat white milk said to be nearly “naturally homogenized.” The American Red Poll Association can be reached at P.O. Box 3519, Louisville, KY 40232.

The size of these three breeds, combined with their other abilities, make all three breeds excellent candidates for the homestead. The qualities described here can help the small farmer today gain a productive lifestyle, just as they did for farmers nearly a century ago. Δ



Devon cow. Photo courtesy of The Reverend Bruce Alexander

Backwoods Home

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My view

The tax problem

From my viewpoint, taxes are the major problem in this country, from how high they are, to how they are collected, to how they are spent. If we could solve America's tax problem I think most of our other troubles would fade away.

Cut taxes by cutting waste

We obviously need to cut waste. No sense collecting taxes we don't need. Our most recent federal government shutdown revealed that at least 260,000 furloughed federal workers are nonessential. Not only was I not inconvenienced by the government shutdown, but I actually felt a sense of relief that many of the bureaucrats were safely locked out of their offices. I even took a survey of people I know, and I could find no one who was inconvenienced by the shutdown. In fact, I did not find one person who thought it important to reopen the government.

It seems clear then that most of those federal employees should be permanently furloughed so they can go out and get productive jobs. That would certainly save a lot of tax money.

Don't conceal taxes

The new year just happened to begin during the government shutdown, and we woke New Year's Day to read in our newspapers that the 10% tax the federal government puts on airline tickets had expired and could not be renewed until the budget impasse was solved. That reminded everyone of the hundreds of other hidden taxes the government collects from us--on everything from gasoline and auto tire taxes to cosmetic and alcohol taxes.

A major portion of government taxes are hidden. Virtually every product you buy has a hidden tax on it because corporations, acting as unwilling government tax collectors, pass on their high taxes to us in the form of higher prices.

Personally dole out taxes to recipients

But the most significant way to solve the tax problem lies in the way taxes are doled out to the recipients. Rather than continuing to use the impersonal approach of having government act as the intermediary between the taxed and those who get to spend the tax, we need to substitute a personal approach. Starting with our paychecks, tax payers should personally hand over their taxes to the beneficiaries so we get a firsthand understanding of what is really going on.

Picture this scenario: You get your full paycheck from your employer in cash take some of the money and put it in

your pocket so you can buy things for your family, then take the remaining--those federal and state taxes that used to go the government--and personally hand it out to tax recipients. Maybe there'd be a line of people with their hand out going by you.

First would be a thin welfare mother carrying her baby with two more young children in tow. "Here you are," you'd say to her as you handed over a wad of bills. "Go have another kid; there's plenty more where this came from."

Next would come along a well-fed corporate farmer in his \$800 suit and 10-gallon hat. You'd hand him an even bigger wad of bills, thanking him profusely for taking part in America's agricultural subsidy program in which big farmers are paid not to grow too much of one crop.

Then maybe a tall and erect member of the National Education Association (NEA) would come by and you'd hand her some money so she could use it to lobby Congress to stop the home school movement in America, or use it to buy television time to stop a school voucher initiative in some state.

And don't forget the distinguished member of the American Association of Retired Persons (AARP). He needs his tax dollars so he too can lobby Congress--to make sure Congress doesn't cut Medicare or social security payments to AARP members.

And what about those social security taxes? You'll want to put some of your money into that social security trust fund that's supposed to be there for your own retirement. But that's when you'll find out the trust fund doesn't even exist. It's all just a big flim flam game, a con that every senator and congressman--Republican or Democrat--knows about. In fact, congressmen don't even participate in it; they have a real retirement plan.

Then you'll go through the rest of the line, handing out a few bucks here, a few there to all the rest of the drug addicts, the political action committees, and other worthy people getting slopped at the tax trough.

Once we went through this personal process of doling out our money in the form of taxes to the various people government has deemed worthy to get them, some of us might decide we didn't want to pay some of our taxes. That's when we'd get reminded of another cruel aspect of the tax problem: taxes are not voluntary.

In fact, should we protest paying some of these taxes and decide to fight then we'd find ourselves not in a court of law but in a tax court run by the Internal Revenue Service. Virtually no one wins in the IRS court. Because you see, in the end the government holds a gun to our head when it comes to paying taxes. We really have no choice.

Does all this make you mad? Good!

It's cheap and easy to multiply plants by using these propagation techniques

By Connie Glasheen

Are you looking for cheap, easy ways to increase the number of plants in your garden? I am, and I've found some plant propagation techniques that really work: *cuttings*, *layering*, and *division*. What's really nice about these three methods is that the baby plants will be identical to the parent plant. I only need to get one plant, and then I can produce enough starter plants for my gardens, plus have leftovers to sell or give away.

Cuttings

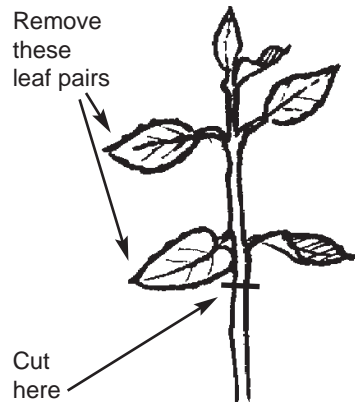
Let's start out with cuttings, the method I like to use the most. Usually *stem cuttings* are the way to go, but you can also try *root cuttings* (very easy with fleshy-rooted perennials like day lilies). There are three types of stem cuttings:

- Softwood (I use this most often)
- Semi-ripe
- Hardwood

Softwood cuttings are usually done in spring and early summer, before the plant gets too woody and hard. You're looking for soft, succulent new growth, not a plant that is droopy and limp from lack of water.

Choose a stem or branch that is about two to three inches long, and use a knife or razor blade to sever it from the parent plant. Cut below a leaf node. Don't use scissors, as the inside tissue will get bruised and probably rot.

Most cuttings need to be planted right away so they don't lose much moisture. (There are always exceptions to every rule. In this case, geraniums and cacti and succulents *like* to



Making a softwood cutting

dry a little and scab over before planting.) If you aren't able to plant immediately, just put the cutting in a plastic bag and leave in a cool, shady spot up to a couple of days.

When potting up the cuttings, strip off any leaves that would be below the soil when planted. That way they won't rot and cause problems. Leave the tip intact.

Some people swear by using *rooting hormone* powder and others don't. This powder contains synthetic versions of natural plant hormones called *auxins* which stimulate root formation. One envelope costs about a dollar and will last for years. Just dip the cut end into the powder, shake off the excess, and pot up the cutting.

Another way to encourage root formation is to water with *willow water*. Just soak willow branches in water for a couple of days, and the water will contain the auxins also. I've used pussywillow and weeping willow, so this method doesn't seem to need a particular variety.

The soil you use for potting up your cuttings can be well-rotted compost,

sand potting soil (dries out quickly), or plain garden soil. I use a mixture of compost and garden soil. No matter what you use, one thing must be constant: it needs to remain moist.

I usually pot up my cuttings in four-inch plastic pots, one cutting per pot. When I use seed-starting flats, I can fit about 30 cuttings in a flat. I make a hole in the soil with a pencil, stick the cutting in, then firm the soil around the cutting and water it. Keeping the cutting in a warm place will hasten the rooting process. When I see new leaves forming and rapid growth, I know it has worked.

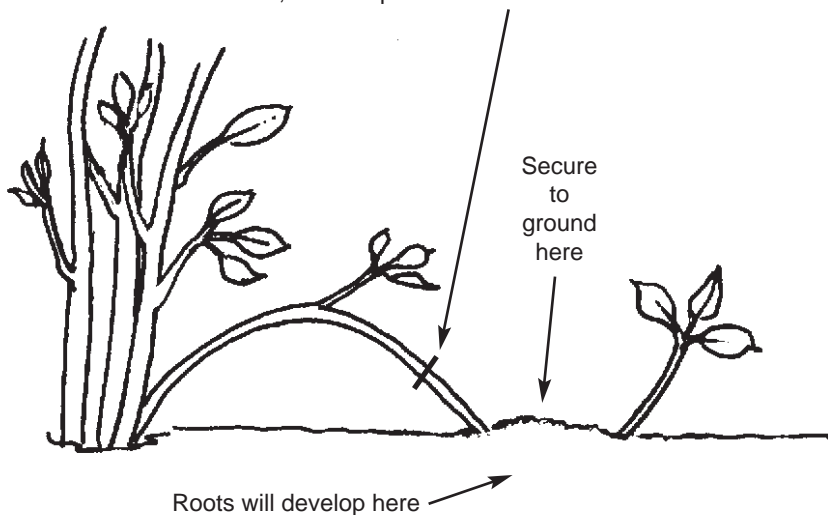
Semi-ripe cuttings are usually taken in mid-summer to mid-fall. The stem tops are soft and succulent, and the bottoms are starting to become woody. Pinch out any flower buds, because you want the plant to concentrate on making roots, not flowers.

Sand is usually the best type of medium to root semi-ripe cuttings. On average, these cuttings take from 5 to 25 weeks to root, so keep checking to make sure they are moist (but not wet). This works for conifers, heaths, heathers, laurels, and roses. Often these are rooted in cold frames, and you will see lots of new growth in spring, when you can move them to their permanent spot.

Hardwood cuttings are cuttings from fully ripened wood. Look for a healthy, ripe one-year-old stem (a stem that grew that current year) with bark that doesn't give when you pinch it. It should be about eight to ten inches long. (This is only a guide; it works with shorter or longer pieces.)

Make a straight cut below a leaf node or bud. Now on the top make a slanted cut. This way you know which

Once roots have formed, cut with pruners here



Layering

is the top and bottom. Dip in rooting hormone and plant in a well-drained site, preferably facing south so it will warm up quickly. Plant and firm in the soil. Since these cuttings take months to root, we're lucky that they don't need any winter protection. Stem cuttings can be taken from thick-stemmed plants (usually houseplants). When you cut the stem, make sure you have a couple of nodes. You can plant it vertically (making sure it's right-side-up) or horizontally (half-buried).

When these cuttings root, you'll see new leaves emerging. Allow time for the new plant to establish healthy roots, then re-pot.

Root cuttings are used with fleshy-rooted plants like day lilies, iris, and dahlias. Avoid grafted or budded trees or shrubs, as you'll get rootstock, not the plant you see on top. To do this, pick a time when the plant is dormant, so it won't suffer from the disturbance. Lift small plants from the soil and brush off enough of the soil so you can see what you're doing. On larger trees and shrubs, just scrape away enough of the soil to expose a couple of roots you can use. Choose pencil-thick roots. Two or three roots

should give you plenty of material to work with and will not cause too much distress to the plant. Make clean cuts and don't let these dry out. Bag the cuttings if necessary and replant the parent plant as soon as possible.

Back to the cuttings: Trim off thin side roots and cut into sections two to three inches long, with the bottom straight and the top slanted so you know which end goes up and which goes down. Pot into planting medium, firm soil, then water. There's no need for rooting hormone, and if you're not sure which is the top, then plant horizontally. Cover with a thin layer of

soil. You'll soon see buds forming on the surface, but be patient and let them grow a little bit before transplanting.

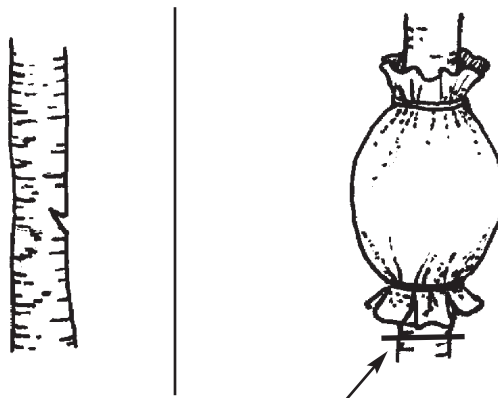
Division

Some plants can be divided into several pieces, each growing into an entirely new plant. This process is easy, and one plant can yield six or more plants. Dividing is best done in early spring when the plants are growing rapidly. They re-establish themselves quickly. Carefully dig up the plant with a garden fork or shovel. Remove some of the soil with your fingers, trying not to damage small, sensitive roots. Some plants can be separated with your fingers, while others will need to be cut apart with a knife. Using two garden forks back to back, try prying the clump apart. Divide again if needed. Day lilies can usually be divided with the garden forks, but some of the ornamental grasses will need to be cut. Make sure each section has several strong shoots and plenty of roots.

The centers of clumps sometimes become very woody (bearded iris comes to mind). Just discard any woody centers and replant the vigorous outside sections.

Layering

Simple layering is taking a stem still attached to the parent plant, weighing



Sever here after roots have formed.

Air layering

or pinning it down to the ground, and covering it with soil so that new roots form. Then, once roots have formed, you sever the stem from the parent plant.

Raspberries, currants, and blackberries do this easily, and it's most successful during the active growing period.

Cultivate the soil around the mother plant so it's nice and crumbly. Choose the stem to be layered and remove any leaves that would be underground. It should be a young, supple stem that won't snap when bent over. To encourage rooting, wound the stem slightly by scratching off a little of the bark. Use a coat hanger wire bent into a U or a large stone to peg the stem into place, then cover it with soil. Roots will form during the following season, and then you can separate it from the parent.

Tip layering mimics what blackberries do in the wild. Take a supple shoot with a healthy, strong growing point, bend it to the ground, and peg it down or dig it into the soil. A new tip will quickly form. Allow good root formation to occur before severing.

Air layering

Air layering is used on plants that don't have supple stems. Rigid stems would snap if the other methods were used, but air layering will work and provide you with new plants. Usually you see this done with large houseplants that have outgrown the space they're in.

Choose the place on the stem where you intend to produce new roots to create a new plant. The stem should be sturdy but young. Make a diagonal cut, taking care not to go all the way through. Insert rooting hormone into the cut, then insert a small piece of wood (a toothpick works well) to keep it open a bit.

Wrap damp sphagnum moss around the cut, then put plastic wrap around it. This will keep it nice and moist, and will create a greenhouse effect for

warmth. After roots have formed, sever beneath the cluster of roots and pot up your new plant.

These are some of the ways you can easily propagate plants and increase your plantings, both indoors and out. Don't give up if one way doesn't work. Keep experimenting until you find the ways that work best for you and your plants. Δ

Yard Work

I planted
Two common purple lilacs
And two rosebushes,
A Mr. Lincoln and a Peace.
I planted
Catnip for Christopher Marlowe.
I planted larkspur
For Pat and
Spring Beauty for me and
Some old stalks of
Chrysanthemum that may
Or may not survive.
I put in some Shasta daisies.
None of them look well.

I want to plant
Old-fashioned roses—
I want a thicket
By my front door, a hundred
Feet tall and full of blackberries.

I want blue spruce and
Daffodils and
Barking dogs and roots
That go down so deep—

I want my hands in warm soft loam,
My back to the sun, and mostly
To be left alone.

**Olive L. Sullivan
Pittsburg, KS**

A BHM Writer's Profile: M. C. Wright



Born and educated in a small town in southern Mississippi, Margaret Clark (M.C.) Wright still has the accent to prove it. She was raised by her grandmother and a loving nanny while her mom worked outside the home. Wright married her high school sweetheart; they have been together 32 years. She is mother to four children and "Mamaw" to seven grandchildren. Her youngest child, Benjamin, is still at home.

Wright and her family have travelled extensively, following the electrical construction trade. They landed in Idaho 20 years ago and are still there. Wright has worked with several rural ambulance services as an emergency medical technician.

Basically a mother earth type, Wright homeschools her children, cooks from scratch, sews, quilts, gardens, and takes care of the animals. Her favorite attire is a denim skirt, sweatshirt, and Birkenstocks with socks, which she describes as a real fashion statement. She began writing after taking some journalism classes—a hobby turned serious. She says, "I love the idea of other people being interested in my lifestyle, and hope I can inspire them to follow their dreams."

Soil pH is the secret of a good garden

By Marjorie Burris

A garden with the correct soil pH can produce a beautiful, bountiful harvest, but a garden with the wrong soil pH barely produces stunted, runty plants that scarcely keep alive, let alone bear fruit. It's easy to determine your soil's pH, and the more you find out about your garden, the better you will be able to garden. Playing by ear may be great for musicians, but when it comes to gardening, guesswork doesn't pay.



What is pH?

Literally, pH is shorthand for the French words *pouvoir hydrogène*, which mean the "power of hydrogen." The pH value tells you the concentration of hydrogen ions in a substance. The more free hydrogen ions there are in a substance, the more *acid* it is.

Hydrogen ions are counteracted by hydroxide ions which are symbolized by the chemical shorthand "OH." The more free hydroxide ions there are in a substance, the more *alkaline* it is.

In pure water, there are enough hydrogen ions and hydroxide ions to almost neutralize one another. The measurement of hydrogen ions in a liter of pure water is 1×10^{-7} . Written out, that is 0.0000001. This means that each liter of pure water has one ten millionth of a gram of H^+ and the equivalent amount of OH ions in it. This is just too awkward to write out all the time, and since the logarithm of ten millionth is 7, we say the pH of water is 7. Thus chemists have developed a scale of 0 to 14, with 7 being *neutral*. Values from 0 to 7 indicate acidity and values from 7 to 14 indicate alkalinity. Most common vegeta-

bles grow best on a soil that has a pH of 6.5 to 7, which is only slightly acid to neutral.

How to test for pH

Hydrogen ions make things taste *sour*; vinegar is a good example. In the old days, a farmer might taste his soil, and if it tasted sour, he knew it was acid. In contrast, hydroxide ions make things taste *brackish* or *bitter*. Baking soda is a good example, and if the soil tasted bitter, the farmer knew his soil was alkaline. This is a rough test, and although it is not too reliable, it is better than no test.

A slightly better test for pH is the *litmus paper* test. Litmus paper is paper which has been impregnated by a solution made from ground-up lichens. It is purplish in color and is neutral in itself. A few drops of acid solution on the paper will make it turn red. An alkaline solution will make it turn blue. (There is also red and blue litmus paper, but this is simply the neutral purple paper which has been treated by a few drops of acid to make it red or a few drops of alkali to make it blue.)

To use litmus paper in soil, simply press the paper against the damp soil and watch for the color change. This test indicates whether soil is acid or alkaline, but not *how* acid or alkaline. Still, it is more accurate than the subjective taste test. Litmus paper can be purchased at most good drug stores and is not expensive.

Most good full-line nurseries and seed companies sell *pH meters* and *soil test kits* at reasonable prices. Considering the value of knowing how to amend your garden soil correctly, they are well worth the cost. I've seen two or three different makes of meters, but they all work on the same principle. Each uses a probe which, when inserted into the soil, triggers a needle to record the pH. They do not use batteries.

The soil test kits come with test tubes and tablets and work very much like swimming pool test kits. They give an indication of the level of *usable* nitrogen, phosphorus, and potassium in the soil, as well as the pH. Most kits contain enough tablets for several tests, some of them up to 40 tests.

My 1995 seed catalogs from Burpee's and Gurney's both list pH meters and soil test kits. If you want more information, here's how to contact them:

Burpee Seed Company
300 Park Ave.
Warminster, PA 18991-0001
Phone: 1-800-888-1447
Fax: 1-800-487-5530

Gurney's Seed Co.
110 Capitol St.
Yankton, SD 57079
Phone: 1-605-665-1930
Fax: 1-605-665-9718.

As I write this I don't have my latest Vesey's seed catalog (it's a company

specializing in short season seeds), but their 1994 catalog lists a pH meter. Their address and phone:

Vesey's Seeds, Ltd.
P.O. Box 9000,
Calais, ME, 04619-6102
Phone: 1-800-363-7333
Fax: 1-900-566-1620

Many private laboratories and state agricultural extension services of state universities do soil analyses, but I have found them to be expensive and slow in returning their results, so I prefer my own little soil testing kit.

How to amend acid soil

People who live in cool, moist climates where the trees are conifers will probably find their soil to be acid. Moisture leaches the alkaline calcium salts away from the soil, and coniferous trees do not use much alkaline material, so they can't *return* alkaline material when the leaves and wood decay. Also, the soil will be poor in nitrogen, because the long winters hamper the growth of nitrogen-fixing bacteria. Of course, other soils can be acid, too, so a test is the only accurate way, not only to find out if the soil is acid or alkaline, but to what *degree* it is acid or alkaline.

Acid soil first of all needs a replacement of calcium salts, and probably the best and easiest-to-get source of calcium is limestone. Limestone is better than slaked lime or quicklime, because limestone breaks down more slowly. Slaked lime and quicklime are so alkaline they give the soil too much calcium too quickly and can injure the soil. Wood ashes, bone meal, dolomite, crushed marble, and oyster shells are also good sources of lime.

Often, just correcting the pH will release enough nitrogen, phosphorus, and potassium to raise a good garden, but if testing after using a lime source shows a lack of these nutrients, there are certain materials that are better for acid soils than others. Organic matter is a good way to start replenishing the

soil, but pine needles, sawdust, wood chips, and most deciduous leaves (especially oak) are very acid and should be composted with limestone or wood ashes before using.

Good sources of nitrogen for acid soil are steamed bone meal, blood meal, animal manures, and green manures. Buckwheat is tops for building poor, acid soils. Lespedeza and sour clover are also useful. Phosphorus sources include bone meal, ground rock phosphate, raw sugar wastes, and dried blood, as well as green manures.

Potassium (also called potash) sources include green sand, sea weed, potash rock, buckwheat and millet straw, wool wastes, and wood ashes as well as the green manures.

How to amend alkaline soils

Alkaline soils, often found in desert and semi-arid regions, have an accumulation of soluble salts, usually chlorides and sulfates of sodium and calcium and magnesium and sometimes potassium, all of which are toxic to plants. Also, alkaline soils will usually have a hard-pan under the surface, which "adds insult to injury," as the old saying goes.

The first step in reclaiming alkaline soil is to work humus into it. Here, the acid leaves, pine needles, wood chips and sawdust (but not wood ashes) used raw are of great value. Peat moss is another great source of acid humus. Gypsum is useful for breaking up many kinds of hard-pan and is very acid.

Most alkaline soils are lacking in nitrogen, and since sawdust and wood chips take a lot of nitrogen to decompose, additional nitrogen is needed when these are used. An excellent source of acid nitrogen is cottonseed meal. Animal manures, especially poultry manures, are very helpful. Horse manure makes humus, but doesn't supply much nitrogen.

Blood meal and bone meal supply both nitrogen and phosphorus. Sea weed, potash rock, and green manures add phosphorus and potassium. Green manures that are especially good for alkaline soils include most of the grain crops. Alfalfa is probably the best, because it likes a flooding type of irrigation that washes away the harmful salts, and its long roots reach down and break up hard-pan. Bermuda grass, sweet clover, maize, barley, sugar beets, cotton, rye, and sorghum are all helpful in amending alkaline soils.

Grow plants that like your soil's pH

Although most common garden plants like a pH between 6.5 and 7, there are some that will thrive best in either a moderately acid soil or a moderately alkaline soil. When you know the pH of your soil, you can concentrate on those plants that will grow best in your soil.

Common acid-soil plants that do best between pH 4 and 6 are radish, sweet potato, watermelon, and berries such as blackberry, blueberry, cranberry, huckleberry, and raspberry. Peanuts and pecans also like an acid soil. Plants that like a somewhat acid soil, but can tolerate a neutral soil are pumpkin, rice, turnip, and apple.

Moderate alkaline-soil plants are peas, beans, beets, cabbage, cantaloupe, cauliflower, celery, cucumber, lettuce, onion, parsnip, rhubarb, salsify, and squash.

Because soil is continually changing, you will want to test your garden periodically to see how your treatment regimen is working. Some plants use more of one nutrient than another, and you may need to replenish more of that element. Even just standing idle can alter a soil's make-up from year to year. Get to know your soil, and you will enjoy gardening all the more. Δ

Here are some thoughts on finding your dream place — garden and all

By Alice B. Yeager
Photos by James O. Yeager

Every gardener (and would-be gardener) has a dream, and it usually centers around a neat cottage with flower beds, a manicured lawn, a small orchard, and a weedless garden spot. From the latter two come all sorts of picture-perfect fruits and vegetables, aromatic herbs, berries—you name it. Maybe there's a small grape arbor, too, always abundantly hung with fat, fragrant clusters of grapes just waiting to be harvested. Sometimes a small flock of well-behaved chickens rounds out the dream.

Many people are looking forward to just such a place when they retire. Others are wanting to move out of neighborhoods that are changing for the worse. Some may be looking for that first real home—you know, the

place where one puts down roots and raises almost all of one's food—a "Green Acres" type of place.

There are pitfalls to selecting the right spot, especially when it comes to choosing Home Sweet Home with an eye to gardening. The most important garden requirements center around *soil, water, and location.*

Soil

If one wants that garden of perfection, good soil is a *must*. When viewing property, it is well to be armed with some facts about soil. If nothing else, at least know the difference between clay, loam, and sand. Otherwise, you may end up with something you didn't count on.

Take a close look at the garden spot to determine if it has recently been under cultivation. If the owner is still on the premises, he/she can be of



Home-grown tomatoes—everyone's favorite. Celebrity is a good variety.

tremendous help as a source of gardening advice. If the place has been abandoned for some time, take a close look at the weeds and grass, as there will undoubtedly be plenty of those. If they're healthy and shoulder-high, chances are the soil is fertile. Your job will be to conquer all the seedlings that will come up. (Lotsa luck!) If there is a great supply of nut grass, look out. That may be the reason the garden spot was abandoned. When nut grass invades, some gardeners finally just throw up their hands and quit. It is a devilish opponent.

A sandy loam soil that is rich in humus is usually regarded as the best soil for general gardening. If an organic gardener has spent years working with the soil, you can bet it will raise almost anything.

Of course, sometimes that neat little place you have your heart set on may have *hidden* problems as far as the garden is concerned. Unless you can actually see the place during the peak of the gardening season, you will have to take the word of the seller or the real estate agent as to the soil's fertility. Experienced old-timers can reach down, take a handful of dirt, smell it, run it through their fingers, and tell a lot about the possibilities. To the novice, this doesn't mean much, and



Gardeners love to bring in a variety of fresh vegetables for culinary use. This basket contains squash (2 varieties), cucumbers, tomatoes, beans, and sweet peppers.

that's how some places are unloaded on unsuspecting buyers.

If you aren't sure about the soil and have questions, it would be a good idea to ask the County Extension Agent to run some soil tests for you. He can give you some practical advice as to what (if anything) is needed to make it produce those savory squash, plump tomatoes, and pounds of potatoes.

If the real estate salesman hints at other buyers waiting in the wings, don't panic. Any salesman anxious for a commission will occasionally employ this tactic, particularly if the payment is due on his Cadillac.

Water

There is hardly a garden anywhere that doesn't require watering now and then, and some more than others. Take into consideration the source of water for the garden. If it is city water, be prepared to deal with high water bills in the summer if you want your garden to keep producing during dry periods. If there is a well with a pressurized water system, so much the better.

It is surprising how many people never consider the subject of water when being shown property. They assume that if water faucets are in sight, everything must be all right.

Water is a very important item, especially when considering property



Fruit tree blossoms in springtime are beautiful, and they herald a harvest that can result in canned fruit and honey on the shelf to enjoy until next harvest.

in a rural setting. How long has the well been in use? Does the water get low during long dry spells? Is the water hard or soft? How new is the pump? Has the water been tested for bacteria lately? Where is the septic tank located? (You'd be surprised at what goes on underground.) These are only a few general questions about water, and quality varies from area to area and from hill country to the lowlands.

Above all, ask if you may taste the water. That should give you a good

idea as to its value for kitchen use. A seller with a good water supply is never hesitant about giving information regarding water. If you have reason to be suspicious of the water, ask the County Agent about having it tested. It's better to be safe than sorry.

Location

A desirable garden area should be open to the sun and slightly sloped for good drainage. It should not be closely surrounded by tall trees that cast shade a good part of the day. *Some* shade is helpful, particularly during hot afternoons, but most vegetable plants require at least a bare minimum of six hours of sunshine per day. Nearby large trees will also sap moisture and nutrients from the soil.

Gardens clinging to the sides of hills are risky sites and an awful lot of work. Some of them may be interesting, but those are for folks who enjoy challenges, like to haul topsoil, and have no other place to garden. Hard rains can play havoc with hillside gardens. And hillsides dry out fast.

An ideal location for a garden is near the house for convenience. A



Here's a neat Ozark homeplace. The shade trees are well away from garden, leaving it open to the sun.

cross-country runner might not mind a garden located 200 feet away from the kitchen, but most of us don't feel that way. And remember, those pounds of splendid vegetables are going to get heavier the farther you carry them. If you live where there is competition from animals for food, a garden handy to the house is easier to patrol.

Naturally, most real estate salesmen like to show property at its best—nice day, preferably in spring when orchard trees are blooming, gardens are being started and there's plenty of upbeat activity going on. (If house and outbuildings have had a fresh coat of paint, fine and dandy.) This is all very well, but if possible, view the place of your dreams during bad weather, especially during a time of heavy rain. That will bring to light any hidden horrors regarding the garden spot. If it's under a foot of water and fast becoming a lake, beware. Sometimes the situation can be corrected by trenching to give water an outlet. It depends on the lay of the land.

If you can't visit the place during wet weather, try the hottest day of the year during a drought. If plants are dehydrated and the ground dulls a pick-axe, you're going to have to do a lot of building-up to get that wonderful loose soil for which we all strive. Over a period of time, mulching with organic material will help, as it will

assist in retaining moisture and will return nutrients to the soil as the mulch breaks down. Also, earthworms will be attracted, enhancing the soil's aeration and fertility.

Earthworms are another indication of just how rich the soil is. Assuming that the soil is in pliable condition on the day you inspect the garden area, dig around a bit and take a look at the earthworms. Are they vigorous, plump and plentiful? Good sign. Are they few, skinny, pale, and barely able to move? Very poor soil. If you find no earthworms at all, it could mean they have been wiped out by chemicals.

But take heart, drawbacks are not permanent except in extreme cases, as almost any soil can be made productive if a gardener will make an effort to improve it. There is plenty of advice obtainable on every side: bookstores, magazine racks, experienced gardeners, County Extension Offices, libraries, and so on.

Pollution

In addition to soil, water, and location, there is another gardening factor that is increasingly of concern—one that wasn't even discussed years ago. *Pollution.* Rare is the real estate salesman who will point out the possibility of contaminated soil or water. Prospective buyers should be wary of neighborhoods that have "For Sale"

signs everywhere and no apparent reason for them.

One should make it a point to find out which industries are located in the area. Are there paper mills, steel mills, toxic dumps and such in the vicinity? Don't be fooled by nice names like "Resource Recovery" (municipal incinerator), "Sanitary Landfill" (dump), and so on.

Once soil and water are contaminated, it takes a long span of time to clean them up—much longer than a gardener wants to wait. If you find a homey little place that suits you to a "T" but has the likelihood of pollution attached to it, flee without hesitation. Who wants the pleasure of gardening overshadowed by the Grim Reaper.

The foregoing is but a sampling of things to consider when one is intent on pursuing one's dream. Above all, don't try to cultivate more space than you can manage. Nothing is more frustrating than trying to keep things under control in one end of a garden while in the other end, weeds and grass are having a heyday producing next year's crop of gremlins.

Remember, under the right conditions, gardening is fun and rewarding, both mentally and physically. So, if you're serious about having that dream place, go for it. Δ

A BHM Writer's Profile: Skip Thomsen

Skip's been writing homesteading books and articles since 1980, starting out with some stories in the original *Mother Earth News*. His first real book was *More Power to You!*, self-published about 10 years ago. There were others in the meanwhile and another since, but *The Modern Homestead Manual* was published in '93. His first homesteading experiences were in Oregon, and the one that inspired the *Homestead Manual* was his 108-acre scratch-built homestead in North Central Oregon. 1993 was also the year the Thomsens had had enough snow, ice and cold for their lifetimes and they finally decided that they were never again going to bum anything to stay warm, and they moved to rural Hawaii.

Skip is newly remarried (for the last time!) and the happy couple just bought a little home near the ocean in a tiny community where papayas, oranges, mangoes, and avocados are everywhere, and tomatoes grow all year 'round. The Big Island is a golden opportunity for those considering a comfortable, affordable, self-sufficient lifestyle, and that's going to be the topic of an upcoming article. Meanwhile, the Thomsens spend as much time as possible playing in the crystal clear, warm ocean and enjoying the tropical sun.



PV pioneer describes his successful solar home

By Paul Jeffrey Fowler

My wife Lea, my three-year-old son Terry, and I live in a passive solar home nestled in a remote corner of a small town in the Berkshire Hills of western Massachusetts. Our house is located 1.3 miles and \$20,000 away from the nearest power line. To get to our land, we drive up and over the highest hill in Worthington on a one-lane gravel road. Bob and Karin Cook, our only year-round neighbors in the 2,500 acres of land that surround us, live a third of a mile up the road.

I was born and raised on a pretty little 120-acre farm in Worthington. Unfortunately, my parents had to sell the farm I was to have inherited, just before I graduated from college. Several years after college, I returned to Worthington when my parents left me their mobile home on the lower corner of the old farm.

The trailer was of poor quality construction. I have always been someone who thought I could make something out of nothing, but I could not find anything worth saving in that trailer. I soon bought the small house just up the road which a friend and I had built several years before for my sister and

her family. It was a better structure, but like the trailer, it was located at the bottom of a narrow valley.

A perfect solar site

At the time, I avidly read all the material I could find on solar energy. I could never successfully redesign the small house into a passive solar home, because there was too little sun in that valley. In 1981, I found a nine-acre piece of land for sale with perfect south-sloping solar exposure. The only drawback was that the nearest power line was 1.3 miles away at the main road.

For years I had also been reading about wind machines and alternative energy systems. I looked at this land, so far from the power line, as a chance to do it all: build a passive solar home and power it with alternative energy. In a few months I had sold my two properties, moved to a tent on my new land, and begun to build my new energy-efficient home.

When I bought the land, I expected to install a wind machine to produce electricity. I had determined that it was a good wind site. I purchased a large generator for the building project and planned to replace it with an alter-



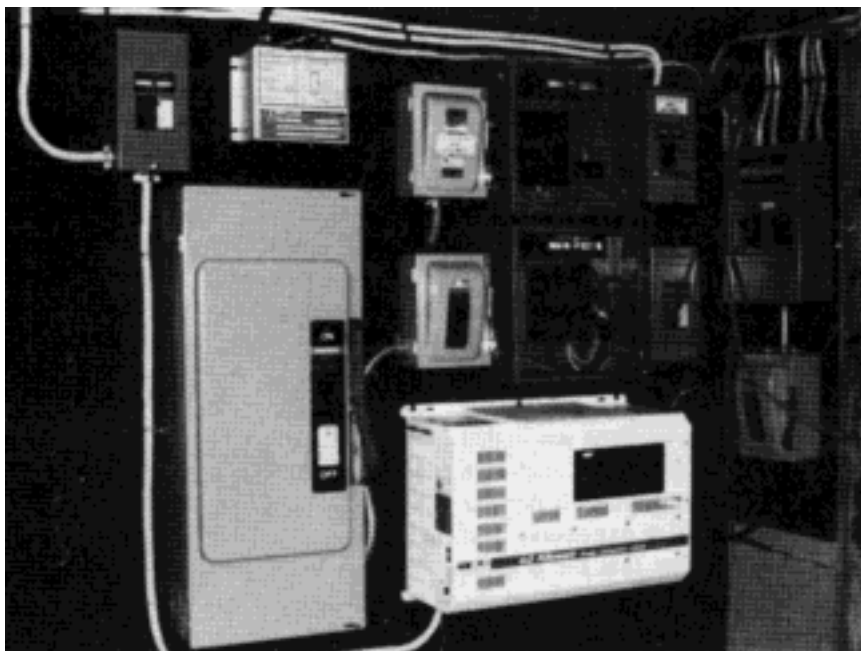
The author with his wife Lea and son Terry in front of the heat-storing stone wall in the sunspace

native energy system when I had time to design and install one. I never really expected a power line to come down the road to my house. Therefore, the whole house was designed from the beginning to be an alternative energy home, in addition to being energy-efficient. In 1982, I discovered solar electric modules and abandoned the inherent problems of a wind machine on top of a 90-foot tower. Besides, the sun shines more often than the wind blows.

Today, our house is powered by a large solar electric system. We have been more fortunate than most people who own solar electric systems. For one thing, our first systems were purchased back in the days of state and federal tax credits. Furthermore, my early research into solar electric systems evolved naturally into a successful business which sold solar electric systems throughout the Northeast.



Solar electric modules on the house and garage



System controls and 4000-watt sinewave inverter

Therefore, later expansions of our system were purchased at wholesale prices from our business. On the other hand, we were the pioneers who suffered the trials and errors of an emerging technology.

The system

On the south side of our house above the first floor windows are mounted 24 33-watt, nine-year-old Mobil Solar modules. For years, these were the sole power source for our solar electric system. Four years ago we added eight 48-watt Hoxan modules on the south side of the garage. At the time, our business offices were upstairs in the large building, and two of the three garage bays warehoused our inventory. The growing business required a lot of power to run computers and office equipment. Three years ago, we sold the remaining shares of the business, and it moved across town, leaving us with the additional electricity from the eight Hoxan modules for our home loads.

Our combined solar arrays are rated at 1,200 peak watts. This rating means

little to anyone but a solar electric engineer with a program to size systems. In practical terms, after we derate the modules for actual operating temperatures, and account for losses associated with charging lead-acid batteries, we have a daily summer average of 4,800 watt-hours to power loads in our home. In the winter, when the average insolation is low, we have a daily average of 2,400 watt-hours. Quite logically, we have approximately 3,600 watt-hours in the spring and the fall.

Figuring the angles

Our site is at 42° latitude. The standard angle to mount the modules on an adjustable mounting structure is latitude minus 15° in the summer (27° above the horizon), latitude in the spring or fall (42°), and latitude plus 15 degrees in the winter (57°). For a non-adjustable mounting structure, the array is typically installed at 42°, to obtain the greatest amount of power over the whole year. We have chosen to mount our modules on

non-adjustable structures at the winter adjustment of 57°.

Winter is the hardest time for our solar electric system. The insolation is low in the Northeast, and the short days require longer lighting loads. We are purists and do not depend on a generator to charge our battery bank in the winter. Instead, we have sized our system to meet our conservative winter loads and know we will have extra electricity in the other three seasons. Therefore, it is not necessary to adjust our arrays for the other three seasons to get additional power. The steep 57° angle of our arrays produces 20% extra power in the winter, because the modules can also pick up reflected sunlight from the snow on the ground.

Both the garage and house arrays have their own charge controllers and the associated fuses and disconnects to satisfy the requirements of the National Electrical Code (R). They both charge the same large battery bank in the basement of our house. The controller for the smaller garage array turns off before the controller for the house, so that the charging is somewhat “tapered” as the batteries approach full charge.

Our battery bank is composed of 32 6V (6-volt) 200-amp-hour golf-cart batteries wired in a 24V configuration. Many people in the industry recommend larger batteries. We sold the best quality Trojan golf-cart batteries in our business for years. We had fewer failures with them than with the larger Trojan L-16 batteries. The golf-cart batteries have the same plate composition as the larger L-16 batteries, but they are mass produced, so they cost 30% less per amp-hour. Our batteries are now 6½ years old. We expect them to last over eight years, while L-16 batteries are expected to last ten years.

Our solar electric system and home are wired to code and inspected. Our house wiring has about one circuit per room to power a selected 24V efficient lamp or lighting fixture. This

wiring system and DC (Direct Current)-rated circuit breaker box are left over from our earliest solar electric system. Some of these lights are used every day, while others now serve only as backups. The house is also fully wired for 120VAC (Alternating Current). This electricity is supplied by a 4000-watt, sine-wave, Trace 4024 inverter powered by the large 24V battery bank.

Conservation is the key

Our solar electric home uses about one-third as many watt-hours per month as my last grid-connected home. We live at a similar level of comfort in our present home, because our electrical usage has been decreased by the design of our home and the choices we have made for efficient appliances. Well-planned conservation is the real key to a successful independent home. The electricity we produce costs about 30¢ per kilowatt-hour after we factor in the costs of all the components and their maintenance and life expectancy. Solar electricity becomes a money-saver for us only after we consider our conservation and the \$20,000 we would have to pay the utility company up-front to extend the power line to our home.

We pride ourselves on having an alternative energy home that does not appear to be different to someone who visits for a weekend. We have no complicated systems of switches and *do's* and *don'ts* to follow. Conservation is designed into the system.

Solar heating

Our well-insulated, passive solar home is heated by the solar gain of our south-facing windows. The solar energy heats the house to 75° even on sunny days of subzero weather, which are quite common in our cold New England winters at 1700 ft. above sea level. Solar heat is stored in interior stone walls and in a concrete slab that is covered with Vermont slate. The

balance of our heat is provided by two cords of wood burned in our basement wood stove. We have none of the standard electrical loads of running a furnace and its circulating fans or pumps.

We have eliminated other common large electrical loads. We use a propane refrigerator, stove, and tankless hot-water heater. Our home was designed to utilize daylight. Most walls and ceilings are white, so no additional electric lighting is needed until sunset. Our electric lighting is carefully placed in all the rooms. We have chosen fixtures and lamp shades that efficiently transfer the light from the bulbs to the room, reducing the need for large bulbs or many lights in a given area. Wherever possible, we utilize compact fluorescent bulbs.

Our source of water is a deep drilled well 200 feet from our house. Because the static water level is 30 feet below grade, our best choice for pumping water was a standard 120VAC submersible pump. Our electrical loads would be less if we had a shallow well that could be pumped by an efficient low-voltage pump, or if we had a gravity-fed water supply, as our neighbors do. But we are fortunate to have crystal-clear pure water from a high-yielding well. We recently reduced our water budget and its associated electrical loads by installing a new washer that uses less water and by designing an efficient underground watering system in our raised-bed garden.

Normal appliances, plus a bit of planning

We have the common 120VAC appliances found in most American homes, such as a clothes washer, color TV, VCR, vacuum cleaner, computer, and stereo. We chose them carefully for efficiency. In addition, we think about each appliance's use, to keep in balance with our seasonal production of electricity. When possible, we have given extra consideration to certain

appliances. I now mostly use my notebook computer, which uses 15 watts, while my desktop computer uses 100 watts. Our 25-year-old Electrolux vacuum cleaner sent our ten-year-old Electrolux into retirement when I found it used 400 watts compared to 900 watts. A few months ago we purchased a Staber clothes washer because it uses 250 watt-hours per load instead of the 450 watt-hours per load needed by our standard model.

When the house was two-thirds built, I bought my first inverter and immediately sold the generator. The rest of the house, buildings, and additions were built with power tools powered by solar electricity. We own all the usual carpentry tools from drills and a circular saw to a screw gun and a router, plus some larger ones like a table saw, a radial-arm saw, and a planer. In the past, we carefully selected these tools to not exceed the surge capability of our inverter. Our new 4,000 watt inverter will start any of their large motors easily. The electrical energy used by these large wattage tools is not terribly significant, because they are running a very small amount of time during any given work day. However, we do plan our projects for the right time of year. When a project requires shiplapping the siding for a garage, or planing boards for a floor, we do the job during a sunny spell, or during a season of abundant sunshine.

We have no freezer. A standard freezer is too inefficient, and we feel the efficient low-voltage models on the market would still put a large strain on our system in the depth of winter, since we choose not to use a generator. We do have a one-cubic-foot deep-freezer in our gas refrigerator. For six months of the year, we eat fresh vegetables from our garden, utilizing cloches to extend our growing season. For seven months of the year, we can use our large walk-in cold-storage room as a giant refrigerator and almost root cellar. This area is cooled by passive air circulation whenever the outside temperature is



Propane refrigerator and freezer

lower than the temperature in the cold storage room.

Living in an independent home with solar electricity is incredibly different from living in a grid home. A family in a grid home can use as much electricity as they want. If Grandma comes in January, a grid home can crank up the electric heat in the extra room. An alternative energy system requires an investment in a system that can produce a certain amount of electrical energy. After that, living is a matter of balancing the loads to the system's production and seasonal variances.

Over the years, I have watched some people live naturally in alternative homes and other people move or pay to bring in the power line. Sometimes one member of a couple loved the alternative-energy life while the spouse could not adapt. Lea, Terry, and I are successful in our independent home because our home and our solar electric system are well-designed, and because we work together naturally keeping our homestead in balance. The efficient raised-bed garden, the chickens, the passive solar house, the solar garage, the solar electric system, and our philosophy of life function interdependently.

(Paul Jeffrey Fowler is the author of [The Evolution of an Independent Home: The Story of a Solar Electric Pioneer](#) and [The Solar Electric Independent Home Book](#), both available from Backwoods Home Magazine [order form on page 96]. He is also the founder of Fowler Solar Electric, Inc.) Δ

A BHM Writer's Profile: Robert L. Williams

Robert L. Williams has been a freelance writer/photographer for more than 30 years. A former professional baseball player and a teacher for three decades on the high school, college, and university campus, he has sold several thousands of articles and photographs to leading national and international magazines. Among the publications that have purchased his writing and/or photos are *Money Magazine*, *House Beautiful*, *Southern Living*, *Our State*, *Sandlapper*, *Modern Maturity*, *American Legion*, *Rotarian*, *Our Navy*, *Elks Magazine*, *the Compass*, *Hughes' Rigway*, *Grit*, *Copper's Weekly*, *Baseball Digest*, and others.



The author of 36 books, either published or under contract, Williams has written books published by G. P. Putnam, W. W. Norton, TAB, McGraw-Hill, Allyn and Bacon, Donning Publishers, Berkley Publications, Herald Books, Hastings House (subsidiary of United Publishers Group), Loompanics, and Southeastern Publishing, Inc. His books include how-to, self-help, autobiography, history, labor history, a college English textbook, pictorial histories, mystery and suspense novels, baseball nonfiction, and general interest novels.

Some of Williams' titles include [Starting Over](#), [The Thirteenth Juror](#), [Daytrips in the Carolinas and Georgia](#), and, most recently, [100 Practically Perfect Places in the North Carolina Mountains](#). He is also author of a book on how to build log houses.

At present, Williams is editor and author for Southeastern Publishing Corporation. He continues to write for *Backwoods Home Magazine* and for a series of travel and general-interest magazines.

A BHM Writer's Profile: Robert L. Williams III

Born in 1976, Robert L. Williams III was among the youngest writers/photographers ever to be published. At age 3 he had first appeared on NBC's Today Show where Tom Brokaw and Jane Pauley introduced him to the American public as the youngest photographer in history to be published. At age 4 he was selling photos to many magazines, book companies, and newspapers. At age 5 he was under contract with the Vivitar Corporation as a photographer, and that same year he had a one-man show at the Las Vegas Convention Center at the World Photo Marketing Trade Fair.



When he was in the sixth grade, Robert sold his first story to a national magazine: an article on gardening to *Mother Earth News*. Since that time he has written many articles and taken photos for newspapers, including the *Charlotte Observer*, and for magazines that include *Foothills*, *Our State*, *Backwoods Home Magazine*, *InSights*, and a number of others.

He had co-authored a hiking book (along with his parents) that is now in its sixth printing. He has also written a mystery/suspense novel based on events related to the tornado that destroyed the family home. Now in college, Robert was among 20 Honors Students selected at Cleveland Community College. He is now a junior at Gardner-Webb University. Robert makes his home with his parents in Belwood, North Carolina.

Homesteading on the electronic frontier

By Martin Waterman

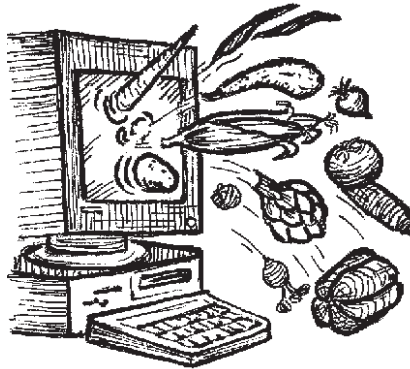
Harvesting the Internet for gardening information

Cicero, the much noted Roman statesman and orator (106-43 B.C.), said, "If you have a garden and a library, you have everything you need."

I wonder what he would say if he were alive today to see and use the Internet. He would have almost instantaneous access to thousands of libraries, universities, government agencies, web sites, and news groups around the world. Of particular interest to him might be the many Internet sites that have information on gardening, farming, and other aspects of horticulture.

So I'm going to take you on a tour of a few dozen of those horticultural related Web Sites and news groups to show you what they are like. I have chosen most of them based on the fact that I have used them and found useful information and, of course, some new friends. For veteran users this will provide some new places to surf and check out. For those who have not yet made the jump into cyberspace, I hope this will give an indication of the type of resources that are available.

There has been much press about the dark side of the net and many fluff pieces in the media about the "gee whiz" or "what a wonderful novelty" aspects of the Internet. The fact of the matter is that those who know how to use the Internet use it to save money, make money, and enhance their lives. In many instances, my own circumstances for example, it is one of the key factors that permits me to enjoy a rural lifestyle.



News groups

The benefits of the news groups is that since they are interactive, you can get answers to your questions in a very short amount of time from the people who use the groups. If it is an active news group, one with many users, you will also be blessed with numerous answers reflecting diverse opinions from people around the globe. This will usually give you a number of alternatives to explore. Usually when I post a garden question, which is something I often do as a garden writer and avid gardener, I usually get more answers than I need within a very short amount of time, usually under a few hours.

News group members not only exchange ideas, they often exchange seeds, cuttings, and plants making the news groups a terrific resource for those seeking hard-to-find or specialty plants. There are many news groups that deal with gardening and related issues. Press the "Usenet" button (or use a news reading program), then type in any of the names of the news groups described below.

alt.agriculture.fruit is a good resource for those who grow tree fruit, berries, and grapes. One of the most common questions I receive is how a grower should go about marketing their fruit, and this is a topic often discussed. Of course, any cultural or pest problem can also be discussed, and I have found people who use this group to be very knowledgeable and helpful.

alt.agriculture.misc usually discusses farm issues. If you are a serious grower or farmer, you will find a supportive community of like-minded individuals.

alt.bonsai is strictly for the bonsai enthusiast, a discipline which many gardeners like to try now and then. Some of the rural people in my area are doing well starting bonsai plants and selling them to nurseries and garden centers.

alt.landscape.architecture discusses landscaping issues from plant selection to heavy duty landscape construction projects. It's also an active place at times for those who are seeking landscape work.

rec.food.preserving is one of my all-time favorite news groups. When I have an abundance of apples, beans, grapes or any other type of produce, I check into this group which discusses preserving foods. It is great fun to swap recipes, and I have received some real good ones. Many of the people who post are masters at preserving food, and I highly recommend this group.

rec.food.veg.cooking is another excellent resource for those who are blessed with bountiful harvests and are looking for new ways to serve up those legendary country meals.

rec.gardens is the mother of all gardening groups. There is constant debate on splitting off subgroups such

as for house plants, but for the most part this group covers a broad range of topics. During gardening season I have seen it with as many as 1000 postings.

rec.gardens.orchids is for orchid enthusiasts. I never knew there were so many orchid fans until I checked out this group. If you like orchids, this is the place. Members will steer you to orchid WWW pages with spectacular photographs.

rec.gardens.roses is for the rose connoisseur. This is another one of my favorite groups, and I lurk to see what new and historic varieties I might consider trying.

rec.ponds is about ponds. Many will argue that no country place is complete without a pond. This group is dominated by gardeners in search of the perfect backyard pond. Discussions include fish, water lilies, aeration, waterfalls, plants, algae, and other issues.

sci.agriculture discusses the science of farming but is also a useful resource for serious gardeners.

sci.bio.botany is the place I go if I have a gardening question that is quite scientific or complex in nature or just to learn tons of interesting things about the plant world. This is an excellent place for those who love botany or are interested in the scientific aspects of plants. Recent discussions have included the study of botany in terms of geometric forms, restoring and creating ecosystems, and misting propagation.

Software problems

Obviously, if you are finding gardening information online, you are using a computer and software. There are news groups for all the major software packages. These are excellent places to visit, especially if you are having software problems.

One day I had a problem with WordPerfect, and even though I still had free technical support, it was late and I would have had to pay for a long

distance phone call. I remembered seeing a WordPerfect user group, so I went onto the Net and quickly found it. I was surprised that numerous other people were having the same problem and the solution was posted. I had my answer in less than a minute. When there is no information posted on my problem, I post a question and then go about my business. The traffic is heavy on some of the news groups and often I have my answer in less than an hour.

Even if you are not having problems, the software news groups are a wise place to check from time to time. Discussions cover new releases, add on products, tricks to make programs more efficient, and often commentary and dialogue from the developers themselves. Information is also available on where to download drivers or other products or information that can make the program perform better.

WWW garden pages

Using my web browser, Netscape, I hit the "search button" and chose Web Crawler as my search engine. I typed in the word "gardening" and was presented with over 800 links to pages that were either on gardening or had a mention of gardening. Obviously, I could have done a more specific search such as for the word "peppers," "composting," "tomatoes," or any other better defined gardening topic. I once made the mistake of doing a search for "apple" forgetting it was a major computer make so I have learned to define my searches better. When I find a site I like, I "Bookmark" it. This way I need only look at my bookmark menu and point and click on the site to find it. This means I don't have to redo a search for a particular or favorite site.

When I want to look for new gardening web sites, I usually will start with a search using one of the many search engines. Many of the sites that are found usually contain links to other sites. Some of the sites can be

quite extensive, especially if it belongs to a university or large organization such as the Brooklyn Botanical Gardens.

With so many sites it is hard to choose a favorite so I will give an example of a few I just used and have used before.

Books that Work makes gardening software (3D Landscape) and has a Gardening Web Directory Page <http://gardening.com/urls/toc.html>

It has links to many of the most popular gardening sites, such as Botanical Gardens, where you can take a visual tour and view plant material and general gardening sites. It also has links to insect and entomology sites to help you identify insect pests, as well as links to botany, landscape, environment, and gardening catalogs and supply pages.

The Internet Gardening site <http://learning.lib.vt.edu/garden.html> also contains a number of links, including the Royal Botanical Gardens at Kew in Australia and the University of Delaware Botanical Gardens. In the colder winter months, I really do like taking the tour of botanical gardens from the warm comfort of my computer.

<http://garden.burpee.com/> is the address of Burpee Seeds. More and more seed companies are putting their wares on the net. Burpee's site features their new blue rose, blue corn, and blue poppy. It sure beats filling out a card and mailing it by snail mail and having to wait several weeks for your seed catalogs. In addition to the seed catalogs, other garden related companies such as Troybuilt, which sells tiller, are also going online.

Another good place to start is the Yahoo index of gardening sites http://www.yahoo.com/Recreation/Home_and_Garden/Gardening/ It is probably the most thorough gardening directory on the World Wide Web.

This last week, I used several WWW sites. This included The USDA-ARS Pesticide Database <http://www.arsusda.gov/SRLHome>.

html since I had some questions about how fast certain pesticides break down. This site serves pesticide companies, farmers, environmentalists, gardeners, and other interested parties. The database covers hundreds of pesticides including more than 95% of the most popular ones. For each pesticide, the database describes up to 16 chemical, physical, and biological features that influence its breakdown rate and likelihood of entering surface or groundwater. The data is designed to be utilized for use in crop and soil computer models, which account for soil, temperature, and other local factors that affect pesticides.

Another interesting site for starting out is the GrowRoom <http://a1.com/growroom/>. The factors that make the GrowRoom such a good starting point is that it has some very useful links. A new addition to the GrowRoom is a list of hydroponic suppliers worldwide, currently about 200. There are also links to others, and a place where frequently asked questions are answered. GrowRoom's website continues to grow and will soon contain book reviews and product critiques of the commonly available hobby hydroponic units as well as indoor lighting, light moving devices, and hydroponic plant nutrients.

Gardening magazines

Many gardening magazines are going on the net, offering samples of their articles as well as links to other sites. The Growing Edge Magazine deals with hydroponics and issues for advanced gardeners <http://www.teleport.com/~tomalex/> Don't forget that you can also visit *Backwoods Home Magazine* <http://www.snowcrest.net/backwood/> and don't forget to bookmark it as it grows to include more links, articles, and features.

The University of Southern California has a site that heralds the type of sites we may see in the future. It is called CyberEden and allows any-

one, (providing they register) to operate a computerized robot arm from their home computer in order to care for a small garden.

The project is co-directed by the USC school of engineering, and the project has already won a prize for excellence at a recent computer exhibition. The address to the site is <http://www.usc.edu/dept/garden/>

Before I visited the site I had wrongly anticipated a scene out of the Jetson's. When I arrived I found myself at the controls of a robot arm that is anchored in the middle of a large circular planting box.

The procedure to participate in the TeleGarden is to first fill out an e-mail application so that you can be a member of the TeleGarden cooperative. After joining, you can plant seeds and then water them regularly. One of the interesting things about this technology and social experiment is that nothing stops one member from planting in the same space as another, or even crushing a plant they don't like. One of the objectives of this site is to slow down Internet surfers with short attention spans and provide a place where they can become more involved.

Asking which garden sites to go to is sort of like asking for a good place to go camping in North America. The answers are vast, and they vary depending on preferences. You can also use Archie and other software (included in most Internet Suite software packages or available as freeware or shareware over the Net) to access almost 10,000 universities. Many of them have extensive horticultural information including the latest research and information on how to grow commercial crops. Cornell University is a favorite of mine, especially for fruit growing information.

The more you can focus on a particular piece of information, the more effective your searches will be. When you find information that you like, you can save it to a file and then read it offline to help keep your connect charges down.

Eventually, you can build your own Bookmarks directory of sites that support the type of gardening you do. The Internet has had a great influence on the types of crops I grow and how I grow them. It has become a quick reference encyclopedia, a learning tool, entertainment, and, of course, a place to visit with like-minded individuals.

(Questions, comments, and information of interest to *Backwoods Home* readers can be sent via the Internet to Martin Waterman at waterman@nbnet.nb.ca, or to other editors of *Backwoods Home Magazine* at backwood@snowcrest.net. *BHM's* Internet address on the World Wide Web is <http://www.snowcrest.net/backwood/index.html>.) Δ

A BHM Writer's Profile:

John Silveira



No one at *BHM* knows what Silveira does but he may be responsible for the Y2K crisis. In his younger days, he served as the village idiot in a number of New England towns until, by law, those positions were made elected offices. He lists his accomplishments as almost graduating from high school, his extensive collection of autographed pictures from Elvis Presley impersonators, and his fourth-place finish in a Gary Coleman look-alike contest. John would like to hear from desperate women with low self-esteem who would think he was a good catch.

When John grows up he wants to be a superhero.

Eating crow isn't that bad

By Bill Palmroth

To most of us, the term "eating crow" has to do with someone being forced to retract an emphatic statement or admit that he or she is wrong. Yet crows have been eaten, literally, by a surprising number of people around the world.

In England, young crows are considered a great delicacy. In France and Germany, crows are shot at any age, young or old, and used to put in vegetable stew. They are also used in bouillon soup.

In North America, however, most of us think of the crow as a pest, and it is rarely eaten. That's unfortunate because, when properly prepared, crows are very good to eat. Young crows have a very tender and mild meat much like squab, young pigeon, or woodcock, and it is every bit as good.

Check your state's game laws before hunting crows because in some sections of the country these birds are protected by law.

Here are a few suggestions on the proper preparation of crows for the table:

The older birds should always be skinned instead of plucked. This is much easier if the feathers are not taken off. Only the meat of the breast and legs should be used. Young birds may be roasted like squab but the use of butter or slabs of bacon is absolutely necessary as crow is inclined to be quite dry.

Crow broth

The breast and legs should be browned a little in butter and then boiled with small quantities of celery until tender. Use water in normal proportions according to the quantity of broth desired and the available amount of meat.

Sandwich spread

This mixture is worth trying. The boiled meat should be carefully inspected and all bones removed. It should then be run through a meat chopper. To the well-minced meat add small quantities of mustard, finely chopped onion, salt, pepper, and a bit

of mayonnaise. A dash or two of paprika will add to the mixture, and it may be kept for a reasonable length of time in the refrigerator.

Crow stew

Brown some large onions in bacon fat at the rate of one large onion to the average bird and add the meat, salt, and pepper to taste. Smother for a few moments in the onions and add enough water to cover the meat. Let it simmer over low heat until tender and stir in some sour cream mixed with a teaspoonful of flour. Your other favorite ingredients for stew can then be added.

To prepare crows similar to squab, clean them thoroughly, rub with salt and pepper, and add a bit of lemon juice. Some cooks have been known to add some finely-crushed juniper berries in place of the lemon juice. You may also want to stuff the young birds with whole mushrooms.

Wrap the bird completely in strips of bacon, tie together, and boil or roast like squab. The breast of crow squab may also be dipped in egg and bread crumbs and fried like cutlets.

If you try these recipes and don't agree that the birds are really quite delicious, I'll be the one eating crow.

Protect those young trees from frost and vermin

By Tom R. Kovach

Young trees that are only several years old have thin bark and are easily damaged. They need protection, especially in the winter months.

One of the problems is sunscald, which occurs when temperatures are above freezing in the daylight hours, but drop to freezing temperatures at night. This sudden change in temperature kills cells in the bark, causing afflicted areas to die and peel off during the next growing season. To pre-

vent this from happening the trunks should be wrapped with material which either shades the trunk or reflects the sun to prevent excessive warming. You can use aluminum foil, waterproof tree wrap, or burlap.

Another problem for young trees are nibbling animals such as rabbits and mice. Dave DeCock, a County horticulturist in Fargo, North Dakota, says that fruit trees are usually the first trees attacked by rabbits. And if a tree gets eaten off below the graft, it will usually die.

Rabbit and field mice damage can be avoided or at least reduced by wrapping the tree trunks same as you would for sunscald. Or you can spray or paint on common repellents. These are available at garden stores.

You can make your own repellent by mixing 85 percent raw linseed oil, 5 percent household detergent, and 10 percent water. Apply with a small sprayer or with a paint brush. You should reapply after heavy snow melts but that should not be a problem during the winter.

You can also fence each tree by using a cylinder of 1/2-inch mesh fencing. This will deter rabbits, says DeCock, but a finer mesh fencing or a solid retainer is needed to repel the field mice. Δ

Don't have a cow! (Get a steer instead.)

By Tanya Kelley

Shortly after we moved to our farm and began our struggle for self sufficiency, we had made considerable progress. The chickens were laying plenty of eggs, our first pig was back from the butcher, and the garden had provided us with more than enough produce. The eating was definitely good, but we still had strong hankering for beef. Unfortunately, the price of beef feeder calves was well out of reach of our limited finances.

When a friend mentioned that Jersey calves were selling for veal at the auction for around \$20, the wheels started turning. Why couldn't we raise a Jersey for beef? A little research was in order. I soon discovered that Jerseys were not considered practical to raise for beef because they did not get as big as the beef breeds. That seemed to be the only complaint. So, despite the snickers, long looks, and

flat-out "It'll taste terrible" comments of some "experts," we decided to take the plunge.

The results were well worth the effort for anyone. If you are considering raising your own dairy beef, here are a few of the lessons I learned. I think you'll be pleased with the results.

Buying a calf

Buying a healthy bull calf can be tricky. Fortunately, we had a friend who went and purchased our first one for us. When she presented me with an emaciated-looking (to my eye), wobbly calf, I thought she was crazy. Our vet reassured me that calves just come that way. In fact, day-old calves that look well-fed have often been *overfed*. Overfeeding can cause *scours*, which is often fatal.

There are several things to look for. Check for scours (diarrhea). Manure should be ploppy, runny, and brown.

If it is a yucky yellow and watery, steer clear of that calf. If the calf has scours, his legs and tail will probably be a mess.

The umbilical cord should not be swollen, infected, or hard, and there should be no ruptures. The calf should breathe clearly, with no rattles, and there should be no green or white discharge. A clear, slimy coating of the nose is typical. Shriveled-looking ears and tail indicate the calf is suffering from a vitamin deficiency. The feet should seem sturdy. The calf should have bright eyes and seem perky. And don't let the wobbly walk fool you—if he gets loose, he can run faster than you or me. Trust me.

It's a good idea to check with the locals about the reputation of nearby auctions and breeders. Occasionally you can get source recommendations from your vet, extension agent, or feed dealer. Your vet will also be able to advise you of any problems common to your region, such as selenium deficiencies.

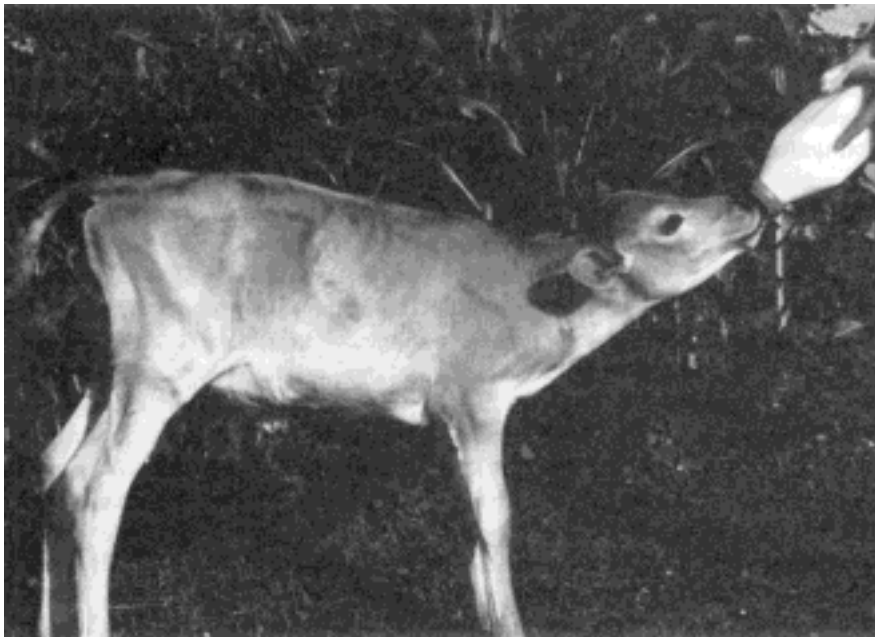
Bringing baby home

When you get your calf home, it is a good idea to give a shot of penicillin and vitamins if the calf has had no colostrum. Dip both the navel and hooves in a 7% iodine solution to toughen them and prevent infection. Your vet can recommend any other precautions you might need to take.

We buy calves in the spring, only because it is more pleasant weather for bottle feeding. We stack bales of hay in a corner of the barn to make a cozy temporary stall. It cuts down the drafts and lets us keep a closer eye on them for the first week or so. Calves can take cold, but they must be kept dry and out of drafts. We bed them in deep straw. You can also use sawdust, but make sure it's not dusty. We don't



This steer has the smooth hips and filled-out brisket (chest) that show he's gotten his growth.



This day-old calf looks pretty skinny, but that's normal in a healthy calf. With proper care, he'll gain weight quickly.

put calves together if they're more than six weeks apart in age.

Feed a good quality calf milk replacer with a 40 to 60% fat content. Get a bottle and some calf nipples, available at your feed store. We usually start our calves out with three pints of warm water or electrolytes for the first 12 hours and give half-strength milk replacer for the next two feedings. We feed three times a day for four days and then twice a day, three pints, morning and night. Calves usually know how to eat, and can drain a bottle in nothing flat. The sucking reflex is strong, and so is the urge to butt the bottle. When they are nursing on a cow, that butting stimulates the milk to let down. When they butt on the bottle, it can stimulate you to drop the bottle, or even get whacked with it.

When the bottle is empty, they still want some more. No matter how pathetic they seem, don't feed them more or let them suck on an empty bottle. Let them suck on your fingers if it will relieve any guilt, and remember that overfeeding can cause scours. You can gradually increase the milk to

four to six pints, starting on the eleventh day.

Clean the bottles and nipples with hot, soapy water. Rinse well and turn upside down to dry. As an extra precaution, I rinse the bottles with bleach and water every few days. Again, rinse well.

At four days, introduce grain. It may take several tries, but they do catch on. From that point on, the calf should have free access to a calf starter or grain mixture with a supplement. Check with local feed manufacturers to find the best quality and value. We have had considerable success with Moorman's feed supplements mixed with grain we buy from a local farmer. We begin with one part corn, one part oats, and one part Moorman's Mintrate for Cattle.

Leading and "steering"

Train the calf to a lead . . . while he still weighs less than you. Start with a calf halter and two people to help (one to pull and one to push). Keep a steady tension on the line until the calf steps (or is gently pushed) forward.

Let the relief from the tension be the "reward." Keep repeating until the calf steps forward willingly.

Continue leading on a regular basis. Don't wait until the day you have to take your steer to the vet unexpectedly, or he gets loose and you have to take him home. An ill-mannered, galumphing, 800-pound steer will go pretty much where he pleases. With or without you.

Peppermint candies given as treats occasionally can be helpful. The first time, you may have to put it in the steer's mouth. After that, you can just crackle the plastic wrapper and he will follow you anywhere. That crackling noise can be the deciding factor when you are 10 feet away from a loose steer that is contemplating a gallop through your neighbor's flower garden.

Dehorning and castration

You might decide to forgo the dehorning, but one whack with a grown steer's head will probably cause some serious regrets. Steers play rough, and they have no idea how fragile people can be.

Castration is a must. If the steer is not castrated, the hormones will taint the meat. There are banding kits, or you can have the vet band or cut them. We have used both methods and definitely prefer banding. While slower, it seems to be relatively pain-free, and it doesn't attract flies. You can have the vet come out, or save the cost of a farm call by packing your 70-pound calf into a small pickup or even into some cars. (Put down plastic!)

At four weeks (depending on the weather), we usually move our calves to an outside pen with a three-sided 12- by 12-foot run-in—plenty of room for two calves. The pen itself is 25 by 50 feet, made of four-foot woven wire. Unfortunately, we learned early on that steers can do a lot of damage to our neighbor's yard. Sturdy fence and gates are definitely in order. Good neighbors are also a plus.

You can keep your calf in open pasture, but the quality of the meat will be lower, and so will the weight gain. The more grass the calf eats, the less corn he will eat, and that results in a lower weight gain.

You can wean the calf off the bottle and get him drinking from a bucket. To do this, dip your fingers in the milk and hold them just above the milk. When the calf starts sucking, gradually lower your hand down below the surface of the milk. After considerable snorting and choking, most calves will allow you to remove your fingers. I usually have to repeat finger feeding several times. I have come to the conclusion that, while bottle feeding may be messy, bucket feeding is more time consuming and results in calves that never really seem to lose the desire to suck on everything.

Depending on how well the calf is doing and how much grain he is consuming, you can wean at about six weeks. Usually at this time, the calf will be eating 1½ pounds of grain a day. Take him off the milk gradually by diluting it and offering him plenty of water with a little milk replacer

mixed in. As the calf starts drinking the water and eating more grain, cut back on bottle feedings. It takes a week, but most calves make the transition quite smoothly. However, we did have one calf that refused to eat grain and glutted himself on the milk water. It was difficult, but at eight weeks old, we finally eliminated all milk replacer and made him go cold turkey. Within 24 hours, he got the picture.

Generally, we don't feed our calves a feed supplement with antibiotics. According to most manufacturers, feeds with antibiotics will result in a faster weight gain, but we decided we didn't want to unnecessarily bombard our animals or our food with antibiotics. The only other medication we use is a wormer at four months. Again, consult your vet for recommendations.

At two months, gradually change feed proportions to one pound mintrate per calf, no oats, and all the corn they can eat. They get one flake of hay a day. The roughage helps them digest better, resulting in faster weight gain.

We have a large wooden feed bin that allows us to dump up to 150 pounds of corn in at a time. We top dress the corn each day with mintrate. In addition to unlimited grain, keep plenty of water and a large mineral salt block available at all times.

Any changes in feeding must be gradual. Sudden changes to grass, different brands or amounts of feed, or large amounts of garden waste or table scraps can cause illness or diarrhea.

Do not feed yard clippings. Innocent-looking plants can be deadly. My friend's Jersey nibbled on some yew and was dead within the hour. Apparently yews contain arsenic.

Cleanup

Our calves are usually in an outside pen which requires only a rare cleaning. When winter really hits, we move the steers into the barn. On good weather days, they go in the pen for the day and into the barn for the night. The worst stall cleaning I have had to do takes me about 15 minutes a day and results in one wheelbarrow load of garden fertilizer. I pick out the wet and dirty spots and add two or three flakes of straw. We use a bale or a bale and a half of straw a week for two calves for about 16 weeks of winter.

Keeping records

It's a good idea to keep a record book of your feed purchases, vet expenses, animal costs, weight gains, and other data. Tracking spending can show you where there is room for improvement, and best of all, you can feed your friends the best steak they ever ate, and then gloat about the ridiculously low cost.

Weigh the calf by picking him up and standing on bathroom scales. Then subtract your weight to get the calf's weight. Obviously, you won't be able to weigh the calf by this method for long. You can take your steer to a local scale to track weight



He's finished his meal of milk, but he still wants to do some sucking, so he's making do with fingers for a while.

gain, but there is a simpler (though less accurate) way to track progress.

Many feed stores and vets will give measuring tapes that measure weight by measuring “heart girth” (around the steer, just behind the front legs). You can track progress with these, but the weight may not be accurate. Our first steer weighed 70 pounds less at the butcher’s than the tape indicated.

Tracking our first calf showed us that we finished him off with an average weight gain of 1.8 pounds per day, at a total cost of less than 85¢ a pound. He weighed 879 pounds at butchering. Our take-home beef was 468 pounds. Our techniques have improved, and our current steer appears to be gaining 2.1 pounds a day. Our cost will probably finish out at about 90¢ a pound, due to increased grain prices. The cost includes the purchase of the calf, feed, vet expenses, straw, and butchering. Try to find hamburger at 90¢ a pound . . . let alone steak.

Finishing and butchering

Improvements in our procedures have enabled us to bring our current steer to be finished in about 13 months. Our first steer took 16 months.

Knowing when your steer is finished can require some educated guessing. When your tape is registering a weight between 900 and 1000 pounds, you’re probably right there.

Check that the brisket (the chest) is no longer just loose folds of skin, but is filled out. Ribs should be well covered and the hip points should be smooth and not protruding. At that point, you *can* continue feeding him to a higher weight gain, but the gain will be of a higher ratio of fat to meat, so it’s not cost-effective.

Not all butchers are the same, so it’s a good idea to get references. Find out costs, custom butchering procedures, options for packaging, smoking, deboning, and labeling procedures—both for customer identification of

meat and for the different cuts. Find out how far in advance you must arrange the butchering date. Some butchers offer pickup or can refer you to someone to pick up your steer.

Custom butchering can make the biggest difference between your beef and commercial beef. Commercial beef is often butchered and then placed in heat-shrink plastic bags where it can be held up to 30 days before being sold. You can have your beef hung for one to two weeks to allow the fiber of the meat to break down, resulting in a very tender meat. You can also choose the fat content of your hamburger.

Most butchers are happy to explain the different cuts and other options. We usually take all the meat, even cuts we don’t use, such as the brain. We give our neighbor any cuts we don’t use, as well as several prime cuts. It helps make up for some of the bald spots in her yard. We have the bone scraps cut for the dog, and we bring the beef fat home for making soap. The one thing most butchers don’t give back is the hide. That is included as part of the cost of butchering.

A home freezer may be large enough to store your meat, but renting a local locker may be a better choice. There are no worries about freezer failure, and you still have room for your frozen vegetables. We rent a locker for \$5 a month at a local grocery store. Once a month, I pick up a few weeks’ worth of meat and store that in the freezer at home. That has eliminated the temptation to eat all the steaks first and the liver last. We pick up a balanced order and we don’t go back until we’re out.

The guilt trip

“Look at those sad eyes. How can you stand to eat him?” “Don’t your kids cry?” These are things we hear from people. At first, we did feel a twinge of guilt. Then I realized that if we hadn’t bought the calves, they

would have been used as veal. We name them, we take good care of them, and then they fulfill their purpose in life. It may seem harsh, but if people weren’t eating beef, there wouldn’t be many cattle around. They don’t make great house pets.

Just in case I feel the empty-stall syndrome, I buy my new baby calf a few days before the older one leaves. By the time he goes, he is big, smelly, and rough, and I’m ready for him to leave.

Food for thought

Self sufficiency aside, there are other advantages to raising our own beef. We found that beef is beef, no matter what the size or breed. In fact, the smaller size is an advantage—one steer provides enough beef for our family for one year. We don’t have an extra side of beef that we must sell.

More benefits: Our beef was fed with no drugs or steroids. He was not pasture fed, then finished with corn, as is commercial beef. From the beginning, he was only free-fed corn, which resulted in a faster growth rate. That in turn allowed us to butcher at an earlier age, resulting in the most tender beef we have ever tasted.

One word of warning: You might be tempted to invite friends to dinner to show off your delicious bounty. If you do, be prepared for a lot of unexpected dinner guests. Home-grown beef is just too tempting to resist. Δ

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Try these organic controls for garden pests

By Tom R. Kovach

More and more gardeners are using organic methods to control garden pests. This is because insecticides, fungicides, and herbicides can do more harm than good.

For controlling **spider mites**, **strong water sprays** from the garden hose will do the trick. Put a nozzle on the hose and spray every few days. This will work on your evergreens, which are often beset by mites in hot, dry weather. It will also work for roses and a number of other shrubs and plants.

There are a number of ways to control **slugs**. You can just **pick them and drop them into a can of soapy water**. A good time to accomplish this is **after dark** with a flashlight. That's when they're out. **Beer** also works. Just sink some saucers of beer into the earth. When they fill up with drowned slugs, renew the beer. Also, you can scatter **ashes** around plants, a few inches from the stems. This works well for tomato plants. Do it early in the season, and when the band of ashes gets too smooth, scatter more ashes. This also discourages **root maggots**.

Here is an old U.S. government list with some homemade concoctions for controlling garden pests organically:

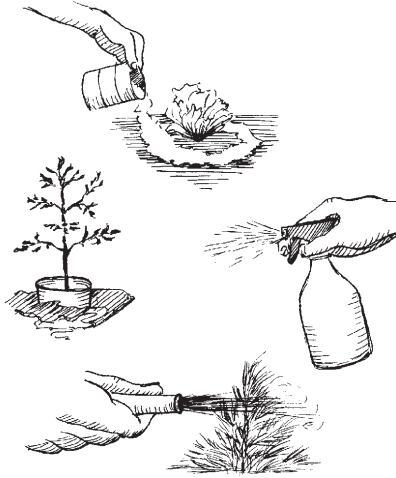
For **aphids and mites**, use a **spray made of soap and water**.

Use **garlic oil spray** to fight **onion flies, aphids and thrips**. Onion and chive solutions can also be used.

Mineral oil applied to corn silk with an eye dropper eliminates **corn earworms**. Wait until silks have turned brown before applying.

You can kill **slugs and snails** by sprinkling them with **table salt**.

For **cabbage maggots**, use **hot pepper, salt, and sour milk sprays**.



Coriander and anise oil emulsifiers help control **mites and aphids**.

Sticky bands around tree trunks will trap **tent caterpillars** and keep **cankerworms** from crawling onto the leaves of the plant.

To keep **leafhoppers** away, encase your plants in **cheese cloth or muslin frames**.

Cut short **cutworms** by placing **paper or tin can collars** around plant stems and forcing them firmly into the soil.

Aluminum foil strips placed between rows will keep **insects** out of your vegetable gardens.

Remove and burn affected plant parts to keep an insect infestation from spreading.

If a lily plant suddenly turns brown, you should **immediately remove it** from your flower bed. The browning is a sign of root rot or other diseases that can easily spread to your other lilies.

To keep **aphids** away from your roses, place a **garlic clove** on the ground next to the rose.

Some of these methods work better than others. It just takes a little experimentation. But it beats having to use chemical means of control. Δ

A BHM Writer's Profile: Olivia Miller



Olivia Miller is proud to be from rural Alabama and, as a freelance writer, enjoys writing for agricultural publications. She's published in *Horse Women*, *Progressive Farmer*, *Successful Farming*, *Turkey Call*, *Forest Farmer*, and *Catfish Pond Harvest* to name a few. Olivia is an adjunct professor at the University of Memphis, and is married with three children.

A BHM Writer's Profile: Darlene Polachic



Darlene Polachic is a freelance writer from Saskatoon, Saskatchewan. Besides writing, she enjoys gardening and needlework.

Stop bugs Nature's way

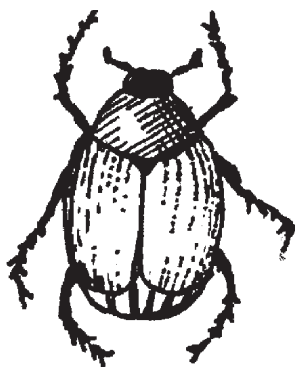
By Maurcia DeLean

First it hit the green beans. Next the carrots, and before long even the lettuce and beets showed signs of an insect invasion. On quiet evenings I was sure I could hear the munching sounds of bugs feasting on my garden.

That's what *almost* sent me scurrying to the local garden supply shop for a load of insecticide. But I didn't. And you don't have to either—if you opt to follow the advice of old-time bug-proofers.

Yesterday's farmers didn't use poison to stop bugs. They didn't have any. Instead, they saved their crops from becoming the "salad de jour" to the local insect population by giving Nature a helping hand at building its own resistance.

Before beginning any type of pest control, it's a good idea to check to see if the insects eating your plantings are still around. Most are hit and run eaters, doing most of their damage before pupating. To check for lingering pests, look at the leaves on your plants. Are the new leaves undamaged? Or are the chewed edges brown and dry? Chances are the insects you most have to worry about are gone. If, however, the leaves have fresh cuts, excreting sap, your garden is still at risk.

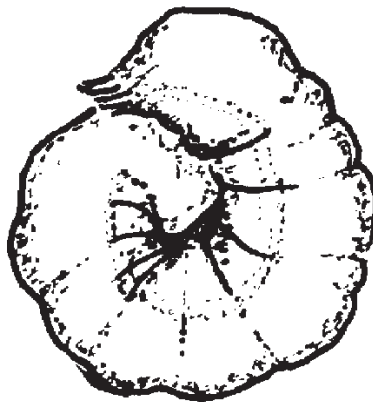


Japanese beetle

There are several safe, practical, and inexpensive ways to stop bugs from ruining your garden splendor.

Prevention

The first, of course, is prevention. Something as easy as **cultivating the soil prior to planting** in early spring exposes burrowed eggs and larvae to the local birds, cutting down on the season's insects. **Scraping trees of**

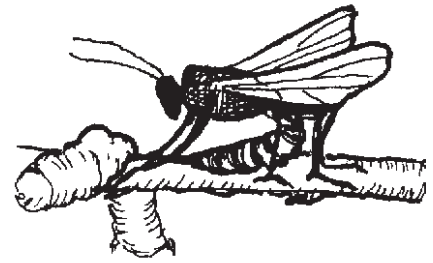


Cutworm

egg masses, too, can help leave your garden insect-free.

Beneficial insects

If, however, you need help curbing a current problem, you may need to encourage natural resistance by attracting beneficial insects to your garden. **Predators and parasites** are



Predatory wasp

good for controlling the insect population in gardens, because they feast on other insects, not your plants.

For example, to control **aphids**, **gypsy moths**, **mealybugs**, and **Mexican bean beetles**, introduce a **parasitic wasp** to your garden.

Spined soldier bugs get rid of **Colorado potato beetles**, while **mites** handle **fungus gnats** quite well.

Beneficial bugs can be purchased at garden stores or through a number of catalogs.

Companion planting

Companion planting, too, can help to stave off an insect invasion. For a list of companion plants, see the box in this article.

Barriers

Using barriers to protect your plants is simple and effective. **Floating covers** are lengths of synthetic fabric draped over the top of your plants. They offer excellent protection for young seedlings.

Top five garden pests

Pest	Host
Aphids	Fruits, vegetables, flowers
Caterpillars	Fruits, vegetables, shade trees
Colorado potato beetle	Potatoes, tomatoes, eggplant
Cutworms	Early seedlings
Japanese beetle	Small fruit, vegetables

Companion planting

helps control the insect population by attracting predators

Companion plant	Where to grow	Controls
Dandelion	Border	Potato beetles
Catnip	Border	Aphids, fleas, beetles
Marigolds	Interplant	Root nematodes, aphids, beetles
Southernwood	Border	Moths, beetles
White clover	Interplant	Cabbage root flies

Collars protect against most species of **cutworm**, but not climbing ones. Cutworm collars are stiff cardboard or plastic cylinders that encircle the plant stems at ground level.

To get rid of **gypsy moths** and non-flying bugs, try **tree bands**. These barriers are placed around the trunks of trees to prevent bugs from climbing and attaching their larvae to the trunk.

As you can see, there are a number of barriers and traps available to keep

insects at bay. Check your local gardening supplier to find the method best for you.

Organic sprays

If it's a fast and effective cure you seek to thwart bugs, try one or more of the following homemade organic recipes to chase away even the hungriest chewers:

- **Hot pepper spray:** Mix 1/2 cup ground hot pepper with 2 cups water. Strain and spray on plants.

- **Garlic oil:** Finely chop 15 cloves of garlic. Soak in one pint of mineral oil for 24 hours. Use as a spray.

- **Buttermilk/wheat flour mix:** Mix one pound of wheat flour and 1/2 pt. of buttermilk, add six gallons of water. Spray.

- **Molasses mixture:** To kill just about anything, spray molasses, diluted in 50 parts water, on your plants.

Since more than four out of every five species in the animal kingdom are insects, it's no wonder we gardeners feel outnumbered at times . . . we are! But that doesn't mean we have to resort to using insecticides that poison our plants along with the bugs. Try out some of these old fashioned remedies instead. And enjoy a bug-free season. Δ



Combat aphids by *planting* garlic

By Barbara Fallick

Garlic is extolled for many virtues, but many people find the odor repulsive. Aphids also find garlic repulsive—and that's good.

Every spring, my cherry trees become infested with aphids. Leaves curl up and are dotted with the black aphid bodies. The leaves are sticky to the touch. Garlic is a simple and thorough remedy to this problem.

Purchase ordinary garlic bulbs from the grocery store. I plant mine in the fall with my other bulbs. *Organic Plant Protection* by Rodale

Press says to plant them early in the spring. Evidently, either time will work. Split the garlic bulb into cloves and plant each clove individually around the base of the tree about five inches from the base and five inches from each other. Plant them approximately two inches deep.

The garlic plant itself does not give off an odor, nor does it affect the flavor of the fruit. In my climate of hard winters, my garlic plants do not reproduce themselves the following year, so I have to replant every year. In some climates, they will repro-

duce every year. Home-grown garlic has a better-mannered taste than the store variety, and is therefore a boon to medicinal and culinary uses.

Though garlic is the most potent, other plants which also work as aphid repellents are chives and other alliums, pennyroyal, spearmint, southernwood, tansy, coriander, anise, nasturtium, and petunia.

Now, can anyone tell me what to do about the white worms that get into the cherries? My trees are very tall, and even organic spraying is not a viable option. Δ

From humble stew to curried root soup, root vegetables are an overlooked delight

By Richard Blunt

A few days before Christmas my mother called wanting to know what time I planned to pick her up Christmas day. I reminded her that I planned to pick her up Christmas eve. Then she asked me what we were having for Christmas dinner and I recited the menu. She said, “That sounds delicious, but aren’t you forgetting something?”

Up to this point I’d been happy with the menu, but her question made me hesitate. I read the list again. “I don’t think so.”

“You forgot the root vegetables,” she said. “Richard, Christmas dinner is a special meal. Even though you and I were not rich, we always ate well during the holidays because of the wonderful fresh turnips, parsnips, rutabagas, Jerusalem artichokes, and other root vegetables the neighbors shared with us from their gardens every winter. When you got married I gave you copies of your favorite winter vegetable recipes. Why don’t you pick one of those. It doesn’t matter which one. They’re all good.”

I told her that it sounded great to me, and after we hung up I started digging through my files for the recipes. After an hour, I found an old dusty manila envelope with the following note hand written on the front. “These recipes were given to me by your grandmother when I got married. You and I have enjoyed the magic of these recipes for many years. I hope that you will share with your new wife the tradition of simple but elegant foods that have been so much a part of our family tradition. Love, Mom.”

I opened the envelope and found recipes with names that I had completely forgotten about: Yankee pork and roots, maple baked rutabaga, southern yam pie, curried root soup, Jerusalem artichoke bisque, and humble stew. It rekindled memories of tastes and textures almost forgotten. All of these recipes called for a variety of vegetables that thrive in cool moist climates of the Northeast where I grew up.

After reading a few, I got excited. I sat at my kitchen table and felt a funny kind of enthusiasm as I drew up a shopping list. My daughter, Sarah, was also getting excited as she watched me, even though she didn’t know what was going on.

“Come on,” I said when I’d finished my list. She followed me out to the car and we headed for the best local farm stand in the Farmington Valley, “Pickin’ Patch,” where I assumed everything I needed would be on the shelf. In the back of my mind, however, I was a little worried that the holiday shopping rush would have depleted the supplies



before I got there, so on our way I stopped off at a couple of supermarkets just to see what they had.

It was to my surprise and disappointment that all I found in these stores were some waxed rutabagas, a few withered bunches of red beets, and some parsnips that had not been cold-stored properly so they had a flat, starchy taste.

I guess this shouldn’t have been a surprise because most would-be fresh vegetables available in the northeastern markets during the winter months are the globe-trotting, ethylene-stimulated varieties that are the product of someone else’s summer. We eat tomatoes from Mexico that are picked green and never really ripen, storage grapes from South America that fall off the stem when you pick them up, and deep red strawberries from New Zealand that have more color than taste but are a temptation to any shopper. And I will admit that I, like most other people, am not willing to go without lemons, oranges, melons, and bananas at any time of year, so I purchase this ersatz-ripened fruit myself.

Still, in spite of all these techno-ripened fruits and vegetables, there are some vegetables, grown right here in the Northeast, that we ignore. They are vegetables that ripen in summer but improve in flavor and texture with proper storage, making them worth serving in winter. Irish potatoes, sweet potatoes, onions, and winter squash are good examples.

I had high hopes that I would find some of these at the Pickin' Patch. But, when I finally arrived there, my disappointment deepened. I found no root vegetables at all. Sarah sensed my mood and the excitement faded from her face. I asked the owners if and when they would be restocking. They told me most root vegetables don't sell, so they stopped planting them several years ago.

Then I went to see Randy Morse, a respected farmer who operates a popular farm stand in Southbridge, Massachusetts. I asked him why many root vegetables were so hard to find. What Randy said went something like this:

Many folks think of root vegetables such as salsify, Jerusalem artichokes, celeriac (or celery root), and parsnips as cheap produce. Growing vegetables for cold weather harvest takes skill, patience, and a lot more land than the finished crop can support with sales. Plus, cold weather harvesting is hard, dirty work.

Don't get me wrong, buying vegetables that are grown and harvested locally is the most economical and nutritionally sound way to go. But that kind of quality will never be available at bargain basement prices. Popular, high yield vegetables like sweet corn, squash, and pumpkins offer the local consumer reduced prices because local farmers sell a lot of these crops.

Most of my customers are only familiar with the well known root vegetables like carrots, potatoes, and onions. So that's what we stock. It's a shame, but I would have a hard time convincing many of my customers that a parsnip exposed to a moderate frost is as sweet and tasty as a young early summer carrot, and it's a more versatile vegetable in the kitchen.

Good words, Randy. I agree.

I had to travel all the way up to the wholesale market in Haymarket Square, outside historic Faniel Hall in Boston, to find what I wanted. So given all the trouble I went to, let's put them to use and try a few root vegetable recipes.

The first recipe produces one of my favorite flavor and texture combinations. It combines a broad spectrum of balanced vegetable flavors in a mixture that requires very little herb or spice enhancement. To enhance this mixture too much would mask the delicate flavor balance of the vegetables. This version does not contain any meat, but I have used this vegetable mix as a base and added lamb, pork, or beef and a little more stock to make a real appetite pleasing

winter stew. Serve any version of this stew with fresh corn bread or hot biscuits.

Humble stew

Ingredients

1 cup dried red beans
6 cups plus 8 cups of cold water
3 cups fresh beef, chicken, or vegetable stock
1/2 cup dry red wine
8 Tbsp margarine or butter (I prefer butter in this recipe)
8 oz onion, peeled and diced medium
4 oz celeriac, coarsely grated
4 cloves fresh garlic, peeled and minced
4 Tbsp flour
4 medium carrots, peeled and cut into 1/2 inch pieces
4 small to medium fresh beets (without greens), peeled and cut into 1/2 inch chunks
1/2 lb peeled rutabaga cut into 1/2 inch pieces
4 medium parsnips, peeled and cut into 1/2 inch pieces
1 tsp dried basil leaf
1/2 tsp dried oregano leaf
kosher salt to taste
freshly ground black pepper to taste
1/4 tsp cayenne pepper (more or less according to taste)
2 cups canned whole plum tomatoes (with the juice), diced medium

Method

1. Soak the beans in the six cups of cold water for at least four hours. Drain and rinse beans, discarding the soaking water. In a large sauce pot combine the beans with eight cups of fresh water and bring to a boil. Reduce the heat and allow the beans to cook slowly for about 45 minutes. Rinse the partially cooked beans in cold water to cool, drain and set aside.

2. Combine the stock with the wine and heat almost to the boiling point over a medium heat.

3. Melt the butter in a large sauce pot, and add the onion, celeriac, and garlic and saute them for about two minutes or until the onion becomes translucent. Stir in the flour and continue cooking the mixture over a low heat for another two minutes. Add the hot stock to this roux while stirring with a wire whisk. Cook over a medium heat until the sauce thickens.

4. Add the remaining vegetables, beans, basil, oregano, salt, black pepper, cayenne pepper, and plum tomatoes. If you have a large earthenware casserole, transfer the vegetables into the casserole, cover and place in a 350 degree oven for 45 minutes to an hour. Or simply cover the sauce pot, reduce the heat to low, and cook the vegetables on top of the stove about 45 minutes, or until everything is tender.

If you want to experience a great one dish meal, cook some of your favorite rice or noodles and serve these vegetables on top with some grated cheese.

Curried root soup

This is a real departure from the delicate pureed soups that are usually made with root vegetable combinations. It has a full taste, rounded off with a slight tingling nip from the addition of several spices that make up a mild but noticeable curry mixture. This is also a soup that improves in flavor when allowed to rest in the refrigerator overnight.

Ingredients

3 medium beets (separate the greens and save), peeled and diced medium
1 lb carrots, peeled and diced medium
8 oz parsnip, peeled and diced medium
1 lb rutabaga, peeled and diced medium
8 oz russet boiling potatoes, peeled and diced medium
4 medium leeks (white part only)
2 qts fresh vegetable, chicken, or beef stock (if you don't have fresh stock, low salt canned stock can be substituted)
5 Tbsp unsalted butter
2 cloves fresh garlic, minced
1/4 tsp ground cumin
1/4 tsp cayenne pepper
1/8 tsp ground ginger
1/8 tsp mustard powder
1 pinch turmeric
1/4 tsp powdered coriander
2 Tbsp flour
2 Tbsp fresh lemon juice
reserved beet greens, chopped
Add kosher salt and fresh ground black pepper to adjust seasoning.

Topping ingredients

1 medium onion, peeled and chopped fine
1/4 cup flat leaf parsley, chopped fine
2 cups plain yogurt

Method

1. Separate the greens from the beets, wash, drain, and chop the greens and set them aside
2. Slice leeks in half lengthwise and dice into 1/2 inch pieces.
3. Combine the vegetables with the stock in a large pot and bring to a boil. Reduce the heat and cook until all the vegetables are just tender. Remove them from the heat and strain the stock into another container. Set the stock and half of the cooked vegetables aside.

4. Puree the other half of the vegetables in a blender or food processor and set these aside.

5. Melt the butter in a large heavy bottom pot, add the garlic and saute over a medium heat for about one minute. Now, add the spices and flour while stirring with a wire whisk. Cook this seasoned roux over low heat, to prevent browning, for about two minutes.

6. Slowly add the stock to the roux while stirring with a wire whisk to prevent lumps from forming. Heat this mixture to a slow boil while stirring constantly. Cook over a low heat until the stock shows signs of thickening, then add the chopped beet greens, lemon juice, and diced vegetables. Continue to cook for about 10 minutes or until the greens become tender.

7. Remove the soup from the heat and add the pureed vegetables, stirring gently with a wooden spoon to mix.

8. Adjust the seasoning with kosher salt and fresh ground black pepper to suit your taste.

To serve, combine the chopped onion and parsley in a serving bowl and the yogurt in another bowl and bring them to the table as condiments. Heat the soup to a serving temperature 165-175 degrees. *Do not boil again.* Sprinkle a little parsley and onion on each serving along with a dollop of yogurt.

Cajun baked turnip

My mother was a master at creating recipes for turnip and rutabaga. Of all the root vegetables in the world these are the two that give me taste fatigue the quickest. So my mom would do her best to keep me from groaning every time I saw these two vegetables come to the table. Not all of her creations did the job, but I will share with you one of those monotonous breakers that is still one of my favorites.

Ingredients

2 lbs white turnip, peeled and diced
6 Tbsp unsalted butter
1/4 cup red bell pepper, diced medium
1 tsp whole grain mustard
2 Tbsp brown sugar
1/2 tsp kosher salt
1/4 tsp garlic powder
1/8 tsp ground nutmeg
1/8 tsp cayenne pepper
1/4 tsp dried thyme leaf
1/4 tsp dried basil leaf
1/4 cup distilled apple cider
1/4 cup whole wheat bread crumbs

Method

1. Wash and peel the turnips and dice them into 1/3 inch pieces.

2. Cook the turnip pieces in lightly salted water until just tender. Drain and set aside.

3. Melt the butter in a heavy bottom skillet, add the diced bell pepper, and saute until the pepper is tender.

4. Combine the mustard, brown sugar, salt, garlic powder, nutmeg, cayenne pepper, thyme and basil with the apple cider and blend with a fork. Add this mixture to the sautéed bell pepper.

5. Toss this mixture with the blanched turnip in a suitable oven casserole. Sprinkle the whole wheat bread crumbs on top and bake in a 375 degree oven for about 20 minutes, or until the top is lightly browned and the turnip is to a desired tenderness.

Jerusalem artichokes with brown rice

The Jerusalem artichoke is not the most eye appealing vegetable, which is probably why most retail markets don't carry it. It also requires special handling once it is removed from the ground. It has a very short shelf life.

In spite of its short comings, this vegetable is an absolute delight to eat in many ways. If you decide to grow some, you will experience a culinary delight similar to picking a fresh ripe tomato or ear of corn from your garden and eating it on the spot. Taste doesn't get any better.

If you can find some Jerusalem artichokes that are fresh, don't bother peeling them. Just wash them with a stiff brush and work them into this recipe.

Ingredients

4 Tbsp extra virgin olive oil
1 medium carrot, peeled and diced small
1 small red onion, peeled and diced small
1/4 cup fresh mushrooms, diced
2 cloves garlic, minced fine
3 cups Jerusalem artichokes, scrubbed and diced medium
1/4 cup long grain brown rice
1/2 cup fresh chicken stock
1 Tbsp lemon juice
1 Tbsp fresh mint, diced fine
kosher salt and fresh ground black pepper to taste

Method

1. Heat the oil in a large skillet. Add the carrots, onion, mushrooms, and garlic and saute for about 5 minutes. Add the Jerusalem artichokes and continue to saute until the artichokes are just tender.

2. In a suitable oven casserole combine the vegetable mixture with the rice, chicken stock, lemon juice, and mint. Add kosher salt and fresh ground pepper to taste. Cover the casserole and bake in a preheated 350 degree oven for about 20 minutes, or until the rice is tender

Sweet potato salad

Here is another taste lifter that helps to give new life to a vegetable that can get boring when just served cooked. Raw sweet potatoes and yams are great mediums for strong and flavorful sauces. I like a variety of spicy vinaigrette dressings.

Ingredients

1 cup grated raw sweet potato or yam
2 cups diced apple
1/4 cup celeriac (diced)
1/2 cup broken walnuts
1/4 cup seedless raisins
1/4 cup dried apricot diced
your favorite lettuce

1. Combine the grated sweet potato, apple and celeriac. Add the walnuts, raisins, and the diced apricots and toss gently to mix.

2. Chop the lettuce and arrange it on a platter with the sweet potato salad on top of the lettuce.

Here is one of my favorite dressings for this salad.

Walnut vinaigrette

Ingredients

1/4 cup extra virgin olive oil
1/2 cup walnut oil
1/4 cup of your favorite herbed vinegar
1 Tbsp apple brandy
kosher salt and fresh ground black pepper to taste

Method

1. Whisk the oils, vinegar, and brandy together and season to taste with salt and pepper. Refrigerate for 1 hour before using.

I hope you readers will try some of these neglected root vegetables and maybe even make room for some of them in your garden this spring. See you next time. Δ

Shadows

Tending my garden in the last hour of evening
I stop to rest
and see against the rays of setting sun
shadow figures from the past.

Indians who once tilled this soil work beside me;
hoeing only the corn, the squash and beans
they leave the rest to me.

Wilma Hinman
McCune, Kansas

Be a purple martin landlord — and find lots of uses for gourds

By Edna C. Norrell

The purple martin is one of nature's marvels, one of the most amazingly acrobatic birds on wings. Late afternoon, just about sunset, they put on a show that will leave you wishing you had wings. They drift, seemingly effortlessly, glide on a breeze, rise till they are no more than specks against the sky, fold their wings and zoom unerringly to their gourd home. I have yet to see a squabble due to mistaken entry.

Besides being fantastic entertainers, martins have a practical use: they eat nothing but flying insects, their favorite being mosquitoes. Since they can be found in all the lower 48 states and Canada, you can have purple martins as tenants no matter where you live.

We have offered them all kinds of dwellings, from single bird houses to high-rises, and we find they prefer earthy bottle gourds to the more expensive homes. Gourds are low cost and can be found easily at flea markets, yard sales, and farm stands. Or if you have a plot of dirt, grow your own. The gourds need at least 150 growing days; the longer the gourd stays on the vine, the thicker the shell will be. For your martin colony, choose gourds whose shells are at least ¼" inch thick and 8" to 12" in diameter.

When the gourds are dry enough that the seeds rattle, cut a two-inch doorway about halfway up the side of the gourd. Scrape out the seeds and membrane. Long tongs are handy for this. Drill three holes in the bottom for drainage. Drill two holes in the neck, 2" down from top, and thread through a piece of clothes hanger or baling wire to hang the gourd by. Paint the

gourds white; this makes them more attractive to the renters and keeps the inside cool on sweltering days.

For one colony you will need

- 24 prepared gourds
- a 4" cedar or pressure treated pole 15 ft. long
- 8 runners (1x1 cross pieces, 4 of them 3 ft. long and 4 of them 4 ft. long)

For the tilting design, add

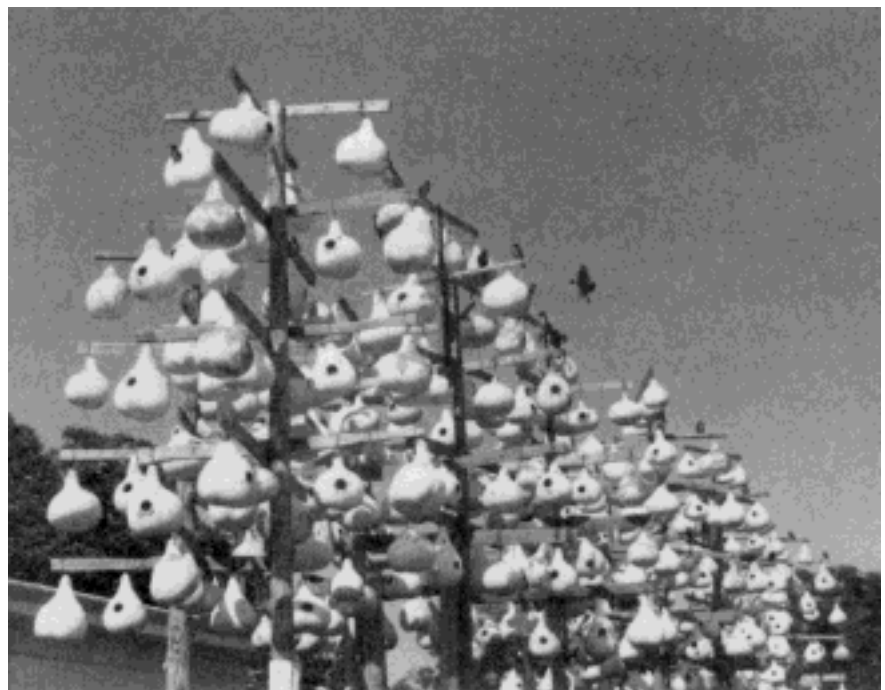
- two pressure-treated 2x4s
- 2 machine bolts ½" in diameter and 8" long with
- 6 washers and
- two nuts

Sink the cedar pole upright at least three feet deep. If you wish, you can

anchor it in cement. At the top of the pole, nail two of the shorter cross-pieces at right angles to each other, using two nails per crosspiece to prevent tipping. Hang a gourd on each end of each runner. To keep the gourds from sliding off, hammer in a nail 3" from the end of each runner.

Nail the second pair of crosspieces directly under the first, hanging the gourds as above. In similar fashion, use the longer crosspieces to make the third and fourth tiers. Hang two gourds from each side of the longer runners. This results in an attractive pyramid-shaped gourd structure.

Some landlords feel the need to lower the pole periodically to check the nests and to clean them out when the birds have flown. If this is your desire, build a base for the pole that allows you to tilt it down. Sink two 6 ft. lengths of pressure treated 2x4 lumber on end 2½ ft. into the ground, preferably in concrete. The 2x4s should be parallel, the space between them ¼" greater than the pole diameter. To hold the pole in place with



The author's 300-unit purple martin apartment complex

machine bolts, drill a set of ½" holes 6" from the top of the 2x4s, and drill a second set one foot from the soil level. Drill corresponding holes through the pole. Mount the pole with two machine bolts, placing washers on each side of the pole and at the end of each bolt before threading on nuts. The top bolt will serve as a hinge when you remove the bottom bolt to tilt the pole down to clean out the gourds or replace broken ones.

We have never used the base described above; it comes from an expert in the field of purple martins. We leave the gourds as the martins leave them when they leave for their migration to South America in the fall. We never clean them out, either: we think the birds like to find their homes just as they left them, straw and all. When the homes need a new coat of paint, we use ladders to climb the poles for the job. Should one become too old to be sturdy in a wind storm, we replace it. Otherwise, we leave them alone.

The martins start gathering in late July or the middle of August, and take off on the first leg of their long journey. They make stopovers in Florida and south Alabama for a few weeks' rest and food stock-up, then they're off across the long stretch of water to their winter quarters. In February and March, the first scouts come back. On their heels is the flock, chattering as they come back to the same gourds they left last summer. How they do this is beyond understanding.

Useful gourds

Gourds are useful for many things besides purple martin homes. They are great for crafts that are fun for everybody from the wee ones to Great Grandma. They can be found in all sizes from the huge bushel basket to the tiny nest egg, with all lengths and shapes of necks. No matter what you have in mind to make, you are sure to find a gourd just right for your project.

They are easy to find too, at flea markets, fairs, yard sales, and on the farm where they are grown. Should you want to grow your own, plant them in mounds some ten feet apart each way, as the vines are great runners and make half a dozen to twenty gourds to a vine. Allow them to stay on the vine until the vine is dead and the gourds are dry. If you pull them when they are green, they are certain to rot.

When dry, the gourds can be cut and sawed easily. If you are buying your gourds, look for ones with thick shells and ones that don't mash in when pressed on the sides. In making objects like vases and holders for tooth brushes, crayons, pencils, and pens, cut off the tops or handles about halfway down. With long tongs, pull out the dry membrane and seeds, then wash the gourd and allow it to dry thoroughly before sanding and painting or shellacking. To make faces, do not cut the gourd, just sand it and it's ready for decorating.

Native American vases and bowls are popular and easy to make. For a vase, cut the neck off down to the body of the gourd or about halfway down. Paint earth colors, deep brick red, tans, or browns. You can make designs by cutting paper in shapes like rectangles, squares, or circles. Trace these on the gourd, outline in black and shellac all over. Beautiful! Vines, flowers, and mountain streams cut from magazines make wonderful decorations. Glue them right on the gourd and shellac all over. Just use your imagination in this, and you will have a masterpiece in no time!

Faces are the most fun to do. I have seen some gourd faces that actually resembled people I knew! Grandpa and Grandma, the old fashioned kind, are great to make. Grandpa needs a small or short nose, a gray yarn mustache, and a fringe of gray hair topped by a straw hat. Bore a hole beneath the mustache and poke in the stem of a corncob pipe.

Grandma has gray hair, spectacles, and a sunbonnet. Glue on eyes made of black buttons or felt.

Santa Claus has a long white beard of yarn or long fiber cotton for his beard and hair, glued on beneath his red cap. Mrs. Claus wears her spectacles and her hair in a bun atop her head.

Choose a gourd with a long slender handle for Ichabod Crane or Pinocchio. Ichabod sports a black hat and Pinocchio a white one with a black band, both glued to the head side of the gourd.

Remember all these characters are using the handles of the gourds for their noses, so hats, hair, etc. are glued to the side of the gourd.

Look for a penguin-shaped gourd, paint on a black tuxedo, white shirt, and black bow tie. An artificial carrot end will make a great beak, or you might want to paint on a mouth with a small hole drilled for his pipe or plastic cigarette. A black top hat completes his costume.

Back on the farm, few farmers were without a long handled dipper gourd. Nowadays these make wonderful conversation pieces when entwined with vines, flowers, and a tiny bird perched in the doorway and hung on the wall of your kitchen or dining room.

All these crafts, from the decorated waste basket to the penguin, make great gifts or yard sale items. They will win prizes at fairs, or it's fun just to keep them. Just go out and get the gourds and let your imagination go. You will have fun and keepsakes too! This activity will keep kids busy for hours, using water colors and Elmer's glue. Grandma can present Grandpa with a good likeness of himself. Altogether, it is a great project and so much fun to do. Δ

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It's springtime in Montana

By Dynah Geissal

The dawn comes gray and foggy, with a breeze . . . warm for March, but chilly still. The eastern sky is bright where the sun will top Mount Sentinel in another half hour. Only a few patches of snow remain, although the nearby mountains are bare for only the lower hundred feet.

The redwing blackbirds came back during a warm spell in January, but disappeared when a blizzard and 30-below temperatures followed right on their heels. Now, in the first week of spring, they're back in full force. There is a pair above the bedroom window. They seem to be competing with the red rooster who is displaying his prowess to the adolescent chickens in the brooder pen by the house.

Sleep tugs at me but no, it's time to start the day. I heard the first curlew last night. The pintail with the broken wing is back. She stayed all through the fall until the creek froze. I thought she had died, but now with the water moving again, she's back. She walks in the solemn line of domestic ducks, even though she can fly now. She's only a quarter their size.

The meadowlarks are mating, and their songs brighten the morning. The whole elm tree is alive with redwings. They like the cattails, but there won't be any for a couple of months yet. The great horned owl that lived in the barn all winter has moved to her nesting tree by the river. It's a huge old ponderosa, and the nest is way up in a hollow with a convenient dead branch for a perch. I like to examine the pellets underneath to see what she's been eating. Mostly it's mice but sometimes birds, and I've found many snail shells in the pellets. I think they must have been eaten by something that was then eaten by the owl. I saw her



mate in the hills above my house several times this winter, but I never could find where he lived. He hunted rabbits in a copse of trees up there and seemed unafraid when I approached.

I've noticed before that animals react differently to a person on snowshoes. There's a herd of deer that regularly graze with the cattle, and even though they come quite close to the house, they will never tolerate my approach. One day, though, I passed them when I was snowshoeing. They showed curiosity but not fear and they went on grazing as I moved away.

There's a female coyote that comes every year in late winter to catch voles. For a couple of months she will come every day. I think she must be feeding a litter to be so brazen. She moves among the cattle with their newborn calves but never threatens them, and they seem unconcerned—except once when the calves gathered around the coyote in curiosity. The mothers moved in on a run and the coyote moved off a ways.

One time I was snowshoeing and I saw the coyote. She was upwind of me and moving toward me. She had to have seen me, but she kept coming without any hesitation until we were only about a hundred feet apart. She suddenly leaped into the air in surprise and trotted off; I guess she had finally caught my scent.

I heard the swans flying over. When I was doing the milking, I heard a group that was so high that I couldn't

see them, but there's no mistaking that sound. Later, when I was feeding the horses, I heard the sound again, and this time I could see them as little more than pinpoints against the clouds. There used to be a hundred or more that stopped on the creek for a month or so before going on to the Arctic. A gas spill in '82 put an end to that. The oil company assured me that the creek had returned to normal a year later, but the fish are only starting to come back, and I don't think the swans ever will.

Spring in Montana—not much snow in the valley, not much green for a couple more months, but the sap's running, the rough-legged hawks are soaring and whistling in pairs, along with the redtails and the marsh hawks. To some people it may look bleak, but if they looked closely, they'd be amazed at all the stirrings of life.

I raked off the flower beds, but they were still embedded in ice under the mulch. I dug up the coldframe, but four inches down, the earth was solidly frozen. The carrots are still crisp and sweet in the garden under their bags of leaves. The dirt I brought in to start plants sprouted hundreds of holyhocks as soon as the soil warmed. Everything is on the verge. Just a little longer. I tell myself to be patient and to enjoy this period of anticipation. Soon it will be warm and we will be trying to cram everything we can into our short summer. Δ

You definitely want to grow your own asparagus

By Anne Westbrook Dominick

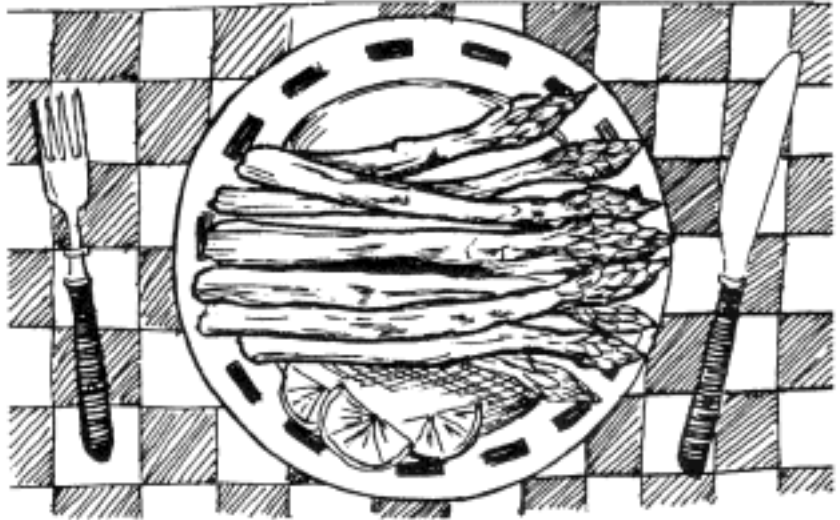
Just like the sugars in corn and peas, the sugars in asparagus start the starch conversion as soon as it's harvested. The bottom line: you can't buy asparagus that tastes as good as what you raise and harvest yourself. A perennial of long duration (we're talking decades here, even centuries), a good growing asparagus bed requires a busy start-up to get it well established. But if you like store-bought spears even a bit, a dish of fresh cut ones will make a dedicated "bedder" out of you.

That's what asparagus needs, a bed in full sun out of roto-tilling areas. Some people, like my father, establish it as an adjunct to the north end of their vegetable garden; others, like me, give it its own spot in the landscape. When figuring where to put it, know that asparagus reaches five to eight feet in height, topped with dense feathery plumage that can screen out unsightlies. Song birds also enjoy it as a safe place during August and September.

Choices

Starting an asparagus patch forces even more decision making: Should I start with seeds or crowns? A *crown*, a one-year-old established root system with visible spears ready to grow, will give a few eatings the second year; seeds take till the third year. Crowns cost more and demand immediate bed preparation; seeds offer more for the dollar and can wait another year for their permanent piece of the property. I've done it both ways. Crowns offer quick gratification; seeds offer a more relaxed project with a bit of prolonged adventure.

A second decision: what variety? The stand-by line is Washington—Mary and Martha are the best



known—and for good reason. Asparagus' arch enemy, a fungus called *rust*, will always win if it can get a spore in the stalk. Evidenced by dusty orange blisters on the spears and foliage, it exists throughout the United States . . . but Washingtons are immune. Hybrids touting more, longer, and better yields now flood the market and confuse everybody. Many carry the Washington genes, but the catalogues selling them don't tell us which ones.

Now we can even choose all-male selections (seed or crown format) that will give us more, bigger, and better spears, since they won't be "thinking reproduction." However, some evidence indicates all-male hybrids are over-sensitive—too much cold or heat does 'em in.

I started my last patch with Martha Washington crowns nine years ago in northern New England. This year I've started another bed of Martha Washington in southern Arizona, and they're already showing their strength. I'm feeling the urge for a bit of variety, so next year I'm going to start some hybrid seeds in my perennial-seed-starting patch, enlarge Martha's

bed, and move those new companions in with her the following year.

Planting

To prepare a bed for crowns, dig a ditch eight to ten inches deep. A traditional two- to three-foot deep trench is no longer "in," so forget it (thank goodness). To figure the ditch's length, allow a foot and a half between plants. Rows should be three feet apart. Chop some compost or cured manure into the ditch's bottom and cover with a bit of soil, forming a mound for each root. To plant a crown, place the top at the peak of the mound, drape its roots uniformly into the lower areas, and cover with about two inches of dirt tucked in snugly around the roots. As spears appear, which should happen in one to two weeks, keep covering them until the trench is full.

To start asparagus by seed, plant them an inch deep at the beginning of the growing season in a place where you can keep tabs on them. For me, that was the first week in May in the northeast and the start of the rainy season (the beginning of July) in the southwestern desert. Germination can

be speeded up by soaking the seeds for a day or so before sowing. When they're up, thin to about three inches apart, keep weeds from competing, and let them grow the year away. A year later, move them to their prepared permanent bed.

The harvest

Unfortunately, asparagus can't be harvested the year its crowns are set. The second year, they can be picked for a couple weeks—enough for a couple good meals. By the third year, they should be strong enough for a full harvest lasting two to two and a half months. Should the spears become spindly (pencil thickness) before then, stop harvesting, and let them gain for next year's crop.

Asparagus is most succulent and delicious when six to eight inches tall. To harvest: right before cooking, cut the stalk at—or just below—ground level, being careful not to injure future spears. After harvesting, I get rid of the spear's tough, stringy end by tapping lightly, starting at the root end with a paring knife in half inch increments until the knife slips through. Throw away that bottom end and what's left will melt in your mouth.

Preparing for winter

To prepare for winter, mow the entire patch to the ground anytime after the first frost. Because asparagus is a heavy eater, spread a generous covering of compost or manure over them at this time. That gives the nutrients an early start leaching down to the roots for next season's robust start. Chicken manure, which is too strong for many plants, is ideal for asparagus. In areas where the soil is acidic, an annual liming is beneficial. Wood ashes are even better since they not only sweeten the soil (keep it around neutral—pH 6.5 is ideal), they also contain potassium and other important minerals. Where the soil is alkaline,

an annual dose of sulphur will keep the level where asparagus likes it best.

Asparagus can co-exist quite happily with most weeds and, being the long-term perennial it is, that's a good thing. Weeds in general and witch grass in particular are more of a problem to the gardener than to the asparagus, but these can be controlled somewhat by early shallow cultivation followed by mulching.

Salting asparagus is now unacceptable. You might say, "Well, of course," but more than a few people still do it. Recently, when I was moaning about the accursed grass takeover in my asparagus patch, a gardening friend whose advice I had always taken as gospel rather smugly told me how he controlled his: 400 pounds of salt. His patch is 20 by 40 feet. Sure, the salt will kill a lot of weeds and even give asparagus a one or two year boost. After that, not only will the asparagus go into decline, the soil will have been ruined for years to come, and some salt will have leached into surrounding areas—a very large area if it gets into the ground water. Smart people still advocate stupid things, and lesser ones, like me, do consider following their advice. This is one we shouldn't follow.

Actually, asparagus, once established, will maintain itself for years. As long as we get the plants well placed and growing strongly, we don't have to do much more than what we feel comfortable doing. Few weeds bother it. Poor soil really doesn't faze it. The best I ever ate was from a mighty poor hay field near the Canadian border in northern Maine. That bed had been abandoned when its people had moved up the hill to build a proper house over 75 years ago. Δ

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A BHM Writer's Profile: Mark and Jacqueline Tresl



Mark Tresl invents, repairs, and restores everything and anything on his 232-acre "Farmland Preserve." Jacqueline Tresl follows him around and writes articles about what he is doing since she is totally unmechanical and can offer no real help to him. Jacqueline is a freelance writer and a registered intensive care nurse. Her horse, Misha, has been featured in national magazines because she is toilet trained and lives in the Tresls' log house.

A BHM Writer's Profile: Christopher Nyerges



Since 1974, Christopher Nyerges has conducted Wild Food Outings and Survival Skills Outings, mostly in Southern California. He teaches through his School of Self-Reliance, two local colleges, and various private and public schools. Over 20,000 people have attended his classes and workshops. He has written thousands of newspaper and magazine articles. He is the author of five books: *Guide to Wild Foods*, *Enter the Forest*, *Testing Your Outdoor Survival Skills*, *Wild Green Salads*, and *Urban Wilderness*. A schedule of his outings is available from their web site at www.self-reliance.net, or from the School of Self Reliance, Box 41834, Eagle Rock, CA 90041.

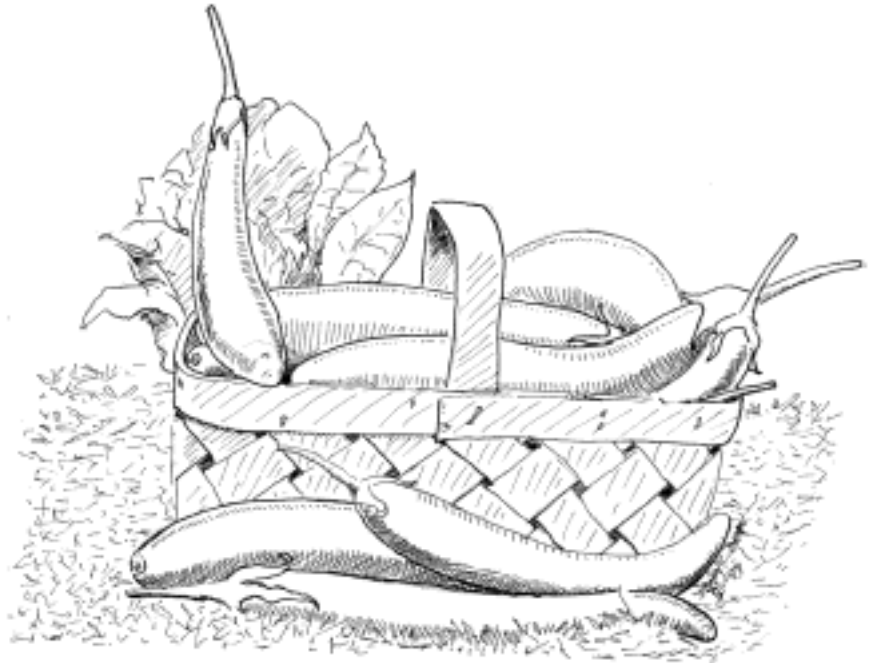
The Ichiban Hybrid eggplant is a real producer

By Alice B. Yeager
Photos by James O. Yeager

Have you ever tried year after year to grow a particular type of vegetable, but it always seemed to turn out wrong? Finally you throw up your hands in disgust and question your sanity for even thinking about trying again. This used to be my track record with eggplants.

My young eggplants always looked good in their neat peat pots, giving me enough encouragement to believe that plants of such fine caliber would surely perform well in the garden. After transplanting to a well-composted spot, the plants continued to show great promise. With the help of a pest deterrent, they would survive the onslaught of flea beetles, blister beetles, and others of ill intent. What couldn't be controlled was the Arkansas summer weather with its periods of high humidity, drought, and miserable heat. However, I would manage, with the aid of mulch, water, and perseverance to actually harvest a couple of purple fruits literally worth their weight in gold, considering all the effort it took to raise them. It's times like those that can make you wonder if your mama raised a fool.

The eggplant variety Ichiban Hybrid first came to my attention some years ago while I was afflicted with the annual Hope-Springs-Eternal disease. This malady is common in winter among avid gardeners, causing them to rivet their attention on seed catalogs for days at a time. Ichiban was advertised as an oriental variety bearing huge crops of long, cylindrical fruits—unlike the plump types I had been attempting to grow. Sceptically, I thought I'd give eggplants another try, and, if Ichiban failed, that was it!



Ichiban Hybrid eggplant is prolific.

No more time-wasting attempts at growing eggplants.

Fortunately, Ichiban Hybrid measured up to its description and is now a welcome part of our garden selection each year. It has far out-produced others such as Black Beauty and Dusky (which, in my case, hasn't been too hard to do). Ichiban is very prolific, beginning its production by early summer and continuing until frost. I have yet to find an Ichiban fruit with the slightest bitter taste, regardless of its stage of maturity.

Getting started

I prefer to start eggplants indoors several weeks ahead of the last anticipated frost date in our area (Zone 8), thus giving them a head start so that they are about four to six inches tall when transplanted to the garden.

Young Ichiban plants are handsome with their velvety, grey-green leaves, and they grow off with a flourish when they are out on their own. Being tender plants, they are not transplanted until the weather has warmed and the soil has lost its chill.

Eggplants like a sunny spot, but will tolerate some partial shade. They seem to appreciate some relief from hot summer sun and will thrive alongside taller plants such as trellised cucumbers or pole beans. Six or eight plants will produce enough fruit for the average size family.

Ichiban needs a sandy loam soil with plenty of humus and good moisture retaining qualities (but not boggy). Well-rotted barnyard manure or rich compost dug into the ground a few weeks in advance of planting will boost production. Eggplants require soil with a pH factor of 6.0 to 7.0, so

they fit in very easily with the soil needs of many other home garden vegetables.

Young plants should be spaced about two feet apart. I like to apply a mulch of organic material—pine needles, leaves, etc.—to cut down on grass and weed growth. Also, the mulch will attract earthworms to do the chore of cultivation. (Why do all that work when there are eager and meticulous tillers willing to work for nothing but good living conditions.) Adding to the mulch from time to time helps in other ways, too, as it keeps plants and fruit from getting dirt-splashed during heavy rains and prevents soil from being washed away from the roots.

They grow tall

Ichiban plants grow tall in our garden and require staking. Usually, a four-foot stake driven solidly into the ground at the time of planting is sufficient, and it is needed if plants are to remain upright while laden with fruit. Strips of old nylon pantyhose come in handy for use as ties, as they do not restrict the circulatory system of the plants. Tomato cages work well, too. Place them over the young transplants and they will grow up through the cages, supporting themselves as they grow.

During prolonged periods of drought, even mulch won't take the place of needed water. Eggplants must have a moderate amount of moisture to produce their fruit properly. When leaves continue to droop after sunset, it's time to give the ground a good soaking. During extended hot, dry periods I sometimes water every two to three days to ensure survival of the plants. Given adequate attention, Ichiban will do you proud all summer long.

In southwestern Arkansas, our worst eggplant enemy is the flea beetle—that small black pest that eats tiny holes in the leaves of many plants, causing them to look like they've been

punched with a myriad of pins. Flea beetles are very hard to find, as they have a protective habit of jumping as soon as a leaf is disturbed. At the first sign of leaf damage, it is imperative to use a good garden dust or spray, as the cagey beetles can play havoc with eggplants. I lightly dust with 5% Sevin dust, and usually one or two applications are enough to discourage the beetles. I try to garden as organically as possible, so I don't like to resort to a great deal of spraying and dusting. I prefer instead to leave pest control to the birds, chameleons, and toads that patrol the garden.

Ichiban fruits are dark purple and elongated with a slight curve. They may reach a length of 10 to 12 inches and about 2 to 2½ inches in diameter and still be of good texture and taste, although the recommended harvesting size is six to eight inches. I use a sharp pair of clippers to remove the fruit from the plant, as the stem is woody and not easily broken by hand. Plants will continue bearing until fall, although the last fruits will not be of prime quality.

Eggplant is high in potassium and low in calories. Thanks to publicity created by the great number of chefs appearing on TV and writing books, eggplant is at last receiving the recognition it deserves. It is very versatile and may be used in many ways—battered and sautéed, stuffed, marinated, stir-fried, and so on. It is excellent to dice and use in vegetable soup. However, don't fool yourself into thinking that because eggplant is low in calories, it can be combined with cheese, sausage, and other tasty ingredients and still result in a low-calorie dish. If you gain a pound or two from such a delicious combination, don't blame the eggplant!

Seed Sources:

Park Seed Co.
Cokesbury Road
Greenwood, SC 29647-0001

Vermont Bean Seed Co.
Garden Lane
Fair Haven, VT 05743

J. W. Jung Seed Co.
Randolph, WI 53956

Eggplant supreme

This is a special mixture to enjoy during fresh vegetable season.

2 Tablespoons olive oil
2 medium Ichiban fruits, peeled and sliced crosswise in ¼" slices
2 large ripe tomatoes, cut in small chunks
1 medium onion, chopped
8 okra pods cut crosswise in ½" slices (optional)
2 medium bell peppers, coarsely chopped
1 small hot pepper, minced
6-8 fresh basil leaves, chopped (or 1 teaspoon dried sweet basil)
1 small bay leaf
½ teaspoon salt (optional)
1 cup grated cheese (use a favorite that melts well)
Optional: 2 cups coarsely chopped, leftover cooked chicken, lamb or other meat

In a medium size cast iron skillet, heat the oil until the bottom of the skillet can easily be coated by turning from side to side. With the exception of the cheese, put all ingredients in the skillet and simmer covered until vegetables have reached a semi-firm but not mushy stage. (Lift the lid occasionally and stir the mixture to be sure it isn't sticking and to bring all the vegetables to the same stage of doneness.)

Distribute the grated cheese over the hot mixture and stir just enough to melt the cheese. Serve hot over cooked noodles, brown rice, spaghetti, or whatever suits your fancy. Δ

For something different in your garden, try ground cherries

By Sally Denney

Looking for an interesting annual fruit to grow in your family garden? *Physalis peruviana*, also known as ground cherries, may be just what you are looking for. *Physalis* plants are as easily grown as tomatoes. From transplanting, the hardy plants take only 70 days to harvest the first fruits. Six plants furnished my family with enough fruit for pies, jam, and plenty to freeze for winter use.

While similar to tomatoes in their growing habits (they are a close relative in the nightshade family), ground cherries are not a true tomato. Their seeds resemble cherry tomatoes. The one- to two-inch fruits are enclosed in a papery husk that turns golden yellow when the cherry-sized fruit inside is ripe. When picking the fruit, you will soon discover why the Amish call them “ground cherries.” Jostling the plant causes the ripe fruit to fall to the ground. On the ground is where the gardener will find the sweetest fruits. Once picked, the husks slip easily from the cherries and expose plump, golden-yellow fruit.

The flavor is delicately exotic. Some seed catalogs say the taste is strawberry-like when eaten fresh. I conducted an at-home taste test, and every answer was different when I had my taste testers (my family) describe the taste. Their answers ranged from “a faint pineapple taste” to “a hint of kiwi.” No matter what each discriminating taster found in the fruit, a pint of husked cherries quickly disappeared from my kitchen counter as the family grabbed handfuls on their way in or out.

For first-time growers, I recommend starting the seeds indoors six to eight weeks before your last frost. Doing



this helps distinguish the seedlings from weeds and keeps the gardener from pulling them out by mistake.

My transplanted plants grew to around 24 inches tall with heavy foliage and flowers. For a while I wondered if they were called ground cherries because the plant hugged the ground before shooting upwards. The plants are very productive and gave my family of seven plenty of fruit.

We mulched our plants with grass clippings. Insects did not bother the plants, but ants loved the sweet fruits. When the pods were left too long on the ground, I would find that ants had beaten me to the harvest.

This year I plan to do one thing differently: I will place an old sheet under the plants during the peak harvest, so I can pick up the fruit with less effort.

The Amish are fond of ground cherries. Nearly all their cookbooks have at least one recipe for ground cherry pie. While living in Hawaii, my daughter discovered that the Hawaiians call ground cherries “poha” and make jam from them.

Seed catalogs list them under a variety of names, such as “Strawberry

Husk” and “Winter Cherry.” Gurney’s Seed and Nursery Co. lists it as “Yellow Husk Tomato” in their “Fun to Grow Novelties” section.

Since discovering the fruit, I’ve acquired a few favorite recipes for ground cherries.

Hawaiian poha jam

3 lb. poha (ground cherries)
1/4 cup water
1 cup sugar per cup cooked poha
1 Tablespoon lemon juice

Husk and wash fruit. Combine with water and cook slowly for 30 minutes, stirring frequently. Remove from heat and let stand overnight. Measure pulp and juice and combine with an equal quantity of sugar. Return to heat and cook slowly, stirring occasionally for one hour. Add lemon juice and continue slow cooking until product reaches jelly stage. Immediately pour into hot sterilized glasses and seal. (I froze my jam.)

Ground cherry pie

4 cups ground cherries
1/4 cup lemon juice
(or depending on taste preference, 2 drops almond extract)
1 cup water
3/4 cups sugar
3 Tablespoons cornstarch

Put cherries, flavoring, sugar, and 1/2 cup water into a saucepan; heat to boiling. Mix 1/2 cup water with cornstarch and add to hot cherry mixture. Cook until thick. If too thick, add a little more water. Pour into an unbaked pie crust. Adjust top crust. Bake at 375° until crust is baked. Δ

What you do to one side of an equation, you do to the other to keep it balanced

By John Silveira

Years ago I taught high school algebra. I was young then and even before the first day of school I was sure I had the secret to what it would take to get a classroom full of students to understand algebraic concepts. I expected that every one of them would understand what I was teaching. And there would be no lost souls in my classroom.

Then reality raised its ugly head. From the first day, the concept the students had the most trouble with was one of the core concepts in algebra: how to work with an equation. About half my students did manage to grasp the concept well. But the rest, to varying degrees, found it confusing, including several for whom it seemed a complete and eternal mystery.

Not understanding what an equation is is a major shortcoming for math students. Day in and day out, they have to solve equations, even while they're learning other algebraic concepts. And the ability to deal with equations carries over later into classes like trigonometry, calculus, statistics, physics, and chemistry. Many students take no more math than they absolutely have to because they never feel at ease when working with equations.

It was discouraging. I wanted to be a good teacher. But I have to admit I never came up with a satisfactory solution that made the concept easy back then.

It's been years since I taught a high school class. But I am now a homeschooling parent with a high-school-aged daughter. So it was with great trepidation that I decided to teach her algebra. Because of her learning problems (that resulted in years of special education classes where algebraic concepts aren't even considered), I

realized I may once again be butting my head up against a wall.

So I decided that before I introduced her to an algebra text, I would fix in her mind the concept of an equation.

Adding and subtracting

That first day, I sat down beside her and drew a picture on a piece of paper. It was a balance scale.

"Do you know what this is?" I asked.

She looked at it.



"It's a balance scale" I said.

She nodded and said, "It's for weighing things."

"That's right. This balances if there's an equal amount of weight on both sides. If I add more weight to one side, that side goes down and the other side goes up." I tipped the picture as if throwing the scale out of kilter. "If, instead, I take weight away from that side, it goes up and the other side goes down." I tipped the picture the other way.

"So, if I add one pound to this first side," and I tipped the picture so that side was down, "how much do I have to add to the other side to make it balance—or be equal?"

"One pound," she answered, and I made the picture even.

"And if, instead, I subtract two pounds from the other side," and I tipped the picture the other way, "how much would I have to subtract from

this side to make it balance—or be equal?"

"Two pounds," she replied, and I tipped it back.

"That's how equations work. You have to keep both sides equal to keep them even. The word *equation* comes from the word *equal*. That's why the equal sign appears in every equation."

I wrote

=

on the paper.

"Just think of everything we do for the next few weeks as trying to make a scale balance."

She nodded.

"Now, here's a problem: Say you were walking down the street with a bag of apples and you met your sister, Meaghan. She hands you three more apples and asks you to put them in your bag and take them home with you. When you get home, you suddenly wonder how many apples you started out with.

"How many apples did you start with?"

She looked at me like I was crazy. "I don't know. You didn't tell me."

"Then let's call the number you started with, 'x'," I said and I wrote

x

on the paper.

"And Meaghan gave you three more..."

I wrote:

$x + 3$

"Then you count the apples in the bag and there are 13. So you know the number of apples you started with is 'x' and Meaghan gave you three more and now you have 13."

I wrote "= 13" after the " $x + 3$ " and we now had:

$x + 3 = 13$

"That's an equation."

She leaned closer. "That's an equation?"

The first addition and subtraction test

$x + 6 = 11$
answer ($x = 5$)

$x + .51 = .98$
answer ($x = .47$)

$x + .18 = .48$
 (This was the first “trick question” because I expected her to write the answer as .30—which she did—and, without lingering, I pointed out that when it’s money, it’s .30 but that we can really write decimals like this as just .3)

$x + \$23 = \100
answer ($x = .3$)
 $x + \$23 = \100
answer ($x = \$77$)

$6 + x = 11$
 (This was another trick question because for the first time the number was first and the unknown second. She rolled right through it.)

$x + 3 = 6$
answer ($x = 5$)
 $x + 3 = 6$
answer ($x = 3$)

$x - .14 = .26$
 (Once again, I have a chance to show her that .40 can be written .4)

$x - 123 = 123$
answer ($x = 246$)

$x - \$19 = \38
answer ($x = \$57$)

$x - 1000 = 1$
answer ($x = 1001$)

I nodded. It was like showing a primitive native in New Guinea a cigarette lighter.

“If I write this...”

$$\begin{array}{r} x + 3 = 13 \\ -3 \quad -3 \\ \hline x = 10 \end{array}$$

“then I’m taking 3 from both sides of our equation—like taking 3 pounds away from both sides of a scale to keep it balanced—and we get $x+0$ on one side—and anything plus zero is whatever you started with...” so I wrote an “x” down, “and $13-3$ is $10...$ ” So now we had:

$$\begin{array}{r} x + 3 = 13 \\ -3 \quad -3 \\ \hline x = 10 \end{array}$$

“So, I started with 10 apples,” she said.

I nodded.

Then I said, “Suppose I asked you to hold 47¢ for me, and you put it in your purse with your change. Suddenly, you’re wondering how much of that money is yours. You count all the money and find there’s \$1.37. What are we going to call the money you had?”

I didn’t wait for an answer. I told her. “We’ll call your money x,” and I wrote on the paper.

$$x$$

“So, your x plus my 47¢ equals \$1.37.” I wrote:

$$x + .47 = 1.37$$

“So, if we take the 47¢ from both sides of the equation—just to keep it balanced, mind you—we have:

$$\begin{array}{r} x + .47 = 1.37 \\ -.47 \quad -.47 \\ \hline x = .90 \end{array}$$

“What you’re trying to do is find out what x, ‘the unknown,’ is,” I emphasized. “You’re trying to get it by itself. We call that ‘isolating’ it. But anything you do to one side of the equation you have to do to the other to keep it balanced.”

I was sure she wouldn’t remember this the first time we did it. Or even the second or third time. But she made progress as I repeated similar exercises all week and it inexorably sunk in. The emphasis was always that

to solve the equation we are trying to isolate the unknown and if we have to add or subtract on one side of the equation to get the unknown alone, we have to do the same to the other side of the equation.

Most of algebra is just mechanical. I hoped that once she realized this she would be less intimidated, so that solving equations would become automatic for her, just as it is for me.

Multiplying and dividing

One of the truly amazing things I discovered when I taught high school was that students sometimes got the solution to a problem but didn’t know how they got it—until I told them how.

Situations similar to the following happened many times:

I’d query a student, “You have a bag with marbles in it. You haven’t counted them to see how many. Someone says, ‘I’ll triple the number of marbles in the bag,’ and he does. Then he hands the bag back and you count the marbles in it and there are 117. How many were in there when you started?”

The student would think, then reply, “Thirty-nine.”

“How did you get that answer?”

He would look at me for a few moments, then say, “I don’t know.”

And believe me, he didn’t. This happened again and again with many students. I couldn’t accept ‘I don’t know’ as an answer. Sometimes I even imagined that every third student in my class was the Rain Man.

But I finally realized that the problem was that they just didn’t have the tools to figure out how to explain it. And that was my job, to show them algebraically how they did it and demonstrate that the method worked all the time.

So it happened with Mary. I asked her that very same question, and, when she couldn’t explain to me how she got the answer, I showed her how she did it:

$$x$$

I wrote, is the number of apples originally in the bag.

$$3x$$

is the number of apples in the bag after the number has been tripled. And after she counts the apples, she discovers

$$3x = 117$$

is the equation.

She watched me do this, then I divided both sides by 3 to get the x alone.

$$\begin{array}{r} 3x = 117 \\ 3 \quad 3 \\ \hline x = 39 \end{array}$$

When the 3x is divided by 3, the 3s cancel out leaving just the x. But you have to divide the 117 by 3 also, which results in 39. So,

$$x = 39$$

It made sense to her.

With this fresh in her mind, I asked, "If you had another bag with apples and you gave it to me, and I said, 'I'm going to increase the number of apples 5 times,' let's see how you'd write it. Since you don't know how many apples were in the bag, how do you write it?"

She wrote

$$x$$

"And I multiplied it 5 times. How do you show that?"

She wrote a 5 before the x.

$$5x$$

"And let's say you now count the number of apples and there are 15. How would you show what that 5x is equal to 15?"

She added an = and the 15.

$$5x = 15$$

"That's it," I said. Now, to get the 5 off the x you have to do the opposite of multiplication to get rid of it."

"So I divide by 5?" she asked tentatively.

"That's right."

"So, $x = 15,$ " she said.

"But you only divided the 5x by 5. To keep it an equation, you have to do the same to both sides to keep it balanced. So, if you divide the other side, where the 15 is, you get...?"

"Three?" she asked.

We worked several examples like this and I constantly pointed out that when her unknown was multiplied by a number, she had to divide *both* sides of the equation to get rid of it.

These problems were beginning to come easy to her.

"Now, let's say we have a box of cookies," I said, "and you have 5 friends come over. I decide to divide the cookies evenly among the 6 of you and you discover you each have 7 cookies. How many cookies were there originally in the box?"

"42," she replied.

"How did you get that?"

She thought a minute. "I don't know."

"Well, let's say you didn't know there were 42, then the number of

cookies is our unknown. How are we going to represent our unknown?"

"With x?"

I wrote

$$x$$

on the paper.

"And there were 6 of you I divided them among, so

$$x/6$$

is how many you each got. And when you counted what you each got it was equal to...?"

"7 each."

"So this..." and I wrote

$$x/6 = 7$$

"...is the equation. And since we're dividing by 6, we have to do the opposite of division to get rid of the 6. And the opposite of division is...?"

"Multiplication," she said.

"So we multiply both sides by 6

$$6 * x/6 = 6 * 7$$

"What's $6 * x/6$?"

"I don't know," she said.

"What's 6 times 1 over 6?"

"One."

"What's 6 times 2 over 6?"

"Two."

"What's 6 times 5 over 6?"

"Five."

"So, how about 6 times x over 6?"

"X?"

"That's right."

"It's like what we learned when we learned to multiply fractions," she said. "The numbers cancel out."

"That's right. In this case the 6s cancel out.

"And what is 6 times 7?" I continued.

"42."

I wrote

$$x = 42$$

The delight she was beginning to find in these exercises was twofold. First, we get along well, so she likes working on these things with me. But second, and of greater importance to me, is that she sees everything I'm teaching her so far still consists of mechanical rules she can memorize. Because of this second point, she is not intimidated like many of my high school students were.

The first multiplication and division test

$6x = 24$	<i>answer</i> ($x = 4$)
$5x = 125$	<i>answer</i> ($x = 25$)
$x/2 = .48$	<i>answer</i> ($x = .96$)
$x/11 = 10$	<i>answer</i> ($x = 110$)
$4x = 1$	<i>answer</i> ($x = .25$ or $1/4$)
$4.5x = 10.8$	<i>answer</i> ($x = 2.4$)
$x/2 = 6.5$	<i>answer</i> ($x = 13$)
$2x/3 = 6$	<i>answer</i> ($x = 9$)
$x/2.5 = 7.5$	<i>answer</i> ($x = 18.75$)
$x/2.5 = 1$	<i>answer</i> ($x = 2.5$)

But I'm going to have to stay with this everyday. Only repetition will reinforce the principles until they become second nature to the student.

Combining operations

It was a small step to combining operations, i.e., combining addition or subtraction with multiplication or division.

However, there is a difference between the equations

$$2x + 6 = 30$$

and

$$2(x+6) = 30$$

In the first, $x = 12$, and in the second $x = 9$. I thought about how to approach this for a day then I decided to leave out problems that required parenthesis until later. I was still concentrating on how to get her to understand the concept of balancing equations. I would deal with more complicated equations later.

I sat down with Mary and wrote:

$$2x + 6 = 30$$

The first thing I did was explain that these are the easiest of the equations that involve either addition and subtraction along with multiplication and division. Then I showed her how to

solve it. First eliminate anything that's added or subtracted; then it's just like the other problems she did. So I wrote

$$\begin{array}{r} 2x + 6 = 30 \\ \underline{-6 \quad -6} \\ 2x + 0 = 24 \end{array}$$

which resulted in

$$2x = 24$$

which is a type of problem she's already familiar with.

We worked many of these problems. Then I quizzed her.

In fewer than three weeks she had as good an understanding of what an equation was as the best of my high school students and, looking back, I realize that if I could step back in time and sit down with each of those confused ones individually, they all would have understood the concept.

Later on I'll teach her things such as: if she has to take the square root of one side to get an answer, then she has to take the square root of the other side. But that's later.

Now, Mary, for all the problems she has had in school before I started homeschooling her, might have been one of those students who would have caught on to what equations are all about, anyway. But the fact is, as we

go off into factoring, exponents, and solutions to special equations like quadratics, I'm assured she won't be hampered by a lack of understanding of what equations are.

Summary

If you can get the following in your child's head, you'll have gone a long way toward taking the mystery out of algebra.

1. An equation is nothing more than a balance scale for numbers.
2. Whatever she does to one side of an equation to get the unknown by itself, she has to do to the other side; otherwise, it doesn't balance.

For now, all she has to know is that, if she has mixed operations, i.e., when addition or subtraction are mixed with multiplication or division, she subtracts or adds numbers to each side of the equation before she divides or multiplies. I will teach her how to deal with terms that are in parenthesis, next.

If you don't know algebra

It is an unfortunate truth that to teach algebra, you have to know a lot about it yourself. The solution to teaching it if you never learned it, or you did learn it but you can't remember it anymore, is beyond the scope of this article. But please don't expect to just send your kid off in a corner with a book and expect her to learn it without guidance.

It is possible to learn it along with your child. I and about 20 other students once survived a semester of probability and statistics taught by a man who had never had either course in college. He managed to teach us, though he was always just a few weeks ahead of the class. But he was a man who already had a great deal of experience with mathematics.

The astute reader will realize I haven't dealt with problems that involve negative numbers, like

$$x + 6 = 3$$

Interesting math terms

There are two words I'm sneaking into Mary's vocabulary. One is *inverse*. The inverse of a number in addition and subtraction is the number you must subtract or add to get zero. So, the inverse of 3 is -3 because $3-3=0$. The inverse of -7 is 7 because $-7+7=0$.

When it's only addition and subtraction that are involved, zero is called the *identity* because when a number has zero added to or subtracted from it, the number is unchanged. $3 + 0 = 3$ and $7 - 0 = 7$. Zero is called the identity.

The inverse when you're multiplying and dividing is the number you must divide or multiply by to get 1. So, under multiplication and division, the inverse of 3 is $1/3$ because $3 * 1/3 = 1$ and the inverse of $1/7$ is 7 because $1/7 * 7 = 1$.

When we are talking about multiplication and division, there is a different kind of identity. Here, 1 is the identity because when you multiply or divide a number by 1, you get the number back. So, $3 * 1 = 3$ and $7/1 = 7$.

I'm not asking her to memorize these terms yet. But I use them as I explain these things to her. And, like a visitor to a new land who is learning to pick up the language, she is gradually using them too.

which results in a negative number for an answer, nor problems like

$$-3x = -6$$

which involves division or multiplication with negative numbers.

Negative numbers are not something my daughter is yet familiar with. On my list of priorities was to first teach her how to work with equations.

In future issues I will deal with other concepts my students had difficulty with, including "the order of operations" which are the rules for knowing which operations to perform first: addition, subtraction, multiplication, division, exponents, numbers in parenthesis, etc. And we'll learn to deal with those infamous and nefarious negative numbers. Δ

The first test combining the operations

$$3x + 6 = 60$$

answer (x = 18)

$$2x - 7 = 13$$

answer (x = 10)

$$5 + x/4 = 6$$

answer (x = 4)

$$x/10 - 10 = 10$$

answer (x = 200)

$$11x + 5 = 5$$

answer (x = 0)

$$5 + x/11 = 5$$

answer (x = 0)

$$x/3 + 6 = 19/3$$

answer (x = 1)

$$x/3 - 5 = 10$$

answer (x = 45)

$$x/2.5 + 6 = 13.5$$

answer (x = 18.75)

$$x/2.5 - 6 = 1.5$$

answer (x = 18.75)

High altitude gardening — it's a challenge but these helpful tips can get you started

By Dynah Geissal

High altitude gardening is definitely a challenge, but it can also be very rewarding. For those of us who live in the mountains and are striving for self sufficiency, it is a necessity. Attitude is important for success: Trying to “conquer the elements” is possible to a certain extent, but it's self-defeating, prone to failure, and extremely frustrating. On the other hand, working *with* Nature is rewarding and leads to a feeling of harmony with the earth and the seasons.

With this in mind, forget about tropical and sub-tropical crops until you are proficient at growing the cold season ones. Experimenting can be fun, but first learn to provide basic food in these somewhat adverse conditions.

Choose your site

Give a lot of attention to your choice of site. Ideally, it should be south-facing with water nearby. It should be part-way up a slope so that it is not in a frost pocket, but not up so high that the winds can scour it. The slightest slope has an effect on the sun's ability to heat the garden. In addition, the garden should be fairly close to the house. Not only will it receive more attention that way, but also there is less chance of destruction by deer or bears.

Be sure your chosen site gets plenty of sun. You may have to clear away some trees. If your topsoil is as shallow as mine is, you will want to begin building it up from the very beginning. Someone gave me a load of topsoil. In addition, I worked in rabbit manure and bedding from the chicken house. Fresh chicken manure can burn plants, but mine was mixed with large



amounts of straw and I had no problem. Keep in mind that if you import topsoil, you may also import weed seeds.

Unless you have running water, you'll have to carefully evaluate water availability for your garden. We positioned ours as near to our springs as we could without having it waterlogged after a rain.

Choose your seeds

It is very important to purchase seeds from a company that specializes in high altitude or cold season gardening. I always use seeds from Garden City Seeds in Victor, Montana, and I've had great success with these. Not only are they bred in and for a cold climate, but the company also provides lots of helpful information.

Consider also that a plant variety that matures in 60 days in a mild climate may take 75 days in a place where the ground stays cool and the nights are always cold. When the air is thin, temperature variations are extreme, and the seeds you plant need to be suitable. For example, it's August as I write this. Yesterday, the high was 87° and the low 27°, and that

is very common. Clear, sunny days bring the extremes, while cloudy days are much more moderate. Most varieties that do quite well in other parts of the country are not going to prosper under these conditions.

Your high altitude garden will basically consist of greens, roots, pea crops, cabbage family crops, and some herbs.

Starting your garden in the fall will give you a head start. Prepare the soil as you would for a spring garden. If your soil is acid, work in plenty of ashes, as well as bedding and compost. When the weather is cold, but the ground has not yet frozen, plant spinach, lettuce, peas, and snow peas. In your herb garden, try parsley, chives, chervil, coriander (cilantro), chamomile, mint, and dill. All of these herbs are self-seeders, so after the first year you may not have to replant.

If your area has snow all winter, you will not need to mulch. If it doesn't, pile on the compost and bedding, so that the seeds don't germinate during an early thaw. Not all these crops will do well every time, but you should have enough success to make it worthwhile.

When to plant what

Garlic should always be planted in the fall where growing seasons are short. It's OK if your garlic starts to grow before the ground freezes. Cover the garlic with about six inches of mulch.

When the ground begins to thaw and the first wild plants are peeping through the top layer of the warming soil, you can plant peas and snow peas and sugar snaps. When they start to sprout, add mulch for protection. If you add mulch too early, the seeds will stay too cold to germinate. On the other hand, nights in the 20's will damage or kill your plants, so pile the mulch lightly around your plants with just the growing tops above. It will take experience to get this right, and even with experience, there will sometimes be failures. We're really pushing the season here.

In late April, plant root crops such as carrots, parsnips, and onions. This is also the time to plant parsley. These crops are planted late enough that by the time their long roots are growing well, the ground should be thawed (say early May).

In May or early June, plant lettuce, spinach, radishes, and turnips. The ground will be warm enough now so that these seeds will benefit from a layer of mulch. Not only will mulch keep the seed beds moist, but it will keep them protected from the cold night air, thus hastening germination and growth. As they push up through the mulch, you will not have to pile more on, as they will be able to withstand frost.

In mid-May, plant potatoes, using extra large chunks of seed potatoes. These should be planted five inches deep and covered with a six-inch layer of mulch. As the plants grow, continue to add mulch, so that only the tops of the plants are exposed. In that way only the tops will be lost to frost, and the rest of the plant will live.

In early June, plant beets and set out cabbage, broccoli, Brussels sprouts, kale, and collards.

In mid-July, plant second crops of lettuce, spinach, and radishes. If lettuce freezes, let it warm up naturally before picking it.

If you have snow cover, you can dig out Brussels sprouts, kale, and collards as you need them. Otherwise, cover with mulch to prevent freezing and thawing.

Carrots can be left in the ground all winter if they are covered with bags of leaves. Just lift a bag and pull up as many as you need.

To store cabbage, dig a pit, line it with straw, and place your cabbages inside. Cover with straw and then bags of leaves.

Leave parsnips in the ground and use them as soon as the snow melts.

If strawberries and raspberries grow wild where you live, you can probably grow domestic varieties. Choose varieties carefully and mulch in the winter unless you have continuous snow pack.

Try growing rhubarb and Jerusalem artichokes, too. Rhubarb is a hardy perennial, and Jerusalem artichokes will usually come back year after year, since it is unlikely you can dig up the tuber from every plant.

Cold frames and greenhouses will extend your growing season for lettuce, greens, chives, and parsley, but unless you want to use supplemental heat, it's probably not worth the effort to try other vegetables. Even if the plants stay alive, the growth will be so slow that it won't really be worthwhile.

Some people get great enjoyment from seeing what they can coax into growing under adverse conditions. If you're one of those people, go for it. First, though, concentrate on the easier plants that are more likely to provide sustenance for you and your family. Δ

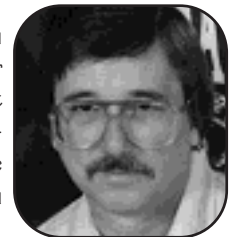
A BHM Writer's Profile: Edna Norrell



Norrell, born in 1920, raised three girls and one boy of her own then, when they were grown and out, she did foster care for 20 years for unwanted, neglected, abused children. She also did day care for kids. When she was 68 her daughter left a beat up old typewriter with her while she was moving and Norrell started trying to type. She has since written and sold many articles and short stories, won fourth place in Legacies national contest twice, won a national Harlequin contest, and a Nike contest. She is now 78 and enjoys traveling. Since turning 70 she has been to Alaska, Mexico, the South Seas, the Virgin Islands, and Hawaii. Her favorite writing is humor; she loves to make people laugh. She has come a long way from that beat up old typewriter and now does her work on a computer and says it is great.

She says she doesn't do too many how-tos but since her husband has a colony of purple martins she wrote the article on how he provided homes for them for BHM.

A BHM Writer's Profile: Allyn Uptain



Allyn Uptain is a computer consultant working diligently to save the world from the Y2K crisis.

Goats don't eat zucchini

By Jacqueline Binford-Bell

I was raised by an earth mother who always seemed most at home when she had her hands in dirt. By contrast, *my* feet seldom touched the ground, and my head was always in the clouds, filled with some grand dream or make-believe world. The only time I came in touch with the earth was to trip over it.

Adulthood did not seem to change that much. I merely wrote down my daydreams and called myself a writer. The spring and summer of 1972, I was writing my first novel, and despite my weaving and angora goat raising, I was less connected to the world than most. I would turn 27 that June, but I was more a child of fantasy than at seven. Paul Simon sang of “slip-sliding away,” and I knew what he meant. To ground myself quite literally, I decided to emulate Mother and plant a garden.

What I knew about gardening came from the back of the Burpee seed packages I purchased at the local feed store. A growing season was that period when the ski area six miles up the road was not open. Dirt was dirt, even if it did come in a variety of colors from yellow ocher to Indian red to burnt umber. That at least I had noticed during my watercolor painting period. And I was never the one to read directions until all else had failed.

I had not even taken notice of my mother's gardens since second grade. That was her last garden before we left the lush Missouri River basin of my childhood. That half-acre garden in my memories was weed- and bug-free and magically produced crisp, cool sweet peas which I plucked and ate on early morning strolls down the rows, as I went off to climb my



favorite oak tree and dream away the day with a favorite book and Boy, my beloved English setter.

That I no longer lived on a grassy plain of peat with scattered hillocks of oaks and black walnut, but on a steep mountainside of rocks covered with Ponderosa pine should have given me my first clue that the reality of a garden would be quite different from my fantasy. That first garden, like those of Robert Frost, grew rocks best.

Cucumbers, I found, did not like the chilly mountain nights, and the corn was not knee-high by the Fourth of July and never reached *Oklahoma's* mythical elephant's eye. Beans and peas sprouted well but quickly fell prey to my small flock of Angora goats. Solomon, Sheba, and Babylon would have gotten the lettuce, too, but the wild rabbits beat them to it. (The rabbits went *under* the chicken-wire fence and the goats went *over* it.)

Cabbage mites got the cabbage, cauliflower, and broccoli. Frost claimed the pumpkins, and the melons seemed to have just given up soon after

sprouting. The only plant that seemed to thrive was zucchini. The dark green plant with its curious long fruit survived the arid soil, low humidity, chilly nights, and rarified air as if it were a weed.

When it first began to thrive, in fact, I thought it must *be* a weed. I had forgotten I had planted the zucchini, since the goats also had eaten my row markers. I would have pulled it up, but by then *anything* green was welcome. If nothing else, it would please the goats, who took great delight in stealing forbidden fruit while I daydreamed during their daily outings from the pen. But the goats studiously ignored it, preferring even the Russian thistle that grew wild at the garden's perimeter.

And so, undaunted by even my novice gardening efforts, the zucchini plants flourished. In the middle of summer it began to produce a seemingly endless harvest of squash, a vegetable I had at that time seldom eaten by choice and never cooked.

My neighbor, a retired widower from Georgia who seemed to be quietly and endlessly amused by my garden, had given me the package of zucchini seeds and came regularly to check on their progress and chuckle at mine. When I professed not to know what to do with the long green vegetable, he gave me a recipe for zucchini bread. It was delicious, but it only used two cups of the abundant vegetable for two loaves. Zucchini soup, a recipe found in my collection of cookbooks, used more. Zucchini sauteed with onion used it most easily but proved the least palatable. Zucchini breaded and fried like at the neighborhood Italian restaurant was my favorite, but it soon grew tiresome.

Finding new ways to use it became a challenge, and I was soon substituting it for almost anything in my favorite recipes: zucchini pickles and zucchini pie and zucchini salsa (and a natural dye for handspun Angora goat hair that unfortunately was a failure.)

Friends who had previously enjoyed coming to dinner began turning down invitations and sent me recipes and cookbooks instead. Soon I had so many ways to cook zucchini that I considered writing my own cookbook on the subject. The same friends smiled indulgently at that and encouraged me just to keep thinking and call them later. The zucchini plants ultimately succumbed to the mountain winter, and so my friendships were saved.

After my horticultural failure that summer, I am not sure why I planted a garden the next year, unless (as Mother maintained) it is that I am just plain stubborn and unwilling to let anything defeat me. Or perhaps I was so detached from reality that I was unaware I had failed. I had, after all, produced a bounty of zucchini. In part, I think, it was the memory of watching the zucchini grow the year before that re-ignited the desire to plant the next spring. Like Thoreau at Walden Pond, a tiny part of me at least "...wished to live deliberately, to

front only the essential facts of life." For Thoreau it was in watching beans grow that life and the seasons became real, and for me it was zucchini that brought me (even fleetingly) from my imaginary worlds to the earth on which I was forced to live. It is gardening that keeps me from just flying away.

I have planted numerous gardens since then. I have learned about growing seasons and climatic ranges and acidity of soil. I have gardened on the rich soil of the Piedmont Plateau of North Carolina and in the dark peaty soil of the Missouri River Basin and have learned to adapt my seed choices to the peculiarities of the area . . . but I have always planted zucchini, and I have never seen it fail to produce.

I now live at 8000 feet above sea level in the heart of the Sangre de Cristo Mountains of Northern New Mexico, where my garden must be a 90 day wonder. I have mastered the techniques of forcing plants that like longer seasons and wetter and warmer summers. I have gone from the basic vegetables to gourmet varieties I cannot get in the local store. Every January, when winter is raging outside my window, I compile my seed orders, and as spring begins to claim temporary victories in March, my first seedlings are sprouting in plastic trays lined up along every window.

A BHM Writer's Profile: Linda Gabris



Linda Gabris is a full time freelance writer and creative writing instructor. Her articles, fiction, and poetry have appeared in publications across North America. She has hosted an outdoor column for a number of years and especially enjoys writing features about nature and outdoor recreation.

Despite all that, it is the lowly zucchini, hastily cast into the ground and given no special consideration, that never lets me down and oddly provides me the greatest pleasure. If the goats would eat what I do not want and cannot use, it would be a perfect plant. Δ

A BHM Writer's Profile: Ruth Adler

Alder has been a free lance writer for the past 30 years. She is also a former secretary and newspaper reporter. She has had 150 articles, features, and stories published over the years. Some magazines that published her manuscripts are Country, Country Folk Art, Almanac for Farmers and City Folk, Fashion Accessories, Grit, Capper's, and Mature Living.



Grow horehound for the health of it

By Jim Hildreth

Growing food is a large step along the road of self-reliance, and growing medicine comforts each step along the way. Horehound, *Marrubium vulgare*, should be made to feel at home in all gardens. It's an attractive perennial herb with time tested medicinal benefits and other desirable traits. It's easily grown, and being a perennial, it grows bigger and better every year.

The ancient Egyptians first recorded growing horehound and using it to relieve cough symptoms. They derived its name from Horus, their god of sky and light. The Greeks credited the herb with curing bites of mad dogs, calling it "hoarhound." The Anglo-Saxons referred to the herb as "hare hune," meaning "a downy plant," undoubtedly due to the plant's woolly appearance, and they used it to combat the effects of rabies. Horehound's latinized generic name, *Marrubium*, actually derives from the Hebrew word "marrob," meaning "bitter juice." The herb is one of the five ritual bitter herbs of Passover.

Time-tested cough remedy

Horehound has been used to treat everything from snake bites to jaundice, but it's the herb's use as a cough remedy that's withstood the test of time. Our grandparents attest to taking horehound cough drops and cough medicine years ago, and it remains an effective remedy to this day.

It's not fussy

That's the good news. The great news is that horehound flourishes on its own with little help from the gardener. Ideally, horehound grows best in organically rich soil and a location that receives full sun. That doesn't

mean, however, that the herb fails in anything less than the perfect growing environment. In fact, my 10-year old horehound planting grows beautifully in partial shade. It thrives in my organically rich garden soil, but I wouldn't hesitate to plant it in poor, sandy soil either, because it adapts quickly to harsh conditions.

Horehound grows up to two feet tall with fuzzy, light green, heavily wrinkled, inch-long leaves. It serves as an accent in the herb garden when planted behind lower growing, darker colored oregano and thyme and in front of taller, darker beebalm, feverfew, or aconite. It produces tiny white flowers that grow in whorls on the stems the second year after planting. The flowers attract pollinating bees to the garden, and their small size proves extremely inviting to beneficial predatory and parasitic wasps.

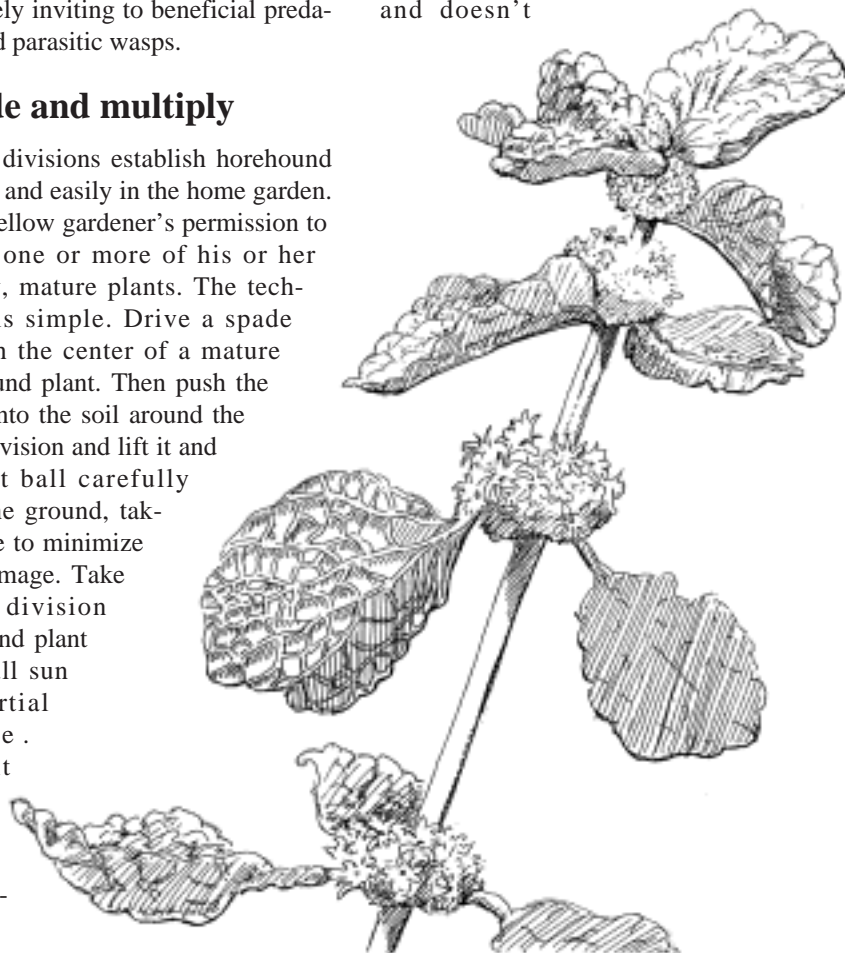
Divide and multiply

Plant divisions establish horehound quickly and easily in the home garden. Ask a fellow gardener's permission to divide one or more of his or her healthy, mature plants. The technique is simple. Drive a spade through the center of a mature horehound plant. Then push the spade into the soil around the plant division and lift it and its root ball carefully from the ground, taking care to minimize root damage. Take the division home and plant it in full sun or partial shade. Firm it into the soil to eliminate

nate air pockets and water thoroughly with a dilute solution of liquid seaweed to reduce transplant shock and further reduce air pockets between the soil and roots.

Horehound may also be started from seeds planted indoors during early spring for transplanting in mid-to-late-spring or direct-seeded outdoors during late spring. Moisten the soil, then plant the seeds 1/8" deep. Cover them with fine soil, water again, and maintain even soil moisture until the seeds sprout and grow several inches tall. Thin seedlings to stand a foot apart or spread them throughout the herb and vegetable gardens to attract beneficial insects.

Horehound doesn't require much attention once it's established. It tolerates drought extremely well and doesn't



require heavy feeding, which helps explain why it grows readily along roadsides, on dry grasslands, and in the “difficult” areas of the garden. Nevertheless, I give horehound the royal treatment: organically rich soil, monthly dousing with liquid seaweed and fish emulsion, and compost side dressings in spring and fall. It receives 1/2" of water per week during this area's dry summer season. This drought-tolerant herb could survive on a lot less water, but I find that it grows faster and stronger when given an even weekly supply.

Harvest and storage methods are fairly standard. A light harvest may be taken the first year from seed. After that, heavy-handed harvests two or three times a season do no harm to the plants. For the best medicinal properties, cut stems just as the first flowers open. To maximize horehound's potential to attract beneficial insects, allow the plants to flower for a few weeks before harvesting. Either way, cut the stems to within three inches of the ground. Hang dry in a cool, shaded place, shuck the leaves and flowers from the stems, and store in a cool, dark place in airtight containers.

Making medicine

I find making horehound cough medicine very gratifying. It increases self-reliance by eliminating the need for over-the-counter commercial cough medicines and saves money in the process. It provides an effective cough remedy without the usual drowsiness or other side-effects found in commercial preparations.

Make horehound cough medicine by steeping a couple ounces of fresh horehound or an ounce of dried material in a pint of hot water for 10 minutes, stirring occasionally. Strain the liquid into a bottle and add honey to taste. I usually add as much honey as there is liquid, but keep in mind that horehound tastes very bitter. Adding twice as much honey as there is liquid

A BHM Writer's Profile: Angela Jenkins

Angela Jenkins lives in Glendale, Kentucky, and works at the Elizabethtown Community College, in the college library, as a technician. Angela writes on a free-lance basis and has previously published short stories and poetry as well as magazine articles. She is a member of two writers groups and is on the board for ECCO, the college literary magazine.



A BHM Writer's Profile: Craig Russell

Russell's formal training is in history and biology and those interests come together in old breeds of livestock, old garden and agricultural plants, gathering wild foods, and doing things the old way that have become his avocation.

Given the time he's a rambler and a roamer with an interest in old trails and far places. Sometimes he is a caver and a climber as well.

Currently he's president of the Society for the Preservation of Poultry Antiquities (SPPA).



makes a better-tasting concoction. Shake the solution while it's hot to thoroughly mix it. Store it in the refrigerator. Hot horehound tea with honey and lemon feels great on a sore throat, too.

Horehound certainly earns its keep in the garden. Planted once, it increases in size every year thereafter, providing the planting scheme with attractive wooly foliage. Its ability to attract beneficial insects helps gardeners maintain a chemical-free garden, and its medicinal properties give welcome relief from coughs and sore throats—all that from a low-maintenance, perennial herb.

Seed sources

The following companies sell horehound seeds and will send a catalog free for the asking:

Abundant Life Seed Foundation
P.O. Box 772
1029 Lawrence St.
Port Townsend, WA 98368

Nichols Garden Nursery
1190 North Pacific Highway
Albany, OR 97321-4580

Mellinger's, Inc.
2310 W. South Range Road
North Lima, OH 44452-9731

Park Seed® Company
Cokesbury Road
Greenwood, SC 29647-0001 Δ

**Visit our popular website at:
<http://www.backwoodshome.com>**

Blueberries are an affordable luxury

By Alice B. Yeager
Photos by James O. Yeager

Blueberries are an affordable luxury that almost anyone can grow—that is, anyone with a little extra yard space. They are a functional as well as an attractive addition to the home landscape, and if one has an unused lot or more in land, blueberry bushes can be downright lucrative.

When we began to grow blueberries for our own use a number of years ago, the only blueberries in our Southwestern Arkansas area were wild, hard to find, and referred to as “summer huckleberries.” They were found in hilly, wooded places in the company of chiggers, ticks, and snakes.

Having been treated to delicious blueberry pie up north, I often wondered why I seldom saw anything made from fresh blueberries in my part of the country. After some research, I found out that our part of Arkansas is somewhat south of the best blueberry growing areas. However, I also learned that some varieties had been developed that were especially suited for the South (Zones 8 and 9). As a group, these varieties are known as “Rabbiteyes.”

I ordered early, midseason, and late varieties of blueberries in the hope of having some of them perform well here. As it has turned out, I wasted neither time, effort, nor money, as our blueberry bushes have consistently given us plenty of fruit for our own use as well as to share with friends. By having different varieties, the harvest season is stretched, so that fresh blueberries are available over a longer period of time.

In our piney woods area, we are ideally situated for growing blueberries. All blueberries must have well-

drained, acid soil, as their pH requirement is not over 6.0. They don't do their best in ordinary garden soil, as the pH is a little too high—fine for cucumbers and okra, but wrong for blueberries.

Blueberry bushes will grow in full sun or semi-shade. Our blueberry patch is in an area that receives light shade part of the day, which makes picking a pleasant chore on warm days. Shaded areas are impractical for large pick-your-own operations, where blueberries are grown by the acre.

The fact that these plants will tolerate some shade makes them very desirable for the homeowner who would like to use a few bushes in his landscape plans. Being acid-loving, they can be worked in very nicely near azaleas, camellias, cape jasmynes, etc. As a fringe benefit, blueberry bushes close out their annual performance with a bright display of red color in late fall.

A few simple rules for planting blueberries

A few simple rules need to be followed when planting blueberry bushes: Never crowd the roots, but dig holes large enough to extend a few inches beyond the actual rootspread. Plant bushes at the same depth as they were grown in the nursery. This is easily seen by the soil line at the base of the plant. Assuming the soil is the proper pH and no additives are needed, fill in the hole halfway with dirt, water thoroughly, then complete filling with dirt. Water again to get rid of any air pockets around the roots.

If you live where summers are drought-prone, make some small dams about 15 inches in diameter around the plants so as to direct water to the roots. Young plants should not be

allowed to suffer for lack of water, as they may die or be stunted.

Blueberry bushes appreciate heavy mulches of a mixture of leaves and pine needles. A steady diet of this organic material is all that is needed as far as feeding is concerned. It is also a good way to use yard rakings to advantage. The plants are shallow-rooted and do not need cultivation, although they should always be kept free of invasive vines or weeds.

These plants do not require large spaces, and they may be planted five to six feet apart. Depending on the variety, they will grow from four to eight feet tall. Blueberry plants are very simple to maintain, as they do not require a great deal of pruning. Some nurseries recommend cutting off the low, bushy side growth at the end of the first year. Others say to keep the shorter branches pruned off mature plants in order to encourage the young side-shoots. In our case, being non-commercial and averse to a lot of work, we have found that keeping bushes clean of dead branches and lightly pruning when necessary is sufficient.

Our blueberries are among the most trouble-free plants we have. It has never been necessary to use any sprays. If your area is subject to problems of some sort—rust, fruit fly maggots, etc.—it would be wise to consult a county extension agent and seek out a *non-toxic* control.

Plants will begin bearing in earnest in about three years from planting. They need cross-pollination, so more than one variety should be planted. Most nurseries have special offers combining three or more varieties. By having early, mid-summer, and late varieties, the harvest season can be stretched over a goodly portion of the summer. Surplus berries can be turned



A plump bunch of Woodard blueberries just right for picking

into jam or syrup, or frozen for later use in muffins or other recipes.

Rabbiteye varieties

Our Rabbiteye varieties include Woodard, Tifblue, Delite, and Homebell. Woodard is a choice variety that reaches a height of about five feet. It is a heavy bearer and heralds the beginning of the blueberry season—early June in our Zone 8A. Berries are large, medium-blue, and slightly tart.

Tifblue is a taller plant than Woodard and begins ripening its berries while Woodard is still producing. Tifblue is prolific and has round, sweet, powder-blue berries. I love to sample these blueberries while “working” in the blueberry patch.

Another of our very good blueberries is the Delite variety. It begins to ripen about the first of July and gives a good harvest. Berries are round, medium blue, and a tiny bit tart. Plants tend to be more upright in growth than the others.

Homebell is a unique blueberry and one that I no longer see listed by nurseries. The berries are round and black and have a huckleberry flavor. It

ripens about the same time as Delite. It is not a heavy yielder, but its flavor is superb.

Besides those of us who tend the bushes, there are other competitors for blueberries. Birds are fond of the ripe berries, but they redeem themselves by policing the bushes for insects. Frankly, I don’t mind the birds and leave the remainder of the crop for them when it thins down. (Small pay for such diligent workers!)

If birds become too much of a nuisance at the peak of the season, they are easily discouraged by loosely tying pieces of *dark* sewing thread at random between the branches. This creates the effect of a strong spider web and frightens them away without harming them. One should be careful not to tie thread (particularly nylon thread) around the branches too tightly, as it can restrict the circulatory system of the branches, resulting in dead limbs.

Blueberry patches are a boon to beekeepers, as the first hint of the opening of the small, bell-shaped flowers brings scout bees to the plants. Until blossoms drop, our blueberry bushes are abuzz with bees.

They’re not huckleberries

Blueberries are often erroneously referred to as “huckleberries,” but the two are different. Blueberries ripen in summer and huckleberries ripen in late fall. Blueberries have hardly-noticeable seeds and huckleberries have fairly large seeds. Pies made from huckleberries have great flavor but are like trying to eat buckshot. Hence the name “crackerberry.” Huckleberries are seldom found in cultivation, but tend to be regarded as wild food.

I have noticed that some restaurants in mountain resort areas like to list huckleberry pie on their dessert menus. This gives a down-home, living-off-the-land touch to the menu. Believe me, if they really served *huckleberry* pie, patrons would never order a second piece!

Due to the Rabbiteye introductions, a number of blueberry farms are now flourishing in the South, indicating that blueberry production may soon be numbered among our major farm industries. Before the new varieties were created, blueberry-growing was mainly confined to Zones 4 to 7. Unlike most orchard production, it does not take many years before blueberry acreage can begin to show a profit. Bushes are easy to maintain and “pick-your-own” is the order of the day, thus relieving owners from having to hire extra labor to harvest the crop.

Whether one is the owner of several acres of blueberry bushes or a small patch, there’s nothing better than hot blueberry muffins on a cold, miserable day. (See recipe below.) Forget the weather—it’s blueberry time. Enjoy!

Some sources for Rabbiteye varieties

Stark Bro’s Nurseries
P.O. Box 10
Louisiana, MO 63353-0010

J. W. Jung Seed & Nursery Co.
235 S. High Street
Randolph, WI 53957-0001

Henry Fields Seed & Nursery Co.
415 N. Burnett
Shenandoah, IA 51602

Gurney's Seed & Nursery Co.
110 Capital Street
Yankton, SD 57079

Blueberry muffins

Step 1

1 cup whole wheat flour
1 cup unbleached flour
4 teaspoons baking powder
1/2 teaspoon nutmeg
1/2 teaspoon cinnamon

Mix together and set aside.

Step 2

1 cup milk
1 beaten egg

Mix and set aside.

Step 3

1 cup sugar
1/4 cup melted butter or oleo
1 teaspoon grated lemon rind
1/2 cup chopped pecans

Mix and then combine all ingredients.

Step 4

1 cup fresh or frozen blueberries
(If frozen, thaw before using.)

Gently stir blueberries into combined mixture. Too much stirring will crush blueberries, so mix only until

berries are distributed throughout the mixture.

Fill greased muffin tins $\frac{2}{3}$ full and bake at 375° F for 20-25 minutes. Makes 18 muffins. Δ

A BHM Writer's Profile: Mary Kenyon

Mary Kenyon, her husband David, and their children live and learn in the country near Petersburg, Iowa. Mary is the homeschooling mother of six children as well as a freelance writer and author of *Homeschooling From Scratch* (Gazelle, 1995). The Kenyon family owns a home-based business selling quality used books through the mail. For a list of books the Kenyon's sell, send \$2.00 to: Once Upon a Time Family Books, P. O. Box 296, Manchester, Iowa 52097.



A BHM Writer's Profile: Robert Bumpus

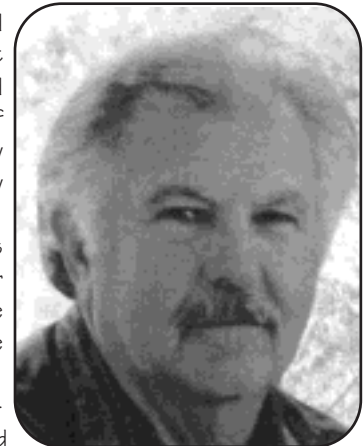
Nebraskan by birth, Bumpus has lived most of his 70 years in California, but since 1990 he has lived in Oregon. He and his wife bought 3.5 acres just off Highway 101 near a game park. Heavily timbered and overgrown with brush, they have been clearing it ever since.

They raise most of their own meat plus garden and orchard stuff. Drilled their own well, built outbuildings, etc. His wife says they are too old to pioneer but he says he's having a ball.

Married since 1948, they have nine children and a host of grandchildren and great-grandchildren.

Bumpus has been a fruit worker, a cowboy, a gold miner and gold dredger, he has worked in security for an aerospace corporation, worked for the Yuba City, California, police department, been an auto and truck mechanic, and has spent time working in the big California timber. He presently does odd jobs for widow ladies and is co-pastor of a small nondenominational church. He says he is anti-abortion, anti-tree hugger, and a Republican with strong Libertarian leanings, and he hates the way Oregon is being liberalized by former Californians.

Bumpus also belongs to a writers group in Coos Bay, Oregon, and writes short stories and poetry.



The duck dilemma: they're a lot of fun, and they *do* eat those slugs — *but . . .*

By Inez Castor

It all started innocently enough. All we wanted to do was keep the slugs from eating everything we planted. Here in the Pacific northwest, slugs can destroy an entire planting of seedlings in a single night. Since my husband and I are organic market gardeners, our options are limited; most of the things that kill slugs are on the “prohibited” list.

For a while, we hand-picked the slimy creatures at dawn and dropped them into a bucket of water and yeast, but it became apparent that I could spend every morning of my life at this Sisyphean task and still not harvest produce fit to sell. Crushed oyster shells helped a little, and so did agricultural lime. Strips of plastic permeated with salt worked well, but they were much too expensive for people trying to earn a living on one acre of land.

It was at this point, early in March and well into the slug season, that our friend Donna offered us what appeared to be a perfect (and inexpensive) solution. All we needed was a few ducks, and she had eggs due to hatch in a few days. Of course, they wouldn't be much help in the first few months, but by the time the rainy season started again, they would virtually eliminate our slug problem.

At first we were hesitant, knowing nothing about ducks except that they flew over us twice a year. Donna voiced the prevailing attitude, one that we were to encounter time and again: “Ducks take care of themselves; you don't have to do anything but throw them a little feed now and again.” Right.

Finally, convinced that we were being unduly pessimistic and suspicious, I brought the first four ducklings home the day after they were hatched. At the last minute, Donna told me that they'd need to stay in the house until they exchanged their soft baby down for real feathers, but I didn't pay much attention.

Busy falling in love

I was busy falling in love with a tiny being whose bill was the size of my pinky fingernail, and whose webbed feet were so delicate that every blood vessel showed. It all seemed quite simple; they could live in a box in my office. So I carefully packed them home in a bucket to show David, already feeling protective and maternal. David, ever the practical soul, wanted to know what I intended to do with them now.

“Why, they're going to solve our slug problem,” I stated confidently.

“Sure they are, but I meant what are you going to do with them *right* now. We have *slugs* bigger than they are.”

“Don't worry about a thing. Just bring in that old box the chipper came in, and put it in my office. I bought starter mash for them at the feed store. It's kind of expensive, but they'll grow into the regular food soon.”

Did I mention that I tend to get rabidly enthusiastic about everything I start?

We lined the chipper box with an old plastic tablecloth and put thick pads of newspaper in the bottom. Since baby ducks love water but tend to drown if it's more than two inches deep, we gave them a cake pan full of water. We put food in a cereal bowl and rigged a trouble light for warmth.

We released our fluffy yellow babies into their palatial new home and stood back to watch. They fluttered frantically the length of the pool, through the food dish, and back through the water, peeping and pooping all the



way. Within minutes it was apparent that we'd have to change their food, water and papers several times a day. At the end of the first week we were out of newspapers, we'd gone through five dollars worth of food, and the entire house reeked of duck.

But they were delightful; there was none of the mindless pecking at each other that chickens are known for. They simply made more mess than anything that size should be capable of.

At the end of two weeks, we began putting them outside for most of the day. We bought a hundred-foot roll of two-foot poultry wire to make them a playpen, justifying the expense by telling each other that the rest of the roll was bound to come in handy for something. Now we only had to change their box once a day, and preparations began for their move to the great outdoors. We began hand-feeding them small slugs, which they seemed to consider a rare delicacy.

We dismantled the old pumphouse that wouldn't fit the new pump, and turned it into an A-frame. The idea was to tuck them in at night and cover the front with poultry wire.

At two months, the ducks moved into the garden on a permanent basis, free to forage during the day, bedded down in their A-frame at night. What a relief! No more catching them and schlepping them into the house every evening. No more need to leave the doors and windows open day and night in order to breathe. We had nearly \$100 invested in food, wire, and incidentals, and the only slugs they'd eaten had been served to them on a cabbage leaf, but things were looking up.

We slid almost imperceptibly from spring into a peaceful summer, and it looked as if everything was working out just fine. The ducks followed us around the garden waiting for us to turn up goodies, and they actually ate slugs—lots of slugs. It's amazing how far a slug can stretch with a duck on either end.

We began giving them cracked corn at half the price of starter mash. Of course, they seemed to waste a lot of it, and we were feeding every sparrow and squirrel in northern California, but that was all right. They were definitely going to take care of the slug problem.

The pleasure of watching them work

All the initial expense was worth the pleasure of watching them work a carrot bed, bills buried in the soil, tails up and twitching, chuckling self-importantly deep in their throats. It was a sight guaranteed to bring a gardener's blood pressure down.

As the ducks gained confidence, strength, and weight, a new problem surfaced. Ducks have large, flat feet, suitable for trampling seedlings. It didn't help that our ducks were Pekins, the largest and heaviest type. What's more, wherever we'd been disturbing the soil (as we tend to do when planting seedlings) was where the ducks wanted to be. Have you ever tried shoeing ducks out of a raised bed that's thirty feet long and four feet wide? They panic, flap, squawk, then run the length of the bed—several times. I began to detect a malicious gleam in their eyes as they danced among the seedlings.

They also wanted to come in the back door. They hung around the porch like teenagers on a street corner. I have an aversion to wasting all that fine fertilizer by tracking it into the kitchen, so we ran a strip of wire the width of the property between the garden and the house.

We bought four more rolls of wire to surround various areas of the garden that we wanted free of ducks. Wide beds, indeed, entire sections of the garden were fenced off with lopsided lengths of poultry wire supported by bamboo stakes. Now we were gardening in a maze, having to step over at least two fences in order to get anywhere. There were occasional accidents, but the system worked quite

well as long as we paid close attention to where we were walking. It was the work of only a few minutes to move a length of wire from one spot in the garden to another.

One day I watched David, a heavily laden bucket in either hand, march down the path, suddenly step high and swing the buckets over a bit of empty air, then continue on his way. He hadn't noticed that I'd moved the wire.

In mid-summer, the job of putting the ducks to bed became an exercise in frustration. There's a limit to how long I'm willing to chase ducks, and I reached that limit in early August. They simply didn't want to go to bed on warm summer nights, and I really couldn't blame them a bit. They were now too large to tempt hawks and owls, and I figured that if we couldn't catch them, neither could anything else.

An intruder strikes

This pleasant interlude came to an abrupt end one morning when our two females were found dead. We suspected weasel, because the villain had simply opened the throats and sucked them dry.

We buried the girls and began construction on a pest-proof pen up near the house for the drakes, who were suddenly willing, even eager, to be put to bed in the evening. The new pen required a roll of six-foot wire and ten posts at \$3 each.

Our drakes were lonely, and Donna happened to have more ducks than she needed, so she gave us a gray pair of uncertain lineage and Stella, a mallard with the raucous voice of a middle-aged barfly.

A week later, the gray female was dead, the pitiful little corpse left beside the "pest-proof" pen. It was at about this time that I began losing all sense of perspective.

I dug a trench and buried the bottom six inches of the fence. I used a complex series of bungee cords and wires to secure the gate. I left the bedroom

window open at night so I could hear the ducks should they be disturbed. And I began jumping up to run out naked at every night sound. (You can get away with that sort of thing in the country.)

The dog was as crazy as I was, and together we ran howling into the night several times a week. It didn't save James, who never made a sound while becoming dead.

It did, however, save Fella, the remaining Pekin. One night dog and I ran shrieking from the house, only to see a raccoon struggling to drag Fella through a hole he'd excavated near the gate. I snatched Fella by one leg, and the raccoon was gone. There I stood with a horribly injured duck and an inability to "finish the job."

Though the feathers never grew back on his head and neck, and he held his head cocked strangely, Fella survived. We put the food dish on an old wheel to get it up where he could reach it without straining his damaged neck muscles.

Donna came through for us again, donating Lady, a Pekin female, to keep Fella and the rowdy Stella company. By this time the pen was more impregnable than the local maximum security prison, but that's another story. We began to relax, and I slept through the night again.

Then we came home from town one day to find that a pair of stray dogs had killed all three ducks. David began digging the inevitable hole while I, blubbering, gathered up our little friends.

I moped for a week. The garden was too still, too predictable. Besides, it would soon be slug season again, and we had several hundred dollars invested in this "final solution" to the slug problem.

The simple truth is, I enjoy ducks. It's not possible to watch them waddle down a path without smiling. A freshly filled wading pool will bring on a veritable circus of diving, flapping, darting, and preening; it's a show I'd pay to see. There is no meanness in

A BHM Writer's Profile: Terrie Clark

Terrie Clark is an account executive at commercial printing firm in Manhattan, Kansas. It was through her work there that she became acquainted with and wrote about John and Geri McPherson and their primitive life-skills lifestyle.



A graduate of the University of Kansas with a degree in Environmental Studies, Clark has appreciated calling Kansas home. After residing several years in rural Doniphan County, she and her two daughters currently live on the outskirts of Manhattan, which lies in the heart of the Flint Hills and Tall Grass Prairie region of central Kansas.

Before moving to Manhattan in 1992, Ms. Clark worked in livestock publications both as an advertising executive and as a writer. Her special interests include environmental issues, individual's rights, equality, and self-sufficiency. She especially enjoys meeting and writing about people who live their passion, like the McPhersons.

them. When Fella was injured and couldn't keep up, they stayed near him as if in moral support.

I'm hooked on ducks!

So we looked at our dwindling bank account and began discussing the idea of fencing the entire place. While we stood in the front yard arguing passionately, me for a fence and David for a woodshed, a strange mongrel ran around the corner of the house with the cat food dish in his mouth.

We invested over seven hundred dollars and a month's labor in fencing.

We bought three grown mallards, and they've brought the garden back to life. We watch them patrol their territory during the day, tuck them in at night, and harvest slime-free produce. In a pen in the greenhouse, safe and warm under lights, are four Swedish Blue ducklings, warming up in the bullpen, so to speak. We sure do enjoy our ducks.

But don't let anyone tell you that ducks are a cheap solution to the slug problem. Δ

A BHM Writer's Profile: Carolyn Beck

Carolyn A. Beck has written since high school and is a graduate of the Institute of Children's Literature. She has been married 36 years and has three sons plus one grandson.



She has become a Certified Oregon State University Master Gardener where she has had the opportunity to write several publications for the Extension Service which were produced for public use.

She has also researched people who had lived in Oregon after surviving the civil war to assist a professor at the University of Maine with a college level Civil War, *The Blue and The Gray*.

The article she wrote for BHM, "Orphaned Kittens Need Special Care," was inspired after finding a dead mother cat on the road. Later, she heard the kittens crying, and took them home. Not knowing the first thing about how to care for motherless kittens, she started researching. Since then has helped several other batches of motherless kittens to survive.

Scrap poly pipe can be transformed into “training wheels for trees”

By L.A. Wallin

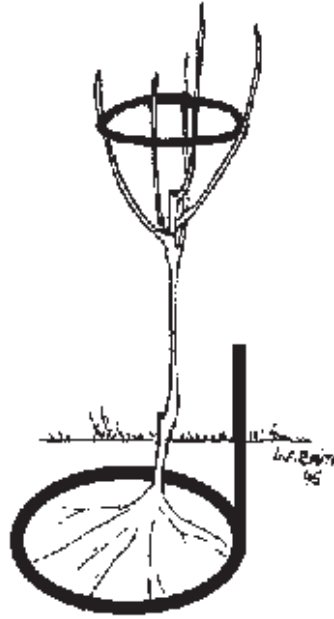
Along about the time of year that northern gardens and fields are covered with deep snow, orchard and seed catalogs begin clogging mailboxes. It seems like everybody and their cousin is offering special offers on new varieties . . . a sure sign that spring is not too many months away.

In our area, the giant chain stores have a contest with each other to be the first to set up nursery departments in early April. Truckloads of young fruit and shade trees arrive each week, both bareroot and container-grown.

During the past 15 years, we've purchased and planted about 100 fruit trees. We bought some at full price, early in the planting season. The rest we bought at a discount, just before greenhouses were stored for the summer. Like lost kittens and puppies, they just seemed to find their way to our homestead. With extra care, most of these trees have survived, and we are well on our way to food self-sufficiency.

Some of the trees had been trimmed and properly shaped by the growers who raised them, but the limbs on a few of them looked as if they had been enclosed in small-diameter tubes. They were growing almost straight up, not spreading a bit. Left alone, they would have been certain to produce hard-to-pick crops. They needed helping hands.

We tried various methods of holding the supple limbs for a few months, while they acquired a new direction in life. We notched short lengths of wood lath, and tried to keep the sticks braced between the boughs. That's a difficult task in our windy area.



The newly-planted tree in this diagram is benefitting from both the limb rack and the irrigation ring.

Then a new wrinkle on the ancient Hula Hoop theme flashed through our minds. We had a pile of scrap pieces of black poly water pipe, in various diameters and lengths. They were left over from building our own home, and from scavenger tours . . . orphans just looking for something to do.

Limb racks

For our “limb racks,” we carefully curled 54" long sections of $\frac{3}{4}$ " diameter poly pipe into circles. We joined the ends of each loop by pushing them onto a round, 4" long hardwood stick. Then we slowly heated the pipe with a small propane torch to heat-shrink it onto the connector.

Next, we placed the units in the center of the limbs which needed to be spread, one to each tree, carefully pulling and pushing them into position. With one of us holding limbs and pipe, the other tied branches to the poly with used baler twine. Care was taken not to girdle the thin bark of the boughs.

We left the new hoops in place for a few months. In late autumn, they were removed. The limbs remained where we wanted them, for better open space in the center of the new fruit trees. The poly pipe rings, little affected by ultraviolet sun rays, were stored for use in future years.

And that's not the only use we found for that scrap pipe.

Underground irrigation rings

For several years, we have made circular irrigation rings of poly pipe, which are buried about a foot deep in the soil around new trees. Surrounding the newly planted trees, they allow water to seep down to the root zone, without encouraging unwanted, nutrient-robbing weed and grass growth near the surface of our orchard. This brings on better root growth, as they spread in a wider range than with simply irrigating near the main stems. With the loops, we can slowly inject diluted liquid organic fertilizers and reduce concern about burning tender subsurface growth.

Our irrigation loops are about 6 $\frac{1}{2}$ feet in diameter. We usually use the larger sizes of poly pipe for these. The ends of each loop are pushed onto opposing male ends of poly pipe tees. The loop is laid on a flat, horizontal surface. The third male end of the tee is aligned so that it rises vertically. A

separate piece of poly pipe, about three feet long, is slid over this end. Then, as with the limb racks, we slowly heat the pipe with a small propane torch to bond it onto the connector. Next we turn the circle over and use a 1/4 inch drill bit to bore a string of holes into what will become the lower edge of the loop. We make the holes about an inch apart.

When planting a new tree, we dig a seven-foot-diameter hole in the ground, about three feet deep. The tree is placed in the hole, and the cavity is backfilled around the roots with a mixture of soil, a small amount of fine gravel, and well-composted manure.

One of the poly loops is installed around each tree on a gravel bed, much like a sewer drain field. We place each wheel about a foot below the orchard surface, using a bubble level to get it as flat as possible. The vertical standpipe rises about two feet above ground, and serves as an inlet for a nozzle made of a piece of copper tubing attached to a garden hose.

The rest of the new tree hole is filled with the soil mixture, tamped lightly to remove air pockets, and topped with moisture-conserving mulch of old sawdust and shavings. When we irrigate our trees, we adjust the faucet so that only a medium stream of water enters the standpipe. Since the buried loop has many perforations to spread the water, there is little risk of eroding the soil which surrounds each tree. Buried that far from the surface, the loop allows us to safely rototill the ground around the trees. It has worked well for us.

Both above and below ground, we're proud of our "training wheels for trees."

L.A. Wallin and her husband live in an earth-bermed, rock-and-turf-roofed, solar-electric-powered house. They lived in a tent for three years while building their house. Country hard-scrabble raised, during the past 15 years they have developed many alternative methods of surviving tough times.
Δ

Lilacs can provide a reliable "thermometer" for planting

By L. Gordon Stetser Jr.

Because the dates of killing frosts can vary by as much as two weeks within a mile, you're taking a chance if you depend on gardening books, seed packets, or weather forecasters when you schedule your planting.

According to Dr. L. P. Perry of the University of Vermont, "It's safer to use your own garden to determine your planting schedule." The Persian lilac is a most reliable thermome-

ter: when the leaves unfurl, it's time to plant root crops and lettuce; when the flowers bloom, put in tender plants like melon, corn and tomatoes.

If you don't have a lilac bush, take a look around your yard this spring. Are the daffodils blossoming when you put in lettuce, for example? Then if all goes well with the harvest, use your daffodils as a

when-to-plant indicator next year.

Δ



Wind Over the Fields

Even here in the city, when everything quiets enough in three a.m., there is a moment of hesitation, a stuttering of sorts, and the wind comes.

Gentle at first, like someone giving gas to a new car and then with force

"Let's see what she can do."

It runs through streets and loiters dangerously on front porches, opening and slamming screen doors, moving quickly over rooftop shingles and concrete telephone lines, whispering

"There were fields here once."

**Ben Sizemore
Hamilton, OH**

When you're laying out your farm, careful planning pays big dividends

By Jan Palmer

Planning the layout of your farm can make the difference between an enjoyable enterprise and an unsuccessful financial drain.

Hopefully, you'll have time to become totally familiar with your land in all kinds of weather and seasons. Only time will tell what your land is capable of handling. Here in northeast Oklahoma, the challenges are different from those faced by someone in western Washington or northern New York. Yet there are many similar problems, and homesteaders can learn from each other, no matter where they live.

Before buying materials, we sat down with pen and paper and listed enterprises we wanted to get into or try. Some of them can share a space (such as a couple of jenny donkeys and sheep), while others should be kept separate (such as pigs and horses—rooting by pigs could cause injuries to horses if they stepped in a hole). We found that many enterprises we would undertake would involve small numbers of the particular animal. For example, we plan to raise a few pigs for our own use, but our needs will be much different from those of a commercial hog ranch.

In arranging your homestead, if you're lucky enough to be able to start from scratch and put buildings, fields, etc., where you want them, you have more options than the person who gets an existing spread.

How close to the house?

The more time you spend with a particular enterprise, the closer you'll want it to be to the house. For example, for milking goats, you'll either

want to run water and power to the milking area *or* set up an area near the house with just light and basic power, allowing you to carry the milk in and wash pails and such in the house. The pig enterprise, on the other hand, should be some distance *away* from the house, and keeping the pigs in a sanitary manner will help reduce many of the problems associated with keeping hogs.

We set our chicken house and yard about 25 feet from the house for ease of caring for the birds, ease of carrying water (no water run to the yard yet), and as extra security against predators.

Shelter for the animals

Some enterprises can be done without a barn, but shelter should be provided for all types of stock. Outdoor rabbit hutches are popular on homesteads, and offer housing that can be moved from time to time if need be. Pigs can get along fine with a three-sided shelter, as can sheep, although if you have babies on the way in colder climates, be sure it is warm enough in the shelter to keep them from freezing.

What's normal?

Find out what is normal for your area. For example, most planning books we've ever seen suggest three-sided sheds to be facing south for maximum sun. In our area, however, some of the coldest winds come from the south, and seldom from the east, so our sheds will be facing east instead of south. We aren't alone in that decision: a red angus ranch near here also has all their shelters open on the east side. We put up temporary structures facing south, and they were

whipped to shreds by the south winds, so take heed. Your area might have stronger east winds or west winds, but no book or article can take the place of the advice of the local farmers and/or extension office. Planning ahead now can save you dollars later—as well as the frustration of doing all the work over again.

If you have an area that is naturally low-lying, you might consider putting in a pond. This could serve as live-stock water and almost always increases the value and looks of your property. Be advised, though that if you hire it done it will be expensive (\$3,000-4,000 in our area). If you haven't bought acreage yet and want a pond, you might want to consider buying land with a pond already on it.

Planning the garden

If you plan on putting in a garden, as many homesteaders do, you will probably want to locate it within a reasonable distance from the kitchen, to help make harvesting easier. An alternative, which will cost more money, is to have a small "second kitchen" out by the garden with running water and basic harvesting supplies (canning or freezing). With that setup, you can take the waste (corn shucks, leaves, etc.) straight out to the stock and the produce into the house to the pantry or freezer.

One of the best investments you can make in starting your operation is getting a soil test, usually available from the county extension service. In some areas, they're free; in our area it costs \$8. It can tell you the true condition of your soil and what you need to add, if anything.

Make note of soil conditions: the spot where you want to put the garden

might not be ideally suited for growing. Our planned garden area was *wet*, and when it did dry it was like concrete. What little did grow didn't develop as it should have. (We *didn't* start by getting a soil test.) We solved part of the problem by raising the growing area up, using raised beds in tires, which we got free for the hauling from a local tire dealer. The disadvantage to this is that it means hand tilling, because it's not possible to get a tiller down inside the tires. An alternative might be to ring the garden area with old tires, then raise the entire area if you have the fill to do it.

Make use of fertilizer from your livestock and put it on the garden to help enrich the soil. Many people suggest using geese for weeders and chickens to go after the bugs. It's been our experience that geese would rather eat the lettuce than the weeds growing next to them, but the chickens do a good job at keeping the bug population down. They do scratch, however, and might redistribute newly planted seeds, so you'd best keep them out of the garden area until plants are well established. This also keeps them from eating your corn seeds and other treats.

Be sure to check restrictions on your property. For example, you may not be permitted to locate any buildings within so many feet of a property line. Plan the layout with consideration for the neighbors, to help keep peace in the neighborhood. Of course, some neighbors are easier to get along with than others. Some don't mind the "country air" as much as the noise, which can be pretty loud at feeding time. Install fences that keep your stock where they should be. The first time your goat gets into the neighbor's flower bed could cause the last peaceful communication with the neighbor.

Consider a compact setup to allow as much room as possible for grazing. It might not be a bad thing to carry water 150 feet to the goats in the summer, but when it's below freezing and you're already cold, you might be

tempted to give them less than they need.

Old homesteads in the Northeast had connected buildings, so that in severe weather there was no need to go outside at all. This offers some unusual solutions, but also creates some problems. The biggest is the risk of fire, particularly if hay is stored in the barn. A fire in the barn could quickly spread to the house, or vice versa. Another issue is the increased chance of pests (such as flies or mice) coming into the house. Planning ahead and talking to people who have had such structures is the best way to find out the disadvantages so you can work on eliminating the problems if you like this type of structure. Another possibility is to have an attached area for small stock, with the larger stock in another barn away from the house.

Idea books

There are many books available to give you different ideas and perspectives for planning your homestead. Here are some of them:

Big House, Little House, Back House, Barn, by Thomas C. Hubka, \$21.45. The history and cultural significance of the connected farm building tradition of New England. Small Farmer's Book Service, P.O. Box 2805, Eugene, OR 97402

Horse Barns Big and Small, by Nancy W. Abrosiano and Mary F. Harcourt. Horse barn designs and considerations; could be adapted to other barns or combination barns. Breakthrough Publications, 310 North Highland Ave., Ossining, NY 10562

The "Have More" Plan, by Ed and Carolyn Robinson, \$7. Enterprise and planning for the homestead for self sufficiency. Good ideas for sun porches for turkeys, small hog setup, and more. Lots of good information. Prices are different now from when it was written, but the information is just as good. Storey's Books for Country

Living, Dept 60, P.O. Box 38, Pownal, VT 05261-9989

Building Small Barns, Sheds & Shelters, by Monte Burch, \$11.65. Planning barns, shelters, sheds. Storey's Books, address above.

Fences for Pature & Garden, by Gail Damerow, \$14.95. Choosing, planning, and building fences. Storey's Books, address above.

Buildings for Small Acreages, by James S. Boyd, \$22.60. This is 289 pages of plans with materials lists for farm, ranch, and recreation structures. Storey Books, address above.

These books are just a start, and some might be at your local library or book store.

May your homestead be productive and a joy to your family. Plan now for lasting success. Δ

A BHM Writer's Profile: Steve Anderson



Steve Anderson is 46-years-old and has been married 27 years (to the same person the whole time). For the last 21 years he has lived, gardened, worked, and raised four kids in the small central Maine town of Charleston. For 10 years he and his wife owned their own business, a retail food/restaurant, but for the last four years he has spent most of his time as a freelance writer and outdoor photographer.

Follow these eight easy steps to a successful eggplant harvest

By Michael Clayton

The following methods can be used with a variety of crops. The information is very detailed for the first time gardener, but it contains a specific method which may be of interest to the seasoned gardener.

Step one. Selecting the variety is fairly simple with eggplants. You choose either purple or yellow (the yellow eggplant's fruit is green when harvested), long and thin or egg shaped, depending on personal choice, and a long or short season variety depending upon the length of the growing season in your area. If you are going to save the seed, do not choose a hybrid variety.

Step two. To prepare the soil for indoor planting, mix four parts topsoil with one part cow manure and add some peat moss. Make sure that the cow manure is well decomposed. Mix the soil and other ingredients well and put into containers.

Step three. To plant the seed, about six weeks before time to transplant (you transplant when the weather is warm and all danger of frost has passed), take the seeds out of their container and get the containers with the prepared soil. Take a pencil or your finger and make a hole 2½ times deeper than the seed's length. Put three or four holes per container. Place a seed or two in each hole. Cover and pat down gently, then water. To speed germination time, place in a sealed plastic bag. Check every few days for germination.



Step four. When the seeds come up, remove them from the plastic bag and place them in a warm, sunny location. Water as needed. Warning: Do not over-water or the plant stems may rot. In about four weeks, thin to the strongest plant in each container.

Step five. When the weather outside is warm and all chance of frost has passed, pick a sunny location, clear it of trash and cut the weeds, then dig up the area, removing the remaining weed parts. The digging can be accomplished either by tilling or by digging with a shovel. Make sure that all large clods are broken up. Take a garden rake and rake the area level, removing any remaining trash.

Step six. To transplant the eggplants, dig a hole two feet by two feet and about two feet deep, or you can dig a trench if you want. Place in the hole two shovels of cow manure, two shovels of compost, one shovel of wood ashes, and a handful of lime. Place the soil back into the hole and dig in the ingredients until you can no longer see the added components in the soil, then rake it level. If planting directly outdoors, see step three.

With a trowel, dig a small hole slightly larger than the soil ball (the soil in the planting container). Fill the hole with water and let it soak in. Water the eggplant in the container and then remove it. Place it in the hole and cover slightly above the soil ball.

If you goof and a cold snap is coming, take a clear two- or three-liter plastic cola bottle and wash it out. Cut it so it will fit over the eggplant and remove its cap. Place the bottle over the eggplant with the edge of the bottle cutting slightly into the ground.

Step seven. Harvest the eggplant fruit when they are the size that you desire but have not yet changed color. If purple ones have brown stripes, or if yellow ones are turning yellow, they are no good.

Step eight. To gather seed, wait until the eggplant fruit have changed color. If you are not sure, just let them fall off the vine: then they are ready. Cut the eggplant fruit lengthwise into four equal parts and remove the seed. Place the seed on a pan or paper. (The seeds will probably stick to whatever you dry them on, so keep that in mind when choosing the surface.) Do not dry the seed in the oven, because the heat will kill it. After about a month of drying, place the seed in a sealed container, such as an envelope. Note: When you let the fruit mature, the productive energy of the plant will go down, so you need to use only one or two plants for seed production. Do not save the seed of a hybrid. Δ

Tobacco has some uses that might surprise you

By Rev. J.D. Hooker

Before I actually get started here, I'd like to say something: I really hope that no one takes this article as my encouraging anyone to take up tobacco use. If you don't already use it, you'd be so much better off never even to try it that you'd be absolutely stupid to start.

However, I'm sure that many readers of this magazine are already regular tobacco users, and tobacco has some other, very good uses. So I'd like to pass along some of what I've learned about growing it and using it on the homestead.

While anyone who tried telling you that homegrown tobacco was *good* for you would be a liar, I honestly think that it might be less unhealthy than the commercial product. If you watched any of the televised documentaries about the tobacco industry, or read any of the stuff all over last year's newspapers, I'm sure you're well aware of the tremendous number of additives put into cigarette tobacco. Some of them are sufficiently poisonous to be illegal as food additives. I'd say we can safely assume that cigars, pipe tobacco, snuff, etc., are just as "chemically enhanced."

I can definitely tell you that homegrown tobacco is much healthier for your wallet than any similar commercial product. For less than the cost of a single pack of cigarettes or pipe tobacco, you can purchase a packet of seeds and grow a whole year's worth of tobacco.

Even folks who'll never consume any form of tobacco might want to consider putting in a row or two of this versatile plant. It has some pretty valuable uses, aside from human consumption, and it's even an attractive ornamental.

It's a wormer...

Long before I'd ever considered trying to grow my own, I'd heard many older farmers recommending tobacco as being highly superior to any commercial wormer for every sort of livestock. In fact, the US Army Special Forces Medical Handbook recommends tobacco for human use as an antihelminthic (worm expeller) if standard medicines aren't available.



For myself and other folks I've talked to who've tried this, feeding a couple of large leaves (or an equivalent amount of shredded stems) each month to each hog, goat, cow, pony, or whatever really does seem to eliminate any problem with internal parasites.

With severe infestations, this sometimes needs to be repeated every few days for a while. Still, this treatment seems much less severe, with fewer debilitating effects, than commercial wormers. As a preventive medicine, a couple of large leaves every month or so not only works great, but the animals act like it's a terrific treat. Goats, cows, and such seem to have a strong liking for tobacco. (Cats and dogs and other carnivores don't seem to agree.)

Serious overdosing seems close to impossible using tobacco as a wormer. About the worst I've ever seen happen has been an occasional bout of temporary diarrhea.

...it's a pesticide...

Brewed into a strong tea-like solution and poured or sprayed on and around garden crops, fruit trees, rose and berry bushes, etc, tobacco is also about the best herbal pesticide there is. If you have any sort of insect problem, your own homegrown tobacco can offer as good a solution as any expensive commercial product. (If you consume your tobacco leaves, I've found the woody stems and stalks just as effective for this.)

Recipe: Add two ounces of dry (or three ounces of fresh) tobacco to a gallon of boiling water. Remove from heat and allow to steep several hours, or overnight. Strain, pour into containers, and cover. Spray or mist plants lightly as needed.

...and it's a bug bomb

Here's another thought to consider when deliberating whether to put in your own tobacco crop. Many years ago, lots of Native Americans would toss a handful of tobacco atop a pile of glowing coals. Burning like incense, the tobacco smoke would permeate their dwelling. In their belief, this helped drive out any "evil spirits" that might be present. Given the insecticidal, germicidal, and other properties modern science has shown to be present in tobacco smoke, they were absolutely right (if you consider germs, bacteria, and insect "vectors" as "evil spirits"). You might want to try this should the need arise; it's cheaper than disinfectant or bug bombs and just about as effective.

Grow your own

If any of this has given you an interest in growing your own crop of tobacco, there are a few preliminary steps you'll need to go through to get started.

First you need to find a source for tobacco seeds. I haven't run across very many garden catalogs that even offer tobacco seeds, while the few that do normally carry only a single variety. But here's a source where they carry quite a few tobacco varieties, as well as an array of other Native American type seeds:

Native Seeds/SEARCH
2509 N. Campbell Ave. #325
Tucson, AZ 85719

Write and ask for a copy of their seed listing. We plant some of each tobacco variety they carry every year. You'll most likely find some corn, vegetable, or grain varieties you'd be interested in trying in their listing while you're at it. (Their Santa Domingo Blue flour corn is something else I highly recommend.) NSS is an organization that I heartily endorse. They've preserved a considerable number of useful and valuable seed varieties that would probably have been lost to us without their efforts. (If you are of Native American descent, you'll want to check out their discounts.)

Preparing beds

Anyway, once you've obtained your seed supply, you'll need to prepare some planting beds. All tobacco varieties will cross very readily, so unless you won't mind buying more seed every year, you'll want to keep the types as widely separated as possible.

I like to get my tobacco beds ready the preceding fall. I work large quantities of manure, leaves, grass clippings or spoiled hay, compost, and wood ash thoroughly into the soil. You don't ever want to plant tobacco in the same place two years in a row, nor should you follow tomatoes, peppers, or pota-

toes with it, since the few diseases and organisms that attack tobacco plants can winter over from any of these. Because of their nitrogen-fixing abilities, any type of bean or pea makes a good crop to precede tobacco.

Start your tobacco seeds indoors, in pretty much the same manner and at the same time as you would tomatoes. The seeds are almost as fine as dust, so I use a pair of tweezers to pick up just a very few at a time for planting. Once the final frost date for your area has passed and the soil is well warmed up (about a week after you'd put out tomato plants), your tobacco seedlings are ready to be planted. Space them about three feet apart in rows four or five feet apart. Mulch very heavily, both between plants and between rows, as the young plants can't compete well with weeds.

“2nd batch” manure tea

Once a week, through the entire growing season, I feed the tobacco crop with a “second batch” of manure tea. Here's what I mean: Fill a feed sack about 1/2 full of manure and tie it shut. Place this in a 55-gallon drum, fill it with water, and allow it to steep overnight. In the morning, use this first batch to feed some other garden crop. Then, using the same manure and fresh water, steep overnight once again. This milder “second batch” seems to work wonders for tobacco. The somewhat depleted manure then gets added to the compost pile.

You'll find that flower buds start to form at the tops of the plants. The first time this occurs, select a few of your best looking plants to let flower and go to seed. Keep the buds trimmed off of all the rest, as this forces more of the plant's energies into producing more and larger leaves.

Harvest and cure

After a while, you'll notice a few leaves at a time yellowing and starting to die off. As each leaf yellows, trim it

off. Tie these leaves in bundles and hang the bundles in a dark, moist place (a root cellar works well enough) to “cure.”

Wait at least a couple of months if you intend the tobacco for smoking, then shred one of the leaves and try it out. If the flavor seems pretty good to you, your tobacco's ready to use. If it doesn't seem very good, let it mellow by curing longer. Keep sampling it occasionally until you decide it's just right for your own taste.

As the leaves cure to my liking, I shred them up and pack them into half-gallon canning jars. Adding a thick slice of apple or pear to each jar helps the tobacco stay moister and fresher. These fruit slices need to be replaced every couple of weeks. Since not all of your tobacco will finish curing at once and you'll be keeping the jar lids screwed on, you should find your homegrown supply keeping in pretty good shape for a year or more.

Stalks, stems, and whatever leaves that aren't just perfect go through our chipper/shredder for use as livestock wormer, pesticide, etc. If you're only interested in growing tobacco for these purposes, you can just put the entire plant through the shredder.

I'm not sure of all the laws regulating tobacco, but I wouldn't recommend trying to sell any of your homegrown smoking or chewing tobacco. For your own private use, though, whether you're stuffing a pipe or worming a herd of goats, I don't believe you should run into any problems, as long as you're over 18. Selling or giving away tobacco seeds to other adults is OK so far, as well.

If the present governmental assault on the tobacco industry, along with all of the deadly-sounding adulterants, the skyrocketing prices, and the Surgeon General's warnings, haven't been enough to convince you to give up tobacco altogether, why not try growing your own? If nothing else, you'll know that it's additive free and you'll save yourself quite a bit of money. Δ

Whose garden is this anyway?

By Michael J. Tougias

The sugar peas had recently flowered, and now the pods were approaching the two-inch mark. Fledgling cabbage, kale and lettuce plants were green with promise; spinach and beets were on their way. But when I rushed to my garden after a day in the city, I found only stems sticking out of the ground like so many dragons's teeth.

It had to be a woodchuck. No rabbit systematically works his way down row after row, leaving only the nub of a stem in his wake.

My first defense was to erect a fence. It cost about \$50 and took a few hours to build, but it was a small price to pay to protect my crops. And it worked, for all of two days. Then the woodchuck, also known by the fitting name of groundhog, tunneled under the chicken wire and sheared off the cabbage and kale. From there he moved on to the spinach, beets, eggplant and parsnip greens. I asked a local fanner for advice. He chuckled and said a groundhog could go over a fence as well as under one. He suggested I buy a humane, "live" trap, saying, "I guess woodchucks need to eat like the rest of us; after all, they're as much God's creatures as we are." Then he added, "If you do catch 'im, make sure you kill him; I don't want him coming over here.

I bought the trap, an expensive investment at \$60, but it worked-on a skunk. I never used it again.

My garden still held peppers, beans, squash, tomatoes and strawberries. It was a far cry from my original bounty, but worth protecting, so I escalated from defense to offense. Groundhogs make their burrows with two entrances so they have a handy escape route should a fox enter their home. It didn't take long to find an entrance.

While I examined it, the hog himself came barreling down the hill and disappeared into the second hole no more than 5 ft. away from me. I hadn't expected my adversary to act this way or to be so large. He was much bigger than my neighbor's cat, grown fat, no doubt, on lettuce, cabbage, beans and my beloved sugar peas.



Now that I'd found his base, I began my attack. I put mothballs and rags soaked in ammonia down the hole to drive him out. They didn't work. I tried sealing the hole with boulders. He pushed the small ones aside like petty worries; the big ones he dug around. And always he was eating. My well-nourished enemy grew not only larger, but bolder, too. One day I sat under our maple and looked out at the pitiful remains of my vegetable garden—decimated tomatoes, trampled strawberries and a few lonely squash. The hog emerged from the woods, sniffed the air and bounded toward the garden, stopping only when I threw a rock at him. I chased him into his hole, grabbed the biggest boulder I could find, and pushed it into the entrance. And stepped on a hornet nest.

It was psychological warfare, and the short, furry guy was winning. My mental outlook was as desolate as my garden. I thought about the chuck constantly; even at work. I envisioned him back in my garden and wondered which plant of mine he was devouring. Friends asked for a daily "groundhog report," and when I got home in the evening, I greeted my wife with

the same terse question: "Did you see him?" By now my garden looked like the Sahara, and I'd been pushed to my limit. I didn't care anymore about a kinder, gentler garden with a picturesque fence separating his territory from mine in a microcosm of peaceful coexistence. I didn't care anymore about humane trapping. I didn't even care to drive him out of his happy home with ammonia and mothballs. This was war, and I was taking no prisoners. I wanted him, and I wanted him dead.

Shooting the critter was out of the question since I lived in a suburban setting, but I had another weapon in my arsenal—bombs. Yes, bombs. My local farm and garden store carried rodent smoke bombs complete with fuses and detailed instructions. The trick was to drop the bomb into the hole and then cover the opening with dirt so the noxious fumes would asphyxiate the groundhog. But I forgot to seal the exit hole, and the fumes escaped. On my second try, I sealed the hole but extinguished the bomb with the dirt. But the third time ... ah, sweet success. Days went by, and not a woodchuck in sight.

A week later, as I sat under my maple tree, lord of my acre once more, a movement caught my eye. And there he was, my nemesis, perched like a squirrel with lunch in his paws. He had the last laugh; right beneath the tomato plants was the entrance to yet another burrow.

Well, at least I'm in good company. Thoreau had problems with groundhogs at Walden Pond. Commenting on his bean patch, he lamented, "My enemies are worms, cool days, and most of all woodchucks. I plant in faith and they reap." Walter Harding, in his excellent biography, "The Days of Henry Thoreau," tells us that Thoreau became so exasperated with the woodchuck that, "Abandoning his not-too-strongly-held vegetarian principles, he trapped, killed and ate it as a culinary experiment."

Don't tempt me. Δ

For some surprises in your garden, grow potatoes from seed

By Craig Russell

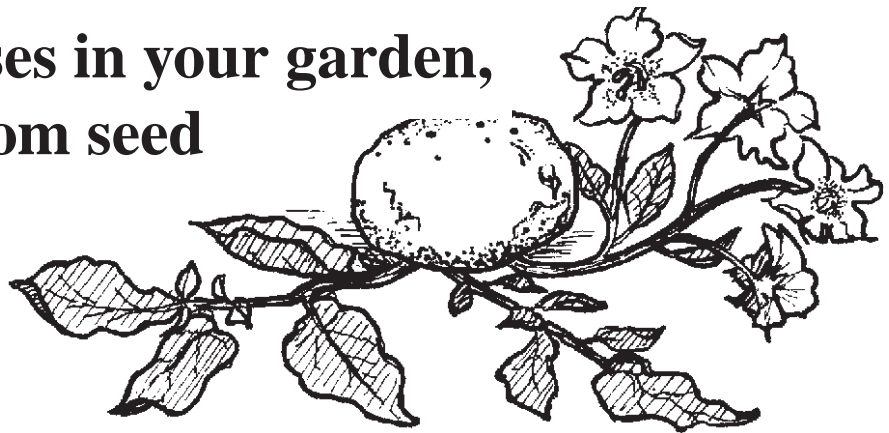
The underground tuber of the potato plant is the modern world's most important vegetable. In the garden, potatoes are normally grown by planting small potatoes or cutting larger "seed" potatoes into sections, making sure that each section contains an "eye" or sprout, and planting these.

Despite the fact that everyone is familiar with potatoes, and many people have seen their white-, pink-, or purple-petaled flowers with yellow centers, many gardeners seem to be unaware of the small, green, tomato-like fruits these flowers can produce.

As a result, every few years another article shows up about someone's potatoes and tomatoes "crossing." While the two vegetables are related, and both are members of the nightshade family, they do not cross, or hybridize. However, the seeds from potatoes can be grown like tomatoes, often with surprising results.

Wild potatoes are found in South, Central, and North America. The majority come from the cool regions of the Andes and the west coast of South America. The domestic potatoes are certainly hybrids, and botanists have traced their closest relatives and what they believe to be the bulk of their ancestors to central and southern Chile. Wild potatoes and even domestic varieties from the Andean area are much more variable in shape and color than the typical round or oval white-fleshed domestic types common in the rest of the world.

However, these variable types have contributed to the genetic makeup of our modern potatoes, which are seldom genetically pure. Modern potatoes maintain their characteristic type only because they are reproduced veg-



etatively (as described above), not from seed. Seeds which result from pollination reshuffle the genes, and when planted can result in tubers quite different from the parent types. Other characteristics such as flower color may also vary.

If you try the methods described in this article, and one or more of the resulting plants produces potatoes you like, save some of the tubers and plant them like other "seed potatoes." In this way, you can actually start your own varieties. Besides the typical potatoes, you may get flat and wavy or even odd and grotesque tubers. Even those that aren't very practical can be fun.

Seeds from a patch of a single variety may produce considerable variation, although most will show at least some similarity to the parent type. Still, I've had several shapes and skin colors and yellow- as well as white-fleshed tubers from seed collected from a patch of typical roundish, brown-skinned, white-fleshed potatoes. The greater the diversity of the possible pollinators, the greater the possible variation of the offspring. With seeds collected from a patch containing brown-, red-, whitish, and blue-skinned potatoes of several shapes, and with blue- and yellow-fleshed as well as white-fleshed tubers, the variation has been astonishing. Not only were the original characteristics reshuffled, purple skins and white-fleshed potatoes with red or blue tints were added, and unusual shapes were rather common. I can't

make any promises on what you will get, but waiting to find out is part of the fun.

While some gardening books suggest pinching of the flowers or fruits of a potato plant to prevent their drawing energy away from the tubers, I've never found this to be a problem. As far as the fruits go, looking around the potato patch late in the season will probably reveal some, but many of our modern potatoes seem to have been selected for not being very prolific in terms of fruit production. Some of the plants I've grown from seed are much better in that respect, with almost every flower producing a fruit. In any case, you may be able to improve production by giving the pollinating insects a hand. Use a brush or some soft feathers to transfer pollen from one flower to another when the potatoes first bloom.

When the fruits are ripe (they stay green but become lighter colored), open them and squeeze the seeds onto a paper towel. When dry, this may be marked, wrapped, and stored until spring, or the seeds may be removed and stored in an envelope or a small plastic bottle.

Note: Do not eat the fruit. They look like tomatoes, but *like all above-surface parts of a potato plant, they are potentially toxic.*

In the spring, start the seeds in flats or peat pots like tomatoes or peppers and when well started transfer to the garden. You too can have some real "seed potatoes." Δ

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My view

The age of misinformation

Recently I exhibited this magazine at a three-day Natural Health Show in Pasadena, California. The show, according to its sponsors, was meant to educate people about natural alternative approaches to health and healing, which is not a bad goal. The show, however, was anything but educational. It was largely an exercise in disinformation, with many vendors handing out phony documentation backing up exaggerated health claims for their products. The products ran the gamut from cures for cancer to water that would help the drinker live for 100 years.

In many respects the show was no different than the environmental and New Age shows I've gone to in the past. These shows too are largely platforms for charlatans to expound theories based on nonsense and to sell solutions based on pseudoscience. The most bizarre of the shows are the New Age affairs, where serene-looking people parade around with metal triangles over their heads, claiming to be communing with the cosmos. People at these shows are into exploring their inner and outer selves, their consciousness and unconsciousness. They like to talk in generalizations about how modern man must get beyond modern science and achieve harmony with the energy of the universe. Psychics and modern day holymen abound at these shows.

If you'd like to see a first hand example of what I am talking about, go into almost any bookstore and examine the plethora of books dealing with miracle cures, spirituality, and cosmic consciousness. They are not sold as science fiction, but as factual how-to descriptions of how the world really works. For those of you who understand the value of real science, that is, the science that has given us modern medicine and things like automobiles, airplanes, and computers, a close examination of this fantasy science may make you laugh. There must be a lot of stupid people out there, you might say.

It may be stupid science that these shows and books are full of, but I am meeting an alarming number of not-so-stupid people who seem to believe in some of this stupid science. Just the other day a friend of mine, who dreams of one day travelling to other star systems much like the actors on Star Trek do, started telling me that mankind must rethink science so it can get beyond the limitations of present day science.

I asked him what he thought science was, but he beat around the bush with generalized explanations until I realized he couldn't tell me. When I tried to explain to him that science isn't some theory you reinvent, that it is a method that allows you to discover the way the real world around us works, he protested that I was thinking about science in an

old fashioned way, that the only way mankind was going to advance, both physically and spiritually, was by reorienting our thoughts towards a new reality.

This type of mumbo jumbo made no sense to me, and I realized it was the same type of mumbo jumbo spouted at the shows and in the New Age books. The only thing that was different was that it was being uttered by someone who I thought had both feet on the ground.

The popularity of these charlatan shows, the New Age books, and the mumbo jumbo explanations they put forth to explain their version of reality are, I think, part of a sad epidemic that is gripping much of modern society—a reliance on information that has nothing to do with reality. It is as if the clock is turning backwards to more ignorant times when superstition ruled the world. The shows and the books, in a very real sense, are a rehash of the ancient religions and cults that once drained off much of mankind's mental resources while doing nothing to improve the lot of people.

I think it is important for all of us to keep in mind that science is not some religion that has become popular during the last 300 or so years, ever since Englishman Robert Boyle and others began using the scientific method to discover how the physical world works. Science is not something you reinvent to suit your view of the world; it is simply a method of discovering how the physical world works.

Science is based on the scientific method, which demands that theories be subjected to verifiable experiments. The scientific method can be practiced by Christians, Buddhists, Hindus, Muslims, Jews, atheists, and agnostics. A Buddhist in New Delhi performing the same experiment in organic chemistry as a Christian in New York will get the same result. It's not a matter of opinion; it's a matter of verifiable fact.

It is this scientific method that has made possible all the modern technological inventions and discoveries of mankind, from vaccines for disease to increased ways to pull food from the soil to virtually every convenience in your house that turns on with the flick of a switch. The discoverers and inventors of these wonderful things run from Louis Pasteur to Jonas Salk, and they all used the scientific method. Name me one new age mystic who has done anything other than line his own pockets with other people's money?

This modern day reliance by so many people on this new conglomeration of fantasy sciences is disturbing because it represents a giant leap backward for society. The scientific method is the greatest invention since fire, and we can't turn our back on it now. There are more problems to be solved and they are not going to be solved by some New Age prophet pretending to commune with the cosmos.

This issue of *BHM*, which contains many how-to articles about building your own home, contains more real science than all the New Age books put together. Δ

Make your own lumber with a chainsaw mill

By Jacqueline Trestl

Diagrams by Mark & Jacqueline Trestl

These are trying times for those of us who need to buy lumber. The prices of good boards are at an all-time high. The E.P.A. is shutting down the mills that make plywood. The timber companies have less old growth forest to choose from. Most of the affordable timber is being cut from new-growth pine. In the Midwest, the standard 2x4 is made primarily from spruce. Boards made from cherry, oak, or poplar are expensive. The easy solution to this lumber crisis is for the woodworker to make his own boards from the trees of his choosing.

There are many methods for making boards from trees. Most of them require costly equipment or contracting out the work. The portable sawmills that will make boards in the back yard cost several thousand dollars. If the back-yard woodsman chooses to cut down his own trees and send them off to the mill, transporting the trees to the mill and bringing the finished boards back home is expensive.

The affordable and practical solution for the carpenter who needs lumber is to make his own boards at home with



Milling a board with a chainsaw lumber-maker

his chainsaw. With a large saw and a special device fitted onto the chainsaw bar, any kind of board can be made for just pennies. This device, known as a chainsaw lumber-maker, will mill through any tree, no matter how large or tough, making boards of any length or thickness.

The construction of a chainsaw lumber-maker requires a bit of steel and pipe and a few bolts (Figure 1). To make the mill, a rectangular frame, slightly shorter than the length of the

chainsaw bar, is welded together from square and channel steel stock.

Once the frame is welded, two recesses need to be ground into the centers of the channel stock pieces which make up the two short sides of the rectangle (Figure 2). In these recesses, two pieces of half-round pipe are welded into the channel stock. These half-round pieces will act as sleeves to accept the two pieces of whole round pipe. The round pipe will be adjusted up and down according to how thick the miller wants his board.

Next, two short pieces of square tubular stock are welded onto the ends of the whole round pipes. These short pieces should be four inches longer than the width of the chainsaw bar. To make the square stock stronger, reinforce it by welding a 3/8" steel plate onto the center of the underside of the short square tubular stock. Then, from the center line, measure an equal distance out from both sides and drill holes using a 5/16" drill bit to provide for a 3/8" tap and bolt size. Drill through the plates and the one side of

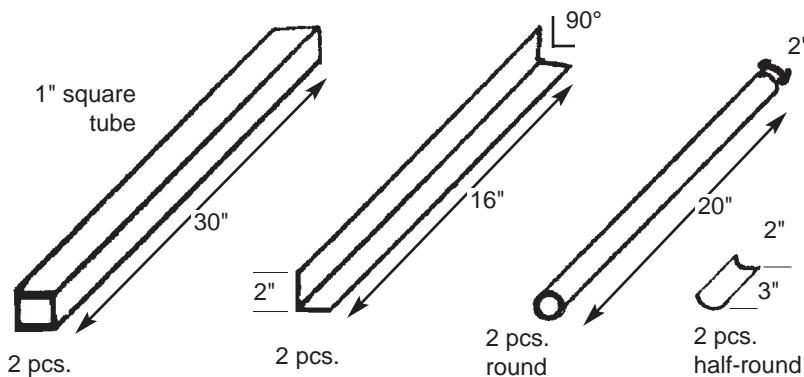


Figure 1: The pieces

the square stock as shown in Figure 3. These pretapped steel plates will act as the bolting surface for the chainsaw's bar.

In order to bolt the welded frame onto the bar, remove the chainsaw's body from the bar. Drill four holes, two on each end of the bar, centered to match the pretapped holes on the reinforced square tubular stock. Bolt the mill onto the chainsaw bar through these reinforced holes by using four $\frac{3}{8}$ " machine bolts. Then lower the rectangular frame onto the round pipe which is welded onto the short square tubular stock which is now bolted onto the bar. With the mill bolted onto the bar (Figure 4), the bar is put back onto the chainsaw body.

The rectangular frame can now be adjusted up and down to set the thickness of the milled board. To make these adjustments, two muffler clamps, one above the other, are placed around the half round and the whole round pipe (Figure 5). To set the correct measurement for the sleeves, measure from the chainsaw bar to the part of the rectangular frame that rides against the log (Figure 4). By loosening the clamps, the round pipe can be moved up or down to adjust the board thickness. Once tightened, the clamps will keep the pipe from moving up and down while milling. This enables the miller to make boards of uniform thickness.

Note: Not all chainsaws are suitable for a mill attachment. The chainsaw engine must be at least five cubic inches. The style of the saw must be such that it can be refueled in the milling position, with the bar parallel to the ground. The saw must have a 30" bar or longer. The longer the bar, the wider the boards that can be milled. A 36" bar will mill boards 24" wide. The chain must be chisel style and be ground square with a hook angle of 40 to 50 degrees.

Before lumber-making can begin, one side of the tree to be milled will need to be made flat. This initial cut is different from all subsequent cuts,

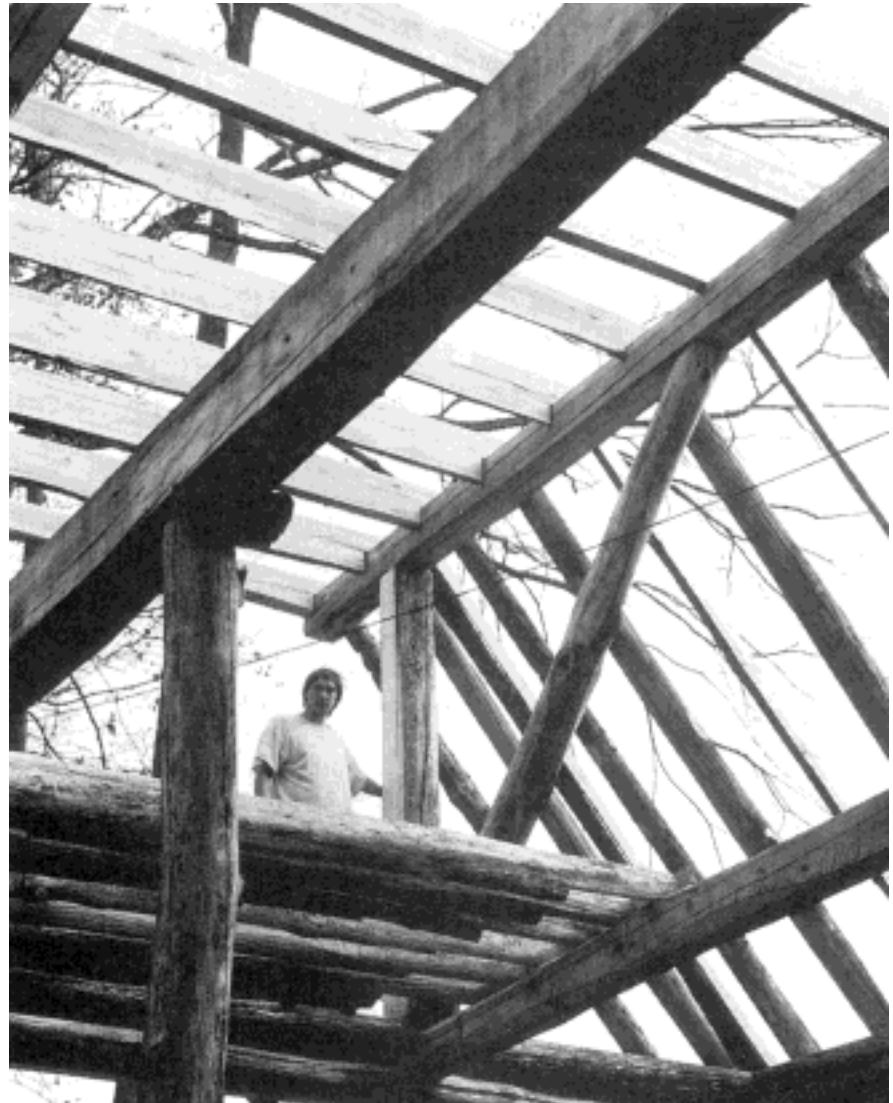
because the mill must first have a flat surface to rest on. This beginning cut is made with a *starter board*.

A starter board is a board at least ten feet long with steel sides running the length of both sides of the board (Figure 6). The length of the starter board determines the length of the boards that can be milled. A ten-foot starter board is the best length for most situations. The board is two inches thick, and the channel iron running the length of it will act as a guide for the mill to be pushed along. Once the initial cut is made, the top surface of the log will be flat, and the starter

board won't be needed again until a new log is started.

A starter board will last for years. If three or four ten-foot starter boards are made, they can be set end to end and a 30- or 40-foot tree can be milled, providing lumber long enough to make beams. With the chainsaw lumber-maker, any length board is possible, as long as that same length of starter board (or boards) is available.

To mill lumber, the chainsaw is started and then laid horizontally either against the starter board or the flat surface of the log. The bar is guided carefully into the log's end as the



Beams, joists and walls were made with a chainsaw mill.

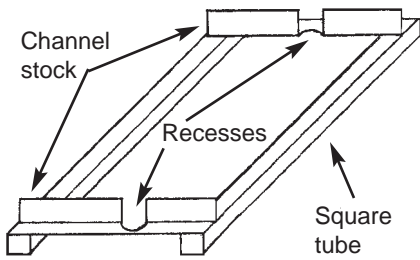


Figure 2: The frame

cut begins. The saw will be easier to guide through the log if the tree slopes slightly downhill away from the miller. The mill only needs to be steadied and pushed gently until it reaches the end of the cut. At the log's end, the throttle is released and the chain eased out.

When milling softwoods, board production is fast. Twenty pine or poplar boards can be milled before lunchtime. With dense trees like locust or elm, milling goes a bit slower, and the chain will need to be resharpened more often. Yellow

poplar is a great choice for backyard lumber-making, as it is a soft hardwood, and its variegated colors make it a superior choice for woodworking projects. Since poplar grows quick, tall, and straight, it has enough strength to carry stress loads, yet mills easily.

Boards milled with a chainsaw lumber-maker are smooth and do not need to be planed. Freshly-milled boards are stacked 20 tall with a one-inch air gap between boards. For the highest quality lumber, the boards should be kept under cover and away from excessive moisture. Lumber made from dead trees can be used in two weeks. Green wood needs to cure at least three months. If the boards are intended for flooring, they can easily be tongue-and-grooved by using a dado cutting blade on the table saw.

The lumber-maker frame itself requires no maintenance. The saw chain needs to be kept sharp, and it will be over seven feet long, so chain sharpening is the most tedious part of

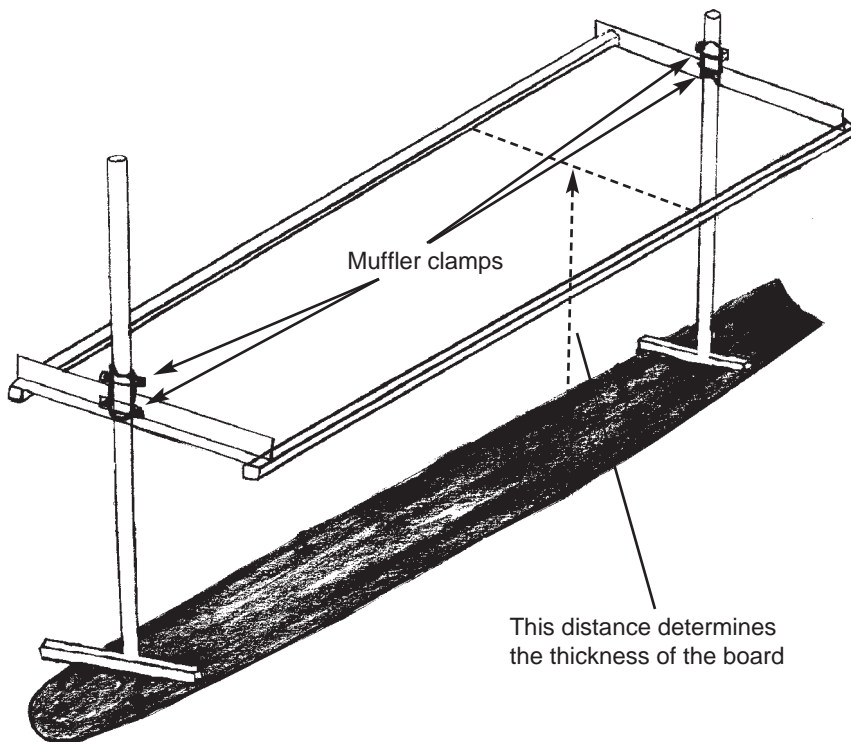


Figure 4: The assembled mill frame is bolted to the chainsaw bar.

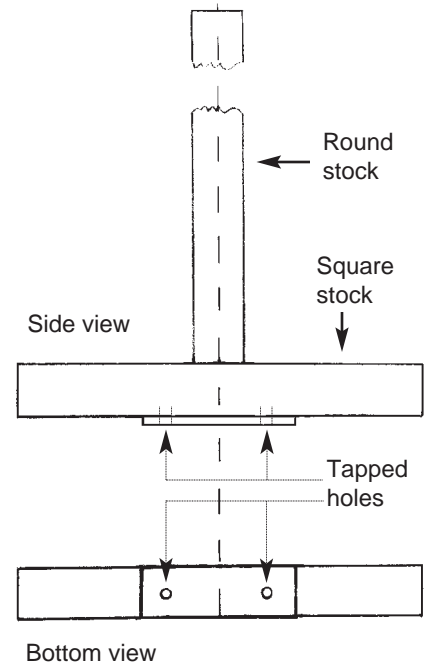


Fig. 3: The surface to which the chainsaw bar is bolted

lumber-making. The chain will need to be sharpened after every eight hours of milling, and a new chain bought after every 5,000 board feet milled. If the trees to be milled are dragged home in the dirt, the chain will get dull much faster.

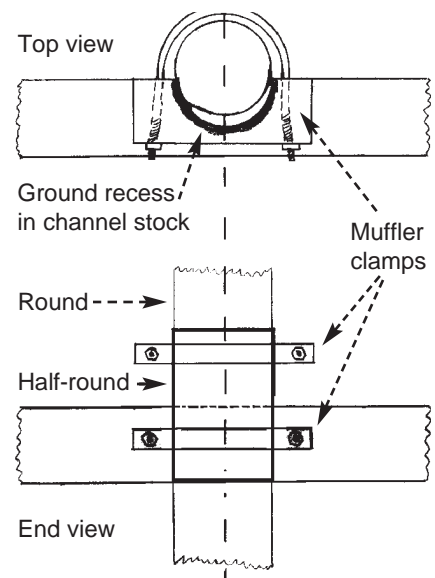


Fig. 5: Muffler clamps hold settings to determine thickness of boards.

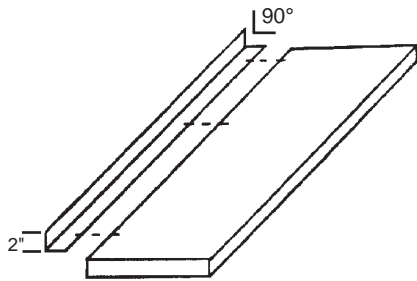


Figure 6:

The metal-edged starter board makes the first cut flat and straight.

The mill is potentially quite dangerous. Good safety measures during its operation are important. Besides the need for safety glasses and ear protection, the miller must never become distracted or take his attention from the mill. Seven feet of rapidly moving saw chain can be lethal.

Once the woodworker owns a chainsaw lumber-maker, he will never need to buy lumber again. Houses can be built from the substructure to the roof just from the trees in the back woodlot. If 12-inch-wide roof beams or 4x4 posts for footings are needed, the lumber-maker can mill two or four sides off of a tree by moving the starter



Starterboard, chain, and mill

board. Logs can be milled flat on two sides to make tight-fitting walls for a log house, leaving less space to be filled in with chinking.

Milling boards from the back yard is great for the environment: it recycles



Guiding the lumber-maker through a cut

unwanted or dead trees, and trees can be cut out selectively, allowing smaller trees to fill in the open areas without clear-cutting an entire forest. Trees that might have been left to rot can be milled into beautiful lumber.

With the chainsaw lumber-maker, the carpenter has unlimited choices of species and size of boards for his projects. The days of picking through crooked, inferior boards at the lumberyard will be over. And no more sticker shock at the cash register over a pile of 2x4s. Backyard lumber-making will save the woodworker hundreds of dollars and allow his creativity to soar. Δ

*I've often wished that I had clear,
For life, six hundred pounds a
year;
A handsome house to lodge a
friend,
A river at my garden's end,
A terrace walk, and half a rood
Of land set out to plant a wood.*

—Alexander Pope
1688-1744

A BHM Writer's Profile: Carole Perlick

Carole Perlick has had a varied work career. She worked as a nurse for 20 years as well as running a grocery-liquor store



for her husband. Carole also managed a 72-unit apartment building in southern California. Since retiring with her husband of 40 years, Carole has enjoyed a new hobby of writing for BHM and currently has a weekly column with a local newspaper. She and her husband live on Copco Lake in California.

Here's a "helping hand" for your chainsaw lumber mill

By R.E. Bumpus

Anyone who has ever operated a chainsaw lumber mill will agree that, while they *do* produce lumber, the amount of physical exertion required can give you second thoughts about the high price of "store bought" boards. This simple, inexpensive, and mobile accessory can make the difference between actually using your mill and leaving it on a hook in the tool room.

All that's required is two lightweight pulleys, one long post and one short post, a five-gallon plastic bucket, and a length of $\frac{1}{4}$ " rope. The rope is strung through the pulleys and the handle of a weighted bucket and attached to the mill frame. The weight of the sand-filled bucket exerts pull on the mill and allows you to operate as

if you had a helper on the stinger end of the chainsaw (see diagram).

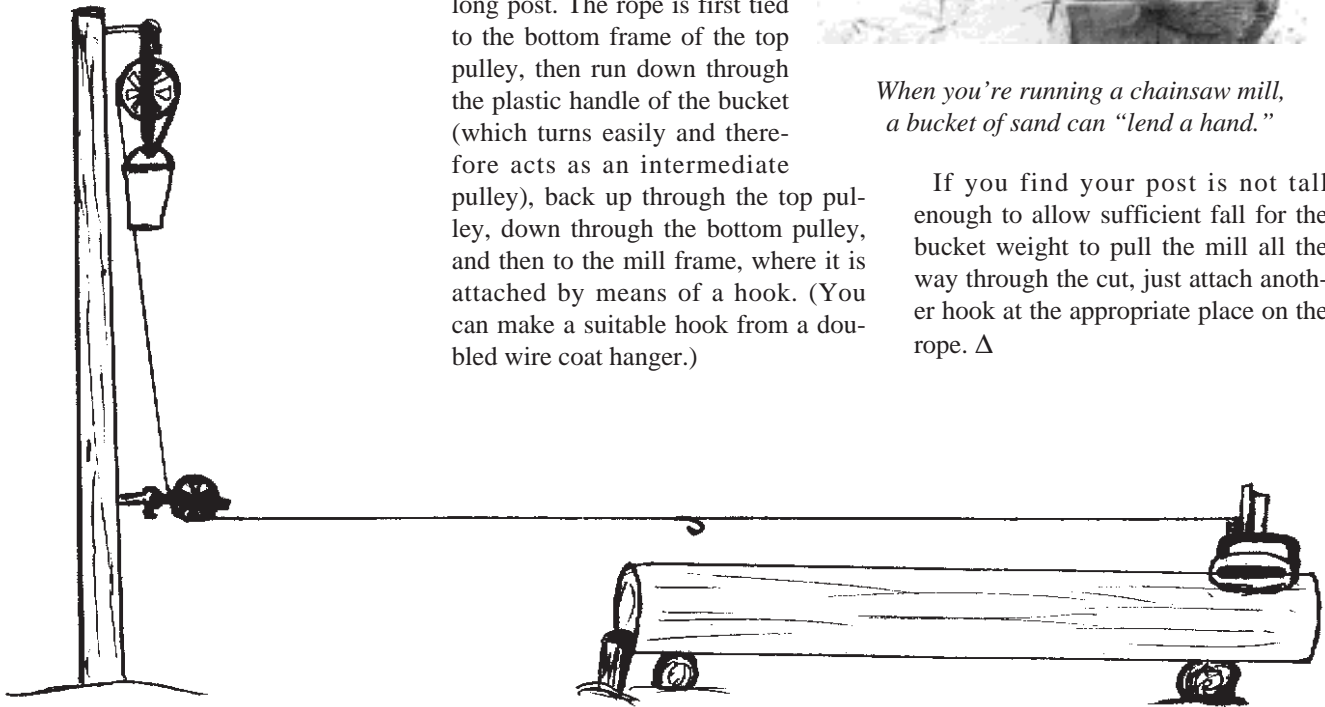
The weight of the sand in the bucket is adjusted to accommodate the variables you'll find in sawing lumber. The type of wood, the diameter of the log, the capabilities of your chainsaw, and the type of cutting chain on the saw all affect speed and ease of producing lumber. Generally speaking, the larger the saw, the more lumber you can produce.

The long post is planted 10 or 12 feet from the end of your saw log. The short post is planted against the end of the log to stabilize the operation. The pulleys are attached to the top and near the bottom of the long post. The rope is first tied to the bottom frame of the top pulley, then run down through the plastic handle of the bucket (which turns easily and therefore acts as an intermediate pulley), back up through the top pulley, down through the bottom pulley, and then to the mill frame, where it is attached by means of a hook. (You can make a suitable hook from a doubled wire coat hanger.)



When you're running a chainsaw mill, a bucket of sand can "lend a hand."

If you find your post is not tall enough to allow sufficient fall for the bucket weight to pull the mill all the way through the cut, just attach another hook at the appropriate place on the rope. Δ



You have to look beyond the building code to create really pleasing stairs

By Skip Thomsen

This article isn't about how to build stairs, or even about the technicalities of designing stairs. There are lots of books available that already do an admirable job in these areas. (See end of this article.)

What we are going to discuss is the *aesthetics* of stairs, and the value of stairs that goes beyond their function of providing a means to get from one floor to another. This is the information that's left out of all the technical books, and it is exactly this information that makes the difference between a technically-correct, code-legal staircase and one that is a work of art and a pleasure to use.

An interior staircase can be the focal point of a room. An exterior stair can light up the face of a whole building.



Photo 1

More often than not, stairs appear to have been designed merely to take up the least amount of space possible or to get them out of sight or out of the way. Many times they appear to have been designed as an afterthought: "Now that we've got a second floor, where are we going to put the stairs?"

A staircase can be so visually inviting that it beckons one to try it out, to see where it leads. Stairs can be interesting and comfortable to walk. A staircase can even be designed to have a landing that affords a unique view of a room or out of a special window. But too often, staircases are basically boring, many are uncomfortable and/or tiring to walk, and some are downright dangerous. Many staircases are even intimidating, by being too steep or dark or narrow.

So what are the ingredients of the perfect staircase? The basic ingredients are safety, comfort, eye-appeal, and visual and functional integration into the design of the room or building. All of these elements are amazingly simple to put into practice.

There are just a few fundamental rules that, when adhered to, will produce a safe, easy-to-walk, comfortable staircase. The visual aspect is admittedly a little more subjective, but there are some basic guidelines that apply here, as well.

Getting started

In new construction, it's fairly easy to design a staircase that meets all these requirements. The real challenge is coming up with a good design when a second floor is added to an existing

building, or an additional staircase is planned for an existing upper floor.

Although I promised that this would be a non-technical article, I'm afraid that we have to start with one technical rule as the basis on which to build all staircases. The most fundamental rule of designing any staircase is the "Rule of 25." It goes like this: any staircase will be safe and easily walkable if the height of two risers plus the width of one tread equals 25 inches. Sounds too easy, doesn't it? But it really works.

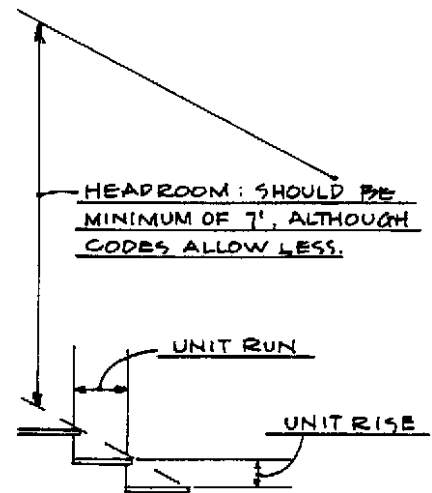


Figure 1

First, let's make sure we are all talking the same language here. *Rise* and *run* are stair-speak terms. *Unit rise* is the height from the floor to the top of the first tread, and/or the height from the top of any one tread to the top of the next one. *Unit run* is the width of each tread, or the distance from the face of one riser to the face of the next one. *Total rise* is the height from the floor-surface to the next floor-surface serviced by the staircase. *Total run* is the length of the staircase, or the combined lengths of all the treads. (See Figure 1.)

The minimum unit rise for a normal staircase is usually 4", and the maximum, except for service stairs (that aren't used often) is 7". Service stairs can go as high as 8", but that is considered a steep staircase. The most comfortable range for the average



Photo 2

staircase and the average person is between 6 and 7 inches.

Techno-stuff

For a staircase to be comfortable to walk at a natural pace, the wider the tread gets, the lower the riser must be. Conversely, the higher the riser, the narrower the tread. For example, to determine the best width for the treads of a staircase that will have a 7" unit rise, use the Rule of 25: $7+7=14$, then $25-14=11$. A staircase with a 7" unit rise will need an 11" unit run (or 11" wide treads) to be comfortable and safe to walk by the average person.

Another example: Let's say you would like to maintain 12" treads (unit run) on your entry stairs. Let's do the math: $25-12=13$, and 13 divided by 2 equals $6\frac{1}{2}$. The unit rise, or the height of each step, will then be $6\frac{1}{2}$ ".

This amazing rule is not just somebody's opinion or an "old wive's tale," either. Try walking various staircases and taking note of ones that are comfortable and just seem to naturally fit your feet and gait. Then measure the rise and run. Now try measuring some that seem awkward. You will find that the Rule of 25 applies every time.

Another detail, and this is one that's covered in every building code (for good reason), is that *each unit rise must be the same*. Different building departments will specify different limits here, but they usually specify $\frac{1}{4}$ " or $\frac{3}{8}$ " maximum variation. Personally, I keep mine within $\frac{1}{8}$ ". It's surprising that such a little variation in step-height can make such a difference in walkability, but it really does. When you go up or down stairs, you automatically adjust your gait for the height of the steps. If you get to one that isn't the same as the rest, you will almost surely trip. Going up, you'll catch a toe on a high step or lose your rhythm on a low one. Going down uneven staircases has caused many people serious falls.

OK, that takes care of the technical stuff. From here we go beyond the technical and venture into the aesthetic and psychological aspects of stair design.

The planning stage

In the design phase of a new building, consider the staircase as an archi-

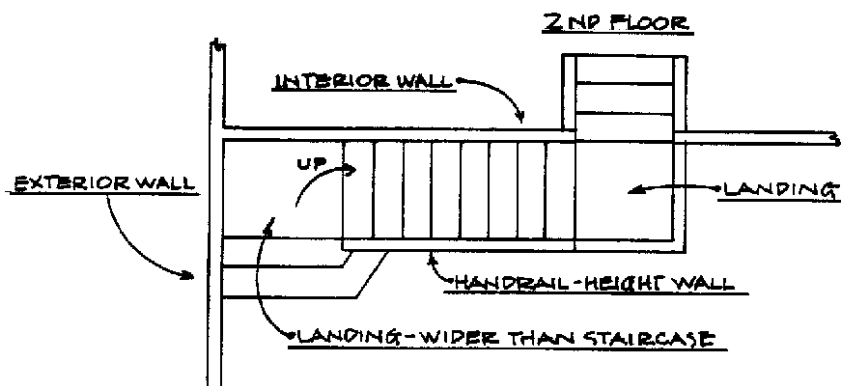


Figure 2



Photo 3

tectural feature of the building. Properly done, an attractive staircase can transform an otherwise ordinary-looking building into a showplace. Exterior, or entry stairs should be inviting. From the first moment they come into view to one who is approaching the building, the stairs should welcome the visitor. From a design point of view, this means that the stairs should not only be gradual and easy to climb, but they must present a gracious invitation.

The easiest way to offer graciousness in most areas of construction design is to make the particular element a little more generous than is absolutely necessary. Sounds simple, but it works. If an entry stair needs to be four feet wide to satisfy code requirements, make it six feet wide. Or wider. Another little detail that almost always enhances any staircase is to make the bottom step or two a little wider than the following ones.

Photo 2 illustrates both these points. First, this staircase, which could have been three or four feet wide and still satisfy legal and safety requirements,

is in fact a little over six feet wide. Look at the picture and imagine it being only three or four feet wide. See the difference? It would have presented an even more inviting face at eight feet wide. Notice that the bottom wooden step wraps around the posts, and the concrete step is a bit wider than the wooden one. The staircase seems to “flow” out onto the ground like the open arms of a waiting and welcome embrace. Adding a feeling of graciousness to a staircase by making the first few steps wider than the following ones works well in most cases, but care must be taken here to avoid making a staircase appear to be “narrowing,” which is distinctly intimidating. The object is to open up the first few steps of an already inviting staircase.

Interior stairs

The same principles of widening the base of a staircase apply to interior stairs. There are several ways this can be accomplished. One of the most effective, especially if the staircase runs down alongside a wall, is to have it turn ninety degrees into the room by way of a landing that is a foot or two wider than the staircase itself. Then the first one or two steps up to that landing are the full width of (or wider than) the landing. (See Figure 2.)

The ninety-degree turn at the bottom of a staircase that runs parallel to a wall has another benefit, too. A staircase is always more inviting if it opens into the space from which its traffic arrives. In other words, the bot-



Photo 4

tom stairs should face into the room serviced by the staircase.

Go that extra mile

Often, designers and builders will keep everything in a building to code minimums to cut down costs. (Guess why tract houses all look the same.) The small extra cost of making a staircase a little wider than required by the building code is soon forgotten, but the convenience, feel, and ambiance it provides is permanent. It's best to avoid narrow stairs in any place where they will be used often. Consider the probable uses of a staircase. Will furniture have to be carried up and down? Appliances? Will there be a likelihood of opposing traffic?

The same thing applies to steep staircases. Most staircases are steeper

than they need to be, and most are that way just because the designer either didn't want to put in the extra effort required to make a more comfortable staircase fit in the same space, or the builder wanted to “keep things simple and cheap.” Often, it does take some extra time and effort to plan the perfect staircase. And it almost always involves a little extra labor and cost to build it. But in my experience of designing and building (and selling) custom homes, it has always been worthwhile. I believe that my staircases have been instrumental in selling my homes. It's not that a buyer exclaims, “Wow! That staircase! I've got to have this place!” What happens is that people are drawn to the overall feel of the place, and even though they don't realize it, the stairs have a lot to do with it.

The width-to-length ratio is one of the most important details to take into consideration when designing any stairs. A long, narrow staircase looks intimidating in most circumstances. If a lot of stairs are needed because of a big elevation change, break up the staircase with landings. Keep each run of stairs fairly short, with about eight steps being a maximum if at all possible.

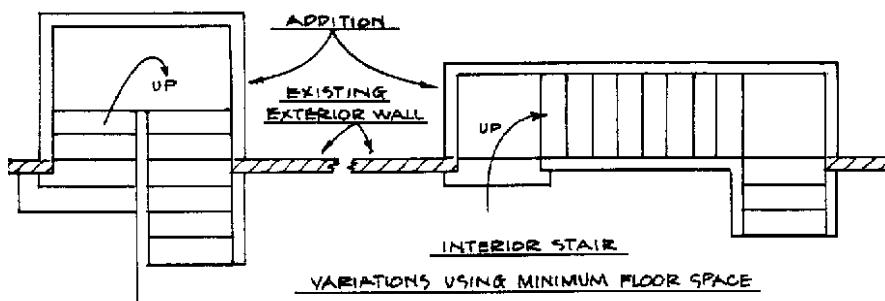


Figure 3

Different styles

Stairs can be open, enclosed, all-wood, carpeted, or combinations of these. An example of a combination approach is pictured in Photo 3. The bottom of this staircase is a three-step-up landing (not shown). From there, the open, wooden run goes to a second landing, from where the remainder of the steps are enclosed and carpeted to match the second floor. The staircase affords several interesting views of the room below (Photo 4).

A lot of the visual interest in this particular staircase comes from the materials and assembly techniques used in the open stairs (Photo 1). The wood is nearly knot-free fir with the exception of the end-caps on the treads, which are dark cedar. The staircase was finished with several coats of high-quality spar varnish. A staircase like this is admittedly very labor-intensive, and a much simpler way would have been to enclose and carpet it all the way. But this staircase was designed not only to be a focal point of the room, but its openness visually subtracted less space from the room.

An example of a fully-enclosed, carpeted stairway, and the visual interest it supplies to a small building, is shown in Photo 5. This relatively small (1400 sq. ft.) home has expansive views like this throughout, giving the feeling of a much larger, more open space. Stairways are the perfect medium to make these views possible.

There are three landings in this staircase, so the whole unit takes up very little floor space, yet the riser heights are a comfortable 6¹/₂". Every cubic foot of space under the staircase has been utilized, too.

Notice the stair lights in some of these staircases. They are inexpensive, and make it possible to illuminate the stairs with very low-wattage lamps. A light is placed near the edge of each landing and in the middle of each run longer than three or four steps.

In some cases, an interior staircase can be constructed outside of the actual building. This technique works in new construction, but is especially well-suited to an upstairs add-on, as no existing floor space is taken up by the staircase. (See Figure 3.) The supporting structure for the staircase can be cantilevered from beneath the building, or it can be hung from the existing wall structure.

An interesting point to keep in mind for second-floor spaces like apart-



Photo 5

ments or offices is that an exterior access to these spaces is not only a convenience, but it gives whoever lives in or uses that space a feeling of autonomy and independence. Having to go through someone else's space to get to your own is often uncomfortable. It's much more pleasant to have your own entry.

Handrails

Another essential ingredient of any staircase is the handrail. The dimensional limits of handrails are spelled out in the technical stair-design books, and are also strictly enforced by the building codes . . . but again, there are other considerations that go beyond

the code requirements. These include not only aesthetics, but thoughtful little details that can make the handrail more than just something to hold onto.

Handrails should be designed to complement the staircase itself and any adjacent trim. When designing a handrail, picture yourself holding onto it and sliding your hand along its entire length. The no-splinters part is obvious, but not so obvious is the ability to run your hand along the railing without hitting the mounting hardware or brackets, encountering tight spots not quite big enough to pass a large hand comfortably and safely, and having the railings start and end so that they fall to hand naturally.

Another very important and often overlooked aspect of designing and building handrails is that they need to be rigid and well braced. A handrail, especially one that is more than a few feet from the ground, can feel very scary if it moves even slightly when leaned upon. Properly done, a railing or handrail shouldn't yield at all under anything that could be considered normal pressure. And for sure it better not fail if someone falls against it (like they always do in the movies).

A very short bibliography

Rob Thallon's [Graphic Guide to Frame Construction](#) has a terrific section on the technical-design aspects of every kind of stairs imaginable. (The Taunton Press, ISBN: 1-56158-040-6) I've been building houses for more years than I can remember, and this book is still my most valuable reference. You can build a frame house from the ground up with just this book as your guide. The text is clear, it is supported by excellent illustrations throughout, and the index is super.

(Skip Thomsen describes himself as a "sort-of-retired designer and builder of one-of-a-kind homes that are individually crafted to be at ease with their immediate environment." All photos, drawings and stairs are by the author.) Δ

Here's a mighty creative way to protect your plants from animals

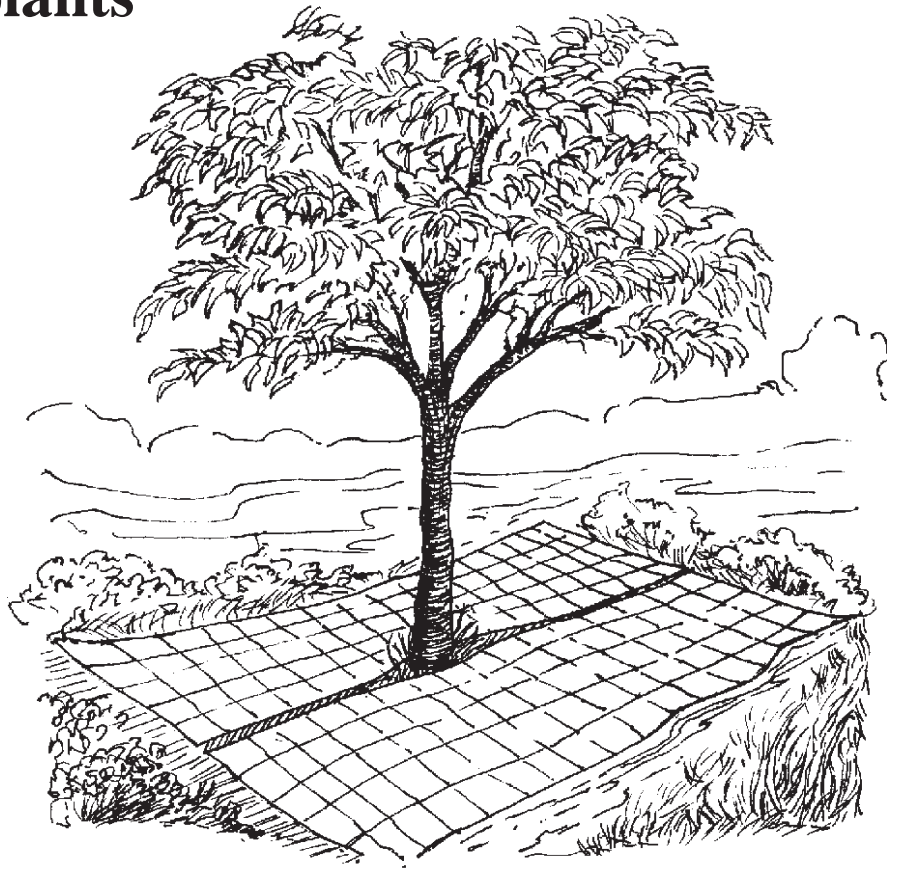
By Joy Lamb

A huge brown beast stared at me as I drove through our apple orchard toward the house. I parked, walked quickly into the house, and said to my husband, "Tom's bull is munching on our apple trees."

He shot past me out the door, yelling, "Call Tom and tell him to get over here now!"

The next half hour was spent running this way and that. We chased south and withdrew to the north. We herded south and blocked on the east and west. Finally the bull, several cows, and one fat sheep were escorted out of our orchard and into their own pasture. During this process, the bull nonchalantly stepped over a three-foot fence and trampled my garden. Later, while discussing the event with Tom, we decided that we were glad that most of our vegetables, flowers, and shrubbery had been spared. The apple trees were left standing with only minor damage to the foliage and fruit.

This incident was only one of many animal-related problems we had faced since we had become backwoods homeowners. Deer stripped new growth off young fruit trees, cats used vegetable plots for litter boxes, and visiting dogs dashed through flower and vegetable gardens, trampling as they went. Even our own dog loved to dig in planted areas rather than the natural wooded areas. We were frustrated. My husband built fences higher and higher around the orchards. This was useless, as deer can jump amazingly high. I planted shrubs, flowers, and vegetables, only to have them torn up by dogs. The cats loved the freshly worked soil, and rabbits nibbled at what was left. And this was not the



Fencing is laid in two sections around a fruit tree. The tree can be watered, fertilized, sprayed, and harvested with the wire in place.

first time we had been invaded by bovine beasts. What were we to do?

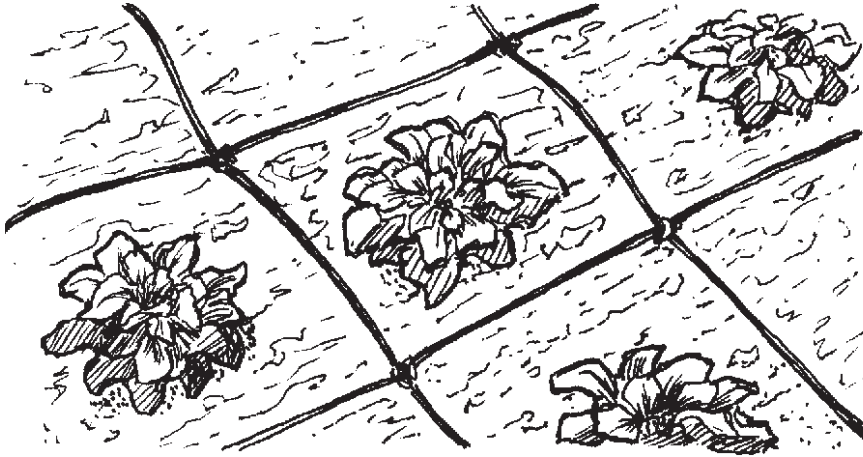
At first we tried fences. We fenced groups of trees, we fenced islands of flower gardens around the house, and we fenced vegetable plots. We created a botanical zoo with plant cages all over our property. The fences kept the dogs out but did not faze the cats, cows, and rabbits that wandered through. The deer were not even slowed down by the fences, no matter how high we made them. The fences were unsightly and very inconvenient when we were caring for the plants and trees. We became vigilant plant guards, but decided we did not want to dedicate our lives to this pursuit, espe-

cially our lives between 10 p.m. and 6 a.m.

We thought through the problem and came up with a solution. We immediately put into action our "Protect Trees and Plants from Four-Legs Plan," and very soon we knew we had a plan that worked.

We had used livestock fencing attached to wood and metal stakes for fences. We removed the stakes, cut the wire fencing into workable sizes, and just *laid it on the ground* in the areas we wanted to protect. Once an animal puts a foot on the wire, it backs up. We were and still are amazed at how well this works.

Our dog will not enter the areas covered with wire, so no more uprooted



Sections of fencing can be laid right over small plants.

and trampled plants. No more holes dug under trees. The cats find better areas to scratch, and best of all, the deer keep away from our trees. It is so nice not to have all the new growth eaten off the trees. We have not had a visit from a bull, cow, or sheep since we laid the wire, but we think it will work for them, too. We have found bear spoor in the areas furthest from the house, but our trees and their fruit have remained undamaged. I still see rabbits in the clover surrounding the apple trees and in the native undergrowth, but there have been no holes dug around the wire-protected trees. We have not detected any damage to the fruit trees or the gardens caused by rabbits.

Since we heartily recommend our method to anyone wanting to protect their plant life from four-legged animals without using harsh methods, the rest of this article will provide specific information about it.

Use livestock fencing

A 12- or 14-gauge field fencing works well. It is sturdy and holds up well. It can be cut readily with a wire cutter and is rigid but bendable. There are many kinds, heights, lengths, and hole sizes available. The twisted wire is cheaper and easier to work with than welded wire. My personal

favorite is a three-foot-high, 12½ gauge, non-climb fencing that has 2" x 4" holes.

Wire fencing can be purchased at feed stores, hardware stores, and garden shops. The price depends upon the gauge, whether it is twisted or welded wire, the size, and the amount. A 330' roll of twisted wire field fencing with 2" x 6" holes at the bottom and 6" x 6" holes at the top sells, in my area, for \$104. A 100' x 3' non-climb 12½ gauge fencing that has 2" x 4" holes sells for \$85. I saw 50' x 3' of 14-gauge welded wire fencing for \$23.

Save and reuse previously used wire fencing. There are no definite size requirements for the fencing. We often use whatever is on the scrap pile.

Cut into workable sizes

Get out the wire cutters, pliers, tape measure, and work gloves. Besides the fencing itself, that is all you will need to implement the method. "Workable size" means something that you can handle. This obviously varies from person to person and depends on the size of the area and the plant that is to be protected. You need to remember that you will have to be able to remove the fencing to work the soil. Don't worry about the size of the

pieces if you are using scrap fencing. Just do the best you can with what you have. The wire can be overlapped lying on the ground or joined with a twist of the pliers if need be.

For garden areas:

Roughly measure the area. If the fencing can be cut in one piece, great. If not, cut the fencing into the largest sections possible that will cover the area. However, the pieces should not be so large that you cannot handle them comfortably. Arranging the fencing is discussed below.

For trees and shrubs:

Cut two pieces of fencing, each about 6' x 3'. It is better to use two pieces rather than one, because it is easier to remove. However, we have sometimes placed one smaller piece of fencing over a newly-planted bare root tree. The wire can always be cut later.

Placing fencing over bare or just-seeded soil is easy. Just lay it down and bend over the ends, poking them into the soil.

Care needs to be taken so as not to damage plants when placing the fencing over trees, shrubs, or growing vegetables and flowers. Some cutting will be required to make the fencing fit over or around them. At any cut, poke the wire ends into the ground to secure it and to make it safer for you. Overlap fencing as needed for coverage.

Most watering, fertilizing, spraying, and weed control can be done with the wire in place. After all, people wearing shoes can walk on the wire.

When major work needs to be done, such as harvesting, tilling, or planting, simply lift the wire fencing from the ground and replace it when you are finished working. If you originally cut the wire into sizes that you can handle, removing and then replacing it is very easy to do.

We have been pleased with the results of this method at our house. We hope you will be, too. Δ

Your family can afford a computer: buy it used

By Sharon Griggs

You don't have a new car, you shop at rummage sales, and you gladly accept hand-me-down clothes for your kids. So why are you considering buying a brand new \$2000 computer system? Don't let some salesman who has charged his credit cards up to the limit and needs the sales commission tell you that you need the newest, most impressive machine with all the bells and whistles.

There are people out there who are upgrading their systems and who will sell their old computers cheap. Often they are sold with software and accessories such as printers that don't come with a new computer. These are things that you would end up having to go out and buy extra and install, if you bought a new computer.

You say you are home-schooling your youngsters and you want them to be computer literate. Or you are running your own home-based business, and you want a computer for that. Or you want to get on the "information superhighway."

Well, believe it or not, you can probably do all these things for under \$500, and maybe less if you are willing to shop around. In fact, I bought an old Texas Instruments computer at a garage sale for \$10 that is perfect for learning basic programming on. Sure, I had to hook it up to an old TV (it didn't have a monitor), but it came with all kinds of illustrated books about basic programming. I even learned how to program graphics as well as words. You won't get that kind of information with your new gee-whiz right-out-of-the-box computer. And you won't be afraid to try things on a cheap old machine, daring things that you would be afraid to risk on an expensive new computer.

But you say you want a little newer technology. You want to be able to hook up a modem and explore the on-line world about your areas of interest. Here's where you really get lucky. Newer, faster modems are being put on the market all the time and people just gotta have 'em. Slower modems are getting cheaper, and faster ones are quickly being discarded and replaced with even faster ones. And

there are "trial-run" offers all the time from on-line services that let you get on-line for 10 hours free. Why not try them all? A used 386 IBM-compatible computer or a used Mac should be plenty good enough to get you there. Like driving a good used car, you go a little slower, but you get there just the same.

Heard about Windows 95? Well, there are older versions of Windows out there, and lots of older computers have the older versions of Windows on them. When you buy one of them, you can upgrade, or you can use the old version while they work the "bugs" out of the new version.

There is also a world of free and cheap software available (such as *shareware*). Just be sure the software is "registered," or legal. In fact, some of the folks who started computing by using some of the older, cheaper programs are so

attached to them that they wouldn't give up their old favorites for all the new ones in the world. You may find that you feel the same way about some of these "oldies but goodies."

Really broke? Believe it or not, you don't even have to buy a computer to compute. You can try one out at some public libraries or community colleges for free. One library near us has a computer that is hooked up to the Internet, and anyone can use it. There are also

computers there that can be used for word processing (typing) or for bookkeeping for your business. Just buy a floppy disk and bring it with you. Usually someone will be glad to help you get started and get into the tutorial programs on the computer that teach you how to compute step by step, with demonstrations. There are also free classes at the library on how to get on and use the Internet. They attract a lot of "non-techies." In fact, my youngest son (who likes to work on the innards of computers and such but who normally hates to sit down at a keyboard) really likes exchanging points of view on-line with people in other countries.

Don't let a lack of funds slow you down. You too can start computing "on the cheap" and enjoying it as much as we do. Δ



Would you believe . . . a canvas roof?

It's simple, quick, durable, and cheap

By Rev. J.D. Hooker

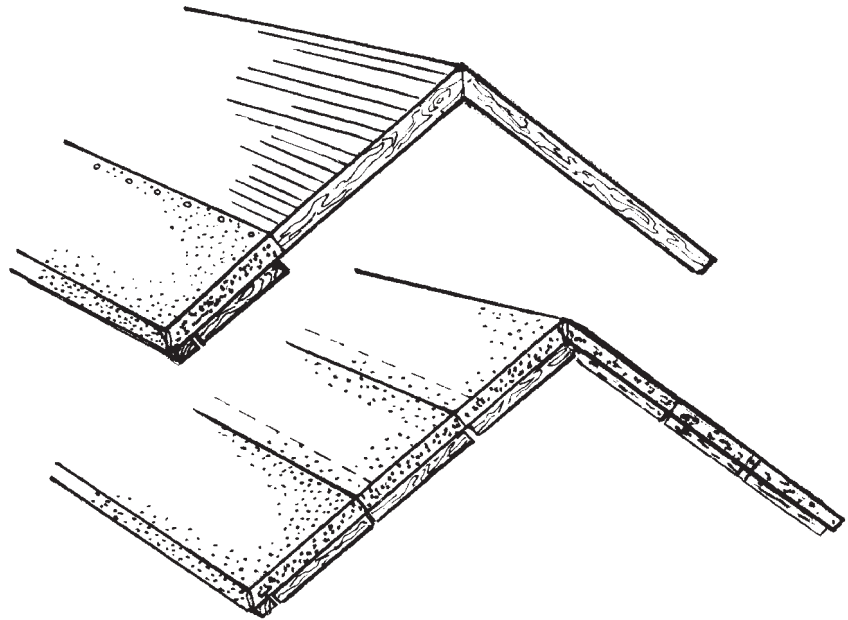
Have you ever wondered what ever happened to all of those big canvas covers from all the Conestoga wagons that crossed the Plains? Well, sure, most were temporarily utilized as tents, until some more permanent dwelling was erected. But eventually, the vast majority of those wagon covers ended up being used as the roofing material on some permanent structure. Often they were used on the central portion of the house (they weren't really big enough for an entire house roof), or atop a stable or other outbuilding

Actually, when properly installed, this sort of roofing is just as watertight, good looking, and long lasting as most of the more expensive roofing materials available at the lumber yard, but it's much quicker and simpler to install.

I think that probably this type of roofing was simply forgotten (like many other good ideas) as newer materials hit the market. As late as the 1950s, some of the "do it yourself" encyclopedias gave instructions for installing canvas roofing. And in many areas where building codes have been around long enough, you'll find canvas roofing covered by the codes. If your area has a long history of building codes, you could just skip reading the rest of this article, and take a look in your county's code book. The information is likely to be practically identical.

Installing a canvas roof

To install a long-lasting canvas roof doesn't require much in the way of equipment. Here's what you'll need:



Stretch and paint one course at a time. Tack only the top edge of each course to the surface of the roof—let the other edges lap over the edges of the roof and nail up with furring strips. Allow subsequent courses to overlap eight inches. When all the courses are in place, apply the second and third coats of paint.

- Enough canvas or other cloth to cover the required area
- Some tacks or staples
- Maybe some furring strips and nails
- Enough exterior-grade paint to apply two or three coats over the entire roof
- Probably a ladder or two
- A roller or paint brush

Now, before you start shaking your head in disbelief, thinking that this sort of roofing can't hold up very long, you should consider a few points. First, the coverings for the old-style wood-and-canvas canoes were simply cloth and paint, and some of the better maintained ones are still serviceable. And as late as World War II, many countries were putting fighter planes into the skies with exterior

skins made only from painted canvas. Some of these planes are still flying.

You wouldn't hesitate to consider fiberglass, a sort of glass cloth held together by hardened resins, as a durable material. While painted canvas hasn't nearly the strength of fiberglass, it is basically the same principle, and capable of standing up to the weather at least as well.

Installing a canvas roof really does not take a lot of labor or figuring, either. To illustrate how to put on one of these roofs easily and properly, I'm going to detail how we installed a canvas roof on one of our hog farrowing huts.

This is a pretty small building, roughly ten by twelve feet, so for the cloth covering we just used old cotton bed sheets, purchased for next to nothing from a Salvation Army store.

Actually, for any smallish roof, up to about 400 square feet (20 x 20 or so), lightweight cloth of this sort is ideal. For larger projects, you'll need to use heavier-weight material, like regular canvas or duck cloth.

On our farrowing hut, the first course was installed the same way you'd put on regular roll roofing, except that it lapped over the sides and the bottom edge, being held in place by thin wooden furring strips. Only the top edge was tacked in place. A heavy coat of paint was then applied to that course. (Make sure you really saturate the cloth when applying the first coat of paint, to bond it to the roof sheathing.)

The second course overlapped the ends of the roof, and was secured in place with furring strips, in the same manner. It also lapped down for eight inches over the first course, and again only the upper edge was tacked down. This course was also given a heavy coat of paint.

That took care of one half of the roof, and the whole procedure was repeated on the other side. A narrower piece of cloth was cut to cover the roof's peak, where the cloth from the two sides didn't quite overlap. This was again fastened in place with furring strips where it lapped over the sides, but wasn't tacked down at all to the roof's surface. A heavy coat of paint was applied to this also.

For the next few hours we tended to other things that needed to be done. Then, once the first coat of paint was dry to the touch, we applied a second coat of the same paint. Then we did a third coat, after the second had dried. We were now finished.

About a week later, we got hit by a terrific thunderstorm, one of those real bucket-and-firehose downpours. I checked the canvas roof carefully, and couldn't find any sign of a leak, not even a damp spot underneath. But I hadn't expected to, because this was not my first experience with canvas roofing.

Maintenance doesn't amount to much, either. You just look at your roof from time to time. After several years, you'll notice that it will start looking sort of tired and faded. As soon as you think the roof looks like it could use it, just add another coat of paint. How long before you'll need to repaint will depend on the quality of the paint you used to start with. So the length of time between re-paintings can be anywhere from a year or so to a decade or more.

Milk paint

When the Conestogas were arriving in the western states and giving up their canvas tops for roofing material, probably the most commonly used paint for this purpose was home-produced milk paint. It wasn't anything like in the movies anyway—very few wagons were ever hauled by horses. Most were pulled along by oxen, or by three- or four-year-old cows. So most settlers could readily come by enough milk to produce their own paint in quantity.

Milk paint is just as simple to make today, and though it's not as long-lasting as the *best* commercial paints, it will outlast by far any of the *cheaper* commercial grades of paint. The best recipe I've found for mixing up this sort of paint is as follows:

- Thoroughly stir two quarts of builder's lime, *or* three quarts of sifted white hardwood ashes, into four gallons of skim milk.
- Next, stir in one gallon of linseed oil.
- You can also add any sort of water-soluble powdered dye, to make just about any color you want.
- Strain this paint through a piece of cheesecloth (or something similar), to remove any lumps or undissolved powder.
- *Use within two days.*

You might think this doesn't sound like much of a paint, but this mixture

bonds to wood, cloth, crockery, and such with unbelievable tenacity, and it dries to a hard, tough, plastic-like finish. In fact, many original pieces of colonial furniture, painted with this same finish, have survived 200-plus years of daily use with absolutely no signs of finish wear or fading. (Of course, they weren't exposed to the elements outdoors.) So it's well worth trying, if you have enough surplus milk to give it a shot.

Exterior grade varnishes, or polyurethane finishes, are also excellent choices for use on canvas roofing.

Gutters and windows

If this has stirred up your interest in this type of roofing, you might want to consider a couple of other uses for painted canvas as well. First, there will probably be a goodly amount of water running off your roof during rainy spells. Without proper gutters, this can lead to some real erosion problems, leaky foundations, etc. So just add some wooden gutters while you're at it, and simply extend your canvas roofing as a lining for the gutters, making them nice and watertight.

And here's another use, for anything like a chicken coop, where letting in light is important, but you don't really have to have windows you can see through clearly. You can make durable, translucent windows by tightly stretching lightweight cloth (like those Salvation Army bed sheets) on a wooden frame and then coating it with clear varnish or polyurethane. These windows will let in plenty of light; they're just not very good for seeing through. You can even make "multi-pane" or "double-glazed" windows if you want.

That's about all there is to it. Just about anyone can put a long-lasting, watertight canvas roof on just about any building, without investing a whole lot of time, money, labor, or materials. Δ

There are *lots* of tomato varieties — choose the ones that suit your garden and your taste

By Alice B. Yeager
Photos by James O. Yeager

When the ground warms up and frost is a thing of the past (at least for a few months), gardeners' thoughts turn to tomatoes. Actually, there seems to be great haste from coast to coast to see who can harvest that first plump ripe tomato. This pits neighbor against neighbor and friend against friend. Some folks grow an early-ripening variety for the pure pleasure of gloating when they are the first in their neighborhood to pick a ripe tomato.

The first fruits of the season aren't always the tastiest, however. Wait until those mid- and late-summer tomatoes ripen. There's the peak of perfection. Given the touch of sun and showers and a longer growing period, they are juicy and packed with flavor. Even so, the first fruits of summer are always welcome, as there's nothing better from the garden than a fresh tomato after a winter of dependency on those blah ones from the supermarket. About all *they* have going for them is color.

Some of us don't give a whoop about being the first to harvest anything, as we're going strictly for good quality vegetables for culinary use, and lots of them. Sometimes we reach the point of being sick and tired of more tomatoes, but we continue to harvest until frost do us part.

Whether you live in an area with a long gardening season, or one where plants can't be set out in the garden until the end of June, there are tomato varieties that are suitable for your climate. A good place to

get advice is your local county agent's office. Also heed advice given by local gardeners. Many folks don't realize that there are umpteen varieties besides the highly advertised ones such as Big Boy, Early Girl, Beefsteak, etc. Some of the new hybrids are picture-perfect in appearance but they lack quality. The flesh is mealy, and they are firm enough to be hauled a thousand miles by ox cart without incurring a bruise. That may be well for the commercial grower, but the avid gardener seeks varieties that not only appeal to the eye but can only be described as downright delicious when prepared for the dining table. Most of the home garden varieties do not ship well, and folks shopping in supermarkets never have the pleasure of eating an honest-to-goodness flavor treat.

Most of the home garden varieties do not ship well, and folks shopping in supermarkets never have the pleasure of eating an honest-to-goodness flavor treat.

Trying varieties

I was born with an inquisitive streak, and I like to branch off from the well-known varieties and try some of the others. Living in Arkansas (Zone 8), where periods of high humidity and summer heat go hand in hand, I have learned by trial and error that not all varieties will grow here, even though tomatoes are generally known as a warm weather crop.

One of our favorite tomatoes is the **Thessaloniki**, originally from Greece. It is "indeterminate" (it needs staking) and mid-season bearing. It is a firm, full-flavored tomato about the size of a baseball. It has a deep red, meaty interior and is soooo good to slice and eat with toast for a snack. The plant has good foliage, and there's no trouble with cracking or sunburn. If I had to scale down to growing one



The Thessaloniki tomato, originally from Greece, is a heavy yielder with a deep red, great tasting interior.



Tomatoes come in many sizes. Park's Whopper and Sweet Million are two real winners in medium and small size tomatoes.

variety of tomato, I'd seriously consider making it this one.

For a large tomato, I am partial to **Supersteak** (indeterminate and mid-season). This one is not as smooth in appearance as Thessaloniki, but it has good flavor and a slice will cover a slice of bread and hang over the edges. Fruits generally weigh about two pounds and have good texture.

Quick Pick (indeterminate) is an early variety, as the name suggests. This is a medium size tomato with good flavor and will continue to bear until frost. Fruits are round but have an odd feature: they have a tiny point on the bottom. These tomatoes are just the right size for canning whole.

An oddity is **Evergreen** (indeterminate and mid-season). When ripe, these tomatoes show a slight tinge of yellow and are medium to large size. Evergreen has good flavor and texture and has a unique appearance in salads. In our garden, this one had a problem with wilt, leaving plants that were loaded with tomatoes but were goners.

We like to grow **Arkansas Traveler** (indeterminate and late-season). It is a hot weather plant and will continue bearing until frost. Flavor and texture

are good, and the tomatoes are about six to eight ounces in size. They are very good in salads and slightly less red than other tomatoes, thus providing variety in color.

Always leave room for a few small tomatoes. Generally speaking, these will need staking unless you are growing the patio varieties. Sorry, but I think the garden-grown ones have better flavor. One of our favorites and a heavy bearer is **Sweet Million**. It has a sweeter flavor than other cherry tomatoes and is a delight to pick and eat right from the vine while doing garden chores.

Growing tomatoes

All of our tomato plants are started in our small greenhouse, where we plant seeds in a heat-controlled seed starter, then transfer seedlings to styrofoam cups (with holes punched in the bottoms for drainage) or small plastic pots filled with a good quality potting medium.

When the danger of frost is past and the ground has begun to warm up, plants are about a foot high and ready to be *hardened off*—that is, given a

few hours of sunshine outside the greenhouse each day for several days in a spot protected from wind. We gradually increase the time of exposure until we know they are ready to move to their permanent place in the garden with no danger of *sunscald*. (Sunscald is over-exposure to the sun that causes leaves to bleach and severely damages plants.)

Tomatoes like a sunny spot in loose, moderately rich soil with a pH of 6.0-7.0. Every gardener who raises tomatoes seems to have a favorite method of planting. In our case, we have to take into consideration the fact that Mother Nature has a habit of turning off her water supply in mid-summer, leaving us to improvise if plants are to live through the dry season.

One preventive measure we use against drought is to plant the tomato plants deeper than we might in a cooler climate. We dig the holes deep enough to accommodate about a third of the plant, fill in plenty of well-rotted compost around the plants, and then water them well to eliminate any air pockets around the roots. Tomato plants will put out additional roots wherever the soil touches the main trunks, giving them access to moisture as well as providing good anchorage. Depending on the varieties, plants are spaced about 18-24 inches apart.

We also place a light organic mulch of leaves and pine needles around the plants at the time of planting. This prevents soil from splashing up on plants when heavy rains occur and also keeps the ground from crusting when it dries out. We add to the mulch as summer heat comes on to help retain moisture. In so doing we create a haven for earthworms—those diligent tillers of the soil.

Once our plants are in the ground and the earthworms take over, we forget about cultivation. However, a really tough dry season will bring out the water hose.

We set stout cages made from concrete reinforcing wire over our indeterminate varieties, which then grow



A real summer treat: stuffed tomatoes with slices of Evergreen tomato

up inside the cages. That makes for a lot less work than staking each plant. We drive in two short, stout stakes opposite one another against the wire inside each cage to assure that the cage will remain upright in strong winds.

Pests and diseases

Our main pest to combat is the **tomato hornworm**—that big, green, striped fellow with the horn on his tail. He has a voracious appetite and can consume quite a bit of foliage, as well as young tomatoes, in a few hours' time. Handpicking is the best and safest way to get rid of hornworms.

If **cutworms** are troublesome, a bit of 5% Sevin dust sprinkled on the base of the plant's trunk will solve the problem. After plants have matured and are out of the tender stage, cutworms should be no problem.

Tomato plant diseases—**wilts**, **mosaic**, etc—can best be dealt with by planting disease-resistant varieties. Also, if **nematodes** (tiny eel-like worms that live in the soil) are a menace, seek out tomato varieties that

show the letter "N" in the first part of their catalog description. For instance, Hybrid Beefmaster is VFN. "VFN" means "resistant to verticillium and fusarium wilts and nematodes."

Seldom is there any **bird damage** to our tomatoes, but I often hear complaints from friends about birds ruining their crops. Birds can be discouraged without resorting to violence. Just take some *dark* colored sewing thread and loosely tie pieces at random among the plants, being careful not to tie thread too tightly around the stems and thus interfere with the plants' circulatory systems. When birds fly into the threads, it startles them, and they will avoid the plants. (Maybe they think they have encountered a stout spider web.)

With all the variety we have in tomatoes—new ones as well as old standbys—no one should be bored with raising the same plants year after year. Give yourself a treat and explore. If you don't have much room, try some of the determinate varieties (which need only slight support) and patio varieties. Bush Beefstake, Celebrity, Pilgrim, Red Robin, Pixie Hybrid—the list goes on and on.

Reap your harvest and enjoy.

Some seed sources

Tomato Growers Supply Co.
P.O. Box 2237
Fort Myers, FL 33902

Geo. W. Park Seed Co., Inc.
Cokesbury Road
Greenwood, SC 29647-0001

W. Atlee Burpee & Co.
Warminster, PA 18974

J. W. Jung Seed Co.
335 S. High Street
Randolph, WI 53957-0001 Δ

When a just cause reaches its flood tide... whatever stands in the way must fall before its overwhelming power.

Carrie Chapman Catt
1859-1947

My dog is old.
She limps.
Lying down and getting up
Come at great cost
And even her bark is gone.
(A stroke, the veterinarian suspects.)
It's hard to believe
She was once the guardian here
Whenever I was gone.
Now, she's just underfoot.
I keep her for no practical reason.
I hear her moan
And look down at my feet where
she's sleeping.
Her legs twitch.
She's dreaming.
In a world only she can visit
She still runs like a dog.

John Silveira
Ojai, CA

A BHM Writer's Profile: Judith Monroe

Judith Monroe adopted Maine as her home state 40 years ago after emigrating from rural upstate New York. She raised three kids who, in turn, are raising their children—all in Maine. She has always loved dogs and has owned a succession of shelter foundlings. The one pictured here was a hound friend and a singer who needed just a little encouragement to sound off.

Her most recent acquisition is a Celtic harp which she found also sings on its own with a little encouragement—from the wind. Monroe is currently working on writing humorous prose and serious poetry.



A brick walk with little work and less money

By Robert L. Williams III

Because we often leave our house by the basement door, we have to cross 30 feet of often wet and muddy yard in order to get to the drive. What was needed, we decided, was a wide and rustic walk that could be built with very little work and practically no money.

We considered several options, but when we learned that used bricks were available to us at no cost, we decided immediately on the type of walk we would build. What we did can be done by virtually anyone with a little patience and energy.

Preparing the surface

The first step is preparing the surface of the soil. This means digging up and removing rocks, roots, and anything else that is in the way. This includes grass. What you want is a wide stretch of space that is nearly flat and ready to work. You may need to dig out enough soil so that you will have room for sand and bricks needed



Figure 1. Use a trowel to smooth the sand for the next bricks.

for the walk. If you don't use sand as a base, you may find that the bricks will sink in wet weather and in very heavy traffic.

Once rocks, roots, sand, and dirt are removed, locate some timbers (treated ones work well, but untreated timbers will last for a fairly long time and be replaced inexpensively, if you decide to leave the timbers in place) and line the walk area on both sides with these timbers. Then dump bucketfuls of sand between the timbers and rake the surface smooth.

If you prefer, you can put down a layer of black plastic before adding the sand. The plastic will help to prevent grass and weeds from coming up between the bricks. You can buy masonry sand, but this is expensive. You can use creek sand, as we did, and save money. The creek sand works beautifully once you discard pebbles larger than a marble.

Laying the bricks

Work in sections of about three feet at a time. Start with bricks stood on edge that are placed parallel to the house. Lay about a dozen of these bricks and then start a row of bricks perpendicular to the house. These bricks are started at the ends of the first bricks. You may choose to align these bricks exactly or you can, as we did, choose an irregular pattern.

One problem you may face is locating bricks that are free or very inexpensive. We found that a local community college offered courses in brick masonry. The students used a mortar made only of sand, lime, and water for their projects. Once the bricks had been used, they were not re-used and were free to anyone who wanted to haul them off. On weekends, we drove to the college and hauled 500 bricks per load until we had several thousand bricks on hand.



Figure 2. Lay a series of bricks, tap them down with the hammer, and level them. Notice the irregular exterior bricks that have already been mortared into place.

Our only cost was the expenses of operating a pick-up truck to haul the bricks.

We learned quickly that the mortar could be knocked loose with very little effort. We also learned of dozens of other places where bricks could be had for the asking. Some had to be cleaned of old-fashioned mortar, but we couldn't beat the price.

After positioning half a dozen bricks, as described above, use a level to check your work. If a brick is too low, lift it and put more sand under it. If it is too high, simply rake some of the sand away.

If your work satisfies you, keep placing bricks on edge until the first course is within eight inches of completion. Then, as you did in the beginning, turn the bricks until they are, again, parallel to the house. You may find that 20 bricks, plus the edge

bricks will make a sufficiently wide walk. Sixty bricks, plus the edge bricks, will produce roughly three feet of linear surface.

Remember that you do not use any mortar of any sort between the bricks. You simply set in your edge bricks and then your interior bricks and proceed toward the end of the walk.

When you have completed the basic walk, you may wish to leave the landscaping timbers in place. Or you may remove them and leave only the edge bricks. Treated timbers can be costly, and in a typical walk, you may need as many as eight or ten timbers.

Earlier, I suggested that you use untreated timbers because you can move them as soon as one section is finished and remove them completely when the work is done.

One option is to go back after the interior bricks are laid and remove the edge bricks, a few at a time, and apply a bed of mortar where the bricks had been. Then “butter” the edge bricks and replace them. By doing so, you will have stationary bricks that will hold the interior bricks firmly in place.

When you come to the end of the walk, you can use a series of thin, flat rocks as the stepping-down area, or you can pour either concrete landing or a gently sloping terminus. Either way, you have rescued perfectly good bricks, helped reduce the loads of debris in the landfills, and in the bargain, you provided yourself with a delightful and useful walk that can also add beauty to your home. It is a bargain that is hard to beat. Δ

A BHM Writer's Profile: Jeff Fowler

Paul Jeffrey Fowler resides in Worthington, Massachusetts, in a passive-solar, solar-electric powered home with his family. He founded, developed, and later sold Fowler Electric, Inc., a successful business that supplies alternative energy components to power remote homes. Fowler wrote several successful how-to books and booklets on solar electricity while working at his former business. His most current book is [The Evolution of an Independent Home: The Story of a Solar Electric Pioneer](#). Fowler has a B.S. in Biology from Tufts University and Masters Degree in Environmental Studies from Antioch New England Graduate School.



A BHM Writer's Profile: Bill Palmroth

Bill Palmroth pursued a newspaper career for 20 years, starting as a sports writer for the Grants Pass Daily Courier in 1958. In 1978 he started Media Specialist, an editorial and publicity service business. Loggers World Publications, in Chehalis, Washington, became one of his clients and he did field work for their logging magazines for five years before joining the company full-time in 1989. He then served as editor of the company's Log Trucker magazine for six years before moving to Belfair, Washington, in 1995 to become editor of the Belfair Herald. Over the years Bill has written articles for numerous outdoors and self-sufficiency magazines. As of 1999, he now operates his own store, Mr. Bill's Sportcards & Variety, in Belfair.



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Lessons I learned while building my log home

By Dynah Geissal

When building a log home, the first order of business is getting your logs. Ideally you cut and deck all your logs in the beginning. We were unable to do that because we had so little time. We spent the weeks cutting, milling the logs to a uniform 6" width with our homemade Alaska Mill and transporting the logs that were manageable for the two of us.

On Saturday afternoons we had volunteer help so we needed to have enough logs ready to keep everyone busy. Twenty foot logs could be carried by six people using three steel bars. Thirty foot logs required eight people (the most we had available for carrying) and it would have been better to have had ten.

We milled the logs where they were cut so that they would be easier to carry. Many of our logs were ten feet and these we could carry to the site ourselves.

Selecting your logs

Your sill logs should be the strongest, straightest logs you have other than the ridgepole. Ideally they should be standing dead although ours were green. We cut half laps at the ends with a chainsaw and a chisel. To do that cut half the depth of each log and as wide as the log that is to lie on top of it. Either make a vertical cut and meet it with a horizontal cut or make multiple vertical cuts and hammer out the pieces and finesse with a chisel. It will look like this:



Be sure the sill logs lie firmly on the piers. If they don't, use wood shims (hardwood is best) until they do.

Besides the sill logs we have a sleeper which runs the length of the house and rests on the short end logs as well as on three wooden piers. We were advised that the 20 foot width of our house was too wide to use only the sill logs and that the sleeper down the

good, but they take up space and they divide the house, taking away from the open feeling we wanted.

If you do put up pillars they will have to be braced until they are attached to the cross ties. Support pillars are necessary only if you plan to have gales and, as I said, I really think



The beginning of the construction of Dynah's log home.

middle would greatly improve the strength of the house.

The short end sill logs do not run the entire width of the house because our house is on a slope. They go from the downhill pier to the center. A second log does the same. The third log lies directly on the uphill pier.

We were advised to put up three support pillars which would rest on the sleeper above the wood piers. These support the cross ties and ultimately the ridgepole. These pillars are 10" in diameter and 8' tall and were dead when we cut them.

Once again I wish we had time to study this for ourselves. I believe one support pillar would have been sufficient. Of course, the three add to the strength and stability and they do look

three is overkill since we also have vertical poles in the gables which support the ridgepole.

Putting in the floor

Now you will need to decide whether to put on your floor or to wait until you have the roof on. We salvaged our flooring from a lumber mill. We bought pallets made of 2 x 6 tongue and groove boards which we had to dismantle. The pallets had been sitting out in the weather anyway so we weren't real concerned about them getting a little wet once they were nailed into place. Of course, when they were stacked we kept them covered so that they didn't warp. Another factor in our decision is that we only

get 13" of precipitation for the entire year and most of that is from snow during the winter. So, in order to have a solid place to work inside, we opted to put in the floor.

We used the 2 x 6 tongue and groove boards for our joists also. We set them on edge 16" apart and secured them to the long sill logs and to the sleeper with joist hangers. Be careful with your measurements to avoid great frustration when you're flooring.

We chose the nicest boards for our floor, cut them to varying lengths of multiples of 16 and using finishing nails, nailed them to the joists. Two nails were used to secure the ends and the middle was toenailed in with a nailset used to countersink each nail.

Because our boards were used, there was some warpage and so the boards did not always fit together easily. When that happened we fit a third scrap board over the one to be nailed. Standing on the one we wanted to secure we smashed the third board with a sledge hammer. Usually that did the trick, but with an especially recalcitrant board we had to nail in one end and have a helper hold in the other end while it was hammered.

The house is divided by a step down which runs along the sleeper. The uphill side rests on top of the sleeper and in joist hangers on the sill log. Both sides rest in joist hangers on the

downhill side thus creating the step down. We started flooring at the step-down reasoning that it would be easier to begin square when we didn't have to worry about the fit against a log. At the end we ripped boards to fit against the logs. We used relatively short boards because they were easier to custom fit.

Locating your doors

There are a number of things to consider when deciding where to put your doors. I believe every house should have two doors as a precaution against fire. They do take up quite a bit of space in a small house, but I think it's necessary anyway. So, where do you put your doors?

The short sides of our house face east and west. We were told to put the doors on those ends because you can't have your doors under the eaves without building an additional roof. If you do, rain and snow will be pouring off your roof just outside the doorway. Made sense at the time. However, our prevailing winds are from the west and it is bad planning to have a door facing the prevailing winds. It is even unwise to have a door facing the opposite of the prevailing wind because it will always suck the wind inside. When our doors are open we have a virtual wind tunnel. In the winter we had to seal the door facing

west. Not good. So besides possible thoughts of convenience or aesthetics, consider the wind and never have two doors directly opposite each other.

Securing supplies

A word about supplies: prices vary tremendously. Be sure to shop around. At our "farm needs" store boxes of nails were 2/3 the cost of the same thing at the building supply store. We could get almost everything we needed there and the prices were always better.

We used 15" - 5/8 rebar and 10" spikes to anchor the logs. We used 7" spikes at first, but decided they were too small. In the beginning we used a brace and bit to drill the rebar holes and it was extremely difficult, but possible. Happily, a friend loaned us a generator and so then we were able to use an electric drill.

On the advice of more experienced people we put sill seal between the logs. When one log was anchored to the one below it we attached sill seal with a staple gun before placing the next log on top. The theory seemed good and my husband still thinks it was a good idea. I'm not happy with it myself. For one thing it's extremely expensive and for another it's plastic. It just doesn't seem to be in keeping with everything else involved in the construction of the house. The third and I believe most important aspect is that as the logs shrink there is space between them anyway and the sill seal inhibits filling these cracks with insulation. We have friends who are presently building a log house. They are cutting strips of fiberglass insulation and placing them between the logs. I think that will turn out to be a better alternative.

It is not necessary to have full length logs in most parts of the structure. The ones you do need to have full length are the sill logs and the logs directly above the windows and doors.

If you have the time you'll want to peel the inside and outside of your



The walls go up.

logs. We didn't so we did only the inside. It's easiest if the logs are off the ground so you don't have to bend over so much. Some drawknives are vastly superior to others - I like the old ones with thin blades. The new ones usually are much thicker and I don't like to use them. Always peel your logs when they are alive because, when dead, the cambium layer will adhere to the log.

Setting the logs in place

When you set the logs in place line up the logs as you look from inside the house. Outside they will not be uniform. If you don't do that it will be very difficult to hang shelves or whatever.

Even though you've milled the logs to a supposedly uniform size there are always going to be imperfections so keep your level handy and check after each log is placed. Shim when necessary. We had so many people working and were in such a hurry that levelling and plumbing didn't always happen when they should have. Brace the walls as they go up to keep them plumb. They will have a tendency to creep outwards. You'll need to decide how your walls are going to meet. What you choose will be somewhat determined by how much time you have. We had planned to use rabbit joints and indeed our first two logs (other than the sill logs) have them. We decided, however, that it was much too time consuming. We chose instead to use a half butt technique. In this method you alternate which logs butt up against the other. The short side is butted on one row and the long side on the next. You can make the long ends uniform or not, but it's best to leave them long until the house is finished. Then you can cut them all at once when you see how it looks. In any event, when you do cut them they need to be under the eaves. If they're sticking out they'll be exposed to the elements.



The log home before the roof went on.

When your logs are not full length join two shorter ones with a half lap as you did with the sill logs. The longer the "tongue" is the better—up to about three feet. Use your spikes to secure these joints. You will also want to spike every log every three feet or so and at each end. Your pins (rebar) go through or into 3 logs. They are staggered to give an equal distribution of strength. There should be one near the ends of the logs and every five feet or so. Mark where you put these with a pencil and also where you put your nails. That way you won't end up trying to drive one into another. Also, if you later want to cut into the wall to enlarge a window or some such, you'll know where the hardware is.

Planning your windows

When you have three tiers of logs up you'll have to plan for your windows if you haven't already. Windows are terribly expensive if you have to buy them new. Let people know you need them and check for demolition sites. Even rummage sales sometimes produce used windows. Glass stores sometimes have improperly sized thermopanes. The first time we sal-

vaged windows it seemed to take forever to get the first couple out, but we rapidly became proficient so stick with it.

After you have your windows you need to consider their placement. Books tell you to place your biggest windows facing south. In my case, however, south faces the road. My north side faces the meadow, which is my view of choice. Because we rarely have winds from the north we placed our biggest windows there. On the east end we only have one tiny window and that's really a mistake. We actually open the door on that wall in the mornings to let the sun warm up the house. Silly.

The other thing to consider is the height of the windows. Some windows you'll want to see out of when you're seated and so they will be placed differently than ones where you will most often be standing. In my living room area the windows are too high for when I'm seated. The one above the kitchen sink is so high I can hardly see at all. Part of the problem, I think, is that most of the people helping us were taller than I am. The rest



The log home completed

is just that I didn't have the time to get a feel for what I wanted.

In my case there is also the question of what part of the surroundings do I want to see—the mountains, the sky, the meadow or the yard? I find it frustrating to look out a window and see trees and sky, but not what the puppies are doing in the yard.

Another important consideration is the sun. In the north where I live I want the sun coming in all year. There is never too much and so I don't need to worry about letting it in in winter and keeping it out in summer. If you possibly can, experiment before you put in your windows. Put a chair in your unfinished house and see where a window should be. We managed to place two of ours well. Whether I'm sitting or standing I see the yard, the mountains and the sky.

We made our doors and window frames with our Alaskan mill. They are very attractive and fit the style of the house. We ripped 3 x 8 boards for the doors and 2 x 8s for the windows leaving the inside edge unripped for a natural affect. The door sill boards (also 3 x 8) are laid directly on the sill logs. If you are using green logs leave a 4" space above each door and window to allow for shrinkage. Only 2"

are needed if cured logs are used. Frame in the windows and doors, but leave the glass until the end to avoid breakage.

We installed used doors which saved us a great deal of time. They are good quality, but someday we'll make our own.

When you are ready to resume setting logs, use full length ones above doors and windows. When the windows are not all the same you may have to make the whole log the second one above the openings. These logs are called tie logs and are important for the stability of the walls. The top logs should also be full length. The ones on the long side are called plates and directly support the roof.

We were advised to use three cross ties, logs which are placed on the plates and across the width of the house. They rest on the support pillars. Two support the loft, otherwise, I believe, one would have been sufficient for a 20 x 30 cabin, but the three do look good. We left a 4" space between the support pillars and the cross ties to allow for settling. Into that space we drove wedges which theoretically could be gradually worked out. Rebar is driven through the ties and into the pillars.

As with the rest of the house, we are getting shrinkage, but minimal settling. This seems to be mainly due to the spikes we drove through the window and door frames into the logs. We finally had to cut them out and drive in 20 penny nails which stabilize the frames but yield to settling.

Locating a loft

If you intend to have a loft, now is the time to make your plans. We made a great mistake in having ours at the west end of the house. It is so dark in the mornings that I have to look up at the mountain tops to see if the sun is up. This, despite the fact that our one window is quite large. What a joy it would be to wake to a lightening sky instead.

Another consideration is where you will spend your evenings. Our living room area is directly below the loft. The heating stove is there and if it is warm enough to be comfortable sitting there, the loft is outrageously hot. This is greatly exacerbated by the fact that we did not build the loft floor all the way out to walls of the house so that hot air billows up from the stove directly into the sleeping area. A ceiling fan would remedy much of this, but the DC model is very expensive. The kitchen area is quite cold at night and we rarely keep the cookstove fire going after dinner. So sleeping conditions would be better there.

The final consideration is this—we have beautiful cathedral ceiling above the kitchen, but where we sit in the "living room" we look at the underside of the loft floor.

O.K., now for the actual building of the loft. We milled 3 x 12 joists with our Alaskan mill. The joists are notched where they lie over the two cross ties and the top log of the wall. They are spaced 18" apart. At the place where the stairs would be we made one joist about a foot shorter to allow for a landing. The most distinctive 3 x 12 finishes the front edge of the loft.

If we had it to do over we would make the loft the width of the house. We have a great lack of storage space and the area too low to be of other use could have served as storage.

For the loft flooring we used the same tongue and groove 2 x 6's that we had salvaged for the main floor.

Putting in the gables

Now is the time to determine the pitch of your roof. Talk to people who live in your area and research articles and books on the subject. Our roof is 10-12 on one side and 12-12 on the other. This means that for every 10" up you go 12" out. (See Figure 1.)

The reason they are not the same is that our step down is not in the center of the house. That means that the pillars are not in the center. In other words, one side of the house is wider than the other and so the roof angles cannot be the same.

There are many ways to build gables. The method we used was fast which was our primary concern as it was already Nov. 19 when we built them. I wanted them to be made of logs, but there was no time, and the weight of the logs at such a height seemed prohibitive without fashioning a way to lift them other than by human power. I would have been happy if we could have used boards, but there was no money to buy them and no time to mill them.

To my horror a friend brought up a load of pressboard that was left over from a construction project. I had been adamant that I would not use any plywood, particle board or anything similar in my house. But then it became apparent that the supplies were there and I could either use them or forget getting into the house before winter. Now, the outside is covered with the slabs which were milled from the house logs and the interior is finished with beautifully colored 1 by's which we milled. It looks great.

We built the gables from pressboard framed with more of the salvaged 2 x

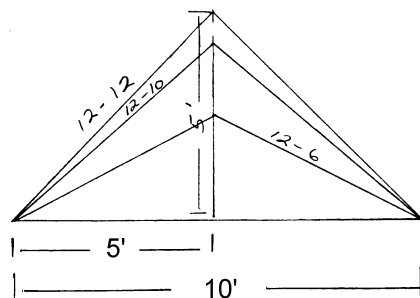


Figure 1

6's which were also attached as nailers. A support log 6" dia. extends from the top log of the wall almost to the peak of each gable allowing enough space on top to support the ridgepole. We built the gables on the loft. One was erected directly from there and we slid the other one across to the scaffolding waiting at the other end.

Lifting the gables into place was very exciting. It is very important to brace the gables until the roof is on. We used 2 x 4's for that.

Installing the ridge pole

Next comes the ridge pole. Let me tell you that getting that up even with

lots of bodies was quite a job. We had saved an especially fine, but even more importantly, a cured standing dead which was near the house. First we got it up on the top log and pushed it up to its pivot point. Then we had to get one end up the scaffolding and the other onto the loft. The end on the scaffolding went up onto the gable first. Then we slid the other end up the side of the gable which was no easy feat. It was wild and scary and almost dark, but finally it was up. Hurray!

Now you need to fill in the short logs that fit between the crossties because they will support the rafters. We used 5" poles for the rafters and spaced them 3 1/2" apart. They are spiked into the ridge pole at the top and the short logs and cross ties on the bottom.

When we had the rafters up we covered the entire roof area with blue plastic tarps. It was quite cold and snowy and even though we had a heat stove in the house it had become unpleasant to work. At that point we had to vent the heat stove through a window opening to avoid melting the tarp.

Next we installed the doors and windows and the cookstove which we



Dynah in her new log home.

also vented through a window. We installed insulation above the windows and doors where we had left space for shrinkage and settling. Someone had given us some cans of foam insulation which we sprayed in the corners and in the bigger gaps. While it did temporarily stop the wind it was actually a mistake to use it because it masks the openings if you aren't very thorough. You think it's closed off, but, in reality, it's only a thin covering between you and the outdoors—virtually useless, very expensive and ugly to boot. Don't waste your money on it. Later on we had to cut a lot of it away in order to chink properly—a real drag.

In order to maintain the integrity of the ridge

pole we placed two 6" dia. logs on top of the two of the cross ties above the pillars. These were notched to fit around the ridgepole. We didn't put one on the third because it is under the loft. For structural support of the gables 4" diagonals were placed from the pillar to the gable top and from the same pillar to the next ridge pole support.

Our next step was to insulate the windows between the frames and win-



The spiral staircase to the loft.

dows themselves and to insulate the gables.

And then it was Nov. 24 and Thanksgiving. We brought in sawhorses and the beloved particle board and our family and friends piled upon it the most wonderful feast. The first of many in our new home. They had to bring their own chairs, eating utensils and candles. We managed to get most of the ice scraped from the floor and made a couple of benches from slabs and logs and had a very grateful day.

When we put in the floor we started in the middle at the stepdown. There was a space between the final boards and the bottom logs so at this time we custom ripped some more 2 x 6's to fit in those spaces. It was slow and tedious, but it stopped cold air flow which was great.

Building the spiral stairs

The weather was pretty bad at this point so instead of working on the roof we did indoor construction such as installing more structural support poles, planing and sanding the floors and beginning the spiral staircase which connects to the middle support pillar.

The spiral staircase has its pros and cons. It is very attractive and in a way is the focal point of the house. In reality, I guess, that's all I can say in favor of it. It really breaks up the house which is one thing we wanted to avoid. Our house is only 30' long and yet when one of us in the kitchen and one in the living room we can't see each other which makes conversation difficult. We're forever walking around the staircase to talk. Maybe even more importantly it takes up a lot of room. We had opted for one open room to give us the illusion of space, but then here is this big staircase right in the center of the house.

Another disadvantage is its unsafeness. Maybe if it had been built by a real professional it would be safer, but while the bottom steps have plenty of

tread the top ones are sort of crowded together so that it's impossible to put a foot flat on the steps. In other words, we ran out of room. In addition, the railing is too low so that instead of using it we hold onto the cross tie and pillar when we go down.

I'll tell you how we built it in any case. Maybe you can correct our mistakes. The bannister or uprights that support the handrail are 3" poles. At the bottom they are spaced 12" apart which seems about right and toenailed into the floor. Each one is notched to hold a stair and the pillar is notched to hold the other end. The stairboards are 3 x 7's that we milled and 27" long. They are spaced for an 8" step. Our hand rail is about 28" above each stair and is made from peeled chokecherry whips.

Besides being toenailed the uprights are also glued to the floor. The stairs are spiked through the uprights and into the stairs and toenailed through the stair into the pillar. The top stair "floats" until the house settles. It is on top of the support pillar with a wedge between it and the pillar. There is a diagonal support from the pillar to the other end of the stair. That is because we cut off the upright to give us more space.

The landing is made of 2-2 x 6's. 2 x 8 boards form the 3 sides between the floor of the landing and the loft floor.

The weather remained poor so we put up more 3" poles, partly for support, mostly for aesthetics. We also installed cripples which are short 4" poles placed at an angle from the wall to the crossies. We worked, seemingly forever, planing and sanding both the main floor and the loft floor. Then we oiled the floors with soy oil. We used that because we could buy five gallons for \$18.00—a real bargain. The floor looked very beautiful when we finished.

A friend gave us a DC light so we installed it in the kitchen and attached it to a car battery. We began spending more of our evenings in the house instead of the tipi. We would stay

each evening until it got too cold to sit there.

When the weather finally improved we began again to work on the roof. We used salvaged 2 x 4's for purlins which we spaced two feet apart. On top of and perpendicular to the purlins we placed 2 x 6's on edge directly over the rafters. That allowed us space for R-19 insulation while letting the rafters show from inside. Over these "rafter extenders" we put more 2 x 4 purlins which serve as nailers for the metal roof. This was a lot of work and material whose only purpose was to have the rafters visible while still having space for the insulation.

Let me emphasize here how important it is to level and plumb continually. Some of our volunteers neglected to do that. The result is that every ceiling board has to be custom cut taking a tremendous amount of time. In addition, our roof is not square. So be sure to take the time. Eyeballing really isn't good enough.

Putting on the roof

Finally it was time to put on the roof. Along with insulation it was our main expense. We decided to buy new metal roofing and although we would have preferred green, we could not justify the added expense. Let me stress that metal roofing is the ONLY intelligent choice in the woods especially when we are miles from even a rural fire district. A roof of any other kind is simply not defensible in forest fire country.

When putting up the first sheet be absolutely certain that it is squared. Also, leave enough overhang for installation of the fascia. Count the extra expense of roofing screws over nails as well worth it. Before installing the ridge cap attach screening to keep out insects.

We couldn't afford to insulate the floor so we just did the perimeter which helped some. It's a year later now and we still haven't done the entire floor. There's always something



Dynah in the kitchen of her new log home.

else that seems more important, like land payments.

We moved our solar panel and the two DC lights and the radio up from the tipi and our furniture from the shed and the house began to feel like home. We moved in on the winter solstice just in time for another holiday dinner with our family and friends.

We had salvaged some maple panels that measured 32" x 37" x 2 1/2 from a drugstore that was being remodelled. After much restoration we were able to use them as countertops. They are really beautiful now. They are supported by 3" poles. We used a hole saw to make holes in the walls of the appropriate size and inserted the poles. They are supported by diagonal poles.

Some friends salvaged a stainless steel double sink which set into one of the counters. Our water barrel sits on a platform nine feet above the floor and gravity feeds the cold water faucet. A metal cylinder sits on the woodstove and a hose connects it to the hot water faucet. The drain pipe goes under the house and into a gravel spillway.

For shelves we milled 2 x 12's and used pole supports that are inserted

into the walls in the same manner as the counters. These work well and look nice, but we used uncured wood and they began to sag as they dried. We shimmed them, but eventually we'll replace them.

We vented our heat stove through the floor so that the warm air would not be drawn from the house, thereby pulling in cold air from outside and we insulated around the stovepipe. Every day we stuffed more insulation into cracks.

We milled 1 by boards to cover the gables and the ceiling. As we milled them we kept them in order so that the grain and color have continuity. The boards for the gables are placed diagonally and the effect is very attractive. The ceiling boards run horizontally between the rafters. Milling all the boards is really time consuming and we still haven't finished, but we appreciate each board.

One of the last major tasks for our house was fabricating a tower for the wind generator, but that's another story. Δ

Ayoob on firearms

By Massad Ayoob

The Marlin Model 60 — It's the classic backwoods home rifle

I recently bought a Marlin Model 60 .22 rifle. I needed it as an exemplar for a murder trial. An “exemplar” is an item identical to the one in evidence, which often cannot be accessed by defense experts.

The case involved a man who shot another man in his backwoods home. He claimed it was self defense. The prosecutor thought it was murder in the first degree. A single bullet had stopped the menacing giant who was moving toward the compactly-built 68-year-old householder. It caught him under the pectoral muscle, knifing through the liver and stopping in the spine. He died about an hour and a half later.

The Model 60 was designed to hold 17 cartridges. This one had been loaded with 12. The defense wanted to show that if murder had been intended, the defendant could have hosed a

I suspect the accuracy comes from Marlin's patented Micro-Groove rifling, a 1953 innovation. The same feature has always made their Model 336 the most accurate of lever action .30/30 deer rifles. I have one that shoots just over one-inch groups at 100 yards. Instead of the standard rifling of five to seven deep grooves, Micro-Groove features many more grooves, cut more shallow.

I would never recommend a .22 for self defense unless the user was so physically challenged he or she could not handle a more powerful gun. That said, if I had to defend myself with a .22, I'd definitely want it to be a semi-automatic rifle containing lots of cartridges. (The integral tubular magazine of the Marlin 60 apparently does not come under the wording of the Clinton Crime Bill's ban on removable box magazines holding more than

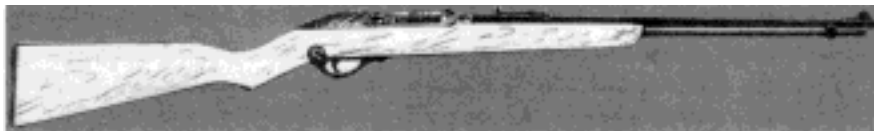


Massad Ayoob

The rule of thumb is that with a short-trigger-stroke semiautomatic firearm, the average person can fire about five shots per second running at maximum speed. The thing with the recoil-free .22 rifle is that the running person can actually hit what they're shooting at, if they have a reasonably good idea of what they're doing, and are at reasonably close range.

Fortunately, the average purchaser won't need the rifle for this grim purpose, and will have a more potent firearm in the home should such a need arise. Where the Marlin shines is as a fun gun. The factory describes this rimfire as intended for small game hunting and “plinking,” or informal target shooting. It should also do noble service for eradicating rural pests. A gun that puts every shot inside half an inch at 50 feet is all you need to permanently adjust the attitude of the freeloaders of the wild who believe your family garden is their salad bar, and it's accurate enough for barn rats and other disease-bearing vermin.

Between seven and eight million of these rifles have been made since the model was introduced in 1960. For the



dozen bullets into the deceased instead of the one, or could have shot that man and his companion six times each. Hence, the exemplar rifle.

Most of my work involves firearms more potent than the Marlin .22, but working with this gun as we prepared for trial gave me an appreciation for it. When I tested it at the range, the first five shots (using Remington's lead bullet standard velocity round) grouped into half an inch at 50 feet. That's not the precision you'll need to win an NRA rifle match, but it's very good indeed for a mass-produced, low-priced semiautomatic rifle.

ten cartridges, colloquially known as “clips.”)

In performing the tests requested by the defense lawyers, I was able to pump a dozen Winchester high speed hollowpoints (the same load used in the shooting in question) into the middle chest area of a human silhouette 12 feet away in 2.5 seconds. The next test—one silhouette in the same place, another about eight feet to the side and another three feet further away—resulted in 12 shots fired in 3.67 seconds, leaving each target with four hits in the middle chest and two in the head.

last decade, the factory has been producing about 200,000 of them a year. A lot have been sold through mass-merchandisers such as Wal-Mart. Many were produced for Sears under their J.C. Higgins private label (and, I suspect, their Ted Williams signature sporting goods series); for Montgomery Ward under their Western Field label; and for Western Auto stores as the Revelation brand. A great many were also marked Glenfield, Marlin's own economy grade in-house brand.

Current suggested retail is about \$158, but it's almost universally discounted. Though I generally prefer to buy guns at gun shops (better point of purchase service, more knowledgeable advice, better follow-up service), none of the local gun shops had one in stock, so I had to go to a Wal-Mart. One store was retailing Marlin 60s for \$123, but was out of stock; the other listed them for \$97 and had one left. That one had gone back to the factory for reasons the clerk was unclear about, so I got it for \$80. It worked fine. That's about the right price for a good used one. Use of cheap birch instead of traditional walnut for the stock, and other production economies that "take out the fancy and keep the performance" has kept the price reasonable.

Mine doesn't have a scope on it yet. If it shoots a half-inch cluster at 50 feet with the simple iron sights (post front, notch rear), Heaven knows what it'll do with a good glass on top. Any time you scope a .22, by the way, you'll be wise to avoid the narrow-tube models built expressly for that caliber gun. They tend to give a poor field of view and gather little light, and they don't stand up well to heavy use. A budget version of a high-power rifle scope with a full one-inch diameter tube is always a better choice. The optics are far superior, you'll shoot better with it, and it's much more likely to stand the abuse of farm use, particularly the constant vibration and

A BHM Writer's Profile: Allan and Marjorie Harrison

Marjorie and her husband, Allan, have been happily married almost 54 years and do almost everything together. They raised three boys and a girl and Marjorie put Allan through college. Today she is semi-retired but still works part time as a teller in a local bank and as Secretary/Treasurer of a recently formed nonprofit and tax exempt foundation located in Moreno Valley, California, called the Self Accountable Children's Society (SACS). It is designed to create self-reliant children at school and home, as depicted in her article published by BHM.



Allan, a captain in the Retired Reserves, began teaching elementary school in Moreno Valley Unified School District in 1959, where he innovated the "Harrison System" to instill self-reliance in children that Alice described in her article.

Later, Marjorie and Allan started and operated two different private elementary schools in Santa Ana and San Diego. Presently, Allan is President and Executive Director of the SACS Foundation.

Marjorie coauthored and self-published two book manuals with her husband in 1979 called "Discipline At School Made Easy" and "Discipline At Home Made Simple." With Allan's help she also wrote the article contained in this anthology.

jarring of riding along when you're on truck or tractor or snowmobile. (I've heard it said that the mark of the master rifleman is that he often pays more for his telescopic sight than for the rifle under it.)

At the age of four, I fired my first gunshots with an autoloading .22 rifle similar to this one (but no longer made), the old Stevens Model 87. I've found myself taking my new exemplar gun out to the range and shooting just for the heck of it. I haven't exactly rediscovered my childhood (though there's some speculation I might be entering my second one), but I've enjoyed shooting this inexpensive, lightweight, accurate little rifle.

Millions of these modest Marlins are everyday working tools in rural homes

for pest eradication and the gathering of squirrels and rabbits for the larder.

If you know your livestock anatomy, such a rimfire rifle is all you need for humane slaughtering. A .22 bullet almost invariably stays inside the brain cavity of a steer or hog, but when placed in that brain, it kills as quickly and painlessly as a more powerful gun.

Marlin's Model 60 is a gun well suited for the lifestyle that *Backwoods Home* celebrates. It's plain, economical, unpretentious, and always seems to work. It does the job. It's fun. You can pass it on to your kids. It's the embodiment of backwoods living, rendered in birch stockwood and blued gunmetal. Δ

Think of it this way...

By John Silveira

Just how smart is that computer on your desk?

We were in deadline at the office. Things get hectic then. There are long days and even longer nights and a certain amount of tension permeates the office as we rush to prepare the magazine for publication. On top of that, the submissions were a foot-and-a-half deep on my desk and I wouldn't be able to get to them until after this issue went to print. But that didn't stop more from coming in everyday.

Outside, the sun was shining. It was teasing its way through the venetian blinds and I think it was calling my name. Behind me, O.E. MacDougal, the poker-playing friend of Dave Duffy, the publisher of this magazine, was taking his fishing reel apart. He'd arrived the night before and soon would be heading out to the lake.

When Dave walked in the door he looked at Mac. "When'd you get here?"

"Last night. Figured I'd stay here at the office."

"Good. Glad you could make it." He looked at the reel in Mac's hands. "Mac, I wish I had your job."

Mac smiled. "I lost \$12,000 down in Reno last weekend."

"Is that a joke?"

Mac shook his head.

"Humph. Guess I'll keep my own job," Dave said and sat down as he flipped the switch to turn on his computer.

"You really lost \$12,000?" I asked.

He nodded while he looked inside the disassembled reel.

"I can't believe you're sitting here getting ready to go fishing after losing \$12,000. Of course, I can't even believe you play poker for a living."

He shrugged and continued to examine the reel. "I've lost big before. But I always make more than I lose by the

end of the year. Besides, I get to go fishing whenever I want."

I shook my head. "There aren't enough fish for me to be able to live with a loss like that. I wouldn't be able to sleep at night."

Dave was staring at his computer. He watched it go through its exercises, one screenful of commands after another that have to be executed before he can use it. "These things take too long to boot up. I need a faster machine." He drummed his fingers on his desk. "Did you guys follow that chess match between the Russian and the computer?"

"Garry Kasparov and the IBM computer they call Deep Blue," Mac said.

"That's right. Did you think Kasparov was going to win as convincingly as he did?"

"Sure," Mac said.

Dave turned to say something but I interrupted, "How was that possible? How could a man beat such a sophisticated computer. I didn't think computers made mistakes."

Mac looked up from his reel.

"Do you guys play chess?"

We both nodded.

"Do you play well?"

"Silveira does."

"I'm just fair," I said. "I'm not really any good."

"In that case, I must be lousy," Dave laughed.

"You are," I said.

Mac smiled. "Well, most people think chess grandmasters play chess the same way they do, only better. But that's not how they play at all. Computers, however, *do* play like you do, only better."

"I'm not following you," I said.

"It would help if you understood the difference between the way you and grandmasters play. At your level of



John Silveira

sophistication, you look at a bunch of different moves and hope you'll see a way you can capture some pieces for nothing, and sometimes you even get lucky and find a way to pull off a sneaky checkmate your opponents have overlooked. I'm going to suppose you imagine that grandmasters play the same way, only better. But that's really not the way they play at all. They're too good to just leave pieces hanging out there to be captured for nothing and they don't carelessly fall prey to simple checkmates. Oh, there are some famous games where spectacular blunders have been made—grandmasters are still only human—but, in general, those things don't happen when they play each other."

"Then how do they play?" I asked.

"Instead of just grabbing pieces or instant checkmates, grandmasters look for strategic advantages, just like a good general does on a battlefield. A chessboard has its own terrain, like a battlefield. Getting your power concentrated in the center of the chess-

board is like taking the high ground in a battle. Having freedom to move your pieces is like having good supply lines and mobility in battle. Secure lines of pawns can become incredible defensive positions. There are all kinds of analogies between war and chess, and, just like a good general in war, a good chess player will try to win all the tactical and strategic advantages he can before the big battle is fought.

“But most of the strategic advantages they fight for are so subtle that they’re lost on the minds of average players. A grandmaster knows that if he wins these little struggles he can improve his position, even though the rewards won’t be realized for 10, 20, or even 30 or more moves. And that’s beyond what any player or even the best computers today can see.”

“How many things could he possibly look for?” I asked.

“Well, it’s been estimated that a grandmaster has about 100,000 rules of thumb stored in his mind.”

“100,000?” I asked incredulously.

“Some are obvious like the three I’ve mentioned. There are a bunch of others like commanding open files, keeping pawn chains intact, centralizing knights. Any of these sound familiar?”

We both shook our heads.

“The ones I mentioned are the kinds of things you learn when you first decide to improve your game beyond the novice stage. But there are thousands of other things a grandmaster has to be aware of and that’s what makes them great players.”

“I don’t know half of what you’re talking about.” I said.

“And I just look for moves,” Dave added.

“And that’s what both of you have in common with a computer because that’s all a computer does. It has no feel for strategy. With its tremendous calculating powers, all it does is look for moves.”

“But how can a computer play against a grandmaster if it plays the same way I do?” I asked.

“You can only look at a few moves at a time, but Deep Blue can calculate 80 to 120 million moves a second. That’s more moves in a second than have been played in all the games between grandmasters since the game was first invented.”

“Wow,” I said.

A human can’t look at more than a handful of the possibilities before him. But the computer, with its incredible move-crunching abilities and lightning speed, can examine millions.

“How does it choose its moves out of all those possibilities?” Dave asked.

“The programmers put a software routine in that evaluates each sequence of moves the computer looks at; low values go to moves that are detrimental to the computer and high values go to moves that benefit it. From the millions of moves examined, the computer picks the move with the highest value.”

“How many moves does a grandmaster look at?” I asked.

“Probably no more than either one of you do.”

I was stunned. “But how can humans win when they look at so few combinations?”

“A grandmaster doesn’t have to look at every combination. For one thing, he knows most are fruitless. For another, it’s more profitable to focus on those strategic moves he knows are going to pay off further along in the game in situations than neither he nor the computer can see.

“Someone once defined a good chess player as one who knows what to do when there’s something he’s got to do, and a great chess player as someone who knows what to do when there’s nothing to do. And that’s the difference between Kasparov and the machine. The machine always knows

what to do when things are obvious, but Kasparov goes beyond that; he knows what to do when there doesn’t seem to be anything to do.”

“Those little strategic goals,” Dave said.

Mac nodded.

“How many moves deep can the computer see?” I asked.

“Within the time limits imposed on it by tournament play, probably no more than a dozen because at that point the number of possibilities exceeds what even the fastest computer can readily calculate.”

“So,” Dave said thoughtfully, “when a good chess player plays a computer, his best strategy is to play for those little strategic goals the computer isn’t programmed to know exist, and to play for advantages further along in the game than the computer can see.”

“That’s exactly what they do.”

“On the other hand,” Dave said, “when the computer plays, its best strategy is to try on all the moves for size and see which one works.”

“I like the way you put that because that’s exactly what the computer does. It’s the essential difference between men and computers.”

“But the machine also has other advantages,” Mac added. “It doesn’t get tired, it doesn’t make mistakes, it doesn’t get upset, and it finds unusual lines of play that would never even occur to a human opponent.”

“What do you mean by that last point?” I asked.

“A human can’t look at more than a handful of the possibilities before him. There are just too many to consider. But the computer, with its incredible move-crunching abilities and lightning speed, can examine millions. It’ll find unusual moves that are good that the grandmaster can’t find because he doesn’t know how to look for them.”

“It’ll find the ‘needles in the haystack’ that grandmasters wouldn’t bother to look for,” Dave said.

“That’s right.”

“How good will computers get?” I asked.

“Not only will computers in the future be able to look at even more moves and go deeper into the game, but with the help of good chess players they’ll be able to build up a repertoire of good positions that will emulate the strategic rules of thumb the grandmasters use. One day, no human is going to be able to beat a good computer again.”

“If a computer can beat a man at a game as complicated as chess,” I asked, “is there any game we’ll be able to beat them at?”

“Sure. Just change the rules. Instead of an 8 by 8 board, make it a 10 by 10 or 12 by 12 board and add some new pieces that have new kinds of moves. A game like that would suddenly overwhelm the computer—at least until the next generation of computers comes along—by making the number of possible moves it must examine go from the billions to the trillions.”

“Why?” I asked.

“A huge increase in the number of possible moves isn’t a big handicap to the human player because his play is based on strategy, and the quick formulation of strategies is always within the conceptual grasp of good players, even as the complexity increases.

“To the computer, however, if you increase the number of possible moves by a factor of 100, you increase its workload by a factor of 100.”

“You’re saying the brute force calculations would become less decisive, but the way we think, by generalizing strategies, would become advantageous.”

“That’s right.”

“Why do you think Kasparov lost the first game?”

“I was surprised,” Mac said. “I don’t think any grandmaster’s ever lost to a computer under tournament conditions before. Maybe a computer will be the world champion before we know it.”

Chess and IQ

“Maybe computers will become as smart as we are,” Dave said.

Mac gave Dave a funny look. “Actually, there’s no correlation between the ability to play chess and intelligence.”

Almost simultaneously Dave and I said, “I find that hard to believe.”

“There was a Cuban player earlier in this century named Jose Capablanca. Some consider the him greatest player

What they found, to their own surprise, is that there is little, if any, correlation between chess ability and I.Q.

that ever lived. He didn’t consider chess a game of intellectual prowess at all. He said it’s an art. In fact, some of his contemporaries hated him because he said some of them were actually stupid.”

“I don’t see how you could be stupid and be good at chess,” I said.

“In the 1950s, the Russians confirmed his assertion. Chess is a national obsession with them and they conducted extensive tests to identify potential chess prodigies. What they found, to their own surprise, is that there is little, if any, correlation between chess ability and I.Q. Some of the Soviet grandmasters were superb players, but otherwise of ordinary intelligence. However, they did discover that what makes a good chess player is the ability to manipulate objects in your head and to have good long term and short term memories.”

“Then that’s all the computers have going for them,” Dave said.

“And speed.”

“And speed,” Dave added. “Otherwise, the computer is just an idiot.”

Mac nodded. “The machines of science fiction that are conscious and more intelligent than man are just that—science fiction. Deep Blue can only play chess. Put some other kind of software on it, and it can only do that. A human mind can do a whole bunch of things—many of them pretty

well and quite a few others better than any computer.

“Before anyone makes a computer that can really compete with humans, something fundamental is going to have to change in the way we manufacture and program them. We’re still a long way from making a computer that can duplicate, or even mimic, a human’s brain. We can’t even make one that duplicates a bee’s brain.”

“Why are the computer scientists wasting their time and energy on a computer that can just play chess?” I asked. “Why aren’t they trying to solve some of the world’s big problems?”

“Chess may seem like a waste of money and time, but it’s not. By building a computer and devising programs required to play a world champion at chess, they’re developing computer architectures, algorithms, and programming techniques that will be used to solve other problems once thought to be beyond the capabilities of humans and computers. Some will be as mundane as scheduling and routing airport traffic. Others will involve problems in economics, chemistry, medicine, and who knows what else.”

“Well, why not go right after solutions to those problems?”

“Because those problems aren’t as simple as chess. In chess, there are wins, losses, and draws. And even if your computer loses, its performance can be readily evaluated. If a computer can play a decent game of chess, maybe it’ll be ready to tackle something tougher. But if it can’t even play chess well, what chance does it have with more complex problems?”

“You know what I want?” Dave asked. “I want a machine just like Deep Blue on my desk.”

“That power will actually be available to the consumer in the relatively near future.”

“Really?” we asked.

“Sure. The chips Deep Blue used are all on the market now. One of the things this chess exercise did was show how the hardware and the soft-

ware developed for it can work together. This kind of power will eventually be in the consumer's hands. It's just a matter of time."

"Well, I want one," Dave said and we all fell quiet for a few minutes. Dave and I started working while Mac reassembled his reel.

"Do you play chess anymore?" I suddenly asked Mac.

"No. I kind of lost interest in it."

"It's not like your game, poker," I said. "There's no chance in chess."

"That's not true," he said.

"You're joking."

Dave stopped working and turned around again. "There's chance in chess?"

"Do you remember the American who was world chess champion, Bobby Fischer?" Mac asked.

"Yes."

"When analyzing games, he often talked about winning chances. What do you think he meant?"

I shrugged.

"Well," Dave said, "it sounds like he meant that since there are billions of possibilities down the line, but no way to see which one's going to come about, that the chance lies in the decisions we make, even though, in theory, we should be able to see them all."

"That's right. In theory, chess is a game of perfect information, like tic-tac-toe."

"What's that mean?" I asked.

"A game of perfect information is one where you can see the result of every move and countermove, like tic-tac-toe. Even a school kid can see how every move in tic-tac-toe has a logical best countermove. In theory, chess is the same way, but..."

He hesitated there for a moment. I think he was expecting a response from us and suddenly Dave said, "But chess is so complicated that future moves get murky. Even a computer, whose forté is that it can look at hundreds of millions of combinations, can still only see so far. Beyond that horizon are unknown positions, and the advantages or disadvantages that are

going to befall the players are unforeseeable. The choices we make to get to those futures are the chances we take."

Mac nodded. "It's almost a certainty that one day chess will be a game of perfect information, but only to a computer. It'll never be completely knowable to the human mind."

"Boy, that's a philosophical bone to chew on," Dave said.

"Do you see any downside to computers playing chess so well?" I asked.

"Sure. Just wait because someday, someone's going to cheat in a tournament with one."

"How?"

"Computers are getting so small that someday someone will conceal one on his body and use it to cheat in a chess tournament. It's conceivable that in some local tournaments, it's already been done. How would the tournament officials know?"

I shook my head. "How do you think of these things?" I asked.

He shrugged. "Active imagination?"

Computers and fishing

Dave was still thinking. "You know," he said to Mac, "I think I've learned a lot about computers today. If I had to sum it up, I'd say first that computers don't think like us—in fact, they don't think at all."

Mac nodded.

"Second, they're still nothing more than glorified adding machines. Third, our forté as humans is that we can take information and formulate generalizations and strategies from it instead of having to consider every possibility. Computers can't do that—yet."

Mac nodded again.

"And fourth, a computer doesn't even decide what to think about, or even how it's going to think about it. We have to tell them how to do these things."

"I'd agree with everything you've said so far," Mac said, "but you're leaving out the most important thing."

Dave and I thought for a few seconds.

When we didn't say anything, Mac said, "They can't fish."

"What?" we asked.

"They can't fish."

I said, "Well, we could rig up some kind of net and one of those fish finders to a computer and they'd do a pretty good job of catching fish..."

"No, John, I'm saying a computer can't fish."

"But with the right electronic equipment attached to it..."

"You're not listening to me, John. You don't have to catch fish to go fishing."

"Oh, I see what you're saying. They can't...won't..." I groped for words.

"That's right, we enjoy life. A computer doesn't."

With that, he stood and gathered up his fishing equipment. "I'll probably be back for lunch. Maybe I can supply it."

He walked out the door. We could hear him get into his car and start warming up his engine.

Dave drummed his fingers on his desk. "You know, we speed up for deadline, we slow down in between."

I looked at him.

"How far behind are we?" he asked.

"Looks...bad," I said.

"Wanna just work like dogs, tonight?"

"Sure."

"Mac," he yelled as he jerked the door open.

Mac wasn't quite out of the driveway when he hit his brakes.

"Wait up," Dave yelled.

Dave grabbed his fishing gear out of his truck and I got mine from the trunk of my car.

"Hitch a computer up to a net and a fish finder," Dave mumbled to me as we jumped into Mac's van. "Where do you get those crazy ideas, John?"

I shrugged as Mac shifted the van into drive and we were off into the sunshine. Δ

Ducks contribute to a homestead in many ways

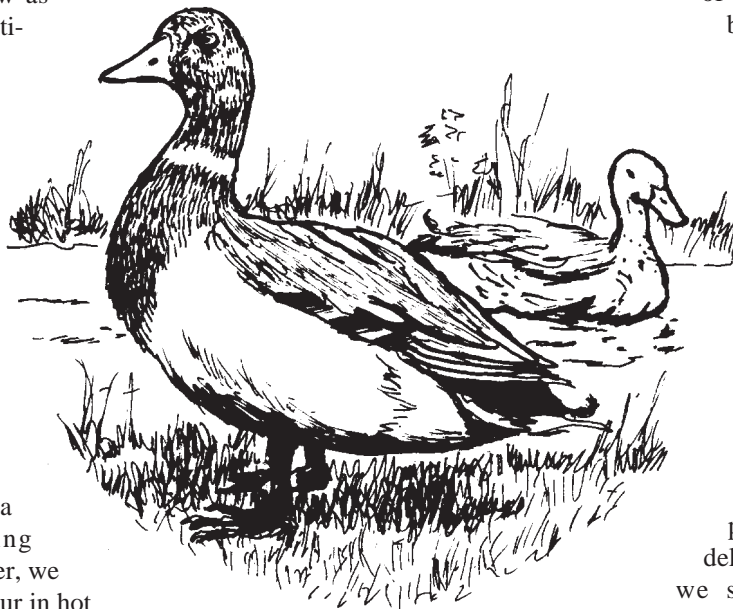
By Sylvia Gist

Free ducks! The ad on Tradio was irresistible. (Tradio is our local buy-sell-and-trade radio program.) I had always wanted to have ducks. It had never been a possibility before, but now that we had a place of our own out of town, we had the space and could think about raising them. In the beginning, I just thought they were cute. I learned they were far more.

When we picked them up, we found out they were Rouens, a “general-purpose” duck of fair size which resembles the mallard (only larger) and is sometimes called by that name. Within a few weeks, we chose two hens and one drake to keep over the winter. At that point, I was as yet unaware of the great asset they would become to our budding organic lifestyle and our effort toward self sufficiency.

From the start, their needs were minimal. Rouens will forage for themselves for a part of their feed if given the opportunity, so they do not require great amounts of commercial feed. For shelter, we provided them with a small building, perhaps 4' x 2' x 2' high, which they persistently ignored, sleeping in the open until the first measurable snowfall. At that point, they reluctantly moved inside. To go in the snow, they waddled out and quickly dropped to the ground, pulling their feet up in their feathers. They would flap their wings rapidly and attempt to skim the snow as they headed for their destination.

However, in spring, they thoroughly enjoyed sitting out in the rain. Only windy, blustery days would drive them to shelter. We constructed a makeshift shelter from straw bales to serve as an alcove in which to put their feeder (handmade by my husband from 2x4s). An old dishpan served as a waterer (and swimming pool). In very cold weather, we had to chip the ice and pour in hot water, which provided them very enjoyable swimming. This swimming hole



was barely large enough to accommodate them in mating, so as the weather warmed, we provided larger water containers.

In spring, the hens laid eggs in the corner of the little “duck house,” which had been abandoned with the warmer weather. This small shelter served the hens as they brooded for the required 28 days and continued to provide a home for the family as the ducklings grew. In just a few days, the little ones were out adventuring under the watchful eye of mama, seeking out the swimming hole, which, for them, happened to be a shallow black rubber feeder we had purchased at the farm store.

Liquid fertilizer

It was this swimming water (and any water they would subsequently be able to throw themselves into) which provided a major contribution to our ecosystem. Ducks “foul” the water, adding a lot of nitrogen, which, if the water is dumped, will go to waste. We were able to make use of this “liquid fertilizer” in the garden, which we were striving to grow organically. I transferred the water to five gallon pails (procured from a fast food restaurant), carried it to the garden, and distributed it by the quart to lettuce, leeks, and other nitrogen-loving plants. Carefully avoiding direct application to leaves, I poured it on the ground at the base of the plant. The result was big, beautiful heads of leaf lettuce, from which I trimmed the outer leaves. I then fed those leaves to the ducks. Since the two hens hatched out 27 ducklings, we had a plentiful supply of nitrogen-rich liquid fertilizer during the summer.

Delicious meat

Not only did this large flock provide a great deal of fertilizer, they went on to provide my family with a lot of delicious, tender meat. Although we slaughtered most of them between the ages of eight and ten weeks, we could have waited longer and

A BHM Writer's Profile: Mark & Lynn Klammer



Mark is by profession a computer technician and, by education, a geologist/chemist--but at heart he will always be a farmer. Lynn and their four children just try to keep up with him.

missed some of the pinfeather problems. For this reason, we ended up skinning many of them. Those which picked fairly clean, we froze for roast duckling. We cut up the skinned ducklings, separating the pieces, and packaged them to meet our needs. I saved all the livers for frying fresh—a real treat served with eggs and toast for breakfast.

There are plenty of recipes for roast duckling and various stuffings, but what does one do with skinned pieces? One recipe I borrowed became a favorite of ours. First dredging the pieces in seasoned flour or biscuit mix, I brown them in duck grease in a cast iron chicken fryer. Next I add chopped onion and some water. Then I turn the heat down, cover, and let them simmer until the meat is fairly tender. In the last 30 minutes, I put in small whole potatoes or chunks and allow everything to simmer until done, adding water as needed. Finally, I remove the meat and potatoes and make gravy.

The grease I use for browning is obtained from the drippings of a roast duckling. It also can be used as a substitute for butter on popcorn.

Eggs

Another source of food is the eggs. The Rouens are an all-purpose breed, which means that they are only average egg layers, as ducks go. My initial

intent was to raise baby ducks, so I gathered the eggs only in the early spring when the nights were freezing and the eggs would be damaged. As soon as the weather improved (which happens in April here in western Montana), I left the eggs in the nests. Both hens laid in the same nest until one hen claimed it and began to set. As I watched the eggs pile up (and since neither hen seemed to be broody), I took out a few eggs, trying to keep the total between 12 and 15. These eggs I boiled, mashed, and fed to some new baby chicks we had at the time. The earlier eggs, however, I used for baking, allowing one duck egg for every two chicken eggs.

Down and feathers

Their contributions do not stop here. A by-product of slaughter was the down and feathers. Picking the ducks dry, we plucked the big feathers into one barrel. These feathers would go into the compost pile. We moved to another barrel to deposit the very small feathers and the down. To clean them for later use, I plunged them into a five-gallon bucket of warm water (adding soap if they were really dirty) and swished them a few minutes, transferring them by handfuls to a new bucket of clean water. I then used a pillowcase, turned wrong side out, as a strainer, pouring the water and feathers into it. (Don't put an excessive

amount of feathers in one pillowcase, or they'll be so crowded they won't dry and fluff properly.) I squeezed out the excess water, put the wet ball of pillowcase and feathers in a mixing bowl, set it next to my sewing machine, and securely sewed the top shut. To extract more water, I used the spin cycle on my washer for a few minutes. Next, I threw it in the dryer on low for a while and then on "air dry" for a while. They come out soft and fresh-smelling. One just has to rip out the stitching and transfer the feathers to the desired destination.

Simple pleasure

A less tangible by-product of raising ducks is the pleasure I get from watching them. Excitement gripped me as I saw the tiny black and yellow heads peeking out from under the hen. A few days later we praised the hen as we admired her fluffy offspring—black and yellow like bumble bees—running energetically around in the pen, hopping gleefully into an opportune pan of water. A loud squawking from her would bring me running to the pen to see what trouble "Mother" couldn't fix by herself. A warning cry from the duck hen when a hawk flew over would send not only her ducklings to shelter, but also our young chickens and turkeys.

As the babies grew, they ate with the same zest with which they swam. In this energetic fashion, they learned that lettuce (the candy of the duck world) came from humans, and they would beg when I approached. As they grew, they were always optimistic—a delight to watch.

We provide our ducks with water, some feed, and minimal shelter, and they provide us with eggs, meat, feathers and down, fertilizer, and simple pleasure. They are economical, definitely giving more than they take ...all in all, a great addition to our farmstead. Δ

Concrete domes have some impressive advantages

By Lance Bisaccia

In the mountains above Ashland, Oregon, there's a place where you can pull your car off the road and look up and see three linked concrete domes whose sides merge into each other like 20-foot soap bubbles. Their appearance is a little strange and very pleasing. When I interviewed the owner/builder, Steve Wolf, I learned that they have a *lot* more going for them than their looks.

Steve was a builder for ten years, but he got sick of community design reviews and building regs that put inappropriate limitations on builders. He decided to design and build his own place. As he studied various construction technologies, he found himself increasingly impressed by the advantages of concrete domes—advantages that center around their structural integrity. A concrete dome transmits stresses through its structure,

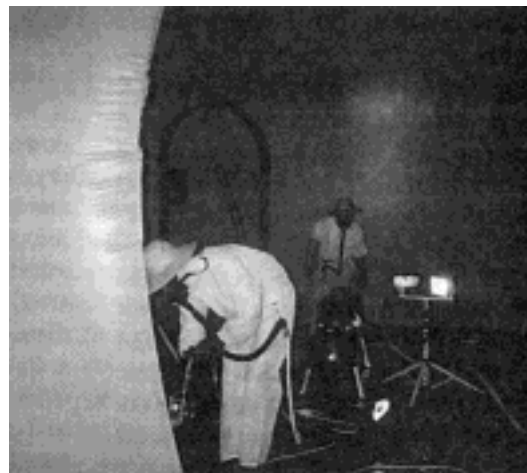
which makes it very strong. This kind of structure can last for centuries, in case you'd like to make a house your great-grandchildren can enjoy.

There's a special feeling about being inside a dome, with its soaring spaces, unbroken by internal supports. Steve calls it "inspirational." He points out that a concrete dome is also

Fireproof: Not only will a fire *outside* the house normally be stopped by the concrete, but a fire *inside* the house probably won't spread to the forest (or in another setting, the neighborhood) around the dome.

Earthquake-proof, compared to conventional construction: It should handle a Richter 7.

Windproof: It has no vertical surfaces or overhangs for the wind to hammer and tear. About 70% of homeowners' insurance claims are wind-related.



Inside the air form

Steve showed me a photo of a nice-looking residential dome in hurricane country and said the owner just wasn't worried anymore.

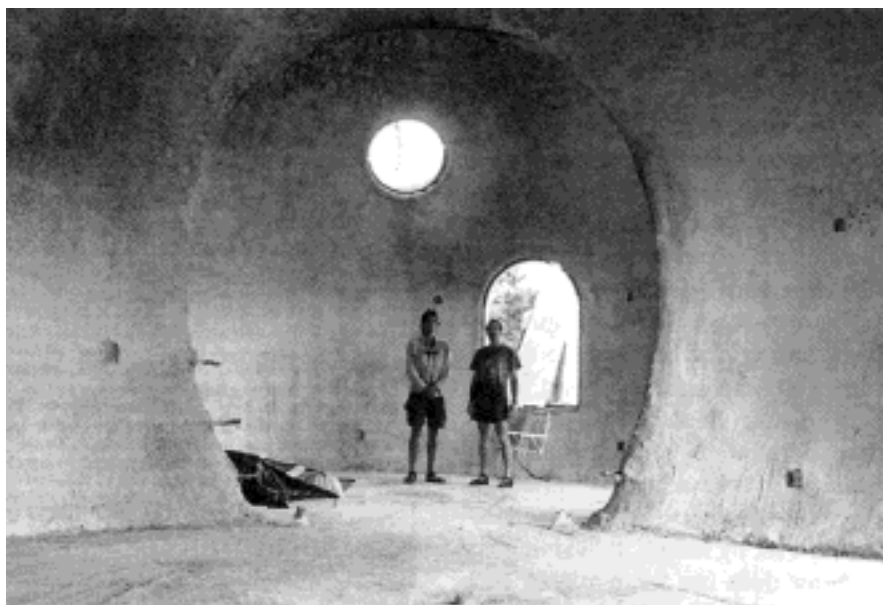
Strong enough to berm or bury: You can berm up the side as high as you want, or even bury the entire height of it, and get your building out of the temperature extremes of the surface.

The construction techniques Steve used are fascinating. Some of them were also technically very demanding (the foam) and quite costly (leaving the air form in place). Later on in the article, we'll take a look at some alternatives that most of us would find more manageable and more affordable.

The dome is constructed in a pretty amazing way: the concrete is *shot* from a huge high-pressure hose onto the inner surface of an inflated air form that's as big as the finished dome. Does this mean that you're actually working *inside* a huge balloon? Yes it does.

Here are the steps:

Pour a concrete slab for your foundation, **and anchor to it (1) the air lock, and (2) the air form**, which is made of very strong reinforced vinyl. For Steve's house, the air form is being left permanently in place as a



The application of shotcrete is complete.



Framing for door opening. Blue air lock is visible in the background

vapor barrier. After a few years, sunlight would damage the vinyl, so it will be covered. (Part of Steve's domes will be finished with stucco and part will be bermed.) The edge of the slab is a "keyway foundation" from which sprouts the first course of vertical re-bar. Steve used a vibrator on this part to get all the air out of the concrete, for extra strength.

Inflate the air form with a powerful fan, which needs to keep running until the dome-sized grid of re-bar is complete. Vents maintain the correct pressure in the air form. Steve's air form was custom-sewn by a company called Monolithic Constructors in Italy, Texas.

Inside the air form, **place wooden forms to define doors and windows.** You'll create your grid of re-bar around these future openings.

Blow one inch of foam insulation over the entire inner surface of the air form (except your "framed openings"). Steve described this material as a "plural-component urethane foam," and he said that applying it was one of the most challenging parts of the project. The foam is very fussy, and it can't stand any moisture or tem-

peratures under 45°. It's sensitive to ultraviolet, so you don't use it on outside surfaces. It's not your ideal do-it-yourself technology: you'd probably want an experienced worker to apply it, which naturally increases the already considerable cost of the stuff. Fortunately, as I indicated earlier, its use is not essential to making a concrete dome, and we'll take a look at some alternatives later.

Once that first one-inch layer of foam sets up, **install re-bar hangers** all over the inner surface. Each of these ingenious hangers combines a staple that you drive into the foam, a flat surface that will be held in place by the *next* layer of foam, and a pair of six-inch wires that you'll twist to bind the re-bar into place. **Apply another two inches of foam.**

The foam has excellent insulation properties, and makes it possible to provide almost all needed heating for Steve's domes via solar gain. The domes' total floor area is 960 square feet, with eighteen-foot ceilings. In December of 1995, up there on the snowy mountainside, it cost him \$14 to keep the domes at 60° for the month.

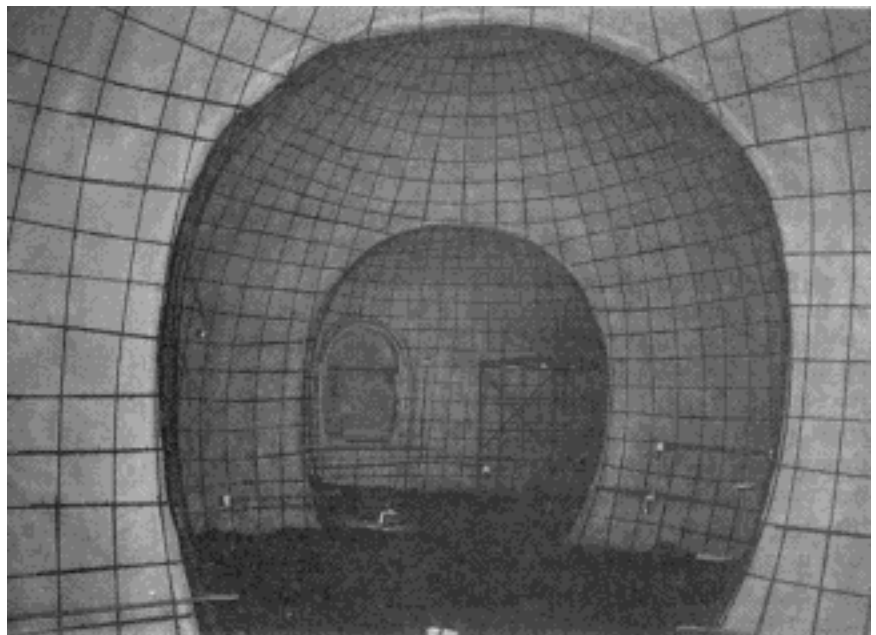
Create a grid of number-three re-bar on ten-inch centers, a grid that covers the entire inner surface of the dome (except the defined openings). Do the horizontals first, then the verticals. When the grid is complete, you can turn off the fan that's been keeping the air form and the foam in shape.

Install your electrical conduit and plumbing pipes, attaching them to the re-bar grid. They'll be inside the concrete.

Now it's time to **shoot the concrete onto the re-bar grid.** You use a special super-high-density type of concrete mix called *shotcrete*. Here is a typical recipe:

- one yard of sand
- seven sacks of concrete
- three ounces per yard of industrial soap (to create small air bubbles)
- Easy-Spread (Bentonite clay) to make the shotcrete flow better
- "cottony" polymer fiber to reduce hairline cracks and increase strength

You spray it on with a special electric shotcrete pump. A 185 cubic-foot/minute compressor adds air at the nozzle. Steve said this was the hardest part of the process. (Once again, an owner/builder might think twice about



The re-bar grid



Rear view of the domes, covered by the air forms

trying to do this himself. We'll consider an alternative below.) You shoot on seven applications of a half-inch each, and at every coat, you trowel and scrape and smooth, using traditional concrete-finishing tools. When it's done and cured, you can finish the interior with plaster.

Inside the dome, you can use conventional stud framing to create interior rooms, a loft, etc.

Steve is planning to berm the back of his domes to a height of 12 feet. One of the virtues of the dome is that it's strong enough to permit this. Similar domes have been buried to a depth of 22 feet.

A different approach

After I spoke with Steve, I looked up a man named Miten Ahern, a contractor who has done concrete dome construction and is preparing to build them in a new and innovative way as part of his business. Miten was one of the first students at the dome-construction trainings offered by Monolithic Constructors (the company that created Steve Wolf's air form).

Miten's new and more affordable approach goes by the name of Eco-Straw Domes. In this technique, the

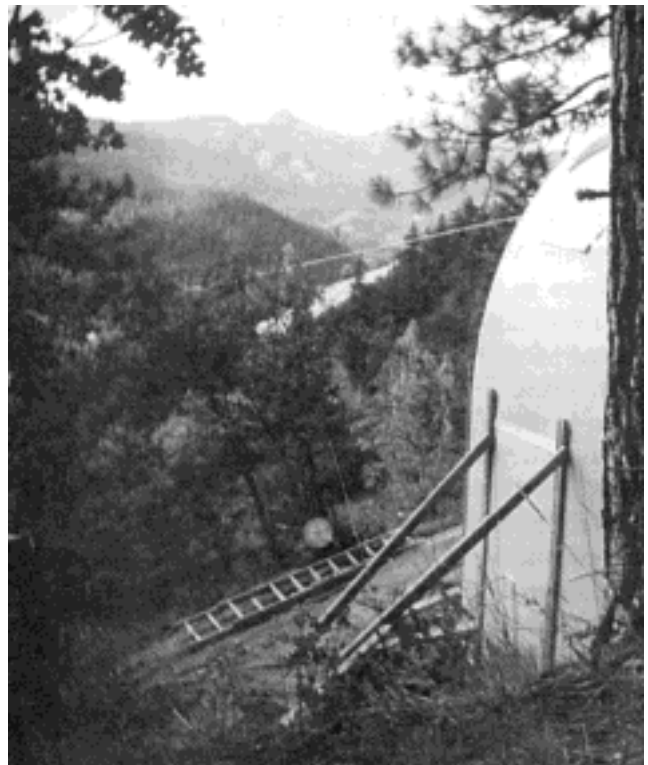
re-bar grid is constructed *outside* the air form, and the shotcrete is applied to the *outside* of the form. This method became possible fairly recently, when a new and stronger fabric came into use for making the air forms. This stronger material can withstand a higher internal pressure, which makes the form more rigid, so it can withstand the high-velocity application of the shotcrete from the outside.

One of the important benefits of this new technique is that the air form can now be removed and re-used many times. What this means to the owner/ builder is that now you can *rent* the form instead of having to buy it. This

brings a very substantial reduction in the cost of the house. Renting an air form costs about \$1/square foot, plus about \$1/square foot for shipping. You can rent both the air form and the inflation fan from Monolithic Constructors.

So: you do your slab and footing (a one-day pour). In this version, you install your electrical conduit and plumbing pipes (and hydronic tubes for heating) in the slab. Attach and inflate your rented air form, and erect your re-bar grid around and over the dome. Making the grid is likely to take two or three days. As with Steve's project, you'll place wooden forms to define your door and window openings and make the grid around them. You can climb on the lower parts of the grid to create the higher parts.

Once your grid is ready, you hire a shotcrete company (they're easy to find) to come in and apply the shotcrete to make a dome four inches thick. Miten says they'll do the job in



The view from the dome

one day. In fact, it's *important* for them to do it in one day, to create a dome that will cure as a unit for structural integrity and strength.

Can you apply the concrete by hand, to save the money for the shotcrete equipment and crew? No, you can't: this style of construction requires the high-velocity application of the shotcrete, in order to be strong.

So far, this method has resulted in a concrete shell that's very strong, but not so good for temperature control. You get your insulation by covering this shell with a layer of straw bales. You then cover the straw with a two-inch-thick outer shell of concrete, which is also reinforced with a re-bar grid, like the inner one. Miten says a "two-string straw bale" has an R-value of 40-45. By comparison, a conventional 3½" layer of fiberglass insulation has an R-value of 11 or 12. You



The living room in a finished dome

stack the bales and "pin" them together with re-bar spikes. On a 40-foot dome, the curves are gentle enough to be no problem to this process.

Straw must be kept dry so it won't rot. Concrete is not a good moisture barrier, so you spray or roll on a water barrier on the outside of the inner dome (about a day's work). Poly-butyl rubber is a likely candidate for this. When the outer shell is finished, you

treat that one as well. This water-proofing must be fail-safe, so the straw stays dry and continues to provide insulation. In addition, the straw space is vented, and the straw is "grooved" to accept perforated poly pipe. Any moisture that might find its way into the straw migrates to the perforated pipe by capillary action and is then conducted out of the straw space via the vents.

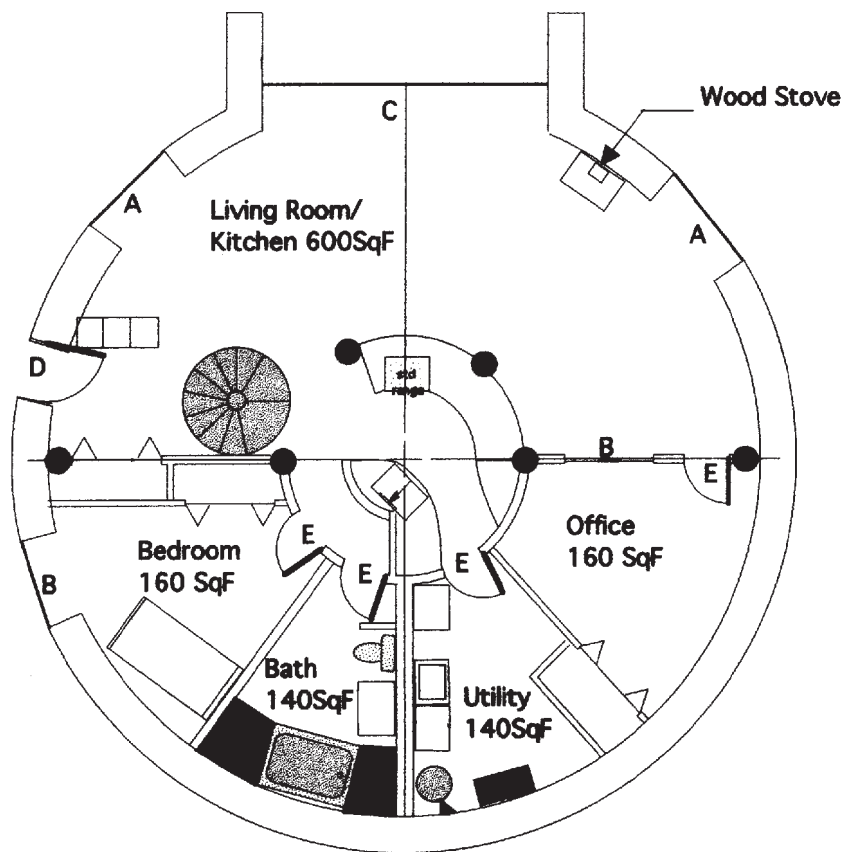
Miten says the cost of a dome like this is very competitive with conventional construction, but the building is far superior. He's planning a 40-foot dome for his own residence. That's big enough for a two- or three-bedroom home with two levels inside the inner shell.

With so much thermal mass in the concrete (to store and release heat), and so much insulation value in the straw, heating and cooling are no problem. Miten's dome will have a large glass area on the south with an overhang designed to *admit winter sun*, but *shade out summer sun*. He'll berm the north side. The air circulates very freely in a dome, so you don't get temperature stratification. And the concrete conducts heat, so if there is a hot spot (near a heat stove or sun space, for example), the heat is conducted away from it, and the inside temperature evens out.

Miten suggests that this type of construction also represents a livelihood opportunity, and he says that getting the training and certification from Monolithic Constructors is an excellent way to pursue it.

Speaking of Monolithic, their own dome office buildings provided dramatic proof of their virtues when they took a direct hit from a tornado. They suffered no damage, while the buildings around them were damaged or destroyed.

For more information about Eco Straw Domes, you can contact Miten Ahern at PO Box 608, Ashland, OR 97520, or send e-mail to miten@aol.com. Δ



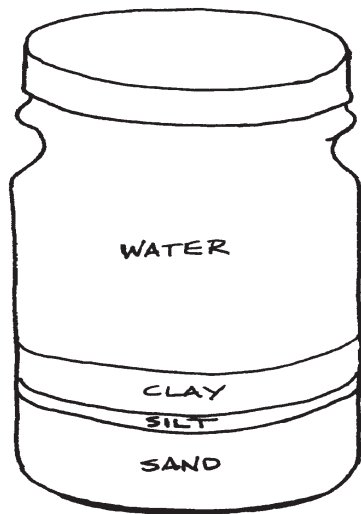
Floorplan for the downstairs rooms in a 40' residential dome

Cob construction is *literally* dirt cheap

By Marna Meagaen

Even as a backwoods woman, I never thought I'd be able to gather the skills to build a house of my own without some technical training, computations and measurements, massive power tools, and some expert advice. It was a delight to discover last summer while helping build Indigo Art Studio in Southern Oregon that I had learned practically everything I needed to know to create a house back when I was a little girl making mud pies in the backyard with my sisters.

Cob, meaning “small lump or mass” in older English, is an ancient earth building technique that is found—with many variations—all over the world. By mixing dirt with sand, water, and straw on old tarps, then moving and shaping it with many hands, it's possible to build houses, galleries, and out-buildings with the very land on which you stand. The walls feel rock-solid when the mix is dry. The sand makes it strong, the clay holds it together, and the straw helps it to breathe, as



The jar test will tell you what your soil needs to make a good cob mix.



A finished cob interior: the kitchen

well as functioning as re-bar. It is remarkably resistant to water, although the foundation is usually brought to six inches above the ground, and the roof overhangs are usually large to minimize splash-back to the walls. Even without these protections, rain splash has only resulted in slight dents at the splashline in 400 year old cob houses in England.

A good mix: Basic wall construction

Building with cob brings memories of childhood. You mix approximately equal parts of earth and sand on a tarp by pulling the edges of the tarp towards the center to roll the ingredients around. At the Indigo project, the recipe was ten shovels full of dirt to seven of sand. (See below for determining the recipe for *your* land.) Then you gradually add water from a garden hose and mix the concoction with your feet for five or ten minutes, until

the mixture is evenly moist and sticky. At that point, you add a handful of straw now and then (no more than a flake), continuing to roll the mix with the tarp and kneading it in with your feet. You end up with a big “cob pancake.” The mixture’s consistency is slightly more crumbly than modeling clay. It is added a chunk at a time onto the foundation (usually built of stone, although cement may also be used) and worked into the previous layer of the wall with thumbs, sticks, palms, and feet.

Testing your soil to find the right recipe

The exact ratio of sand added to the dirt will vary depending on each site’s inherent mix of clay, silt, and sand. To figure out the right recipe for your land, put a sample of your subsoil—one trowel full—in a one-quart jar. Fill the jar with water and shake it briskly, then set it aside. Sand will set-

tle to the bottom, topped with silt and then clay.

For your cob mix, you want to have 50-80% sand. If that is what it turns out to be in your jar test, you probably don't need to add any sand to the cob mix—just use the soil and the straw. If you have to add a trowel full of sand to get the right percentage, then use one shovel of sand for every shovel of dirt. (In few cases will you need to add more clay.)

Run a few test batches of cob mix with that ratio of dirt to sand. Do other tests with more or less sand, and varying amounts of straw. Build some blocks, let them dry thoroughly, knock them over, hit them with a hammer, and use the mix that results in the strongest block.

Cob does not have to be built with topsoil. When levelling the site for the house, set the topsoil aside for your garden.

For the 240 square-foot structure at Indigo, we used 15 truckloads of sand in the bed of our ³/₄ ton pickup. They cost \$7 each from the local gravel yard. Ask for “concrete sand,” a medium-faceted sand with varying grains.



Supports for this scaffolding are built into the wall. When the project is finished, they'll simply be sawed off.

The rounded sand found on beaches is not suitable for cob construction.

Make the walls 15 inches wide at the foundation for a one-story structure, 20 inches wide for two stories. As the walls rise, the inside wall should remain *plumb* (vertical), and the outside wall should angle inward slightly at the rate of two inches for every three feet. This slight incline increases the overall strength of the wall. We used a three-foot carpenter's level with a styrofoam angle taped to it to keep our walls straight and angled as needed.

Cob is different from stud frame construction: it doesn't require the constant checking to be sure that everything is level. While you want to be sure to check the walls as you go, the finish work you'll do with machete and plaster helps smooth over your “learning experiences.” Because the walls are self supporting, leveling becomes much less crucial.

It is hard to describe the process of applying the cob. It is a cross between kneading a loaf of bread and sculpting a house out of clay. Some people have described it as “massaging” the cob. Basically, you are working with a



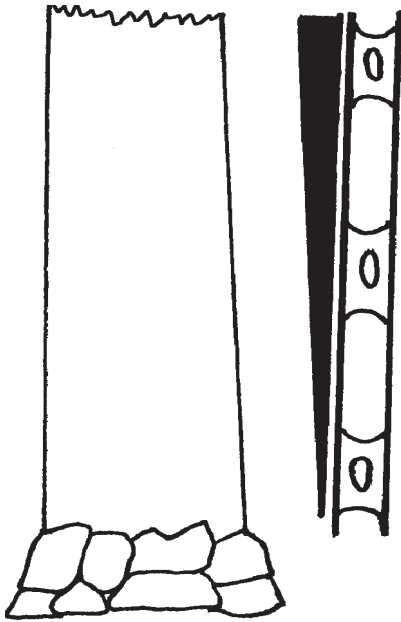
All the tools you need for cob construction

moist clay/straw slab and mixing it into the previous layer of cob by pushing firmly with your thumbs, by walking on it, or by pushing a stick into it with a slight twisting motion. Don't pound or slap the cob, because that would interfere with the setting up of its structure. Work it gently but firmly. Smooth and shape the walls as they rise.

It is best to add no more than a foot of fresh cob per day to your structure, as it cannot maintain its shape without drying some overnight. Too much cob (or too wet a mix) will cause it to “oog out,” and you will need to hack it back into shape with a machete.

As the walls grow, the opportunities for sculpting expand, allowing hands to follow the guidance of heart and “error” as well as that of the mind. Cob is a wonderfully forgiving medium. I have seen one incredible cob sculpture of a panther, lying across the top of a window with its tail hanging down the side. It's quite a sight.

To “put cob walls to bed” at night, take a stick that is about an inch in diameter and poke holes two inches deep all over the top layer, four to six inches apart. These holes will help you work the next layer of fresh cob into the drier previous layer. Then



*Inner walls are kept plumb;
outer walls slant in a bit.*

*It's handy to have a carpenter's
level with a taped-on "slant gauge."*

cover the walls with several inches of straw and wet the straw lightly with a garden hose. If you expect rain overnight, cover the walls with a tarp.

You should have a design in mind before you build. Know where your door is, where you want your windows and shelves to be. These items are added in as you build, and you have some flexibility to shift windows, shelves and niches around as you go. In order to incorporate doors and windows into cob, drive bent, rusty nails into the sides of the wooden door- or window-frame that will be touching the cob. Position the frame using a level, and then cob up to the wood. The nails will grab the cob and hold tight for generations. This "porcupine" framing technique is detailed in the January/February 1996 issue of *Backwoods Home* (Issue No. 37). It is in the article by Harry G. Nemeč, "Here's a cold storage house as good as our ancestors built."

When you install framed windows and doors using the porcupine method, you will need a longer slab of wood called a *lintel* sitting on top of

the frame and extending beyond the frame in order to support the weight of the rest of the cob wall above the frame until the wall dries. For the Indigo project, we used cast-off 4x8s and railroad ties as lintels.

Windows that don't open can be incorporated by cobbing around a pane of glass—even a chipped or broken one. At the top, sculpt the cob into an arch—an extremely strong design—and the arch will easily support the weight of any cob above it.

As the walls rise, you can build the scaffolding for working on the higher levels of the wall right into the cob. When you're done, you can saw it off.

Plumbing and electric wiring can be run through PVC pipe through either the wall or the foundation. It's easier to cob around the PVC pipe low in a wall, rather than trying to build a sturdy, immobile rock foundation around a round piece of plastic. A small bush can be planted outside to cover the entryway of the wires or pipes to the house if you decide to plumb or wire through the wall.

Heating and cooling

As a building material, cob provides excellent thermal mass. The ten- to sixteen-inch-thick earth walls lend themselves easily to passive solar designs. Having a south-facing wall that is mostly glass windows with deciduous trees in front helps keep out summer sun and let in winter rays. In summer, the walls hold the night's coolness through the day's heat. Then they slowly radiate the stored heat of the day throughout the cool evening.

Another exciting possibility to try is a hybrid structure with a straw-bale north wall (making use of straw bales' insulative properties) and cob for the other walls. Cob and straw bale walls can be joined by driving wood stakes or branches into the straw bales and then building the cob up around and over those pieces of wood. One central Oregon cob house uses only half a

cord of wood for its annual heating needs.

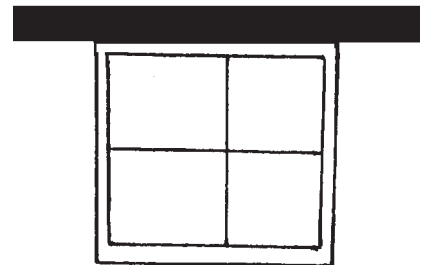
Cob is not a local phenomenon. Many traditional peoples have used earth architecture as their primary housing for as long into the past as memory holds.

Dirt cheap

Cob works well in situations where there are many willing and variously able bodies and few bucks. One of the first Oregon cob houses—one story with a loft and second-story study—cost only \$500 for materials. Landfill and construction cast-offs can be scrounged and transformed into perfect cob house materials. At the Indigo project, a piece of wood from in front of the local laundromat became the lintel beam on top of the southern window wall. Rocks, broken or uneven pieces of glass, old teapots, broken plates, bottles, old 2x4's, rusty nails, and beautiful branches gifted from the forest floor can all become part of the structure.

Major costs can include paying for the levelling of the site (if done by rented machine or hired backhoe), purchasing and hauling sand and straw, water or electricity if pumping is required, and roofing materials.

It's best to buy the straw in season—after the spring cutting or fall harvest when availability is high and prices are low. Here in Oregon it costs \$2.40 a bale in season, and more than \$3 a bale out of season. The Indigo studio used about ten bales, and it was handy to have another bunch lying



A lintel over a framed opening supports the weight of the wall above.



Nearing the top of the wall

around for makeshift scaffolding when the walls began to rise.

Applying plaster

One of the events that stands out in my mind as icing on the cake (almost literally) is combining and applying plaster to the inside and outside of the cob structure. My favorite plaster mix consists of one part clay, one part sifted dirt, one part well-aged horse manure, and some water. The horse manure is handy because the horses have pre-shredded the straw into just the right size for helping make the plaster bind. (There are many recipes for plaster. That will have to be a separate article.)

It's fun to find and gather different colored clays from various locations. Some of that heavy clay soil in your neighbor's yard could be a beautiful addition to your earthen house wall. You can also use lime to lighten the color of the plaster. If you do, be sure to *handle the lime carefully* (washing hands and tools right after application), as *it can be caustic to the skin*.

Now for the special fun. Mash the ingredients together, stand back from the wall, and apply by *throwing* the plaster at the wall. This allows for even coats. For those of more moder-

ate energies, a plaster trowel works just as well.

Cob does not need to be plastered in order to be preserved, but many people choose to plaster at least the inside of the structure to increase the light-reflectivity of the walls. Usually two or three coats are applied, in order to achieve a really smooth finish. Small pieces of tile, ceramic shards, or pieces of glass bottle can be inlaid in the final layer, and patterns or artwork can be etched into or raised from the surface of the plaster.

Tools

Shovels, a pickaxe, and a wheelbarrow help move soil to the mixing areas and onto the tarps. Old shower curtains, large pieces of plastic, and tarps are the mixing bowl for the dirt, sand, and straw that become cob. Hoses and a ready water supply are useful. Used shampoo bottles filled with water (to squirt water to wet down the top of the mix), pointed sticks that fit well to the hand (to massage in the new layer of cob), and more straw and tarps to cover the cob so that it stays moist are also handy. One tool that comes in handy is the modified three- or four-foot-long car-

penter's level I mentioned earlier. A machete is useful for hacking off bits of straw that stick out from dried walls. (This helps prepare the walls for plastering.) Various buckets, string, and a cement trowel are also put to work. These, along with willing hands and feet, are all that's needed to put up the walls of a cob house.

Of course your cob home will need a roof, the supporting beams of which can be incorporated into the cob walls. The roof can be anything from a simple standard shed or peaked roof to a recycled tire roof or living sod roof. The choice is yours. Cob itself is too heavy to use for a roofing material.

You might want to practice with cob before building a whole house. There are many smaller projects that are well suited to cob construction. Get your hands in the mud building a cob gazebo or garden bench or wall. These can be fun weekend projects with children, and will give you an idea of the beauty and pleasure of building with cob, as well as the amount of effort and materials you will need.

As Indigo Art Studio grew, we were mesmerized by the stunning beauty of the gently curving structure. The



A finished cob cottage

thought of returning to four square walls became unimaginable.

Both in terms of the medium—mud—and in the fact of working with other people, cob earthen construction is a lot like making mud pies. With few tools, little money, lots of friends, and free reign for creativity, the resurgence of cob construction makes an ancient building technique accessible for backwoods construction, dirt cheap.

For more information about cob, including a schedule of workshops, you can contact the folks that I learned from at Groundworks Earth House Building, PO Box 381, Murphy, OR 97533. They also have a handbook on cob coming out this summer. And you may want to visit my Web site about cob construction at <http://www.teleport.com/~sparking/cob/door.html>.

An outline of the steps

Select site

Design house

Foundation, floor levels, door placement, and water/ electrical pipe locations are essential.

Incorporate passive solar design.

Gather materials & tools

Materials: dirt, sand, straw, rocks for foundation, water, pipes for electrical/water, cement

Tools: wheelbarrow, tarps, shovels, water hose, hammer, rake, broom, sieve, etc.

Level site

Foundation

Create drainage (this can also be done after the building is complete)

Dig to solid ground, below frost level

Tamp under foundation

Plan under-floor cooler (optional)

Lay pipes for water & electricity

Lay water drainpipe at angle sloping out just above foundation, draining towards downhill side of home

Lay first layer of rock

Add mortar & pebbles

Continue adding rocks & mortar to 6" above ground level

Top foundation with pine tar or other water barrier (optional)

Door frame

Establish door threshold (must be flat) and seat for door frame

Set up and brace door frame with protruding nails to anchor in cob

The first two feet

Start laying cob

Experiment with mixes

Make walls curved & thicker for heavy support areas

Extra sand for heat retention, extra straw for insulation

Incorporate wood for Bench support logs or poles (inside & out)

Lower ladder rungs

Angled supports for counter

Door for firewood (optional)

Outside wood supports for wood shelter (optional)

Start cantilevers for cob benches (seat height usually 14")

Fire vents: incorporate into cob or foundation for fire to get fresh air

Windows

Start windows very low on north wall (or use a pipe with door & screen)

to suck in cool north air in summer

Begin solar south window sills

Bury board support for shelves going from floor to ceiling

Stove/Fireplace

Incorporate stove and/or fireplace into wall; bury stovepipe in wall

Sculpt any relief art as you build (optional)

Two to four feet

Start windows

Bury shelf supports or create cantilevers for cob shelves, including under kitchen counter

Leave ledges to support counters

Create wall fridge above counter

Incorporate branches or other supports into cob for future expansion (all the way up)

Four feet and above

Incorporate wood into walls for:

hanging artwork, branch for pot racks, closet racks, hat & coat hooks

Lintels & arches over windows

Vent

Openable vent high on south wall

More niches for candles, etc.

(outside near the door, too)

Ledges & support beam for loft support

Roof preparation

Supports for roof over door (if not done by roof overhang)

Bury deadmen for rafters

(Deadmen are pieces of wood buried in the cob to which you can nail or wire other structural pieces)

Bury outer rafter supports

Bury rafters—plan for fascia & gutters & skylights (Use safety glass)

Insulation—lots of it

Holes for ventilation between rafters

Roof

Gutters

Stove pipe flashing & chimney

Floor

Level floor area

(two different levels is appealing)

Create cold drop-off (one foot, no tamping, cover with small stones) for use for cool storage or wood (optional)

Tamp

Level guide nails

Sandy mix, chopped straw, two to three layers, dry in between applications

Score crack lines, fill with different colored mix

Varnish

Finishing

Plaster—porous paint or lime wash
Tiles above counters to protect walls (attach with plaster or white glue)

Lid with ventilation for floor cold spot

Landscaping

Hang door

Wood shelves, benches, counters, doors, lids, tiles. etc. Δ

Make quick and easy pasta

By Jennifer Stein Barker

One of the most simple, satisfying, quick and easy meals you can make is a meal of pasta with a salad. Whole-grain pastas have long had a bad reputation for being coarse and gummy; but this is no longer deserved, as pasta makers now search out higher quality grains and better techniques to formulate the products.

Look for whole wheat pastas made of 100% durum wheat, a hard wheat that is high in gluten. Our two favorite (and readily available in most health-food stores) pastas are Westbrae Organic Whole-wheat Ribbons and Vita-Spelt Shells. Products made of spelt grain are not only for the wheat-sensitive folks. They have a wonderful nutty flavor and great texture that everyone can appreciate.

General pasta cooking instructions

Bring a large kettle of water to a rolling boil before adding the pasta. Use at least one gallon of water for each pound of dried pasta you plan to cook. Some people like to add a little salt and/or olive oil to the cooking water to improve the flavor and keep the pasta from sticking together.

When you add the pasta, take a fork and give it a quick stir to separate the strands. This insures that it will cook evenly and not stick together. You don't need to stir it again; in fact, if you do, it will release more starch and cause your pasta to be gummy instead of firm.

Leave the pot uncovered. Bring rapidly back to the boil, then turn the heat down to maintain a gentle bubbling. Cook as long as indicated on the package; or, if you have no instructions, try 10 minutes as your starting point for whole-grain pastas. Adjust cooking time for doneness as you like it (usually between 10 and 15 minutes).

When pasta taste-tests done, drain immediately and thoroughly in a colander. If you want to pre-cook pasta for later use, try this trick: cook the pasta just under done, then drain and chill. When you are ready to serve, pour boiling water over the pasta, bring the pot quickly to a boil again, then drain. Voila! Dinner!

Confetti spaghetti

Use spaghetti, noodles, or shells for the pasta, just as long as it is whole grain. Choose hearty greens such as bok choy or savoy cabbage. Serves 4:

12 oz. dry pasta, cooked according to instructions
4 cloves garlic, minced or pressed

1 Tbsp. olive oil
1 cup grated yellow turnip
1 cup grated carrot
1 small hot pepper, finely sliced
2 cups shredded greens
2 Tbsp. tamari (or to taste)

Bring a large kettle of water to boil for the pasta.

In a deep saucepan over medium heat, warm the garlic, olive oil, grated turnip and grated carrot. Add 1/4 cup of water and 1 tablespoon of the tamari and cook, covered, for 10 minutes or until the vegetables are tender. (Start the pasta cooking in the boiling water during this time.) Add the hot pepper and the shredded cabbage, and more water if necessary, and cook another 5 minutes. Keep warm. When the pasta is done, drain it and return it to its kettle. Add the vegetables and the other tablespoon of tamari. Toss all together.

Serve hot, with grated Parmesan cheese.

Easy macaroni and cheese

This is a classic. My recipe gives the quick-and-easy version, as well as a more elegant baked casserole that will stand up for company. Our favorite pasta for this is Vita-Spelt Shells. Serves 4:

Sauce:

3 Tbsp. olive oil
3 cloves garlic, minced
1/2 cup fine whole wheat flour
3 cups milk, heated
1 Tbsp. prepared mustard
1 1/2 cups grated sharp cheddar cheese
1 tsp. tamari or Worcestershire sauce
3 Tbsp. sunflower seeds (opt.)
12 oz. pasta, shells or macaroni
optional additions: 2 branches broccoli
1/4 cup breadcrumbs
1 Tbsp. Parmesan cheese
1 tsp. basil

Warm the olive oil and garlic over lowest heat for five minutes to blend the flavors. Whisk in the flour and continue cooking over low for another minute. Then whisk in the hot milk.

Turn the heat to medium and cook, whisking constantly, until the sauce begins to thicken. Turn the heat back to low-

est setting, and let cook, whisking frequently, for 10 minutes. Whisk in the mustard, cheddar, and tamari or Worcestershire sauce. Stir in the sunflower seeds.

While the sauce is cooking, you should be boiling the pasta. When the sauce is done and the pasta drained, you can just stir them together and serve immediately, or you can proceed with the more elegant version:

The elegant version:

Cut the broccoli branches into florets. Peel and dice the stems. Steam the broccoli just until it turns bright green. Stir it into the pasta and sauce, and turn the whole thing into an appropriately-sized casserole. Stir together the bread-crumbs, Parmesan, and basil, and spread openly over the top of the macaroni and cheese. Bake in a preheated 350 degree oven for 20-30 minutes, until bubbling and golden.

Either way, serve with a big green salad and your best smile.

Mama Gianna's easy vegie lasagna

This is a one-dish lasagna with nothing precooked. It makes a great sun-oven casserole, too. Make this lasagna in a two liter or larger casserole. If you do not have a covered casserole, you must use foil to cover the pan, because the noodles need the steam to cook. This is great with whole wheat lasagna noodles. Serves 3-4:

Sauce:

- 1-28 oz. can ground tomatoes
- 1/2 cup water
- 1 Tbsp. red wine
- 3 cloves garlic, minced
- 1 tsp. oregano
- 1/2 tsp. basil
- 1/4 tsp. fennel seed, crushed
- 1 Tbsp. tamari

Vegies:

- 1 medium carrot, grated
- 1 green pepper, diced
- 1/2 cup diced onion

Cheese:

- 1 cup ricotta
- 1/4 cup Parmesan
- 1 egg, beaten
- freshly-grated black pepper to taste

Noodles:

- 8-10 lasagna noodles, enough to make 2 complete layers

Topping:

- grated mozzarella for topping (optional)

Preheat the oven to 350 degrees, and get out a 2-liter or larger casserole.

In a medium bowl, mix together the sauce ingredients. In another medium bowl, toss together the prepared vegeta-

bles. In a small bowl, stir together the ricotta, Parmesan, egg, and pepper.

Layer as follows in the casserole:

- 1/3 of the sauce
- a layer of uncooked noodles
- all the vegetables
- 1/3 of the sauce
- all of the ricotta mixture
- a layer of uncooked noodles
- 1/3 of the sauce

Cover the casserole with a lid or foil (this is necessary to keep the steam in with the noodles), and bake until the sauce has been bubbling vigorously for 1/2 hour. It should take about 1 1/2 hours total.

When the noodles are cooked, the lid can be removed and a layer of grated mozzarella may be added to the top of the lasagna. Bake 15-20 minutes more, uncovered, until the cheese bubbles and browns. In a sun oven, I merely kept this baking until it had bubbled vigorously for 1/2 hour (it took hours to bring it to the boil, but once things are boiling the cooking time is the same in a sun oven as in a conventional one). I removed the lid and added the layer of mozzarella to the top. It was delicious, but in order to be enough for four people we really needed the sourdough French bread, salad, and dessert we had with it. Δ

A BHM Writer's Profile:

Mary Jo Bratton

Mary Jo Bratton and her family live in Lincoln, Nebraska. Their school project for 1991-92 was converting a barn into a house where they reside to this day. After being taught at home most of their lives, her children, Danny and Anna, are enrolled in college and are succeeding beyond their mother's wildest expectations.



Mary Jo writes for the local newspaper now. In hindsight, she wishes she's added two more tips (tips 11. And 12.) to her article on homeschooling: 11. Put away your television and skip most commercially successful movies if you want to raise creative, energetic, and mentally healthy children; and, 12. Cultivate a sense of humor. It is every bit as important as learning the times table.

White sage — the quintessential chaparral herb

By Christopher Nyerges

White sage (*Salvia apiana*) is a close relative of garden sage, and is one of the more common shrubs of the Southwest, growing throughout the mountains and chaparral areas and reaching to the desert. It grows from three to six feet tall, with its conspicuous whitish-gray leaves.

The plant is easy to recognize in the chaparral areas where it grows. Nothing else has quite that shade of whiteness. And if you're not certain by looking, you can crush one of the whitish-grey leaves in your hand and feel its stickiness and smell its pungent sagey aroma. Many who hike into sage areas may not know any other plants, but they know the white sage.

Some Indian tribes of the Southwest gathered, ground, and utilized the white sage seeds for a flour-like pinole which was used for bread products. The seeds resemble chia seeds, to which they are related. The tender tops of white sage were cooked and eaten by Indians who lived in Southern Nevada and throughout California's high desert. I have tried eating these tender tops, and they have a flavor and texture similar to cabbage, although the sage flavor is overpowering. If you want to eat these tops, I suggest you mix them with other vegetables or meats, or add them to soup.

The fresh or dried leaves infused in boiling water make a good-tasting tea. I've used it for years as my main dinner beverage. With just a bit of honey, it is very satisfying. Drinking sage tea is said to calm and strengthen the nerves. The tea has long been used as an aid to digestion after meals, and also has the reputation of relieving headaches. Sage tastes good and freshens the breath.

Because the fresh leaves can be applied directly as a poultice to stop bleeding and to soothe insect bites, it is a valuable herb to carry while hiking.

In her book, *Indian Herbology of North America*, Alma Hutchens writes, "The decoction (of sage) is used to cleanse old ulcers and wounds, and massaged into the scalp if troubled with dandruff, falling hair, or loss of hair if the papilla (root) is dormant and not destroyed." Fresh or dried leaves create a pleasant aroma when added to bath water.

I have routinely added dried and powdered white sage leaves into my various smoking mixes. Sometimes I use tobacco, sometimes not. But the white sage adds a pleasant menthol-like flavor.

Sage, regarded as a sacred herb among many Native Americans, is often used in ceremonies.

Sometimes the fresh leaves are rubbed onto the body before entering the sweat lodge. Leaves are also sometimes sprinkled over the hot rocks inside a sweat lodge.

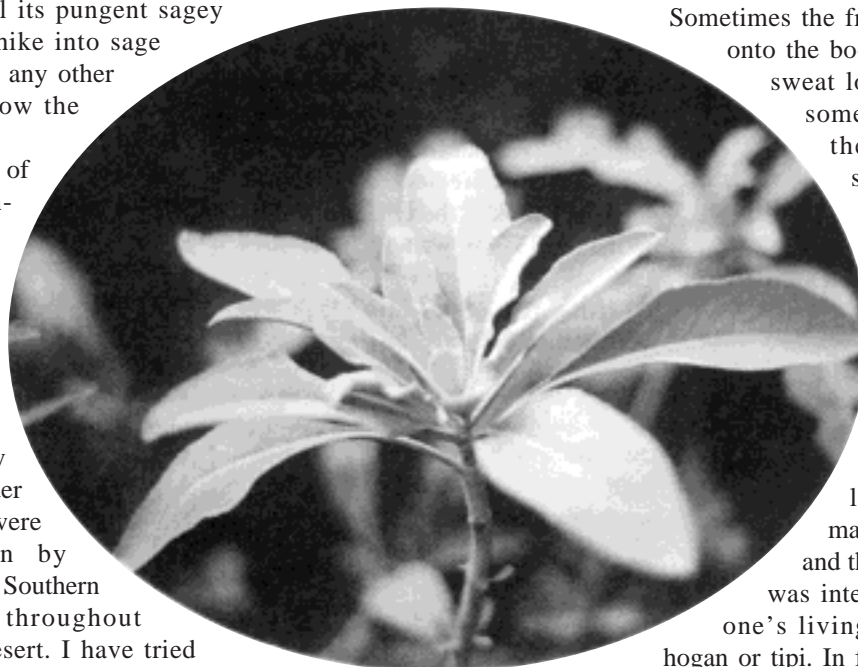
The fresh stems are also routinely bundled, allowed to dry, and then lit with a flame. This sage bundle—referred to as a *smudge*—will smolder like incense or a punk, but generally will not flame. It makes a pleasant incense, and the traditional smudging was intended to repel bugs in one's living quarters, such as a hogan or tipi. In fact, the leaves contain about 4% of camphor oil and eucalyptol, both of

which have a history of use as insect repellents. Today, the idea of "smudging" has taken on a "New Age" meaning of "repelling evil spirits," somewhat akin to the use of incense during a high mass in the Catholic church.

Some folklore lends sage some mysterious overtones. One curiosity is the fact that wise men have long been called "sage." Another stems from the Latin and Spanish root words for sage being "salvia," meaning "to save."

The useful leaves of this evergreen shrub can be gathered year-round. However, the best leaves are those gathered from the stalks which haven't yet flowered, which is generally winter through mid-spring.

(Christopher Nyerges is the author of *Guide to Wild Foods*. For a free newsletter, which includes his schedule of wild foods outings, contact School of Self-Reliance, Box 41834, Eagle Rock, CA 90041.) Δ



Safe, delicious, and inexpensive home preserves

By Richard Blunt

Man^Mankind has always been preoccupied with preserving his food, and long before recorded history he developed a variety of effective preservation methods. One of the earliest was the discovery that fruits and vegetables would keep longer if protected from moisture, air, and light. This protection was provided by coating fruits and vegetables with an impermeable substance such as clay or honey. Later, ashes or salt were used as coatings. This also removed moisture from the food and modified its appearance and flavor.

In areas where fire was still an uncontrolled mystery, or where salt was in short supply, simple drying was used to keep food from decomposing. As people learned to use fire, smoke and heat were used to cook as well as to preserve food. Smoke was also combined with other preserving methods, such as salting and brining, to produce various preserved meats and fish that still are popular today. Cured, smoked ham is a classic example of how this ancient technology has survived the test of time.

Another important discovery was that controlled fermentation could produce alcohol-based drinks from fruits, vegetables, and grains that would not spoil. Another type of fermentation was found to produce a potable acid-based liquid—vinegar. Both alcohol and vinegar could be used as food preservatives.

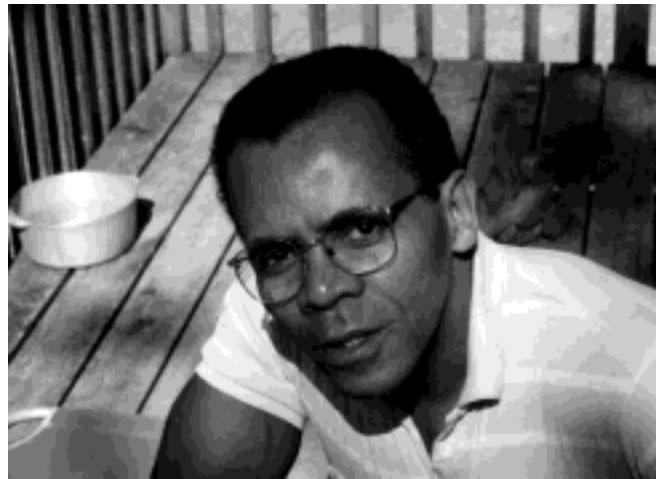
We think of freezing and freeze drying as types of preservation invented by modern man, but pre-Columbian Indians in the Peruvian Andes used Mother Nature's freezing mountain winds to freeze-dry potatoes and other vegetables long before anyone else figured out how to build a freezer.

Fruit, sugar, heat, and sterilization

Sugaring is another ancient technique that is still used to make fruits resistant to spoilage. Prepared fruit is cooked with sugar or honey and a small amount of acid, usually from citrus. This process removes most of the water from the fruit and replaces it with the sugar-acid solution.

In the 16th century, the Spanish began growing sugar cane in the West Indies on a large scale. Sugar became more common, and jams, jellies, and other sweet confections—once made only with honey, which was an expensive ingredient not affordable to most—became available to everyone. This marriage of fruit, sugar, and heat signaled the quiet, yet genuine, beginning of modern food preservation.

Unlocking the secret of preservation by sterilization was in its own way an invention as important as the discovery of fire, and it is the only preservation technique invented by



Richard Blunt

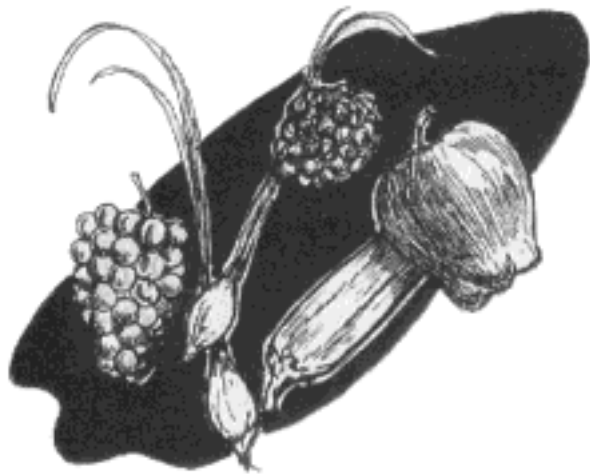
modern man. Sterilization was the method destined to be the basis for the bulk of all preserved food available on the planet today. Credit for this discovery in preserving goes to two Frenchmen, an English tinsmith, and an American.

In 1795, Napoleon Bonaparte was leading the French army to a series of stunning military victories in Italy. But his army suffered more losses from food poisoning and hunger than from enemy artillery. Spoiled food and starvation had been the scourges of armies since the dawn of time. So, in an attempt to solve this age-old problem, Napoleon offered a reward of 12,000 francs to anyone who could develop an effective method for preserving food and making it safe for consumption by the French military on the battlefield.

Fourteen years later Nicolas Appert, a little known French brewer employed as a confectioner, introduced a method of packing food into bottles, sealing the bottles with corks, then heat treating the filled bottles in boiling water. Appert held to the popular myth of the time that fermentation was the evil that caused all food to spoil. But he also believed that there was a realistic cure for this evil. He theorized that applying heat to a closed container would create a hermetic seal and remove all oxygen from the container, thus preventing “ferment” from becoming active. The system was not perfect, but it worked better than any other process known at the time.

Appert was awarded the prize. He quickly opened the world's first known canning factory and started processing preserved foods for the French military.

His theory was confirmed 50 years later by Louis Pasteur. Pasteur was researching the problem of young wine fermenting to vinegar during aging. He did not give credence



to the popular theory that fermentation resulted from spontaneous generation—life arising from nothing. He discovered that alcohol and vinegar fermentation were caused by the presence of plant-related micro-organisms that were everywhere—in the air, in water, and on all matter. More importantly he discovered there were some forms of these micro-organisms that did not need oxygen from the air to live and regenerate. This explained why wine could spoil in air-tight casks. Both types however, could be destroyed or rendered inactive using a modification of Appert's method.

The birth of mason jars

Peter Durand, an Englishman, and John Landis Mason, an American, further developed Appert's system of hermetic sealing. They both invented containers that were more reliable than the cork-sealed bottle. Durand invented containers made of steel, thinly coated with tin to prevent corrosion. Mason developed and patented a glass jar with a shoulder and a screw-top lid. These metal cans and mason jars have since become the standard for modern food preserving containers.

Until the end of World War II, home preserving was common in the United States, and families frequently traded their pickle, chutney, jam, and jelly recipes with each other. Large families often put up thousands of jars of preserved food to make it through the winter and to the next harvest season. But in the decades following the war, the old methods that reflected the culinary wisdom and creativity of our grandparents and great grandparents took a back seat to a succession of trends that included factory canning, prepackaged foods, and the disappearance of the small garden.

Then in the 1980s some of the old standards started to reappear. Home gardens were flourishing in more than half of the nation's households. Road weary, plastic-choked produce was made unacceptable to the consumer by the

increase in local farm stands and orchards which offered pick-your-own options. Many small farmers became truck vendors, driving through neighborhoods offering fresh fruits and vegetables picked only hours before being sold.

Home preserving also received new life during this resurgence of American culinary heritage. Seed catalogs began selling a wide selection of canning equipment. We are now in the last decade of the century and the upsurge in home preserving is not going away. This despite the fact that every supermarket, convenience store, many gift shops, and even drugstores offer a wide selection of jams, jellies, pickles, relishes, fruits, vegetables, and so on.

With all this variety within easy reach, and at generally good prices, it wouldn't seem practical to preserve foods at home. Especially when you consider the initial capital investment necessary to purchase pressure canners, boiling water-bath canners, jars, lids and other equipment necessary to ensure safe and effective canning. There is also an investment of time and physical energy. But home canning is coming back, anyway.

The reasons are many, but I think that superior quality and taste top the list. Preserves made with local fruits and vegetables that are processed shortly after being picked off of the bush or unearthed from the soil are far superior to those made with produce picked in some unknown part of the world and treated with unknown substances.

I am going to share with you a few favorite preserving recipes and techniques that were given to me by friends and family. All of these folks are experienced gardeners and view preserving as a creative way to extend the wonderful rewards of a successful growing season.

Follow these recipes using freshly picked produce that is being processed as close to harvest time as possible. The finished product will reward you with culinary delight that cannot be purchased in any store.

Home preservation basics

Let's get started with a review of some home preserving basics. This information will help to make your preserving effort successful and, above all, safe. Fruits and vegetables selected for preserving must be harvested while slightly underripe and free of all signs of decay and visible bumps and bruises. They must also be handled in a way that will eliminate contamination caused by enzymes, yeast, molds, and bacteria. Since these major food spoilers are omnipresent and can't be avoided, they must be destroyed before the preserving process is completed.

How do these food spoilers work? Enzymes are biochemicals contained in the cells of all plants and animals. They are essential for fruits and vegetables to ripen. If the action of enzymes is not stopped, their continued activity will cause food to rot.

Yeasts are plant-related micro-organisms that feed on sugars. This feeding starts fermenting the sugar to alcohol, which is fine for beer and wine, but does no justice to apple-sauce.

Molds are also plant-related micro-organisms that feed on the natural acid in food. Acidity in food acts to protect food against spoilage. Reduce the natural acid level in any food and decay will soon follow.

Of all the evils that can infect food, bacteria are by far the most dangerous. These seaweed-related micro-organisms are in the air, water, and soil. Most strains can survive temperature extremes that destroy other microbes. The most dangerous of the lot is the bacteria that causes botulism, *clostridium botulinum*. The poisonous toxin secreted by this microbe is so powerful that a teaspoon full is enough to kill hundreds of thousands of people. Botulinus bacteria will also live and reproduce in an oxygen-starved environment, so canned foods provide it with a perfect home. Foods infected with botulinus bacteria often show no signs of contamination.

The best safeguard against bacterial infection taking residence in your preserved food is faithfully maintaining high sanitation standards and following proven safe canning techniques. Taking short cuts will put the health of you and your family at peril.

How to keep the spoilers in check.

Heat is the only force that will stop enzyme activity. Pre-cooking or blanching the food to be canned, then following the boiling-water bath or pressure processing methods will eliminate this problem. Some foods can be packed raw, then processed if proper heat treating procedures are followed. The best way to control yeasts, molds, and bacteria is to deny them a comfortable environment. Good sanitation procedures, consistently followed throughout the preserving process, are your best defense against these terrifying microbes.

Wash all fruits and vegetables with plenty of cold potable water before you begin processing. Wash all work surfaces and utensils with a 16 to 1 chlorine bleach sanitizing solution (1/4 cup of bleach to 4 cups of cold water) and allow them to air dry. The chlorine will dissipate into the air during the drying process without leaving a residue. Good sanitation and effective preserving techniques will eliminate all danger of bacterial infection in your canned foods.

There are two effective methods for processing all foods canned at home: the boiling water bath and pressure processing. The boiling water bath method is used when canning high acid foods, jams, jellies, and fruits doused in sugar syrups. Pressure processing is used to process all low acid foods and starchy foods like corn and potatoes and protein foods like meat and fish. All of the recipes included in this column were designed to use the boiling water bath

method. Pressure processing will be the subject of another column.

Essential equipment

Let's talk about the equipment you'll need to preserve food using the boiling water bath canning method. You probably have many of these items in your kitchen already.

- 8-qt stainless steel pot with lid for pre-cooking and blanching foods
- 21-qt. ceramic on steel deep water bath canner designed for processing quart jars. This 10-inch deep canner is necessary to provide the adequate top and bottom clearance for processing pint and quart jars. The jars must be elevated at least 1/2 inch to 1 inch from the bottom of the canner while providing at least 3 inches of space between the tops of the jars and the rim of the canner. This keeps the jars off the bottom of the canner so they don't break during processing, allows a two-inch water cover over the jars during processing, and gives at least one inch of clearance from the water cover to the top of the canner to keep water from splashing all over your stove during the boil.
- A good rack. The only problem with the rack that came with my deep water bath was the poor design of the jar rack. The jar cradles are almost too large to keep quart jars from touching the bottom of the canner and it's not at all usable with pint and half pint jars. Since I don't put up food in quart jars, I set the canner rack aside and purchased round cake racks. I support the cake racks on the inside of the canner with old mason jar screw bands without the sealing lids. This system works well and the 1/2-inch-thick screw bands give plenty of clearance on the bottom to ensure good water circulation during the boiling process.
- 1 case of 8-oz mason jelly jars with screw bands and lids.
- 1 case of pint-sized, wide-mouth mason canning jars with screw bands and lids.
- An accurate kitchen timer with alarm or warning bell.
- 1 pencil-shaped glass food thermometer.
- 1 ladle.
- 1 slotted stainless steel spoon for removing food after pre-cooking.
- 1 wide mouth funnel for filling the jars.
- 1 stainless steel colander for draining foods.
- 1 jar lifter for placing the jars in and removing them from boiling water
- plenty of clean dish towels
- Measuring cups in sizes up to 1 qt. (and including cup fractions)
- An assortment of measuring spoons, from 1/8 tsp. to 1 Tbsp.
- Jelly strainer with jelly bags for making jellies.

- 1 accurate food scale with at least a two-pound capacity.
- 2 narrow-blade heat-resistant spatulas.

Other Equipment:

If you don't own a food processor, a large wooden or plastic cutting board, and a professional set of kitchen knives, now is the time to treat yourself. These items are not essential but they will save you lots of time.

Let's get started

Canning, fermenting, drying, pickling, smoking, salt curing and deep freezing are all preserving arts that require the practitioner to follow a strict set of procedural rules to ensure success. The procedural rules for canning can be very difficult reading, especially if you are new to the craft. In an attempt to avoid a lot of general facts that are not required to successfully prepare the recipes included in this article, I have included enough information with each recipe to successfully prepare that recipe. If you are pleased with the results and want to learn more, I have included a list of suggested reading that covers most preserving methods in detail. But reading about food does not teach you as much as actually working with it.

Old World Apple Chutney

This is a recipe that my sister-in-law, Trudy, brought back from England. The apples she used in her recipe are fresh-picked Washington State Pippins but I've used Granny Smiths, Vermont Northern Spys, and Connecticut grown Romes with good results. Any firm, slightly underripe cooking apple will do as long as it is fresh picked. The flavor of this chutney will be even better if you buy whole ginger and cinnamon and grind them yourself.

Chutney is a high acid condiment and very safe for canning. Because of this, many books will suggest that the boiling water bath is not necessary. That may be so, but I process all of my canned foods by finishing them off with the boiling water bath method or pressure processing.

Ingredients

- 40 oz cider vinegar
- 1 1/2 lb brown sugar
- 1 1/2 tsp kosher salt
- 1 Tbsp ground ginger
- 2 tsp ground cinnamon
- 1 Tbsp pickling spice
- 6 whole cloves and 1 bay leaf tied in a spice bag
- 4 lbs fresh picked underripe apples
- 2 lbs Spanish onions
- 2 fresh garlic cloves, minced
- 1 lb golden raisins

Special equipment

- 8 qt stainless steel sauce pot
- Boiling water bath canner
- 16 pint mason jars with screw bands and sealing lids.
- Wide mouth funnel
- Thin blade spatula
- 4-oz ladle or solid stainless steel kitchen spoon
- A 9-inch pie plate for catching spills

Method

1. Combine the vinegar, brown sugar, kosher salt, ground ginger, ground cinnamon, pickling spice, and spice bag in an 8-qt. sauce pot. Mix and bring to a slow boil over medium to low heat for 30 minutes.
2. While the sugar syrup is cooking, peel, core and coarsely chop the apples. Peel and coarsely chop the onions, and mince the garlic clove. Uniformity is not necessary; this chutney is meant to be chunky.
3. Combine the apple, onion, and garlic in the cooked syrup and cook the mixture over low heat for 1 1/2 hours, stirring occasionally to prevent scorching.

Packing, processing and storage

1. While the chutney is cooking, carefully wash the jars, screw bands, and lids in hot soapy water and rinse with plenty of hot water. Fill the clean jars with boiling water and cover with a clean towel. Place the screw bands and lids in a bowl and cover them with boiling water. Let them stand this way until you are ready to fill them. Time this process so that the boiling water will not cool below 160° F or remain in the jars for more than 10 minutes.
2. Arrange all necessary utensils so that you will be able to fill, seal, and cap the jars efficiently.
3. Fill the canner to 1/2 of its capacity with water, place the racks on the bottom, and start heating it to a boil. Have an additional kettle of boiling water available to add more boiling water to the canner after the filled jars have been put into place.
4. Fill the jars with hot chutney to 1/2 inch from the top, using the wide mouth funnel to minimize spilling. Then set them, one at a time, on the pie plate. Remove any trapped air from the jars by running the narrow blade of the spatula down the sides of the jar. Carefully wipe the rim of the jar with a clean cloth that has been wet with boiling water to remove any traces of food. Set the sealing lid on the rim of the jar and screw on the band until it is firmly in place. Do not force or over-tighten the band. Put the jar in the canner. The 21-qt. canner will hold 8 pint jars and 12 half pint jars without crowding. As you are placing the jars in the canner, set them so they are not touching each other or the side of the canner.
5. Add enough boiling water to the canner to cover the jars with two inches of water. Do not compromise this step;

proper processing requires at least a two inch covering of rapidly boiling water. Less water may cause the whole procedure to fail. The yeasts, molds, and bacteria would love that.

6. Process the filled jars for 15 minutes in **rapidly** boiling water.

The further above sea level you are, the less heat required to boil water. From sea level up to about 1,000 ft above sea level, water boils at 212° F. At 5,000 ft water boils at only 203° F, and 194° F at 10,000 ft. Heat is essential to kill microbes in food. As you can see, getting the water hot enough for sterilization is more difficult at high altitudes.

To compensate for altitude add at least two minutes of processing time for every 1000 feet above sea level. This is a general rule that works well with high acid foods like jams, jellies, and fruits canned in sugar syrups.

7. When the processing is complete, turn off the heat. Using the jar lifter, carefully remove the jars from the canner and set them on a towel-covered flat surface to cool. It is important not to disturb the jar during the next 24 hours. During this period the jars will cool and the vacuum sealing will occur. With the modern mason jars the vacuum created during the cooling period will pull down the dome in the center of each lid to make the air tight seal. If the seal does not happen, just store the chutney in the refrigerator and eat it within a few days.

Storage

Food preserved in jars must be protected from light and excessive heat. A dark corner of the cellar where the temperature does not exceed 50° F is perfect. If cellar space is limited or non existent, wrap the jars in a sheet of newspaper, pack in a suitable size box, and store in a closet or cabinet that does not get direct sunlight.

The flavor of this chutney will continue to mellow and improve for 6 to 8 weeks—if you can wait that long.

Western blackberry jam

This recipe is a combination of two recipes I received from my sister-in-law Trudy, and John Silveira, the *Backwoods Home Magazine* senior editor. Last summer I sampled a blackberry jam John made from berries he picked across the road from the *BHM* office. Two years ago, while visiting Trudy, who now lives in southern Washington, I tasted a seedless blackberry jam she made with berries she picked in her back yard. (Blackberry bushes are so prevalent on the west coast that some folks consider them a nuisance.) Both of these blackberry delights had the most intense flavor of any berry jam I have ever tasted; so I asked them both to send me the recipes.

The recipes were so similar that I decided to combined them into one recipe with the option of making a seedless or a regular whole pulp jam by slightly modifying the procedure and the amount of berries. Once again, the success of



this recipe depends on the quality of the fruit. The berries must be picked when mature but under ripe, and processed no more than two hours after harvest. This is when blackberries contain a high amount of natural acid and pectin, both of which are necessary to ensure that the jam sets up properly.

Jell testing

This jam is made without commercial pectin, so you will need to test the cooked jam to determine when the jell stage has been reached. When this point is reached depends on the quality and age of the fruit. The more ripe the fruit is, the less natural pectin it will contain and it will have to cook for a longer period than slightly underripe fruit. If everything is as it should be, this berry mixture should reach jell stage in about 15 minutes. There are a few ways of testing jell stage; the following test is simple and works as well as more complicated methods.

With a clean dry spoon, scoop up a small amount of jell liquid and hold it above a saucer. Tilt the spoon so that the jell runs off the side of the bowl of the spoon. If it falls in two separate drops, it is not ready. If the two drops merge, and fall in one sheet, jell stage has been reached. If you have to test again use a clean dry spoon.

Ingredients

9 cups mature barely ripe blackberries (13 cups if making seedless jam) 4 cups sugar
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Special equipment

8 qt stainless steel sauce pot Boiling water bath canner

1 large medium to fine mesh sieve to strain seeds if desired
5 half pint mason jars with screw bands and lids
wide mouth funnel
4 oz ladle
9 inch pie plate for catching spills
large stainless steel bowl

Method

1. Sort and wash the berries, remove the stems and caps. Layer berries in a large stainless steel bowl with sugar, cover and allow to rest in the refrigerator for at least eight hours.
2. Transfer the berries to the sauce pan and bring to a simmer over medium heat and cook until the berries are soft, about 20 minutes.
3. If you are making seedless jam, strain the berry mixture through the fine sieve.
4. Continue cooking over medium heat until the jell stage is reached.
5. Ladle hot jam into prepared jars, as outlined in the previous recipe and process in the hot water bath canner for 10 minutes.

Storage

Store in the same way as the chutney.

Ruth’s old fashioned zucchini pickles

As I set the summer squash plants in the soil, I could hear the little voice inside saying, once again, “What are you going to do with all of this squash?”

Usually, I dismiss this with something like, “This isn’t as much as I planted last year.”

Well, even though it is less, it is probably still too much. But this year I think I have a partial solution to the problem. The following recipe is a standard sweet pickle recipe that Trudy modified slightly so she could substitute green and yellow summer squash for cucumbers. I was skeptical about the concept until I tasted some that she sent to her father for his birthday. He wasn’t thrilled about sharing them with anyone and, if you make a batch, you’ll understand why.

For the best results, use only small, firm squash because they have more flavor and less water.

Ingredients

7 lbs zucchini or yellow summer squash
1 large sweet red pepper
4 large white onions
1/3 cup course sea salt or kosher salt
Ice water to cover
2 cups cider vinegar
3 1/2 cups sugar
1 tsp turmeric

1 1/2 tsp celery seed
2 Tbsp mustard seed

Special Equipment

Large stainless steel bowl
8 qt stainless steel sauce pot
8 pint mason jars with screw bands and lids
Large mouth funnel
Narrow blade spatula

Method

1. Wash the squash and pepper in plenty of cold water and drain. Slice the squash on the diagonal into 1/2 inch pieces. Cut the pepper in half, remove the seeds and slice it into pieces that are one inch long by 1/4 inch thick.
2. Peel the onions, cut them in half, and slice them lengthwise into 1/4 inch strips.
3. In a large stainless steel bowl mix the squash, pepper, and onions with the salt. Add just enough ice water to cover the vegetables. Let the vegetables stand for three hours, then drain.
4. In a sauce pan mix together the cider vinegar, sugar, turmeric, celery seed, and mustard seed. Bring this mixture to a boil over medium heat while stirring constantly. Remove it from the heat as soon as it starts to boil.
5. Combine the hot liquid with the drained vegetables in a large sauce pan and bring the mixture to a boil once again. Turn off the heat as soon as the boil starts.
6. With a slotted spoon fill the jars with the hot vegetables to 1/2 inch from the top. Divide the hot pickling brine evenly among the jars without exceeding the 1/2 inch head space. Follow the procedure outlined in the chutney recipe then process the jars in the hot water bath for 10 minutes.
7. Store the pickles in a cool dark spot for 3 to 4 weeks.

If you want to read more, find [The New Putting Food By](#), by Ruth Hertzberg, Beatrice Vaughan, and Janet Greene from the Stephen Greene Press in Brattleboro, Vermont. The ISBN for the hardbound is 0-8289-0468-5 and for the paperback it’s 0-8289-0469-3.

Home preserving, in all of its forms, is an ongoing chapter in the gastronomic story of America and it truly reflects the great bounty and many creative cooking styles that make American food worth writing about. Please drop me a line and share your favorite preserving recipe or method. I just purchased a 200 pound capacity commercial smoker and I need some good smoking recipes to share with the world. See you next time. Δ

When angry, count four; when very angry, swear.

Mark Twain
1835-1910

Plan your energy-independent home *before* you begin construction

By Paul Jeffrey Fowler

Over the years, as the owner of a successful solar electric business, I spoke with thousands of people about designing and installing a solar electric system. The majority of the customers who were building their homes contacted me after their homes were mostly completed, when many of their designs were irreversible. I always wished I could have helped these people with their choices before they had begun to build.

Obviously, I could have helped them to orient their houses for proper exposure to the sun and to plan for the installations of a solar electric array, system controls, and a battery room. In most cases, they had done fairly well on these aspects from reading solar electric books. I really wish I could have reached them early enough in their planning process so they could have built true alternative energy homes, not just houses with solar electricity installed on them.

In homebuilding, it is difficult to be creative, since a house is built with very standardized methods and materials. However, innovation is necessary in designing an alternative energy home, because it will use electricity much differently than a conventional “on-the-grid” home. In an alternative energy home, the goal should be to build a home such that the people using it will feel that they are enjoying a conventional level of comfort, though their source of electricity is an independent system.

A grid home in our area pays about 10¢ per kilowatt-hour for electricity, while a solar-electric-system owner pays an average of 30¢ per kilowatt-hour. Furthermore, the owner must invest up front in the equipment to produce 10 to 20 years of this



The author's home, with solar electric modules on the house and garage

30¢/kilowatt-hour electricity. My personal goal has been to use only one-third as much electricity as a conventional home of similar size and comfort by designing conservation into my home. In truth, solar electric homes almost never utilize a solar electric system to meet the typical energy demands of a conventional home. Solar electric homes are successful because of *conservation* of electricity.

Before you build your dream independent home, examine those loads that would be energy hogs if they were powered by electricity. These are normally heating, hot water, and cooking. You should try to power any heating load by another energy source. In the Northeast, even most grid homes choose to purchase less-expensive LP gas to power the kitchen stove and the hot water heater, and heat the house with wood, oil, or gas in preference to using electric heat.

Heating and cooking

Plan to buy a pilot-model propane stove. Standard propane stoves now come with an electric ignition feature

that creates some problems when it's used with an inverter's load demand function. (An inverter is the part of a solar electric system that transforms the direct current—DC—from the battery bank into the alternating current—AC—used in the home.)

Solar electric homes are successful because of conservation of electricity.

Solar hot water, wood-heated hot water, or a summer/winter hybrid of the two provide a renewable-energy hot water system. Conventional LP hot water heaters work well, but I prefer our more efficient Aquastar tankless model. Using LP is certainly not energy independence, since you are married to the gas company. However, it is more commonly used than wood for cooking or heating water. A home often uses only a 100-pound tank of propane per month, so those living far into the outback can transport the LP themselves.

Heating your solar electric home with a conventional oil or gas furnace is a problem: furnaces use a lot of electricity to run circulating pumps in hot-water systems or circulating fans in hot-air systems. Your alternative energy home should be designed to be heated by wood stoves, LP space heaters, passive solar energy, or any combination thereof, because these methods of heating require no electricity.

Solar heating

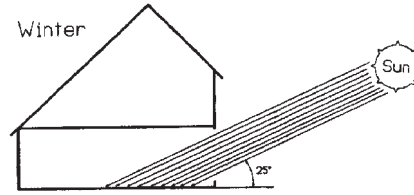
If you're planning to power your home with a solar electric system, you most likely have good solar exposure at your house site. I recommend incorporating some passive solar heating into your house design. This will require both south-facing windows and a heat sink (such as stone walls or concrete slab floors) that can absorb the heat of the winter sunlight. This will prevent the house from overheating during the day, while storing some heat for the night. Wood heat is a good partner for the passive solar heat.

...leafless branches in winter will reduce the solar energy by 35%

Many owners of independent homes find they are house-bound during the winter, because they can't leave their wood fires unattended for a weekend without the pipes freezing. Because you will not be using a furnace, you can plan for an LP space heater for backup heat.

Insulation

It is also possible to design a simple and affordable passive solar home that requires no furnace or backup LP heater. Our own 1800 square-foot, passive-solar, well-insulated home uses two cords of wood per year and will not drop below freezing in the

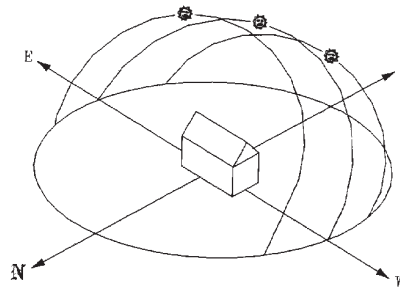


Design your house for passive solar heating.

worst sub-zero weather while we are away. If you do plan to use passive solar heat, you will need to insulate your home more heavily than is standard for your area. In my town, homes are commonly insulated with six inches of fiberglass, but I used eight inches. You should also insulate the outside walls of the basement, or the perimeter of the floor slab, with two inches of foam insulation. One benefit of extra insulation is that it will lower the number of cords of wood you will have to cut each year for the rest of your life.

Cooling

In hotter climates, you will have to plan ways to keep your home cool without using standard electric air conditioning. Ceiling fans can be powered by super-efficient low-voltage DC motors that use a tenth of the electricity of AC fans. There are evaporative air conditioners or "swamp coolers" that use only a small amount of electricity for small pumps. The house site can be landscaped, and overhangs can be designed, to shade the house from the sun in the hot



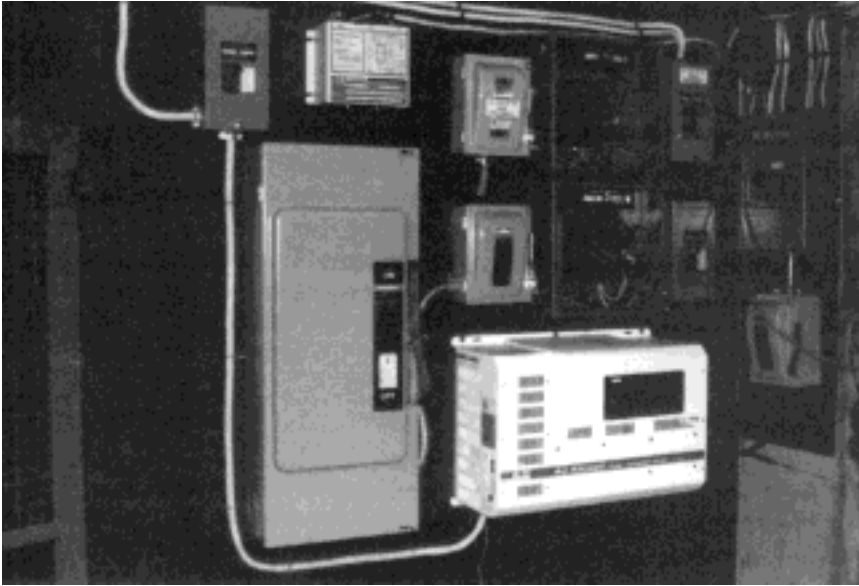
In an unobstructed site, you get maximum sun due south all year.

months. Once again, the home must be well-insulated. Brave people can abandon a conventional home in favor of an earth-bermed, or underground, home that utilizes the earth to cool it in the summer and insulate it from the cold in the winter.

Water

An independent home needs its own water supply, and water-pumping can be a heavy electrical load to reckon with. A minority of folks can supply water using a spring on a hillside above the home that flows by gravity. Most people will have to drill a well. In dry areas of the country with deep aquifers, expensive deep wells require pump motors that are too large to be powered by an inverter in a solar electric system. In this case, you need to get a specialty jack pump powered by a low-voltage DC motor and an appropriately large storage tank. Look for help designing this system before you start building the house.

For homes with drilled or dug wells, there are choices for well pumps that work better with a solar electric system. If you can have a dug well close to the house, and the surface level of the water is less than 18 feet below the pump in the basement, you can utilize a centrifugal pump. The standard AC centrifugal pump (or its relative, a jet pump) is extremely inefficient. A better option is an efficient low-voltage DC pump that is powered from the battery bank. If you have a deeper well with a static water level that is lower than 18 feet, you can most likely use a 1/2 or 1/3 HP (horsepower) conventional deep-well pump. These pumps sit near the bottom of the well and push the water up, which is more efficient than pulling it up with a centrifugal pump. Deep-well pumps are normally 240VAC (240-volt alternating current), but they are also available in 120VAC, which is compatible with the 120VAC inverter in a solar electric system.



The inverter and controls, mounted on the basement side of the battery room wall

Getting enough sun

A solar electric home must have a daily minimum of six hours of solar exposure. Before you start building the house, you need to plot the daily path of the sun at your house site for the four seasons of the year. Shading trees must be removed. Even shading by leafless branches in the winter will reduce the solar energy by 35%. Most commonly, a solar house is oriented with one side facing due south (not magnetic south), with the ridge pole in an east-west line. The south wall can utilize extra windows for passive solar heating, and the roof can support the mounting structure for the solar electric modules.

Sometimes you can increase the total daily solar gain by shifting the orientation away from due south. For example, if there is a lack of solar exposure in the afternoon (maybe the sun passes over a ridge at 2 PM) and extra exposure earlier in the morning (an easterly valley), the orientation can be shifted 20° to the east to maximize your solar energy per day. Correspondingly, the house could be shifted to the west, if the ridge were to the east and the valley to the west.

Placement of modules, batteries, and controls

Solar electric modules may be installed on ground, wall, or roof-mounted structures. For a ground mount, you will need to plan for a ditch and a hole in the foundation wall for the underground cable from the module array to the battery bank. For a roof mount, you will need reinforced areas under the roof boards and between the rafters, where you will bolt the frame. You will also need a conduit, or interior wall space, to run the wires from the roof to the battery bank. If possible, the wires should be accessible after the house is finished to permit repairs and system upgrades. Solar electric module arrays send low-voltage DC electricity (usually at 12 or 24 volts) to the batteries. These wire runs should be kept as short as possible to reduce the need for thicker, more expensive cables.

The battery bank should not be inside the living area of the house. Lead-acid storage batteries smell when they are being charged hard, and they produce flammable hydrogen gas. Also, the batteries should not be installed in a cold environment,

because the cold reduces their electrical storage capacity. A battery bank is ideally installed in its own ventilated room in a basement. Ventilation to the outdoors is necessary, so plan to leave an appropriate hole when you pour the foundation.

The system controls and the inverter should be as close to the batteries as possible without actually being in the battery room. Inverters typically draw 100-400 amps from the low-voltage battery bank, requiring large cables, preferably no more than five feet long. The controls will arc sparks when DC circuits are opened and closed, which could ignite the hydrogen gas produced by the batteries. Usually the inverter and controls are mounted in a four-by-eight-foot area on the basement side of the wall that separates the basement from the battery area.

If you plan to have a small solar electric system with 12V appliances and no inverter, you may want to locate the battery bank centrally to reduce the length of the circuits that will feed 12V electricity to the house, thus avoiding long runs that require thick, expensive cables.

A standard 15-20 cubic foot 120VAC refrigerator uses more electricity per day than your whole solar electric system could produce.

Most solar electric systems today utilize an inverter to change the low-voltage DC electricity from the battery bank to standard 120VAC electricity. Now that these inverters have become reliable and efficient, most people don't use DC appliances in their homes. Therefore, it is necessary to wire your home with the standard number of AC outlets, fixtures, switches, circuits, and circuit breakers. You may feel you do not need them now, but remember that it's easier to

run wires before the walls are closed in.

Lighting

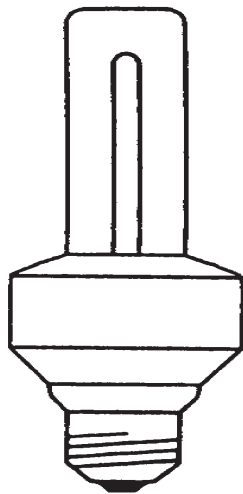
Lighting is a large load for your solar electric system. Furthermore, you will need more hours of electric lighting during the winter months when the days are short, which is also the time of year when we receive less solar energy to produce electricity. You can reduce your electrical consumption by choosing lighting fixtures that give you more light and supply that light where it can be best used. Avoid recessed fixtures that lose much of a bulb's light production to the black inside. Instead, seek out fixtures with globes or lenses that project the most light. Compact fluorescent bulbs are your most likely source of efficient and pleasing light. Unfortunately, these bulbs vary in size and shape. Try to select fixtures that can accommodate them. Some lights need to provide general lighting, while other lights need to be focused for detail work or reading. Choose your lights for where and how they will be used.

The best and most pleasing light for all activities is natural light. You can reduce the amount of electricity needed for lighting by matching window placement with areas that need light. For example, match your kitchen work areas to your kitchen windows so that electric lights are only needed at night. We rarely turn on a light in our home during daylight hours, because natural light does the job. Natural light is enhanced by white ceilings and walls to keep the light from being absorbed and lost.

Generators

Many solar electric homes use a generator to supplement their electrical needs in low-sun periods. If the generator is used often, it will need its own little shed or place in the garage, with an exhaust system to the out-

doors, hopefully out of noise range for the house and the neighbors. You will need to leave another hole in the foundation and a ditch for the underground line or conduit from the generator to the basement. If you have an LP powered unit, you will also have to plan for an underground LP gas line from the LP tank to the generator.



A compact fluorescent bulb

Cold storage

A standard 15-20 cubic-foot 120VAC refrigerator uses more electricity per day than your whole solar electric system could produce. Standard refrigerators are among America's most inefficient appliances and are not acceptable for an independent energy home. In sunny climates, you may choose a super-efficient low-voltage DC refrigerator. You will need to plan for an extra \$1,000-1,500 investment in your solar electric array to power it. In climates like the Northeast, where I live, it is difficult to run even a super-efficient DC refrigerator, because it is a constant load even when the sun does not shine for several weeks straight. Most independent homes use an LP refrigerator that consumes about seven gallons of propane per month.

There are low-voltage DC freezers, but they consume about twice as much electricity as a DC refrigerator to

maintain the lower temperature and to cool the room-temperature foods that are added to them. LP freezers are small and extremely expensive. Most solar electric homes have no freezer. To compensate for this, I recommend planning a root cellar or cold storage room into your house design if you live in an area with cold winters.

The simplest cold storage room consists of a small room, well insulated from the basement and the warm ceiling of the house above, located in the north corner of the basement. In winter, the cold exterior walls of the foundation keep the room cool. Additionally, you may add one four-inch ventilation pipe that runs from just above ground, outside the basement, into the cold-storage room and down to its floor, and a second four-inch pipe from the ceiling of the cold-storage room, to the outside, and up the wall of the house six or eight feet. When the outside temperature is colder than the cold-storage room, cold outside air circulates into the space and warmer air rises out of the space.

A garden works well with the cold-storage room, because it supplies fresh vegetables in the summer, when the cold storage area is not cold, thus further reducing the need for a freezer and a large refrigerator.

To plan and design an independent home powered by solar electricity, you will need a lot more information than the few pages of this article. I hope I have started you thinking about the many facets of design that could help you plan and build an independent home—a home that uses far less power than your old “grid home,” and at the same time provides you with a more comfortable existence, and a better and more sustainable life.

(Paul Jeffrey Fowler is the author of *The Evolution of an Independent Home: The Story of a Solar Electric Pioneer*, 1995, ISBN 0-9645111-7-7, distributed by Chelsea Green, available from *Backwoods Home Magazine*. He has written several successful how-to books on solar electricity.) Δ

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Backwoods Home



magazine

practical ideas for self-reliant living

MAKING
A LIVING
ISSUE

13 Great Ways to Make Money While Living in the Country

Plus

Money-Saving Ideas
Natural Headache Relief
Perfect Wholegrain Bread
Graywater Disposal System
Proof of Psychic Powers?



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DON CHILDERS

My view

Born of desperation

When I came to work this morning, John Silveira, *BHM*'s senior editor who sleeps on a mattress on the office floor during deadline, was just waking as I walked in the door.

"What a nightmare I had," he said. "I thought I was back in DoD trying to get a job."

DoD is the Department of Defense. John and I worked for various DoD defense contractors for 15 and 10 years, respectively, prior to working for *BHM*. In fact, it took me two years and a constantly increasing wage offer to persuade him he should leave his high-paying and secure DoD job, which he hated, and come work for *BHM*, which I knew he would love.

"I dreamt I was at some defense contractors in southern California," he said. "I had quit the job three or four months before, I think, but I needed money to pay the mortgage so I was back there trying to get rehired. You were the only one I recognized; everybody else in the company had changed.

"You told me don't worry, that I'll get hired. At some point we went out to the roach coach to get something to eat, but you set the damn roach coach on fire and we had to run back in the building and hide.

"Then I was being interviewed by the boss, and he asked me why I quit. I told him I had gotten sick, that I was missing a day of work here and a couple of days there, then stopped coming in to work altogether a few months before because I was so sick. I told him I wasn't even sure I told the company that I had quit. He asked me what illness I had, but I couldn't tell him because what I had gotten sick of was the job. He asked me if I had any records from my doctor, but I hadn't been to any doctor. I could feel the job slipping away as he asked questions I couldn't answer. But I needed the crummy job to pay the damn mortgage. Man, was it depressing."

We had a good laugh. I knew the horror of such a dream first hand, and I had, in fact, lived it with minor modifications several times. In my 10 years working for defense contractors, I had quit many jobs, only to reapply to another company when the bills came due. Like John, I had hated going in for the interviews, hated going to work at the jobs, wished the day away so I could go home and do something I thought worthwhile, and lived for the weekends. I also grew to hate the growing metropolis that surrounded my home in southern California, and I grew weary of the rising crime, the increasingly congested roads, and the general din that reigns night and day in an overcrowded area.

Out of desperation, I eventually escaped to the backwoods and started a new life, not knowing just how I would make a living. This magazine was born out of the desperation I felt at the possibility I might have to return to jobs



Dave Duffy

that I hated. Luckily the magazine worked, and every issue Silveira and I work like dogs to make sure it keeps working so we won't ever have to go back to go-nowhere, miserable jobs in the city again.

There are many people out there today who are like John and I once were. They are good at what they do, but they can barely tolerate doing it. They need an outlet in the worse way imaginable. That's what this issue is about—an attempt to give you a few ideas of some of the possibilities of making a living. For most of you, the jobs depicted here will not be the jobs you will end up with, because in the end you have to create not only your own world in the country but your own job. You have to look at what you are good at, what makes you happy, what gives you the sense that you are spending your time well.

The compelling reasons that drove me to the country were job dissatisfaction and the citification of where I lived. But since arriving in the country and creating my own job, I have discovered many more benefits. Here are some of them:

- My children visit me whenever they want on the job.
- My children aren't exposed to drug pushers.
- My children's mother is always at home with them.
- I don't have to lock my house or car at night.
- I look out the window and see wildlife.
- I go fishing whenever I want.
- All the neighbors know and depend on each other.
- I look forward to going to work.
- Silveira can sleep on the floor whenever he wants.

It's a great life. It takes a Silveira nightmare to wake me up and realize how lucky I am. But I quickly remind myself that I created my own luck. I took my life in my own hands.

If you feel a bit desperate about your job or where you live, you're welcome to use me as an example of what can be done. You don't have to start a magazine, but you should start something.

If you have some solid how-to knowledge to sell, writing and publishing a book is not that hard

By Skip Thomsen

Being able to earn your keep from your own home has a lot of benefits: no commuting, you set your own hours, you can involve your kids (to whom that participation can be a great learning experience), and there's just this wonderful feeling of autonomy that comes from being your own boss.

So have you ever considered writing for a living? If so, and if the thought of getting started was intimidating enough that you just put the whole idea aside, it's time to reconsider.

We are an information-hungry society. How-to books are hot sellers and are about the easiest kinds of publications to market on a small budget. Think about it: you're paging through your favorite magazine (the one that addresses your specific interests best) and you come across an ad for a book or booklet that promises to help you solve a problem that's been keeping you awake nights for some time. You'll go for it, right?

Getting started

I got started by accident. About 10 years ago, I was living on 108 acres of forest in northern Oregon. In the middle of this place, I built a 1600 square-foot house and a big shop. The house and shop had all sorts of electric tools, appliances, and gadgets, and I even had an office with a computer, photocopier, and two printers. All of this with no store-bought electricity. My place was about \$10,000 away from the nearest power lines, and I really wanted to make my own power anyway, so I did.

Over the years, quite a few visitors voiced their surprise at how I could have all these electrical conveniences

with "no electricity." (That's how most people perceive alternative power.) Several friends suggested that I write a manual on how to exactly duplicate my electrical system, since it had been working flawlessly for years.

Well, one day as I was sitting around wondering what I could do to earn a little extra cash, I remembered those suggestions, and I wrote up the initial draft of what was to become my first published writing effort.

If you have learned how to do some trade or even some specific facet of a certain skill...That, my friend, is marketable information.

The first printing was in 1989, and that little book has been selling ever since. It's now in its third printing, and it is just about time to get it ready for the fourth. This time, there will be some additional material included, covering new equipment that has recently become available. And I'm now working on my fourth book, and enjoying every minute of it.

Everybody's got a story

Almost everybody has got stories to tell, particularly you folks who have achieved some success at self-sufficiency. You've all mastered some tricks of the trade, ideas, and methods that you learned the hard way. You've all got helpful ideas to share with others.

Some people have a problem with "selling" ideas and thinking of this as "sharing." I consider myself fortunate to be able to buy, for a reasonable price, the information that somebody

else has spent maybe years and lots of money learning. If you have learned how to do some trade or even some specific facet of a certain skill, you probably learned it over a period of time. Maybe you're like me, and you did it wrong the first several dozen times before you finally got it right, and when you finally did get it right, it worked better than you had ever hoped. That, my friend, is marketable information. You aren't the only one who has ever tried to achieve that goal, and you are in a position to offer the information on how to do it to everyone else facing the same challenge.

OK, now that we've got the philosophy out of the way, how do we become writers and publishers?

Writing the book

Your topics don't need to relate to what you're into right now, either. For example, if you are a serious homesteader living up in the piney woods, but you spent the last 20 years sailing the seas in your own blue-water boat, you no doubt have some ideas to share about sailing. There are few more dedicated audiences than the sailing folks, and they read every sailing magazine they can get their hands on. Same goes for doll-makers, bee-keepers, chefs, crafts-people, nurses, motorcycle mechanics—the list is endless.

Topics with small but excited audiences are the easiest to advertise to. I have a cousin who is making an exceptional living selling mail-order patterns for doll clothing.

The easiest topics are, of course, the ones with which you are intimately familiar. They're even easier if the topic is something you genuinely enjoy. Then you just write the how-to as if you were sitting there, talking

with a friend. You know your subject, and the information just flows out.

Don't even try to create the perfect manuscript the first time out. Just pour out the ideas and thoughts. Hopefully, you're using a computer, because that makes it a whole lot easier. It can be done with a typewriter, or even by hand, but it's a lot more time-consuming that way.

Get the ideas down, and then spend the time to edit them into a logical progression. Don't worry too much about perfect grammar, either. Nobody's going to critique your work: they just want the information.

Should you be really worried about your writing ability, have a friend edit your manuscript for you. You can even have someone else do all the writing for you if you'll just dictate the information.

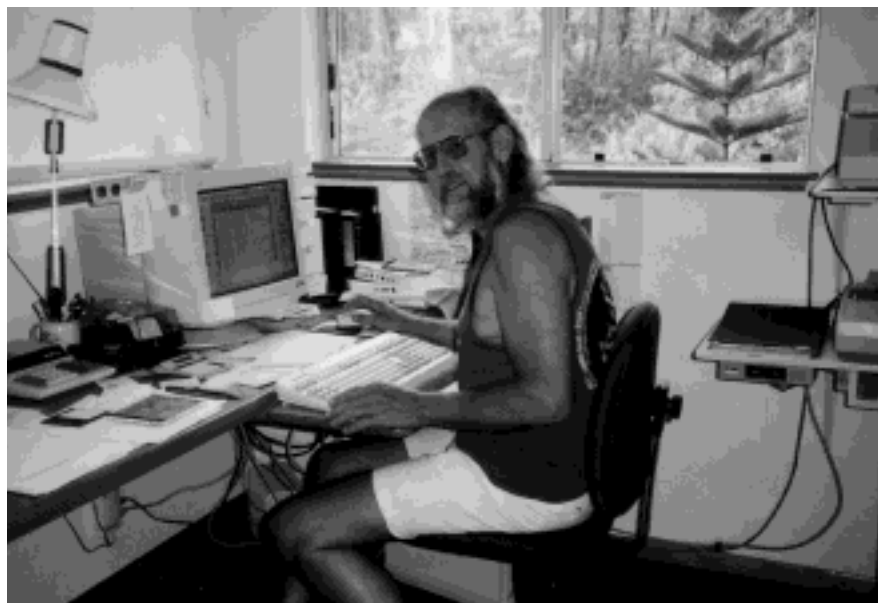
Once you're done with the last edit and you're satisfied with your writing, it's time to produce some marketable merchandise. The first step is printing the pages, and although a laser printer makes the best-looking page, you can get away with a letter-quality dot-matrix printer. What you're creating here are the "masters," the originals from which your actual production pages will be copied. Photocopying clear, sharp, letter-quality dot-matrix output makes it look almost as good as laser output, and certainly good enough for most how-to booklets. Just plain typed output works OK, too, but I must stress here that if you get even a little bit serious about writing, you need to get a computer. More on this later.

The "publishing" part — how it works

The detailed nuts and bolts of this business are beyond the scope of this article, but what I'll "share" with you here are the basics. Then if that builds a fire under you, check out the bibliography at the end of this article. Listed are the very best of the several hundred dollars' worth of books that

I've bought dealing with self-publishing and the marketing of your own writing.

The simplest way to get into self-publishing, and the way requiring the least money to get started, is to do booklets. Booklets can be printed inexpensively and bound with a low-cost saddle-stapler. Booklets are most easily produced in the standard 8½ x



The author at work in his home office

11" size of paper, or if you have a word processor that's capable of it, half that size (8½ x 11 folded in half). Booklets are great for single-topic publications, like how to grow bug-proof tomatoes, how to build a greenhouse for under \$100, how to get the best firewood for free, how to troubleshoot computer problems, how to make your old truck run forever . . . this list is endless, too.

The book I did on my electrical system turned out to be over 80 pages (lots of drawings and diagrams), and since it was designed to be an instruction manual for a moderately-complicated project, it became a book rather than a booklet. I also wanted it to be a durable work-manual with a lay-flat binding. I did the first 1000 books by having the pages and covers printed by a regular print shop, and then I

bound the books using plastic "comb" (GBC) bindings. The machine that punches the pages and installs the bindings costs around \$300.

When you start thinking in terms of bigger quantities, you should know that printing/bookbinding firms like to be paid up front. The cost per book goes down dramatically as the number of books printed goes up. The cost

usually levels out a bit at about 3000 copies, so that's about a minimum practical order.

As an example of the quantity-discount thing, the next run of my power-system books was 3000, and the printer did the whole job, including collating the pages and binding the books, for less per book than it cost just to have the printing done on the first (1000-book) run.

The first run

If you're going to be doing booklets, you have several options. For just a few, like less than 100, the cheapest way is to have your nearest photocopy store make the pages for you, and then you can bind them with a stapler. A saddle-stapler is the best way to go here, because it is designed for that

purpose. The booklet gets folded before stapling, and then it's simply opened again, and the fold is used to locate it on the stapler. The stapler then sets the staples right into the fold, and your product looks professional. Saddle staplers are also much heavier duty than common desk staplers, and they use heavier staples. They are available at most office supply stores, and if they don't have one in stock, they can order it for you. A desk stapler really is unsuitable for anything more than five or six sheets of paper. (See the Viking catalog in the bibliography.)

If your publication more closely resembles a book, and you want to use a comb binding, you can either purchase a binding machine or go to your copy shop and use theirs. Some copy shops will do the binding for you or let you do it yourself at a greatly reduced charge. They'll also have other methods of doing inexpensive binding.

For most booklets, regular copy paper is OK, depending on the quality of the paper and the printing process. The deciding factor is the transparency of the paper. Get a sample page with copy on both sides, and see how transparent it is. If you can see the printing on the back side coming through, the paper is too thin. *Always have the copy shop run a sample before printing a bunch of anything.* For a book, paper weight should be 50-pound stock. Anything thinner isn't durable enough and it just feels cheap. Covers should be heavier stock than the pages.

Explain what you're trying to accomplish and ask for suggestions. Often, copy places will have an over-supply of some paper that might suit your needs fine, and they'll sell it at an attractive price. Ask your copy shop about paper prices. If you find a good deal on paper, buy as much of it as you can afford. The prices rarely go down. Sometimes you can get a thicker paper that's less expensive than some of the thinner, more transparent

kind. And by all means, if you live where you have any choice, shop around. Prices vary a great deal from one place to another. Also ask about quantity prices. Some places offer price breaks at pretty low quantities.

Marketing your books

OK, now you are the proud owner of a box or two of your books. (You are now a publisher.) How will you market them? Classified ads in magazines addressing the book's field of interest are the most cost-effective on a limited budget.

Directly placing your product in stores that sell related supplies works, too. For example, a nursery or garden supply store would be a logical place for "How to grow bug-free tomatoes," or "How to build a greenhouse for under \$100."

The easiest topics are, of course, the ones with which you are intimately familiar. They're even easier if the topic is something you genuinely enjoy. Then you just write the how-to as if you were sitting there, talking with a friend.

Many independent merchants will be happy to sell your books for you on consignment. The discount is usually 50%, so if the book sells for \$4.95, you split that with the merchant. Consignment means that you place the books with the merchant, and he pays you for them as they are sold. Merchants are also more receptive to this idea if you can furnish some sort of display unit for your books, which can be as basic as a small cardboard box of the right size that will display the books standing up.

We've just scratched the surface of the possibilities in this article. If writing for a living sounds interesting to you, invest in some of the books listed below (or try your library). There is a lot to be learned in this business, but you don't need to learn it all at once. I recommend that you read completely through Dr. Lant's book, and then keep it around for reference. If the spark is there, this book will get the fire roaring.

About that computer

Let's get back to the computer thing for a moment. Excellent used machines are available in the \$500-700 range, loaded with software, and often complete with a printer. (I recently sold one for \$350.) Computer technology is advancing at such a rapid rate that what you buy new today is "obsolete" tomorrow. That makes it good for us folks who can get along just fine on yesterday's technology. I've written several books now on an ancient 386-DX/33 computer, which is considered totally obsolete. It does everything I need it to do, and then some. There are lots of complex businesses that depend on more antiquated computers than this one to do all of their accounting, word-processing, advertising, etc.

Don't let anybody sell you on the idea that you need the speed and capacity of a new machine. For word-processing, speed is immaterial. If you also want to get into the Internet, then you would do well to buy a faster machine, but even then a 486/66 or thereabouts will do nicely. And they're also dinosaurs and available cheap.

Bibliography

How To Make A Whole Lot More Than \$1,000,000 Writing, Commissioning, Publishing And Selling "How-To" Information, by Dr. Jeffrey Lant. \$39.95, ISBN: 0-940374-26-9. OK, that title really turned me off, too.

So did the price. But more than any other book I've read on the subject of writing and selling your work, this one is a bargain. Dr. Lant covers everything, with particular emphasis on the small-time writer of how-to material. With this information, you are set to go, and to take your new business to any heights you desire. This one is written in a casual, conversational style, and speaks to those of us who are entirely new at this game, as well as to those who are old hands at it. If you're only going to buy one book, this should be the one.

The Complete Guide to Self Publishing, by Tom & Marilyn Ross. \$16.95, ISBN: 0-89879-354-8. This book is more for those who want to get right into real, full-size books. It's got a lot of info, and it's a lot less spendy than Dr. Lant's book, but this one is directed to a more commercial, "big-time" approach to publishing.

1001 Ways to Market Your Books, by John Kremer. \$19.95, ISBN: 0-912411-42-2. This book is a gold mine of information on places and ways to market your books. It's a 500+ page, well-indexed resource that's a must for the serious writer.

Getting it Printed, by Mark Beach. \$29.99, ISBN: 0-89134-510-8. This one is for when you're ready to produce your first serious, high-quality book. It covers everything you'll ever need to know about dealing with printers and getting the highest quality job for a reasonable price. Beach explains all the tricks of the trade, the processes used in every aspect of printing, and he takes the mystery out of "print-speak," the language used by those in the trade. It is important that you know this language if you're going to be dealing with printers. They all assume that you do, and if you don't, you're going to end up paying too much, getting something other than what you had in mind, or both.

Viking Office Products Catalog, 800-421-1222. This is a catalog, not a book, but it's a valuable resource. These folks are some of the best in the business, and they handle a very complete line of office supplies and tools (like saddle-staplers and binding machines). Their prices are the best around, they ship the same day, and the shipping is free on orders of over

\$25. If there's an error in any shipment (theirs or yours), they'll come pick up the wrong shipment and send another. It's a pleasure to deal with these folks. There is one catch: you need to be a business, so dream up a name for your new publishing business. You're going to need it pretty soon anyway, right? Call for a catalog. Δ

A BHM Writer's Profile: Darlene Campbell

One of Campbell's fondest memories is of her father's backyard rabbit hutches when she was a girl. There were always a few hutches of rabbits no matter where they lived, and she remembers how her mother often cared for the baby bunnies.

When she moved to Southeast Oklahoma in 1979 she and her husband, John, began raising rabbits commercially, but all her childhood memories hadn't prepared her for the losses they encountered in the beginning. Through trial and error she learned the right and the wrong ways to raise them. Later she wrote and sold her first book on rabbit management to TFH Publications, the world's largest publisher of pet books. Her next book was on raising parakeets.

Animals have always been a part of Campbell's life. On the farm she was able to surround herself with goats, calves, pigs, and poultry as well as rabbits.

When the rabbit venture folded she turned the building into a cattery and began raising registered Himalayan and Persian cats. She continued her writing about country life selling to such magazines as *Backwoods Home Magazine*, *Organic Gardening*, *I Love Cats*, and others.

In 1995 she began publishing "The Christian Homesteader," a newsletter geared toward homesteaders because she wanted to share her knowledge with others. The newsletter saw four successful years before it ceased publication due to other interests and lack of time.

Moving back to Arizona in 1998 Campbell is no longer farming but continues to write of her experiences so others may learn. She currently raises Yorkshire Terriers and makes turquoise jewelry in the historic town of Mayer.



Here are two country couples who diversified to make a living

By Dave Duffy

One of the best ways to determine how to make a living in the country is to go into the country and examine how people already there are making a living. What you'll find is that there are few ideal country jobs. In fact, there are few jobs period, and what jobs there are are lower paying than their city counterparts.

That's a daunting situation for a lot of people grown accustomed to a certain level of income. In many cases, people who are professionals or highly skilled in their field cannot find an opening related to the type of skill they have. They must do something totally new.

But as difficult a situation as that may appear to be, there is a bright side: the harder it is to find a job in the country, the less populated—and more desirable—the country becomes. If it were easy to find a good job in the country, the country would quickly fill up with people who would bring with them all the problems they sought to leave behind.

So if you want to make it financially in the country, you must be resourceful in how you pursue employment. And if you can't find a suitable job, you must create your own job, or diversify and perform several jobs needed in your area.

I took a look around my area in northern California to see how my neighbors made their living. I could have picked many of them to show as examples, but I picked just two couples. Both had given up good jobs to move from the city to the country years ago, and both had used their ingenuity to adapt to the sparser financial pickings of the country.

The key to their continuing success has been, in large part, their ability to diversify. Their example may give you an insight into the type of thinking often necessary to make a living in the county.

Paul and JoAnne Luckey

Paul and JoAnne Luckey owned a successful leather clothing consignment shop in Sausalito, located at the other end of the Golden Gate Bridge from San Francisco, California.

"We sold everything from hats to boots," Paul said. "I even went to Mexico and learned how to make cowboy boots." The Luckeys hired a U.C. Berkeley professor to teach tailoring for 6 months to 10 of the people who were consigning items to their

shop. "Seven of them went on to open their own businesses," Paul said.

By the mid 1970s, however, the Luckeys were "fed up with the drugs, alcohol, and crime in the city." They decided it was not a good place to raise their four children, and they began looking for "a simpler lifestyle ...cleaner and more healthy to raise the kids."

They chose northern California as their getaway. "It was during a severe drought in that part of California," Paul recalled. "I used to climb Mount Shasta and saw this incredible amount of water everywhere." In 1975 they bought a small Eagle Ranch near Montague, about 50 miles from Mount Shasta. And in 1980 they made the move, leaving behind a four-bedroom, three-bath home complete with jacuzzi, pool, and weight room, and moved the family into a two-bedroom trailer on the ranch.

Then the transition began. The Luckeys had money from the sale of their business and home, but they still needed to make a living. They needed



Paul Luckey with view of Eagle Ranch in background



Paul on his backhoe, making a living

a bigger house, too, to house a family that eventually expanded to seven children.

"I knew how to work hard in the country," Paul said. "I had worked in the coal mines of West Virginia when I was 10. At 13 I left home and worked on a dairy farm in Pennsylvania, and at 16 I went to Montana and worked in the copper mines and later on my grandfather's cattle ranch there."

Paul Luckey ended up becoming a jack of all trades, doing everything from cutting firewood for sale to operating a backhoe for hire. JoAnne became a teacher's aide and spare cook at nearby Bogus Elementary school, where she has now worked for 11 years.

They have done other things, too, as the opportunities presented themselves. In the early 1980s, during this country's energy crisis caused by soaring crude oil prices, legislation was passed that forced the utility companies to buy surplus electricity from private producers. So Paul, in 1982, started building his own hydroelectric power plant, taking advantage of natural springs on a hill above his ranch.

It took him, his sons, and his brother four years and 160 dump truck loads of sand and gravel to make the 300 yards of cement necessary to corral the creek and build a power plant, but he now has a 30-year lease selling electricity to the utility company.

The Luckeys have also raised cows on their ranch for income, but they sold the cows to pay off the ranch. They now grow and sell hay. Paul and his sons have also cut and sold fire-

wood, cutting as many as 128 cords in a year.

Paul bought his own backhoe and bulldozer some years back, and now hires himself out (that's how I met him) to build new roads, dig septic systems, etc. He has also hired himself out to help build new houses, including his own, which is a 3600-square-foot home he built himself.

Because he has been self-employed most of his life, he would not qualify for social security if he were to retire today, so, since he won't turn 62 for another 10 years, he has taken a part-time job as janitor at local Bogus Elementary School to build up social security credits.

He also works for Excel Telecommunications, getting a commission on every local business he convinces to switch their long distance telephone service to Excel. *BHM* switched.

And in the past couple of years the Luckeys have managed to buy two rundown houses in town, fix them up, and rent them for extra income.

Paul admits he likes to work hard. "Work is very rewarding," he said. "You get immediate gratification at the end of each day."

The Luckeys are also religious. Paul, a Cherokee Indian, and JoAnne, an Apache, follow the Red Road. "All



JoAnne Luckey with Bogus School children

the national tribes follow the Red Road,” Paul said. “You listen to the Great Spirit within you, and you’ll find the answers to what you need to know. We’ve raised ourselves and our children not to depend on anyone else...to be independent, to be themselves, and to rely on God and themselves to make a living.”

Paul and Margaret Boos

Paul and Margaret Boos live within a few miles of the Luckeys. They own Cold Creek Ranch, having moved there from Huntington Beach in southern California 22 years before.

Like the Luckeys, they had also given up their own company to move to the country. Paul, a clinical laboratory technologist, and Margaret, a nurse, owned and operated the Huntington Beach Clinical Lab, which provided services to doctors in the area.

It was the growing crime and congestion of Huntington Beach, along with increasing government regulations that consumed an increasing part of their workday, that prompted them to sell their 12-year-old business and leave their handsome, custom-built home. They and their two young chil-

dren moved into a tent while Paul built a cabin and dug his own well.

Only a few weeks after moving into their home-built cabin, they discovered 59-acre Cold Creek Ranch. “It was a small dilapidated place,” Paul said. “It was made from an old cook shed, used when they built a dam on the Klamath River, and a chicken house. They put them together and made a house.”

Paul had intended to go into the cattle business, but “the cattle business has been a bust.” For a time he worked counting salmon for \$5 an hour at a fish hatchery on the Klamath River. Eventually both he and Margaret fell back on their professions, working for Siskiyou General Hospital in Yreka.

Both have pursued side businesses while working in town. Paul saved and bought a Wood-Mizer sawmill, and he hires himself out to cut trees into lumber. That’s how I met him. He also cuts firewood for sale, raises worms to sell fisherman who drive by his ranch, hires himself out on his backhoe, and raises registered Angus so he can sell the bulls and heifers. He also carves fish out of wood, and as a buyer of one of his pieces I can testify to their artistry.



Margaret Boos with her sheep

Margaret raises purebred registered cotswald sheep, and a few rambouillet, hampshire, and corriedale sheep, and she uses the wool to make hats, vests, felted balls, doll hair, yarn, and fleeces for Santa Claus beards. But it is the hats that make you go wow. They are fulled (as opposed to felted), beautiful, warm, and made from the natural color of the sheep she raises. She uses no dye or chemicals of any kind and, from the time she picks up the raw fleece, it takes her six to seven hours to make each hat.

Margaret crosses the wool to obtain the type of wool she wants. “I like the long fiber with luster and a small crimp,” she said. “The wool never leaves the ranch. I care for them, they are sheared here, I wash the wool, card it, spin it into yarn, and knit it into a hat.” She has made 150 hats, and you have to feel them to realize how luxurious a warm hat can be.

“I have a passion for wool,” Margaret said. “And I like to do individual things. When I start I don’t



Paul Boos with customer at Tulare Farm Show



Margaret's woolen hats

even know what I'm going to do to it. I don't want two people walking down the street and seeing the same thing on each other."

Margaret said she knits the hat to an oversized size, then washes it to shrink it to the desired size. She then shapes it on a form. Each of her hats bears a tag that says: "Homemade by Margaret Boos," and it has a photo of the sheep the wool came from.

About twice a year Paul and Margaret buy booth space at farm shows, such as the Tulare Farm Show in California. Margaret sells her hats and other wool items, and Paul sells "antique farm implements" that he has either found around the ranch or bought at auction or garage sales.

Margaret retired last year from her nursing job, and Paul will retire this year. They will use their side businesses now as their full-time occupations.



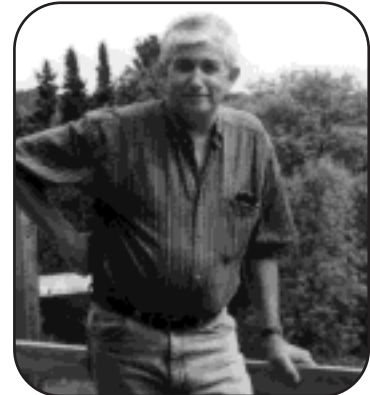
Margaret Boos demonstrating her wool hats at the Tulare Farm Show

"There are hundreds of things you can make a living at," Paul said. "There are so many things you can take out of the country without hurt it, yet make a living. People don't take time to smell the roses."

By the way, if you'd like to take a look at some of Margaret's hats, she'll send you a little handout. Her address is Cold Creek Ranch, 16038 Ager-Beswick Rd., Montague, CA 96064. Telephone: (916) 459-3288.

I hope a look at the way Paul and JoAnne Luckey and Paul and Margaret Boos have made a living has given you a sense of the possibilities of making a living for yourself in the country. Remember, there is no magic bullet to making a living. You must fit

A BHM Writer's Profile: Tom Kovach



Tom was born and raised in north central Minnesota and is now 54-years-old. He studied journalism at the University of Nevada-Reno and at Bemidji State University in Bemidji, Minnesota. He is divorced with two grown daughters and one grandson.

Tom served in the U.S. Army in Vietnam, Germany, and Korea. His hobbies include, hunting, fishing, hiking, walking, swimming, reading, biking, gardening, and travel. He has traveled all over the U.S., some of Europe, Asia, and Africa.

yourself into the country, ascertain what you can do, and adapt. Δ

A BHM Writer's Profile: Edith Helmich

Edith Helmich is a freelance writer working out of Tallahassee, Florida. She has been published in a variety of newspapers, magazines, and professional journals. She enjoys writing on a broad field of topics, using her life experiences as a base of knowledge.

Her background and experiences include teaching elementary and junior high school students and working as an educational consultant to colleges and universities in Illinois. Her graduate degree in Administration, and years of experience as an educational research scientist for the Illinois State Board of Education, provide a foundation for her articles.

A lifetime of fascination with fine foods and unique recipes provides an interest area that has expanded to provide a practical base for the culinary articles she writes. She has maintained a test kitchen for many years with a tasting panel that consists of her husband and three children, discriminating critics with healthy appetites.

The “night crawler condo” is a great way to make money

By Angela Jenkins

Raising worms to sell to fishermen is a time-tested way to increase your income, and this “night crawler condo” method will help you make such an operation more efficient and neater.

To build a crawler condo takes little more than a trip to the garden or farm supply store. Depending on the type of food store chain that’s in your area, it may all be there in one stop.

To get started you need:

1. Styrofoam cooler with a lid (20-quart for the first one)
2. Peat moss
3. Clean soil such as potting soil for plants
4. Aged cow manure
5. Yellow cornmeal
6. Used coffee grounds
7. Rabbit food (alfalfa pellets)
8. Two dozen night crawlers (from a bait shop or your own back yard)
9. Water
10. Old towel or material that will hold moisture
11. Screen wire (2 pieces 4" x 4")

First, the cooler must have ventilation holes cut into the sides about one inch from the bottom of each end of the cooler. Place the screen wire over the holes inside the cooler. The screen wire can be attached by using bent pieces of wire. The ventilation holes help to keep the contents sweet. Night crawlers will not thrive in soured soil.

Now the cooler is ready to be filled to within six inches of the top with a mixture of equal parts peat moss, potting soil, and cow manure. Add enough water to make the mixture damp but not wet.

Let this sit for a couple of hours to allow the water to soak through the peat moss and manure mixture, stir-

ring the mixture occasionally to make sure the moisture is evenly distributed throughout the cooler. Then it’s time to give the night crawlers their first look at their new home. Just drop them onto the top of the mix. Now take the soft cloth and thoroughly wet it with water. Wring it out and lay it over the top of the peat moss mix, making sure that the whole surface is covered (the night crawlers, too).

Twelve to twenty-four hours later, go back to the cooler and give those crawlers their first meal. While this might not sound inviting to people, crawlers love to eat this combination.

Mix together:

- 1/2 cup of plain yellow cornmeal
- 1/2 cup of rabbit food pellets
- 1 cup of used coffee grounds

Sprinkle this mixture on top of the damp soil mixture and re-cover with the wet cloth. Additional used coffee grounds (about 1 cup) can be added about every ten days. Always keep the

soil mixture damp, but not wet. The rate of moisture loss will depend on the air temperature and circulation around the cooler, so the dampness level should be checked at least once a week. If the soil feels dry, add water. The soil mixture in the cooler must never dry out completely. Night crawlers must have access to water to survive.

The upkeep of this crawler condo is quite simple. The night crawlers will come to the surface and eat the cornmeal and rabbit pellets. Check on them at least once a week to keep track of how much food they are eating. As they grow, they will require more food, but that’s fine, because bigger night crawlers catch bigger fish.

As the food is depleted, simply add more by sprinkling the rabbit pellets, corn meal, and coffee grounds on top of the soil mixture and re-covering with the damp cloth. Always keep the cooler lid firmly in place after adding food or water. Placing a weight, such as a brick or a piece of firewood on top of the cooler is good insurance. Night crawlers are travelers, and they will crawl out if the lid is left ajar.



When the crawler condo is finished, place it in a cool, dry place such as a basement or garage. If the cooler is kept over the winter, a basement is a better choice in case there is exceptionally cold weather. In the cooler, the night crawlers cannot go deeper for protection from very cold temperatures as they can outside in the soil, so the protection of basement walls will hold them through the winter.

Night crawlers will grow to enormous size given this special gourmet treatment, and they are always available for a fishing trip with you when it's too hot to find them outside, or it's that first warm day in spring and the ground temperatures haven't warmed enough to bring them up near the surface.

This one-time setup will last three to four months. It's time to re-new the contents when the soil level has dropped to about half-way down the side of the cooler. At that time, just take out the night crawlers and put them in a separate container to hold them until you empty and replenish their home again. The peat moss and manure mixture being removed from the cooler will be an excellent addition to a flower bed or compost bin.

*When my pen is stilled
And my tongue is cold
And I can no longer
Hold you in my arms
My words will still be there
Read them
And though there will be other men
To hold you
I will still talk to you
From the poems I've left behind
And you will remember me
And when you've finally come
To join me
I will embrace you forever
And whisper poems of love
To you
For eternity*

John Silveira
Ojai, CA

The worm castings in the peat moss mix are nutrient-rich food for plants.

When you replenish their condo with fresh bedding, you will find that the number of night crawlers has multiplied rapidly. Now is the time to set up other coolers with the extra worms, or better still, pull out those extra worms and sell them to the folks that didn't get their condos ready before winter.

Small grocery stores, bait and tackle shops, and service stations all sell night crawlers if they are situated around a lake or river area. Now even a few of the larger chain stores such as Wal-Mart and K-Mart are carrying night crawlers in the sporting goods section as a regular item. Night crawlers can best be packaged in styrofoam cups with lids. Fill the cup with dampened peat moss and add about a dozen worms per cup. Eight-to twelve-ounce cups will do the trick.

With the crawler condo setup, a supplier can easily raise thousands of night crawlers in a limited amount of space in a matters of weeks. Δ

A BHM Writer's Profile: Michael Clayton

Michael Clayton was born in Jacksonville, Arkansas, and raised in Sherwood, Arkansas. He grew up with a backyard garden and started growing radishes and lettuce, and as the years went by he started helping to grow other plants including eggplants. Michael graduated from the University of Arkansas at Little Rock with a BA in Criminal Justice and in 1998 he completed a correspondence course in PC repair from the International Correspondence School. He is a member of the Council of Conservative Citizens and the American Nationalist Union for whom he was the Television Review for a short time in 1996 for their newspaper *The Nationalist Times*.

A BHM Staff Profile: Jean L'Heureux

Jean "Pop" L'Heureux is an Assistant Editor at *Backwoods Home Magazine*. His primary duties are maintaining the subscription database and inputting the "Letters to the Editor" for the magazine.

He has an extensive background in computers, operating them almost from their inception, and brings his knowledge to the magazine.

He vacationed in Gold Beach, Oregon, several years prior to the magazine's arrival there, and he loved it so much that he moved there,

away from the hustle and bustle of a hectic city life. When *BHM* located to Gold Beach he postponed his retirement and joined the staff of the magazine.

Jean enjoys the salmon fishing available in the Gold Beach area, and he caught an 18 ½ pound salmon his first trip up the Rogue River.



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A BHM Writer's Profile: Dana Martin Batory

Though Mr. Batory studied for a B.A. in Geology at Ohio State University and is still an avid mineral collector he now operates a small, one-man, custom woodworking shop. He is the author of numerous how-to articles which have appeared in such magazines as *American Woodworker*, *Woodwork*, *Woodworker*, *Popular Woodworking*, etc. He has also written several articles on antique woodworking machinery which have been published in *Antique Week*, *Woodshop News*, etc. Besides having written Vintage Woodworking Machinery- An Illustrated Guide To Four



Maunfacturers (1997), Dana supplies the section on antique woodworking machinery for Schroder's Antiques Price Guide which is Collector Books' number one best seller, and he has been on their Advisory Board since 1991. He is presently engaged in researching and writing other volumes in his planned series on American manufacturers of woodworking machinery. Volume Two will probably cover Whitney, Crescent, Parks, and Boice-Crane.

In order to raise needed funds to continue his research Dana is presently making selected items from his collection of vintage woodworking machinery catalogs and manuals available as photocopies. A 40+ page list (updated quarterly) is available for a \$7.50 money order.

Dana is also interested in acquiring by loan, gift, or photocopy any and all documents, catalogs, manuals, photos, trade journals, personal reminiscences, etc. pertaining to woodworking machinery and/or their manufacturers, past and present, to continue his research. All assistance will be acknowledged in print. Loaned material will be treated with care and promptly returned. Dana Martin Batory, 402 E. Bucyrus St., Crestline, OH 44827.

Raising rabbits — for meat and making money, it's hard to beat this creature on the homestead

By Jayn Steidl Thibodeau

Rabbits. Everyone who has ever tried to raise a garden has cursed them at one time or another. Hunters stalk them in the cool autumn air, hoping to bag enough for a tasty stew. Moviegoers cry over Bambi's friend Thumper, or laugh as Bugs and Elmer Fudd battle in cartoonland. But domestic rabbits could add another dimension to this portrait of rabbits. Domestic rabbits (an entirely different species than the wild rabbit) not only have the capability of producing enough meat from a single pair to feed a family of four for a year, but also can be an economically viable commercial enterprise for your homestead.

Mike and I have raised rabbits for nearly 20 years, and believe me, we have made every mistake in the book—and a few not even listed. But overall, we have learned that rabbits are hardy, inexpensive to purchase and feed, and (providing a few simple rules are followed) not particularly labor-intensive, compared with other livestock.

Shelter

Housing will be the most expensive item in a beginning rabbitry, but used cages are available at reasonable prices in most locales, or it is a simple matter to build your own. Many rabbit raisers utilize an old shed to hang cages. Others simply put the cages under a tree in the great outdoors. We don't recommend the outdoor method because feed-to-weight conversion is better in a controlled environment. Close contact with wood also increases the incidences of an aggravating little critter called the ear mite. If you are using an old shed or a chicken house, be sure the ventilation is ade-



Here's a nice litter of California hybrids at three weeks.

quate and the roof doesn't leak. Walls and doorways should be secured to keep predators away. The neighbor's cat may look cute lolling about on top of a cage, but when a nervous mother stomps an entire litter to death, the humor in the situation is hard to find.

Having a source of water available is a must. You can utilize automatic waterers instead of using the old crock method, which often leaves the animals without water for extended periods of time. Automatic waterers are very simple to set up using either a pressure reducer or a gravity flow system. Several styles are available. The tube type is great for a warm climate and is really simple to repair. The PVC styles run into a bit more money to set up, but are great for cold weather areas. A heat tape can be run through the lines to prevent water freeze-up. These styles and others are available from dealers of rabbit supplies.

Much of the decision about what breeds to choose will depend on your market. Some people will find that a

pet market is what they are most comfortable supplying and will choose to raise a dwarf breed or one of the popular lop or Dutch belt breeds. There are commercial markets that buy pet rabbits for resale to pet stores. The main drawback to this particular operation is that demand is seasonal, peaking at Easter, but rabbits must be bred on a regular schedule year-round. Finding a market for a rabbit that weighs only two or three pounds is difficult, and many breeders resort to the snake food market for disposing of excess stock.

Show rabbits are another "iffy proposition." Out of a litter of five, there may be only one rabbit that is of show quality. What happens to the excess?

Some breeds, such as the Rex or the Satin, produce gorgeous pelts. If you tan hides well, you may be satisfied with these breeds and find a ready market for your wares at craft fairs.

But if you are interested in a really profitable rabbit, it is best to stick with a white-furred, pink-eyed meat breed

such as a New Zealand or a California. These breeds have been bred for generations to be prolific and for mothering ability and rapid growth. Some other breeds, such as Flemish Giants, have been crossed on the New Zealands and Californias with great results for fryer growth rates, but when kept as does, they are usually too large and eat too much to be cost-efficient.

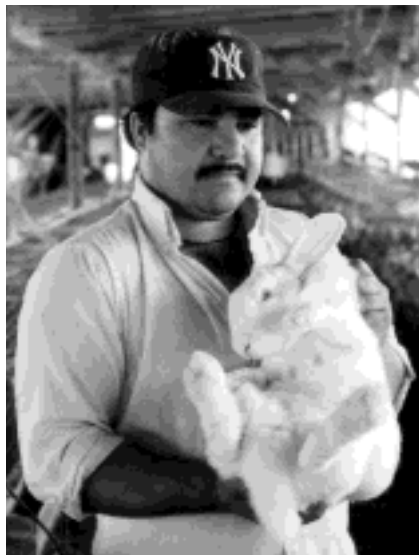
Colored stock occasionally surfaces in these white breeds, but commercial buyers discriminate in their pricing strategies against the coloreds, so don't save any for your own breeding stock, even if they are pretty.

Marketing

Commercial rabbit processors are located throughout this country, and rabbit is a popular export to Canada. Reports of widespread shortages of rabbit indicate that the market is in a stable cycle, and this is an ideal time to begin a rabbitry. To locate a processor near you, you could check with other rabbit raisers, or purchase a subscription to the magazine published by the American Rabbit Breeders Association (see below). There is a commercial section in the middle of the magazine which lists commercial prospects as well as current market reports.

Rabbit growers are an enterprising group of people, and the majority of rabbits raised in this country do not come from large rabbitries of 1,000 or more does, but rather from small back-yard growers of 10 or 12 does.

Those fortunate enough to live near a processing plant may deliver their own rabbits or have a driver with a designated route who will pick up the livestock at a pre-determined spot for delivery to the plant. Some groups of rabbit raisers have even formed informal co-ops with members arranging for large numbers of rabbits to be contracted by the processor and picked up. If you choose this method, be sure your members are reliable; if the con-



Freddy Rivera shows the proper way to hold a doe.

tracted number of rabbits is not available on the date specified, it will be difficult to deal with that company again.

Meat rabbits are also a popular item with home marketers. The meat, which is low in cholesterol and tastes somewhat like the white meat of a chicken, is in high demand from certain ethnic groups and is a popular barbecue choice. If you choose to sell your rabbits from home, be sure to sell them live and do any butchering only as a favor to your customer. Accepting money for butchering an animal brings you into USDA and health department jurisdiction, and the facilities required aren't cheap.

Choosing stock

When you pick out your stock, choose does and bucks less than one year of age. If a rabbit is being culled from a rabbitry because it is a bad mother or won't breed, you don't want to blow your hard-earned cash on it. If a doe hasn't bred by a year of age, she probably never will. Likewise, if someone offers you a couple of last year's Easter bunnies who have always lived together, avoid them like the plague. They probably won't breed.

Look for clean forelegs—rabbits clean their noses with their paws and dirty paws indicate illness—and clean anal areas. Hocks (the bottoms of the feet) should be free of sores; thin foot pads that can lead to sore hocks are a genetic trait you don't need passed on. The eyes should never be cloudy or filmy.

Teeth should be short. If an animal has teeth that don't quite meet properly, the result is malocclusion, or buck teeth, which curl around the mouth, making it impossible for the animal to eat. These teeth must be clipped regularly or the rabbit will starve. It is widely believed that this is more often caused by a recessive gene carried by the doe and the buck than by accident or injury, so don't introduce the trait to your rabbitry if you can possibly avoid it.

Check the ears for scaly brown scabs. This is a sign of the ear mite problem we mentioned earlier. If left untreated, it can cause nerve damage (wry neck) and the animal will have to be destroyed. If you do wind up with this problem, a dose of mineral oil or cooking oil will clear up the problem cheaply, or catalogs carry a variety of medications.

Run your hands over the body of the animal and feel for any hidden abscesses.

Prices

Rabbits are cheap in comparison to other livestock for the homestead. Prices vary according to the size and age of the rabbit selected. A good fryer-sized rabbit (4½ to 6¼ pounds) of about 2½ to 3 months should run less than \$5, while an older doe of 6 months to a year may run as much as \$25. If you opt for the higher-priced rabbit, ask to see the breeding records on the parents of that animal. They will give you an indication of how the animal will perform. The lower-priced fryer size won't come with records, as it is probably aimed at the meat market, but for the price, you may want to

take a chance and just breed out any defects that appear in subsequent generations.

Some companies advertise the sale of certified or registered rabbits. These can be quite expensive and are certainly not necessary for someone who intends to produce a meat animal. Investigate such companies thoroughly before investing. Most are legitimate, but a few have had complaints.

Because rabbits are so cheap, you may be tempted to over-buy. As with any livestock, get your feet wet before diving in. Rabbits are a seven-day-a-week job, and you may find that they don't fit in with your lifestyle. Ten does and two bucks are an excellent number for a fledgling commercial enterprise. As you grow, you will want to save your own stock from your best animals. It is wise to keep at least one buck for every ten does, with replacements coming up at every stage of growth at all times.

Breeding

Every doe will need her own cage, plus a cage for her fryers after they are weaned. The does are ready to breed at about eight pounds or six months of age (later for the Giant breeds), and at that time you will take her to the buck's cage—*never the other way around*. Does are territorial and can hurt the buck if they feel threatened in their own territory. You will know that the doe is in season if the vulva is slightly swollen and purplish in color. She should breed within a few minutes. If she doesn't, remove her and try it another day.

The buck should breed her twice, and this will finish him for the day. (This is why two bucks are recommended for ten does.) Don't overwork your buck or you will lower the sperm count, resulting in smaller litters. Mark the date she was bred and which buck is the sire in a book or on a calendar.

Each doe will ideally produce seven or eight bunnies in 30 to 32 days, and

you should have a nest box in the cage a few days before. Nest boxes can be made out of scrap lumber. They should be 9" wide by 18" long and 8" tall. We bought old wooden army surplus ammo boxes for about \$2 each, and they have worked beautifully. The doe will put some of her fur into the filling material (pine shavings or fine hay) for the babies, which are called *kits*. The kits will be blind, deaf, and bald when they are born, but they grow quickly and will be out of the nest box in about 2½ weeks. You can breed the mother again at three weeks after delivery, although some commercial rabbitries do it sooner. The kits will be ready to wean at five weeks of age.

Some does will have more kits than they can raise, and other does may only have three or four. Neither is a desirable rabbit, but if you have a doe with too many, just remove a few from her box and give them to the doe who doesn't have enough. Most does will raise just about anyone's kit, no questions asked. Be careful when you stick your hand in the cage, though. Even though you selected calm, sweet-tempered does, maternal instinct is protective, and you may receive a nasty bite for your efforts to help. Wearing gloves might be a good precautionary measure.



Partial view of the rabbitry. There's a lot of manure under the cages, but the worms keep it from overwhelming us.

Feed

Feed is the most expensive item in a rabbitry, but costs can be cut by getting together with other raisers, contracting for larger amounts at one time, and negotiating for a lower cost. Lots of people try to mix their own feed, but nutritionally, a pre-mixed pellet is best for the rabbit. Most commercial feeds are non-medicated, containing about 17-18% protein, 17% fiber, and 2.5-3% fat, and the rabbits produce and grow well on these ratios. The most important things to remember about feeding are to find one brand and stick to it, and to remove any moldy feed.

Buying feed in bulk is cheaper, but storing feed for long periods may break down vitamins. Feed should be stored in a dry area, such as a plastic trash can, to prevent water damage. High humidity is also a problem, as the moisture causes the alfalfa meal in the pellets to swell and break apart, allowing mold to form. Moldy feed is a major culprit in rabbit enteritis.

Rabbits have very delicate digestive systems. Because they are so small, any slight diarrhea can kill in a matter of hours. Rabbits are like people when it comes to body condition. Some rabbits will get overly fat on just a little feed, while others are downright scrawny on full feed. A good rule of thumb is to keep your non-lactating does on about four to six ounces per day in the summertime, increasing slightly in the winter, while lactating does and fryers should have all they can eat.

Any change in feed should be introduced gradually. A little hay or alfalfa cubes are a helpful treat for your rabbit, but avoid such rich items as carrots, fresh grasses, or lettuce. Rabbits are best fed at night, because they pass soft feces that are re-ingested, much like a cow chewing a cud. Although they can do this at any time, it is usually a night-time activity and feeding in the evening seems to benefit the animal.

Summer heat is hard on a rabbit; they are more tolerant of colder weather. Older bucks have been known to go sterile in high temperatures, resulting in a lot of money spent on feed and no income from fryers. Keeping back some young replacement stock in January to be ready to breed in the summer months helps. We had one enterprising friend who moved her bucks into an air conditioned room, but she found that rabbit hair kept clogging up the cooling unit.

Cleaning the rabbitry can be a nightmare or a paying proposition, depending on your management. It still amazes me how many of those little round pellets a rabbit can produce, and when there are eight or nine fryers in the cage, the mountain just seems to grow and grow. Fortunately, rabbit manure is a commercial enterprise in itself. Gardeners love it, or it can be the basis for a commercial worm farm.

From our first year, local gardeners would show up at the rabbitry, shovel in hand, offering to clean the place for the manure. We tried this a couple of times, but found that it didn't really work out. The does were upset by strangers banging around in their house, and usually people weren't particularly careful about our equipment or the mess they left behind. A fellow rabbit raiser solved the problem by removing the manure to the back of the building and letting people load up feed sacks at a dollar or two a sack.

Being strapped for time with other livestock to care for, we decided to pursue a different route, and Mike's worm farm was born. The simple addition of a few thousand worms into the manure has kept the build-up under the cages to almost nothing and there is no problem with ammonia or odors. And as an added bonus, he has gardeners and fishermen lining up all spring and summer for the little critters. We still clean out, but only once a year for our own gardening purposes.

Rabbits can be a paying proposition with little more input than an hour or

two a day for even a large rabbitry of 50 to 100 does. With proper management, a steady supply of fryers will not only pay the feed bill, but will also produce a regular income and even some excess meat for the freezer.

To appreciate the productivity of rabbits, consider this comparison: A 1,000 pound cow will produce one 500 pound calf per year. In contrast, one doe producing six litters of eight kits can produce 200 to 240 pounds of live weight in a year. So one hundred 10-pound does (that is, 1,000 pounds of rabbits) will produce 24,000 pounds of live weight per year, compared to the cow's 500 pounds.

A wide variety of marketing tactics can be employed with the enterprise, and even the waste products have a commercial value. The disposition of the rabbit is such that young children can help with the rabbit chores, and handling the rabbit requires no expensive equipment, like squeeze chutes or corrals. Literature is widely available, often at a nominal cost. And best of all, although the rabbit is very hardy, if a doe does die, the loss will not put you out of business, as she can be replaced for less than the price of a movie. Is it any wonder that the rabbit is the animal of choice for so many homesteaders across the country?

For more information

Mail-order catalogs carry a variety of rabbit-raising equipment and reading material. Listed below are some of the catalogs we have used or which have come highly recommended by fellow raisers. Prices vary with each catalog, so be sure to comparison shop.

Catalogs

Bass Equipment Company, P.O. Box 352, Monett, MO 65708. Midwest: (800) 798-0150. West Coast: (800) 369-7518. Fax: (417) 235-4312

Da-Mar's Equipment Company, 14468 Industrial Pkwy., South Beloit, IL 61080. (800) 95-BUNNY

Jeffers, P.O. Box 948, West Plains, MO 65775. (800) 533-3377. Fax: (417) 256-1550

K.D. Cage & Supply Co., 1820 S. CO 850 E., Newcastle, IN 47362. (800) 265-5113

Klubertanz Equipment Co., Inc., 1165 Highway 73, Edgerton, WI 53534. Orders: (800) 237-3899. Customer Service: (608) 884-9481

Morton Jones, P.O. Box 123, Ramona, CA 92065. (800) 443-5769

Safeguard Products, Inc., P.O. Box 8, New Holland, PA 17557. (800) 433-1819. Fax: (717) 355-2505

Reading material

[The American Rabbit Breeders Association, Inc. Official Guidebook](#)

[Cash Markets for Rabbits](#), by Jack Messner

Domestic Rabbits, Voice of the American Rabbit Breeder's Association, Inc. Available to members of the ARBA. Membership is \$15 per year for a single membership and includes a subscription to the magazine. Contact Glen Carr, Secretary, Box 426, Bloomington, IL 61702.

[Domestic Rabbit Guide](#), an ARBA Publication

[How to Start a Commercial Rabbitry](#), by Paul Mannell

[Modern Commercial Rabbit Farming](#), by Jack Messner

[Raising Rabbits the Modern Way](#), by Robert Bennet

[Rabbit Production](#), by Peter R. Cheeke, Ph.D., Nephi M. Patton, D.V.M., Ph.D., Steven D. Lukefahr, Ph.D., and James I. McNitt, Ph.D.

All of these publications are listed in most of the catalogs we have mentioned here, with prices ranging from \$2 to \$26.95. Excellent information is also available from your local county extension agent or state university agricultural department, often free of charge. Δ

This family started a used bookstore for under \$2,000

By Mary Kenyon

It only took 12 months of searching for a social work job for my husband, David, to consider the possibility of starting up a small business. His college degree and almost 10 years of experience working with clients proved to be of little value in his job search. After months of promising interviews, depressing rejections, and more wear to David's lone blue suit than in the 16 years since our wedding day, we were just about at the end of our rope.

It was typical of us to take 12 months to decide the direction our lives would take. In our 1979 wedding memory book, we promised each other to remain in our own little world, apart from society's rat race. Our dreams of owning acres of land, visiting Alaska, homeschooling our children, and running a small business were just that—dreams. Our oldest child was 12 years old before we finally tried homeschooling, and we've been enjoying home education for three years now. So, although the springboard to starting a small business was unemployment, the seeds of this venture were planted long ago.

Choosing a business

Why a used bookstore? The books and articles that advise potential entrepreneurs always suggest that you get involved with a business you can really love and that fills an obvious need. I'd been writing articles about what I knew and loved for years: articles about parenting, homeschooling, and saving money. Our bulging shelves of books attested to the fact that we were book lovers. And as homeschoolers and avid readers, we knew there was a need for a source of good quality used books. In our search for small busi-



ness opportunities, we also considered how our children could become involved, as part of their education. Pricing books, searching for books, and putting books onto a computer mailing list were duties we knew could be shared by our two older children.

Incidentally, an excellent reference book for those wishing to start a used bookstore is [Complete Guide to Starting a Used Book-Store](#), 2nd edition, by Dale L. Gilbert, Upstart Publishing Co., 1986.

The initial investment

One of the most important factors in our choice of a business was the initial investment. The start-up costs had to be minimal. With no savings, no credit, and no rich investors up our sleeve, we had to consider borrowing a minimal amount from a generous relative. A business consultant we were working with was aghast at the \$2000 amount we were starting with, but he didn't understand he was working with two expert penny-pinchers. He expected empty shelves and a hole-in-the-wall decor, but we surprised him with a starting stock of over 2000 books and a pleasant, clean atmosphere on opening day. Never mind that we bor-

rowed our children's prize doll house and colorful Noah's ark wall hanging to decorate the children's book area. Never mind that the beautiful pictures of children and adults reading that adorned our walls came from garage sales and helpful relatives. We strove for a comfortable atmosphere, and we succeeded.

Choosing the books

Our initial stock of books came from several sources. We advertised in a free weekly newspaper and by posting signs on a bulletin board at a local discount store. We were looking for good, clean used books, but at that time weren't aware of what would sell the best. Our gut feeling was that our homeschooling customers, whom we planned to reach through our mailing list, would be interested in educational books, classics, juvenile series books (such as the Nancy Drews and Happy Hollisters), and older adult fiction. We invested heavily in these, as well as collections of adult paperbacks and teen paperbacks. We bought private collections for as much as \$100 and came away with boxes of books from garage sales that averaged 10¢ each. We visited thrift stores, but our sense of what would sell wasn't honed yet, and we came away with too many books that were just old, not valuable or collectible. We have read dozens of price guides and researched collectible books since then and have a much better idea of what a book is worth. The private collections netted some losers, too, in Book Club books from the 70s and 80s. All told, we spent approximately \$700 of our money on books. I even sacrificed 200 of our own books for opening inventory, figuring that within a few years I could build up our collection again.

We continue to haunt thrift stores, garage sales, and library book sales for treasures, but now we know what we are looking for. Our customers bring in books, too, for cash or credit. In general, we give more in credit than

A Backwoods Home Anthology

in cash. We keep a running log on how much credit our customers have. Because we are a family store, and because we have targeted a specific customer base for our mailing list, we are constantly looking for certain books: newer adult non-fiction, older readers, pre-1960 juvenile series books, and cookbooks. We quickly found out we needed to beef up our selection of westerns, science fiction, and mysteries. The Book Club books and worn paperbacks were soon transferred to a 25¢ sale table.

Shelving

Shelving was another major expense. The few shelves we were finding at auctions just weren't going to be enough, and we wanted some kind of uniformity in the shelving of our store. My husband and two of my brothers-in-law spent several days building shelving and attaching it to the walls of the building we had rented. These homemade shelves would house all our adult books except the collector's books. We used various sizes and shapes of shelves in the children's area, including two shelves that came from our home. We were lucky to have run across a clearance sale on 72" white shelving at a local discount store which currently holds our best selection of juvenile books. Shelving took another \$600 of our start-up money.

After purchasing a secondhand adding machine, receipt books, pricing stickers, and other office supplies, we were ready to roll.

Atmosphere

Our goal was to have a comfortable atmosphere for our customers to relax in and read. The building we rented isn't fancy, but it has a low rent, is close to a grocery store, and faces a small park and a bridge over a dam. The traffic over the bridge is a big plus, as we have many customers who come in because they saw our store as they drove over the bridge. The decor

of our store is attractive, yet simple. We bought a loveseat at an auction and set it up in the adult section with an end table full of interesting magazines next to it. The pictures on the wall follow the theme of reading. We expect to purchase additional pictures as we discover them at garage sales or auctions.



We designed the children's area to be family-friendly, with low-cost books on the bottom shelves for browsing and a few colorful toys for children to play with while their parents shop. We decorate the storefront window according to the season, and display a few interesting books in the window. During the summer months we set up our sale table out front, drawing customers who might not otherwise have stopped in.

Advertising

Advertising could be a major expense, but initially we didn't have the money to invest in advertising, so we made flyers on our computer and ran off hundreds of them at an office supply store for 2.6¢ each. We blitzed grocery store parking lots the week before we opened, and hung promotional posters in my sister's consignment store a block away from our bookstore. We sent out personal invitations to our grand opening to known readers in the area and packets of flyers and information to all the area schools to be put in the teachers' mailboxes. We offered Valu-cards to all

educators, including homeschoolers, which entitled them to 5% off all their purchases. We also sent out press releases to all the area newspapers. We have since had classified ads in the paper asking for books. We have found the best advertising to be by word of mouth from our satisfied customers. For our mailing list, we ran ads in several homeschooling magazines and newsletters offering our list of over 600 children's, adult's, and educational books for sale.

We opened up our store \$70 in the red, not knowing what to expect for a day's sales. Thankfully, our first day netted over \$100 in sales. Our mailing list is well received by the homeschoolers who have requested it, and several customers order over \$50 worth of books at a time through the mail. Our diversification by selling through the mail to a target clientele will probably get us through the rough times we have at the store, like the weeks of over-90° weather in August when sales were down. The heat did not seem to affect the armchair shoppers in their air-conditioned homes.

My husband runs the store Monday through Saturday, while I manage the computer list at home, pricing books and updating our computer book list. When a particularly wonderful box of books is brought into the store, or when we discover a gem for 25¢ at a thrift store, I get chills up my spine. I love sifting through piles of books and discovering the treasures amidst the trash. Even our children have a new appreciation for good books.

Was it hard for my husband to change careers in mid-life? His answer: "Losing that job was the best thing that ever happened to me."

I don't know just how profitable our business will become, but I do know that we wouldn't mind doing this for the rest of our lives. And isn't that the way it should be?

(For a list of the Kenyon's more than 1,000 children's, adult's, and educational books, send three stamps to Once Upon a Time Family Books, P.O. Box 296, Manchester, IA 52057.) Δ

For headache, fever, or even rheumatism, relief is as near as the familiar willow plant

By Christopher Nyerges
Photo by Raul Castellano

Every now and then during one of my walks, someone will tell me that they have a headache. I peel off two slivers of bark from that ubiquitous plant of the streams, willow, and hand it to them. “Take two pieces of bark and call me in the morning,” I tell them. Most people laugh when I say this, but some people don’t get it, because they aren’t familiar with willow or its history.

The inner bark of willow contains *salicin* and is **the original aspirin**. The bark of the younger shoots is strongest, and it is fairly easy to harvest.

When steeped in water, willow tea is good for headaches, fevers, and even hay fever.

Due to its strong **antiseptic** properties, the tea can also be used as a good mouthwash, or used externally on wounds. A willow wash is said to work wonders for **rheumatism** sufferers.

Willow plants are somewhat diverse in appearance. Some are small and bushy, and others are tall trees. Their **leaves** are nearly all **thin and lance-shaped**, and the plant is **always found along streams**. I have seen them at sea level and higher than 8,000 feet. They are found throughout North America. You might not know offhand how to identify a willow, but I can assure you that you have driven by one or hiked by one each time you were by a stream.

Willow plants are also a source of **food . . . sort of**. For example, the

inner bark of willows has often been described as an emergency food, which is another way of saying that you’d probably never eat willow bark unless you were literally starving. As a practical matter, it is difficult to scrape out the inner part of the bark, and you generally end up eating all of the bark. Cooking renders it a bit more palatable. If dried and ground into flour and then cooked, it is even more palatable, though still in the realm of “emergency food.” I have sampled this bark while backpacking with my brother and a friend. We rarely brought much food with us, preferring to catch fish and collect wild plants. We jokingly called our willow bark “wild spaghetti,” which is a disservice to the reputation of spaghetti.

Euell Gibbons describes two species of Arctic willows (*Salix alexensis* and *S. pulchra*) whose tender young leaves can be eaten as a salad, or mixed into a salad. The flavor is said to be improved by cooking them first. Though I have never tried these species, I have nibbled on the wild willows of Southern California and would not include them in salads. They are a little bitter, but are improved by steaming or boiling.

In general, willow is a medicine tree, not a food source.

Willow is also one of the best sources of **craft material**. Whenever I collect willow, I go into the thickest patches, and I carefully cut only the branches I need with a sharp ratchet cutter. In all cases, when I return to those areas, I find the best and healthiest growths of new willow where I had done my careful pruning.



The author examines willow leaves.

I collect straight, dead pieces of willow branches for use in the primitive **bow-and-drill for fire-making**. Dried willow makes the best drill for fire-making. It is also an ideal wood to use for the baseplate in fire making—that's the flat piece of wood onto which the drill is spun.

Willows make interesting looking, lightweight **walking sticks**, and I have made many of these. Willow is a soft wood, so the walking sticks can easily be carved with faces or your name or anything that your abilities allow.

Long, straight willow stems are perhaps the single most useful plant in **basket weaving**. Willow is one of the most common traditional materials used in baskets, because it is light and easily worked, and it becomes flexible when soaked in water for about five minutes. Always scrape off the bark before using willow in your basketry projects.

I have seen **willow chairs and tables** at craft fairs, and there are craftsmen all over the U.S. who commonly use willow in these "backwoods" furnishings. They are very attractive. Though the Plains Indians used no chairs in their tipis, they did make a backrest out of willow. Using pencil-thick willow twigs, they lashed them horizontally onto two thicker vertical willow rods to create the backrest.

Because of willow's flexibility and common availability, I typically use willow whenever I make a **sweat lodge frame**. The sweat lodge frame is dome-shaped. Once the perimeter of the sweat lodge is drawn in the dirt, I dig holes into which I secure the willow poles. Then I bend them down and lash them together at the top to create the desired dome shape. The sweat lodge is covered with tarps, and very hot rocks are brought inside. Once everyone enters the lodge, it is closed up so that it is dark inside, and water is slowly poured onto the rocks, creating a high-temperature sauna or steam bath. This was and still is a tradition among Native American peo-

ples from North America through South America.

I have also used willow sticks for digging, and for the framework for a primitive **lean-to shelter**. It is a good plant to become familiar with, because it is so common and so versatile.

I have used long, dried willow stems as **pipes**, and—following in the tradition of Native Americans—I dry the bark of red willow and add it to my **smoking mixture**. I have sat outside my shelter made with a framework of willow, after sweating in my willow

sweat lodge, and sat around the fire which was made with a willow drill, smoking some willow bark in my willow pipe. Willow is indeed a good friend.

(Christopher Nyerges has been leading wild food outings since 1974. He is the author of Guide to Wild Foods and Testing Your Outdoor Survival Skills. A schedule of his outings appears in the *Talking Leaves Newsletter*, available from the School of Self-Reliance, Box 41834, Eagle Rock, CA 90041. The newsletter can also be viewed on-line at <http://www.earthlink.net/~nyerges/>) Δ

A BHM Writer's Profile: Albert H. Carlson

Albert H. Carlson was born February 13, 1959 in Chicago, Illinois, and grew up on Chicago's south side. In high school, he became interested in physics, computers, and electronics. The natural result was no clear idea as to a college major. His sister blindfolded him, gave him a pencil, and put a list of majors in front of him. He circled computer engineer, and that was that. His tuition was paid for by an Army ROTC four-year scholarship.

In college he married his high school sweetheart, Tina Anne Geeding. Tina was a Korean orphan adopted by a Chicago artist and his wife. They met as a result of a collision when Tina, who had a crush on Al, stepped in front of a very late Al in the school hallway. He never had a chance once she decided to keep him. In 1981 he graduated from the University of Illinois at Urbana with a bachelor in computer engineering. Two days later their first child, Ariana, was born; seven days later he was inducted into the US Army as a Second Lieutenant in Military Intelligence.

Following military service Al worked as an engineer and specialized in the design and production of integrated circuitry. His projects have included state-of-the-art designs in several markets, as well as project and engineering management.

Albert's family also increased during the intervening years, adding another daughter, Corine, and two sons, Robert and Alan. The youngest is now a teenager and the oldest is preparing to enter college as a physics major in the fall of 1999.

Al is now working on his Master's Degree in computer science, specializing in semantics and computational linguistics at the University of Idaho.

His interest in lightning began with a rush of lightning strikes around the Chicago area, where he still lives, in 1990. The lack of data available only served to make the subject more intriguing. He still studies the subject and closely follows advances in the field.

In addition to lightning, Al is involved in lapidary (rock and gem cutting, polishing, and setting), Sons of the American Revolution, Revolutionary Period Color Guards, fishing, fossil hunting, genealogy, and coin collecting. He is also beginning to develop land that he has purchased in Northern Idaho in preparation for retirement.

You can have a good career as a nurse practitioner no matter where you live

By Rodney L. Merrill

Diane Burlock is your run-of-the-mill modern day wonder woman. She's a wife and mother. She's working on a Master of Science degree in Community Health Administration and Wellness Promotion. And she's a full-time nurse practitioner. I didn't ask about her hobbies.

Burlock travels throughout the five regions of Northwest Territories and northern Alberta, Canada, providing primary health care services. Her story demonstrates how earning a living and getting an education are tightly interwoven; and how, today, you can do both, no matter how far into the backwoods you may live.

"If it were not for distance education," she says, "I might not be a nurse practitioner today. I'd be a Registered Nurse, but I probably wouldn't have finished the professional degree you need to become a practitioner. I certainly wouldn't be finishing my Master of Science degree."

What does a nurse practitioner do?

I asked Burlock to explain for *Backwoods Home* readers what the title "nurse practitioner" means. What does a person with this title do for a living?

"That depends," says Burlock. "Although all nurse practitioners are advanced nurses trained to be more independent in their assessment and treatment of patients, where you live can make a big difference in what you do."

She travels the far northern regions and northern Alberta, Canada, working at what Canadians call "nursing stations." These are clinics—much like a doctor's office—but they also have an emergency room, a chest and limb x-ray, blood analysis equipment for hemoglobin and white blood count, a formulary (pharmacy), and a two-bed hospital ward. Patients needing short-term observation or treatment (but not sick enough to warrant flying them out to a hospital) can stay overnight in this mini-hospital.

"Generally," she says, "where I work, nurse practitioners are the only on-site health officer. We obtain medical histories, perform physical examinations and general health assessments. From these, we diagnose health deficits and form a treatment plan."

These deficits often are common infections like a urinary tract infection, ear infection, or infected puncture wound, or the common communicable diseases like strep throat and pneumonia. But nurse practitioners also see and manage chronic conditions like asthma, high blood pressure, heart disease, and lung disease.

"There's the usual emergency room stuff, too," says Burlock, "the suturing of lacerations [stitching cuts and wounds] and removing embedded foreign objects like fish hooks and glass."

"In my situation," says Burlock, "I am often very isolated; and when elaborate testing is required, we have to fly the patient out to a larger facility. Consequently, we must rely more on our physical diagnosis and consultation-seeking skills than city practitioners who have ready access to

sophisticated diagnostic equipment and tests." Based on the diagnosis, the nurse practitioner may prescribe medications and other treatments (such as physical therapy).

Nurse practitioners help prevent disease and promote health with screening, family planning services, prenatal monitoring, and care of pregnant women. The nursing station often sets aside morning hours for clinic and afternoon hours for health and wellness promotion.

Listening to Diane Burlock's story, I wondered, What about babies? If doctors and hospitals are so far away, do nurse practitioners deliver all the babies, too?

"We don't routinely deliver babies," says Burlock. She adds with a chuckle: "Though we do deliver a surprise package on occasion." What's *supposed* to happen and usually *does* happen, she says, is that the nurse practitioner assesses the risk involved in the pregnancy and schedules a "fly-out" to the nearest hospital two weeks to several weeks ahead. The exact timing depends on the risk assessment and the expected due date.

"In reality," Burlock says, "Women we've never seen before sometimes drag themselves into the nurse's station when they're already in labor. And even the best-monitored pregnancy can deliver early. So our *routine*, our protocol, is to schedule a fly-out, but we are capable and prepared to handle the occasional unanticipated delivery."

Whether or not they deliver the baby, rural nurse practitioners follow up with well baby checkups, childhood immunizations, growth monitoring, and general well child checkups. Later still, they monitor the adults these children grow into. They include considerable counseling and family health education as part of their health services.

Nurse practitioners also manage their patients' care by steering patients to related services and resources. When medical problems are beyond

the scope of mid-level practice—even with outside consultation—the nurse practitioner refers patients to appropriate physicians and other specialists. They also arrange for patients requiring intensive care and long-term care to be transferred to appropriate tertiary facilities (like hospitals and skilled nursing homes).

Growth of the nurse practitioner field

The nurse practitioner movement began about 25 years ago as an advanced rural nursing specialty to provide primary health care services to under-served rural areas unable to attract primary care physicians. As nurse practitioners became more accepted, their practices began to spread to inner city clinics (also shunned by physicians). Nurse practitioners evolved as a service to the patients no one wanted.

In more recent times, the revolt against the growing price tag on health care has led government agencies and insurance programs to seek ways of transforming health care from a system dependent on acute care (high-tech hospitals and emergency rooms) to one more focused on primary care settings (offices, clinics, HMOs). The challenge is how to get medical care to more people and do it on a shrinking budget. As mid-level practitioners with mid-level salaries, willing to work where they are most needed, nurse practitioners have answered this need.

Today, nurse practitioners work in a variety of settings, both urban and rural, often as members of a health care team—in public health departments, rapid care clinics, group practice offices, corporate occupational health clinics, hospitals, and nursing homes—not as bedside nurses, but as mid-level primary care practitioners. Some set up their own private practices. Others join nurse practitioner group practices.

Their call for more independence from doctors, once automatically dismissed, is now being fostered through advanced training in clinical assessment and treatment skills and more liberal state licensing laws for nurse practitioners.

Licensing laws in many states still say that nurse practitioners must be “supervised” by a physician. Passage of these supervision laws was partly motivated by the sincere concern of lawmakers for protection of the public . . . but also by the suspicion that physicians would have revolted against the nurse practitioner movement without such a provision.



Diane Burlock

Rural nurse practitioners today are rendering the services once provided by physician general practitioners (“country doctors”) before they were obliterated in the post-World War II rush to specialization, behemoth urban medical centers, and the abandonment of rural practice.

As Diane Burlock points out, “In remote areas, like the ones I visit—villages out in the Western Arctic with populations of 180, 300, 1800—it’s a nurse practitioner or it’s nobody. In

these situations, ‘supervision’ has a different meaning. A doctor might hold a clinic once or twice a month to see complicated patients, to look over your records, and discuss cases with you just to see how you’re handling things. With our long, often severe, winter climate, sometimes ‘supervision’ amounts to consultation by phone or fax.”

Can you make a decent living?

Burlock says a nurse practitioner in Canada gets “a base wage of about \$54,000 Canadian, but there is extra pay for being on-call, for call-backs, for being in charge of a nursing station, which can bring the pay up to \$75,000 to \$85,000 Canadian per year.” There are perks as well. Burlock says she is given a paid trip “out” at least once a year, a 50% rent subsidy, and additional hardship pay for working in such isolated areas.

It’s harder to pin down nurse practitioner salaries in the United States. It depends who you listen to. The following figures were produced by the State of Washington and the U.S. Department of Health and Human Services. A nurse practitioner may start out anywhere from \$30,000 to \$40,000 per year. That works out to \$14 to \$20 per hour, depending on the salary and the exact number of hours worked per week. In the Pacific Northwest (where managed care is common) the average salary for nurse practitioners is \$49,500 - \$54,250 per year. The national average is \$45,000 per year. Keep in mind that the average figure is diluted by a lot of entry-level salaries. Large salary increases come with each year of experience. Increases tend to level off at \$60,000 - \$70,000 per year. In certain specialties, though, advanced practice nurses can earn in excess of \$100,000 per year.

That sounds like a lot . . . but imagine that you are a health care administrator with a primary care position

open. A new doctor—with a dozen 25-year school loans at 8-10% compounded (non-tax-deductible) interest and a work life shortened by 11 to 15 years of post-secondary education and training—needs a six-figure income just to keep afloat. You can hire a nurse specialist to do the routine stuff (75-80% of the doctor's cases) for \$50,000 - \$75,000 a year. Those few nurse specialists who command \$100,000 or more a year render the mid-level services of a physician specialist expecting to make \$200,000 or more a year. Which would *you* hire?

And that is exactly what is happening. In both rural and urban settings, third-party payers are starting to balk at paying a doctor's fee for something that a less-costly mid-level practitioner can do. In HMOs, rural and inner city clinics, and other group practice settings, practices are being expanded by hiring nurse practitioners before hiring more physicians. As a result, mid-level practitioners are getting good salaries and greater respect. Career guidance experts are predicting persisting demand for nurse practitioners and other clinical specialty nurses; and this demand will allow them to continue getting \$50,000 to \$100,000 a year, depending on their specialty.

What is your status in the community?

"As the only on-site health officer, educator, counselor, referral agent, and public health officer," says Burlock, "your position is respected. The position is demanding and people know that. If you fulfill your duties to the best of your ability and act as a positive role model within the community, then you, as an individual, will be respected as well."

In talking with Diane Burlock and reading the notes she sent me, I get the impression that many rural patients and community leaders treat nurse practitioners with the kind of respect

once accorded to the general practice country doctor.

What are the training requirements?

Burlock says that the minimum requirement for nurse practitioner in Alberta or the Northwest Territories, Canada, is the R.N. license, the Bachelor of Nursing degree, and two or three years of rural nursing experience. New university graduates can take a fast-track intensive nurse practitioner course provided by the government and receive a subsidy *if* they pledge to serve two years' employment in the region which sponsors them through the course.

In the United States, the procedure for becoming a nurse practitioner is longer and usually requires more years of schooling. A nurse usually earns a B.S.N. (Bachelor of Science in Nursing) or B.N. (Bachelor of Nursing) and takes the Registered Nurse licensing examination. After three or more years of experience, s/he goes to graduate school for an M.S.N. (Master of Science in Nursing) or an M.N. (Master of Nursing) in a nurse practitioner specialty. This is the general idea. Specifics vary somewhat. Some people, for example, take their R.N. licensing exams before completing their Bachelor of Nursing degree. And requirements vary from one state to another.

Nurse practitioners may specialize in neonatal (premature birth) practice, pediatric and adolescent health, OB/GYN and women's health, geriatrics, family practice, psychiatric/mental health practice, and occupational health. Some advanced practice nurses may have different titles—such as Nurse-Midwife (labor and delivery) or Nurse Anesthetist (anesthesiology)—rather than nurse practitioner.

There are basically three routes to becoming a registered nurse today. Two-year colleges and vocational-technical schools offer an associate

degree in nursing which leads to "technical nursing" careers. Four year colleges usually offer the B.S.N. (Bachelor of Science in Nursing) or B.N. (Bachelor of Nursing) degree which leads to "professional careers" in nursing. Basically, "technical" nurse training focuses on direct patient care, whereas "professional" nurse training focuses more on the decision-making aspect of patient care and on managerial responsibility. Professional nurses tend to make more money and to have more opportunities for advancement into management or clinical specialty fields.

Another route to technical nursing careers is the hospital-based diploma program. I saved this one until last because there are advantages and disadvantages to this route. Hospital diploma programs exist because, during the nineteenth century, women were barred from most universities in the United States. Hospitals trained their own nurses by apprenticeship.

Rural areas are more desperate for nurses than metropolitan areas, and hospitals sometimes find it is easier to "grow their own" in a nurse training program than to recruit from the nearest university. Tuition is a lot more reasonable in hospital programs, too. Sometimes you can even get your training *free* in exchange for a promise to work in the area a certain period of time after graduation. The hospital-trained nurse gets a lot more direct patient contact and more practical, hands-on training than college programs can offer.

The main disadvantage to graduating from a hospital diploma program is that hospital-trained nurses tend to get pegged as hospital nurses. It may be harder to branch out into other fields with a hospital diploma than with a college degree in nursing. With hospitals downsizing, this could be a severe drawback. Still, don't despair if you are a hospital-trained nurse. It isn't hopeless. Read on.

Distance education opens new N.P. possibilities

The shortage of certain specialty nurses is stretching some rules and traditions. More colleges are offering “outreach” programs that allow hospital-trained nurses to demonstrate their knowledge for college credit. They then apply those credits toward their B.S.N. and complete their degrees-at-a-distance by satellite television courses, videotape, Internet courses by computer, and independent study.

That’s what Diane Burlock did. She earned an R.N. through a hospital diploma program, then worked as a rural nurse for 12 years. When Burlock entered the Northwest Territories, she took a post-R.N. completion degree—the at-a-distance Bachelor of Nursing from Athabasca University—and became eligible to enter practice as a nurse practitioner.

Burlock is now making excellent progress toward a Master of Science (M.S.) degree through California College for Health Sciences. “If it were not for C.C.H.S. and its at-a-distance M.S. degree program,” says Burlock, “I probably couldn’t manage a Master’s at all.”

I asked Burlock what she saw as the benefits of studying at-a-distance as opposed to earning a degree by going to classes. “I can study when I have time,” says Burlock, “and go at my pace, not according to some preset schedule. I can keep my job. The best part is, the California College of Health Sciences program allows me to schedule classes that are related to my current work assignments. They mesh. It’s so much easier to learn new ideas when you can see the application in your daily work.”

I asked her about the drawbacks to this approach. “For myself,” Burlock says, “self-motivation can be difficult unless I work out a plan of action with definite steps. Many find that working on their own slows their progress, but I found that taking two courses at a

time (rather than one) gave me the variety I needed to keep up the pace. I could not have gotten this far without the cooperation of my family. Many times, they have been a source of encouragement.”

Diane Burlock is already a full-fledged nurse practitioner. She doesn’t really *need* a Master of Science degree from California College for Health Sciences. So, I wondered, why is she working so hard to get it?

“There are many reasons,” says Burlock. “Self-improvement, you know, to broaden my knowledge. But, also, because nurse practitioners—especially out away from it where I go—do a lot more than emergency and regular clinical care. I’m family life educator, health educator, counselor. (Luckily, nursing stations have recently started providing a professional social worker.) Anyway, you need many skills. The course content at C.C.H.S. directly supports my career and makes me a better nurse practitioner.

“Plus,” she says, “the Master’s degree gives me more opportunities. I can apply to the administrative relief positions. When I go to a one-nurse station, I can be left as Nurse-in-Charge. This means more responsibility; also a pay bonus. Luckily, I’ve found the content of my C.C.H.S. Master’s-level courses directly helpful in these situations.”

Except for her hospital-based R.N. credential, Diane Burlock has completed all of her education at-a-distance while living in a rural area, even while she has worked in remote and isolated outreach stations.

How remote is remote, you ask? “For six months of the year,” says Burlock, “my principal means of transportation to work is snowshoe and snowmobile.”

The primary care and specialty nursing shortage is worse in rural areas than in the city. Employers tend to be far less persnickety about your credentials coming from a big name school,

or what study format you used to get them. If you’ve got the skills, you’ve got the job, and that’s as it should be.

There once were many one-year non-degree nurse practitioner certification programs in the United States—for more experienced nurses—similar to the intensive program offered in Canada. There are only a few left today. In a bid for greater status, prestige, and independence, the nurse practitioner profession in the United States has pushed to increase higher educational requirements. Non-degree certification programs are fading and may disappear. Check with your state licensing agency to see if they provide alternate career pathways to experienced nurses.

In the end, you may get only as far as the B.S.N. by distance learning. You may have to leave town for your nurse practitioner Master’s degree. But, as a rural nurse practitioner, the chances are extremely good that you’ll be able to come back. Which means that men or women wanting to stay in the backwoods but desiring a good-paying, exciting, evolving—and admirable—career ought to look into becoming a nurse practitioner.

More information

National League for Nursing
Ten Columbus Circle
New York, NY 10019
1-800-669-1656

Internet: nlinform@nl.org

The NLN is the official accrediting agency for nursing programs in the United States, so they know if approved programs are near you. NLN also publishes many books on nursing, including an excellent introduction called *Your Career in Nursing*. Your library probably has it in the reference section.

P.S. Shortly after this article was written, Diane Burlock wrote me a note saying she had finished her M.S. degree. Congratulations, Diane. Δ

Consider small-scale hog production for delicious food and reliable income

By Rev. J.D. Hooker

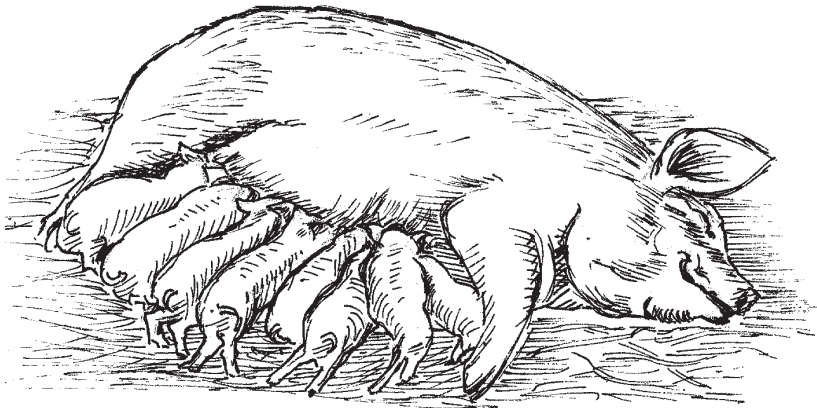
Usually, when someone forms a mental image of a self-sufficient backwoods lifestyle, the idea of raising a few hogs forms part of the picture. Whether we're thinking about the hill folk of Appalachia, the mountain people of the West, or wherever, slabs of smoked bacon, home-cured hams, buckets of homegrown corn, and leftover slops seem to fit right into the picture.

Ever since the founding of Jamestown and Plymouth, the production of pork, both for good home eating and for marketing or trading purposes, has played a crucial role in the personal independence of many of America's rural people. Hogs possess an amazing ability to thrive under conditions where other livestock could not even survive, and they convert nearly any remotely edible waste into high quality meat. Without hogs, not very many southern folk, white or black, would have managed to survive the incredibly hard, lean years in the battered, beaten, and plundered South following our devastating Civil War. Prior to the enforced death-march of their "Long Walk" to the Oklahoma territory, part of the way in which the Cherokee peoples maintained their independence and increased their wealth was that every household raised at least a small swine herd for home butchering and for market.

Advantages of a small-scale operation

Some of you will have seen the ultra-modern factory-style swine production facilities that turn out several thousands of identical market hogs every year. The idea of attempting to

compete with operations of such magnitude may seem impossible. However, you need to understand that the owners of these huge swine operations are virtually slaves to market factors and to their creditors. A single increase in feed costs, a drop in the market price, or a single otherwise-minor disease organism run amuck in their over-crowded pork factories can wipe out several years' worth of profits. The debt load carried by most such operations will often force the owners into bankruptcy after only one such incident, costing them the whole farm.



It's the small-scale pork producer, running between 100 and 500 hogs per year through the market, who might have an unfair advantage. Consider that selling about 110 hogs (no matter what the current price), for a 90%-plus profit will bring you about the same number of spendable dollars as selling 1000 hogs at the more usual 10% profit of the factory hog farm. Keeping a single good boar and five nice-quality sows, raising each litter to an optimum market weight of around 200 pounds per animal, and selling at the average market price will bring you an annual profit in the neighborhood of \$13,500. Should the prices

fluctuate upwards, you'd make even more income. And even if the market took a 50% nose dive, you'd still be able to realize about \$6,750 that year (while a high percentage of factory-style pork producers would go bust). This might be an over-simplification, but you can see how the ultra-low-budget, small-time producer really is the one who has the edge.

Still, while it's potentially lucrative, even such small-scale swine raising isn't something that you'd want to jump into overnight. You'll need to do some homework and preparation before you begin.

Two types of hogs

The first step is to honestly appraise your own temperament and abilities, as well as the physical aspects of your country property. Then decide on the type of hog that you and your property are best fitted to produce. There are many breeds and varieties, and they fall into two major divisions.

First you have the "confinement" type of hogs, like the Duroc, Hampshire, and Yorkshire, that can do well in crowded conditions. They breed, bear, and fatten nicely while fenced and sheltered in a relatively small area. However, they require daily care, feeding, water, etc. These

are possibly the ideal swine for the smaller farm or homestead, not requiring much acreage to bring in a reliable, steady income.

In the other major division are breeds like the Tamworth and Holstein (yes, there are Holstein hogs as well as Holstein cattle). These are capable of producing equally as well as the confinement breeds, while ranging loose in large fenced pastures or woodlots. These breeds require the absolute minimum of care, thriving and fattening quite well on grasses, acorns, roots, and such, which they can forage on their own. They require a much larger homestead acreage for successful production.

None of the confinement breeds do well when attempts are made to raise them under forage-type conditions. Forage-type hogs are equally unsuited for raising under confinement type systems. So this is something that you'll need to decide on before you set up your operation.

Strong and tight

Next you'll need to make a decision regarding what sort of facilities you'll need: shelter, fencing, farrowing huts, etc. This depends a lot on which type of hog you decide to raise. But keep in mind that ***any structure, for any type of hog, has to be both strong and tight.*** An adult hog is an immensely powerful animal, easily capable of breaking through poorly maintained fences or collapsing weak housing. And young pigs and shoats seem to delight in squirming out through the smallest break in any fencing or farrowing house. So whether you opt for wire field fencing or some type of wooden fence, and whatever sort of shelter seems right for your situation, make sure that your original installation is both strong and tight, and then make certain that it stays that way.

Feeding

It's in feeding the hogs where you'll find that the smaller producer has the edge over the factory farmer. It's the relatively high cost of commercial feed that forces these pork factories to work on such a high-volume, low-profit margin system. Sure, these high-dollar rations will normally bring their hogs to market weight much faster than less expensive feeds. But due to the feed costs involved, they usually need to produce *ten* market animals to match the profit realized by lower-volume breeders with a *single* marketable porker.

Many small-scale producers of forage-type hogs find that moving their herd three times a year works out the best for them. Their hogs spend the spring and early summer on mixed grass pasture; the late summer, fall, and sometimes early winter in the woodlot; and the largest share of the winter in the corn, bean, sorghum, or beet field that was planted for them, and left unharvested.

With our own Spot, Poland China, and Yorkshire confinement hogs, and our small operation, we've come up with a feed system that works great for us. We plant a mixture of corn, beans, and sorghum all together. The entire plants—cornstalks, beanstalks, and all—are harvested for feed. During the summer, we also feed a lot of fresh-mown hay or grass, saving the last cutting for winter hay. Also, every sort of garden waste, potato peels, damaged and spoilt tomatoes, wormy or bad apples, etc., is thrown to the hogs. We also feed them thoroughly cooked fish scraps and butchering wastes. To supplement the feed we produce ourselves, we've also found a bakery outlet store that will sell us a pickup load of stale bread, doughnuts, and other out-dated bakery products once a week or so, for next to nothing. This is a really worthwhile super-inexpensive addition for us, and they are happy to receive even a token

payment for this stuff, rather than paying to haul it to the dump.

Such mutually beneficial arrangements are well worth taking the time to find. Other small-scale breeders of confinement-type hogs have found restaurants, doughnut shops, produce wholesalers, supermarkets, farmer's markets, and other businesses whose owners have been happy to save their leftovers, damaged and imperfect produce, etc., for them in return for a token payment. Sometimes establishing such arrangements ends up being the determining factor in deciding the number of hogs your enterprise can support.

Buying your first hogs

As to the animals themselves, once you've determined whether you will be raising confinement- or forage-type swine, you'll need to settle on the particular breed (or breeds) you prefer. There are so many swine breeds (some common, others relatively rare) that this becomes mostly a matter of personal preference. Remember, though, that if there are other swine producers in your area, there will always be some demand for quality breeding stock, so it may be wise to stick with the breeds most popular in your area.

You'll need to select your own original breeding stock as carefully as possible. Check into the records of the producers you purchase your first stock from: litter size and survival rates, early weaning abilities, number of days to marketable weight, feed conversion rates, and related factors are all extremely important. Normally you'll pay quite a bit more for stock with a high production background, but it's well worth the extra cost.

Once our hog shelters, fencing, etc., were ready, and a steady and inexpensive feed supply assured, we were ready to buy our first hogs. Just-weaned shoats (young hogs)—one boar and four or five gilts (young female hogs)—is usually the best

option. Starting out with these small, young animals allowed us to become thoroughly familiar with their care while they were still small and easily managed. We also found that by hand-raising our breeding stock like family pets, we ended up with calm, easily managed adult breeders. As we've continued our operation, all of the swine selected as eventual breeding stock has been handled in the same manner.

This is a method which I recommend highly in any sort of livestock raising endeavor. There will always be unexpected developments, whether it's a difficult birth or a thousand-pound boar on the loose. When these things happen, it's so much simpler and safer to deal with an affectionate beast, rather than an indifferent or belligerent one, that I think it would be foolhardy to use any other method.

Caring for your hogs

You'll need to use wire cutters (diagonal cutters seem to work best) to nip off the razor-sharp needle teeth of newborn piglets, to keep them from injuring their dam while suckling. Sometimes I have tried skipping this step with animals I think I might be keeping for breeders. This is because in our area, we frequently have trouble with feralized dogs attacking livestock. So far, though, I've had pretty poor results, as the mothers usually find those needle teeth too painful. The few successes that I have had, though, have proved that swine with tusks intact can hold off dog attacks.

It's necessary to castrate the young male shoats which you don't intend to keep or sell as breeders. This is a simple, relatively painless procedure, done while the animals are still small. I've found the best tool for this to be a finely-honed sheepsfoot pocket knife blade. I have read directions for attempting this procedure on your own, but I really wouldn't recommend attempting this by yourself on the first try. However, after watching someone

else, whether a veterinarian or an experienced hog farmer, cut a couple of shoats, you'll be able to do it yourself.

Hogs also have a few other needs. Chief among these is plenty of water. In fact, *fresh drinking water is the most important part of a pig's diet.*

They'll also need some way of keeping cool in the summer. Whether that would involve providing some sort of shade, a mud wallow or sprinkler, a creek or ditch flowing through your pasture or woodlot, or some electric fans in the barn, will depend upon your particular circumstances. Too much heat can kill a hog mighty quickly, so you'll need to come up with something.

Winter brings a different set of considerations. Adult hogs that aren't kept in seriously over-crowded conditions can stand an awful lot of severe cold, without any ill effects. *But, drafts can kill them off pretty quickly when they sleep.* Even forage-type hogs need someplace to curl up out of the wind when they sleep. You'll also find that any sort of hog shelter for winter use must either have a dirt floor, where the animals can scoop out a nice comfy nesting hole, or you'll need to furnish a plentiful supply of straw, sawdust, leaves, or other *dry* bedding, at all times.

While forage-type sows usually manage to care for their offspring just fine through weaning, you'll normally find that confinement breeds need a little extra care in this regard. That's because the adult sow can handle cold temperatures, but not heat, so she's constantly standing up, moving around, repositioning herself, and flopping back down in order to remain relatively cool and comfortable. However, *her offspring need to be kept warm all of the time*, and even a minor cooling off can kill them. There is also the constant danger of the sow crushing some of her offspring when she plops back down. There is a simple remedy: just hang an inexpensive heat lamp over one corner of the far-

rowing pen or hut. This supplies a steady source of warmth for the piglets. The small animals will tend to congregate under this heat lamp whenever they're not busy feeding off the sow, while their dam will avoid the discomfort of this added heat. That avoids the danger of her inadvertently crushing the infants.

Marketing

After a while, you'll learn to judge by eye just when your hogs reach the optimum market weight. After that, your only remaining difficulty is in loading the animals into an enclosed truck or trailer and hauling them to market. I've heard of a whole slew of methods for loading these generally reluctant creatures for hauling, and most of them seem to work well enough. But the only means of loading hogs into my truck that I've found satisfactory involves nothing more than a solid ramp with fenced sides and a good, hard-working dog.

If all of this sounds like a lot of hard work, remember that it's not some sort of easy get-rich-quick scheme, but just one method for independent-minded rural folks to provide themselves with a decent, steady, reliable income. It's not nearly as much hard work as all this might sound like, either, but it does require a steady daily routine of care and maintenance. So why not look into your own circumstances and see if this truly traditional slice of American independence can add to your own situation.

And remember the added bonus of providing your own succulent pork roasts, smoked hams, etc., practically *for free* as a side benefit of this profitable endeavor. That served as the final determining factor for us, when we first considered raising swine for profit. We feel as if this result alone, even apart from the income we've earned, has been well worth the effort. I strongly recommend small-scale pork production as one of the ideal backwoods enterprises. Δ

Felting is an ancient art that's still useful today

By Anita Evangelista

There's probably no simpler, more efficient method of turning wool into useful products than felting. Known from samples dating from as early as 6400 B.C., the process hasn't changed in the slightest since those primitive days.

At its best, a section of carefully handled felt can provide amazing warmth even when wet, and is remarkably durable, pliable, and strong. Felt is the ideal boot-liner during the cold of winter, an excellent wind-proof vest material, and is easy to cut and shape into slippers, mittens, handbags, hats, blankets, rugs, and horse saddle pads.

At its simplest, making felt requires nothing more than wool, soap, heat, and movement. Quality felt can be made at home, by hand, with a minimum of tools—most of which are commonly found wherever homesteaders reside. It's highly cost-effective (that is, cheap), and an excellent use of time (fun). Even small children can make usable felt swatches.

Felting is...

Felting takes place in wool nearly spontaneously. It can happen so quickly that most beginning woolworkers accidentally felt a certain quantity of wool in the process of washing it in preparation for spinning. The felted condition comes about in sheep's wool because of the unique "scales" present on individual fibers. When exposed to heat, moisture, and friction, the scales open, hook together, and bind tightly as the wool shrinks.

Some breeds of sheep produce wool that has excellent felting qualities, such as Romneys, Shetlands, Merinos, Karakuls, and Jacobs. While the wool



1. The completed stack of roughly 4"x4" pieces of carded wool.

of more common breeds, such as commercial Dorsets and Suffolks, isn't quite as easy to work with, it still felts sufficiently to make useable projects. Other types of animals, such as camels, llamas, and cashmere goats, produce hair and wool with some felting qualities. A few favorite spinning fibers, like dog or cat hair, angora rabbit, flax, or cotton, simply will *not*

felt—unless they are used in conjunction with a quantity of sheep's wool.

Equipment/preparations

It's possible to make exquisite felt with the most basic of supplies. That's one of the traits that undoubtedly endeared felt to earlier civilizations.

You'll need:

1. Wool. Two pounds of clean fleece will be more than enough to produce a thick square of felt. (I recently made a rectangle 16"x22"x1/4" thick, which weighed only seven ounces.) Any colors can be used, alone or in combination. The amount of wool needed to produce a specific amount of felt will vary with the final thickness of the intended piece, its size, and the type of wool used—something best determined by working experience with your fleeces.

2. Teasing comb, or hand cards, or drum carder. These tools are used to *card*, or fluff and lighten the wool, and to make it fairly uniform. If you



2. Laying out squares of carded wool to form the first layer.



3. Pouring hot, soapy water over the first two layers.

only wish to work with a small amount of wool for a first experience of felting, you can successfully use dog “flicker” brushes—rectangular flat brushes with bent wire teeth. With a super-clean open fleece, which can be separated lightly by hand alone, carding might not be necessary. But for the first few feltings, carding makes the result more predictable and easier to bring to completion.

3. Soap and water. Homemade lye soaps make excellent felt, if you have any available. I’ve used “Dawn” dish detergent successfully, as well as a combination of “Dawn” and other dish detergents. Some folks use a plant



4. The third and fourth layers are laid over the first two layers. Notice the overlapping pattern.

mister or a laundry sprinkler to make handling the soap solution easier.

4. Washboard or dowel (broom handle, rolling pin, etc). These tools are used for the final agitation of the felt process, called *fulling*.

5. Towels, waterproof flat area, and hot water. A sturdy workplace (even a linoleum floor, or a table shielded with a plastic cover) is a boon—and you’ll need quick access to hot-to-the-touch water and towels for sopping up excess liquid.

Preparing to felt

Preparation for felting means carding up a half to a full pound of wool, separating the carded fibers into flattened sections of about four inches square (make about a hundred of these), heating up a quart of water, adding a half-cup of soap to it, laying down a towel or two on your work area, and assembling the carded wool and water within easy reach.

How to card: Hold one of the hand cards or flicker brushes in your left hand, the handle in your palm and the rectangular brush surface lying against your wrist and forearm. This may feel awkward at first, but it will become very natural after a few uses. Now, using your right hand, place a small quantity of wool against the teeth of the brush, drawing the wool slightly so that it gets caught in the teeth. This is called *charging the card*.

When the card has a thin, fairly even layer of wool on it, pick up the other carder in your right hand. Hold this in your right palm with the brush extended away from you, as you would a hair brush. Now bring the right-hand card against the left-hand card, and lightly draw the right card through the wool in an easy combing motion. Some of the wool will transfer to the right-hand card. Do this several times until the wool is lined up on both cards. Then set down one card and gently remove the wool from the other card by rolling it from one end (it will



5. Pouring hot, soapy water over the final layer of squares

roll easier from one side than the other).

This small, fluffed piece of wool is your first carded piece. Continue to make these, allowing yourself plenty of time.

The process

There are a couple of things to keep in mind as you begin to work the wool: the overlapping nature of the scales on individual fibers, and the importance of working in the same direction (which will be clear in a



6. Pressing and gently rubbing the squares. Notice the soap bubbles beginning to rise around the fingers.



7. After a few minutes of rubbing, the wool has flattened and is beginning to stick together. Note the dirty, soapy runoff, which is a good reason for doing this project outdoors.

moment). Determine how large you would like this piece of felt to be: I would suggest somewhere around 20" by 20"—a random size that's easy to work with. Bear in mind that this sample will shrink a little (10 to 25%) in the felting, so you should make your work larger than you want the finished piece to be.

First, begin to lay down the roughly four-inch-square pieces of wool in



8. Fulling the new felt. The well-rubbed rectangle of felt is rolled onto the rolling pin and worked back and forth several times.

rows, starting at the lower-left-hand corner of your work area. Each piece should overlap the previous one by 1/4" to 1/2". When you reach the lower-right-hand corner of your predetermined-size piece, move up and begin a second row. Each square in the second row should overlap the first row, as well as the squares beside it. Continue making overlapping rows until you complete the size sample you wish. In our example, you should have covered an area roughly 20" by 20".

Now cover this first layer with a second layer that is placed in the opposite direction. That is, instead of moving left to right (west to east), place the squares from the furthest upper edge to the closest lower edge (north to south). Remember to overlap each square.

After finishing the second layer, take your hot soapy water and sprinkle liberally onto the felt-to-be. Now add a third layer in the same order as the first; and a fourth layer as you did the second. Wet again. If you have more wool squares, continue making layers,

alternating the direction of each layer. Sprinkle between every two layers.

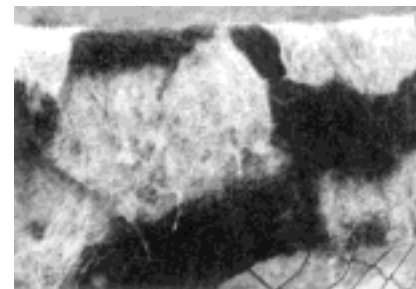
When you've finished sprinkling the final top layer, you're ready to begin the actual felting. Carefully, using the palms of both hands held flat, begin to press and then rub the wool. There may be a tendency for some fibers to adhere to your hands at first, but the soap will eventually discourage that. Rub gently at first, in a circular pattern, always moving your hands in the same direction over a particular section of wool. This helps the minute wool scales to cling tenaciously. If you reverse rubbing directions, it will discourage that clinging action.

After a few minutes of pressing and rubbing, soapy water will work its way up through the wool and out the sides. Pause and use your towels as needed. If the fleece is clean, the water will be, too. Otherwise, it'll be a dirty gray shade. If the wool isn't thoroughly wet, add a few more sprinkles of hot soapy water.

Continue to rub with firm, regular strokes. Carefully turn the sample over after a few minutes, reversing sides now and then. Different wools take differing amounts of time to felt. About 20 to 30 minutes should be plenty of rubbing. The sample will become noticeably firmer and more compact as you work.

When a pinch of the topmost layer resists being pulled upward, the felting is done.

Now roll this still-damp square around the dowel or rolling pin. Then



9. The completed piece of felt, still quite wet, hanging over a fence to dry in the shade.



10. A section of the felt has been cut out of the rectangle to line this slipper.

begin to roll the piece back and forth on a firm surface. This is the *fulling* process. Alternatively, you can gently fold your sample, exposing only a three- or four-inch area, and rub this on a washboard surface. Roll or rub for a few minutes. Unroll and turn the sample piece a quarter-turn, then re-roll on the dowel. Roll it (or rub it on the washboard). Do this from each side of the piece, so that it is worked in all directions. Fulling is now completed.

When you unroll this piece for the final time, you are looking at a section of completed felt. Rinse it in warm water, then in cool water to which you've added a dash of apple cider vinegar. Place it on a clean, dry towel to air dry, or you can pin it to a wooden frame to dry slightly stretched. You can also give this piece a "fleecy" surface by brushing it lightly in one direction after it has dried a little.

Finally...

The uses for felt are legion, particularly when you have a few sample-size pieces around. How about car seat

covers? A baby blanket? Coat liners? Hats?

Some projects will require sewing the felt, of course, so here are a few thoughts on that: Felt can be loose or tight in structure, and that will affect its sewing characteristics. Commercial felt, for example, is very tight, and it will take hand- or machine-sewing, performing very much like leather. Home-made felt *can* be tight enough to sew that way, but if it's too loose, your sewing thread might pull out. If that's a problem, you can start by sewing a line of stitching parallel to the edge of the piece to make the felt more stable at the edge. You can sew pieces together so your thread goes inside the edge stitching. With or without the edge stitching, you might want to use an overhand stitch on pieces that are edge-butted or overlapped. You might want to use heavy thread. Experiment with different batches of your own felt to see how they take sewing.

Pieces of compact felt can also be glued together. The glued areas won't be as soft as the rest, though, so don't use glue where that would matter

(under the sole of your foot in a boot liner, for example).

Try felting different materials into your wool: mohair, plant fibers, or various designs of differently-colored wool on the outside layers. There is even a trend in textile arts to encompass exotic felted displays, which combine fancy textures, colors, and images.

For those with an artistic bent, this most-common of fibers around the shepherd's homestead can become an effective medium for personal expression. The November/December 1979 issue of *Fiber Arts* (50 College Avenue, Asheville, NC 28801, \$4) is devoted to felt-making and includes many examples of felt-as-fine-art. And be sure to read about Margaret Boos' wonderful hats on another page in this issue of *Backwoods Home Magazine*.

From ancient times into the modern world, sheep and their products have offered more than they take. Felt is just one more part of this ongoing mutually-beneficial relationship. Δ

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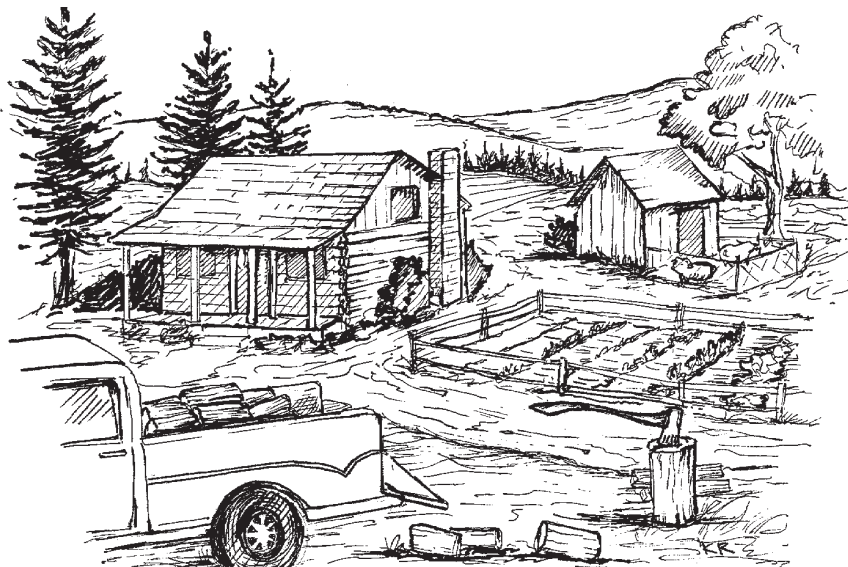
By Dynah Geissal

Making a living in the woods is definitely not an easy task. It requires being constantly on the alert for possibilities. For me, though, there is no other option. I have chosen my way of life and cannot trade it for a job in town even if it would mean more financial security. I spend almost all my time here on my homestead, and still there is never enough time to get everything done.

Neighbors who commute to work leave in the dark and come home in the dark for a good part of the year. They are unable to do as much as they would like to do for themselves, because there is no time. Consequently, they need to buy most everything, and so they always need more money. Add to that the beating their vehicles take on our non-maintained mountain road. It is extremely stressful and frustrating for them, but it is a cycle that is hard to break out of.

To make ends meet without having a “real” job takes ingenuity and a basic attitude change. Leave behind the thinking that asks “what can I buy?” or “whom can I hire?” to solve a certain problem. Instead, make it a habit to brainstorm, experiment, and tinker, or just do the manual labor it takes to get the job done. If you work in town in order to hire someone to work with machinery at your home, who is having the better day? There can be an almost zen-like quality to work that is boring, tedious, and/or labor-intensive that can add more to the spirit than just the completion of the task.

Try to maintain the attitude that you can do whatever needs doing, and set about finding a method to do it. When you have to, ask a neighbor for help.



It's beneficial, of course, to have a partner, and in most cases to eliminate gender roles. Most successful homesteads consist of partners who share the work in most tasks and who each become proficient at whatever needs doing. It is absolutely vital in the case of sickness or injury of one person that the other knows how to run the farm.

Simplify and save

Saving money is about the same as making money, and the best way to do that is to simplify. How much do you really need? The answer is different for different people. Only you can answer this for yourself.

As an example, I think of our power situation. When we bought our land, we thought we would buy a generator to supply our power. A big enough generator could give us plenty of power, so that we would live pretty much as we did “on the grid.” Money for such a generator was never available, though, and now we find that we are quite happy with lights and a radio supplied by sun and wind. In the beginning, we had only kerosene

lamps, and that was OK for a while. As the nights got longer, however, the lamps seemed severely limiting, and our eyes were feeling the strain.

When we got our solar panel, we were able to have two lights, and that was wonderfully liberating. Our nights are so long in the late fall and early winter that we had hated having to huddle around our little lamps for five hours every evening. Now we have four lights, and we feel much richer. To us, light is extremely important for reading, cooking, and other evening projects, and in this case less was not better for us.

So don't be a martyr and give up things you really love. Just consider that some things maybe aren't so important or maybe are just habits that you could be happy without.

Raise extra and sell it

One way to bring in income without changing your life is simply to raise more than you need and sell it. For example, we need two pigs a year for meat, so we raise four and sell two. That gives us our pork for free. Everything you raise should pay for

itself. That's a goal, of course, and it probably won't be achieved right away. Do more of what you already do and sell the surplus. Cut your ten cords of wood and then cut ten more to sell.

Some things work better than others, and there's no way to know which until you try. I can't raise enough chickens to fully supply the market (I raise 800 over the course of a year), yet selling rabbits is very difficult. I always seem to have a surplus. I think rabbits are way easier to raise and are very delicious, but there is a prejudice against eating "bunnies."

Where we live is open range, so getting fences up was very important to us. The range cattle were topping the tree seedlings, destroying the creek bank, and so severely overgrazing the meadow that exotics were taking over. It took six weeks to fence our lower 15 acres, but our only expenses were the nails and the fuel for the chainsaw. We built a jack leg fence, which is beautiful, functional, and cheap. Our nearest neighbor hired us to work on her fence when she saw ours. Every bit of work we can get up here is really appreciated, and helping Sarah was perfect.

Many ways to save

Now I'd like to talk about specifics. Let's start with your **vehicle**. It is vital to have one that can be used for just about everything, which generally means a pickup truck. Having more than one is a luxury we cannot afford. I can't imagine having to license, insure, and maintain a second vehicle. Remember that every dollar you spend is one more you have to earn. You must be able to be your own mechanic. Basically, that means you need an older vehicle. Ours is a '77 Dodge. It's very straightforward, and parts are cheap. (Example: \$35 for an alternator.) When our transmission went out, we replaced it for \$150. A clutch is \$30. A breakdown is not fun, of

course, but with this kind of vehicle, it doesn't threaten our financial stability.

Next is **fuel**. If you live in the woods, you can probably get all the wood you need for heating, cooking, and hot water. You say propane is more convenient? I say, why pay someone else to provide your fuel? It would mean you would have to earn more money to pay someone when you could be working for yourself. Using wood becomes such a part of life that it doesn't seem at all inconvenient to me. It's just part of what I do, like brushing my teeth or feeding the livestock.

Grow your own food—at least as much as you can. We buy grains, beans, oil, and coffee. That's about it. Don't expect to achieve food self-sufficiency in one year, but keep working toward it.

Become familiar with **herbs** and make your own medicines. Before I lived in the woods, I found it difficult to find the plants at just the right stage of development, but now I'm always watching and can pick at just the proper time.

Learn as much as you can about **wild foods** in your area. From April till October, I can find edible greens for a meal. In the summer there are mushrooms, and when we run out of onions, there are wild ones to dig. There are always trout in the creek. Add these free-for-the-taking goodies to what we grow, and we don't have to be dependent on the grocery store. We always have milk and eggs and rabbits in the pens plus all the fruits and veggies that we can and dry. In summer we pick strawberries, raspberries, currants, thimbleberries, gooseberries, serviceberries, and huckleberries—all growing wild right here. The surplus is preserved for winter use. In a few hours we can pick all the rose hips we need for a year's supply of vitamin C.

There are many **food items** you may not have thought **to make for your-**

self, but they're quite easy and save greatly on expense, including mayonnaise, ketchup, mustard, horseradish, salsa, hot sauce, seasoned salt, curry powder, and chili powder (although you will probably have to buy some of the ingredients). Being your own baker is a must.

When planning meals, rely on what you have. A recipe that contains one ingredient that you raised—a chicken, say—but requires you to buy a number of other ingredients is not what you're looking for (unless you can substitute with homegrown products).

Trade whenever you can. It helps everyone and feels good, too. Our neighbor Sarah loaned us her two 80-watt solar panels for the six months that she would be spending in Antarctica, where she works. We loaned our 50-watt panel to neighbors Dan and Marlene for the same period of time. They loaned us a DC water pump after they observed us siphoning water from a barrel in the truck up on the hill to our barrel in the house. Life up here is rough, and we love it or we wouldn't be here. Still, the feeling of community among our widely-spaced neighbors is very valuable to us. It's like family in many ways.

Right now we're just beginning to haul logs with our horses. We're hoping it will be another way to make money, but we've only been doing actual log pulling for four days, so we'll see how it goes. Everyone up here needs their blowdown cleaned up as well as house logs hauled, and if we can do it while being easy on the land, it may be just the niche we're looking for.

I hope I have given you some ideas about making a living in the woods or other rural areas. It's not easy, but the tradeoff is that you get to have your life instead of spending most of it working for someone else at a job you'd probably otherwise not choose to do. Δ

Ayoob on firearms

By Massad Ayoob

The price of machismo

In my last column in this space, I talked about the Marlin Model 60 .22 rifle, and about a man who had used one to defend his backwoods home. He stood charged with murder. I promised to tell you how it came out. Well, the good news is, we beat the murder charge. The bad news is, he was convicted of manslaughter. How such a thing could happen is far more important to a rural homeowner than what type of gun he or she might use to defend that home.

The defendant lived in rural Kansas. His home was a former chicken house that he had rebuilt with his own hands using scrap material. He was 69, and he lived there with his common-law wife (a retarded woman in her thirties) and her little girl that he considered his own.

On the night in question, one of his drinking buddies came by, along with another man, both pretty well in the bag. They sat down at the kitchen table and started drinking his beer. The old man joined them in a brew, though he wasn't under the influence. Soon an argument developed between the two visitors, which the homeowner tried to mediate with no effect. The drinking buddy went out of control, yelling and kicking a coffee table against a wall. The homeowner tried to calm the man down, and the guy grabbed him, ripping the buttons off his shirt. The wife tried to calm him down, and the man answered with an obscenity.

The homeowner was a small-statured guy, literally a "little old man." His assailant was in his early 40s, about six foot three, and strongly built. The old man knew he couldn't

control this guy with his bare hands. He went into the bedroom for a gun. During this moment, the huge intruder—and intruder he was, because he had already been asked to leave—took a swing at the man's petite wife.

The old man emerged from the bedroom holding his Marlin .22 pointed at the floor, and ordered the raging giant to leave. It seemed as if he was going to comply. The man turned and went to the door...and suddenly, he was back in the tiny house, lunging at the old man, his eyes on the rifle and his hands reaching for it.

Fearing that the man would wipe out his family if he gained control of the rifle, the old man fired once. The big guy stopped in his tracks, stumbling back and sitting heavily on a coffee table. His drunk friend looked at the old man and asked, "Did you shoot him?"

"Hell, yes, I shot him," the homeowner replied, telling the man to get him to a hospital. The drunken companion did so, helping the wounded man out to his truck. There was no phone in the "home-made home" to call from, so in a short while, the old man drove to the nearest public place with a phone, a tavern/restaurant where the family had stopped to eat earlier and seen the two men who would later come to the house and set the stage for the tragedy. The pair had already returned there, he discovered, and the bartender had already called police and rescue, so he headed home.

The man he shot died later that night. The retarded wife made a statement to police to the effect that the man had been tearing up the house, so her husband shot him. To make a long



Massad Ayoob

story short, he was charged with manslaughter, and the charge was then upped to second degree murder. The prosecutor tried to jack it up again, to first degree murder, but the judge would not allow that.

All was going well in the trial—it was clear-cut self defense—until the defendant took the witness stand. The prosecutor had read him as an independent and stubborn man. He knew what buttons to push. He began an antagonistic cross examination that hit its climax with a question to the effect of, "If I came into your house and kicked a coffee table, would you shoot me, too?" And the frustrated, exasperated old man answered that if the prosecutor was going to do that in his house, he'd better be wearing a bullet-proof vest.

That, as they say, was "all she wrote." After the "Guilty of Manslaughter" verdict, the jurors who were debriefed by the defense lawyers made it clear that once the defendant had threatened on the witness stand to shoot the prosecutor, there wasn't much else they could find in the way of a verdict.

There are lessons here for the sort of people who read *Backwoods Home Magazine*. If you weren't stubborn and independent, you wouldn't be reading *Backwoods Home*. Instead of planning for self-sufficient living (or experiencing it already), you'd be reading *Better Homes and Gardens* or *Architectural Digest*, and if you'd been in the same situation as this poor old guy, you might have been able to tell your butler, "Jeeves, throw this boulder out, and call one of my bodyguards if you need help."

Briefly, the learning points are these:

1) Have some form of communication available in your backwoods home. If the defendant could have called for police assistance on a CB or a ham radio or something as this situation developed, he would have been more clearly seen as the complainant instead of the perpetrator, and the sheriff's deputies might even have gotten there in time to prevent the shooting.

2) Never let a lawyer or anyone else provoke you to the point where you lose control. The old man had spent his adult life working with his hands. The lawyer who cross-examined him had spent his career working with his silver tongue. The old man was on the lawyer's turf now, playing the other man's game. Sentencing isn't complete yet, but I expect the old man will pay several months per word for the angry sentence he uttered when the prosecutor provoked him.

3) Don't invite out-of-control drunks into your house. Isn't that one of the things you left urban America to get away from in the first place? True, the old man didn't know how bad his friend was when he let him in, but he knew the man had a history of drinking and "losing it." He had told him it was OK to stop by when they met at the tavern. That was "the beginning of the end" for him.

The big thing that got the old man sent to prison—"hung by his tongue"—was his angry, threatening outburst on the witness stand. If ever you're

being cross-examined, take it from a denizen of the courts: you're not talking to an advocate whose very job is to disbelieve your truth, you're talking to a dozen people on the jury who have basic, honest, human social values. Don't let a lawyer trick you into saying something that makes you look like you don't share those values, when in fact you do.

If you're interested in this case, I wrote it up for *American Handgunner* magazine as part of my regular feature there called "The Ayoob Files," a series of in-depth studies of shooting incidents. The back-order department of that magazine can be reached toll-free to order a copy at 1-800-537-3006. The case was *State of Kansas v. Willard Grooms*, and at this writing, Will Grooms is behind bars and will be there for some time; the woman he shared his life with has been institutionalized; and their little girl is in a foster home.

Who was it that said, "If we do not learn from history, we are doomed to repeat it"? Δ

A BHM Writer's Profile: Dorothy Ainsworth

Dorothy Ainsworth likes to write for *BHM* because the readers may be people just like her—possibly squeaking by on little more than minimum wage, but with a big desire for shelter, self-sufficiency, and the peace of mind that ultimately comes from being true to oneself.

As a waitress and single mom rearing 2 kids on her own, she fiercely wanted security without being beholden to anyone. At 40, with no previous building experience, she bought a piece of land with a farm loan, read stacks of how-to books, and started in. Her most powerful resource was drive. On a shoestring income she learned to use any cheap or free natural materials she could get her calloused hands on. "With logs, stones, straw, and mud, an energetic person with imagination and research, can create a home with his or her artistic signature in every touch."

Any discomforts of living on the barest necessities for a while were totally offset by indescribable feelings of fulfillment that came from everyday accomplishments.

Dorothy is now 54 and has 10 structures under her carpenter's belt: pump-house, water storage tank, root cellar, barn, shop, storage building, small guest cabin, piano studio, and 2 log homes (rebuilt main house that burned). The average cost was \$15/sq. ft. and except for her land payment she's debt free. Tunnel vision paid off and the journey was so worth it.

Her future plans include writing a waitress book about her humorous experiences serving over 1 million people in 38 years. Also she hopes to find time to indulge in her life long hobby and first love—photography. Meanwhile she's in the process of editing the videotapes she took of building the original house.



You can make extra money as a stringer

By Robert L. Williams

Several years ago, I found that each month I needed a little—or a lot—of extra money. I was already working full-time and had erratic hours, so if I found part-time work, I had to do it all around the clock. Very few potential employers would even talk to me about hours early in the morning one day and late at night the next.

Then I picked up a newspaper and saw a byline with the notation under the writer's name, "Special to the Observer." This tiny message told me that the newspaper was buying a special article now and then from off the beaten track. Because we lived far out of town, we qualified for the off-the-beaten-track part of the work.

I called the state editor of the paper, told him what I'd like to do, and suggested a few stories. He agreed immediately to look at a story on one of my topics, so I did the interview, took a few photos, and wrote the story. I mailed it to the editor a day or so later, and almost immediately the story and a photo appeared in the paper.

That first article was about a karate expert who was also an accomplished cook, a seamster who made his own clothing, a gardener, a painter of excellent landscapes, and a college student. (More about this later.) The newspaper paid me \$40 for what amounted to about five hours of work. I figured I could afford to work for \$8 per hour, and I set about finding other stories.

Several stories in one day

What I quickly learned was that I could locate three or four stories in one area, and with one trip I could triple my income for the stringer work.

A stringer, by the way, is someone who is not employed full-time by a newspaper, but who writes on a semi-regular basis and has none of the perks offered by the paper.

By doing three or four stories on each trip, I could earn as much as \$120 for about eight hours of work. I was now up from \$8 to \$15 per hour. Eventually I worked my way up to five to eight stories in a single morning. That is, I did the interviews and photos. Later I wrote the stories and prepared the photo captions.

Sell a story more than once

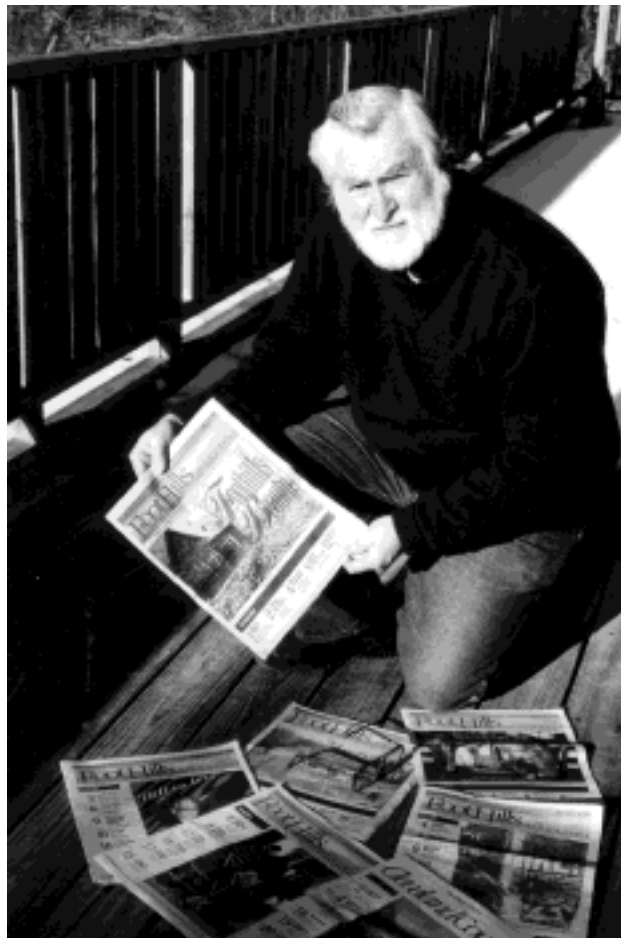
Then even greater dividends began to take shape.

Remember the karate expert? He brought me copies of a magazine one day and asked if I thought his story merited space in one of the publications. I used the same photos (I always took more than I needed, just in case other opportunities arose), and I modified the story only slightly and sent it in.

I sold the story for \$100 the first time, then for \$150, and then for \$350. I had now earned \$640 for a total of about 12 hours of work. I was now earning more than \$50 per hour.

In one issue of a newspaper special section, the type of publication referred to as "neighborhood journalism," I placed 11 articles at \$80 each. That's \$880 for about 20 hours of work. But it gets much better than this.

I did a story one morning and sold it to the paper. Then I sent it to a series of magazines. Understand that this was not a story of aliens kidnapping Elvis who had just captured a bigfoot at a reunion of James Dean, John Kennedy, and Jesse James. This was a rather commonplace photo and story.



The author is shown with several issues of Foothills Magazine. He did the cover photos for each issue, and the combined issues, with stories by him, resulted in a part-time income of about \$4,500 over a period of four months. Total time invested was less than 40 hours.

I eventually sold the story for, in succession, \$40, \$45, \$150, \$150, \$250, \$300, \$480, \$850, \$500, \$175, and \$550. And that was just the beginning. A total of almost \$3000 for one basic story, at that point. I had invested no more than 15 hours in the entire photo layout, and I realized an income of about \$196 per hour.

Once you have written the story, have it understood with the editor of the paper that you have the right to sell the story again and again, as long as you don't abuse the legal rights of either publication.

Then sell it to tabloids, regional magazines, and anyone else who will buy it. I sold my story about the 73¢ house 28 times, and always for a nice sum. When our own house was destroyed by a tornado and we built our new house with a chain saw and little else, I wrote the story of how we constructed the house for a fantastically low price. In the months that followed, I actually paid for the cost of the house by articles written about the house. The house is now valued at more than \$200,000, but it didn't cost us anything close to that figure.

A word of warning: when you sell the story, ask the editor for permission to re-sell it. Then tell the new buyer where the story appeared earlier. Then ask him for re-print rights, and tell the third buyer where the story has appeared before. Keep on doing this and get it in writing, and you will likely stay out of difficulties.

Where do you find good stories?

The first question I am always asked when I speak to a group is, Where do I find good stories? My reply is, "Where can you go *without* finding good stories? They are all around us." I then offer a small wager that among the members of that club I can find a dozen publishable stories. After the speech, I talk with members and win my bet. I also find my next dozen articles.

The next question is, what makes a good story? My answer is, "Whatever reaches the heart, the brain, the funny-bone, or the wallet." For example, touch your readers with a tender story of an 87-year-old woman who built her own house and chimneys, made her own furniture, painted the murals over the fireplaces, and did her own landscaping. I did such a story.

Or the story of a woman who lost both legs to cancer and then refused to accept welfare money, despite her poverty. She insisted that she could find work and support herself—and she did.

Show and tell the readers how they can make money (which is what this article is intended to do), save money (which is what many of my other articles in *Backwoods Home Magazine* do), amuse them with incredible but true stories that bring a smile and warm the heart, stimulate and challenge the reader intellectually, inform



The author's son Robert, age 19, is shown holding a copy of Foothills Magazine which recently ran his square-split firewood story (after Backwoods Home Magazine had run it). Two paychecks are almost always better than one.

him on matters that will help him now or later.

If you want to test the waters for a story, when you run across an interesting situation, tell a friend or family member about it. Share it with neighbors, students, etc. If they genuinely like the story, write it up and simply tell the story in print to readers.

Become a superior listener. When someone is telling you about his grandson who is playing the violin with a special orchestra, ask how old the grandchild is. You learn that he is only five years old, and you have a story.

As you drive, remain alert for something that catches your eye: a huge two-story house being moved, a blind person who takes photos, a 112-year-old preacher, a three-year-old professional photographer, a blacksmith still plying his trade. You might find a story in a survivor of a long-ago war, a woman who knew Thomas Edison personally, natural phenomena, people who fight back from devastating tragedies, a paralyzed person who types by using a straw held in his mouth, or a man whose hobby reaches around the world. All of the above are stories that I did within a few days of each other. The stories are everywhere.

Photo tips

One day I was driving to my regular job when I saw a superior photo opportunity and took the shot. The newspaper then began to buy what they called "wild photos" from me. These are photos without a story—or rather, the photo tells the entire story.

And of course photos will help you sell the stories you write.

If you can afford one of the throw-away cameras, you can take acceptable photos, but it's obvious that with a better camera you have a greater range of opportunities. My first suggestion is that if money is scarce, buy a cheap camera, then save all of your

writing money until you can buy a better camera.

There are superior cameras on the market for under \$500. You can buy an excellent used camera for much less, but have a camera instructor check out the camera for you before you invest too much in a used one. You can also rent cameras, but several rentals will go a long way toward the purchase price of a good camera.

When you take the photos, always ask first for permission, unless you are on the scene of a spectacle that will be covered by the media. Never, never trespass onto private property, and never shove a camera into a person's face without asking first.

When you shoot the photos, try to imagine the photo in print and cut out all unwanted elements. Don't have a tree growing out of a man's head, and don't snap the subject when he is picking his nose or scratching the south forty.

Don't invest in a darkroom. Use color print film and take the exposed rolls to Wal-Mart or other stores where there is a one-hour service. Go eat lunch while the film is being processed, and then pick it up and pay the \$7 or so for the service. You can't develop and print your own photos at that price.

Write a good lead

When you write the story, work for an interesting lead, called a *hook*. This sentence is intended to capture the reader's attention instantly and keep it. Look at this lead, which was the hook in one of the first stories I ever wrote.

"On December 7, 1815, Marshal Michel Ney was executed by a firing squad composed of his own men. Death was instant, the result of eight wounds in the chest, three in the head, and one in the right arm. He was buried the following morning just outside Paris, and six months later he was teaching school in a small town in North Carolina." Will editors want to



Elizabeth Williams does a community calendar and a church news column for each issue of Foothills Magazine. She never leaves the house to do the work, and she earns about \$300 per month for the effort. If she goes out to do feature stories, she can make an additional \$80 to \$160 per month.

read on? Several did, and this story, which I found in an old graveyard, earned me close to \$800 for about six hours of work.

The story is perfectly true, with a bizarre twist, just like the story about the peaceful man who lived in a tiny town near my home years ago. He confessed on his deathbed that he was the infamous pirate Jean Lafitte, thought to have died long ago in Texas.

When you research the stories, ask more questions than you can possibly use. It's far better to cut out material than it is to try to stretch a few facts into a long narration. For example, in this story I cut the material about the Bigfoot that lived in our area for a while and was spotted by preachers, bankers, housewives, businessmen, and children.

You have probably noticed that many newspaper have Sunday supplements written by a small staff of writers. This is more of the Neighborhood Journalism movement. In our area the special Sunday section is called *Foothills Magazine*. I have written freelance articles for that publication since it started four years ago, and to date I have had at least one story in all but three issues. At times I have had

six or more articles, each at \$80 or more per story. If your area newspaper has such a supplement, ask about writing for the paper. If it does not have one, ask if they are considering starting one.

All over this country there are newspapers that will buy occasional or frequent stories. All you have to do is make the proper contacts, sharpen your writing and photo skills, and locate the right stories.

Good luck, Tiger. The stories are out there. Go get them. If you don't, I will. Δ

A BHM Staff Profile:

Ron Graham



Ron Graham is the Operations Manager and Advertising Manager for *Backwoods Home Magazine*. As Operations manager he supervises overall operations of the magazine, making sure the magazine runs efficiently, orders get processed quickly, employees know their jobs, and that things like safety and courtesy are observed.

As Advertising Manager he deals with advertisers to make sure their needs are met. He can sometimes be seen at the various trade shows the magazine attends, soliciting advertisers and generally selling the public on the value of the magazine.

He has 20 years of management experience in various phases of manufacturing and distribution operations. His hobbies are woodworking and motorcycles.

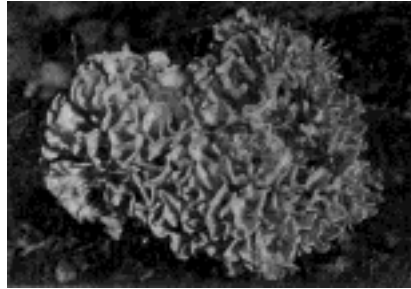
His wife, Nathele, also works at the magazine as an editorial assistant, and their daughter, Amanda, 9, can often be found playing with the Duffy children at the magazine.

Forage for wood lettuce and ground coral and you can spice up your outdoor eating

By Branley Allan Branson

Startling and spectacular moments in the woods do not always involve encounters with wild animals. Consider wood lettuce and ground corals. Unlike their namesake counterparts of the garden and sea, both these life forms are rather strange and curious-looking fungi. They grow in long-established woodlands throughout eastern North America, though there are many western representatives, too. These fungi become particularly well-developed in mid-summer and continue to multiply through early fall.

Wood lettuce, or cauliflower mushrooms, as they are also called, always startle campers when they encounter them. Only two species occur in all of North America, one in the east (the Latin sobriquet is *Sparassis crispa*) and one in the west (*S. radicata*). Many species also live in Central and South America, and in Europe and Asia, where they are staple food items. The eastern wood lettuce grows at the base of hardwood and pine trees, since it is a parasite on their roots, and appears in such places year after year. This fungus, often up to two feet across and half that in height, consists of myriad flattened, wavy, folded, curled, and crimped leaf-like parts arranged in a rosette. In color, the mushroom is strongly reminiscent of a collection of pale whitish-yellow egg noodles waiting for a cook. There is no root-like part, and in young specimens the leaf-like parts may be so tightly convoluted that the mushroom looks like a brain rather than like a head of lettuce or cauliflower. Most specimens weigh between one and five pounds, but exceptionally large ones may go as high as twenty pounds. The western species, which has a distinctive tapering rootlike part



Wood lettuce, or cauliflower mushrooms (Sparassis crispa) are edible, weird-looking forest floor plants that startle first-time observers.

buried in the ground, sometimes weighs as much as fifty pounds.

Wood lettuce bears little if any resemblance to any other mushroom in America, hence is easily identified. That is a lucky fact, for *Sparassis* is an edible species. A single specimen can feed a family of five or more, and the keeping qualities are exceptional. Under refrigeration, specimens may be retained for more than a week. *Sparassis* is a very fragrant and flavorful mushroom, but it must be cut into pieces, washed, and thoroughly cooked to remove toughness. I have found it best to parboil the pieces until they are tender, then gently sauté them in lightly salted butter until golden brown. However, large specimens may be parboiled then baked at 450° until golden-brown and tender. Wood lettuce is a perfect dish to accompany a pot roast or leg of lamb.

Wood lettuce is particularly abundant (in late July through early October) in the forests along the Blue Ridge Parkway in Virginia, and in most forests of North Carolina, Tennessee, and Kentucky. I have also found large specimens in southern Illinois and Indiana, and in the Finger Lakes region of New York.

Another delightful camping event occurs when one encounters coral fungi. These fantastic fungi occur

throughout America, especially from mid-July through first frost. As the name implies, these often colorful fungi strongly resemble sea corals in shape. They consist of many upright branches that arise from a fleshy common stalk. Colors range from whitish through tan, yellows, pinks, and greenish-to brilliant orange. Many of the small species grow directly on decaying logs, whereas the larger fleshy species grow on lignin-rich ground under trees. All of them are beautiful in their woodland settings, and many of them are favorites for the table. Since there are so many species of coral fungi in America, we shall only discuss a few representatives for introduction purposes.

One of these is the common crown coral (*Clavicornona pyxidata*). This three-inch wide, four-to five-inch tall species is one of the few larger corals that grow directly on decaying wood. In the west, this fungus grows most commonly on aspens, willows, and cottonwoods, whereas in the eastern U.S. it is frequently found on dead oaks, maples, and sycamores.

The crown coral produces many branches from a common base, usually in several tiers. The tips of the branches are enlarged into crown-like cups or fringes. Only one other wood-growing coral has these peculiar crowns, a grayish-brown western



The crown-tipped coral (Clavicornona pyxidata) has many upright, brittle branches that end in crown-like tufts.

species (*C. avellanea*) that grows on rotting conifer logs. The crown coral is whitish to pale yellow.

Like many other coral fungi, the crown coral is edible, but it tends to be stringy and tough, even after parboiling. However, because of its distinctive peppery taste, it makes an excellent addition to pot roasts and full-bodied soups. A hunting associate of mine uses it as an ingredient in venison stew.

One of the most common and widespread species in North America, the pinkish coral mushroom (*Ramaria formosa*) is a beautiful fungus that always elicits delight when found growing on the ground in the vicinity of conifer trees. It is a fairly large species, up to seven inches across and high, with multiple upright branches that are often grooved. The thick base is white close to the ground, colored like the branches above that, and tapers downward. The branches vary from light pink to pinkish-orange, salmon-orange, tan to reddish. The tips of the branches are yellow, regardless of overall coloration. When bruised or scratched, the flesh slowly turns brownish. The flesh never has a gelatinous consistency, but is always firm to rather tough. *This is not considered to be an edible fungus* because it has a tendency to produce cathartic effects when ingested.

There are many other species of *Ramaria* corals in North America, and most of them are very attractive. Some of them, such as the red coral mushroom (*R. araiospora*) are brilliantly



The pinkish coral (Ramaria formosa), usually growing in the vicinity of conifers, causes sickness if ingested



A beautiful woodland species, the jellied false coral (Tremellodendron pallidum) has flattened, rubbery branches.

red, resembling sea corals even more closely than the species we have already discussed. Other species, like the yellow coral mushroom (*R. rasilispora*) are brilliant yellow to saffron yellow. Some of these species dry very well and make interesting additions to dry arrangements in the camper.

Finally, several species of the jelly fungi often strongly resemble true coral fungi. Jelly fungi, as that name implies, are composed of gelatinous

bodies that may be soft and jelly-like or stiff and rubbery to the touch. Some species are brightly colored, oranges and yellows predominating, but the jellied false coral (*Tremellodendron pallidum*), which strongly resembles true coral fungi, is pure white to dirty white. The multiple upright branches are flattened and rubber-like, in sharp contrast with those of the true corals, which are brittle. Colonies are around six inches across and two to four inches in height, growing on the ground in hardwood or mixed-wood forests.

Several of the jelly fungi are edible, and the jellied false coral is one of them. It is best used as an ingredient in soups and Chinese dishes.

Wooded areas surrounding campgrounds nearly always have interesting contributions to make to camping. Some of those contributions are curious, others are downright bizarre. Topping the list of the latter category are the species of wood lettuce and ground coral fungi. Δ

A working country moment



Rich Perrigo of Montague, California, uses a Wood-Mizer sawmill to cut a pine log into timber.

Perfect whole wheat breads

... some troubleshooting ideas

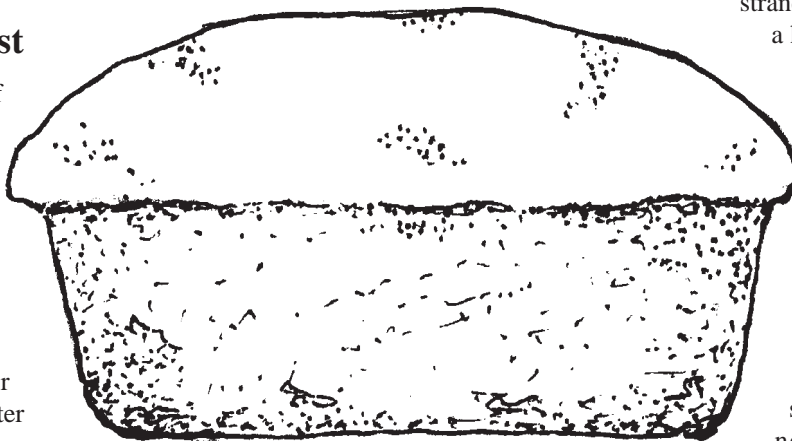
By Jennifer Stein Barker

Many people consider making bread to be a daunting task: they are afraid of fallen loaves, doughy centers, or bread that stubbornly refuses to rise at all. Others have perhaps been making bread for a while, but can't figure out why the loaves come out with an uneven texture or a hole in the middle.

A perfect wholegrain loaf is not an impossible dream. Bread making is both an art and a science. Flours and doughs react in normal and predictable ways, and learning the science of breadmaking will help you be at ease as you perfect the art of creating beautiful bread. Here are a few tips gleaned from years of experimentation that will demystify the yeast loaf. Following them is a troubleshooting section for those perplexing problems, and then some excellent recipes. Above all, remember these two things: yeast is alive, and the dough is your friend.

Proofing the yeast

A sure way to know if your yeast is really alive, and to nurture its growth, is to *proof* it. For proofing, use the amount of water, yeast, and honey called for in the recipe you're making. Measure out the water into a bowl. Test the water temperature with a thermometer or your hand. It should feel pleasantly warm to the touch, about 100°. Yeast likes to have the same friendly body temperature that you do in order to grow and multiply. The multiplication of the yeast produces carbon dioxide gas as a by-product, which makes the bread *rise* because the gas is trapped in the loaf. Sprinkle the yeast over the warm water and let it sit for a few minutes. Then stir gently to dissolve it completely, add the honey (to feed the yeast), and dissolve that. Let the cup sit in a warm place until the contents foam up, about 10 minutes. You have now given your yeast a good start in life.



Making dough

Gluten is what holds the dough together and traps the carbon dioxide in little pockets. Wheat is the grain with the most gluten, and *hard* wheats have more gluten than *soft* wheats (soft wheat is used to make pastry flour, because it does not have enough gluten to become "tough"). So look for flour marked "bread flour," which is made from high-gluten wheat. If you can't find whole wheat bread flour, or if your bread recipe has a high proportion of some low-gluten grain like rye, you may add what is called *gluten flour* (a highly refined product) in the proportion of one tablespoon per cup, to increase the gluten content. This refined gluten flour is not necessary to bake bread: it will simply make your bread rise higher.

Add the flour to your dough a cup at a time, beating well.

When you have a soft dough, beat air into it until it forms strands between the spoon and the bowl (these are gluten strands). Continue adding flour a half-cup at a time until the dough forms into a ball and pulls away from the sides of the bowl. The dough is now ready for kneading.

Kneading

Sprinkle a layer of flour over your counter, and have your flour source handy in case you need more. Turn out the dough onto the floured surface. To knead, push the heels of your hands into the dough, then fold it over at the crease. Rotate the dough a quarter-turn, and repeat. Remember, the dough is your friend. Knead it vigorously and joyously, and it will respond. Do not beat, pummel, or otherwise torture your friend. When it is ready to be put to rise, after 5 to 15 minutes of kneading, it will fold over with a smooth and satiny stretch, and it will spring back with great life from any impression. Lay the dough in a clean, oiled bowl, turn it so the oiled surface is on the top, cover it with a cloth, and set it in a warm, draft-free place to rise.

The baking

The dough is ready to form into loaves when it has risen to double its original bulk. If you don't have time to deal with it right now, or if you want a loaf with a finer texture, letting it rise again may be advantageous.

Slap the risen dough vigorously with the flat of your hand. The air will hiss out and the dough will subside into the bottom of the bowl. Let it "rest" for a minute or two. If you're letting it rise again, just re-cover it and put it back in the warm place. To shape the loaves, turn the dough out onto a smooth surface. I just let the oil from the dough coat the surface, but if this doesn't work for you, you may have to get out the flour again, and flour the surface. Divide the dough into two (or more) parts, and work each into loaf shape: flatten the dough with your hands and work all of the air out of it. Roll, fold, pat, and otherwise shape it to fit your loaf pans. I find the baked loaves come free of the pans better if I oil them *lightly*.

Cover the loaves and put them back into your warm place to rise the final time. They are ready to be baked when the dough has doubled in bulk (make note of the original bulk when you set it in the pans), and feels soft and giving when gently poked. Make sure your oven is preheated.

At the end of the specified baking time, check your loaves. The crust should be a lovely golden brown. Turn one out of the pan and tap it on the bottom. If it sounds hollow, it's done. If you hear a dull "thud," put it back in the pan and back in the oven for another 7 to 10 minutes. Cover the loaf with a loose foil cap if necessary to keep it from browning too much.

About salt

You can leave salt completely out of your bread if you wish. I find that in my sourdough breads, neither the flavor nor the rising suffers at all. In my sweet dough breads, however (such as oatmeal bread, recipe below), if I leave out all the salt, I get great big holes in the centers of my loaves. Now, I live at 5000' elevation. I tried leaving out the salt at 1000' elevation, and it worked just fine. You'll have to experiment for yourself and see how much salt you need for your tastes and your rising. If you're on a salt-free diet and don't like the holes in your bread, try letting the dough rise less.

Troubleshooting

Bread molds or sours quickly (in two days or less): You must keep your bread in the refrigerator if you have this problem, or use more of a preservative-type ingredient (salt or vinegar). Use 1/2 to 1 teaspoon salt per loaf (if you omit-

ted salt), or add 1 teaspoon mild vinegar (such as rice vinegar) per loaf to the wet ingredients.

Texture is uneven (air bubbles are bigger towards the top of the loaf, bread is denser at the bottom): You need to knead the dough longer. If the gluten is not fully developed, it will not adequately entrap the air bubbles and they will tend to rise towards the top of the loaf. Knead wholegrain doughs at least 7 to 10 minutes, until the dough is springy and smooth and does not stick to your hands or the board.

Big hole(s) in the center of the loaf: See "About salt" above. Also, try adjusting the ratio of sweetener in your loaf. If you already have salt in your dough, the problem could be too much sugar or honey.

Dough sticks to hands when kneading: First, try beating the dough well when you have only added a portion of the flour. This will develop the gluten before you ever have to get your hands in it. (People with wrist problems, take

note: this can substitute for part or all of the kneading.) Then knead with cool hands and a firm stroke. Make it like a dance, and you will find the bread responding without sticking. If my dough sticks in the early part of the kneading, I rub my hands together to roll the sticky stuff off, and dip them in flour to begin again.

Flat-topped loaves: Your dough was allowed to rise too much before being baked. Try this test to see if the loaves are "just right" before you slide them into the oven: poke a loaf gently with a fingertip. The dough should be springy and lively, but a small depression will remain where you touched it. If a deep dimple forms, your dough is over-risen. You can still bake the loaves and they may not fall, but you may also choose to remove them from the pans and re-form the loaves. They will rise again just fine, and this will not hurt them at all. See also "Making dough" above (the discussion of pastry vs. bread flours). Your dough may not have enough gluten to trap the air inside.

Now let's move on to some bread recipes.

Basic whole wheat bread

This is a great all-purpose bread for beginners or anyone. This bread is wonderful for sandwiches, toasting, and goes equally well with sweet jams or savory spreads. Makes two loaves.

3 cups warm water
1 Tbsp. honey
1 Tbsp. dry yeast
1/4 cup oil
1/4 cup honey
1 tsp. salt
6 - 7 cups whole wheat flour

In a large bowl, proof the yeast with the warm water and the 1 Tbsp. honey. When the yeast has foamed up, measure in the oil, honey, salt, and enough of the flour to make a thick batter/thin dough. Beat vigorously until the dough forms long elastic strands. Add more flour, $\frac{1}{2}$ cup at a time, until the dough is too stiff to stir.

Turn the dough out onto a floured board and knead for at least seven minutes, adding more flour as necessary, until it is smooth and springy. Place the dough in an oiled bowl, turn the oiled side up, cover and place in a warm spot. Let rise until doubled in bulk. Punch down, and let the dough rise a second time, if you have time.

Form the dough into two loaves and place in lightly oiled pans. Cover and let rise until double. Bake in a preheated 350° oven for 40 to 45 minutes, until the loaves test done.

Oatmeal bread

This bread has a lovely texture and a sweet flavor due to the oatmeal. If you want more tender oats, use hotter soaking water; for chewy oats, use cooler. Makes two loaves.

2 cups old-fashioned rolled oats
2 cups hot tap water (120 - 130°)
 $\frac{3}{4}$ cup lukewarm water
1 Tbsp. dry yeast
1 tsp. honey
 $\frac{1}{4}$ cup oil
2 Tbsp. honey
2 Tbsp. molasses
1 tsp. salt
2 Tbsp. gluten flour (optional)
about 5 cups whole wheat bread flour

In your bread bowl, stir together the oats and hot water. Let soak for 10 minutes.

In a two-cup measure, dissolve the yeast and the teaspoon of honey in the $\frac{3}{4}$ cup warm water. Let sit for 10 minutes or until it foams up.

Add the oil, honey, molasses, and salt to the oat mixture. Stir in the proofed yeast. Mix the gluten flour with the first two cups of bread flour. Beat the flour well into the oat mixture until the dough begins to form strands. Add more bread flour $\frac{1}{2}$ cup at a time until the dough becomes too stiff to stir.

Turn the dough out onto a floured board, and knead at least seven minutes, adding more flour as needed to prevent sticking. This dough will remain just a little sticky. Place dough in an oiled bowl, turn to oil all sides, cover, and let rise until double.

Turn dough out and form into two loaves. Place in two oiled 5x9" loaf pans and let rise until double. Preheat the

oven to 350°, and bake the loaves until they are golden brown on top and sound hollow when tapped on the bottom (about 35 to 40 minutes).

Remove the loaves from the pans and cool on a wire rack. When thoroughly cooled, they may be stored in an airtight place or wrapped and frozen.

Sesame ring

This hearty sesame bread perfectly complements Mediterranean or Middle Eastern food. Makes one ring-shaped loaf.

1 Tbsp. yeast
 $1\frac{1}{4}$ cups lukewarm water
1 tsp. honey
1 egg
2 Tbsp. oil
1 tsp. dark sesame oil
 $\frac{1}{2}$ tsp. salt
4 to 5 cups whole wheat bread flour
1 egg yolk
2 Tbsp. raw sesame seeds

Proof the yeast with the honey in the warm water. When the yeast foams, add the egg, oil, dark sesame oil, and salt. Beat in two cups of the whole wheat bread flour. Continue beating vigorously until the batter is smooth and elastic. Then add more flour $\frac{1}{2}$ cup at a time until the dough is stiff enough to knead.

Turn the dough out onto a lightly floured board and knead until it is very elastic and smooth (about five to seven minutes), adding flour to the board as necessary to keep the dough from sticking. When the dough is smooth and lively, springing back vigorously from any impression, place it in an oiled bowl, turning once so the oiled surface is on top. Cover the bowl and set it in a warm place to rise until doubled in size, about an hour.

Punch down the dough and let it rest in the bowl for a minute, then knead a few times and form it into a smooth ball. Working your fingers through the center of the ball, pull and work the dough into a ring. Place the ring in an oiled pan (I like to use an oval casserole) which leaves room for the dough to expand. Cover the ring and let rise until doubled in size.

Preheat the oven to 375°. Brush the top of the ring gently with beaten egg yolk. Sprinkle the top of the ring with a layer of raw sesame seeds. Bake for about 50 minutes, or until the ring is golden-brown on top and sounds hollow when removed from the pan and tapped on the bottom. Δ



Think of it this way...

By John Silveira

Want proof of luck, ESP, and psychic powers?

We were riding down the Pacific Coast Highway—Mac, his girlfriend Carol, and I. Mac's the poker playing friend of Dave Duffy, the fellow who publishes this magazine. Mac and I have taken to palling around the last few years and on this particular afternoon, he and Carol had invited me to go along with them to a party her cousin was throwing in Malibu.

Mac drove with Carol beside him and me in the backseat. I was thinking about how he makes his living as a poker player.

I suddenly leaned forward and asked, "Do you believe in luck, Mac?"

"Do you mean as in good luck, bad luck, runs of luck, that some people are just plain lucky because they're blessed with it and others are doomed to be unlucky all their lives? Like it's some kind of metaphysical force?"

"Yeah."

"No."

"Really? The way you make your living, I would have thought you did."

He shook his head.

"I just thought all gamblers believed in luck," I said.

"Quite a few do."

"How do you explain someone winning the lottery or a night when you get a good run of cards?" I asked.

"Well, in the first case, if you want to call someone who's just won the lottery lucky, you're using it as a descriptive word. It's like calling them rich. But if you're using it as a verb, as if some force called luck brought it about, no, I don't believe in that.

"As for the way I make my living, I don't win because I'm lucky. I win because I learned how to play the game well and I have the discipline to stick to the rules I've set out for myself. On a particular night, I may

do a lot better or a lot worse than I ordinarily would, because of the random nature of the hands my opponents and I get. But that's just the way things happen."

"Do you believe in things like ESP?"

I saw him look at me in the rearview mirror. "No."

"You don't?"

"If it exists, no one's ever provided reliable evidence of it. Given all the people who say they have it or have witnessed it, I would have thought it would have been demonstrated to the satisfaction of science a long time ago."

"What about those guys like Uri Geller and others like him I've read about or seen on TV. How do you explain them?"

"Have you ever heard of a guy named James Randi?"

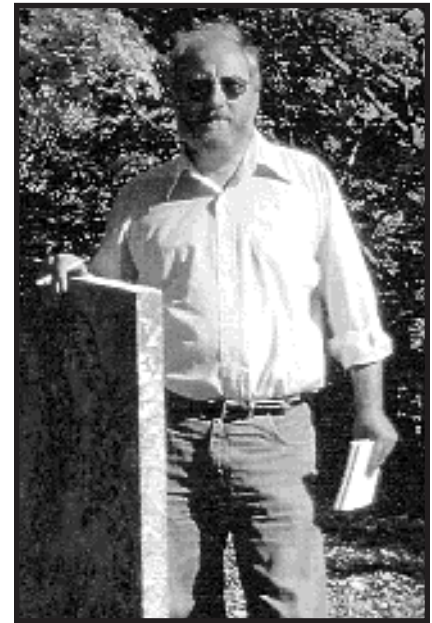
Looking in the rearview mirror, he could see the puzzled look on my face. "He bills himself as 'The Amazing Randi,'" he added.

"The name's familiar."

"He's a magician. But he's best known for exposing psychics. Show him a feat that any of the psychics claim to perform by using supernatural powers, and he'll do the same stunt using nothing but the magic stuff he's learned over the years. Card tricks, mind reading, bending spoons, or whatever; he'll do them all, but he'll do them without claiming to use any psychic powers, only deception and sleight of hand."

"So what?"

"Well, if I know that a professional stage magician can do what these psychics do, why should I accept the explanation that psychic powers are involved, particularly when what



John Silveira

they're doing amounts to nothing more than parlor tricks?"

"But some of these psychics have convinced reputable scientists."

"Scientists are out of their league when they deal with these guys. Scientists are by and large honest, and they're not in the habit of dealing with people who are trying to fool them. They'd proclaim Randi a psychic if he told them he was one. I'm not impressed when some scientist proclaims one to be genuine. But let one of those guys get by a good magician and I might take notice."

I sat back and was looking out at the sea again. Carol looked back at me. Her window was open and her hair was floating on the breeze.

"Mac tells me you write," she said.

I nodded.

"He said you write poetry."

I was flattered to find out Mac talks about me.

She turned forward again and fished something out of the glove box. It was a notebook. She handed it to me over the seat.

"Tell me if these are any good."

I opened it and read the first poem. It was horrible. I read the second. It was worse. The third, fourth, and fifth were terrible, too. I was mortified. She wanted my opinion of them. I glanced up at her. She was watching me. How was I going to tell this beautiful woman, the girlfriend of a newfound best friend, that her poetry was atrocious. I read a few more.

I looked up again. She was still watching me. Looking into her eyes I knew if I wasn't brutally honest, she'd know I was lying.

I had to be honest. But my mouth opened and I lied, "They're pretty good. They're not quite what we put in the magazine..."

She screwed her face up. "Really? I think they stink. They're my cousin's girl friend's stuff. I can't believe you like them. When Jeff's girlfriend, Rita, heard you were coming, she insisted you read them before you got there."

She turned forward again. I must have looked mortified because Mac looked at me in the mirror again and started laughing. Carol looked at him, then back at me.

"You just said you like them because you thought they were mine, didn't you?"

I nodded.

She laughed. "You men are such cowards."

"Does the woman who wrote them want me to be honest with her?" I asked.

"Only if you think they rival Shakespeare's."

Mac laughed some more.

The rest of the trip was uneventful.

We arrived at a house in Malibu. It was one of those modern looking things that's all pastels and straight lines. We went in and Carol started introducing Mac and me around. She introduced us to her cousin, Jeff, then she introduced us to Jeff's girlfriend.

"Mac, this is my cousin's friend, Rita."

Rita was one of the most beautiful women I've ever seen. If there are desirable young virgins waiting on departed warriors in Valhalla, this is what they look like. She started to shake Mac's hand and stopped. "Oh, you're the poker player," she said and pulled her hand away like he was pond scum.

"And you must be the magazine editor," she said turning to me. Her face lit up and enveloped me. I was hers to do with as she pleased. My legs were like wilted celery stalks. No woman this beautiful had ever spoken to me before. She was going to ask me about her poems. I was going to lie. I'd hate myself in the morning. So what?

Her face changed. I no longer existed. I extended my hand but she didn't take it and just as suddenly as she'd appeared, she was gone. I was stung.

"Wrong guy," Carol said. "He couldn't make it. This is John, another card player."

Her face changed. I no longer existed. I extended my hand but she didn't take it and just as suddenly as she'd appeared, she was gone. I was stung.

"I told her that because you men are such cowards," Carol said.

"You should have let John handle that," Mac said.

"I would have told her anything she wanted to hear," I confessed.

"I know that," Carol said.

Mac watched Rita as she walked away from us, and Carol kicked him in the ankle.

"Hey, that hurt."

"Do you guys both need drool cups?" she asked and she took Mac's hand and they wandered around. Since I felt so out of place, I stuck close to them.

For hors d'oeuvres there were stuffed mushrooms I'd die for, marinated shrimp I'd kill for, and oysters

on the half shell I couldn't get enough of. There were cases of wine I couldn't have afforded by the glass. I sensed there was so much money here a collection could have been taken up to buy Rhode Island and pave it over for tennis courts.

There were people talking the film business. I don't mean Fotomat but MGM and Universal. Others talked music. Everyone was dropping names the way baseball fans drop statistics.

We stopped to look out one of the bay windows and I found myself gazing on a view of the Pacific I couldn't afford. Suddenly, I was sure money could buy me happiness.

I looked around and Mac and Carol were gone. I felt awkward, like I was a fraud. I just hoped no one was going to ask me what I did for a living.

"Relax," a voice said. It was Carol. She was back. "These people are liars, just like you were in the car."

I laughed and wished I'd been honest with her when she'd shown me the poems.

"Mac's casing the place. He's trying to find out if there are any poker players here so he can wangle his way into their games." She rolled her eyes. "I think I'm going to get a nightgown made out of playing cards."

"Come on," she said and we walked into what I immediately realized was a large office. I still didn't know what her cousin did for a living. At least half the people at the party had congregated in this room. A man was sitting at a table and looked like he was doing card tricks. Carol and I got closer and heard him say:

"Everyone has ESP to some extent."

"That's what I think, Ron." The speaker was a woman named Helen.

"Here, let me show you," Ron said and he stopped shuffling the deck and spread the cards in what looked like a random fashion over the table.

We all moved closer to the table.

"I want you to point to..." He hesitated for effect. "...point to a red card. Make it a ten. Make it the ten of hearts."

She held her finger deliberately over the cards.

“Go ahead,” he said.

She giggled and pointed to one.

“Don’t touch it,” Ron said.

“That one,” she said. Her index finger hovered just millimeters over a card.

“Are you sure?”

She nodded.

He picked the card up and held it so only he could see it. When he looked back at her, his expression was non-committal.

“Pick another one,” he said.

“Did I get the ten of hearts?” she asked.

“Just pick another one. Pick a black one this time.” He thought a moment. “Make it a picture card. Make it the king of spades.”

She hesitated. She was still thinking about the ten of hearts.

“Go ahead,” he said.

“But I want to know if I got the ten of hearts.”

“Point to the king of spades, first.”

She let her hand hover again and slowly moved it in circles until she settled on a card in the middle of the table.

“This one?” Ron asked as he pointed to a card.

“The one next to it.”

He moved his finger slightly. “This one?”

“Yes.”

“Are you sure?”

She nodded.

He picked this card up and looked at it, too. He gazed at her again and she laughed.

“Let me see if I can pick one,” he said. “Let’s make it a small card. Let’s make it the three of spades.” His hand floated over the table until it settled on a card near him and he picked it up and looked at it for a moment, then looked at Helen again as he shuffled the three cards in his hands.

“Do you think I got mine, the three of spades?”

She thought a second and smiled. “How would I know?”

He threw the three of spades face up on the table. She looked surprised.

“Do you think you got yours, the ten of hearts and the king of spades?”

“I don’t know,” she laughed.

He threw the ten of hearts and the king of spades face up on the table.

“How did I do that?” She was incredulous.

“I told you, you have psychic powers. I can detect that they’re not real strong right now, but with practice you could really start doing things with them.”

She looked pleased with herself. “You know, I always could tell things, like when things were going to happen. And the night my grandmother died, I remember worrying about her and thinking of calling her and suddenly the phone rang and it was my mother. She told me my grandmother had just died. How could I have known that?”

“You just have to develop those powers,” Ron said.

“Can we do it again?” she asked.

He was shuffling the deck again.

“Are you sure you want to?” he asked.

“Yes.”

He spread the cards on the table again.

I suddenly realized Mac was with us now. I sidled up to him. “Did you see that?” I whispered.

He nodded.

“Do you know how he did it?”

He smiled and nodded again.

He turned and I followed him to a table that had more opened bottles of wine. He poured some for me, then some for himself. “I could ruin a perfectly good liver living here,” he said.

Across the room, the rest of the guests huddled around the table where Ron was asking Helen to point to the ace of diamonds.

“How’d he do it?” I asked.

“The trick? Each time he finishes, he reshuffles the deck. As he shuffles, he’ll glance at the bottom card. After he sees it, he can keep shuffling, but he makes sure the card he saw stays

on the bottom. When he spreads the cards on the table he knows where that bottom card is. Say the six of hearts is the card he saw. He asks her to point to the six of hearts.”

“But she doesn’t know where it is.”

“That’s right. But she’ll point to some card. Whatever she points to, he’ll pick it up and look at it, being careful not to let anyone else see it. Say the card she pointed to was the ten of spades, now he asks her to point to the ten of spades. She can’t, of course, because it’s in his hand, but she points to another card. He picks that card up and looks at it. Again he’s careful to make sure no one else sees it. Say it’s the queen of hearts. Now he says, ‘I’ll pick the queen of hearts, and he picks up the card that’s on the bottom of the deck...’

“And that was the six of hearts that he asked for in the first place. So, now he has all three cards.”

“That’s right. He shuffles the three cards, just in case someone’s noticed the order he had them in. Then, with a little drama, he shows the cards to everybody and we’re all astounded.”

“How do you know that trick?”

“It’s older than I am.”

We worked our way back to the table. Rita was at the table now and Ron was using her as the subject. She was certainly a lot prettier than Helen, and Helen stood by watching silently. I don’t think Helen liked not being the center of attention anymore and she certainly didn’t like not being the focus of Ron’s attention.

“How do you do it?” Rita asked when he was done.

He shrugged. “We all have psychic powers to some degree. Most people don’t know it, so their talents lie fallow. With practice, though, they become stronger. I can sense that each time you do it, you’re powers are getting stronger.”

“Are you sure this isn’t just a trick?” Rita asked.

“It’s no trick. Even if there were a way for me to pick my card, how does

that explain the way you were picking your cards?"

She didn't have an answer for that.

"Let's do it again," she said.

I was itching to see what would happen when Mac exposed him. "Are you going to tell them how he does it?" I whispered.

"No. Everyone's having fun."

I watched Ron go on with the trick and suddenly I realized the reason I wanted Ron exposed was because I envied him and the way he was the center of attention. He'd already had Helen in his grasp, then threw her aside to focus on the vivacious, though vacuous, Rita.

When the trick was over, she said, "I'm not surprised. I've always known I've had psychic powers."

On the other side of the table, a fellow named Chuck, a technological type who later revealed himself to be a computer scientist, finally said, "I don't believe in ESP. That's just some kind of card trick."

"Then how's he do it?" Rita asked.

Chuck didn't answer but looked smugly doubtful just the same.

Rita was hanging on Ron, now. He wasn't interested in Helen anymore.

"It really is ESP, isn't it?" she asked Ron.

"What do you think?"

A woman on the other side of the table said, "My sister can tell what people are going to say before they open their mouths."

"Oh, come on," Chuck said. "This is just a parlor trick."

Others joined in the discussion and the room quickly broke into two camps: those who believed in psychic powers and those who didn't. Of the two dozen or so other guests, only about four said they didn't believe. Chuck was the most vehement of those four. Two of the other three, all men, merely said they were skeptical but wanted to remain open minded. Chuck's friend, Ira, halfheartedly supported Chuck but he really seemed to be a fence sitter, and if Chuck hadn't

been there, I'm sure he would have been in the other camp.

But the consensus seemed to be that if Chuck couldn't explain away all the psychic phenomena the others had seen, then he should concede their point. He wasn't willing to give in. But he wasn't articulate either, and his objections started to get more strident and he seemed to be making a fool of himself.

Mac left the room. I thought he'd gotten bored with the discussion. But just as suddenly, he reappeared at my side. He followed the discussion intently, and I wondered why he wasn't taking sides.

"Excuse me," he suddenly said. "I think I know a way that we can settle all this quite convincingly."

Only a few of the people seemed to notice he was talking, at first. But he went on and voices fell quiet as people paused to listen to him.

"I have a friend who can perform quite a spectacular feat and I think it would be a real eye-opener for everyone here."

"Who?" Rita asked.

"Well, since we're working with cards here, let me have the deck. He gathered up the cards before anyone could object.

"Someone...you, Helen...shuffle the cards a few more times and then remove a card from the deck."

She shuffled. "Now what?"

"Have Rita take a card from the deck. Any card, and show it to us all."

Rita took out one card and showed it around. It was the five of clubs.

"Are we all satisfied with the five of clubs?" Mac asked.

Several people nodded their approval, but no one seemed to know where this was going.

"I have a friend in Florida," Mac said. "She's half Gypsy and she has some uncanny powers that I've never been able to explain. But I think I can cast new light on the discussion here."

"What does she do?" Rita asked.

"She's a true psychic, the only real one I've ever seen. She can do things I

never believed possible until I witnessed her powers. She said they came to her after she had nearly drowned in a boating accident 10 years ago. Three other people died in the accident."

I was stunned. Could Mac really believe in psychic powers after what he'd said in the car?

"I want everyone to concentrate on the five of clubs," he said. "May I use your cousin's phone?" he asked Carol. "I want to call Madame Elinor in Florida. I'll use my credit card."

"Jeff's loaded, dial direct," she said.

Mac picked up the phone but used his calling card, anyway. Then he waited.

"Hello?" he said. "May I speak with Madame Elinor?"

He paused and seemed to stare intently into space. "Hello? Madame Elinor? This is O.E. MacDougal. Do you remember me?"

He looked down at the phone and asked Carol, "This is a speaker phone, isn't it?"

"Yes."

He stared at all the buttons on the phone. "How do you..."

Carol reached over and pushed the speaker button and Mac hung up.

"There. Can you hear us Madame Elinor?"

"Yes," the voice on the other end replied. It was a soft, smooth voice and sounded a little exotic.

"We're out here in California," he said, "and I'm with a group of people who are discussing the existence of ESP. I know you don't like to be bothered like this, but I was wondering if you could just give a short demonstration of your powers."

There was a pause on the other end. "If you know I don't like doing this, why did you call, Mr. MacDougal." Her voice was cold and accusatory.

"I want to apologize. I just thought perhaps you could help us."

"You already have me on the phone. So, go ahead." She sounded impatient.

"We've chosen a card out of a deck and I just wanted to show them..."

"Would you all please concentrate on it?" Madame Elinor interrupted.

All motion in the room seemed to have stopped. I was breathless. Where was this going? Mac had just told me...

"There is someone in the room who's mind is drifting," she said.

We all looked at each other accusingly, but I was sure it was me. We concentrated harder.

"I see a black card," Madame Elinor said.

There was another pause. It's a small card...but not a real small card...I think I see..."

I thought five of clubs as hard as I could.

"I see the five of clubs."

I was stunned. Rita started laughing. Even Ron looked surprised.

"Thank you," Mac said. "We won't be bothering you again."

"It's okay," Madame Elinor said. "I'm glad I could help you, Mr. MacDougal."

The phone went dead and Mac turned off the speaker.

"Wow, there it is," Rita said. She was jumping in place.

After everything Mac had told me, I wondered how this could have happened. I watched him for a sign, but he never even looked my way.

Those who believed in ESP were now triumphant. The three who had sided with Chuck now fell into the other camp. And even Chuck started to crumble. "Well, I want to be open minded," he said. "This might be the real thing. But most of the stuff you see I think is phony."

"What about what Ron was doing?" Rita asked.

Ron was silent now. He obviously wasn't about to let on he was just doing a card trick. Not now.

Strangely, Mac had backed out of the discussion and was just listening again. He seemed to be interested in how opinions had changed.

Chuck was obviously uncomfortable. He repeated that he still felt *most* demonstrations of ESP were phony.

"Oh, you scientific types are so anal," Rita said. "You just got living proof and you still want to deny it. Science can't explain everything," she said, and most of the people in the room agreed with her.

I was starting to have doubts about what Mac had told me in the car. I thought, I must have misunderstood him. He still didn't look at me.

Chuck fell silent.

"One other thing of interest," Mac said.

"What's that?" Rita asked.

"What you think you saw, didn't happen."

"What do you mean?"

"I mean, what you saw was not evidence of psychic phenomena."

"But you just..."

"There is no Madame Elinor. Earlier, while you folks were talking, I went to the phone in the hall and called my sister in Florida and told her what was going on. I told her that, when her phone rang again, she should pick it up and start saying 'Hearts, club, diamonds, spades.' I would say hello as soon as she called the right suit. After I asked to speak to Madame Elinor, she was to slowly start saying, 'Ace, two, three, four...', etc. When I said hello again, she knew the face value. Then I put her on the speaker phone and...well, you know the rest."

"Why did you do that?" Rita asked and walked across the room to stand in front of him.

"Because so many people jump at the first romantic explanation for unexplained phenomena that is presented to them. If it's not ESP, it's flying saucers or visits from angels. I just wanted to show you that even after someone offers you proof of something unbelievable, you should be skeptical. Seeing is not always believing."

Then she kicked him in the same ankle Carol had and stormed from the room while he hopped about on one foot.

"It think she likes you," Carol said.

"I thought I was being helpful."

"People don't want you to help them. Do you think they play with you because they think they're better than you? About 30 minutes at the table and they know you're the best player but they think God, luck, or the poker fairies will help them beat you.

"You, of all people, should be grateful people are the way they are."

"I guess you're right."

"She kicks harder than you."

"I'm sure that's all she does better than me," she said and kissed him.

The rest of the party didn't go well for Mac. Most who were there were aloof from him. Even Chuck was angry because he felt that even though Mac had basically agreed with him, he waited until he'd caved into popular opinion before saying anything. Chuck had wanted to be part of the "proof" that people are gullible.

On the way back to Ventura, Carol said, "Well, I'll tell you one thing, we won't be invited back to Jeff's for a while. Rita will make sure of that. But she won't last forever."

"Would he let something as beautiful as Rita go?"

"He tosses out women the way most men take out their trash."

"I just can't believe that backfired on me the way it did," Mac said. "I didn't anticipate them getting mad."

"They felt they'd been made fools of," she said.

"I still thought I was being helpful. I even had a lead on what could be a good game down in Hollywood. That's shot, now."

"There are other games."

"Well, you certainly made a fool out of me," I said.

"That wasn't my intention. It would just be nicer if people realized they should give some thought to things before accepting explanations, and even then to be skeptical."

"I just want to know when we're going back to your cousin's," I said.

"Why," Carol asked.

"I'm going to pick through his trash the day he throws Rita out." Δ

Money doesn't grow on trees, but you can grow it in your garden

By Robert L. Williams III

For many people, gardening is a splendid hobby that provides exercise, fresh air, and nutritious vegetables, berries, fruit, and melons. For many other people, gardening is a total mystery.

For nearly all people who are physically able, however, gardening can be not only pleasurable, but profitable. All that is necessary is to plant wisely, care for plants diligently, and eat or sell the harvest sensibly.

The first question is what to grow and how much of it. To a large extent, where you live determines what you can grow, but there are some universal favorites that find a place in a huge percentage of gardens.

If you plan to sell your produce, give careful thought to crops that are easy to grow and will show big profits. As an example, my tomato patch is usually a little larger than two modest rooms in a typical house, and the yield from this patch can be as high as 350 pounds a week. In the early season when tomatoes are scarce and sell in the stores for a dollar a pound or more, I can sell to markets for 50¢ a pound. When prices drop, I can sell for 25¢ a pound or less. This means that income from tomatoes could range from \$70 to \$175 a week. You can average \$100 a week for three months, giving an income of \$1,440 from tomatoes alone.

Other vegetables that produce high profits for a small amount of work are string beans, okra, squash, radishes, cucumbers, strawberries, dewberries, and black-

berries. Blackberries are ideal, because the berries can grow on their own. You rarely need to plant them, thin them, cultivate them, or spray them, once you have established a good patch. Typically, blackberries sell in the markets for \$5 a gallon. From this amount, the grower receives \$2.50 per gallon or slightly more. The growing season for blackberries is fairly short, but you can pick daily in the same patch. It is hard work, but you can pick up to 10 gallons in a day's time, if you have several good patches.

If you have enough space, consider growing corn, potatoes, sweet potatoes, pumpkins, watermelons, and cantaloupes. Once the vines or plants have matured, little care is needed until picking time. Watermelons bring \$2.50 or more each in the early season and \$1.50 when melons are plentiful.

If you have land that can be used for an orchard, you can earn considerable profits by growing apples, peaches, pears, plums, and cherries. From a healthy apple tree, you can pick about 10 bushels of apples, which will sell for \$2.50 to \$5 per bushel, or \$25 to \$50 from each tree. If you have 20 trees, your income can be \$500 or much more per season. Peaches bring in \$5 to \$7 per bushel.

Grapes also grow well in many parts of the country. Scuppernong grapes and muscadines are extremely easy to grow and bring in great profits. The muscadines sell for one dollar for a large cup or small carton, and a dozen vines will produce gallons and gallons of grapes and literally hundreds of dollars of income.



The author started gardening nine years ago, at the age of ten. Here he is with some of the produce from his first garden.



Huge cabbages such as the ones shown above weighed 15 pounds each and sold for \$2 to \$3 apiece. They thrive on household vitamins.

Cut your expenses

Growing vegetables and fruits is not all profit. In fact, if you do not manage it carefully, your garden may cost more than it earns. Seeds, plants, and fertilizers are expensive, and chemicals for pest control can be not only costly but harmful.

But there are ways to cut your expenses. You can save money by starting your own plants from seed, instead of buying starts. You can start seeds indoors or in a cold frame or greenhouse.

And, if you are not growing hybrid plants, you can save your own seeds. The seeds from one pumpkin, watermelon, cantaloupe, cucumber, squash, okra pod, tomato, turnip plant, or cabbage will be sufficient to plant a fairly large garden plot. You can save \$40 to \$50 by saving your own seeds.

You can save several hundred dollars if you buy root stock and graft your own apple trees. You can also bud-graft peach trees. By reading a good book or magazine articles on the

topic, you can do a variety of grafting work on all kinds of fruit trees.

If you have access to one or two good grape vines, when the vines are pruned, you can gather the clippings and then bury them in a shallow trench dug in loose soil. Leave four to six inches of the clippings above the surface and keep the soil moist and, preferably, covered with well-rotted sawdust or mulch. Not all of the cuttings will take root, but many will, and you can have as many grape vines as you wish with no cost at all.

You can also take a plastic bag and fill it with well-rotted compost. Be sure that the compost is moistened. Then take one end of a growing grape vine and push it all the way through the compost and the plastic bag. Tie a string at both ends of the plastic so it can't come open, so your compost won't spill out or dry. After several days, the vine will form roots, and you will have a "new" grape vine. Cut the vine below the plastic bag, remove the bag, and plant your new grape vine.

A third way to root a grape vine is to pull a section of vine to the ground and cover it with good moist soil. Leave the vine buried until roots form. Then cut the vine behind the roots and plant it out in your vineyard.

You can have tomatoes until frost by doing the following: as your adult plants start to fail, break suckers from the plants and push the end of each sucker into good soil or compost, and



A properly tended patch of green beans will produce several bushels of beans daily and hundreds of dollars annually.



"New" potatoes sell very well in early summer. This wheelbarrow holds about \$35 worth of new potatoes.

within a week you will have new tomato plants a foot tall or higher.

To save money on fertilizer, save all table scraps and peelings and keep these in a compost bin until they decay. This compost makes superior fertilizer.

Save all your sawdust, bark, pine needles, small wood chips, leaves, and small twigs in a large pile. Turn the contents of the pile with a shovel every two weeks until everything is fully rotted. If you have a chipper, make your own mulch and clean up your land at the same time. Pile the mulch around plants and even between rows. By doing so, you prevent weeds to a large extent, and the mulch holds the moisture in the soil. At the end of the season, plow the mulch into the soil. (Don't plow in woody material unless it's fully composted, or it will retard next season's growth.) Producing your own mulch will save you money in at least two ways: you produce your own fertilizer and you save on the cost of watering your garden.

To market

Your next step is to market what you grow. Long before you are ready to harvest your crops, contact people who operate roadside produce stands. These people are often in need of all the produce they can get. Many produce sellers admit that they grow very little of what they sell. They also say

that they have to drive long distances to buy the produce they need.

In preparing this article, I talked with produce vendors, and what I learned was surprising and pleasing. One roadside operator (who sells many thousands of dollars worth of produce each year) had this to say: "We don't even try to make a profit on produce we buy. We grow and sell fruit, and we are delighted to have gardeners bring their produce for us to sell for the gardener. We have found that many customers who stop to buy green beans and okra also buy our peaches and apples."

The largest roadside produce seller in our area does not grow his own vegetables and fruits. He said, "I drive 300 miles to pick up my produce. It would save me a great deal of time and money if I could buy it locally. I will buy all the green beans, okra, tomatoes, cabbage, and potatoes that local gardeners can produce. I am especially interested in fruits and vegetables that have a long shelf life."

He cited the following price schedule: \$5 per bushel for Irish potatoes; \$17 for a thirty-pound box of tomatoes; \$10 per bushel for cucumbers; \$12 for $\frac{3}{4}$ bushel of squash; \$10 for $\frac{1}{2}$ bushel of okra; \$20 per bushel for string beans; \$2 or more for watermelons; \$8 for a 50-pound sack of cabbage; \$4 a gallon for strawberries; \$6 a gallon for blackberries; and \$1.50 for pie pumpkins.

It is easy to see that green beans are very profitable. You can plant several hundred-foot rows and pick bushels of beans every day for weeks. As soon as your first beans bloom, plant more beans. Keep doing this all summer so that you will have fresh beans at all times.

One final thought: suppose you grow 20 bushels of Irish potatoes, 500 pounds of tomatoes, five bushels of



Watermelons produce well, and several plants will earn \$100 or more.

cucumbers, ten bushels of squash, ten bushels of okra, 50 bushels of string beans, 300 cantaloupes, 200 watermelons, 150 pumpkins, 50 bushels of apples, 500 pounds of cabbage, 100 gallons of strawberries, and 50 gallons of blackberries. This may sound like a lot, but in reality, it is a small amount

for an energetic gardener to produce. The total income for the products listed above will be more than \$5,000.

That is not too bad for an activity that costs little, provides great exercise, brings immense pleasure, and also fills the table with delicious food. I started gardening seriously when I was in elementary school, and I learned that I could make a profit then. At age 19 I still garden, and profits today are even better. You too can make money from your garden, and the beauty of it is that the demand for fresh vegetables grows greater—as do profits—each year. Δ

Blessed is he who has found his work; let him ask no other blessedness.

—Thomas Carlyle, 1843

A country moment



Pat Ward of Fall Creek Ranch in southern Oregon took this photo of her ranch pond on a recent quiet evening.

(Note: If you have a country moment you'd like to share with our readers, please send it to us at Country Moment, *Backwoods Home Magazine*, P.O. Box 712, Gold Beach, OR 97444. Please include a self-addressed, stamped return envelope if you want the photo back.)

Where I live

By Annie Duffy

Working for a dad who works at home

I am homeschooled, and part of my homeschooling involves working for my Dad on this magazine. It has been a good learning experience for me. Not only have I learned how to work hard, but I have learned a lot about computers and writing.

Ever since Dad started *Backwoods Home Magazine*, I've worked for him in one way or another. Up to about two years ago, I labeled, stuffed, and stamped envelopes. I usually packaged our anthologies for mailing too. I always got to use the computer, usually playing games, but once the magazine grew a bit and we got a few more employees, I used the computer more often.

Since most jobs at this office have to do with the computer, I've learned many programs. Lately I have been teaching Linda, one of our employees, how to use Quark XPress, the desktop publisher program we use to make this magazine. She is typing in all of the zucchini recipes that readers have been sending in so we can publish them in a book later this year. I learned Quark XPress just by hanging around the office and asking my Dad and Lance, our associate editor, questions when I got stuck.

Another of my computer jobs is creating ads and editing photos using a program called Adobe Photoshop. Don Childers, our cover artist, has been teaching me that. Since he is a real artist, he can teach me things that only an artist would notice.

And, of course, I write this column, which helps me develop my writing

skills. I also get credit for it with my English grade.

With the computers, I have access to the Internet. I can research stuff for my columns and for my schoolwork. I found some information about my goats, horse, and donkey too.

I also found some information about Veterinary Medicine, and since I hope to be a vet, I have been exploring these sections a lot. My goal is to have a business covering all aspects of animal care. Since I want to take full advantage of the preveterinary courses offered in highschool, I probably will not be homeschooled next year. Although I love to be at home, I think it will give me a good head start on my career.

My dad is buying a few acres close to my home where we will build our new office. We will also build a riding arena and a small barn. I hope to eventually locate my business there, too.

A fun part of working for my Dad has been traveling. My Dad and I have demonstrated *BHM* at many tradeshow in the western states, and a few in the east, to promote it. The shows are usually three days long, and I've had a chance to visit many places, such as Seattle, San Francisco, Portland, Los Angeles, Las Vegas, Salt Lake City, and Boston. I also get a lot of studying done in the car, by reading aloud to my Dad, who then quizzes me on what I just read. I usually read each section of my book three or four times, until I know it cold.

Since I am homeschooled and I work for my Dad, I also have a much



Annie Duffy

more flexible schedule, which allows me to take trips and do things that normally I wouldn't be able to do. Things like hiking, training my animals, and night fishing.

Just recently I was offered a job exercising horses for a neighboring couple. It's a job I really want, and thanks to my flexible hours, I'll be able to take it.

Since my Dad is a writer, and our senior editor, John Silveira, is a mathematician, I don't often have problems with my homework. John Silveira is like a walking encyclopedia so I can almost always get answers to the questions I have.

The advantages of homeschooling over public schooling are obvious for someone like me, since I live so far from town. The advantages of working for the magazine at home are even greater. I'm getting to learn all aspects of running a business, plus I still have the freedom to do things I love.

If you are offered a chance to work in your family business, take it. I hope you get the chance to learn as much as I do. Δ

Homesteading on the electronic frontier

By Martin Waterman

Cybrarian—a great Internet job

This column generates a great deal of e-mail and by far the number one concern among *BHM* readers is that of affordable Internet access. Although the competition among Internet providers in major metropolitan areas is fierce, resulting in a wide choice of providers and affordable pricing, rural dwellers have often been stuck with having to use expensive online services such as CompuServe and America Online, as well as often having to pay long distance toll charges.

Good news! Affordable Internet service for rural areas is arriving faster than anyone thought possible. This is for several reasons, the biggest of which is the entrance into the Internet service market by the larger telephone companies.

AT&T has announced that it will be giving inexpensive Internet access to its customers. The other phone companies are expected to follow to hold onto their respective market share in the competitive and expanding communication arena.

Another catalyst is the recent announcement by the Federal Communications Commission to open up the \$100 billion local phone business to long distance companies as well as cable TV operators, the latter of which are already experimenting with providing high speed Internet access. The Internet is quickly becoming a vital component that will have to be offered by any company involved in telecommunications, lest their competitors have any advantage.

Cybrarians

The Internet is creating new jobs, and not just for the people providing the online services. A new position has been created that can be done from anywhere on the planet, provid-



ing you have access to the Internet. This is the position of being a cybrarian.

Cybrarians are one of the new jobs of the Information age, and not only are they in demand by businesses, but being a cybrarian itself can offer a great opportunity to be in business for yourself, particularly if you specialize in a particular kind of information that is needed.

Cybrarians are, of course, basically librarians but instead of being surrounded by books, they are nestled into a computer work station. There they are connected to the Internet and search the four corners of the globe to harvest information from thousands of universities, the World Wide Web, Internet News Groups, governments,

businesses, professionals, and libraries such as the Library of Congress.

Consistent with the many facets of the Internet, there is more than one type of cybrarian. There is the traditional, institutional librarian who has made the leap to the Internet. The other type of cybrarian is more of a free-lance librarian, or, as an ode to the old west, a cybrarian for hire—a virtual information bounty hunter.

A third type of cybrarian that has evolved is the Corporate cybrarian. Many large businesses have always had corporate researchers to find market and other information. However, with the birth and unprecedented growth of the Information Highway, many businesses have found that the need for their own in-house or part time cybrarian is for no other reason than to monitor their

competition. No matter the reason that information is needed, more and more organizations are finding they need someone to handle this task. This is usually because most managers, who need the information the most, do not have the time to surf and build an inventory of useful sites and find the information that they need.

The language barrier

The thought of marketing your wares around the world may seem intimidating, especially because of the different languages spoken. But the language barrier is not insurmountable, especially since English is the language of the Internet. There is also another factor at work that will help you do business around the world.

In the Orient and Latin America, many of the business people have very poor language skills when it comes to the English language. However, when it comes to written skills, most have excellent grammar. When dealing with a WWW site and e-mail, people in other countries are not intimidated and can take the time to compose a response. They may be very interested in using your services, as well as acquiring the rights to your product.

A real live cybrarian

I caught up with Lorna Peers, a real live cybrarian at the DISCscribe sit, which is located in Fredericton, New Brunswick, Canada (National borders, by the way, are irrelevant to the Internet). Lorna holds a masters degree in library and information science from the University of Western Ontario. She can be reached at <http://www.discscribe.ca/discscribe.htm> or e-mailed at lornap@discscribe.ca. If you visit her WWW home page you will see her photo and see that cybrarians are not chrome-plated info hunters from the future. Following is an interview I had with her:

BHM: What is your primary function as a cybrarian?

Lorna Peers: I locate information for clients or members of the company I work for using the Internet or commercial online databases. I think your term "information bounty hunter" is quite accurate. This includes individual requests from businesses and individuals, locating competitive information for use by companies, and background research and online promotion of clients who are on our Web server.

BHM: What percentage of your work do you find deals with online promotion?

Lorna Peers: I would estimate at least 50% and growing. I'm always finding new search engines and other places to promote our clients' Web sites. A lot of the time is spent locating the most appropriate category in a directory such as Yahoo.

BHM: How do you typically online promote a company?

Lorna Peers: At the design stage, I typically do some research to see what sites similar to the clients' may exist and where they are located in directories or indices. Once the client's site is ready, we write a brief press release or promo and post it in the appropriate newsgroups, mailing lists, search engines (i.e., Locos, etc.), subject directories, and What's New pages. Online promotion is very important to Web sites. Regardless of a site's value, it is of little use if it cannot be easily located.

BHM: What areas of the Internet do you find you use the most to find information for your clients?

Lorna Peers: I would have to say that I use the Web most often, primarily because of the Web design we do for clients. For more general requests, I use the Web (usually first, as it is the fastest growing portion of the Internet), gopher (less so, I often find the information out of date or reach dead ends), as well as newsgroups and mailing lists. On occasion, I may come across a Web site with a contact name and send a request by e-mail to see if he or she can supply more information. Other sources include library catalogs and periodical databases.

BHM: Is there such a thing as a common question you receive?

Lorna Peers: Not really. We've done some consulting for national organizations that want to get their offices on the Internet, so I'm often updating my list of Canadian ISPs (Internet Service Providers).

BHM: What is the biggest information request you have received?

Lorna Peers: One client wanted a fairly comprehensive list of Canadian companies that design and host Web pages, with contact and pricing information. Finding the companies wasn't difficult, but locating their list of services and pricing information, when available, took a while. Do you realize that some companies didn't have contact information on their pages? Not

very useful for the client who didn't have Web access.

BHM: Do you find that most of your customers are preoccupied with the status of their competitors' presence on the Internet?

Lorna Peers: No, not as much as they should be. Some businesses still see barriers to the Internet—e.g., cost of hardware, cost of access, learning curve—despite the fact that their competitor may already have a presence online. This spring we held two free seminars on using the Internet for local businesses. I think once they have the opportunity to see the capabilities for themselves, they may realize its potential.

BHM: What is the primary type of research you conduct and for what type of companies?

Lorna Peers: In terms of individual requests, many companies request a synopsis of "what's out there" that may be related to their type of business. In many cases these businesses don't yet have Internet access of their own, so the results may help justify the decision to purchase access. I would estimate that many of these companies are small businesses.

BHM: What does a cybrarian typically charge?

Lorna Peers: My rates range from \$65 to \$100 (Canadian) plus applicable taxes per hour for searching and formatting results. The rate depends on the volume of work and the urgency of the information.

BHM: Could you categorize for us the types of businesses that you find most often require the use of a cybrarian and for what purposes?

Lorna Peers: I've done a number of searches for government departments, where they required information for presentations, or for decision-making purposes, e.g., whether or not to proceed with a particular program. I've done research for insurance companies, telephone companies, manufacturing, public utilities, hotels, nonprofit organizations. The businesses, individuals, and organizations that have

purchased our Web services range from the chambers of commerce to music groups. They like the fact that I can put together a list of links to other sites with related information, as well as promote their site.

BHM: What do you like or dislike about being a cybrarian as opposed to being a conventional librarian in a book-filled environment?

Lorna Peers: I like the fact that the Internet is constantly changing and evolving. It's all I can do to keep up on all the new sites, software, etc. Navigating the Internet can be a challenge, since there is no absolute list of its resources, but the tools and indices have improved significantly. I can't say I dislike anything. Who wouldn't love to surf the Net all day, and get paid? I'm also adjusting to being, for the most part, a telecommuter and working from home. I missed the daily interaction with co-workers at first, but there are lots of benefits. Also, since most of the communication and transfer of my results are done electronically, I rarely meet my clients face to face, and I for one would like to meet them now and then.

BHM: What is the strangest request you have ever received for information?

Lorna Peers: Well, we do have a site on UFOs. I put together a list of links to UFO pages on the Net. There's a ton of them. Another was for the availability of Internet access in St. Lucia, a Carribean island.

Opportunities

Many people now surfing the Internet as a hobby are becoming cybrarians. The field is wide open because it's still very young. If you're already surfing the Net, there may be a job there for you. Who knows, maybe one of your neighbors is putting in solar and he's reached a bottleneck because he needs information. Right there could be your very first customer. Δ

Pedestrian

*She was awkwardly crumpled
Facedown in the street,
In the rain,
Her skirt up over her waist,
Her umbrella and purse
Separated from her
As if they didn't belong.
She stared unblinkingly at the wet asphalt
While the car that had surprised her in the crosswalk
Was stalled beside her in the roadway
Looking like a beast that had just stopped by to graze.
Far away, sirens wailed.
There was no way for them to know
There was no hurry.
I wanted to do something
To save her from the indignity
Of dying in the middle of the road,
Her ass in the air,
In the rain.
I wanted to close her eyes.
But our bus had come and I got on.
I watched from the window
As the bus pulled away.
A crowd had gathered
To stare at her.*

John Silveira
Ojai, CA

A BHM Staff Profile: Mark S. Cogan

Mark Cogan is the layout and design editor of *Backwoods Home Magazine*, and as such is responsible for the "new look" the magazine has acquired during the past year (1999). He came to BHM from *Wind Tracks Magazine*, the nation's second largest windsurfing publication. Mark has worked as a design consultant and as a web developer for large corporations such as Harley Davidson Motorcycles, Neil Pryde Ltd, the world's largest producer of water sports products in the world, and smaller outfits, like NetServe, Inc., Big Air Windsurfing, and several other lesser known companies.



Mark, 24, is also a part-time college student, majoring in Human Services and Sociology. He will leave the magazine in the fall of 2000 to become a full-time student. His hobbies include playing the trombone, singing Frank Sinatra tunes, and being a camp counselor during the summer.

Using trot lines, set lines, and jug fishing will increase your fish catch substantially

By Rev. J.D. Hooker

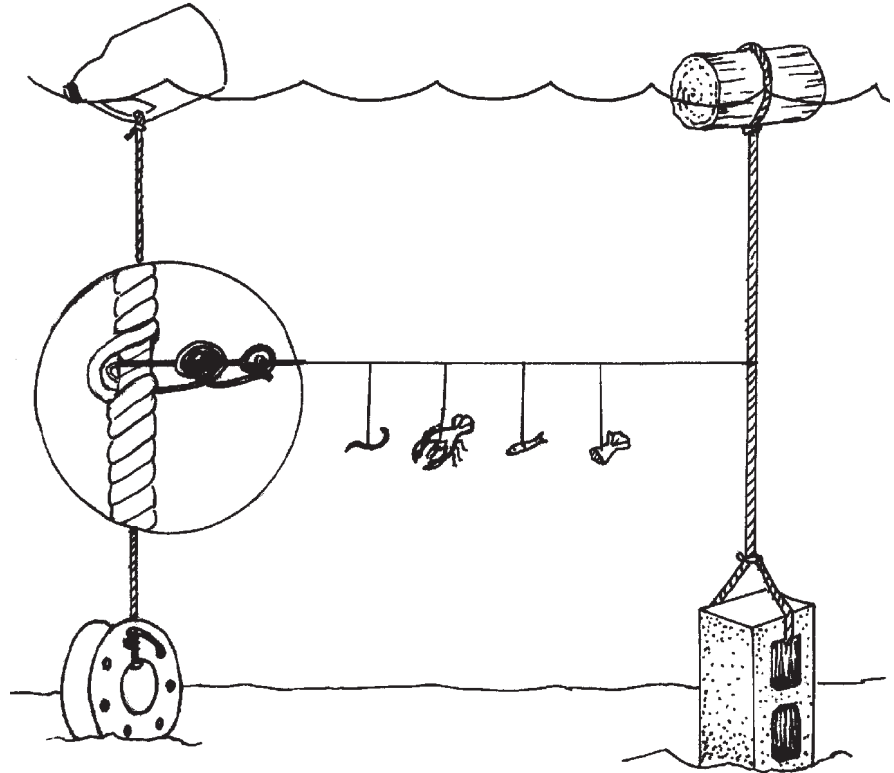
As I write this, it's past the middle of February, so spring's not that far off. Everyone is starting to look forward to the upcoming season change. Garden catalogs are all out by now, and ours are being researched regularly. Also, we've got a few poultry catalogs, and some new plans to go with them. And my wife and I intend to put up a small greenhouse pretty soon.

I'd have to say, though, that the one thing I'm most looking forward to is the ice-out—the day when, finally, all of the rivers and lakes around here are once again open water. Now, it's not a bad thing to sit out on a frozen lake, pulling fish out through holes chopped in the ice . . . especially if you have some good homemade Applejack to drink, and a pipe stuffed with good homegrown tobacco to keep you company. But that's just never been my idea of fishing.

Of course, my idea of fishing is a little different from a lot of other folks' anyway. If you're interested in providing a steady supply of delicious, high-protein, low-fat foodstuff for yourself, with the added bonus of producing a really high-quality supplemental feed supply for chickens, dogs, cats, and other homestead animals, then you might want to give some of my fishing methods a try.

Trotlines

Probably my very favorite fishing technique is using a trotline. Most folks will automatically associate this method with big-river catfish fishing, but the trotline is a highly effective means of taking large quantities of just about any sort of fish, from just about any water. By learning to be real adaptable in regards to baits,



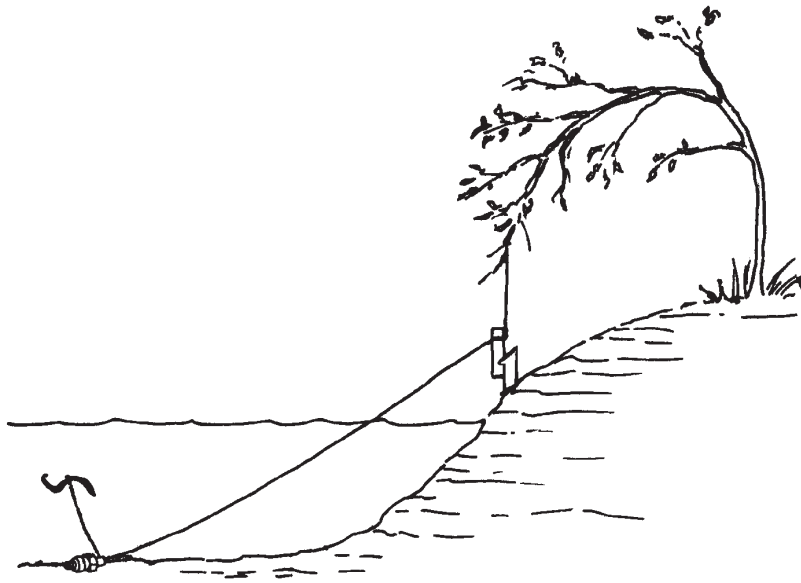
Trotline with a mid-depth set

depths, setting methods, etc., you can see how versatile the trotline can be. In addition to the various catfish and “rough” fish like carp and suckers, my trotlines regularly catch crappie, bluegill and other sunfish, largemouth and smallmouth bass, white and yellow perch, white and yellow bass, bullheads, drum, striped bass, sauger, gar, even walleye and northerns.

The method I use for setting out a trotline may differ a little from that used by most anglers, but I've found it to be the most effective and adaptable way to employ this technique. To start with you'll need an anchor, a float, and enough light rope to reach from the bottom to the water's surface, for each end of your trotline.

If you'll take a look back at my article on making canvas decoys in *Backwoods Home* Issue No. 35, you can see how to put together a simple kelly anchor. For trotline use, these will need to be quite a bit heavier than those used to anchor decoys, probably 15 pounds at the minimum. Other anchor options could include bricks (the kind with holes in them, for affixing the rope), cinder blocks, cement-filled coffee cans with U-shaped pieces of iron re-bar embedded in the cement, junk car rims, and plastic jugs filled with sand or gravel.

For floats you can consider things like empty plastic jugs (never glass), like bleach bottles, antifreeze jugs, milk jugs, and such; empty plastic buckets with tight-fitting plastic lids;



Set line using a sapling, an old spark plug sinker, and a trigger device

boards or sections of logs; two-foot or longer pieces of 4" PVC pipe, with end caps glued on; or just about anything else that will float. Should you have any concerns about punctures, any of the hollow floats can easily be filled with foam insulation. One can of insulating foam (sold at lumber yards and hardware stores) will fill quite a few such floats, and it is relatively inexpensive.

Usually quarter-inch nylon or poly rope is plenty strong enough for this sort of application. I prefer the braided ropes, but the regular twisted type works fine, too. You'll need some stout nylon cord (mason's line works fine), heavy braided fish line, and a large supply of hooks.

You'll also need to check your state's fishing regulations, as just about every state has rules regarding trotline length or number of hooks. In some states, in fact, trotlines are illegal.

Once you've determined the depth at which you'll be setting the trotline (see below), you'll want to attach the nylon cord to one of the ropes, as shown. From there, you'll attach two foot or three foot dropper lines, with baited hooks attached every two or three feet, until you've reached the

desired length. Then attach the cord to the other rope, using the same method.

Effective bait

The depth at which you'll want to set your trotline, as well as the sort of bait you'll choose, will depend upon the water you're fishing and the species you're targeting. Nightcrawlers, corn kernels, pieces of fresh or tainted liver, marshmallows, chunks of Ivory soap, stink baits, or pieces of plug tobacco, fished a foot or so off the bottom, work great for catfish and other bottom feeders. Minnows, crayfish (or peeled crayfish tails), pork rind baits, nightcrawlers or redworms, and similar baits fished at depths from three to fifteen feet will attract many species of intermediate-depth feeders. And frogs (hooked through a thigh so they'll keep swimming), crickets and grasshoppers, salamanders, mice, crayfish, and other baits set right on the surface will bring in top-feeding bass and other surface feeders. If you want, you can set your trotline so that it angles up from the bottom to the surface to cover all three zones.

In most states, the fish and game regulations require that all trotlines be checked at least once every 24 hours. While that will meet the legal require-

ments, checking the set *at least twice* daily will normally produce much better results. I prefer to check trotlines just after sunup, and again right at dusk. It seems like fish left too long on the line are frequently chewed by turtles or other fish before I get to them.

Set lines

The trotline alone can bring in steady and reliable catches when properly located, baited, and maintained. But you can increase your yields by adding several *set lines*, or *limb lines* as they are sometimes called. Again, you'll need to check your state's rules, as the number of set lines you are allowed to use is usually specified. For example, here in Indiana, each person is permitted to use a maximum of 10 set lines. Other states have similar rules.

To rig a set line, affix a length of heavy fishline to a small sapling, overhanging limb, or something else of that nature, which is both fairly strong and relatively springy. Add a baited hook (and a sinker and/or bobber if you want), and toss it out into the water. A simple trigger device, like the one shown, will automatically set the hook and add a little to the effectiveness of this setup, but it isn't absolutely necessary. Used with a heavy line, and maybe a wire leader, the drop line is an effective method for taking snappers and other large turtles as well.

When I decide to use bobbers on some of my set lines, I usually just drill a small hole through a piece of stick, and run the line through this hole, threading an ordinary button onto the line at the desired distance to act as a bobber stop. This allows the bobber to slide down next to the bait, making it a little easier to toss out the line, and then slip back up for fishing.

Set lines are especially useful for folks who don't feel like going out in their boat every day to check on a trotline. They can just as readily be set up

and maintained from shore as they can from the water.

Jug fishing

The third technique that I employ regularly is what's known as jug fishing. I attach a line with a baited hook to some sort of a float and set it adrift. Depending upon the location, I use lines between one and ten feet long.

Usually I set nine or ten such jug lines afloat, just before beginning to check on my trotlines and drop lines. Once I've finished checking these other fishing devices, I round up all of the jug lines. Every fish that has hit the bait solidly will still be "on the line," as these floats will play the fish at least as well as a professional angler with a high-dollar rod and reel setup.

Don't overdo it

When using any of these fishing methods, you do need to be realistic and responsible about what you're doing. Your goal is to bring in a large amount of succulent fresh fillets, but reducing the fish population too far is self-defeating. So just as soon as your take begins to slack off just a little bit, you'll need to move your whole setup to a different part of the lake or river, or maybe even to a different body of water altogether. That way you can return to your original location every year or two and start over.

For me, the real beauty of these fishing methods (except for the jug lines, which I only set out while already on the water) is that these trotlines and set lines are out there working 24 hours out of every day. I might be plowing, feeding hogs, eating breakfast, or playing checkers, but my simple setups are still fishing.

We use every bit of our catch. If you keep any animals that will eat fish, from hogs or chickens to hounds or barn cats, you might want to try feeding them what we call "scrap stew," so you can put all of your fish scraps to use. Just toss all of your fish heads,

A BHM Staff Profile: Muriel Sutherland

Muriel Sutherland is an Administrative Assistant at *Backwoods Home Magazine*. She works part-time, helping with all the activities of the busy office.



She has more than 20 years of experience in office work and is often counted on to get out particularly large mailing projects. She and her husband retired to the Oregon Coast in 1997.

Muriel's hobbies are eating, cooking, reading, knitting, and working at the magazine. She has two children and six grandchildren.

entrails, fins, bones and such into a metal drum set over a fire. Add enough water to cover, and boil until all of the bones are soft enough to be eaten easily. Now, depending on what sort of animals you'll be feeding, add some sort of a thickening agent. For dogs and cats, cracked corn, soybeans (or other beans), stale bread, old cornmeal, weevilly flour, or things of that nature work fine. For livestock like hogs or chickens, chopped hay, freshly mowed grass, bad or cull potatoes or onions, sweet acorns, bad apples or other fruit, and similar waste produce can also be added. Spoiled or surplus milk or other dairy products can also be used up in this stew.

Let this stuff simmer, stirring it once in a while with a board or something, until it's thickened like oatmeal or mush. Then allow it to cool completely before feeding. All of this extra protein will put a really nice healthy shine on a dog or cat's coat, or fatten a pig very nicely, or put a really big boost into your chickens' egg output.

Before you start tossing your catch of carp and other "rough" fish into this kettle, however, you should try putting

A BHM Staff Profile: Nathele Graham

Nathele Graham is an Editorial Assistant at the magazine. She is one of the



happy voices you encounter when you call the magazine on the telephone. Besides waiting on customers, she processes credit cards, fills orders, and assists Ilene Duffy with banking chores.

Nathele has 20 years of experience in the Title Company business, and she brings her experience in dealing with the public to the *Backwoods Home Magazine Bookstore*, where she can be found Saturdays waiting on customers. She also helps take care of the BHM booth at the Curry County Fair.

Her hobbies are Tole painting and knitting. She is married to the magazine's Operations Manager, Ron Graham, and their daughter, Amanda, 9, can often be found playing with the Duffy children in the magazine's Gold Beach, Oregon, offices.

them into your smokehouse for a while, even if you just use an old refrigerator with a can full of damp hardwood sawdust, or ground corn-cobs set on a hotplate. Smoking these fish is almost like working magic, as the fillets will turn from trash-fish into a true delicacy.

If you try any of these fishing techniques, you should see good results right from the start. As you gain experience using these methods in your local waters, these simple and inexpensive fishing methods will become really valuable "working assets." If you enjoy dining regularly on fresh fish, I promise you'll be impressed. Δ

You can make this effective gray water disposal system

By Steve Anderson

One of the things you need to worry about when you build your own home is waste water disposal. Even if you're starting with an outhouse, or installing a gas or composting toilet, you still need to safely carry off gray water waste from your kitchen and laundry. That muddy puddle (and the odor from it) at the end of a pipe run through the kitchen wall gets old fast. We solved the problem with a small, inexpensive, home-crafted tank and drainage system modeled on the big expensive ones.

It took us two tries to get it right ("us" being my son, my nephew, and me). Our first system functioned for about a year before failing. The first hint of trouble was a kitchen sink that seemed to take forever to drain. Finally it just stopped working during spring thaw, when the ground around the drainage system was saturated from snowmelt and heavy April rains.

Once the soil dried out enough for digging, we found a system totally clogged with matter that had the consistency of oatmeal. There were two major problems: We hadn't provided enough drainage—that much was obvious. But it wasn't until my son did a little research that the second problem became obvious. Modern septic tanks have an internal baffle system that keeps solids from getting from the tank into the drain pipe and leach fields. The purpose of the holding tank is to digest those solids before they reach the leach field.

Getting tanked up

We stuck with our basic design, though. The heart of our system is a blue plastic 55-gallon drum that we bought used for \$10. To install the

internal baffle, we cut off the top of the drum, about two inches below the rim. This allows plenty of surface area to re-attach the top with flat metal bracing. This bracing is available (pre-drilled for nuts and bolts) at the hardware store, or you can make your own.

We cut a four-inch hole in the top of the drum for the drain pipe from the house, then mounted a 15-gallon round plastic trash can (with the bottom cut out) on the inside of the lid, so the drain pipe from the house empties through it. This trash can acts as a baffle and keeps all floating vegetable matter away from the drain pipes that exit the drum. The stuff that sinks is kept below the drains, and everything is properly digested by bacterial action before making its way to the drain pipes. We mounted the trash can baffle to the top of the drum with three 90° zinc-plated corner braces. All the hardware is fastened with nuts and bolts after drilling holes through the plastic.

To finish the top, you need to cut another four-inch hole for a cleanout pipe. I used PVC cement to attach a plug at the top that I can unscrew to pump out the tank every few years. This way the system will work for a long time. We used four-inch PVC for this, once again mounting it with corner bracing. A four-inch PVC elbow was mounted to accept the drain pipe from the house.

You may be wondering why we designed this so we had to bury the drum standing up. Well, we learned from our first try: Yes, it required less digging to lay the drum on its side, but the weight of the earth collapsed the area of the drum above the drains.

Before putting the top of the drum back on, we cut two four-inch holes



The tank is in the ground with gravel laid underneath the drain pipes. Use plenty of gravel for proper drainage.

for the drain pipes 180° across from each other. These were cut just an inch or so below the seam joining the top and the side of the drum, so they are well above the bottom of the interior baffle. After the top was re-attached, and all the PVC installed, we applied generous amounts of 50-year silicone caulking wherever PVC goes through the tank. We didn't worry too much about a little leakage, because we dug our hole so we could get a generous foot or so of gravel underneath the tank, and four to six inches of space around it for the same treatment. Any leakage from the tank will simply drain through that, and leach back into the soil.

Laying the groundwork

As mentioned earlier, our first attempt at this project didn't provide enough drainage. We weren't going to make that mistake again. We dug two eight-foot-long trenches for perforated PVC drain pipe. We dug them deep enough to get eight inches of gravel underneath them. The whole system is deep enough so we don't have to worry about freeze-ups. The trenches are generous in width also, about 18

inches wide. The boys did the digging, and they were determined to get it right. They both thought doing it twice was enough, thank you very much.

If you're not sure about the drainage capacity of the soil, do a percolation test. Dig a one-foot-diameter hole two feet deep and fill it halfway with water. If there is still water in the hole an hour later, the soil is not suitable, and you need to pick a different spot. (You *could* construct a drainage bed with at least two feet of cracked stone underneath your drain pipes. I'd find another spot.)

We wanted good, clean gravel to use for the drain bed. The first time, we had used a sandy, stony mix that barely qualified as gravel. The problem was, we didn't need very much, and around here it's very hard to get as small a quantity as a couple yards of gravel delivered. But we found a solution, which I will describe. Without digressing too much, I'll admit that I'm a hardware store junky. A positive aspect to that is I probably know the inventory better than some of the sales help. I won't go into the negative aspects, except to say they usually involve spending too much money.



Tank with cleanout pipe mounted, hay in place, ready to be covered. Note generous amount of caulking around base of cleanout pipe.

But I had spied a pallet of about twelve bags of landscaping marble chips off to the side at one of the local stores (or "Dad's hangouts," as the kids call them). Since it was well past spring landscaping season, I was able to make a good deal on the whole batch and got out of it cheaper than if I had been able to find someone to deliver a yard of clean gravel. This went under the drain pipes, and six inches of hay went over them. The hay is to keep soil from filtering down and plugging the drains. We used what was left over of the old gravel to go around and under the tank. Then we covered the whole thing up. Later that fall, I went back and filled in the spots that had settled.

Venting

Septic tanks are designed to work with air and bacteria to digest solids into sludge. This greatly reduces the volume of the solids in the tank. A properly working system only needs to be pumped out every five years or so, depending on the number of people living in the house. You need to vent your system so the air outlet is above all the drains. My vent runs off the drain pipe under the sink (on the tank side of the trap), through the wall, and up the outside wall almost to my eaves.

The system described in this article has been in place for almost two years now and is working fine. There have been no back-ups or freeze-ups. To be perfectly honest, the kitchen sink does drain slowly when the ground is saturated in the spring. (By that I mean the sink is empty by the time I'm done wiping everything down after doing the dishes.)

A couple of rules

We also have a couple of hard and fast rules regarding the sink: Always make sure the drain basket is in the drain—always. I figure the more material I can keep out of the tank, the

Materials & costs	
Tank	\$10.00
4" PVC elbow	3.99
Cleanout pipe & cap	4.99
8 corner irons	4.18
Caulking	4.99
Two 8' perf. drain pipes	11.90
Gravel	12.00
<u>Misc. hardware</u>	<u>3.00</u>
Total	\$55.05

longer it will be before I have to pump it out. Never let meat products (grease) into the sink. Coagulated bacon grease and other animal fat won't digest, so I try to keep it out of the system. Every now and then I dump in a half bottle of beer or so to keep the whole thing percolating.

If you're going to be successful at living independently, you've got to be willing to live by the old adage, "If at first you don't succeed, try, try again." Everything just isn't going to work the first time you try it. You don't become a jack of all trades overnight. Even doing this thing twice only cost us more labor and time. And you've got to learn from your mistakes.

Our second attempt is working fine, but if I had to do it again I would make it even better: I'd put in another drain pipe. I couldn't get the boys to dig that third trench. They swore two was enough, and so far they're right. And I'd look for stainless steel hardware—I'm not sure how long the zinc-plated stuff will last. You could also spend more and have each and every one of those holes through the tank waterproof, but all the fittings for that aren't cheap.

And there you have it: an inexpensive, safe, effective disposal system for gray water wastes for about \$50, even if you have to go out and buy everything. I don't have more than \$25 in mine. I had a lot of the stuff around before I started. It pays to be kind of a packrat. Δ

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No 41

Backwoods Home

SPECIAL HARVEST ISSUE

magazine

INCLUDING

practical ideas for self-reliant living

using green tomatoes, tasty pickle recipes, harvesting greens in the snow, corn storage, pressing cider, homestead dehydrator, making your pectin, keeping apples, harvesting all year, cover cropping, sheet composting, using leafmold, storing onions, delicious meals from stored veggies

Solve Chinking Woes
Care for Orphaned Kittens
Homeschooling Tips
Southern Cooking
Gourmet Venison



\$3.95 US / \$5.50 CANADA

BULK RATE
U.S. POSTAGE
PAID
RIPON COMMUNITY
PRINTERS

My view

The “Leave Us Alone” coalition

Ever notice the way the news media and big government seem to work together, both at the national and local level?

At the national level it’s fairly obvious: If President Clinton had been anything other than the big-government Democrat he is, the media would have deep fried him long ago over things like Whitewater, Travelgate, Filegate, Vince Foster, Paula Jones, Web Hubbel, Guy Tucker, the MacDougals, or any of his other friends who are either under indictment, on trial, or in jail. Imagine a Ronald Reagan surviving a portfolio like that?

But on the local level the collusion is much more subtle. I picked up my local newspaper this morning and read one of the main front-page headlines: *Property tax jump unlikely*. The slightly smaller subheadline read: *Assessor says values level off*. The prominently-displayed story was essentially a feel-good piece about the local tax assessor’s office because he was not only not going to raise taxes, but he was going to lower some people’s taxes a little. Wow, what a guy!

The same newspaper a week ago prominently featured a list of county services that would be cut unless voters passed two upcoming ballot tax levies. Ominously, libraries and fire services were at the top of the list. I couldn’t help but link the two stories—you know, since they’re giving us a break on property taxes, we should pass the two levies and save the libraries and fire stations.

But I’m probably just paranoid. After all I’m a right wing, knee jerk, mean-spirited conservative who could care less about libraries and fire stations, not to mention children, old people, and anything else big government taxing and spending is meant to help.

Buried inside today’s newspaper is a story I consider important: *Taxpayers’ bill passes in Senate*. The subheadline reads: *Legislation aimed at abuses of IRS*. The story is about legislation passed overwhelmingly by both houses of Congress to make it easier for taxpayers to sue the IRS for wrongful collection of taxes. The story termed the bill a “Taxpayer Bill of Rights” and listed all kinds of ways Americans could legally tell the IRS to take a hike. But I guess the newspaper didn’t think that story very important, so it played it down by placing it inside the paper.

You know, I’m sick of the way the news media tries to feed me the news. They either ignore or play down stories I think are important, and they put on the front page news stories I often think are self serving to their big government allies in politics. From my local newspaper to national television news, they filter it through their own narrow big government-is-the-solution-to-everything prejudice. Did you know that more than 85% of the members of the news media admit to being liberals or Democrats? I suppose it’s only natural for them to think big government is the solu-



Dave Duffy

tion to most problems. They probably can’t begin to comprehend that someone like me just wants to be left alone, that I pay my property taxes grudgingly and think they should be abolished altogether, and that I think most tax levies are a waste of money, even the ones the lying (or stupid) news media claim are the only way to keep the libraries and fire stations from closing.

I am a member of that newest huge coalition that has emerged in America during the last few years—the “Leave Us Alone” coalition. We’re made up of people with differing opinions, but what we share in common is we don’t like big government with its tax and spend solutions, and we don’t trust the news media which has become little more than the mouthpiece of big government.

And as many members of the “Leave Us Alone” coalition have done, I’ve begun not only resisting all attempts by big government to control my life, but I’ve begun turning off the news media and turning to alternative methods of getting news. For example, I have cancelled my subscription to my local newspaper and have stopped listening to most national television news.

Instead I rely on several good newsletters and radio shows, but in particular I rely on the relatively unfiltered versions of news found on TV’s C-SPAN network and the comprehensive news CNN offers over the Internet on its World Wide Web page. Even though CNN still arranges news selectively on the Internet, it’s easy to rearrange the news according to my own view of what’s important, and it’s easy to dig deep into a story, getting all the detail I want, even to the point of going right into a politician’s email basket and telling him what I think.

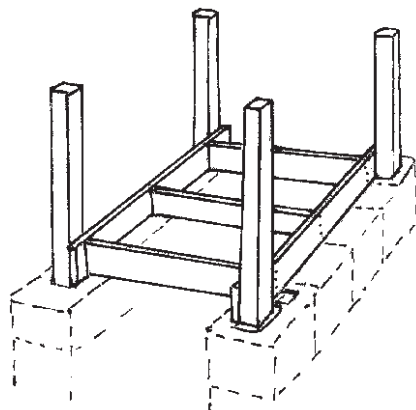
The Internet, I think, is emerging as the greatest freedom tool of the twentieth century. No wonder big government is already making noises about controlling the Internet to save-get this—the children from pornography. What a laugh. Who they really want to save is—you guessed it—they-selves. Δ

For large quantity food dehydration try this homemade gem from the past

By Rev. J.D. Hooker

The thing I like the most about *Backwoods Home* is that, unlike a lot of other magazines, the articles are written by folks who are actually doing the things they write about. Folks like Massad Ayoob, Don Fallick, and Dynah Geissal have already learned their stuff by trial and error, which can save the rest of us the time, troubles, and expenses of initial experimentation. It's good to fool around with new ideas, but we can use other folks' experience as proven starting points, and then adapt our own ideas and improvements into their concepts. As an example of building on someone else's experience, let me tell you how I ended up building the perfect large-quantity food dehydrator.

Since our garden, fruit trees, strawberry patches, etc., have always produced abundantly for us, we've worked at developing the skills to preserve this abundance from one harvest to the next. Canning and freezing only go so far, so for a couple of years we



2. Install supports for trays.

fooled around with various types of dehydrators. The relatively inexpensive Ronco brand electric dehydrator we purchased at an area gun show works great for *small* quantities, and we find it very useful for that.

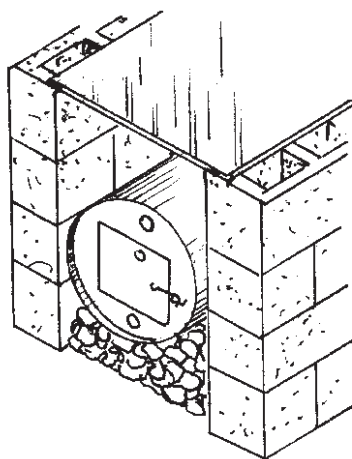
However, solar dehydrators turned out to be an entirely different story. I can tell you from experience that unless you're living somewhere like one of our southwestern deserts, where you can depend on plenty of hot, dry weather for lengthy periods, solar dryers (whether purchased or owner-built) just aren't dependable enough for real backwoods-type use. As a result, I fooled around with several other ideas, but none of them worked out to our satisfaction.

I might have given up on the idea entirely had it not been for the intervention of an elderly friend whose family has owned and operated an apple orchard for several generations. Not only did this gentleman show me more than I'd ever thought of knowing about apple varieties (best choices for eating, baking, sweet and hard cider, applejack, etc.), but he also showed me what was left of the big

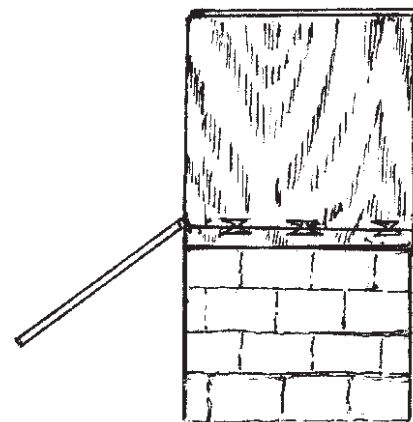
wood-fired fruit dryers that his father and grandfather had used in the days before electric refrigeration, large commercial canneries, and such. While he explained how they were used, we looked them over. Remembering from his early youth, he also told me how his family, and other large commercial growers, would dry many tons of fruit every year. Demand always outran what they were able to supply.

Though the dryers on his property had pretty much fallen apart from years of decay and neglect, some simple measurements showed me that, when up and running, each one would have been easily capable of holding 30 bushels of produce. He assured me that regardless of the weather conditions, 24 hours was the maximum drying time, even for the juiciest fruit.

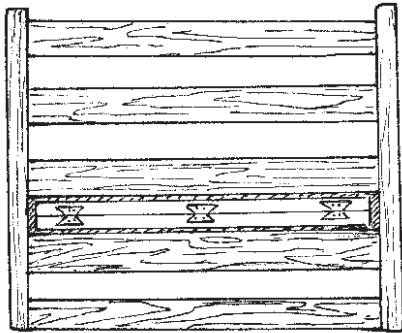
Although 30 bushels seemed much more than we'd ever need to dry in one shot, it was easy to see how such a simple wood-fueled dehydrator could be built in practically any size. There was a heat source at the bottom with interchangeable drying trays



1. Dry-stack block to make three walls. Rest the barrel on a bed of stones. Set 4x4s in the corners and sheet steel on top.



3. Cover three sides with plywood, hinged for access.



4. Leave openings in the fourth side for inserting and removing trays.

arranged over it, with eave vents and a sort of cupola vent on the roof (kind of like what you see on many older barns) to allow the rising warmed air to carry away the moisture from the drying fruit. I later learned that on cool nights, you can watch the vapor escape from these vents.

After tossing this idea around for a while, and fiddling with some figures to come up with a size more appropriate for our own use, I built a scaled-down version of those commercial dryers. Now, about 15 years later, it's still serving our family's needs perfectly. This simple design is so readily adaptable that you can include your own modifications to adapt it to your needs. So, while I'm going to detail the design that I used, remember that you can change practically any of the details and techniques to suit your own requirements and resources.

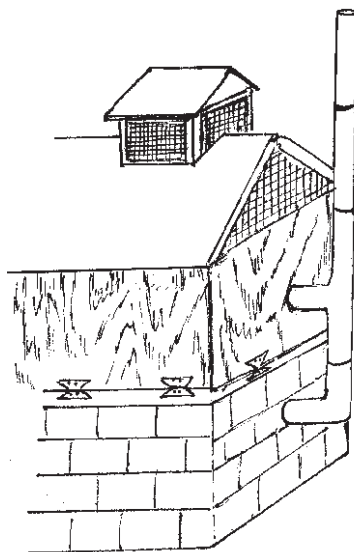
First of all, since I'd already located a reliable source for free, empty 55-gallon steel drums, I decided to build a simple barrel stove for the heat source. Laying the drum on the ground, I stacked extra-wide (16") foundation blocks around three sides of the drum, fashioning three unmortared walls, two blocks taller than the drum. Next, I filled in the area between these block walls with ordinary field stones to the level of the top of the first row of blocks, so as to keep the stove up off the ground.

I dropped 4x4 timbers into the hollows of the corner blocks and fashioned a wooden framework to hold the drying trays. On three sides of the dehydrator, I used half-inch CDX plywood to close them off completely. However, each piece is hinged at the bottom, being held shut by hook-and-eye fasteners at the tops, to allow for easy access for cleaning after each use. On the fourth side, I left openings similar to those of a chest of drawers for inserting and removing the drying trays.

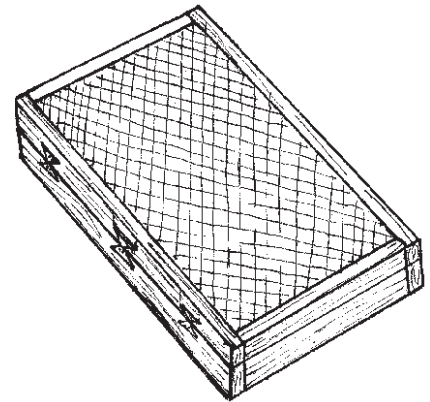
I built the trays from 1x3s and the lids from 1x2s. I used hardware cloth for the tray bottoms and metal window screen to cover the tops, which are fastened to the trays with hinges. I also used metal window screen to cover the eave and cupola vents to further prevent any possibility of insect damage. I used painted canvas for the roofing material (as covered in the May/June 1996 issue of *BHM*).

Note: Since this will be used for food processing and there is heat involved, you should not use pressure-treated lumber and avoid lead-based paint.

I used a hammer and cold chisel to cut an eight-inch-diameter hole in one end of the drum for fitting a stovepipe,



5. Install roof, vents, and stovepipe.



6. Hinge lids to trays.

and I cut a square access door in the opposite end. I used cheap hinges and sheet metal screws to reattach the square of metal removed from the door opening, along with a simple hook-and-eye to hold this door shut. This works just as well as the door provided with a purchased barrel stove kit; it just doesn't look quite so pretty. Adding a damper in the stove pipe, and being able to remove or reinsert either or both of the original barrel plugs, allows for heat control.

The most expensive part of this whole setup (and it didn't cost that much), was a piece of 1/8" steel cut to rest on the inside two inches of the top of the block wall. This creates a *much* more even distribution of heat, and the extra width of the block wall keeps the heat just far enough from the wooden outer walls.

In use, you'll need to rotate the trays every couple hours or so. Just remove the top tray, setting it aside for a moment, and raise each of the remaining trays one position. Then take the tray you'd removed from the top, and reinsert it in the lowest position. It's also necessary to keep a low fire going inside the stove during the entire drying process. During the day, we work in shifts, adding dry corn cobs and keeping the draft regulated as required. Then towards bedtime, we load the stove up with large, unsplit,

only-partially-dried logs (remember, this is out-of-doors, not inside your living room, so a chimney fire isn't a major problem) and damper the stove almost all the way down. At least two or three times during the night, one of us will get up to go out and reshuffle the drying trays.

Usually we begin the drying process early in the morning. That way, by the time we're up and about the next morning, the dehydration process is normally completed.

Generally, we use dehydrated fruits and vegetables in one of two ways. There are plenty of other methods for using dried foods, but these two are our family favorites. The first method is simply to reconstitute the dried food by soaking it in water overnight, then using it in exactly the same manner as frozen food, in any recipe. This tastes a little better than using frozen fruit or vegetables, but otherwise you can't really tell the difference. The other method we like is to run the thoroughly dried food through our hand-cranked grain mill, producing pumpkin, potato, and other specialty flours, as well as apple, tomato, carrot, onion, and other "powders," which are terrific cooking aids.

Remember, you can vary the size, construction techniques, materials, and so forth to customize this design to fit your own circumstances. For example, you could build a really large masonry firebox, or use a smaller 30- or 15-gallon drum, or even an inverted washtub, for the heat source. You could substitute dowels, laths, or sticks for the trays, if you'll only be making jerky, drying fish, and such. Or you could make any number of other customizations. So whatever your food storage needs might be, a similar wood-fueled dehydrator could prove just as perfect for you as ours has for us. Who knows, you might even find that there's a market in your area for some of your delicious dried fruit. Δ

Cracking walnuts—"almost fun"

By Lydia Mayfield

Uncle Tol would never use any of the wonderful black walnuts that grew along the creek on his farm. He said a man would starve to death picking out the meats, and besides that, the bits of black hull that always got mixed up with the nut meats could poison him. That was before we got an old conventional washing machine and a commercial black walnut cracker. We already had an old hand corn sheller. Now getting the meats out of black walnuts is almost fun. Even Uncle Tol helps pick them up. This is the easy way to harvest black walnuts.

As soon as the walnut hulls are black and dry, hull them with a corn sheller. Sometimes it is best to run them through two times. Then fill the washing machine with cold water and

wash them. Put in only a half bushel of nuts at a time, and wash them at least a half hour. The tumbling takes off all of the black hull. When you take them out, rinse them in cold, clean water and lay them out to dry. The water in the machine has to be changed frequently.

When the nuts are thoroughly dry comes the cracking. For this you can use any of the manufactured crackers on the market. All of these crackers crush the shell and allow the meats to fall out in large pieces, mostly quarters. There will always be a few meats left in the shell that have to be dug out with a pick, but for the most part the nut meats need only to be picked out from the shell, and there is no bitter hull left. It really makes picking out black walnuts almost fun. Δ

Keep your onions fresh... with panty hose!

By James Robertson

If you enjoy onions (like I do), then you probably enjoy eating fresh onions throughout the winter. The problem is keeping them fresh for long periods of time.

I have found that the best way to keep your onions is to put them in panty hose.

Panty hose?

Yep, you take a pair of panty hose and cut off the top part. Then put an onion all the way down into the end of the foot and tie a knot in the hose just above the onion. Put the next onion down on top of the knot and tie a knot just above that one, and so on. Hang the filled panty hose up somewhere cool and dry, and the onions will stay absolutely fresh.

What you're doing is keeping the onions from touching each other,



thus eliminating the main cause of onions going bad.

You're also putting some extra miles on those old panty hose before they have to become part of a land-fill somewhere. Δ

Pectin — You can rely on the grocer, or you can learn to make it yourself

By Rev. J.D. Hooker

It's difficult for most of us to realize that a lot of the things we take for granted today were unavailable not all that many years ago. Yet our ancestors seem to have managed just fine without them. As just one example, the vast majority of even the most independent-minded modern homesteaders would be pretty hard pressed to put by all those jars of delicious homemade jams, jellies, preserves, marmalades, and fruit butters, were it not for the ready availability of commercially produced powdered or liquid pectin, sold for home canning.

Yet my wife learned from her grandmother (more years ago than she'll admit) that such simple products didn't even exist until relatively

recently. And no one ever noticed the lack of such a basic "necessity." Still, today, none of the women in her family ever bother with any of the various brands of "store boughten" pectin, relying instead on the following recipe, which has been verbally handed down through the female side of her family tree for longer than anyone can remember.

Place 10 pounds of stemmed and quartered (but unpeeled, and not cored) green apples into a large stock pot. Add water to cover, and bring to a full, rolling boil. Reduce the heat, cover the kettle, and simmer until the fruit is very soft (approximately 30 to 45 minutes). Using another pot to catch the liquid, strain the fruit through a jelly bag, allowing the fruit in the bag to continue to drain overnight. The next day, boil down

this liquid (approximately three quarts to begin with), until only two cups of liquid remain. Store in tightly-closed canning jars. Use this home-produced pectin exactly as you would regular grocery store type liquid pectin, in any recipe.

You won't save a whole lot of money by producing and using your own pectin, since even the most expensive name brand fruit pectin is pretty cheap. But making your own pectin for home canning uses will let you have some fun, while providing a use for many of those apples that fall off your trees before ripening. It may also allow you to feel just a mite more independent, and most importantly, allow you to simply laugh off any future supermarket shortage on canning supplies. Δ

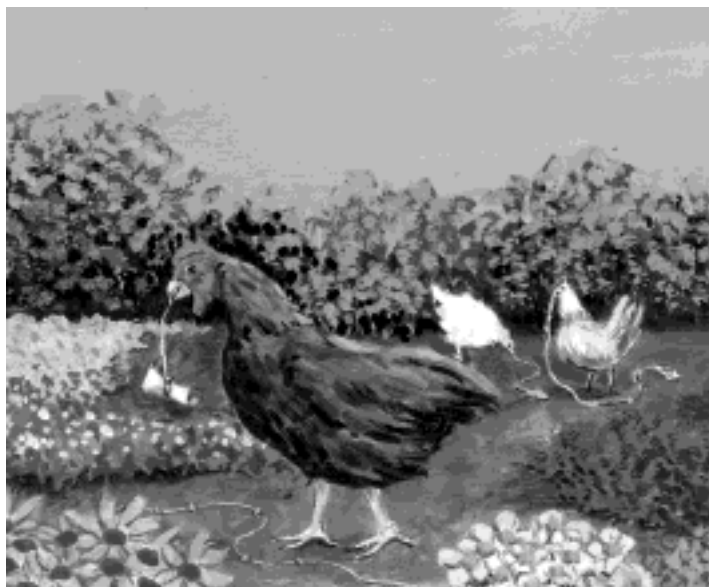
A few strings attached

By Marcia Brown

Grandma's pride and joy is three acres of flower gardens surrounding the family farmhouse. When a neighbor's game chickens began escaping from their pens and invading Grandma's carefully tended flower beds, she was frantic. These birds ate seeds and small bedding plants and even damaged shrubs.

Pleas to the marauders' owner brought effusive apologies but no fence mending.

One morning after Grandma discovered her seed beds destroyed once more, she wrote something with fierce strokes on several pieces of paper. She then threaded yellow corn on long pieces of



string, and to each end she tied one of the notes.

Shortly, several game chickens returned to her garden, eagerly gulping down the strings with corn and then running off with notes dangling from their beaks. That was the last we saw of invading game chickens.

"Grandma," I asked later, "did you write something rude about those birds?"

Her blue eyes twinkling, she replied, "Oh, I just invited their owner over for a few meals of exotic chicken—roasted, barbecued,

and fried—and gave the dates!" Δ

Those leftover fall tomatoes are a delicious bounty that should be put aside for the future

By Alice B. Yeager

Photos by James O. Yeager

Some of us were brought up on stories of frugality and the merits thereof. You know, like the tale about the ant and the grasshopper. We were also introduced to bits of wisdom such as “Waste not, want not,” “A penny saved is a penny earned,” and so on. Not a bad way to go in this day of maxed-out credit cards, inflated prices, and other financial obstacles.

Gardeners are for the most part a thrifty lot. Maybe that’s why we hang on to our old garden tools and try to get the most out of the plants we grow as long as there’s hope for more yield. We appreciate vegetables fresh from our own gardens, and there’s the fringe benefit of mental satisfaction in knowing we can grow our own produce. You might call it an independent-living kind of pride.

Among my seed selections each year are several varieties of tomatoes and peppers. (Perusing seed catalogs is a great winter pastime.) I compare prices and shipping costs, taking note of recommended growing zones. I am particularly interested in plants that “will do well under hot, humid conditions.” This describes summers in Southwest Arkansas—Zone 8. It tells me that these plants are more likely to survive summer and produce a fall crop.

Later comes the spring work of soil preparation, transplanting, etc. After all of the effort put forth, I want to see healthy plants that produce as long as possible. Lack of water at the height of their production is one of the main reasons certain plants fail to survive to produce well in the fall. All that is needed is a little TLC to bring them through summer’s dry spells. Plants need watering when drought conditions prevail, but the time spent watering

can be reduced if a thick organic mulch is put down to help retain moisture in the soil. I like to use a mixture of leaves, pine needles, twigs, etc., as leaves alone tend to mat. These things add nutrients to the soil as they break down, and a good mulch also discourages weed growth. Earthworms will move in to till the soil and keep it pliable *if* they are not discouraged by the use of chemical fertilizers.

When the end of the gardening season is in sight, many of us think it downright sinful to let the bounty go to waste that is still being produced. Cool fall weather often brings out the best in plants that have endured summer’s heat. Tomatoes take on a special zest. Bell peppers taste sweeter. The downside is that everyone has had their fill of tomatoes and peppers, and no one is enthusiastic about going out and gathering more. This is when a frugal conscience kicks into gear. Why not put more aside for the future? Home-canned vegetables are always in demand, for church suppers, gifts, and so on. Who knows what the next gardening season will be like? There may be an onslaught of Japanese beetles, too much rain—all kinds of negative things. Think about unpleasant winter days when it’s nice to be able to avoid the supermarket. Surplus tomatoes, as well as other vegetables, can help stock a pantry with nutrition. (It’s the ant and grasshopper story all over again.)

Plenty of jars of stewed tomatoes sitting in a pantry will

not only be useful for soups, spaghetti sauce, Mexican dishes, etc., but they will cut down on the grocery bill. (See recipe below.) There’s a world of difference between the taste of home-canned tomatoes and those that come from a metal can.

If frost threatens when vines are loaded with green tomatoes, the tomatoes nearest maturity may be laid on straw to ripen in a cool room (with no direct sunlight). These



Try stocking your pantry with some stewed tomatoes (red jars) and green tomato relish, or “fish pickles” (green jars).

fruits may not have the taste of the summer crop, but they'll be better than the ones at the supermarket. The small green tomatoes don't need to go to waste, either. Down South we turn green tomatoes into green tomato relish, that delectable mixture served at our catfish restaurants, as well as at home. We call them "fish pickles." (See recipe.)

Fried green tomatoes are now famous, thanks to the title of a recent movie. If you haven't actually tried this southern recipe, you are missing a real culinary treat that's not at all hard to make. This side dish probably originated as a product of necessity, but like so many others, it has become a favorite on our menu. Medium-size green tomatoes barely showing a tinge of red are best for frying. (See recipe.) Remember, don't knock it if you ain't tried it.

There are plenty of ways to turn late summer's produce into something delicious. Some of the best ideas come from books published by companies manufacturing canning supplies— Ball, Kerr, Mason, etc. Some books may be had for a small fee and others are free.

Be an ant—don't let that fall crop go to waste.

Stewed tomatoes

1 gallon ripe tomatoes
2 cups onions, coarsely chopped
1 cup celery, coarsely chopped
1 cup sweet peppers, coarsely chopped
1 Tablespoon sugar
2 teaspoons salt

Wash all vegetables before using. Scald tomatoes in boiling water about one minute so that skins may be removed easily. Quarter tomatoes and then measure to be sure of correct amount. Mix all ingredients together in a stainless steel or porcelain pot. (Do not use aluminum.) Bring to a boil and simmer ten minutes. Stir occasionally to prevent sticking. Pour mixture into hot, sterilized jars and process in canner. Pints require 15 minutes and quarts 20 minutes at 10 pounds pressure.

Remove jars from canner, cover them with a light cloth, and let stand in draft-free place for several hours or until cool. Check to see that all lids are down or stay down when



*Don't let green tomatoes go to waste.
Try making green tomato relish
or fried green tomatoes.*

pressed. Jars with lids that have not sealed should be put in refrigerator and contents used within a few days.

Green tomato relish (Fish pickles)

2 gallons green tomatoes cut in bite-size chunks
1/2 gallon sweet peppers, coarsely chopped (use both green and red)
1/2 gallon white onions, coarsely chopped
10 Jalapeño peppers cut in rings (optional)
3/4 cup salt
8 cups sugar
1/2 gallon apple cider vinegar
1 Tablespoon crab boil OR pickling spices
1 teaspoon whole cloves

Put vegetables in a large stainless steel or porcelain container. (Do not use aluminum.) Sprinkle with the salt

and let stand about three hours. Drain well. Do not rinse.

Dissolve sugar in vinegar and bring to a boil. Put spices in a clean cloth bag or large stainless steel tea ball and add to vinegar. Add drained vegetables and simmer until all are hot throughout and onions are clear. Remove spices. Pack mixture into hot, sterilized jars and seal. Cover hot jars with a light cloth and let stand in a draft-free place for several hours or until cool.

Fried green tomatoes

4 medium-size, firm tomatoes—
green with just a tinge of red
1 large onion
1/2 stick oleo OR butter
Salt and pepper

Thinly slice onion and fry in oleo until tender. Remove from pan and reserve to put over tomatoes. Slice tomatoes in 1/4-inch thick slices and fry in oleo about 1 1/2 minutes on each side. Sprinkle with salt and pepper while cooking. Remove from pan, place on serving dish, and cover with reserved onions.

Another version: Dip tomato slices in your favorite batter and fry. Batter may be enhanced with the addition of dried herbs such as sweet basil, thyme, etc. Δ

Apple-dapples — fun to make and even more fun to snack on

By Linda Gabris

One of my favorite memories of growing up was in autumn, when Grandmother's cozy kitchen was filled with the tangy aroma of apple. We'd sit at the table in front of the crackling wood stove with spools of string, threaded needles, and a bushel or two of washed, sorted apples ready for drying. While Grandpa cored and sliced, Grandmother and I strung apple rings into long, dangling chains ready to be hung from the ceiling behind the stove.

Today, I sit at my own kitchen table with my children, and we string fra-

grant apples in the same old manner as we did way back when I was a child. It's not only a fun family activity, but also a great way to use up your surplus apples. Dried apples, or "apple-dapples" as we still fondly call them, are one of my family's favorite snack time treats.

In my younger days, favored apples such as Macintosh, Spy, and Golden Delicious were stored in the root cellar for hand eating over the winter. Only bruised, overripe, or less sweet varieties, like crabapples, were strung and hung. Today, I dry whatever bountiful variety our trees offer, and I have found that even the tarest, sourest apple becomes a gem when dried.

After hours of singing, stringing, and hanging, the wall behind the kitchen stove is curtained in fragrant apples. The strings of apple rings will normally hang for about five to eight days, depending on the temperature of the room. But they can hang for an indefinite period with no harm done. The apples are ready when they are shriveled and leathery brown.

When the apples are dried, we cut them down and unstring the rings into gunny sacks to be stored in the attic for winter use. Apple-dapples are hard to resist, so you better hide a sack or two in the rafters for safe keeping as I do, or the kids will have them all eaten up before you know it.

On snappy winter evenings, we fetch the tin Chinese checker board out onto the kitchen table and herd our marbles into their corners. On such special occasions, I will bring down a heaping bowl of apple-dapples for nibbling while we take turns



jumping our marbles across the board. Those who can't keep their fingers out of the dapple dish will likely end up on the losing side of the board. A little dish of apple-dapples can also make homework time more pleasant.

At the first hint of a winter cold, I do as my Grandmother would have done: I quickly steep up a handful of dried apple rings and a few whole cloves in boiling water. Strained and sweetened with honey, it's a favorite medicine that never needs any coaxing. Sometimes I think that my kids can conjure up a cough or a sniffle at the mere thought of this pleasing drink. After a brittle day's worth of outdoor chores, dried apples steeped in boiled red wine and sweetened with lots of brown sugar are a sure cure for chilblains.

I use wonderful dried apples in desserts all winter long. They are great added to rice pudding and served with hot nutmeg milk. Another favorite is stewed dried apples served with buttered scones. Dried apples are as popular in my recipes as raisins or chocolate chips are in most kitchens. Although my family enjoys dried apples in many ways, I'm sure our very favorite way is apple-dapples right off the string. What a delightful, tart, chewy treat.

And when my kitchen is filled with the autumn aroma of drying apples, it fills my heart with beautiful memories. Δ



It's easy to build your own milking stanchion

By Janell Henschel

A few years ago, my husband and I purchased two F-1 heifers to add to our commercial beef herd. One of the calves was a Hereford-Jersey cross we named Rosey. She was very friendly from the start, and as her calving date drew near, it was obvious she was destined to become a family milk cow.

I began to purchase supplies in advance so I would be ready to milk my first cow. I bought udder wash, sponges, udder cream, a milk bucket, etc., etc. But where was I going to milk her? I didn't have a stanchion, and I couldn't locate a used one. Rosey's calf was due in a week and I was getting desperate. We had lumber left over from a project we had been working on, so I decided I would build my own. It turned out to be the easiest thing I've ever built.

Locate your stanchion in a well-lit area of your barn, especially if you don't have electricity. Using an existing space on a wall would be best: you will have one less post to buy, your cow won't be able to move away from you, and your stanchion will be sturdier.

Materials:

- 1 or 2 - 6" x 6" x 8' posts (2 if you don't have an existing post)
- 3 - 2" x 6" x 8' boards, cut in half to make 6 four-footers
- 4 - 2" x 6" x 6" blocks from scrap (or buy 2 - 8' boards and 1 - 10' board and cut your blocks from it)
- A handful of nails (about 30)
- 4 feet of baling twine or light rope
- 1 brass snap
- 2 sacks of redi-mix concrete
- 1 tie ring with a heavy wood screw on the end

Set your posts two to three feet deep in concrete, four feet apart measuring from the outside edges. Make sure they are level and even. Refer to the diagram for measurements and order of construction. You will want your movable vertical board nearest to the wall or on the off side of the cow. Nail it with one nail only to the lower horizontal board, centering the nail. When you nail the outside horizontal boards over the vertical boards, nail at the ends only. If you nail through the vertical boards, your moveable board will not move freely. Tie a loop in your twine or light rope and place over the end of the moveable board. Tie the brass snap to the other end, adjust for the comfort of your cow, then snap to the tie ring that has been screwed into the post.

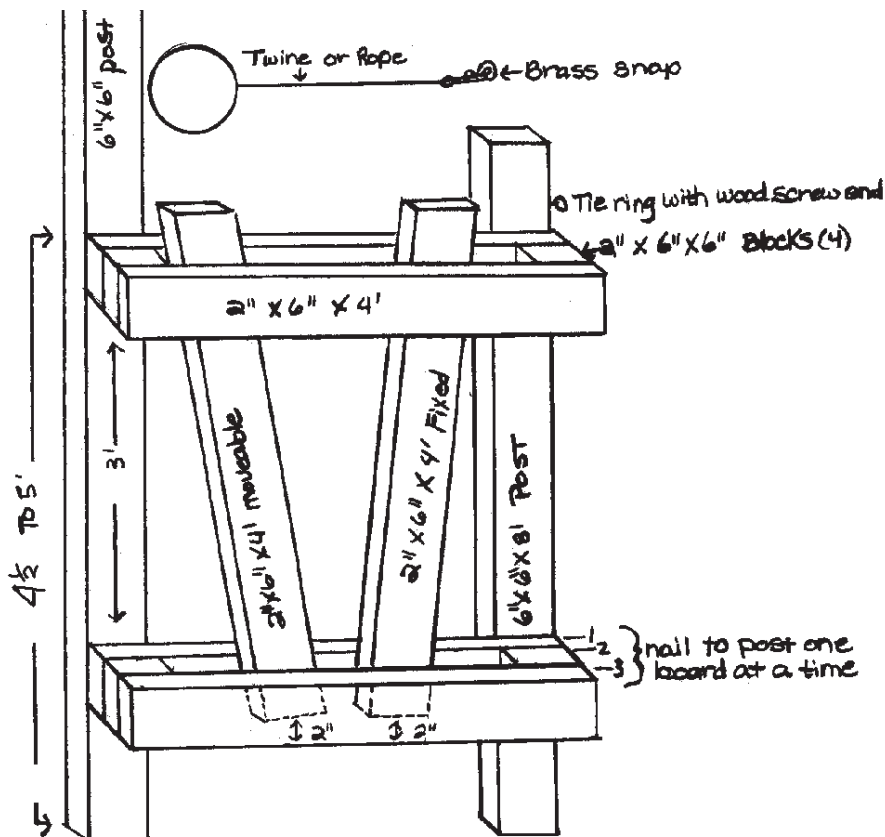
You should have some kind of non-porous floor for your cow to

stand on. A cement pad, rubber mat, or even a piece of plywood will work. If you use plywood it must be kept dry or it will be very slick.

If, after building the stanchion, your cow still won't stand, there may be something bothering her. Check the udder for cuts, scrapes, bruises, flies, and fly bites. Use bag balm to help heal and prevent the flies from biting.

For a cranky cow that likes to kick, you can purchase cow hobbles or a stop-kick device from your local feed store or supply catalog.

If you can find a used portable milking machine at a reasonable cost, this may be your answer. After all is said and done and your cow still won't stand, your only other option is to sell her. There are plenty of good family milk cows available that would be a pleasure to own. Δ



You can make delicious meals all winter with stored vegetables and dried spices

By Jennifer Stein Barker

Having a root cellar, attic, and pantry full of stored vegetables and dried herbs can make life pretty pleasant on the homestead in the winter. Instead of going to the grocery store, you just mentally run through the larder and ask yourself, “What have I got in storage?” before making up the menus.

Cooking frequently with the same ingredients doesn’t have to lead to dull, repetitive meals, if you enjoy a well-stocked herb pantry and an international cooking repertoire. The vegetables you have in storage may be predetermined for the rest of the winter, but you can always change the meal’s basic character by changing the carbohydrate: choose pasta, potatoes, bulgur, rice, or bread.

For added variety, change the flavors and seasonings to Oriental (ginger, garlic, and hot peppers), Italian (tomatoes, herbs, red wine, and garlic), or Russian/Yiddish (dill and yogurt).

My article in the May/June 1996 issue, “Quick-and-easy pasta recipes,” contains some good recipes for using storage foods. Below, you’ll find more ideas and recipes for a full meal using fruits and vegetables that can be found on well-stocked winter homesteads in most regions of the country.

Carrot-raisin salad

This salad is an American basic, and with good reason. The ingredients are very simple and always available. It stores well. And you can always take it with you, to potlucks, picnics, or parties. Serves four.

2½ cups coarsely grated raw carrots
 ½ cup raisins
 2 teaspoons fresh lemon juice
 ⅓ cup plain Lafayette yogurt
 1 - 2 teaspoons maple syrup (to taste)

Toss the carrots lightly with the raisins and lemon juice. Blend the yogurt and syrup, and stir into the carrot mixture. Chill at least 30 minutes before serving.

Russian variation: leave out maple syrup and raisins. Add 1 Tablespoon finely chopped onion, ¼ cup frozen peas, and ¼ teaspoon dill weed.

Lima bean and sage chowder

A savory soup for fall and winter. Serves four.

1¾ cups small white lima beans
 2 cups diced onion
 1 Tablespoon olive oil
 6 cups stock or water
 ¼ teaspoon celery seed
 2 bay leaves
 1 Tablespoon tamari
 3 medium carrots, halved and sliced
 2 lbs. boiling potatoes, diced
 1 daikon radish, quartered and sliced
 2 teaspoons rubbed sage
 2 Tablespoons tamari
 ¼ cup water
 4 Tablespoons fine whole wheat flour

Soak the dry lima beans overnight, or use the quick soak method: cover with plenty of water, bring the beans to a boil, and boil one minute. Remove from heat and let soak one hour. Discard soaking water, rinse beans, and proceed with recipe.

In a large stockpot, sauté the onion in the olive oil, covered, until beginning to brown around the edges. Add the



stock or water, celery seed, bay leaves, tamari, and soaked beans. Bring to a boil, adjust heat to simmer, and cook until the beans are just tender (about one hour).

Add the prepared carrots, potatoes, daikon, sage, and tamari. Cook about 20 minutes more, until the vegetables are tender. In a small cup, combine the water and flour to make a smooth paste. Remove some of the soup stock from the pot and mix with the paste, then return the mixture to the pot, stirring well to blend.

Cook another five minutes, or until the soup thickens. Serve immediately with a fresh salad or green garnish, and plenty of homemade bread.

Herbed potatoes

A quick and easy main or side dish to make from your root cellar vegetables and home-dried herbs. Serves six as a side dish.

3 pounds red or yellow potatoes
2 Tablespoons olive oil
2 cups diced onion
4 cloves garlic, minced
1/4 teaspoon celery seed
1/4 teaspoon dried marjoram
1/2 teaspoon dried savory
1/2 teaspoon oregano
1 small hot pepper
2 Tablespoons tamari
1 cup grated kohlrabi or carrot
1 cup meat or vegetable stock

Dice and steam the potatoes till tender. In a large, heavy skillet, cook the onions and garlic in the olive oil until they are tender and transparent. Add all the herbs, the kohlrabi or carrot, and the stock, and simmer gently until the liquid evaporates. Add the cooked potatoes, toss, and serve immediately or keep warm in a 200° oven for up to a half hour.

Apple pudding cake

This is a moist, sweet cake over a thick sauce full of apple chunks. Make sure you heat the sauce ingredients well. If you don't, the sauce will be too cold to bubble and thicken properly during the cooking time. Serves six.

4 cups finely diced apples (about 3 medium apples)
1 2/3 cups whole wheat pastry flour
2 1/2 teaspoons baking powder
1 teaspoon cinnamon
1 cup milk
2 1/2 Tablespoons oil
1/3 cup honey

Sauce # 1:

1 Tablespoon rum
1/2 cup honey
1 1/3 cups boiling water
1/2 teaspoon almond extract
2 Tablespoons fresh lemon juice

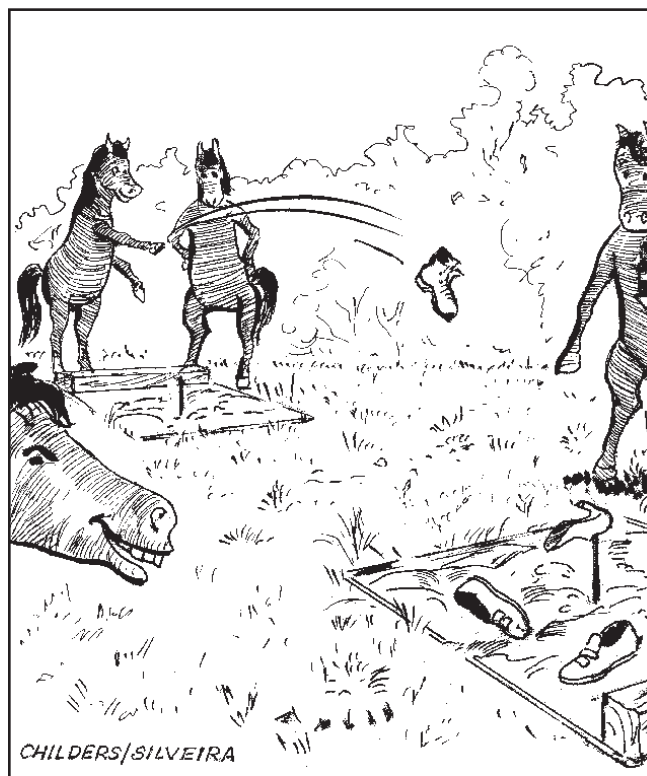
Sauce #2:

1 2/3 cups apple juice
1/2 teaspoon almond extract
2 Tablespoons fresh lemon juice
1 Tablespoon honey

Preheat the oven to 350°. Place the diced apple in the bottom of a two-liter casserole dish (do not use a smaller one). In a medium bowl, stir together the flour, baking powder, and cinnamon. In a measuring cup or small bowl, stir together the milk, oil, and honey until well blended. Add the liquid to the dry mixture, stir together well, and pour over the apples (don't worry about spreading it out evenly).

Now mix the sauce ingredients together (choose either Sauce #1 or #2) in a small saucepan, and bring to a boil. Pour the liquid over the batter and apples, but *do not stir*. It will sink down through the batter into the apples.

Bake for 45 to 50 minutes, until the cake is golden on top and the sauce has begun to bubble up around the sides. Serve hot, with the sauce spooned over the cake. Δ



Ten off-beat metal cleaning tricks

By Sandy Lindsey

- You can clean and brighten tarnished metal gauges and switches on appliances by rubbing on a whitening toothpaste. And while you've got your mother-in-law's toothbrush out, whitening toothpaste also works wonders on scratches on plexiglass.

- Clean chrome fittings and fixtures that are severely pitted with #00 Bronze Wool. If that doesn't do the job, dunk it in Penetrol for added effect, then give the job some old-fashioned elbow grease. The Bronze Wool/Penetrol combination will also work on stainless steel and aluminum. (**Do not** use Penetrol on metals that come in contact with food.)

- To remove tough build-ups on decorative stainless steel, rub on alcohol and kerosene. Use a 100% cotton rag. The kerosene will return it to a near-original shine. (**Do not** use kerosene on stainless steel items that come in contact with food.)

- Use metal polish and a standard bottle cork to clean particularly stubborn rust or metal discoloration spots. Dampen the flat edge of the cork first, so that it absorbs some of the metal polish, then apply more polish and rub away. Rub the cork over the spot. Its flat surface and naturally abrasive properties will do the rest.

- Kitchen metal surfaces sticky from a child's gooey hands? Pour vinegar or straight lemon juice onto a sponge and wipe down the goop. Let the vinegar or lemon juice sit for a few minutes to cut through the residue, then wash off with soap and water.

- When cooking gets your pots and pans so greasy and grimy that you think you're never going to get them clean again, place them in a heavy-duty garbage bag. Add one cup of ammonia and seal the bag tightly. Leave overnight. The following morning the grease and grime will hose off. (**Note: Be sure to avoid inhaling** the accumulated ammonia fumes as you open the bag. And **do not use this procedure on aluminum.**)

- You can easily restore aluminum yard furniture that is pitted and dull, by scrubbing until it's smooth again with a soapy Brillo pad. Rinse, then wax thoroughly with a car or boat wax to retard further damage.

- An easy way to wax the tubular railings of lawn furniture is to put an old sweat sock over your hand, dip it into the wax, and go to work. By curving your hand around the railing, you'll be able to cover more area, more completely, in less time.

- Clean bronze that has turned green with a clear teak oil. It will not only remove the tarnish easily, but tends to retard further tarnishing for months afterwards.

- To restore rusty outdoor metals such as iron and steel, spray with an instant galvanize, such as CRC Instant Galvanize. Δ

A BHM Artist's Profile:

John C. Dean

John Dean is BHM's new Art Director, replacing the retiring Don Childers. Having pursued painting as a hobby while he raised three daughters, he began a career in jewelry design and manufacturing in 1980, and in 1990 included painting in his career. He is a well known artist in Brookings, Oregon, where he lives. Commercially his work



has been put on post cards, maps, signs, logos, tote bags, front porch displays, murals, and, of course, framed and hung for customers. He is an excellent portrait painter and has painted the portraits of several BHM staff members. His art can be found at BHM's web site: www.backwoodshome.com.

John is also a musician and is the lead singer and guitarist for his band, Johnny Cardiac and the Cardiac Arrest, which performs around the Brookings area and for BHM functions. He has a Bachelor's Degree from UCSB in electrical engineering and a Master's Degree from Caltech.

Here are some simple tips on how to store apples for a long, long time

By Don Fallick

Almost any kind of apple will keep for three or four months, or even longer, if stored properly. It's cheap and easy to do. All you need is newspaper, a box or basket, and apples. A root cellar is optional, but not necessary.

The main causes of apple spoilage are time, bruises, and contact with a rotten spot on another apple.

Time

Time can be stretched by selecting long-keeping varieties of apples for storage. Tart and thick-skinned apples like Jonathans generally keep longer than sweet or thin-skinned ones like Delicious. Good keepers also have very firm flesh. The best keepers I have found are Spur Winter Bananas—from C&O Nursery, P.O. Box 116, Wenatchee, WA 98807.

They are yellow and tart at harvest, but get redder and sweeter, and actually taste better after a couple of months in storage.

Contact

Prevent contact between apples stored for the winter by wrapping them individually in sheets of newspaper. The easiest way to do this is to unfold a section of newspaper all the way and tear it into quarters. Then stack the quarters. Avoid sections printed with colored ink, which contains poisonous heavy metals.

Place an apple on top of the stack and fold the top sheet of paper up around the apple, wrapping it in paper. Give the corners a slight twist—just enough to make them stay wrapped. If

you twist them too hard, the paper will tear. It's not necessary to exclude air. Just twist hard enough so the paper doesn't come unwrapped before the apples are boxed. The paper prevents contact between apples, so just one rotten apple won't spoil the whole bunch. With practice, you'll be able to wrap and store apples as fast as you can scan them for bruises and sort them.



Sorting

Always handle apples carefully, to avoid bruising them. Apples with even small bruises must never be stored with "keepers." Only perfect apples should be used for long-term storage. Even minor imperfections speed spoilage. While you're wrapping, check each apple for cut skin, soft spots, or bruises. Even bruised apples taste fine when they're fresh, so sort the best culls into a box to be eaten right away. If there are too many, make apple pie filling out of the excess. Use culls with extensive blemishes for cider. Or cut out any really gross parts and make applesauce.

My family owns two Victorio strainers. We blanch the apples to soften them, cut them in half, throw them in the hopper, and turn the crank. The Victorio separates the pulp from the skins, seeds, and stems, and produces fresh applesauce, ready for canning. With both strainers going, we can put up more than two bushels of apples an hour.

Canned pie filling, applesauce, and cider will keep for a year or more. Fresh cider that has started to turn sour can be made into hard cider, vinegar, or applejack (see Issue #35, Sept/Oct 1995). All three will keep indefinitely.

Storage

Boxed apples need to be kept in a cool, dark spot where they won't freeze. Freezing ruptures all of an apple's cells, turning it into one large bruise overnight. The usual solution is to store apples in a root cellar. But root cellars often have potatoes in them, and experts say that apples and potatoes should never be stored in the same room. This may seem incongruous, but there is a reason. As they age, potatoes release an otherwise harmless gas that makes apples spoil faster. If you can keep the gas away from your apples, they will keep just fine. Just don't store them right next to potatoes.

I keep wrapped apples in a cardboard box. It need not be airtight, just tight enough to impede air circulation. I've kept apples in an unheated basement, a pantry, an enclosed porch, an unheated attic, even in a root cellar, potatoes and all. Using these simple methods, I have kept ordinary apples until late February, and Winter Banana apples into March. Δ

Careful planning will make harvesting and preserving food a year-long process

By Dynah Geissal

What harvesting means to you will largely be determined by whether or not you have electricity. When I lived on my farm in the valley, I had power, and just about everything went into the freezer. Oh, I still canned fruits, pickles, tomato sauce, and such, but I had for the most part switched to freezing as my primary method of preservation. We butchered all the larger meat animals such as pigs, calves, and goats as soon as it was cold and/or whenever I had to start feeding hay. Only the breeders were overwintered.

Now, because I live on a mountain with no electricity, I have returned to canning. We also dry tomatoes, peppers, mushrooms, and berries on trays on the warming shelf of our cookstove. The lives of the smaller animals and some plants are extended to preserve “food on the hoof,” so to speak. While we do maintain two freezers in town, the inconvenience of having our food over an hour away leads us to keep as much as we can here. I prefer to go out to the rabbit pen to butcher dinner, even though that may mean the litter is kept longer than optimal, rather than store them in the freezer.

Obtaining and preserving our food supply is as integral a part of our lives as maintaining our water system and our heat source.

Make a plan

Whatever method of preservation you choose, harvest planning is a year-round occupation. I suggest keeping a notebook or some such and writing in it what you expect to do during each month as you plan the harvest of your food. For exam-

ple: May 1—Buy weaner pigs; November 21—Expected butcher date for hogs. Of course, as time goes by, things change. These dates are not written in stone, but are merely a method of organizing an overall plan. For everything you plan to eat, write down dates of planting, breeding, butchering, preserving, or whatever. These tentative plans will help you to see your overall food design.

Year-round chickens

I start raising chicks in January so that I have live ones for most of the year. It's not easy without electricity, but it can be done. I heat bricks to keep them warm for the first couple of weeks, and their box is as near to the heat stove as it can safely be. The top of the box is covered with plastic so that they have light but also are kept warm. At night, I cover that with blankets and sleeping bags. If it's very cold, I get up during the night to replace the bricks with warm ones. When it's safe for them to move outside, they go into a refrigerator box inside the chicken house. Boy, do I miss my old brooder house. We hope to build our real barn this

summer, and then we will have a more permanent setup for the chicks, as well as all the other animals.

I get new chicks every couple of months through September in order to have some for sale and some for eating. After September, I get a break from chicks. It isn't really practical to raise them in the fall. They don't grow well during the short, cold days, and they take way too long to reach butcher size. Slack times in the bird business means cleaning the chicken house and butchering and freezing the remaining cockerels.



Eggs from kerosene

During my first winter without electricity, I had just about decided that it made no sense to keep more than a few hens. The nights were so long and cold that I hardly got any eggs for three months. This year, however, I decided to try using a kerosene lamp. I hung a barn-style lantern from a hook attached to a crossbeam. It is out of reach of the chickens and provides plenty of light for our small shed. The amount of kerosene I used each night was determined by how much supplemental light I needed at that time to give a minimum of 14 hours. During the longest nights, I used a cup of kerosene. I wasn't sure at first if the use of kerosene would be cost-effective, but it turned out to be a great success. We had eggs all winter, and except for the molting period, we always had some to sell. We buy kerosene in bulk for about \$1.75 a gallon, which is a real bargain for all the eggs we get.

Our temporary chicken house is sided with one-by's and has a metal roof. It's not tight and it's not insulated, so I think the hens did really well to maintain 80% production all winter. I feed whole grains, bone meal, kitchen scraps, and old produce from the health food store. I also try to break open the ice in their water every couple of hours during the day.

Year-round milk

Having a year-round goat's milk supply is important to me, although relying on the cheese I make when milk is abundant would be easier. Staggered breeding is the key. I keep records so that I know which does are most likely to breed early, and I get one of them bred as soon as possible. Then I breed one doe each month, saving my longest-producing doe for November breeding. Any doeling that

was kept from the previous spring is bred in December to give her plenty of time to attain good growth. In this way, I am never left with all dry does.

In addition, I usually have one older doe who produces prodigious quantities of milk and stays in good condition without being dried up at all. Nutrition is the key here. It is necessary to feed top quality alfalfa free choice, an adequate amount of goat chow, and a pasture block for any needed supplemental nutrition. Be sure to use a block suitable for goats.



It should contain no urea and is usually sold as a horse block or a "natural" cattle block. I think it does no harm to milk a grown doe all year under these conditions.

Many people breed a prolific milker only every other year. I like to have as many kids as possible for meat, for sale, and for replacement does, so I breed every year. Even so, some heavy milkers do not breed at all. It's the same as with nurse cows. Often the calves have to be removed before the cow will breed.

I've heard people say that they have such a hard time getting their heavy milkers to dry up at the proper time. If you have that "problem," just feed her up and keep milking. One of my does had no kids for three years and still gave a maximum of two gallons dur-

ing the spring and early summers and a minimum of one gallon during the winters. If your doe has kids on her, you need to milk her through the season. Don't wait until she weans them, because by then there will have already been a downturn in the cycle.

Be sure your breeding program is good so that you get the best-producing does you can. With staggered breeding and an occasional doe who milks year round, you'll never be without fresh milk.

Wild harvest

Part of my year-round harvest plan is to be aware of what grows wild where I live. I take advantage of the abundance in season and preserve some for other times. Fish, berries, and various greens can be foraged for dinner a good part of the year. I love to spend a couple of hours catching trout, then searching for edible mushrooms, greens, and wild onions to serve with it. I top this off by harvesting gooseberries to make a pie for dessert. That meal is appealing like no other to me. It is a harvest from the land and is there for the taking.

And speaking of wild things, don't forget herbs for tea and medicines. Yes, you have to learn what is what and what plant has what uses. Start small and learn five plants that are growing near you and are useful. Then build on that. I harvest and dry dozens of plants for medicinal use and have found them to be very effective. We use them especially for prevention, because we're rarely sick. If high blood pressure runs in your family, for example, there are many common herbs that can be made into a tea to drink every day so that maybe it won't happen to you. Besides that, you get the pleasure of picking something good for you and taking advantage of nature's bounty. I drink a tea of dandelion root, yarrow, and violet leaves. My husband drinks one of juniper

berries, prince's pine, and Oregon grape root. These are only a few of the herbs that grow right on my land. Look around and see what grows where you live.

Produce preservation

In planning the produce you will grow, consider first how you will be storing your harvest. Look through your seed catalogs to determine which varieties are better for which methods of preservation. For those of us who are entirely reliant on what we grow for our food, it is imperative to choose wisely. If it isn't tasty or the texture isn't good, it doesn't matter how much you harvested: no one will want to eat it. Here's an example: I canned two kinds of beets. One was absolutely delicious with no dressing-up at all. The other lost its flavor, color, and texture, and no matter how I tried to make them more palatable, they were yucky.

Another quality to look for is extra vitamin content. Some varieties have a naturally higher nutritional content, and your seed catalog will note that in the description. When all your food is home-produced, I think it's worthwhile to take that into consideration. And of course, be meticulous in your method of preservation. Beginners will probably not be totally successful the first time canning, but do pay attention to what you're doing and produce the very best product you can. Winter can seem very long when your harvest is poorly preserved and it's all you have to eat for months at a time.

For those who are just beginning at self-sufficiency, don't spend too much time on fun, exotic things. Grow what will sustain you and will almost certainly be successful. Zucchini, for example, is fun to eat in the summer and is almost always successful, but it doesn't contain a lot of nutrition and is hardly worth preserving. Winter squash, however, is packed with vitamins and will keep relatively easily in a cool place.

In my climate, growing tropical plants is impossible, and while they are certainly more glamorous than root crops, it is more worthwhile for me to cultivate carrots, beets, parsnips, rutabagas, and so on, than to spend time on tomatoes or eggplants. I can always trade for these with people in the valley.

Growing a garden for self-sufficiency is somewhat different than growing a supplemental or recreational garden. Your quantities will be greater, and you will want uniformity and reliability. I use Garden City seeds from Hamilton, Montana, and in the catalog there are "market farming" tips for many vegetables. I find these to be very helpful for my garden.

Be sure to choose varieties that are suitable for your climate. Most seeds off the grocery store rack will not be, unless you live in an ideal climate. Choose varieties that are vigorous and give real food production. In my climate, earliness is vital.

Seed saving allows you to plant seeds that are successful for your

micro-climate. If you choose to do that, be sure to buy open-pollinated seed. Growing food is difficult, especially in the north, so make it as easy on yourself as possible. There's nothing wrong with buying seeds, even hybrids, if you can afford to and if it makes producing food easier.

Keep your soil healthy with compost and biological controls. Your soil is your lifeline and must be treated as the living organism that it is. Nurture and pamper it, and you will be able to grow more bountiful crops than you ever thought possible.

I hope I have given you some ideas for your year-round harvest plans. Harvesting is more than canning or freezing. It is a year-long food design which incorporates every phase of production. Self-sufficiency is hard work, but it is such a thrill to be reliant on ourselves for our family's requirements. It puts us in touch with the earth to such an extent that it is a fulfillment in itself. Δ

A country moment



White pelicans on a serene mountain lake.

Make “recycled wine” from leftover fruit pulp

By Allyn Uptain

We're recycling-crazy around here. We recycle everything possible. Sometimes I hear the lunatic fringe of the environmental movement talking about our “doomed” planet. On other days I hear ultra-conservatives or libertarians talking about how the environmentalists are over the edge and we have enough raw materials to last until the end of time. It's hard to decipher the truth anymore, but we recycle anyway. It teaches discipline. It teaches us to make full use of what we have. I dislike the concept of waste and want to create as little waste as possible. It's also a good way to impress on my children that they should not be indiscriminate in their habits.

Now when I say “recycle,” I do indeed mean saving bottles, cans, and paper, and taking some of that to the recycling center. Since the recycling center is about 15 miles from our place, stopping by the recycling center is just an accepted part of our trips to the city. But mainly we recycle by re-using. Everyone knows how to use a grocery bag as a garbage can liner. That's the best kind of recycling.

One of my favorite things to recycle is leftover fruit pulp from making jelly. When we make jelly, we always end up with a bunch of fruit peelings or the leftover pulp from squeezing the juice out of some fruit. What can you do with that stuff? Well, you could always feed it to the farm animals, but we prefer to make wine with it.

When jelly season hits, we usually have peaches, wild berries, and plums ready at about the same time, so each year we end up making a few batches of “jelly wine.” It's different every year. One year we may have more peaches, the next year more berries. But it is always good. This is also a



good excuse for me to clean out any stored fruit we may have. Apples going bad? Throw them in the jelly wine. Same for oranges, grapes, or any fruit that looks like it's at or near the end of its storage life. Variety is definitely the spice of this wine.

Making wine is easy. Fill the largest sanitary container you have one-third full of fruit. If you don't have enough fruit, you can cheat by adding sugar. Add enough non-chlorinated water to fill the container to two-thirds full. Squash, stir, and mix until you think you have most of the juice out of the pulp. Add some good wine or champagne yeast. You can use bread yeast, but real wine yeast will make a much better product.

Cover the container so that nothing can get in, but excess gas can escape. A simple way to let the gas out is to attach one end of a plastic tube well

above the liquid level and the other end in a glass of water. Watch it bubble for a couple of weeks.

As carefully as you can, pour off the juice and leave the pulp behind. Clean your container. Pour the juice back in, cover it, and let it stand for another two to four weeks, with your “gas lock” setup still in place.

Now syphon the wine into bottles, leaving all the sediment in the fermentation container. You can take the plastic tube, attach one end to a small bowl, sink it in the wine, and then syphon right into your recycled juice and wine bottles. Just make sure the bottles and lids have been sterilized with boiling water or chlorine. (Rinse extremely well or wait 24 hours if you used bleach water.) Now all you have to do is wait six months or more before drinking your wine.

While you wait, you can feel good about yourself for all of the stuff you recycled. The pulp left over from the wine-making process we usually give to the chickens, but if you are really into medicinal alcohol, it also makes a good brew for a distiller. You will have to add lots of sugar, but you won't need any more fruit or yeast. You can, however, add any kind of leftover grain you might have lying around, as well as old honey or syrup.

△

Talk to other self-reliant readers over the internet in the Reader s Forum at:

www.backwoodshome.com

Solve chinking woes with a mortar-sawdust mix

Robert L. Williams

In virtually any type of building there is always the problem of sealing cracks and crevices, and the most frequently used solution to the problem is to buy caulking or compound tubes and a gun with which to apply the sealer.

This solution works well with most smaller cracks, but if the opening is fairly large (wide enough for you to stick your fingers into the crack) caulk or sealing compound is not a practical manner of solving the difficulty. For one thing, the cost is prohibitive if there is much sealing to do. There are also locations where it is virtually impossible to use caulk from tubes. And if you use one of the foam sealers, you must then go back and cut away the excess that is left after the sealer expands.

Vinyl chinking

You can buy a vinyl chinking or sealer in five gallon cans (perhaps smaller). This sealer is excellent primarily because the vinyl basis for the compound allows for expansion or shrinkage in fluctuating temperatures, and the chinking never completely sets or hardens. Instead, it remains the consistency of hard rubber.

To use the vinyl chinking, you will need a wide-blade putty knife and a narrow-blade putty knife, a small trowel (of the flower garden variety), and a small container of water. When you open the containers you will find a compound that is the consistency of stiff and very smooth mortar. This substance will smell very much like bubble gum mixed with ammonia.

When you apply the compound to large openings, it is better if you can smooth it over the surface of wood that has been inserted into the cracks between logs or wide boards. If you

are chinking a log structure, and if the cracks are two inches wide, push lengths of 2-x-4 timbers into the opening and toe-nail the lumber in place. The outside edge of the filler lumber should come to within one-fourth inch of the horizontal surface of the logs or wide boards.

When you apply the chinking compound, use a putty knife and spread chinking one-fourth inch thick (no thicker) across the whole surface of the lumber. Feather the chinking upward and downward so that it is forced into the wood of the logs. When the basic work is finished (the application of the chinking) then use a clean putty knife dipped into water to smooth the compound. Work only in one direction, and leave the surface of the compound as smooth as finished concrete. In fact, it can be almost as smooth as wood.

Mortar-sawdust mix

The major problem with the vinyl chinking is expense. The chinking we used on one job cost \$10 per gallon, or \$50 for a five-gallon bucket. We found quickly that we would need 25 buckets of compound, which would have amounted to \$1,250 for the job.

There is, however, one method that answers nearly all of the problems of sealing and chinking. This is the mortar-sawdust mixture. It is inexpensive, can be used wherever there is room for a narrow-bladed putty knife or trowel, can be done rapidly, cleans up easily, and requires no expertise except for basic manual skills.

Here's how to go about chinking or sealing with the sawdust compound. First of all, you need to mix a batch of mortar. If the job is very small, buy a bag of pre-mixed mortar and simply add water and mix by hand. Use a hoe or shovel for good results.

If the job is large, you may want to buy your own mortar mix and add the sand (the fine aggregate) and water. For our needs we have always used creek sand or roadside sand. It does not matter if there are small pebbles in the mix; in fact, the larger sand granules and small pebbles actually help the mix by serving as a coarse aggregate.

When you plan to do the chinking work, choose a time when the weather is good; that is, don't try to work in sub-freezing weather or during a rainy season. (You can, however, work in ultra-cold weather if you add a little antifreeze to the mortar. If you do not, the mortar will freeze while you work.)

Mix either in a wheelbarrow or a mortar box. If you don't have a mortar box (for larger jobs) you can knock one together by using plywood or wide boards with straight edges, but it is much easier to pay the money to buy an inexpensive mixing box or to



The walls when chinking began. Notice how large the spaces were.

use the wheelbarrow. The advantage of using the wheelbarrow is that you can move the entire mortar supply as you change work locations.

A basic mixture of mortar is a one-to-three ratio of mortar mix to sand. That is, use three shovelfuls of sand for each shovelful of mortar. The problem with mortar is that if you must have a wide joint, the mortar tends to crack. That's where the sawdust enters the picture.

The best type of sawdust we have found is chips from chain saw projects. We try to do the majority of sawing in the same general location so that our sawdust is in a single heap rather than all over the farm. When we rip logs for boards, we use a primary saw station, and the result is that we have wheelbarrow loads of sawdust available at all times.

If you have a workshop, sweep up the sawdust after each work session and store it in a bag or bucket. Do not worry if the sawdust or chips are green with sap, and the least of your worries is whether the sawdust is wet. In fact, you want to have it not only wet but saturated before you use it.

Here's why. When you are laying bricks or blocks, you should sprinkle the bricks with water before you install them into a course of work. If you do not, the dryness of the bricks will pull the moisture from the mortar and leave it too dry. The result will be severe cracking or crumbling.

The same is true of wood and mortar. You do not want to wet your logs or boards, unless you can sprinkle them lightly, so put the water-bearing sawdust into the mix and the problem is solved. The tiny wood chips cannot draw moisture from the mortar because it is already saturated. There will therefore be no appreciable amount of cracking, crumbling, or other deterioration of the mortar.

Another superior point is that the sawdust or wood chips (the tiny chips, that is, no large ones) will extend the amount of mortar needed, and you

actually save a considerable amount of money by using the sawdust.

Now to the proportions of sawdust to the mortar mixture: for every shovelful of mortar mix, add 1.5 times as much sawdust. So if you use six shovelfuls of mortar mix, use nine shovelfuls of sawdust, in addition to the sand.

If you cannot get a wheelbarrow close to the work site, use a mortar board to hold your sawdust-mortar mixture. To make a mortarboard, stand two 2-x-4 lengths (two feet long, each) on edge and then nail plywood or wide boards across the 2-x-4s. The final product should be at least two feet wide and two feet long so that you can have a large amount of mix on hand. You will use too much time and energy if you need to make trip after trip to get small amounts of mortar.

If you use the sawdust-mortar mix, you will not need to worry about the filler strips between cracks. All you need to do is load up a full-size trowel (brick masonry trowel as opposed to block masonry trowel) with mortar and push the mixture into the cracks so tightly that the mixture is forced upward and into the pores of the wood. Do not try to fill cracks loosely.

If you find that you are shoving mortar out the other side of the crack, there are two ways to handle the problem. The first way, if you have a helper, is not only simple and easy but also very efficient. One of you should work on the outside, and the other on the inside, and both of you should be at the same point in the wall. Each of you can scoop up a trowel-full of sawdust mortar and at the same time both of you should push the mortar mixture into the same crack. The pressure formed by the two masses of mortar meeting inside the crack will force more mortar into the pores of the wood, creating a better bond.

Remember that when you lay bricks, one of the purposes of jointing the mortar in each course is not just for decoration but to push mortar into the pores in the blocks or other masonry materials. The same principles apply to wood and mortar.

A second way, which works well if you must work alone, is to find short lengths of board (five to six feet long) and lightly nail the boards to the logs or wall boards so that the new board will cover cracks for several feet. The board will keep you from pushing mortar out the other side of the wall. When you have completed a stretch of work, leave the boards in place for a



The building when the chinking was completed.

few minutes until the mortar had a chance to start to set. You must realize that setting up will not be complete for two to three days, so do not disturb the mortar-filled cracks for at least 48 hours.

Fill all the cracks that are covered on the other side by boards (you can use a sheet of plywood if you have one handy and get more coverage with less nailing time) and then move to the next work area and repeat the process. You can go back an hour to two hours later, unless the temperature is very hot, and use the back of a trowel to smooth the mortar. Dip the trowel in water and smooth as you would if you were finishing a small patch of cement or as if you were finishing the compounding of a joint.

For greater stability of the joints, you can go back to still-wet joints and push nails through the mortar at an acute angle until the point of the nail contacts wood. Drive the nail then until the head is even with the surface of the mortar. Use a punch to drive the nail until the head is covered.

Finally, when the mortar has set completely, if you see tiny strands of sawdust sticking out, use a sheet of sandpaper to brush the strands until

they disappear. Your chinking job will then be completed, and at a price that is amazingly low and with a speed that is remarkable and gratifying. Δ

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Sheet composting saves work

By John Fuchs

My work as a landscaper provides me with tons of grass clippings and leaves. I have utilized these materials to make compost piles. Last year, I decided to use some of these materials in a sheet composting experiment. The idea was to determine if I could save myself some of the back-breaking labor of building the compost pile, turning it, watering it, lugging it to the garden area, and then digging it into the soil to a depth of a foot or so.

In October, I spread a layer of leaves two inches thick over my garden area (primarily maple and sycamore leaves). The leaves had been partially shredded by my lawnmower. In order to hasten the decom-

position of the leaves, I added a leaf activator that combined alfalfa, kelp, cocoa meal, and lots of microorganisms. I had used the activator the previous two falls in my compost piles with good success.

After spreading the activator on the leaves, I added lime and shoveled on an inch or so of dirt over the leaves. I then gave the area a good soaking. I did nothing else until late April, when I set out to plant some broccoli and lettuce.

I was pleasantly surprised to see that the decomposition of the leaves was largely complete. I estimated that 80 to 90% of the volume had decomposed. I passed the rototiller over the garden patch and incorporated the residue into the soil. Since the leaf breakdown was not 100% complete, I

added a high-nitrogen fertilizer (28-3-3) that I use for lawns in the spring, as well as my usual 5-10-5. The extra nitrogen replaces the nitrogen that is "locked up" in the leaf decomposition process and released when the process is complete.

The results were excellent. Both my early crops (lettuce and broccoli) and my warm-weather crops (tomatoes, eggplants, peppers) produced heavily, and I saw no difference in yield from previous years when I had used traditionally composted material in the garden.

Undoubtedly, the years of adding traditionally composted matter had made my garden plot fertile, and, while I certainly would not discount the value of compost piles, sheet composting is a far less laborious way to incorporate organic matter into the soil. Δ

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Based on years of personal experience, here are 10 good tips for homeschooling your children

By Mary Jo Bratton

Are you considering homeschooling your children, but don't know where to start? The following 10 tips will help answer some of your questions.

• Read, read, read.

But don't read too many "This is the way to teach your child" books. You'll end up confused and convinced that you can't do it. Instead, read a few "how-to" books and lots of books on world history, philosophy, religion, biology, psychology, literature, and other topics. If you don't know where to start, go to the library and look up all the children's books on the subject in which you're interested. The children's books will give you an overview, with easy-to-understand explanations that provide a base for more advanced learning.

• Relax: You're not having school-at-home; you're homeschooling.

Say the word "school" out loud. What's the scenario that comes to mind? Desks. Chalk dust. A U.S. flag in the corner. Teacher up front, lecturing to sleepy students. Lockers slamming. Bells ringing. Boring.

"School-at-home" is an image that needs to be ditched, in favor of "homeschooling." Rid yourself of the idea that having school means sitting at a desk in a stuffy room, taking notes for six hours a day while Mom lectures endlessly about history, biology, algebra, and French. When you homeschool, the emphasis is on "home." Sitting on the sofa while you do math problems, studying insect life under a dead log in the back yard, asking questions in the car on the way to the library, reading Western biographies instead of dry history textbooks, and writing papers about the novels of Agatha Christie or the Titanic or motorcycles, instead of "What I Did Last Summer." It is also playing with your

brothers and sisters at recess, and wearing what *you* like to wear, not what the group says is "in style."

• Tailor the program to fit your child's learning style.

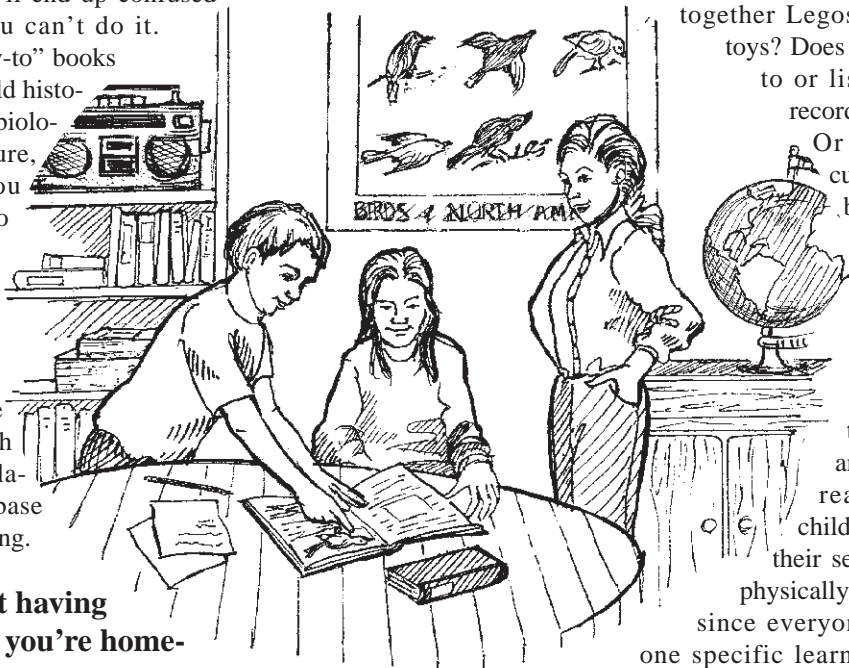
What kinds of activities does your child enjoy most? Does she count with blocks, love fingerprint and modeling clay, enjoy taking apart and putting together Legos or other building toys? Does he enjoy being read to or listening to cassette recordings of storybooks? Or is she happiest curled up with a good book and silence all around?

People learn in all three ways: **kinesthetic** (by touching and handling things), **auditory** (by listening), and **visual** (including reading). Of course, children learn through all their senses, unless they're physically disabled. However, since everyone tends to lean to one specific learning style, you can

increase your child's learning enjoyment by adapting the curriculum to fit his style.

Materials good for **visual** learners are workbooks, flash cards, matching games, instruction books, and charts. Good materials for **auditory** learners are verbal explanations, cassette tapes and CDs (recorded books), educational songs and rhymes, and rhythm instruments (for music class). For **kinesthetic** learners, try nature walks, model kits, gardening, puzzles, and typing instead of writing (faster and less frustrating).

Using your child's learning style is especially helpful when you have to work through some of those sticky math problems. For a visual learner, try working out the problem on paper. An auditory learner may need only to have the problem read aloud. (My daughter asks for this help from time to time.) And a kinesthetic learner may need concrete objects (toothpicks, buttons) to stand in for the factors.



- **Try lots of stuff.**

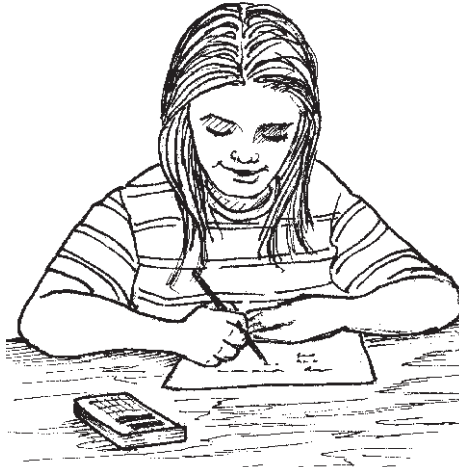
How much would you pay for nine months at a private school? Probably \$3500 and up. You don't need to spend that much to teach your children at home, but you shouldn't skimp, either. Education is *at least* as important as the amount you spent on Christmas last year, or on a trip to Disney World, or on a new Magnavox 31-inch television with a built-in VCR. If you set aside a specified amount for home school supplies at the beginning of the school year, you'll feel freer to buy that set of art prints or those German language tapes than if you have to dip into the family budget.

Caution: Don't buy anything you can't return. Ideally, you should have your hands on the book or program before you pay for it. Ask yourself: Is this simple to use? Will this appeal to my kids? Does it appeal to me? (If it isn't simple and/or appealing, you'll use it for two or three weeks and then stash it in the closet, where it will haunt you forever.)

- **Write out your reasons for homeschooling and educational goals for each subject.**

Why do you want to teach your own children? Do you want to ensure their religious training, academic achievement, individuality, continuance of family/ethnic traditions? Are you simply crazy? (You will be asked this plenty of times, believe me.) When the rubber hits the road, you'll need to have written-out reasons for taking on this more-than-full-time job, so you can read them often. That way, you'll remember why you chose to keep your kids home when everyone else was merrily pushing theirs onto the big yellow school bus.

Educational goals should focus on outcomes. What do you want your child to be able to do as a result of having been taught this material?



Here are some of my goals for my two children:

- **Language arts:** Be able to use the fundamental skills of communication—reading, writing, spelling, and grammar—in a way that will enable them to function in our society (letters, conversation, job applications, essays, etc.).

- **Social studies:** Understand and be able to explain the major world systems (government, religious beliefs, culture) and how they developed (world history).

- **Religion:** Have respect and appreciation for human values and for the beliefs of others.

- **Science:** Understand and be able to explain the physical world as represented through basic knowledge of the sciences.

My list of educational goals also includes mathematical skills, perseverance, intellectual curiosity, physical and mental health fitness, and more. Your list of goals should cover those areas which are important to you and your family.

- **Sometimes it's not fun.**

Nothing is fun all the time. Going to work isn't always fun. (Sometimes it's never fun, but that's another article.) Running a household isn't always my idea of a good time. And sometimes

I'd rather dig in my garden than teach my kids.

Don't get me wrong. Life should be enjoyable and fulfilling. Unfortunately, sometimes you have to slog through the hard parts in order to make way for the good.

If you've done all you can to make grammar fun and the kids still gripe, explain that even though it's tough, an intelligent person must have a grasp of correct grammar. You can sweeten up the drudge with rewards along the way. For instance, I use index cards colorfully decorated with the words, "Coveted Candy Bar Card—Redeemable for one candy bar," to reward my kids for perfect papers. Or I give them something to look forward to, such as a "field trip" to an amusement park or campground after a particularly hard semester of schoolwork.

Face it, though. Some things are just not fun. They just have to be done. This is a lesson kids need to learn before they enter adulthood and have to write an annual report, cook dinner every evening, or stay up until 2 a.m. to meet a deadline.

- **Give it a year.**

One year of home education will not irrevocably harm your child, even if the only "schooling" you do is reading lots of books. (We're talking here about a literate family who gets out to the library now and then.) On the other hand, after a year, you should be able to tell if home education has been a success for you and your kids.

Be generous in your judgment of "success." Maybe your family has suffered a financial setback, death, illness, childbirth, or the like (in other words, normal life), and you've all had to pitch in to make it through tough times. In that case, "success" may mean a closer relationship between parents and children, and perhaps a talent discovered in carpentry, nursing, or clothing design. These family lessons are priceless and can only be taught at home, not in a public or private school setting.

- **Do unit studies.**

The beauty of a unit study is that the whole family can study a subject at the same time. You can take an arm-chair tour of a different European country every month, or follow the chronology of classical music throughout history. You may decide to take an in-depth look at Eastern religions for a semester. Or you can select a species of animal, research it, and then plan a field trip to its natural habitat. (See page 35: "A unit study on birds.")

In a unit study, each family member works to the limit of his ability. For an activity on a unit study covering the Revolutionary War, first graders may make a model of a hornbook with the alphabet and numbers printed on it. Ninth graders may reenact the signing of the Declaration of Independence.

You don't have to leave out the primary wage-earner when you do your unit study. Make posters charting the taxonomy of living things and hang them on the dining room walls. Plan an ethnically appropriate meal and have the kids cook and serve it. Watch a library video on Germany after dinner one evening.

Whatever you decide to do, set educational goals for your unit studies so specific skills are taught and assimilated. Give yourselves time to explore your chosen subject, and remember to keep it simple.

- **Give life skills equal status with academic skills.**

Driving a car. Planning and preparing a meal. Mowing the lawn. Reshingling the roof. Sewing kitchen curtains. Balancing the household budget. These are life skills and, while we may think they don't take a lot of brain power, life skills will most likely mean the difference between your child's future independence or her ineptness. It's extraordinary how

much we worry about whether our children are learning biology, but then neglect to teach them the correct way to paint a room or a house, how to iron a shirt, how to cut or trim hair, or how to fix the toaster. Instead, we do these things ourselves or pay others to do them for us.

Make a list of life skills you'd like your kids to know before they leave your tender care. Teaching these skills not only helps the family now, but ensures that your kids will be able to take care of themselves later.

*And the **number one tip** for home educators:*

- **Enjoy yourself.**

Did you study the subjects you wanted to learn during your educational career? More important, do you *remember* any of it? My three years of French have withered away to one feeble chorus of "La plume de ma tante." I have even less memory of my Algebra II class (except that the teacher pronounced the word "function" in a very interesting way). Now I'm learning German and taking guitar lessons. And algebra is more understandable without all the distractions I had in tenth grade.

Who says school is for kids only? Now's your chance to listen to all of J.S. Bach's works for organ, investigate the ecology of your part of the country, or read up on hot air balloons. There's no limit to what you

Kitten Surprise

*I was going to work—
Same trip,
Same scenery,
Five days a week.
But that morning
There's a dead kitten on the road
Where the 101 crosses over
Victoria.
Then another.
And another.
All the way to the Vineyard
Avenue underpass:
Dead kittens.*

*I got to the office.
"Why are you so quiet?" Jean
asked.
I told her about the kitten surprise.
She didn't want to believe me.*

*I don't blame her.
I've tried to forget
But, at night, I see
Some stranger's face
As he's riding down the 101;
He's got kittens,
Trusting him until the very last
second;
And at home there's a momma-cat,
Pregnant all over again.*

John Silveira
Ojai, CA

and your kids can learn when you have the freedom that home education brings. Δ

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A unit study on birds

By Mary Jo Bratton

Here is a suggested unit study you can use in homeschooling your children. You can use this simple format in other unit studies you develop.

From a study of local birds, your children can learn many basic facts about a variety of subjects, such as animal life, geography, climate, aerodynamics, and the use of a compass.

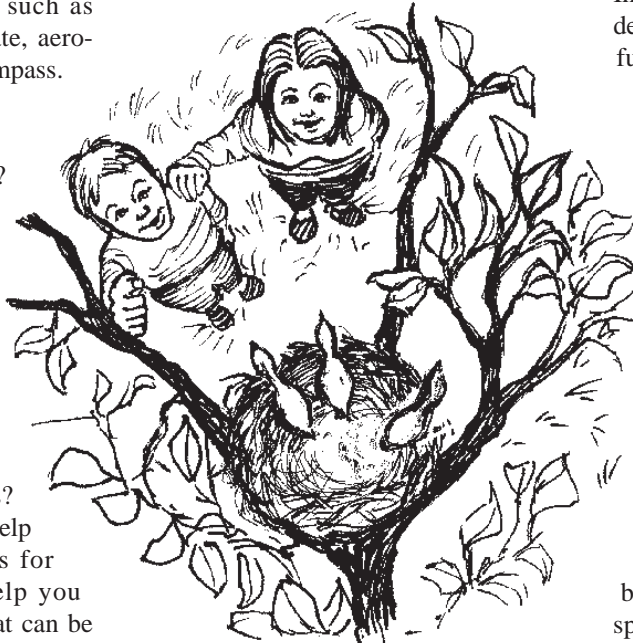
Investigation

What birds live in our area? How do birds get ready for winter? Which birds stay here in winter and how do they survive? Which birds leave and where do they go? Are any of our local birds harmful to people or animals? Which ones are helpful? Why doesn't a bird fall off a limb when it sleeps? Questions such as these will help you write educational goals for your unit study and will help you think of learning activities that can be done, such as the ones listed below.

Activities

- Make a list of all the birds the children can name from memory. Look these birds up in a field guide. If some of the birds named are from other parts of the world, find their homes on a globe or world map. You may wish to check with your county extension service or state natural resources department to find the names of native birds. Don't rush your children through this step. Take lots of time to talk it over and discover what they already know.

- Find pictures of as many birds on the list as possible. The list and pictures can be used for teaching how to alphabetize, as well as for identification purposes. For very young students, you can teach colors, counting, and spelling with these names and pictures.



- Talk about what may be the cause for bird migrations. Check out children's books on the subject at the library. Point out flocks of birds and note the time of year and the direction they're flying. Watch for newspaper and magazine articles on bird migrations.
- Mark on a world map the destinations of various migratory birds. Study about flyways and note the amazing distances that some birds travel in their seasonal migrations.
- Invite a bird-watcher to visit your home and share his interest and

information about birds. Or go to a local nature center for a bird-banding demonstration or a hike with a naturalist. People who love the outdoors usually love to share their knowledge with those who show an interest.

- Listen to tapes of bird calls. Imitate bird calls or try to describe them. This can be lots of fun, with the kids giving each bird call a different meaning. (Bedtime may become a little noisy at your house for a while, what with siblings sending messages via chirps and squawks.)
- Draw and color pictures of favorite birds. Ask, "Why is this bird your favorite?" "Because it's blue" is as good a reply as any.
- Keep a bird calendar. Record the last time certain birds are seen in the fall. In the spring, the same calendar can be used to record the return of migrating birds.
- When winter comes, set up bird feeders and research what seeds each type of local bird prefers. Study bird house design and build a few over the winter months. When spring comes, check your field guide to find out where certain species like to nest, and then mount the houses in similar places. You can continue your unit study throughout the year as you watch bird families choose dwellings, build nests, lay eggs, raise babies, and teach them to fly. Δ

Teach your kids math with the banking game

By Micki Warner

One of the tricks of successful education is the “exceptional teacher’s” ability to make the process fun. When a parent takes over the teacher’s job in the home, it is sometimes disastrous for both parent and student. The parent’s intentions are good, but the part that gets lost is the fun.

The banking game described here can provide the fun and also accomplish the following teaching objectives:

- Improving basic math.
- Instilling organizational skills and neatness.
- Learning real banking methods.
- Encouraging saving money.

Along with these benefits, the program provides an opportunity for positive parent-child interaction during the educational process.

To get started, you need the following materials: several unused checkbooks, some deposit and withdrawal slips, a little “white-out” on an old bank statement, and two large piggy banks with enlarged holes for “ease of transaction.”

At the ages of seven and ten, I introduced my children to the world of banking by opening the “Children’s Bank and Trust Company,” appointing myself Teller. Each child was given a stack of withdrawal slips, a new checkbook (with deposit slips), and a brand-new, simulated-leather checkbook cover. My only other contribution was a beginning balance of \$5.

It was explained to the children that the *initial deposit* belonged to them, but thereafter, each *transaction*, whether a *deposit* (put-in) or *withdrawal* (take-out), must be accomplished according to the rules of the bank. They practiced writing checks



for different amounts and developed the skill of writing numbers in long-hand. Addition and subtraction were used to complete the stubs, and instructions were given on how to deposit and withdraw money. Each time a child put money in the bank—or took some out—it was via a deposit or withdrawal slip. If they borrowed cash from other family members, we received a check, and the money was removed from the bank.

All transaction slips were kept inside the pig, and at the end of each month, there was an accounting. For this procedure, an old bank statement was used, by obliterating other transactions with white-out. We made photocopies of this blanked-out statement, and we used these sheets to tally up what the children had done. Following a real bank’s format, we carefully filled out the statement with deposits and withdrawals. Cancelled checks and deposit slips were balanced and checked with the stubs in their checkbooks. The children rarely balanced, but we always had fun hunting for and solving mistakes.

Because we were a “small and newly opened bank,” we had no interest (which might be excellent for older children). We also had no bank charges. The children thought this more than fair.

In the beginning, we had many “closed accounts” due to “insufficient funds,” and after a few months we included a stiff fine for bouncing checks (one dollar). This dollar went to the salary of the Teller. The entire process was kept simple, and in a short time, the children learned banking concepts, and their math skills were greatly improved. The children discovered the importance of neatness, since many mistakes were due to illegible numbers.

We kept up the game for many years. The children became “board members,” and they enacted and repealed many by-laws for their bank. Some worked, some were enough to bring in the FBI. Their savings grew as it became an embarrassment to “bounce a check.” When they began to demand interest, I turned them over to Alice, the teller at my *real* bank. Δ

Improve your poultry with selective breeding

By Jan Palmer

People don't usually think about poultry in terms of breeding—it's not taken seriously. People who wouldn't dream of inbreeding in other species take cockerels from the same hatchery (and probably the same genetic lines) to sire the next year's flock. Ducks and geese are not usually bred for specific traits, either.

Take a few minutes and think about what traits you want to preserve in your flock. Do you want the absolute largest bird? The one who is always out foraging for food, lays well, and is in good condition? The wild one that no predator can catch? The gander with such a good temperament that even the kids can be around him? The duck who lays exceptionally well? Do you want chickens for good laying ability and meat, but want to feed the meat birds differently from the start? Do you have rare breeds that you would like to preserve while selecting for your own selected traits? Each of these goals can take a different approach in selective breeding.

When selecting chicken breeders, look for cockerels that are at least six to eight months old (depending on breed) and pullets that have been laying for at least six weeks. Another option is using the older one- to two-year-old hens for breeders. This has a couple of advantages: if they've survived for over a year, they're disease-resistant and good layers (if they aren't, they should have been culled long ago).

Therefore, they have proven themselves as carriers of traits that you want to have in the flock.

Keep the breeders as stress-free as possible, and have a way to separate them. Having three cockerels or roosters in with a dozen hens will leave you with a pretty ragged bunch of hens, and you won't know which male sired the chicks. Separating your breeders also prevents excessive inbreeding.

Other management factors: When you purchase your initial batch of chicks, you should make sure that they are vaccinated for Marek's disease. Keep the birds healthy. Make

sure parasites are eliminated before setting to collect breeder eggs. Make sure the male is healthy and doesn't have too many hens to breed. A good rule of thumb is about a dozen hens per male. Give them room to move about. Make sure birds can comfortably reach into feeders.

Don't assume that layer rations are good for breeding: some have too little animal protein, vitamins, and minerals for embryos and vigorous hatching eggs. Look for a breeder ration (freshly mixed) or a game bird ration. If you can't find either, about six weeks before you plan to collect eggs for hatching, start supplementing your birds with a handful of dry cat food a few times a week, and add a vitamin/mineral supplement to their water supply.

Poultry must receive 14 hours of light daily for best production. Use lights with timers. Gather eggs twice a day, and handle eggs gently: jarring the eggs decreases the chance of hatching. Wash your hands before collecting to minimize problems, and wash dirty eggs in water slightly warmer than the eggs.

If you are using a broody hen, make sure that she is reliable and won't abandon the eggs part way through incubation. Some people have had good luck with banty hens, Muscovy ducks, and some breeds of standard chickens. Orpingtons, Plymouth Rocks, Dominiques, and Sussex chickens all have members who are determined to be mothers. I had a Dominique hen a couple of years ago who had a few eggs in the



Barred Plymouth Rock cock selected as a breeder. He is of good size and temperament and is an active forager.

bottom of a bucket. I picked her up and pulled the eggs out because I needed to use the bucket. As soon as I set it down, she was back in it, nestling down. That's determination.

However, don't rely on breed alone. Khaki Campbell ducks aren't supposed to be good setters, yet I had one who was downright vicious about protecting the eggs under her. She'd hatch any kind of eggs and would defend the nest with wing attacks, hissing, and well-placed attacks at the hand, foot, or dog nose near her nest. (She was of excellent temperament when she wasn't nesting.)

Of course, you may wish to use an incubator and set up a brooder in the corner of the barn, garage, or storage shed. Δ

Here are some cucumber pickles to make at home

By Olivia Miller

Preserving produce by “pickling” is one of the oldest and most delightful ways to save your summer harvest for your winter table. The word “pickle” applies to any food preserved in brine and/ or vinegar, with or without bacterial fermentation, and with or without the addition of spices and sugar.

Foods pickled with *vinegar* are usually cooked before the vinegar is added. Because the food is cooked, no fermentation is required. This method is usually restricted to fruits, though some vegetables can be preserved in this way.

Foods pickled with *salt* are usually covered with a brine solution of the proper strength to allow fermentation to set in. The rate of fermentation is determined by the strength of the brine: the weaker the brine, the more rapidly fermentation takes place; the more concentrated the brine, the slower the fermentation. One recipe from an old-timer said to make a brine strong enough to float an egg (one pint of salt to one gallon of water) for her recipe for cucumber pickles.

Quick-process pickles, also called *fresh-pack*, use a salt-and-vinegar method that has a brief brining period before the vinegar is added. Sometimes fresh-packed pickles are canned in a spicy vinegar solution without brining. Whole cucumber dills and sweet gherkins are prepared by this method.

Helpful tips

Here are some helpful tips for making cucumber pickles:

- **Use pure salt** (99% sodium chloride) with no non-caking material or iodine added, for fermented pickles. Usually called “granulated salt,” “barrel salt,” or “meat curing salt,” it was once found at farm supply stores and speciality grocery stores, but now is available in most grocery stores in inexpensive 2½ lb. bags labeled “canning and pickling

salt.” Regular non-iodized table salt can be used for quick-method pickles.

- **The lime used for pickling is calcium hydroxide** (*air slaked or builder’s lime*). You’ll find it beside the pickling salt in your grocery section with the canning jars and lids.

- **Ground spices can darken pickles and relishes.** Many

recipes say to tie spices in a thin cloth bag and remove them before pickles are packed. Fresh spices give the best flavor. If dried herbs are used in substitution for fresh, use this ratio: 1 teaspoon dried = 1 tablespoon fresh. Spices and herbs lose their pungency in heat and humidity, so store them in airtight containers in a cool place.

Pickling spice, available at the grocery store, is made from ten to sixteen

spices. Or you can make your own with the following recipe:

Pickling spice:

2 tablespoons mustard seed 1 tablespoon whole allspice 2 teaspoons coriander seeds 2 teaspoons cloves 1 teaspoon of ground ginger 1 teaspoon dried hot red pepper flakes 1 bay leaf, crumbled a 2-inch cinnamon stick, crushed fine
--

In a bowl combine all the spices. Keep the mixture in a tightly sealed jar in a cool dark place for six months. Makes ⅓ of a cup.

- **Dill is in season before cucumbers are ready for pickling.** Gather the dill, do not wash it, break heads off the stem



A display of cucumber pickles: icicles, bread-n-butters, sweet gherkins, cucumber relish, and crisp sweets.

and place heads in mason jars. Put on a cap and screw band tightly and freeze immediately.

- **The vinegar used in pickling needs to be a 4 to 6% acetic acid, 40 to 60 grain strength.** Check labels. Cider vinegar has a good flavor and aroma. Clear distilled vinegar is used for onion and cauliflower, because cider vinegar discolors, but for cucumber pickles this is not a problem. White distilled vinegar has a sharp, pungent acetic acid taste.

Vinegar has been around a long time, pre-dating the Old Testament (which mentions Ruth dipping a bit of bread into vinegar). The name comes from *vin aigre*, which is French for “sour wine,” and that is where it began. The bacteria *Acetobacter* sours the wine, dissipates the alcohol, and leaves a mixture of 4% acetic acid and water. Roman legions put wine vinegar into their drinking water to purify it. Vinegar was a by-product of wine makers and brewers until the 17th century, when the French separated vinegar making it into a separate industry. The English make malt vinegar from sour beer and ale. Americans make vinegar out of fermented apple juice.

- **Only fresh, firm, not-too-ripe cucumbers should be used for pickling.** Do not use waxed cucumbers, since the brine cannot penetrate wax. Cucumbers should be small or medium-sized. No more than 24 hours should elapse between picking cucumbers and placing them in brine. (If my harvest isn't adequate and I must buy more produce, I get the process set up before I go to the farmers' market to hunt for the right fruit, taking the farmer at his word that the cucumbers were harvested that morning.) Wash to remove dirt, blossom, and grit. Once in the brine, keep the cucumbers in a cool place; about 70° F is best. The fermentation process takes anywhere from a few days to several weeks, and is complete when bubbles stop coming up to the top of the container. Test for bubbles by tapping container on the side with your hand. Cut a cucumber: if it is the same color throughout and has no noticeable rings, fermentation is complete.

- **Hard water (that is, water with extra calcium salts) interferes with the brining process.** Purchase bottled water, or add 1/2 cup vinegar to a gallon of hard water.

- **For the brining process, use stone jars or crocks, unchipped enamelware, or glass containers.** Cover with a heavy plate or glass lid while brining. Use a filled jar of water to hold the cover down, so that vegetables are kept below the surface of brine. Pickles are soft and slippery if they're re exposed above the brine or if the brine is too weak. Slippery stuff also results from storing in too warm a place, or cooking too long or a too-high temperature when cooking.

When heating pickling liquids, use glass, unchipped enamelware, stainless steel, or aluminum utensils. **Don't**



The right stuff for pickling: an unchipped crock, canning salt, vinegar, garlic, onion, sweet red peppers, fresh cucumbers, fresh dill, pickling spice, and jars and lids.

use copper, brass, galvanized, or iron utensils, as these metals will react with acids or salts and cause undesirable color changes in the pickles or form compounds which could be **poisonous**. Be attentive when timing the processing procedure. For fermented cucumbers and fresh-pack dills, start to count processing time as soon as the filled jars are placed in the boiling water. This keeps them from tasting cooked and losing their crispness.

To sterilize jars and glasses for pickling: Wash the jars in hot suds and rinse them in scalding water. Put the jars in a kettle and cover them with hot water. Bring the water to a boil, cover, and boil the jars 15 minutes from the time that steam emerges from the kettle. Turn off the heat and let the jars stand in the hot water. Just before they are to be filled, invert the jars onto a dish towel to dry. The jars should be filled while they are still hot. Sterilize the jar lids for five minutes, or according to manufacturer's instructions.

Frightened? Don't be. Cucumber pickles are successfully produced in ordinary kitchens every year. I stick to the simple, quick methods for most of my canning, enjoying the special tastes that cannot be purchased at the grocery store. My one exception to the “quick and easy” is a favorite recipe for dills:

Fermented dill pickles

50 to 60 smooth small cucumbers
1 ounce whole mixed spices
dill
1 pound pure salt
1 gallon water
1 pint cider vinegar



Author Olivia Miller takes bread-n-butter pickles from the water bath, placing the hot jars on a towel to let them cool before storing.

Place a layer of dill in the bottom of a clean, four-gallon crock. Add $\frac{1}{2}$ ounce whole mixed spices. Pack cucumbers to within three inches of top of crock. Then add another $\frac{1}{2}$ ounce whole mixed spices and a layer of dill.

Make a cold brine of the salt, water, and vinegar. Pour brine over cucumbers. Cover with a china plate. Weight plate down to keep cucumbers below surface of brine. Cover top of crock with cloth.

Remove any scum that forms on surface of liquid.

Just as soon as bubbling ceases and active fermentation stops, place pickles in standard canning jars. Pour brine over pickles, screw on lids firmly tight, and immerse in a kettle of tap-temperature water. Bring to a boil and boil for 15 minutes. When jars are cooling, you can tell when each one vacuum-seals, because the lid will click down into a little indentation. Store in a cool, dry, dark place.

A variation of this fermented pickle is this mustard recipe:

Fermented mustard pickles

50 to 60 smooth small cucumbers
1 gallon vinegar
 $\frac{1}{2}$ pound (16 tablespoons) dry mustard
1 cup salt

Wash cucumbers, pack into sterilized jars. Work the mustard into a paste using a little of the vinegar, then dissolve it in the rest of the vinegar. Pour cold solution over cucumbers to within a half inch of the jar top. Put on the cap, and screw the band firmly tight. When fermentation (bubbling) has stopped, process in boiling water bath 15 minutes. Makes three gallons. I prefer this method because the fermented

pickles are not moved into another container after the fermenting process.

There are many different kinds of pickles. Here are recipes for some of my favorites:

Fresh kosher style dill pickles

Kosher pickles are made in accordance with Jewish dietary laws. All ingredients are derived from vegetable matter only, and utensils used in the processing have not been in contact with meat products. I noticed the presence of garlic in all of my kosher cucumber pickle recipes. This is my favorite:

30 to 36 cucumbers (3-4 inches long)
3 cups vinegar
3 cups water
6 tablespoons salt
fresh or dried dill
 $\frac{1}{2}$ to 1 clove garlic, sliced
 $\frac{1}{2}$ teaspoon mustard seed

Wash cucumbers. Make a brine of the vinegar, water, and salt. Bring to a boil. Place a generous layer of dill, garlic, and mustard seed in the bottom of six pint jars. Pack the cucumbers in the jars. Fill the jars to within a half inch of the top with the boiling brine. Put lids on jars, screw bands firmly tight. Process 20 minutes in boiling water bath. Pickles will shrivel after processing, but will plump up in the sealed jars, so don't panic and open the jars. Yields six pints.

Bread-n-butter pickles

Bread-n-butter pickles are a delicious condiment that adds sparkle to sandwich meats and blackeyed peas. My young children mound bread-n-butter pickles on top of lima beans, and even ask for a second helping.

16 cups of cucumber, sliced $\frac{1}{4}$ inch thick (4 pounds)
6 cups of thinly sliced onions
 $\frac{1}{2}$ cup salt
5 cups sugar
5 cups cider vinegar
 $1\frac{1}{2}$ teaspoons turmeric
 $1\frac{1}{2}$ teaspoons celery seed
 $1\frac{1}{2}$ teaspoons mustard seed

In a large (seven-quart) kettle, mix cucumbers, onions and salt. Cover with cold water and three trays of ice cubes. Let stand three hours. Drain, rinse well, and drain again. Set aside. In another large kettle, mix sugar and remaining ingredients. Over high heat, heat to boiling. Reduce heat

and simmer uncovered 30 minutes, or until syrupy, stirring often. Get jars ready (wash and have hot), add cucumbers and onions to syrup over high heat, heat almost to boiling, stirring some, but don't boil. Ladle hot mixture into hot jars. Leave 1/2" head space. Wipe jar tops, put on rings and lids and process in boiling water 15 minutes. Cool. Makes six pints. For a Christmas variation, add two cups of sliced red sweet peppers.

Sweet gherkins

A *gherkin* is a variety of cucumber that bears small prickly fruit. The name also refers to the immature fruit of the common cucumber when pickled.

Use cucumbers no larger than two inches in length. Leave 1/4 inch or more of the stem on each. Wash and place in a crock. Add salt, using one cup of salt for each gallon of cucumbers. Pour boiling water over them and let them stand 24 to 36 hours. Remove the pickles from the brine and drop them into a solution of equal parts vinegar and water. Heat to the boiling point and remove pickles to sterilized jars. Add a teaspoon of mixed pickling spices to each quart, and also a fairly long strip of horseradish root. Add a cup of sugar per quart to the hot vinegar and water, and pour it over the pickles. Water bath 10 minutes.

Icicle pickles

"Icicle" pickle refers to the shape of the cucumber pieces, a lengthwise cut resulting in long slivers shaped like icicles. Cucumbers cut in this fashion can be dilled, sweetened, or fermented.

celery
pickling onions
1 quart cider vinegar
1/3 cup pickling salt
1 cup sugar

Cut large cucumbers into four to eight pieces lengthwise. Let stand in ice water eight hours or overnight. Pack into hot sterilized jars.

Fill the center of each jar with two pieces of celery and six pickling onions. Combine the vinegar, salt, and sugar. Heat to a boil. Fill jars and seal in water bath 10 minutes.

This is the basic recipe, and you make as much vinegar/sugar/salt solution as you need. I save unused portions in the refrigerator for the next day's pickles during canning season, or pour it over sliced cucumber, green bell pepper, and onion for a salad. The salad is best when chilled a few hours.

Start a collection of pickle recipes. Commercial canning jar companies produce recipe books with lots of tips. Δ

A BHM Staff Profile: Teri-Lynn Hook



Teri-Lynn Hook was the first person hired by *Backwoods Home Magazine* after the magazine moved to Gold Beach in Oregon. She is now the magazine's Office Manager, and she is in charge of the day to day operations of the office, customer satisfaction, and order fulfillment.

She has an extensive background in business, which is evident in her efficient overseeing of office functions and the quickness and accuracy with which orders are processed.

Teri's favorite pastime is reading fiction with a good cup of coffee in front of her living room window while looking out over the Pacific Ocean. She also loves the fog horn, seagulls, and sea lions, which are located around Gold Beach in abundance.

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Enrich your soil with cover crops

By Inez Castor

Use it or lose it. That expression did not originally refer to soil, but it could have. Nature improves soil by growing plants on it continuously. In the wild, good soil is never without a cover of vegetation. Something will grow there, so it may as well be something you choose.

If you don't intend to grow a winter garden, plant food for the soil. Cover crops are grown only to be returned to the soil, to feed and protect the soil. They improve fertility, prevent erosion, and provide sanctuary for beneficial creatures while interrupting disease and weed cycles.

Cover cropping is a technique first practiced by the Chinese over 3000 years ago. Only in recent decades have American gardeners discovered its benefits. Planted immediately after the ground is cleared, cover crops act as "holding tanks," taking up nutrients and keeping them near the soil surface. They also add organic matter to the soil and protect earthworms.

A good cover crop, often called a *green manure*, should be easy to start, form a thick growth, and be easy to turn under in the spring. It will save you time and money, improve your soil, and increase your yields.

Not all manure comes from animals. Manure is anything that, through its decay, introduces organic matter and nutrients into the soil in compensation for those removed by crops, livestock, and the elements. Green manure is as much a fertilizer as barnyard manure.



Hairy vetch

Types of cover crops: legumes and grasses

Cover crops come in two main types: *legumes* and *grasses*. **Legumes** include peas, beans, clover, and vetch. These crops are great producers, not only of organic matter, but that all-important soil nutrient, *nitrogen*.

Legume cover crops are actually "nitrogen factories," but they need help from a kind of bacteria called *rhizobia*. These bacteria form white nodules on the legume roots, into which they bring soil-borne nitrogen. This nitrogen is absolutely useless to the plants until the bacteria eat it. The by-product of this process is the form of nitrogen that plants can use. This is called *nitrogen fixation*.

Legume seed must be *inoculated* with the necessary bacteria before planting. If your soil is in good condition, it probably already contains the necessary bacteria, but it's a good idea

to inoculate the seeds anyway. The inoculants are inexpensive, easy to apply, completely organic, and will ensure that your legumes get all the nitrogen they can handle. Though there are several different types of inoculants, the type needed for the legume you choose will be available wherever you buy your seed. Inoculation is not a preventative, but a booster, like yeast. Seeds must be inoculated on the same day they're planted, or the bacteria will die.

Grasses are grain plants, including wheat, oats, barley, and rye. Although they don't produce nitrogen the way legumes do, grasses provide some nitrogen, as well as potassium, phosphorous, and trace elements as they break down. The main benefit of using grasses is that they create plenty of organic material that conditions the soil. They also make an especially efficient mulch.

All of the recommended green manures can be purchased in bulk much less expensively than the seed you buy in small packets. Seeds discussed in this article are available from these suppliers:

Territorial Seed Company
P.O. Box 157
Cottage Grove, OR 97424
541-942-9547

Bountiful Gardens Seeds
18001 Shafer Ranch Rd.
Willits, CA 95490
707-459-6410



Choosing

Choosing the proper winter cover crop depends on your soil and climate. I am familiar with the Northwest, so I'll use some of our sub-regions as examples.

In the coastal areas of northern California, Oregon, and Washington, where winter temperatures are moderate and the soil rarely freezes, fava beans, crimson clover, buckwheat, and annual rye work well.

In the Cascades and east of the mountains, where winters are colder, annual rye, winter wheat, and vetch are good choices. Vetch is the most cold-hardy of all green manures, and when mixed with a grain, such as rye, will give you the advantages of both the grains and legumes.

Be careful in your choice of cover crop. The easiest is always the best, and any crop that cannot be easily killed and turned under looks suspiciously like a weed. Annual grasses, such as rye, winter wheat, and barley work well, but perennial grasses can be hard to kill. And remember, where winters are mild (as on the coast), almost anything can become a perennial.

Annual rye grass is a good winter cover crop for both the mild-winter coastal areas west of the Cascades, and the colder areas to the east. It must be planted early in the colder areas so it can become well established before extreme weather sets in. In the coldest parts of eastern Washington and Oregon, rye should be planted by September 15.

In these coldest areas, rye will not make it through the winter, but the plant residue holds the soil and provides organic matter to be tilled under in the spring. In milder areas, rye can prevent heavy winter rains from eroding bare soil.

Bags labeled "Ryegrass" in your garden center are likely to be mixtures of annual and perennial rye. Look for labels that specify "Annual."



Crimson clover

Planting

While some experts maintain that soil preparation is unnecessary before sowing cover crops, a better, healthier stand can be obtained by prepping the soil just as you would for any other plants.

As soon after harvest as possible, remove all large plant residue, such as corn stalks. Till under small material and weeds, incorporating fertilizer or compost if the soil is depleted.

Broadcast the seed, and in the case of most of the legumes and grasses, just rake them in. If you want to use a rototiller, go over the soil quickly and shallowly, so that your seed isn't covered by more than an inch of soil.

In the case of clover, which wants a firm seedbed, press the seed in by tamping it down or using a lightweight roller. If you don't expect rain within 48 hours of planting, go ahead and water. A light mulch will keep the soil moist and improve germination.

Another option is to plant your cover crop between and among established vegetable crops during the last month of production. Simply broadcast a low-growing green manure among the vegetables to give it an early start. Once the vegetables are through producing, pull the residue and let the cover crop take over. This

is a good way to prevent post-harvest weeds from becoming established. Try planting clover among your corn stalks.

Timing is critical for green manures. It's important to let your crop get a good start before winter weather. Legumes should be planted six to eight weeks before the expected date of the first hard frost, and grasses should be in the ground four to six weeks before that date.

Varieties

Crimson clover is cold- and shade-tolerant, but it doesn't like acid soil. *Be very careful to get crimson clover rather than one of the perennials, such as red clover. These propagate through underground runners and can become a weed almost impossible to eradicate.* Crimson clover has beautiful, edible blossoms, but turn it under before it goes to seed. Seed production causes stems to become woody, taking longer to break down. This legume fixes nitrogen at a rate of one and a half pounds per 500 square feet. Plant four pounds per 500 square feet.

Fava beans: Banner is probably the best green manure fava. It is tolerant of cold to ten degrees and will survive temporarily water-logged soil. It can reach six feet, and provides an enormous amount of organic matter, as well as fixing nitrogen at a rate of one pound per 500 square feet. Sow it early in October, planting about five pounds of seed per 500 square feet. While the plants may be somewhat daunting in appearance, they are so brittle that they're easily tilled under. If you prefer, you can snap the stalks off and compost them separately, tilling in only the roots.

Vetch: While there are many vetches, woolly or hairy vetch is best, tolerating cold to zero degrees and growing well in poor soil. It fixes nitrogen at a whopping three and a half pounds per 500 square feet, and should be planted

at a rate of five pounds per 500 feet. Vetch is shade-tolerant, and probably the best all-round green manure.

Buckwheat: This is a fast-growing grain, going from sprout to full bloom in about six weeks. In mild-winter areas, it usually winters over, taking a few frosts, but dying out if the ground freezes. It breaks up the soil well and grows to a height of three feet. It will grow on soil of low fertility, rapidly forming a dense cover. This cover crop accumulates phosphorus, which is released back into the soil when the crop is turned under. It has the best amino acid composition of all the grains, and attracts beneficial insects, including bees. If you raise bees, you'll find buckwheat honey is rich and dark. The brittle roots and foliage till in easily. Plant at a rate of three pounds per 500 square feet.

Annual rye: Annual rye is widely adaptable and very hardy. Sow it in late summer to produce both grain and organic matter. It will put on some early growth, then rest until spring. Rapid spring growth will produce seed heads for harvest in less than two months, so you want to work it up early. Plant at a rate of two pounds per 500 square feet.

Winter wheat: Hard winter wheat is cold-hardy and creates an abundance of organic matter. It is not drought-tolerant, but will survive acid soil. Plant in early fall for erosion control. Be sure to turn it under before seed heads form and stalks get woody. Plant at a rate of five pounds per 500 square feet.

Grains in general have several liabilities. They can be tough and slow to decompose if they become too mature. Winter wheat tills in easiest, but *be sure to work in all grains early*, or you'll be facing an unplanned prairie.

Green manure roots spread deeply through the earth opening up tight soil. When the roots die, they become food for microbes and earthworms,



Hard wheat

whose work continues the process of soil improvement. Over the years, a tight, compact soil can be turned rich and soft simply by having plants growing on it at all times.

Continue adding compost and manure, but as soon as a food crop is finished, plant a cover crop. Their wide diversity of growing habits gives you a choice to fit your needs.

Combine the types

In many cases, a blend of grains and legumes may be your best plan. Together they provide both nitrogen fixation and organic matter. Seeded together, the fast-growing grain protects the dawdling legume so it can make a good stand. You might try vetch with winter wheat in colder areas, or crimson clover and buckwheat in mild-winter areas.

Young, succulent legumes and grains provide more nutrients, while older, tougher plants provide more organic matter. Always allow at least two weeks for decomposition before planting other crops. Three weeks is better if you have the time. The decomposition process binds nitrogen, so it will not be available to nurture plants and seeds until decomposition is complete. The warmer the weather, the faster the residues break down.

Green manure plants can also provide you with food while they're enriching the soil. You can allow a small patch to go to seed, then thresh the grains for sprouting, or grind them into flour.

While fresh fava beans are routinely available in European markets, the only way to get them here is to grow them yourself. Shell them like peas and try them in a soup that includes onions, garlic, and carrots.

Crimson clover's beautiful blossoms are attractive and tasty in salads, and it makes a sweet, healthful tea. *But be sure you have crimson clover: sweet clover is toxic.*

If we intend the soil to feed us, we must, in turn, feed it, and cover crops are a simple and economical way to nourish the soil. In spite of these beautiful days, winter is definitely on the way. Like you, your garden should be warmly covered before bad weather begins. Δ

Mice

Try to say something nice
About mice.

It's so hard to love them
When they rattle in the oven,
Just looking for food,
Yet souring our mood.

They scamper through the night,
Causing untold fright,
As they dash across the nose
Or shuffle over the toes
Of a sleeping canine,
Who reacts with a whine,
A howl, or a bark,
Shattering the dark.

Their style definitely encroaches
But they eat cockroaches.
Well, there's something nice
About mice.

Diane M. Calabrese
Columbia, MO

Here are some tasty ways to use those end-of-season green tomatoes

By Marjorie Burris

That gentle nip in the autumn air feels pleasant to your cheeks, but it also means that one more tomato season is about to come to an end. Although the *Old Farmer's Almanac* lists frost dates for most parts of the United States, it is quite candid and adds, "The possibility of frost occurring after the spring dates and before the fall dates is 50 percent." So at our house, when that time rolls around, we keep an ear to the radio for weather forecasts and an eye on the sky for cloud conditions. We want to protect those warm-weather-loving tomato vines as long as possible. We hate to give up those delicious vine-ripened tomatoes.

Tomato hay stacks

When we are convinced a light frost is imminent, we go into action. When we first transplant our tomatoes into the garden in the spring, we either stake them or set a cage over the plants. The method we use to lengthen the life of our vines in the fall involves the support of this stake or cage. First we pick all the small tomatoes that have no chance of ripening. Then we examine all the larger tomatoes and leave only those showing signs of having at least some blush of color. Next, we push old hay or straw up under and around and over each tomato plant, keeping the hay wrap loose and from three to four inches thick. Then we securely tie the wrap with twine around the tomato plant and its stake or cage. The stake or cage makes a good support for the "tomato hay stack." The tomato vines stay snug and warm under their cover, and the tomatoes will ripen without any more light. Later, when we pick the ripened tomatoes, we carefully part the hay without

pulling it loose, and pat it back into place until all the tomatoes are gone. Tomatoes protected in this manner ripen slowly until a very deep freeze hits, and best of all, they still have that wonderful vine-ripened taste.

The green ones

Now, about those other green tomatoes we picked before wrapping the vines. Once again, we sort the tomatoes, and we select the nicest large, full-grown ones to store.

We make sure the tomatoes are dry, then wrap them individually in newspaper. Some people don't like to use newsprint on food, even though most newspaper ink is now made from soy bean oil. If you don't like to use newsprint, inexpensive white paper napkins work just as well.

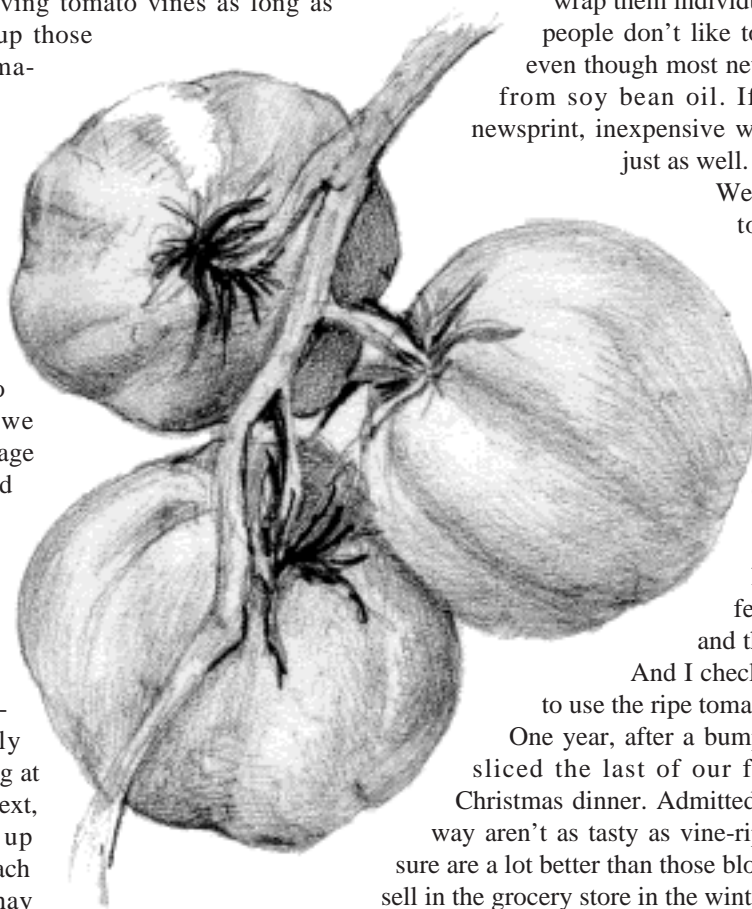
We store the wrapped tomatoes in shallow boxes or trays—no more than two deep—and set the trays in a place that does not freeze or get above about 65° F. Most green tomatoes will ripen in about four to six weeks if held at 55° to 65° with moderate humidity. To hasten ripening, I place a few unwrapped apples here and there among the tomatoes.

And I check them periodically, so as to use the ripe tomatoes before they spoil.

One year, after a bumper crop of tomatoes, we sliced the last of our fresh, red tomatoes for Christmas dinner. Admittedly, tomatoes ripened this way aren't as tasty as vine-ripened tomatoes, but they sure are a lot better than those blobs they call tomatoes and sell in the grocery store in the winter time.

Green tomato relish

Because all produce, including green tomatoes, should be freshly picked (meaning not more than 24 hours old) before starting the pickling or canning process, I immediately start processing the rest of our green tomatoes. One way to use a



large amount of green tomatoes is by making those good green tomato relishes. Most green tomato relish recipes tell you to chop the vegetables and let them set overnight in a salt solution. I can quickly chop the vegetables for relish and set them aside while I prepare more green tomatoes for other recipes. Here are our favorite green tomato relish recipes.

Piccalilli

1 quart chopped cabbage
1 quart chopped green tomatoes
2 sweet red peppers, chopped
2 sweet green peppers, chopped
2 large onions, chopped
1/4 cup salt
1 1/2 cups vinegar, 5% acidity
1 1/2 cups water
2 cups firmly packed brown sugar
1 teaspoon *each* dry mustard, turmeric, celery seed

Mix chopped vegetables with salt and let stand overnight. Next morning, line a colander with cheesecloth, pour vegetable mixture into colander, let drain, then bring edges of cheesecloth up over mixture and squeeze until all liquid possible is removed. Boil vinegar, water, sugar, and spices five minutes. Add vegetable mixture. Bring to a boil. Pour into sterilized jars to within a half inch of top. Put on cap. Process in boiling water bath five minutes. Yield: six pints.

Variation of Piccalilli: Use two quarts chopped green tomatoes instead of one quart cabbage and one quart green tomatoes. Also, two green sweet peppers can be substituted for the red peppers, but the relish won't be as pretty.

India relish

12 large green tomatoes
4 large sweet green peppers
4 large sweet red peppers
6 cucumbers (6 inches long)
2 large onions
6 Tablespoons salt
2 cups chopped cabbage
2 small hot peppers
2 1/2 cups sugar
3 cups vinegar, 5% acidity
1/2 teaspoon ground mace (or nutmeg)
1 teaspoon cinnamon
2 teaspoons ground ginger root
1 teaspoon turmeric
3 Tablespoons mustard seed
3 bay leaves

Remove seeds from peppers. Put peppers, tomatoes, cucumbers, and onions through food chopper, using coarse blade. Stir salt into vegetables. Let set overnight. Next morning, line a colander with cheesecloth, pour vegetable mixture into colander, let drain, then bring sides of cheesecloth up over mixture and squeeze until all liquid possible is removed. Chop cabbage very fine. Combine all the vegetables. Add sugar, vinegar, and spices. Mix well and heat to boiling. Boil three minutes. Pack into sterilized jars to within a half inch of top. Put on cap. Process in boiling water bath five minutes. Yield: eight pints.

Chow-chow

1 peck (12 1/2 pounds) green tomatoes
8 large onions
10 green bell peppers
3 Tablespoons pickling salt
6 hot peppers, seeded and chopped
1 quart vinegar, 5% acidity
1 Tablespoon ground cinnamon
1 Tablespoon ground allspice
1/4 teaspoon ground cloves
3 Tablespoons dry mustard
4 bay leaves
1 3/4 cups sugar
1/2 cup horseradish (optional)

Remove seeds from peppers and chop with the tomatoes and onions. Stir in salt and let stand overnight. Next morning, line a colander with cheesecloth, pour mixture into colander, and let drain. Bring edges of cloth up over mixture and squeeze to remove all liquid possible. Put in a large kettle. Tie the spices in a cheesecloth bag and add to the mixture along with the vinegar and sugar. Allow to boil slowly until tender, about 15 minutes. Add horseradish, return to boil. Remove spice bag. Pack into sterilized jars within a half inch of top. Put on cap. Process in boiling water bath five minutes. Yield: 10 or 11 pints.

Green tomato pickles

Next, I start making a few jars of green tomato pickles. Here are some good green tomato pickle recipes.

4 quarts thinly sliced green tomatoes
4 small onions, thinly sliced
4 green bell peppers, seeded, cut into strips
1/2 cup pickling salt
1 quart vinegar, 5% acidity
3/4 cup pickling salt
1 Tablespoon *each* black pepper, mustard seed, celery seed, cloves, allspice, and cinnamon

Sprinkle $\frac{1}{2}$ cup salt over vegetables, let set overnight. Next morning, drain well but do not squeeze dry. In a large kettle, mix vinegar, $\frac{3}{4}$ cup salt, and spices. Bring to boil. Add vegetables. Boil 20 minutes, pack into sterilized jars. Put on cap. Process in boiling water bath five minutes. Yields approximately eight pints.

Green tomato kosher dill pickles

Small, firm green tomatoes
Celery stalks
Sweet green peppers, cut into fourths
Garlic
1 quart vinegar, 5% acidity
2 quarts water
1 cup pickling salt
Dill

Pack tomatoes into sterilized quart jars. To each jar add one stalk celery, one green pepper, and a bud of garlic. Make a brine of the vinegar, water, and salt. Boil with the dill for five minutes. Pour hot brine over vegetables to within a half inch of top of the jar. Put on cap. Process in boiling water bath 15 minutes. This amount of liquid fills six quarts. These pickles will be ready for use in four to six weeks.

Green tomato sweet pickles

1 gallon green tomatoes (16 cups sliced)
 $\frac{1}{4}$ cup pickling salt
 $\frac{1}{2}$ Tablespoon powdered alum
3 cups vinegar, 5% acidity
1 cup water
4 cups sugar
1 Tablespoon mixed pickling spices
 $\frac{1}{2}$ teaspoon ground cinnamon
1 Tablespoon celery seed
 $\frac{1}{2}$ teaspoon ground allspice
1 Tablespoon mustard seed

Sprinkle salt over sliced tomatoes and allow to stand overnight. Next morning drain well, but do not squeeze dry. Mix alum with two quarts boiling water and pour over tomatoes. Let stand 20 minutes. Drain and cover with cold water, then drain well, rinsing alum away. Tie spices in a cheesecloth bag. Combine spices with vinegar and one cup of water. Add sugar and bring to a boil. Pour solution over tomatoes, let stand overnight. On the third morning bring the pickles and the solution to a boil. Remove spice bag. Pack into sterilized jars to within a half inch of top. Put on cap. Process in boiling water bath five minutes. Yield: eight pints.

Green tomato mincemeat

No season is complete without a little bit of green tomato mincemeat for pies.

3 quarts coarsely ground green tomatoes
3 quarts peeled, cored, coarsely ground apples
1 cup ground suet
1 pound seedless raisins
2 Tablespoons *each* grated orange and lemon rind
5 cups well-packed dark brown *or* raw sugar
 $\frac{3}{4}$ cup vinegar
 $\frac{1}{2}$ cup fresh lemon juice
 $\frac{1}{2}$ cup water
1 Tablespoon ground cinnamon
 $\frac{1}{4}$ teaspoon ground cloves
 $\frac{1}{4}$ teaspoon ground allspice
2 teaspoons salt

Combine all ingredients in large kettle, bring to boiling, stirring frequently. Reduce heat and simmer until dark and thick, about two and a half hours, stirring occasionally. Use a pad under kettle to help prevent scorching. Pour boiling hot into pint jars to within a half inch of top. Process in a boiling water bath 25 minutes. Makes eight pints, enough for 8 eight-inch pies. Pressure processing is not needed for this recipe because of the very long cooking time.

Green tomato mincemeat #2

6 pounds green tomatoes
6 pounds apples, cored and peeled
6 pounds raisins
1 pound suet
 $1\frac{1}{2}$ Tablespoons salt
6 teaspoons ground cinnamon
3 teaspoons ground cloves
3 teaspoons ground nutmeg
 $1\frac{1}{2}$ cups lemon juice
3 pounds brown sugar

Grind apples, tomatoes, and suet. Put into large kettle with other ingredients. Cook until dark and thick, about two and a half hours, stirring occasionally. Watch closely to prevent scorching. Pour into sterilized jars to within a half inch of top. Put on cap. Process in hot water bath 25 minutes. Yields seven quarts.

Fried green tomatoes

Fried green tomatoes are ambrosia. Yes, they are fried in fat. Yes, they have a lot of calories. Forget all that. Upon occasion, some things are to be enjoyed without thinking of fat and calories. This is one of those occasions.

Slice large green tomatoes about $\frac{1}{4}$ -inch thick. Let stand in salt water (one Tablespoon salt to one quart water) four hours to overnight. Drain well. Pat dry. Dip each slice in flour. Fry in hot fat, turning once until golden brown. Serve hot. For extra flavor, add two Tablespoons bacon drippings to fat for frying. This is a good side dish or a good meat substitute with eggs for breakfast.

Variation: Dip each slice of tomato in beaten egg, then into cornmeal. Fry in hot lard.

Variation: Oven fry. Coat bottom of baking dish with cooking oil. Heat in oven. Layer coated tomato slices one thickness in dish. Bake 350° F. until golden brown and soft, about 25 minutes.

The brine-dill jar

This is by far our favorite. I like this recipe because I don't have to can these pickles unless I want to. Usually after a couple of weeks, there is nothing left to can, anyway, because my family eats them up so fast. This recipe is adapted from the one given by the late Euell Gibbons, a nationally-known author and expert on wild foods. This is an imprecise recipe, and no two brine-dill jars are alike. You use what you have on hand or can forage. The only absolutely necessary things are onions, garlic, and dill, preferably fresh, but dried or frozen is all right.

Wash well and scald a gallon-size glass jar with a wide top. Pack a layer of dill in the bottom, add several cloves of garlic, then start layering vegetables into the jar, packing dill in between each layer. I put in several layers of small green tomatoes, about ping-pong ball size. Green cherry tomatoes are especially good. Use a layer of onions somewhere in the jar. If you don't have small boiling onions, slice larger onions. Peeled, sliced Jerusalem artichokes are good. Tender green or wax beans are good. (They are the only vegetables that must be cooked before adding to the jar. They have to be parboiled for about five minutes.) Cauliflower broken into small florets is great. Capers and a few red Tabasco peppers add a bit of dash. The white part of leeks and sweet peppers, either green or red, seeded and cut into strips, add interest.

But many times, I have used only the green tomatoes flavored with the dill, onions, and garlic.

Make a brine of $\frac{3}{4}$ of a cup of pickling salt to 10 cups of boiled and cooled water. Add $\frac{1}{4}$ cup cider vinegar of 5% acidity. Pour over vegetables in jar, insert a knife blade to remove air bubbles, then cover the top of the vegetables with more dill. Weigh down the top of the vegetables with something like a saucer weighted with a jar of water to keep everything below the brine, and let the jar cure at room temperature. Let the jar set about two weeks. Stand back when you open the jar: a stampeding family can be dangerous.

If you want to preserve these pickles, pack into hot, sterilized jars along with more dill. Strain the brine, bring to a boil, and pour over pickles. If you need more brine, use $\frac{1}{2}$ cup pickling salt, four cups of 5% vinegar, and one gallon of water, and bring to a boil. Seal. Process in boiling water bath 15 minutes, starting to count the time when the hot jars are placed in the actively boiling water.

Finally, after we've stored and pickled and canned all the green tomatoes we can possibly use—and stand to look at—we are quite happy to dump the rest into the compost pile. We've found that the tomatoes compost best if we layer them in the compost pile not more than one tomato deep and separate each layer with some leaves, straw, and animal manure. Otherwise, they just sit and sog.

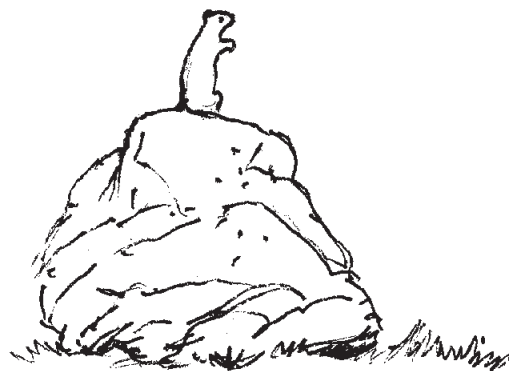
Ripe or green, tomatoes can be used in more ways than almost any other vegetable, which is one reason they have become the home gardener's favorite crop.

Making pickles: containers, salt, and vinegar

When making relishes and pickles or other acidic foods, use only glass, crockware, stainless steel, or graniteware containers. Acid foods react with aluminum ware, which should not be used to soak or cook those foods in.

Use only canning and pickling salt. Do not use table salt, either the plain or iodized type. Table salt contains fillers to keep it from caking, and those fillers react with pickling acids and spices, making the pickles dark, taste off-flavor, and sometimes spoil. Canning and pickling salt can be purchased at most grocery stores and is usually located beside the canning supplies or with the salt and spices. It can be purchased in two or five pound bags and will be clearly marked.

Vinegar used in pickling should be of 5% to 6% acidity. The strength of vinegar is usually shown on the label. If the vinegar is too weak, the pickles will spoil or become soft. Δ



Make grape juice the *easy* way

By Tanya Kelley

Squeezing and straining grapes for grape juice was not exactly my idea of fun. So when my neighbor showed me a faster, easier method, I was delighted. For anyone else tired of doing it the hard way, follow these steps for a delicious grape juice concentrate.

1. Wash and sterilize canning jars, lids, and rings. Fill water bath pan halfway with water to boil. At the same time, fill another pan with water to boil. This water will be added to the jars.
2. Wash grapes and remove stems and any damaged fruit.
3. Measure one cup of grapes and one cup of sugar for each quart jar.
4. Add sugar and grapes to jar. Don't bother mixing—it will mix when processing.
5. Fill the jar the rest of the way with boiling water. Leave $\frac{1}{2}$ inch headspace. Wipe jar top to clean. Screw on rings and lids fairly tight.



6. Place jars in water bath canner. Add boiling water to cover jars. Process 25 minutes.
7. Remove jars and place on rack or towel to cool. As you can see, the grapes may or may not float. Either way, the taste will be the same.
8. Serve in a pitcher with a strainer or drain juice off. Add $\frac{1}{2}$ to one jar of water to concentrate. (Taste to decide.) Δ

A country moment



Wesley Reynolds, age three, of Yreka, CA

(Note: If you have a country moment you'd like to share with our readers, please send it to us at Country Moment, *Backwoods Home Magazine*, P.O. Box 712, Gold Beach, OR 97444. Please include a self-addressed, stamped return envelope if you want the photo back.)

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Where I live

By Annie Duffy

Walking the woods with friends and family

I love to explore the area around my home, and hiking and trail riding are two of the best ways. When you hike you can go across difficult terrain like steep mountainsides. When you ride a horse, you can explore a wider distance and travel through water with ease.

My dad and I went on a hike not so long ago on the mountain opposite the lake from our house. Before we left we went out on our porch and used binoculars to search for a spot where we would try to go. We aimed for a large clearing between a dead oak and dead pine tree. We brought my dog, Lucy, and planned to stay out only an hour or so.

On our way up the steep mountainside we were forced to go through large bunches of stickers that clung to our socks and pants. We got to the clearing we aimed for about an hour after we had started our hike, and spent about 10 minutes pulling stickers out of our socks and shoelaces.

Then we continued up the slope. In order to climb to the top, we had to cross over a bunch of rocks made up of an eroding lava flow that was hundreds of thousands of years old. Many of the rocks were about four feet across and we had to pick our way through them. Once we got by the rocks we were almost at the top, but then there was a cliff about 10 feet high made up of solid rock that we had to scale. We pushed the dog up first, because she didn't want to come back down if she couldn't make it. Dad went up first and gave me a hand.

The view from the top was spectacular, both of the lake and the opposite mountain above the lake. I was surprised how many more details of the

mountain I could see from up there, such as the many ridges and ravines that were not visible from below.

We were higher than all of the birds except for the turkey vultures circling overhead. Even the golden eagles, bald eagles, and osprey were below us.

Behind us the view wasn't that exciting, except for a glimpse of Soda Mountain, where the cellular phone tower is.

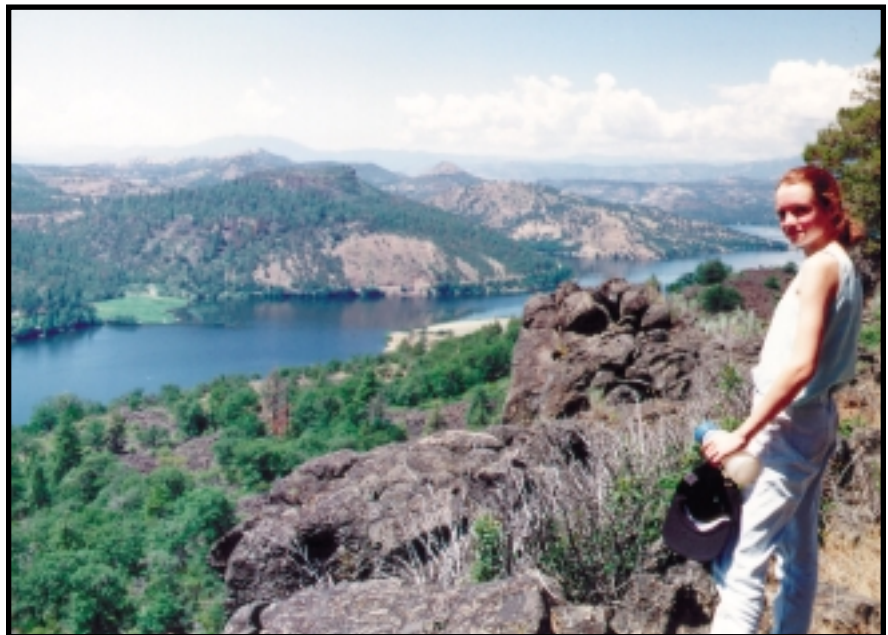
Standing within five feet of the edge of the cliff we felt a cool wind, but taking a step back it was still and hot. Dad said the wind on the edge may have been from cooler air falling and lower warmer air rising along the mountain cliff.

Several bands of wild horses wander the mesa, but we didn't see any today. Many people think that the horses are actually mustangs, but none of them

are pure. They are feral horses, which means they are descendants of domestic horses that have either escaped or have been turned loose. Some people capture and break them, but sometimes the horses can be dangerous. Ursula, my riding instructor, was on vacation when a feral stallion got in with her horses and killed her old mare, Balsam, while trying to mate with her.

We walked along the edge for about three-quarters of a mile before descending again near the office. Then we went to Gloria's store, which is the only store for about 30 miles, and had an ice cream.

Tomorrow, I'm going exploring in a different way—on horseback. Pat Ward of nearby Fall Creek Ranch has asked me to join a cattle roundup. It'll be my first cow chase and my first chance to show off my new horse Diego. I'll tell you about it next issue. Adios. Δ



VIEW FROM THE TOP—Grassy area on opposite shore is Goose Meadow, and farther left (out of the picture) is my house.

Keep fresh greens in your garden — even in the snow — by using row cover

By Lance and Jennifer Barker

The idea of having fresh greens a month or two later than usual won't sound like a very big deal to folks who have long growing seasons. Many of us, however, live in places that have long, cold winters that start somewhere around Thanksgiving and continue for four or five months. Anything we can do to get something fresh, green, and home-grown during those months sounds mighty good to us. Here are some techniques that allow us to harvest fresh, hardy greens outside for a month or two after the snow and temperatures have fallen. Combined with root-cellaring and a few herbs on the window sill, that is as good as having a growing garden for half the winter.

Our objective is to grow hardy greens to full size before low temperatures and light levels stop their growth for the winter. Then we protect them from freezing and snow damage in place as long as possible, until either the ground freezes, or snow smashes the plants. (If you live in a more moderate climate where neither of these happens, you may be able to keep your garden green all winter.) In cold places, the amount of freeze protection you get depends on the temperature of the soil when the weather turns icy. What we are doing is modifying the microclimate around the plants by using the soil as warm mass for as long as possible, even if the air temperature outside plunges to zero.

We have drawn our inspiration from the farmers of France, who have long used cloches, row covers, and poly tunnels to extend the growing season. Our technique is synthesized from several different ones and adapted to work best in our Zone 4 climate here



A boxed bed with a wood-and-wire frame keeps greens fresh well into snow season.

at Morning Hill, where the temperature usually reaches zero by Thanksgiving.

We call our protection technique *bunkering*. This consists of wrapping and blanketing the beds with polyester row cover until we have provided many degrees of freeze protection. Combined with growing frost-tolerant hardy greens, it allows us to eat fresh green salads and stir-fries while the snow piles up and temperatures fall outside.

Build boxed beds

The foundation of the protected greens bunker is the boxed bed. Boxing a bed allows you to attach hoops for supporting row cover, provides a good seal for the row cover at the edges to keep warmth in, and separates your walking paths from your growing areas. Unlike other boxed

beds, however, *these should not be raised above ground level* any more than absolutely necessary. The objective here is to keep the soil from freezing for as long as possible into the fall, so ground level is best for these beds.

Our favorite method of building these is to terrace them into a gentle slope. This has the two added advantages of allowing for good air drainage (cold air flows downhill instead of settling on the garden) and letting us work from the downhill side for less bending. Our three-by-seven-foot beds are a good size both for reaching across and for covering with available widths of row cover. They are also more resistant to being smashed by snow than wider beds would be.

We make the sides of our beds with 2x4 or 2x6 lumber, with a wider board at the uphill side to hold the dirt back. We don't have to use very wide

boards, because we are not trying to make raised beds. The soil inside the bed should be level with or below the ground outside, because it will stay warmer if it is not raised. The purpose of boxing is to define the worked and improved soil area, and to give the row cover a surface to seal against to keep the cold air out.

Then we make hoops of 9-gauge wire and push the ends into the ground to hold the row cover up off the plants. A wooden frame may be used to hold the arch of the wire up, if you live in a heavy snow area. Row cover may be attached to the box at one side of the bed with a *batten*, a narrow strip of wood applied to the outside and screwed through the row cover to the box. It is then pulled snug over the hoops, and all free edges are held to the ground with small rocks or boards.

In the warmer days of late summer and early fall, one layer over the hoops is sufficient to guard against the surprise freeze, but as the freezing nights become more severe, more layers are added. The first additional layer goes underneath the hoops, supported directly by the leaves of the plants themselves (this is called *floating*). Then more layers are added on top of the hoops, as well as inside over the floating cover. Row cover, which lets some light through even multiple layers, is the best choice for keeping plants long-term. If plants are covered away from the light for too long, they will lose their chlorophyll and turn yellow, just like grass under a board. Ugh.

Opening and harvesting the beds

Obviously, there comes a point when the vegetables must be harvested because you need them or because conditions are becoming too severe for them outdoors. Once the ground freezes, plants are not able to take up water and will just wilt if temperatures thaw again. At first, we try to harvest on a day when we are having a warm

spell and the row cover is not frozen to the ground. If we can do this without damaging the row cover, and the plants still look OK, we can just harvest what we need. Then we can re-close the bed, carefully pack snow back around it for insulation, and possibly store the remainder in place for another couple of weeks.

Another likely scenario, though, is that we will have to pry our way through the row cover even on a mild day. We sort through the greens and bag the best ones carefully for storage in our Sunfrost refrigerator (a 24-volt refrigerator which runs on our solar-electric system). Even greens which show freeze-damage may thaw in very good condition if they are put straight into the refrigerator where they will thaw slowly. Discard only wilted, broken, or rotten greens at first until you develop a feel for which ones will be OK when thawed.

If you have animals, the greens which are too smashed or freeze-damaged for use in the kitchen will make excellent supplements for their winter feed. Your favorite goat needs a taste of something green in the winter just as much as you do. Also, some of those vitamins will come back to you in your milk and eggs, so nothing is wasted.

Varieties to plant

Planting hardy, frost-tolerant varieties is the ultimate key to the successful growing of fall and winter greens. Plants that can tolerate frost can have some freeze-damage on parts of the plant and still be usable, while non-frost-tolerant plants will be flat on the ground the first frosty night.

Also, remember that as temperatures cool down, plants grow slower, so it is important to give your plants a good start before cold weather hits. We start ours in early August, because they will pretty much quit growing by the second week of October. It's not an easy time of year to get cool-weather plants started. Frequent misting of the

young plants is our key to giving them the start they need.

Here are descriptions of some of our favorite varieties for fall planting:

Swiss chard: This perennial hardy favorite is also a good one for crop rotating, since it's not a brassica or a lettuce. It's in the same family as beets, and produces a flavorful green that is good in salads or steamed. It comes in a rainbow of colors and a variety of leaf types. This is a long-season plant, so be aware of its time needs when you plan your planting. We start chard much earlier than pak choi and lettuces.

Lettuce: A classic salad favorite. Some varieties are more hardy than others. These are a few of our favorite hardy ones: **Red Sails** and **Red Grenoble** are tender, flavorful, moderately curly leaf lettuces with rosy-blushed leaves. **Sierra** is a tough performer in the coldest weather, as its name implies. It is a Batavian semi-heading lettuce with smooth, hearty, red-tinged leaves, a great sandwich green. **Batavia Laura** and **Victoria** are hearty-flavored green Batavians. **Black-seeded Simpson** is the classic sweet, tender green leaf lettuce and stands chills well. **Tim Peters' Open-heart** is a heartier, darker green leaf variety. **Red Salad Bowl's** burgundy-colored oak-leaf shape brightens and varies the textures for visual appeal. **Celtuce** is not exactly a lettuce, but it adds significant amounts of vitamins to your salad, and a different texture with its celery-like central ribs and soft leaves.

Cilantro: If you have read that cilantro must be planted after all danger of frost has passed, you might think it's a tender herb. Don't worry, it's super-hardy. We have let cilantro go to seed in the garden, and when the seeds were ready to come up in the spring, they germinated and grew, frost or no. In the fall, it's as hardy as anything in our garden. Cilantro is considered one of the basic food

groups around our house, and we use it to flavor everything from Oriental salads to enchiladas. Two of us can eat a whole three-by-seven-foot bed of it. In fact, we haven't ever grown too much of it.

Mustards and pak chois: There are a zillion varieties of these, and we just grow a mixture of several that work well for us. Try **Tendergreen mustard** for a nice all-purpose green. If you have always thought mustards were too hot-flavored to taste good, just try growing them in cold weather to find out differently.

Since it's already garden season this year, don't wait till next year to try this out. If you've got more in your garden than you can eat (and what good gardener doesn't?), try this on any hardy greens, just to see how it works. Start small and get better at it every year. Try something different from what we have listed. We certainly haven't exhausted the possibilities for this technique.

Polyester row cover

Polyester row cover is a lightweight, spun-bonded plant protection fabric. It comes in several different weights and widths for different uses. Its uses include sun, wind, and temperature protection, as well as insect protection. We use it extensively in our garden, because we live in a place where it can and does frost all year round. We've had people say that our climate can't be as tough as where they live, because we have a garden and they can't. We just smile. Our secret is row cover.

Row cover is used by commercial growers to start tender plants in the early growing season, protecting them against a surprise chilly night. What we are doing with it in the application mentioned in this article is to moderate extreme cold for frost-tolerant plants. However, row cover is an extremely useful tool, and we have

found many places for it in our gardening.

We use it on almost everything in our garden. It floats over strawberry plants to keep frost off the blossoms and birds off the berries. (We remove it on sunny days so bees can do their pollinating duties.) It floats over potato plants to protect them from frost, because if the tops are frosted back, the plant puts its energy into regrowing them, and you get very small potatoes. Ours grow large and beautiful. We put it on hoops over tender green plants whose leaves we will eat, like lettuce and salad greens. And we use it to start hardy Oriental greens which can stand in the open later in the season.

If you want to try a small amount of row cover, just to see what it's like, you can buy the popular brand Reemay in smaller pieces at garden supply stores. Later, if you find this to be as handy as we do, you will want to buy large rolls of commercial quality row cover. The commercial type lasts longer and is much cheaper when bought by the bolt. Some people say commercial varieties are more abrasive to plant leaves than Reemay, but we haven't found that to be true.

But isn't polyester row cover a petroleum product? Yes it is. And using it is also creating solid waste. However, under some conditions, the choice is between using row cover and buying our food in the grocery store, because we couldn't grow much without the product. Grocery store food is grown by creating a huge amount of solid waste. Just because you don't see it doesn't mean it's not there. When you become familiar with commercial agricultural practices, using row cover will seem a small price to pay to have your own home-grown food available out of season.

We mitigate the amount of solid waste we create by having a "use hierarchy." New row cover gets used where an unbroken covering is important. As the covers develop a few small holes, we use them on hardier

stuff, and when they become tattered, we rotate them to use as underneath covers. Finally, they are only good for providing winter protection for things like strawberry plants and spinach, which seem to produce better in summer if they have been covered in winter. We can use several layers for this, so it doesn't matter if one is full of holes.

If you have cats, as we do, they may try to get on the soft, white covers. Keep them from damaging both your row cover and your plants by grinding black pepper over the covers. We don't know why, but this works.

Finally, we must consider irrigation. The manufacturers say that water will go through row cover, but in our dry climate that doesn't work efficiently. Perhaps rain will go through, but we don't get any in summer, so we can't say. Taking the covers off to water is cumbersome and adds wear and tear, so we provide drip irrigation under the covers. Foggers, mini-sprinklers, and drip all work more efficiently when row cover slows evaporation and increases humidity around the plants. Each type of plant gets the watering treatment it needs, and watering is as easy as turning a valve. We only have to take off the covers for weeding, inspection, and harvest.

Row cover sources

Zimmerman Irrigation
RD 3, Box 186
Mifflinburg, PA 17844-9534

Peaceful Valley Farm Supply
PO Box 2209
Grass Valley, CA 95945
916/272-4769 Δ

I don't like work—but I like what is in work—the chance to find yourself. Your own reality—for yourself, not for others—what no other man can ever know.

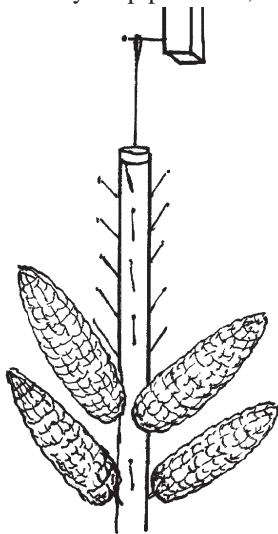
—Joseph Conrad
1857-1924

Traditional ways of keeping your corn crop and seed corn are still very effective

By Rev. J.D. Hooker

Corn . . . it's *the* traditional American crop. It doesn't matter whether the crop you'll be bringing in is intended for feeding your livestock through the winter, producing home baked cornbread and muffins, providing many quiet evenings' worth of popcorn, or any other homestead uses. This particular crop has been one of the mainstays of agriculture throughout all of our nation's history. In fact, until the 1990s, no other crop ever surpassed corn as America's number one cash crop. (And even then, corn was only surpassed by a bumper crop of an illegal drug.) When our forefathers (and foremothers) prayed, "Give us this day our daily bread," they were referring, almost without exception, to cornbread. Most of our early explorers and settlers never even tasted any other type of bread in their entire lifetimes.

Cornsilk was used as a tobacco extender or substitute; the cobs were used not only as pipe bowls, but as a

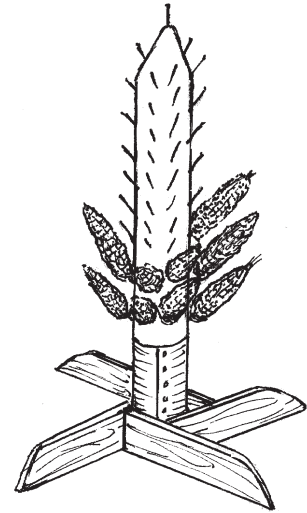


Corn-stick

heating fuel, for smoking meat (delicious), as easily replaceable file handles, jug stoppers, and many other simple but ingenious uses. The husks were stuffed into mattresses, braided into mats (and into sandal soles in the Southwest), fashioned into dolls and decoys, and used as livestock bedding. While the stalks were primarily used as cattle fodder and bedding, at times they were used as building materials. At one point during the Civil War, a train trestle was even built from nothing other than corn stalks, and it did hold up—for one train. Even the leaves were regularly employed as roof thatchings. While I would strongly recommend stopping short of the train trestle, there doesn't appear to be any reason for these "waste" products not to be used in similar ways today.

Of course, all the corn grown in early America was of open-pollinated varieties (with the exception of a very few hybrids developed among the Miami and Cherokee). Our frugal ancestors would never have been so foolish or extravagant as to keep purchasing fresh seed every year when they could so easily provide their own seed. No doubt these early Americans would be mightily impressed by much of our modern farming equipment, but I feel certain they would be appalled by most of our modern farming practices.

Maybe it's time that a whole lot of us—and especially us smaller-scale farmers and larger-scale gardeners—took a really hard look at the farming systems developed by our ingenious and independent-minded ancestors. Not only are most of their methods for producing this uniquely American crop well worthy of revival, but the simple processes they utilized for preserving their crop until their next har-



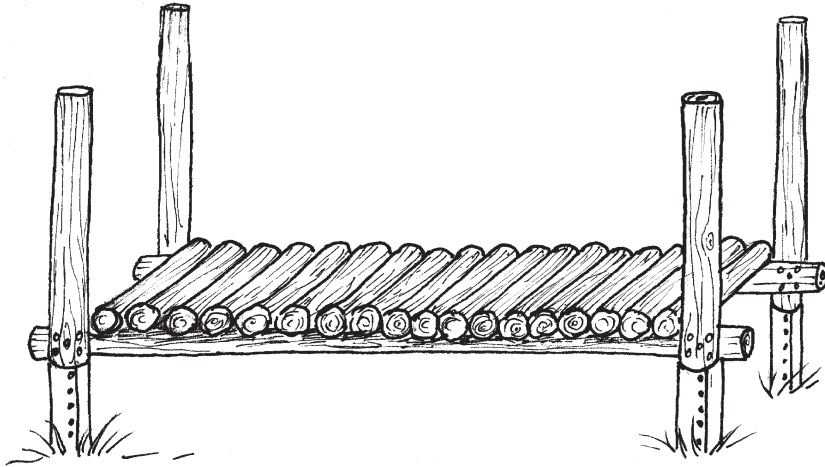
Corn-tree

vest, and their seed-saving methods as well, can be just as valuable now as they were during the 1700s.

Saving seed

When it came to preserving their own seed stocks, not only our Old World ancestors, but the Indian farmers of that day (I've met very few "Native Americans" who don't refer to themselves as "Indians"), were mighty selective. Only the very best, earliest maturing, largest, most well-filled-out ears were kept for seed. Other desired traits were watched for as well, including color (usually based on personal preference), stalk and leaf size, tassel size (for pollination), etc.

Sometimes, the ears with the husks pulled back were fashioned into long, colorful braids and hung from the rafters to preserve seed for the next spring. While this was, and still is, quite colorful and decorative, it isn't really very practical. Not only would most of these braids eventually work loose and fall well before springtime, but that method left the valuable seed



Corn crib posts and floor. For posts, use rot-resistant wood, such as catalpa, cedar, or redwood (4" minimum diameter). Post holes should be dug to below frost line. Fill holes with rocks or concrete.

supply vulnerable to rodents, squirrels, and other scavengers. The loss of even a single year's seed stock was not a minor problem, but a real life-and-death catastrophe in those early years. Therefore, safer storage systems were developed, or adapted from the practices of Indian neighbors.

Corn-stick and corn-tree

Two closely-related seed storage systems were almost universally adopted: the *corn-stick* and the *corn-tree*. Both methods work so well that they are still in use today among many people who grow open-pollinated seed varieties.

The corn-stick is just a long, peeled sapling pole, studded with finish-type nails. One husked ear is shoved onto each nail, and the "stick" is then hung from the rafters with a piece of heavy wire. Baling wire and coat hanger wire both work very well. Corn-sticks can vary considerably in length, as they need to be long enough to reach the overhead support, yet not so long that you can hit your head while walking under them. Of course, nails and wire were in pretty short supply among our ancestors, so the stick was generally bent like a shepherd's crook at the top end, with pegs substituted for nails. That works just as well,

should any of us ever be faced with a similar shortage.

Likewise, corn-trees work just as well now as they used to. Modern tools and materials make this a really easy project to put together. Many of the corn-trees that I've seen in use around here were fashioned from standard 4x4 lumber, chamfered to an octagonal shape. However, round posts seem almost as popular, and they're easier to fashion, and probably more traditional as well.

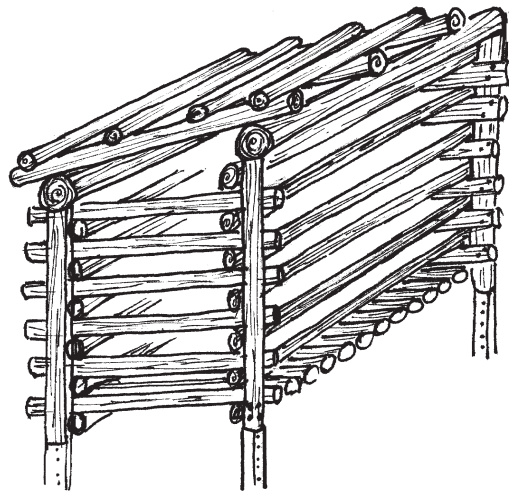
Four boards are nailed to the base of the post (as shown) to form the feet

which will hold the corn-tree upright. The top of the post is then trimmed to a blunt point, and the post is studded with finishing nails for holding the ears. To prevent rodent damage, most of the corn-trees I've seen in use had the bottom 18" or so of the post wrapped with thin sheet metal, usually inexpensive aluminum roof flashing.

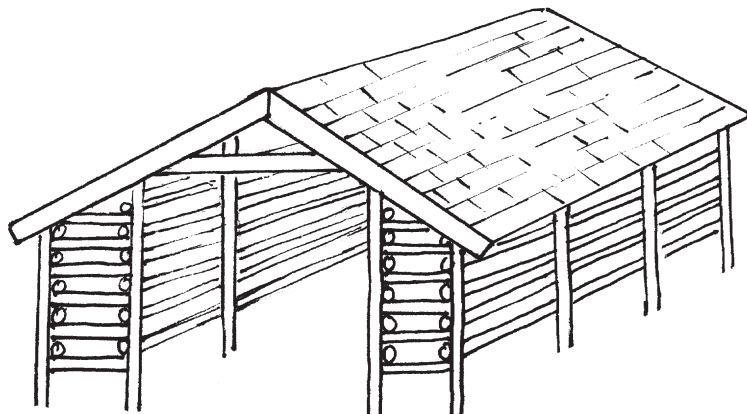
Corn-sticks seem preferable when storing your seed supply in a high-ceilinged structure, like a barn, while corn-trees seem better suited for use in lower-roofed buildings like storage sheds. One or the other (or maybe both) of these traditional seed corn storage appliances should work well for you.

How much seed?

Here is a tip you might be able to use when figuring your seed corn requirements. It's just a general guideline, but it usually proves to be mighty close to correct with most corn varieties. Generally, the seed saved from a plot of any given size is sufficient to re-plant an area equal to 75 times the size of the original plot. For example, if you were to save every ear from a 10' x 10' corn plot, you would have enough seed to put in a 75' x 100' area the next season. Saving all of the ears from a one-acre field would allow for



Framework for a simple corn crib. Wall poles are approximately 2" in diameter. Finish with waterproof roofing. Peel back husks before storing corn ears in crib.



A roofed-over area between two corn cribs makes a good parking, storage, or work area.

the planting of a 75-acre field the following spring.

The corn crib

If you are producing a sizable corn crop, whether for flour, corn meal, livestock feed, or whatever, you'll need a reliable method for storing this grain until it's used. Once again, our pioneering ancestors left us a pretty simple and reliable method for doing this. They adopted this storage method pretty much unchanged from their native neighbors.

You can see from the illustrations that a simple corn crib is easy to build. There are, however, a few things you'll need to keep in mind. First of all, if you were to build your corn crib any more than four feet wide, you'd lose most of your corn. Any wider, and you can't be certain of getting sufficient air circulation to wick away moisture from the innermost ears. If you space the support posts more than six feet apart, then the poles you'll be using for the sides of the crib will usually end up bowing outwards, allowing many ears to spill out. Also, if your area gets high winds, you won't want to build much over ten feet tall, and you'll want one of the narrow ends facing into the prevailing wind.

Before you begin, figure out how large a corn crib you'll require. This depends upon how much corn you use

in a year's time; once you know that amount, the rest is simple. For each bushel of ear corn, you'll require 1.86 cubic feet of storage. For example, if you use five bushels of corn per day, which equals 1,825 bushels per year, you'd require 3,394¹/₂ cubic feet of space, which would equal a corn crib 4' wide, 10' tall, and 85' long. Of course, in most cases, building four corn cribs, each 22' long, would work out much better.

We use an awful lot of corn, some in cooking and baking, but most as stock feed. What we finally ended up with are two sets of 40' long corn cribs. Each 10' tall set has two cribs spaced 16' apart. We extended the roofs of these cribs, so that they cover the area in between them, providing some tremendously useful parking, storage, and working space.

Generally, you'll want to leave the poles used to fashion the sides of the corn crib unfastened at one of the narrow ends. As the corn goes down in the crib, easy access is always provided by simply pulling out some of the peeled saplings. And many folks install the floor so that it slopes towards the front of the crib, so it's almost self-emptying.

While it's traditional to install a thatched roof fashioned from corn leaves, any sort of roof would work out just as well.

If you build the floor at least 18" above the ground, and encase the bottom 18" of each support post with light-gauge sheet metal, you'll have a rodent-proofed corn crib. And that leaves plenty of hunting space underneath for your cats to make some real inroads in any rodent population already on your property. (I strongly recommend good cats, from reliable, hard-hunting, barn cat stock, for rodent control. I *never* recommend poison.)

A variation

In building his own corn crib, a friend of mine has added some ideas that you might wish to consider. First off, he utilized used telephone poles as the support posts for his structure. Next, he added a barn-like loft over his two 40' corn cribs with a set of swinging barn doors at each end. Also, he replaced the poles normally used to fashion the sides of the cribs with welded wire fencing, as he felt he'd use up too much time collecting and peeling saplings. The floor of each crib is about 18" above the ground, and he closed it in with chicken wire, to keep out any animals, wild or domestic. Essentially what he's ended up with is a barn, complete with hayloft, built with corn crib sides. This design goes beyond the boundaries of a "simple" project, but it gives you an idea of how far you could go in building a corn crib, if your situation warrants such a major undertaking.

Anyway, there you have it: simple, time-tested methods for storing both seed corn and feed corn from one season to the next, without any of the muss and fuss of modern high-technology storage systems. Whatever your needs, building expertise, or available materials, I'm sure you'll find at least one of these valuable, functional, old-fashioned designs perfectly suited to your circumstances. Δ

Use plastic to get a head start on corn in the fall

By Mark and Lynn Klammer

As spring approaches each year, we can hardly wait for the feel of warm earth between our fingers. And so, while most avid gardeners let Mother Nature ready the soil for planting, we have devised a simple and inexpensive way to plant our garden outdoors just after the frost has left the ground. Our method, which uses sheets of clear plastic to warm the cold soil, suits plants that do not thrive indoors or transplant well. It allows us to get an early harvest from our favorite sweet corn, but it can also be adapted to coddle other plants, such as squash or sweet potatoes, that thrive under greenhouse-like conditions.

Begin in the fall by fashioning a seedbed consisting of foot-wide, six-to-ten-inch-high ridges of soil running in an east-west line. Space them as you want your corn rows spaced. (You *can* do this in the spring, but if your garden is poorly drained, you may find yourself in a bit of a mess.) As soon as the frost is out of the ground in the spring, spread a 10-by-25-foot roll of clear 4-mil plastic sheeting, available at any hardware store, over the planting area, laying it directly on the soil. Anchor the edges of the plastic with boards or stones or anything that will keep it from blowing away, including old croquet hoops or tent pegs.

After a few days (or longer, depending on the weather), when the earth under the plastic is warm to the touch, peel back the cover and plant the corn seeds halfway down the south face of each ridge. Then reposition the plastic, secure it, and begin a period of watchful waiting. The ridges are impor-

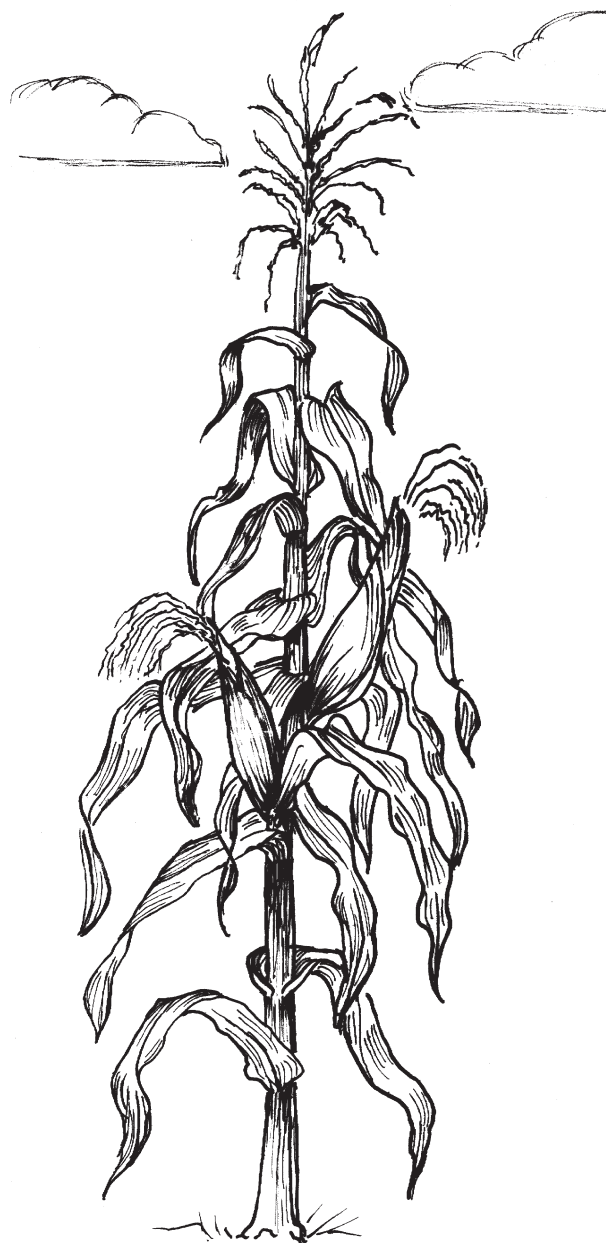
tant: they support the plastic until the seedlings grow, promote good drainage, and serve as heat reservoirs, gathering solar energy during the day and slowly releasing it inside the plastic at night. This technique, in almost any garden except one with a significant slope to the north, ensures that even when the temperature during a cold snap drops to a few degrees below freezing at night, the area under the plastic will not freeze. And despite some fluctuations, the temperature inside the "greenhouse" can be as much as 20° C warmer than the outside air.

As the seedlings grow, prop up the cover with wooden stakes, so that the leaves do not touch the plastic and the foliage is not scorched. Monitor the moisture level carefully, watering if necessary or airing out gently if it is too damp.

Around the time of the normal frost-free date, begin acclimating the young plants to the lower humidity and temperature of the outside environment by opening the ends of the plastic for a few hours on warm, still days. Repeat the procedure for increasingly longer periods of time for a week, after which you can remove the plastic completely and store it for use the next year.

A few days later, thin the corn to about six or eight inches. To support and protect the roots, take soil from the north side of the slope, pull it between the plants and fill in the trench on the south side.

The rest is easy. With some weeding, watering, and a little luck, you too can look forward to the sweetest—and earliest—corn around. Δ



Squash seeds are a delicious, nutritious snack

By Robert K. Henderson

Squash are a favorite homestead garden crop, offering abundant harvests for little effort. Yet many throw the delicious seeds on the compost pile, and that's a pity. Native Americans, whose talent for wholesome snacks gave us popcorn, tortilla chips, and beef jerky, valued the seeds of squash crops as much as the vegetable itself. In Mexico, "pepitas" remain an important staple to this day. Roasted squash seeds are a cheap, natural nibbler relished by kids and adults alike. Better still, they disappear like junk food while supplying fistfuls of nutrients: just one ounce of roasted pumpkin seeds contains five grams of protein and ten grams of dietary fiber, as well as significant quantities of calcium, phosphorous, and potassium.

Although pumpkins are the most prolific seed producers, all winter squash bear edible seeds. Even the hard, warty shells of over-ripe summer squash conceal a handful of small seeds that have a very delicate flavor when roasted. These are especially good in salads, on baked potatoes, and floating in soups. Roasted squash seeds also add character to granola, party mixes, and home-made ice cream. Dried, raw seeds may be oiled and sprinkled on cookies and quick breads before baking. With a little creativity, you can dream up dozens of uses for roasted squash seeds. Once they become a part of your pantry, you'll wonder how you got along without pepitas.

To collect raw seeds, split the squash lengthwise. This makes it easier to reach the neat seed rows nestled in the interior pulp. Use your hands to strip the rows into a pan of water. Put your hand in the pan and clench handfuls of slippery seeds in your fist. They will shoot out from between your fingers like tiny bars of soap, removing residual pulp in the process. Pour the seeds into a colander and run water through the batch to drive the shreds of pulp to the bottom. Scoop the clean seeds onto the shiny side of a piece of aluminum foil and pat them into a single layer, so that each seed is exposed to the air.

Before they can be stored or roasted, squash seeds must be thoroughly dry. Incompletely dried seeds toast up tough outside and mushy inside, and will mold in storage. For certain success, leave the washed seeds out at room temperature for several days or pop them into a warm oven for an hour or so. Commercial food dryers do a fine job, too. Properly dried, raw squash seeds will keep almost indefinitely if sealed in an airtight container. Roasted seeds can be stored for several months, although the oil on their shells will eventually turn rancid. Freezing lengthens the shelf-life of roasted seeds considerably.

Because toasting time varies, you should roast different varieties separately. For example, Hubbard squash seeds brown about twice as fast as pumpkin seeds, so you don't want to toast the two together. As a general rule, glossy seeds such as those of the spaghetti squash roast up crisper.

Seeds with a "flat finish," like those of jack-o'-lantern pumpkins, make for a chewier snack.

The following recipes can be whipped up in minutes, and are perfect for parties, trail food, or watching movies at home. They are also excellent nibblers to serve with fine homebrews or microbrews. All roasting times are based on pumpkin seeds. You may have to adjust them for other types.



Basic roasted seeds

1 cup squash seeds
1 teaspoon oil
Dash of soy sauce

Preheat oven to 300°. Place dry seeds in a mixing bowl and toss with oil. Add soy sauce and stir to coat each seed evenly. Spread seeds in a single layer on a foil-lined baking sheet and toast until crisp and golden brown, about 20-25 minutes. Be careful not to burn them. The soy sauce in this recipe adds a distinctive dimension to both the color and flavor of these nibblers.



Splitting the squash lengthwise makes it easier to remove the seeds.



Running water separates the seeds from the pulp.

Herbed seeds

- 1 cup squash seeds
- 1 teaspoon crushed dried oregano leaves
- 1 teaspoon crushed dried basil leaves
- 1/4 teaspoon sage
- 1/4 teaspoon thyme
- 1/4 teaspoon garlic salt
- 1/4 teaspoon black pepper
- 1 1/2 teaspoons melted butter

Preheat oven to 300°. Put all ingredients in a bowl, adding butter last, and mix thoroughly. Spread seeds immediately on a foil-lined baking sheet to prevent seasonings from settling to the bottom of the mixing bowl. Toast for 20-25 minutes or until crisp and golden. The butter in this recipe gives the seeds a delicate texture and flavor, and the black pepper lends just enough bite to keep things interesting.



Strip the seeds into a pan of water.

Spicy curry seeds

- 1 cup squash seeds
- 1 1/2 teaspoons olive oil
- 1 1/2 teaspoons curry
- Dash of soy sauce
- Pinch of cayenne

Preheat oven to 300°. Mix all ingredients thoroughly and proceed as for basic roasted seeds. Adjust cayenne to taste.

Taco seeds

- 1 cup squash seeds
- 1 1/2 teaspoons oil
- 2 teaspoons taco seasoning

Preheat oven to 300°. Mix all ingredients thoroughly and proceed as for basic roasted seeds. For variety, substitute packaged pesto powder and melted butter, or instant spaghetti sauce and olive oil. Δ

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Mugwort — From aiding digestion to relieving fatigue, this flavorful plant has many good uses

By Christopher Nyerges

Of all the plants that are found in the chaparral of southern California, mugwort is perhaps the most steeped in lore and mythology. Mugwort (*Artemisia douglasiana*) is a multiple-use plant, having been used for food, medicine, fire-starting, and other things.

I have known people who ate the raw mugwort leaves in salad and added it to sandwiches, in much the same way that you'd add a pickle or a piece of lettuce. However, I have always found it too bitter for my taste to eat raw. But once simmered in water and cooked like spinach, its appeal is increased. Southern California Indians gathered the mugwort seeds and ground them into meal to make bread products. Still, the food value of mugwort is not its greatest asset.

Healing

As an infused tea, mugwort is said to improve the appetite, to be good for the digestion, and to relieve stomach pains and fevers. An infusion from the dried leaves is applied externally for inflammatory swellings. Bruises are reputed to heal quicker if bathed with a mugwort infusion. As a bath additive, it's used for tired legs and feet. Plus, in the bath water, mugwort gives the bathroom a pleasant aroma.

With some people, it is customary to rub the fresh mugwort leaves over exposed portions of their body before entering poison oak areas in order to prevent the rash. Some Indians used the fresh leaves externally as a cure for poison oak and wounds.

Before I immunized myself from poison oak, I used the freshly-crushed leaves of mugwort rubbed over

newly-developing poison oak rash with good results. Aloe vera is the best treatment for poison oak that I have found, but you don't usually find aloe in the wild.

Mugwort gets its name from the English practice of putting a leaf of it in their mugs of beer to improve the flavor. ("Wort" is an Old English word meaning "herb.") This is still practiced in London pubs.

Vivid dreams

Sleeping on "pillows" of dried mugwort leaves is said to induce wild, vivid dreams and visions of the future. To test this, I placed several of the fresh leaves around my pillow. Those nights, I had very colorful dreams, though they were not what I would describe as "lucid," nor did I ever receive visions of the future. Nevertheless, some enterprising folks have begun to sell "dream pillows," which are small pillows stuffed with mugwort leaves.

Relief from fatigue

Folklore from various parts of the world says that a leaf of mugwort in the shoe will enable you to walk all day without leg fatigue. Nathaniel Schleimer of Pasadena, a student of acupressure, pointed out to me that there may be some factual basis for this "folklore." Schleimer told me that there is an acupuncture point on the bottom of the foot which is said to "regulate fatigue."

The mugwort leaves which have naturally dried on the plant are collected and used in a therapeutic technique called acupressure. These dried leaves, when rolled into small balls or into a cigar-shaped cylinder, are called *moxa*.



A Chinese species is said to be the best, but all species can be used in the following fashion, described by J.C. Cerney in his book Acupressure — Acupuncture Without Needles: “On the outside of the lower leg, below the level of the knee, is the head of the fibula. Just below and slightly in front of the head of the fibula is what the Japanese refer to as sanri or S 36. This is an important vitality-stimulating zone. It’s a point where weary Oriental foot travellers applied a burning ball of moxa, and with energy restored, travelled on.”

One of the most effective wilderness “punks” is made by gathering the leaves that have dried and browned on the stalk. Slide your hand along the lower stalk to gather the dried leaves and then roll them into a cigar. By lighting the end of this “cigar” and then wrapping the entire cigar in larger fresh mugwort leaves, you can effectively carry fire over long distances. This was the technique practiced by Southwestern Indian tribes for transporting fire from camp to camp. It can still come to the aid of today’s campers where matches are scarce or unavailable.

I have tested dozens of tinders, using both natural and man-made materials, and mugwort has consistently proven to be one of the best natural tinders.

The pleasant aroma of the burning leaves, used as incense, helps bring the aroma of the mountains to the home. In the late 1970s, Timothy Hall would sometimes burn mugwort incense in his Trucker’s Daily Bread Cafe, located in Highland Park (north-east Los Angeles), California.

Dried mugwort, mixed with other herbs, can also be smoked as a non-nicotine “tobacco.”

Finding it

Mugwort grows along the shady banks of canyon bottoms and along riverbanks in foothill and coastal regions. You almost always find it

near streams. Frequently it is found near poison oak.

The aromatic leaves are ovate to elliptic, and are often divided into three to five pinnate segments. The leaves near the top of the stalks become narrower, linear to lanceolate in shape, and generally are entire (not toothed). On the top side, the leaves are dark green and almost glabrous (hairless). On the underside, the leaves are covered with short, soft, white, wooly hairs, which is one of mugwort’s dominant characteristics.

Twenty to thirty very small flowers are clustered together to make up 1/6-inch-high heads. These heads are tightly clustered along spikes or rod-like stalks, which in turn are arranged (alternately) along the main stalk. The flowers are followed by the seeds. The year-old dried stalks are usually found alongside the new young plants, and it is from these old stalks that you can usually collect the dried leaves to use for tinder or incense.

Some people believe that young mugwort leaves, which somewhat resemble a hand held out with fingers spread, are effective in warding off evil spirits. Mugwort is hung over doorways, windows, chimneys, and other openings on Halloween in the belief that it protects against the evil effects of witchcraft and the entrance of malevolent witches. Pregnant women and newborn babies were considered particularly vulnerable on Halloween. For this reason, a pregnant woman would wear dried mugwort around her neck in a small bag, and mugwort would be laid in or around young babies’ cradles.

Mugwort’s folklore and various uses make it an interesting and valuable plant to know.

(Christopher Nyerges is the author of In the Footsteps of Our Ancestors: Guide to Wild Food and other books. His schedule of outings is published in the *Talking Leaves Newsletter*, available from the School of Self-Reliance, Box 41834, Eagle Rock, CA 90041. The newsletter can be viewed on-line at <http://home.earthlink.net/~nyerges/>.) Δ

A BHM moment



Dave and John celebrate the completion of another issue.

Ayoob on firearms

By Massad Ayoob

The backwoods hunter

“One does not hunt in order to kill,” wrote Jose Ortega y Gasset in his classic *Meditations on Hunting*, “one kills in order to have hunted.” Hunting is in many ways a metaphor of the backwoods lifestyle. One may have moved to the hinterlands to escape the blood lust of the cities, and find the killing of an inoffensive animal antithetical to their *raison d’être*, while another might find the primal hunting, killing, and eating of a wild creature to be the very essence of “going back to nature.”

The very argument is a part of the “live and let live” value system of the backwoods homesteader. Unless he’s unclear on the concept, the vegetarian who wouldn’t harm a fly won’t dump on the hunter who kills his family’s winter meat in the forest, and the hunter won’t sneer at the vegetarian as a lightweight yuppie hiding out in woods he doesn’t understand. Personally, I take a middle ground.

As a youngster, I lived to hunt: it was what you did every fall if you were a boy in rural northern New England. The male paradigm, male bonding, all of that. Late in my teens, when my only sibling died in my arms, I lost my taste for killing and stopped hunting for a long time.

I eat meat, venison being my favorite. Wild meat is the healthiest. Living in a nation of bloated hypertensives with fat-clogged arteries, I was struck in South Africa by the number of old Boers I met who were 80 and looked 60, or were 60 and looked 40, and had eaten the meat of the native antelope morning, noon, and night for all their lives. Little fat, no

steroids...healthy food of the kind that made *Homo Sapiens* the dominant predator of the planet, whether the given specimen appreciates that heritage or not.

Being a meat eater, I’d be a hypocrite if I damned hunting. Buying your meat in a store is like paying the hit man to commit your murder for you: you have to accept moral responsibility for the death in question either way, and a middleman firing the bullet or slitting the throat does not exculpate you at all. Thus, while I will listen to anti-hunting arguments, I will listen to them only from those who wear cloth shoes and plastic belts and eat no meat whatsoever.

At the same time, if you are a hunter, the time should come when the animal is in your gun sights and you spare it if you don’t absolutely need to kill it for food. You want to know in your heart that it was your finger pulling the trigger, not the trigger pulling the finger. The greatest understanding of the power to kill lies in the realization that you have the power not to. And—parents, proselytizers of the backwoods faith to the urban refugees, and all the rest—hear me well on this: Never force someone to kill an animal if they don’t truly want to have the experience!

That said, let’s look to the mechanics. Take Hunter Safety classes from your local office of the state fish and wildlife department, or someone they’ve authorized to teach them. Learn navigation of the forest, and hostile environment survival skills, if you haven’t already. Realize that hunting today is not time and cost efficient: hard labor at minimum wage



Massad Ayoob

will probably buy your family more food per hour spent than deer hunting. You do it for the sport and the venison, not for subsistence, unless you’re desperate.

Use a good weapon and practice with it until you are skilled. Determine the distance at which you can place your bullet, your arrow, or your rifled shotgun slug into a six inch circle virtually every time, and do not shoot at an animal beyond that distance. This saves the animal needless suffering, and it saves you the grief and recrimination of crippling a beautiful animal or dooming it to an agonizing death. If you have dealt with Death, you know that “clean kill” is not an oxymoron, but rather, the responsibility of those who are for whatever reason involved with the legal and ethical ending of Life.

When it is over, you will one night sit down to a venison dinner that you brought home. The sensation will be rather like the satisfaction you feel eating vegetables you’ve sown into the earth, tended, and harvested. There will be a sense of accomplishment, of a primal circle having been complet-

ed, of independence and personal capability being confirmed.

Local gun dealers and conservation officers will give you the best advice on the types of guns and ammo or bows and arrows to use for the given quarry in the given topography, and they can steer you to local meat cutters who process game and can best advise you on how to dress, butcher, and cook the meat you harvest from the wild. The nearest village library in a rural area should be replete with books on hunting and tracking wild game and preparing it for the table. Read and absorb these books. If you're new to rural environs, let it be known that you'd like to find an old woodsman and trade his lore for yours, teaching him to surf the net while he teaches you to hunt in these parts. You'll be surprised how often such "skill barterers" work, how often those who grew up in the wilds you coveted seek the accouterments of the high-tech advanced civilization you were wise enough to escape.

Give hunting a chance. It may add a new dimension to your backwoods home experience. At best, you'll know the exultance of eating meat you've hunted and harvested. At worst, if you come out against hunting, you'll have

earned the right to an informed opinion, for someone who claims others shouldn't do what they themselves can't do are in the position of a eunuch preaching celibacy: their argument simply carries no credibility. Δ

A BHM moment



The old BHM office in the Siskiyou Mountains of Oregon.

Leaf mold is another way to build your soil

By John Fuchs

Leaves are an excellent way to add organic matter to the garden. However, using raw—or unprocessed—leaves has some drawbacks. Raw leaves are more acidic than composted leaves, and studies have shown that they take nutrients from the soil—particularly nitrogen—as they decompose. Because of this nitrogen depletion, adding raw leaves to your garden can reduce the yield of vegetable crops.

The solution to the problem is to compost the leaves and add the compost to the garden. The drawback to this approach is the time required to make the compost. In northern climates, it is even more difficult and time-consuming to make compost, because the leaves freeze solid, and the breakdown of the leaves is often incomplete come springtime.

A good compromise is to make and use *leaf mold*. Leaf mold is a halfway step in the process that turns raw leaves into composted matter. To make leaf mold, take raw leaves and shred them by running a lawnmower over the

leaves. The shredding of the leaves greatly accelerates the breaking down process. I empty the mower bag into a plastic bag and add a handful of lime (to counter the acidity of the leaves) and a cupful of blood meal (to provide nitrogen). Then I dampen the leaves and shake the bag well.

Every few weeks, I open the bag and stir up the leaves. When the leaf mold freezes, I break it up as much as possible. Come springtime, the bags are full of friable black leaf mold which I spread right over the garden plot and till in. Studies have shown that leaf mold holds at least five times as much moisture as ordinary topsoil, so I always apply it to my flower beds instead of peat moss.

The advantages of leaf mold are many. It provides the tilth and moisture-holding capacity of compost and peat moss, but it's easier to make than compost and far cheaper than peat moss. While it doesn't provide as much nitrogen, phosphorous, and potassium as manure, it is rich in calcium and magnesium, which are essential for healthy vegetables. Best of all, the raw materials of leaf mold—leaves—are abundant in much of North America. Δ

Venison deserves gourmet treatment

By Edith Helmich

Whether you use a bow or a gun, bagging a deer is an adventure in the field, and a promise of succulent meals to follow. Too often, however, the venison is simply roasted or used in a few unimaginative recipes. Venison is a gourmet meat and should be the focal point of wonderful meals.

Good game recipes are hard to find. Cookbooks tend to feature meats that are available at the supermarket, and typically include only a few recipes for game. The recipes that follow were gathered from a variety of kitchens and culinary sources and modified over the years. They were chosen on the basis of taste, appearance, and ease of preparation. (Remember, you don't have to tell anyone that it took you so little time to prepare such delicious recipes.) Try them all, and you just may expand your reputation as a hunter to a chef specializing in game.

Dressing a deer in the field is fundamental knowledge among hunters, and will not be discussed here. Dressing the deer properly and promptly, of course, is very important to the flavor and quality of the venison.

Another well-known characteristic affecting the quality of the venison is the age of the animal. Some cooks believe that all game, particularly venison, should be marinated before cooking, but that is not necessarily so. The meat from a deer under one year of age (a fawn), or from one to two years of age (a yearling), is tender and mild-flavored



without any marinade. Certainly a mature deer's meat requires a good marinade to guarantee tenderness and minimize the wild or "gamey" flavor. Deer and elk meat are used interchangeably in most recipes for venison. Two of the recipes that follow call for a marinade, either to tenderize or to add flavor.

Venison steak St. Hubert

This recipe places the venison in marinade the night before serving, and requires a very short preparation time. The slightly sweet-sour sauce is wonderful on venison. Despite the gourmet title, it is an easy recipe to prepare. Serves four.

4 venison round steaks, 1/2- to 3/4-inch thick
(about 2 pounds)

Marinade:

2 sliced carrots
2 sliced onions
1 chopped clove of garlic
2 cups of dry white wine
3/4 cup vinegar
1/4 cup water
1/8 teaspoon thyme
2 bay leaves
2 or 3 whole cloves
3 or 4 whole peppercorns
1/2 cup corn oil or olive oil

Place steaks in an enamel, glass, or earthenware dish. Pour the uncooked marinade over the meat, cover, and refrigerate for 24 hours.

Drain the marinade from the steaks into a saucepan, straining out the marinade vegetables. Bring the liquid to a boil and reduce by half.

Gently dry the steaks with a paper towel and sauté them in a small amount of hot fat until brown on both sides. Medium to medium-rare will provide maximum tenderness.

Place on a platter and cover with the following sauce:

Sauce Poivrade (1 cup):

2 Tablespoons flour
2 Tablespoons butter
2 crushed peppercorns
1 cup reduced marinade
3 Tablespoons red currant jelly

Brown flour in butter. Add peppercorns, reduced marinade, and currant jelly. Cook over medium heat, stirring until smooth.

Succulent venison stew

If you want to throw a bigger party, this recipe serves a crowd of eight to ten people. Again, the venison is placed in a marinade the night before, but this recipe requires a longer cooking time. This dish actually improves if made a day early and reheated before serving. A mature deer would work well with this dish.

3 to 4 pounds of fat-trimmed venison, cut into 2" cubes

Marinade:

2 thinly sliced onions
1 thinly sliced carrot
2 stalks celery, cut in large chunks
1 garlic clove, crushed
2 cups red wine
1/2 cup salad oil
1/4 teaspoon thyme
1 teaspoon salt
1/4 teaspoon thyme
2 bay leaves
10-12 black peppercorns
2 cloves

Place cubes of venison in a non-metal container, pour uncooked marinade over the meat, and refrigerate for a full 24 hours.

About two and a half hours before serving, drain and save marinade, discarding vegetables. Dry meat gently on paper towels. Continue with the following recipe for the stew.

Stew:

1/2 cup salad oil
1 cup diced salt pork
1 large onion, chopped
2 carrots, sliced
1 pound mushrooms, sliced
2 Tablespoons brown sugar, packed
3 Tablespoons flour
1 clove garlic, chopped or pressed
1/2 cup red wine
2 cups reserved marinade
Salt & pepper to taste

Sauté oil and salt pork until lightly browned. Add onion and carrots and cook until moderately browned. Sprinkle brown sugar over vegetables, stir well, and remove from pan.

In the same pan, sauté mushrooms until lightly cooked and remove from pan.

Still using the same pan and adding a little more oil (if necessary), brown stew meat. Sprinkle meat with flour and continue cooking until flour is also brown. Add wine and marinade (and additional water, if necessary) to cover meat. Cover pan and simmer on very low heat for one to one and a half hours. Add the reserved vegetables and cook for an additional 30 to 40 minutes.

Serve over rice and sprinkle with chopped parsley. A blend of wild and white rice is very good with this dish.

Roast leg of venison with lingonberry sauce

For a very large dinner, such as a special-occasion family gathering or holiday dinner, a traditional roasted leg of venison with lingonberry sauce is a delicious choice. Because this recipe uses no marinade, venison from a deer no older than a yearling is recommended. Serves 10 to 12.

1 six- to eight-pound leg of venison
1 teaspoon salt
1/2 teaspoon ground ginger
1/2 teaspoon ground pepper
1/2 cup beef stock
1/2 cup melted butter

Combine dry seasonings and rub into meat. Place roast on a rack in a roasting pan and cover with lid or foil. Roast in a 325° oven for approximately three hours, or until meat tests tender when pierced with a fork. Baste frequently with butter-and-water mixture while cooking.

Remove roast from pan to serving plate and cover with foil. Save pan drippings and liquid. While the roast sets its juices, make the sauce.

Lingonberry sauce:

1 eight-to-ten-ounce can of lingonberries with juice
Pan drippings (fat skimmed off)
plus enough water to make 1 cup
6 - 7 Tablespoons of sugar
3 Tablespoons of cornstarch
dissolved in 1/2 cup cold water
1 Tablespoon butter

Combine all ingredients in saucepan and bring to boil over medium heat, stirring constantly. Pour a small amount of sauce over the roast before carving, and serve the remaining sauce at the table.

Any one of these recipes will provide a memorable experience. Good hunting and good eating. Δ

Southern cooking that doesn't just whistle Dixie

By Richard Blunt

The southern region of the United States is almost as big as Western Europe, and despite the stereotype that non-Southerners have—that there is only one South—when someone says, “I am Southern,” the South contains almost as many subcultures as Europe has countries. This cultural diversity shows especially in Southern cooking. A close look at the culinary practices in this region will reveal the influence of German, Dutch, Spanish, French, Scottish, Irish, Native American, Asian, English, and African cultures. The result has been the rise of three broad and distinctive Southern cuisines: Classic Southern, which is a blend of Anglo Saxon and African roots; Southwestern, with its Spanish influenced ranch style cooking; and Creole/Cajun, a mixture of French Canadian, Native American, and African cuisines.

English and African roots

Southern cooking—in fact, all “American” cooking—started nearly 400 years ago when a small group of weather-beaten, malnourished refugees landed on the eastern shores of North America. They'd left their homes, most of their relatives, and almost all their possessions in England and set sail for a new homeland where they sought religious freedom. In a very short time they established successful colonies at Plymouth in Massachusetts and at Jamestown in Virginia.

In spite of the dramatic climactic differences between the two colonies, the British women in both colonies set up their kitchens to accommodate the cooking style they had learned at home. But because winters in the Plymouth colony were cold and long, the settlers continued to rely mainly on the simple fortifying foods that were central to their Old World Puritan cooking style. Basic elements of this style survive today in New England Yankee cooking, e.g., when brine-cured meats and hearty leaf and root vegetables are combined to make boiled dinners.

Meanwhile, the milder climate experienced in the Virginia colony made life generally easier. And, though meals were also prepared along traditional lines, they were done so with a more relaxed attitude, meaning that in Jamestown the colonists made use of the more plentiful foods available there including a larger variety of vegetables and more herbs and spices. But even with this relaxed attitude toward traditional culinary practice, the food prepared in both was essentially the same.



Richard Blunt

There is a myth that early English cooking and, therefore, the cooking style the colonists brought with them, was plain, simple and unimaginative. The truth is that from the beginning of 17th century to the early part of the 18th century there was a Renaissance in English cooking. English cookbooks from that time show evidence that this was a cuisine rich with a variety of herbs and spices in which foods were crafted by techniques that contributed subtleties of flavor and texture.

At the center of all of this was the ancient art of open hearth cooking. This is the most dangerous and back breaking way of preparing food that I can think of, but it imparts a flavor and texture to food that is impossible to duplicate by any other cooking method. Cooking on an open hearth requires the use of very specialized tools and utensils. Adjustable spits used for roasting gave the cook complete control over the roasting process. An array of cranes and pulleys made it possible to move pots closer or farther from the heat. There were Dutch ovens, with long legs and tight-fitting deep-rimmed lids which were buried in the hot coals to allow the contents to cook while the coals slowly cooled, thus creating stews, soups, and other wonderful dishes that exuded flavors and aromas that are all but unknown today.

Using these and other special utensils like long legged chaffing dishes, iron forks and tongues, salamanders for browning, gridirons for frying and grilling, long handled waffle and wafer irons, and clay brick baking ovens all required a sense of timing and a mastery of this cooking technique that is nearly a lost art. By the time you read this column, I will be participating in a special workshop called

“Mastering The Art of Open Hearth Cooking.” I will share that experience with you in a future column.

Southern cooking blossoms

More important to Southern cooking, however, was an event, scarcely noticed at the time, that took place at Jamestown. In 1619 a Dutch ship anchored off the coast and offered the colonists a handful of slaves transported from Western Africa. Thus began the slave trade in North America and for the next two centuries African slaves were put to work supporting all aspects of the South’s agrarian economy. This included all of the food production responsibilities in many Southern kitchens.

Like their English sisters, the African women brought their native cooking techniques with them, and, once in the English kitchens, they demonstrated a natural flair for blending the ingredients they found there with other ingredients they were already familiar with, but which were new to the English palate. The resultant earthy foods, served in elegant style, have made Southern cooking legendary and it has survived political and social upheaval, wars, industrialization, and attempts by the commercial and fast food industry to bastardize it.

It was during the first half of the 19th century that Southern cooking really blossomed. All elements of the formula came together and were supported by the South’s rich economy. The tables of the upper and middle class households displayed some of the finest foods that could be found in this country.

Several critical events, however, would dramatically change the South and bring this era to an abrupt halt. When the War Between the States and the Emancipation Proclamation ended slavery, the legacy of African cooks running Southern kitchens came to an end. African cooks lost the Anglo Saxon influence and the Anglo Saxon households lost the creative ingenuity of the African cook. Poverty settled on the South, forcing most households to adopt simple diets of field peas, wild and cultivated greens, sweet potatoes, and a variety of dried corn products, supplemented by inexpensive pork products. A whole generation of Southern women left their kitchens and went into the

work force, leaving little time for anything but essential cooking. Still, as meager as the food was, over the years even this food fare has been refined in Southern kitchens to the level of signature cuisine that any Southerner can be proud of.

Another factor in the nineteenth century that affected the cooking was the mass production of cast iron ranges that were sold at prices that most households could afford. This revolution in kitchen technology changed all American cooking because it signaled the end of open hearth cooking. But the inexpensive and convenient cast iron range could not produce the same results as spit roasting of meats before

a hot fire and crusty breads like those baked in wood fired clay brick ovens.

Then the packaged food industry started to market off-the-shelf canned foods as an easy, but low quality alternative to the traditional labor-intensive methods of home preserving. The age of synthetic cheese, ham made with gluten, and imitation bacon had begun. American food was on its way to gastronomic disaster. It is a loss from which it has never fully recovered. Fortunately, in the South, tradition has never been considered an anecdote; and the legend of Classic Southern food has been kept alive throughout the region. And wherever Southerners have migrated, they have brought their cooking with them. On top of this, the culinary works of

great 17th and 18th century authors have recently been revitalized to celebrate the past glories of traditional Southern cooking.



Thomas Jefferson

The first American epicure

The first great American epicure of note was from the South. He was Thomas Jefferson, to some, the greatest American President. He not only served as President, he was a governor of Virginia, Secretary of State under Washington, and an American minister to France. But his first loves were farming and overseeing all of the culinary operations at Monticello. He himself designed Monticello along with its kitchen, and he never lost an opportunity to play host. At times he entertained as many as 50 guests in his custom built dining room. But because of his fascination with French foods and wines, he was accused by other

native Virginians of “rejecting his native victuals.” It was an unfair accusation because Jefferson also relished such Southern delicacies as corn, dry cured Virginia ham, Jerusalem artichokes, scalloped tomatoes, peas, and rice. He grew 30 different varieties of peas at Monticello and risked becoming a criminal on death row because he smuggled seed rice from Italy into the United States for planting in his gardens—a capital offense at the time that was punishable by hanging. Every year Jefferson’s April 13th birthday is celebrated with a lavish dinner party at his mansion. Of course classic Southern food is always a part of the menu.

To tell the story of Southern food would require an epic of several volumes. There are no boundaries where one can say Southern cooking starts and ends, and its ingredients are as varied as the mixture of different cultures that call the South home. There is no way I can do justice to it with the space I’m allowed in this column. But with what I do have, I will share with you some recipes that have been passed from my grandmother to my mother, and now they belong to me. There is nothing highfalutin (as my grandmother would say) about these foods. In fact, there is a certain grace in their simplicity and an elegance in the natural unmasked flavors that Southern fair offers all who appreciate good food.

Fried chicken

It would be blasphemy to discuss Southern food without giving some attention to fried chicken. The recipes and cooking methods for fried chicken are endless. Put a bunch of Southern cooks in the same room and they’ll disagree on everything from the ingredients to the actual cooking



Beet, dandelion, collards

method. Some will insist that disjointed chicken, salt, pepper, flour, and fat are all that are necessary to make honest fried chicken. Others will make the same claim after adding to the formula various combinations of eggs, buttermilk, sweet milk, corn meal, bread crumbs, cracker crumbs, baking powder, and almost every variety of herb and spice known to man.

Some insist on frying in deep fat, others say shallow fat. They can’t even agree on the type of fat. You’ll hear lard, corn oil, and peanut oil each considered “best” by different cooks. So, if fried chicken is a must for you, I suggest that you consider your own taste and select the recipe and production method that you think comes closest to what you like.

Beware of recipes that tout themselves as “authentic Southern fried chicken” because there isn’t any single such thing. But, if you want to try a chicken recipe that is as Southern as you can get, without going through the mind boggling variations of frying, my grandmother’s Benne (pronounced *'ben ay*) Bake recipe is just the answer. Serve it hot for dinner with or without gravy, or chill it and plan a picnic.

Nanny B’s Benne Bake

Ingredients

1 two pound frying chicken — cut into eight pieces

Undercoating

1 cup all purpose flour

1/2 tsp salt

1/2 tsp freshly ground black pepper

Middlecoating

3/4 cup Buttermilk

Overcoating

12 ounces ground pecans (ground with the coarse blade of a meat grinder or in a food processor)

2/3 cup white benne (sesame) seeds

1/2 tsp cayenne pepper (ground)

1/4 tsp nutmeg (fresh ground from whole seed if possible)

1/2 tsp salt

Method

1. Wash the chicken pieces in cold water and dry on paper towels.

2. Preheat the oven to 375 degrees F.

3. Combine undercoat ingredients in a brown paper bag and set aside.

4. Combine overcoat ingredients in a large bowl and mix.

5. Place middlecoating (buttermilk) in another large bowl.

6. Oil a roasting or baking pan that is large enough to hold all the chicken.

7. Place all of the chicken in the bag with the undercoating and shake until the chicken pieces are evenly coated with the flour mixture.

8. Remove the chicken pieces from the bag and shake off any excess flour.

9. Place the chicken pieces into the buttermilk and gently toss to coat each piece with milk.

10. Roll each piece of chicken in the overcoating until evenly coated and place on the oiled pan.

11. Bake on the middle shelf of the oven until the coating is a medium brown and the chicken is cooked through (about 40 minutes).

Note: This recipe produces a chicken that has a wonderful tasting and crispy coating that keeps the chicken moist and tender. If you are counting calories, this coating works with skinless chicken as well. It also works with center cut pork chops and firm fleshed fish such as catfish, eel, tuna, or swordfish.

Stewed Winter Sallet

Sallet (pronounce the “t”) is an old English word for greens. Turnip greens, mustard greens, dandelion greens, Swiss chard, collards, beet greens, and spinach are some of the most popular greens that grow in profusion in the South. Today they are one of the mainstays of Southern cooking, but there was a time when greens were considered unattractive food at all but the poorest dinner tables. Over the years the ingenuity of those who did the cooking in poor households transformed this humble food into a distinctive cuisine by mixing and matching with other basic foods like corn, rice, beans, and inexpensive cuts of pork.



Cabbage, chard



Mustard, turnip

The following recipe, stewed winter sallet, has been served by my family at dinner on New Year's Day for as long as I can remember.

Ingredients

8 oz dry cured lean salt pork
2¹/₂ qts water
1 medium onion sliced
2 pounds fresh collards, kale, or cabbage (If you use kale, choose only young leaves. Kale becomes bitter as it matures.)
2 fresh hot chilli peppers cut in half, seeded and deveined.
Fresh ground black pepper to taste.
Kosher salt to taste

Method

1. Cut the salt pork into eight pieces and saute over medium heat in a heavy bottomed skillet until lightly browned. Combine the pork, water, and onion in a very large pot and bring the mixture to a slow boil. Reduce the heat, cover the pot, and allow the pork to cook for about a half hour at a very slow boil.

2. Wash the greens in plenty of cold water, cut away of any tough stems and cut the greens into ³/₄ inch strips.

3. When the pork has simmered for a half hour, raise the heat to bring the broth to a medium boil; add the greens and chilli pepper and bring the mixture back to a boil. Reduce the heat to a slow simmer and cook the greens until they are tender. Cooking time will vary depending on the type of greens. Young kale takes only about twenty minutes.

Hardier greens like collards and cabbage will take up to an hour.

4. A few minutes before removing greens from the heat, taste the broth and adjust the seasoning with the salt and pepper.

Pepper Sherry

This is a table condiment used in the deep south to add extra zing to everything from soups to vegetables. I carry a small bottle with me when I go to food shows to help me through a day of tedious tasting. It will also enhance the taste of any cooked greens without masking the flavor. It takes only a few minutes to make and will last in the refrigerator forever. If you want to put some in a small bottle to bring to your favorite restaurant, it will live without refrigeration.

Ingredients

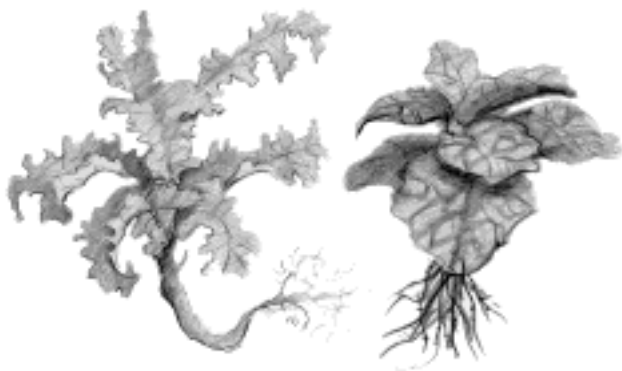
2 or 3 fresh hot chilli peppers. (I use habañero, Scotch bonnet, or jalapeno because they are both hot and flavorful.)
2 cups your favorite sherry

Method

1. Cut the peppers in half and remove the seeds. Dice the seeded peppers into medium chunks.

2. Scorch the peppers in a heavy bottomed skillet over medium heat being careful not to allow them to burn. Do not use any oil or other fat to lubricate the pan.

3. Combine the peppers with the sherry in a Mason jar or other suitable bottle, and refrigerate, covered, for 24 hours.



Kale, spinach

Before using this condiment, I suggest that you taste a little first, to see just how hot it is.

Hoppin John

This old Lowcountry rice and bean dish has a fascinating history that goes back to the late 1600s when Dr. Henry Woodward planted the first crop of Madagascar rice near Charleston, S.C. By the 1800s, Carolinians were using rice for currency and named their rice “Carolina Gold”.

Slave cooks from West Africa slowly introduced this dish to South Carolina as they were allowed to introduce their cookery into planters’ kitchens. Today Carolinians eat this dish on New Year’s Day to bring good luck in the coming year. If you’re interested in reading more about Hoppin’ John history, buy a copy of [The Carolina Rice Kitchen](#) by Karen Hess. But first try this recipe to get a taste of a food that is as classic Southern as fried green tomatoes or baked yams.

Ingredients

6 oz lean salt pork cubed
1 medium onion diced medium
2 cloves minced garlic
1 cup long grain Texmati brown rice
2¹/₂ cups water
1/2 tsp Kosher salt
1/2 tsp fresh ground black pepper
1 bay leaf (fresh if you can find it, but dried bay works well also)
1/4 tsp red pepper flakes or cayenne pepper
4 cups fresh or frozen black-eyed peas (I grow my own and freeze what I don’t eat during the season. High quality frozen varieties are also available in most markets.)

Method

1. Place the salt pork in a heavy skillet (cast iron works best), and fry over a medium heat until lightly browned. Add the onions and garlic and saute until the onion is translucent.

2. Add rice and stir to coat grains with fat. Add the water, salt, black pepper, bay leaf, and red pepper; bring the water to a boil, reduce the heat to very low, cover the skillet and cook the rice on low heat for 10 minutes. Remove the cover and add the black-eyed peas. Do not stir.

3. Cover the skillet again and cook slowly for 30 minutes. Remove the skillet from the heat and let stand undisturbed for another 10 minutes. Remove the cover and gently fluff the rice with a fork to incorporate the black-eyed peas. Serve at once.

That’s it for this issue, but remember, when they say, “The South will rise again,” it’s going to be because their cooks are taking over. Δ

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Keep the cooks happy with these easy-to-make kitchen helpers

By Rev. J.D. Hooker

After all of the decorations and gift giving, the brightest holiday memories seem to revolve around the dining table and the kitchen—turkeys, hams, geese and all of their trimmings, breads, pies, pastries, and all of the other mouth-watering delights.

Unless you happen to be one of the holiday cooks, however, you might not realize just how much real work goes into the preparation of one of these holiday feasts. Especially when you consider how New Year's comes right on the heels of Christmas, which comes right on the heels of Thanksgiving.

Sure, all of this preparation is generally considered as pretty pleasant work. But it's still work, enjoyable or not. So, for this special issue, it might be a reasonable idea to show you a few easy-to-make kitchen gadgets that can make some of these cooking tasks just a trifle easier.

Remember, this whole season, Thanksgiving right through New Year's, is really supposed to be a time of celebration, giving thanks to our Creator, sharing with friends and relatives, and expressing the joy and happiness in our lives.

So consider making up a few of these simple devices to distribute among the holiday cooks and bakers in your circle *before* the start of the season, so they can have the use of them as they prepare all of those wonderful holiday treats. I've found these small, unexpected early gifts to be greatly appreciated.

Oven hooks

The simplest of these kitchen helpers is an oven hook, a very handy



Trimmed from a forked branch



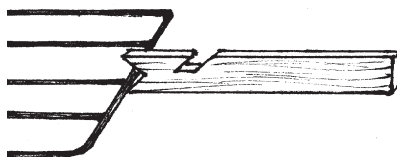
Cut from a wooden slat



Made from metal stock



Pull out . . .



. . . or push in

Oven hooks

item for any baker. Whether fashioned from wood, iron, or aluminum, this easily made tool is a real finger saver.

One method of forming this oven hook involves nothing more than selecting a forked stick, with one limb of the fork being slender enough to slip between the wires of the oven rack. Cut this slender side of the fork off to leave about a 3/4" stub, and trim off the other side for a foot-long handle. Now, just notch the end of the stick so the tool can also be used to push the rack back in, and you're finished already.

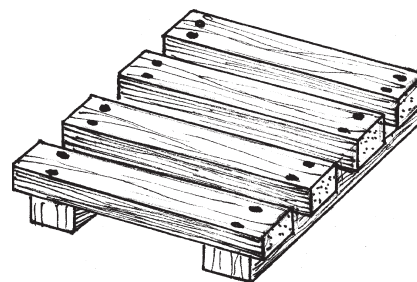
A second way to make a wooden oven hook is to use about a foot-long hardwood slat that is thin enough to slip between the oven rack's wires. Just fashion a deep V-shaped notch in one end with a diagonal notch (as shown) about an inch further up the handle.

Iron, mild steel, or aluminum flat stock (1/2" wide by 1/8" thick works well) can also be handily fashioned into an oven hook. Just use a hacksaw to cut about a 1" slot in the end of an 8" - 14" piece of flat metal stock. Use pliers, a hammer, or some other tool to bend the metal on one side of the slot to a C shape. The addition of a riveted or bolted-on wooden handle, or even a tightly wrapped leather handle, makes for a fancier gift.

Wooden cooling trivets

Another handy kitchen helper is a set of quickly fashioned wooden cooling trivets. These can be built in various sizes to fit pie and cake pans, muffin tins, loaf pans, or whatever, but the basic structure of this simple device remains the same.

A pair of wooden slats (pieces of 1x2 furring strips work great for this) are laid down an appropriate width apart. Next, drill pilot holes and use wood screws to attach similar slats of a proper length atop these. These top slats need to be equally spaced, usually between 1/2" and 3/4" apart. Not only do these trivets allow for proper air circulation, for quicker cooling, they also prevent the bottoms of the



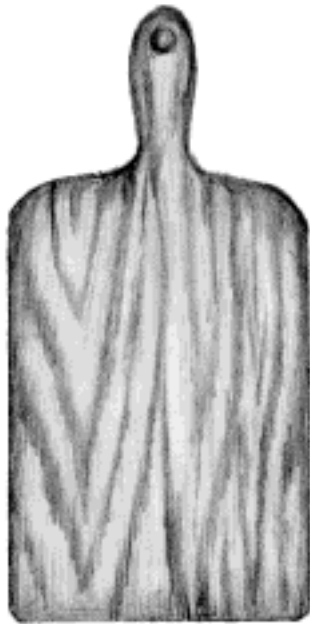
Wooden cooling trivet

hot pans from scorching the cook's counter or tabletop.

Cutting boards

Most holiday meal preparations include a lot of chopping, slicing, dicing, and mincing chores. A properly-fashioned cutting board can be a big help. "Properly-fashioned" mostly means selecting the right sort of wood. Woods in the oak, cedar, and pine groups should be avoided, as these will sometimes impart an unpleasant taste to the foods, while woods such as ash, birch, beech, maple, and hickory are generally preferred.

For best results, select a knot-free board between $\frac{3}{4}$ " and $1\frac{1}{4}$ " thick, 10" or 12" wide, and between 18" and 20"



Cutting board

long. Use a band saw, jig saw, coping saw, or whatever to round off the corners and form a comfortable handle, then sand all of the edges nice and smooth.

You can just keep wiping coats of vegetable oil on the cutting board until the wood won't absorb any more, but I've found that it's much easier to just place the board in something like a

large sheet cake pan or even a metal roller pan for painting, then pour in a quart or so of vegetable cooking oil and place the whole thing in a low oven for a few hours.

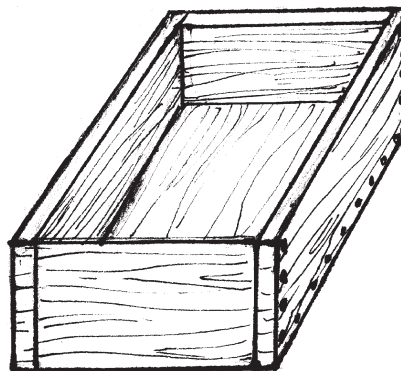
After each session of use, the cutting board should be wiped clean and rinsed well. Then pour boiling water over all its surfaces before putting it away. Add a fresh coat of cooking oil occasionally to keep the cutting board looking nice.

Dough boxes

With all of the pie crusts, breads, rolls, biscuits, and other baked goods prepared for holiday dining, an old-fashioned wooden dough box is mighty handy for mixing up bread doughs, pie crusts, and other fairly stiff doughs. Usually cherished as a gift, many become family heirlooms.

Again, woods like ash, maple, birch, and beech are preferred, while those like pine and oak should be avoided. Standard 1" lumber (actually $\frac{3}{4}$ " or $\frac{7}{8}$ ") is the best material to use. You can simply put the dough box together using screws, or you can get fancy and use dovetail or dowel pin joints if you prefer. An 8"x20"x6" deep dough box seems ideal for most bakers, but they can be made any size that suits individual needs.

Finish the dough box using vegetable oil, in the same manner as the cutting board. To clean the dough box after use, follow the same procedures



Dough box

as for the cutting board, but apply a fresh coat of cooking oil after each cleaning. This will go a long way towards preventing the dough from sticking.

In use, if the cooks will always remember to add all of the dry ingredients first, they'll love this mixing box.

Bread slicers

For many folks (like my family), home-baked breads are more than just a holiday delight. From the first cool evenings of autumn on, they usually become dietary staples. Anyone you know who bakes a lot of bread will appreciate a bread slicer just as much as my wife did when I built one for her.

Use any type of 1" lumber, or even $\frac{3}{4}$ " plywood, to fashion the base and the solid end. I used $\frac{3}{4}$ " dowels for the upright slicing guides, but you could use anywhere from $\frac{3}{8}$ " to $1\frac{1}{2}$ " dowels, depending upon how thick you want the slices to be. Space the dowels so that the blade of your bread knife will slip easily between them.

Roasting spits

For more adventurous cooks, who also have an open fireplace in their home, a set of dingle spit roasters can make an ideal pre-holiday gift. While these roasting spits are exceedingly simple to make, they also happen to be my favorite method of cooking waterfowl. Try wild duck roasted this way, and you'll probably agree.

All that's needed to put together one of these simple cooking devices is a piece of stout cord, and a "whirl" of branches. Such "whirls," most commonly found on pine trees, are formed where several branches radiate out from the same spot on the trunk.

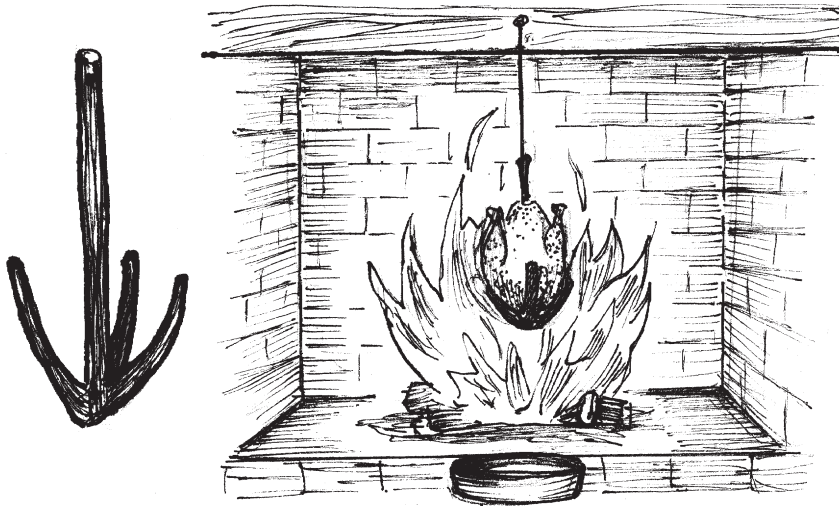
Trim the stem and the branches to proper lengths (branches about 1" for quail or Cornish hens, 2" to 4" for chickens, 6" to 8" for turkeys), and shave off all of the bark. Drill a hole

in the end of the stem, so you can hang it. Allow the spit to season for at least a few weeks before putting it into use.

To roast meats or fowl, simply insert the spit through the meat and hang it by a cord in front of the fireplace,

Cheese presses

Kitchen wizards with a strong do-it-yourself bent will also enjoy this cheese press, which is just as easy to use as it is to make. Remove both ends from a coffee can, a large juice can, or



Roasting spit

above a pan or other container to catch the drippings. Just give the string a slight twist once in a while, to keep the meat rotating in front of the fire. When roasting wild duck or goose in this fashion, carefully keep ashes and such from falling into the dripping pan: you'll probably want to try these drippings as an ideal shortening for many sorts of baked goods.

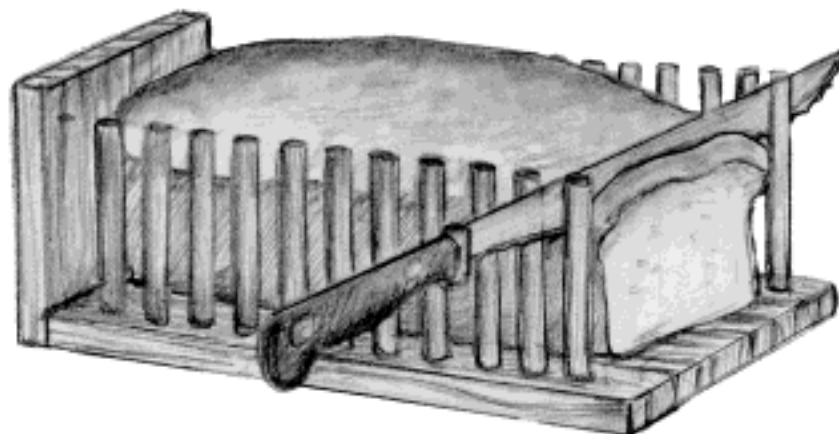
a similar-sized metal container. Cut out a couple of plywood disks that fit loosely inside of the can. Drill several small holes through each disk, with a larger hole exactly in the center.

Use a piece of all-thread rod, with a regular nut and a large wing-nut to put it all together. In use, the curds are placed inside of the container, and the wing nut is tightened to apply pressure. Simple enough?



Cheese press

Like I said, these kitchen gadgets are easy to make. Some, like the oven hook, require no more than a few minutes to complete. None of them takes more than a couple of hours to build and finish. Most cooks would be very pleased with any (or all) of these handy kitchen helpers. So why not brighten someone's holiday season? Δ



Bread slicer

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Close encounters with the white deer

By Marjorie Burris

“Mom! Come quick!” Uncle David called in a loud whisper. “There’s a *white deer* in the meadow!”

I took the griddle off the stove and hurried after Uncle David into the front yard. We could have pancakes any time—but a white deer was something very unusual. Uncle David pointed to the far side of the meadow just above the apple orchard. I could barely make out the deer in the early morning light, but it was white all right, and larger than the gray, long-eared mule deer we usually saw on the ranch.

“Where do you suppose it came from?” Uncle David whispered. “And isn’t it beautiful?”

“Do you suppose it is a true albino?” I whispered back. “I wish we could see it up close.”

We watched intently. The deer must have felt us, because it raised its head and sniffed the air, then bounced slowly away into the pine trees.

We were both excited. Uncle David looked “albino” up in the encyclopedia and found that true albino animals were white because they lacked normal pigment, and they had pink eyes and ears. He was eager to see if the deer was a true albino.

We hoped the deer would come back. That evening we got the binoculars and settled down quietly in the front yard to watch for the deer. We shivered with anticipation and kept our pact not to talk. But the deer did not come. We went to bed disappointed.

The next morning, Uncle David shook me awake early. “Let’s go see if the deer will come back today,” he said, and we hurried out to the front yard just as it was getting light. We hid behind the big juniper tree in the front yard. We didn’t have to wait long; the deer came through the trees slowly, looked around cautiously, then walked into the orchard to eat some twigs off the trees.

We studied the deer through the binoculars, and were careful not to look at it too long at a time, so we wouldn’t scare it off. We could see the pink of its eyes and ears clearly—and we saw something else, too. We saw bumps at the base of the deer’s ears. He was growing antlers! We wondered if they would be white or pink.

After the deer left, Uncle David and I were so thrilled we could talk of



A BHM moment



Inside the Backwoods Home Magazine bookstore in Gold Beach, Oregon.

nothing else all day long. Every morning we would look for the deer, and every morning it came back. And it started coming every evening, too.

A few days later Doug Vandergon, our forest ranger, drove up to the ranch to see us. He told us he had been seeing an albino deer on the other side of the mesa, and it must have changed grazing grounds and come our way. He also told us that the Goswicks, who had lived at the ranch in the 1940's, had seen a white deer a long time ago, but no one had seen one for about 25 years.

The deer became a regular diner in our meadow, coming both early morning and late evening. Grandpa, Uncle Duane, Uncle Don, and everybody who visited us watched for it. Over the summer, the horns on its head grew into a beautiful four-point rack. They were white with a pink tinge at the base.

When the apples ripened in the fall, we would leave a few on the ground for the deer. A little at a time, we would leave the apples closer to the house. The deer would eat the apples, then graze on grass closer to us. We were not so quiet as we had been when we first saw the deer, yet he did not seem to be afraid of us. He would

come up and eat in the grove across the road from the house, even when we were in the front yard. I wish I could say that he finally came up and ate out of our hands, but that isn't so.

The white deer came to our meadow regularly, both winter and summer, for about three years. We all thought he was very special.

The last time Grandpa and I saw the deer was one Christmas Eve. We were standing on the front porch, looking out toward the orchard. About three inches of snow had fallen during the day, and now, at dusk, the flakes had changed into large lazy fluffs as big as quarters. All the branches of the trees were weighted down with heavy, white snow. Our valley looked like a huge Christmas card. Suddenly, the white deer came walking through the gate at the end of the meadow. Following him, in single file, were six doe, their gray winter coats making a sharp contrast with the white deer and the snow.

Unhurried, unafraid, they started across the meadow. Halfway across, they all stopped and looked up our

A BHM Staff Profile: Oliver Del Signore



Born and raised in a suburb of Boston, Massachusetts, Oliver Del Signore occasionally takes time away from his duties as the Webmaster of *Backwoods Home Magazine's* popular web site www.backwoodshome.com to write an article or book review for the magazine.

In addition to being a webmaster and writing, his career has included stints as a jewelry salesman, maintenance supervisor, pizza maker, Real Estate broker, carpenter, rental agent, and painter. Currently, when not glued to the keyboard updating *BHM's* web site, he uses his woodworking skills to build custom tables and cabinets.

Oliver and his wife Martha have two teenage children and the grey hairs to prove it. His hobbies include finding a quiet place to relax for five minutes and thinking up new ways to say no when his kids want to do something stupid. He enjoys good humor, good science fiction, and, at the end of a long hard day, a good cold beer.

way. The white deer held his antlers high, and the doe stood erect, as if in a pose. Grandpa and I hardly dared to breathe; we had never seen such a majestic sight. Then, still in single file, the deer slowly moved away into the forest above grandpa's workshop. It seemed they walked with a purpose.

Spellbound, we watched until the snowflakes covered the deer's tracks. finally, I turned to Grandpa and whispered, "Do you suppose they are on their way to pull a sleigh tonight?"

Grandpa put his arm around my shoulders and hugged me close. "Who knows?" he said, a twinkle in his eyes. "Who knows?" Δ

Here are five quick and easy craft projects

By Jan Cook

I've always found that crafts are more fun if they're quick and easy. Here are five that look a lot harder than they are.

Spruce up a kid's room

What you'll need:

- Paint
- Wooden furring strips
- Wooden shelf (a few feet shorter than the length of the wall) and hardware to mount it
- One roll of white picket fence border (a bit longer than the wall)
- Hammer and nails
- Two silk vines (as long as the shelf)

Measure and mark three feet down from the ceiling. Draw a line the length of the wall at these marks. Apply masking tape just below the line and paint the area from the line to the ceiling. Paint the furring strips and the shelf the same color.

Install the shelf along the line, centered on the wall (Fig. 1). Fill in the rest of the wall beyond the ends of the shelf, by nailing two furring strips to the studs, one along the line even with the shelving, the other about eight inches above it.



Figure 1

Align the bottom of the fencing starting at the left corner of the wall about six inches below the bottom furring strip. You'll need help for this. As one person stretches the fencing along the wall, the other person nails



Figure 2

the pickets to the furring strips, top and bottom. When you reach the shelf, the fencing will wrap out and around the front of the shelf, and you'll continue nailing (into the shelf now) along the lower line (Fig. 2). Having the pickets nailed into the furring strips (top and bottom) at the ends is important to provide stability, since only the bottoms of the pickets are nailed to the shelf. Weave the vines through the pickets and add furry friends (Fig. 3).



Figure 3

I did this in a kid's room to contain stuffed animals. For a kitchen or guest room, you may want to use a color with less contrast, such as pale yellow on a white wall, and put potted plants on the shelf in place of the animals. White felt or painted clouds add to the garden effect.

Christmas angels

Once you get all your supplies organized (a very difficult task for me),

this project takes about 15 minutes. I prefer the ivory lace, but I've made these in pale blue, pure white, and peach. A good source for inexpensive lace is your local thrift store. I bought a wedding dress recently that only had a small red stain (pasta sauce) on the bodice for only \$7.50. I got several yards of usable satin and lace from the skirt for many dollars less than I could have bought it in a fabric store.

What you'll need:

- White muslin, cut in a 12-inch circle
- Batting
- White lace
- Three-inch, wire edged, gold ribbon or paper twist
- Flexible gold trim
- Glue gun

Place a wad of batting in the center of the muslin circle. Close the fabric around it and stitch through (or secure with yarn or a rubber band) to form the head. Wrap the lace trim around the neck to make the body. Cut a length (18-24 inches) of the flexible gold trim. Tie a knot in the center; this will form the hanging loop. Cut a 12-14 inch length of the ribbon or paper twist. Overlap the ends, and pinch in the center to make a bow (Fig. 4). Keeping the hanging loop and bow (these will form the wings) in



Figure 4

the center back, tie the ends of the flexible gold trim around the angel's neck and tie into a bow (Fig. 5) to secure the lace wrap. Shape the wire-edged ribbon into wings.

To make the halo, use the same flexible gold trim and wrap twice around a small bottle or bottle cap (approximately 1 to 1½ inches diameter). Apply hot glue to the trim to keep it in this shape, being careful not to get it on the form itself, or you won't be able to get it off. Place the halo on the angel's head and secure with hot glue



Figure 5



Figure 6



Figure 7

(Fig. 6). Figure 7 shows a basket of angels using iridescent twist ties for wings.

Painting with vegetables

You've heard of potato printing, where you carve a design in a potato, dip it in paint, and stamp it on paper or fabric. Well, this is much easier and a lot more fun. Finally, kids can make gifts for their parents that they'll actually use.

What you'll need:

- Celery
- Green pepper
- Fabric paint: yellow, pink, lavender, white, etc.
- Black paint or permanent laundry marker for outlines
- Solid color place mats and/or T-shirt with shirt board
- Rubber bands

If your place mats or shirt are new, wash and dry them first to remove any sizing.

Cut the celery in half and secure both pieces tightly with rubber bands. Slice off just the tips of both ends of the green pepper. These will form large and small flowers for the place mats.

Make sure you use fabric paint or add fabric medium if you use acrylic paints, to maintain flexibility. Acrylic paint used without fabric medium will be very stiff and uncomfortable.

Put dabs of paint on a paper plate to dip the vegetables in. Make sure all cut surfaces are thoroughly covered with the paint and blot excess on a paper towel. Press celery (or pepper) firmly on fabric (Fig. 8). Repeat as necessary to complete your design. Don't be afraid to mix colors. You can add glitter, too. Allow to dry. Figure 9 shows placemats painted with green pepper flowers.

Use black paint or permanent laundry marker to outline or emphasize flower petals (Fig.10). Draw or paint on some leaves if you like. I tried using real leaves on my test project,



Figure 8



Figure 9



Figure 10

but they don't work well. Veggies with hard edges turn out much better.

Always heat-set painted fabric by putting the items in a hot dryer for 10-15 minutes, or use a pressing cloth and press with a medium-hot iron. Avoid washing the project for 72 hours.

An easy bean-bag toss

I came up with this not-so-original idea for this game when I realized we hadn't planned any for my granddaughter's birthday party. I taped a couple of boxes together, cut a few holes, and whipped up some bean bags. The kids loved it and played with it for days afterward until it fell apart after getting rained on. For a longer-lasting toy, try making this out of plywood. Since this article deals with making things quickly and easily,



Figure 11

these directions are for the cardboard version.

What you'll need:

- Two good-sized cardboard boxes
- Duct tape
- Paint
- Knife
- Old socks
- Beans

Tape the boxes together to make a big target. Paint the outside. In Figure 11, Kevin and Ian are using the left-over turquoise from the kid's room project, but any color will do. Cut holes and paint around them in a contrasting color. I've used both faces and simple lines. Assign values if you like. The large holes are easier to score and should have a smaller value than the smaller holes.

Elissa holds a bean bag made with beans knotted into one of her stray socks (Fig. 12). Easy to make, and



Figure 12

easy to replace. But remember, if these bean bags get left out in the rain, they'll sprout!

Re-usable gift bag

I know, I know, all gift bags are re-usable, but the paper ones deteriorate quickly and are ridiculously expensive. What makes this cloth gift bag unique is its matching tag. This bag is 12x18, but you can make them in all sizes. Carry some in your purse when you go shopping, and you'll have your gift wrapped in less time than it takes the salesperson to ring it up.

What you'll need:

- Fabric
- Ribbon
- Lightweight paper plate
- Heat n' bond or similar bonding material
- Sewing machine
- Tissue paper

Cut a strip of fabric to the size you want. This one is 12x36. Match the short ends and sew the long sides together (right sides together) (Fig. 13). Turn the open edge over to form a hem and pin in place. In the center front of the hem, mark locations for two buttonholes about 1/2" to 1" apart. Make sure you only make them in the front of the hem area and not through both layers of fabric. The pull-tie ribbon will be run through here. Plastic paint can also be used in place of stitching around the buttonhole. Sew the hem in place. Insert the ribbon through one buttonhole, through the hem, and out the other buttonhole.

To make the tag, cut a square from a lightweight paper plate. Fold the paper in half to make a sharp crease before you bond it to the fabric, so it will open and close easily. Cut a square of heat n' bond the same size as the paper. Cut a piece of the fabric a little larger. With your iron, bond the pieces together as shown in Figure 14. Punch a hole in the corner of the folded edge and attach to the ribbon. Add the gift

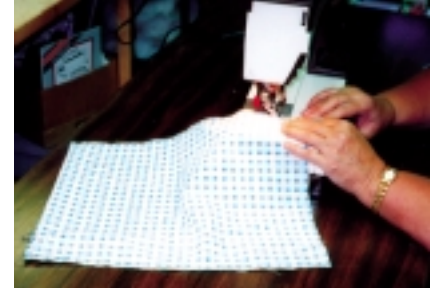


Figure 13

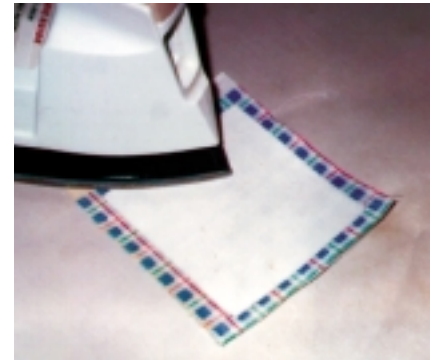


Figure 14



Figure 15

and the tissue paper, and you're done (Fig. 15). Δ

I shall tell you a great secret, my friend. Do not wait for the last judgment. It takes place every day.

Albert Camus
1913-1960

I heat my house by burning *corn*

By Judith W. Monroe

As I write this, it is fall in New England. If you burn wood, you are probably well along with the annual chores of chopping, splitting, and stacking. Back in the spring, you had your chimney cleaned of creosote buildup (or if you have no fear of heights, you climbed up on the roof to do the job yourself). Around that time, you might have walked the woodlot picking the right trees to drop for your next year's winter wood supply, and then the song of the chain saw was heard in the land. In the absence of a woodlot, you consulted the newspaper or a wood-burning neighbor to find seasoned firewood for sale at the best price. Any woodstove owner knows this routine well. It seems a fair exchange for the fire that warms your home during the coldest, darkest months of winter.

Or is it? Even you, who secretly believe your stove is the best woodburner of them all, have occasional misgivings. There was that October two years ago when an early sleet storm froze the uncovered woodpile into one great ice cube. How long was it before you could get to that wood? Or the cold night in February when the green logs bubbled and steamed inside the firebox, giving off the meager warmth of a lighted match. The farmer who delivered your wood swore that it had been drying at least two years. It seems he meant two months. And what about the worst scenario: that time when black ooze spilled down along the chimney, a warning of an impending fire. You've

only had that kind of creosote buildup once, but it gave you chills no fire can warm.

With all your reservations, you have remained loyal to wood heat. After all, the other options do not stand up in comparison. Electric heat is incredibly expensive, and oil is not far behind. Natural gas would be nice, but it is not piped in to where you live, and bottled gas is more expensive than wood. A kerosene space heater that warms only its immediate area is not a consideration. You continue to stoke up the fire.



Still, thoughts rankle. There is the interminable nuisance of cleaning out the ashes. For every bucket that is carried outside, a fine dust remains in the air and on surfaces inside the house. Spiders build slovenly webs that capture this dust, giving certain corners in the living room an Addams Family look. Far more unsettling is the fact

that any friend or relative who has emphysema, allergies, or asthma does not feel totally comfortable visiting in your home for any length of time.

Less vital, yet still annoying, are the problems of dry air and static electricity. No amount of boiling water on top of the stove brings the humidity up to a healthy 30-40%. Your skin is constantly dry. Some of your furniture shows signs of coming unglued. The dining room table wobbles dangerously. If you own a computer, you must remind yourself to touch the anti-static pad before you put your hands on the keyboard. To forget could mean wiping out the memory.

Heating with corn

For all of these grievances, big and small, there is apparently no ready answer. Until now. In the past ten years, there has been a revival of a heating method so obviously efficient that it is remarkable how few people know of it: using corn for fuel. A corn stove does not burn stalks or left-over cobs. It burns kernels, less than a handful at a time. No, the corn doesn't snap, crackle, or pop. (One of the things people ask is whether the corn pops as it burns.) Corn contains oil and ethanol, which burn cleaner than other fuels, and more cheaply, too. Once you learn how valuable this reasonably priced source of fuel is, you have to wonder why someone in the government has not caught on to the idea of using corn for more of America's energy needs. Given the current political climate in DC, maybe you don't wonder at all (but more about that later).

Corn stoves have been used in the South and Southwest since 1969, when the stove was invented by Carroll Buckner of Arden, NC. The most famous demonstration of the stove was in the Oval Office, installed during the administration of President Jimmy Carter. Even that, as grand a promotion as one could ask for, was evidently not enough to create a rush of orders nationally.

Here in New England where people are likely to mistrust ideas that come “from away,” the corn stove might look to some like a southerner’s gimmick to use up waste corn. Northerners might also think that any stove used in the South will not really do the job in their cold climate. They would be wrong about that.

In the last few years, corn stoves have been showing up for demonstration at county fairs all over New England. You might have seen one and passed on by, thinking it was just one more wood stove. The only difference, at first glance, is that the fire burning in the glass window is tiny compared to a wood fire. Small as it is, it is capable of producing 60,000 BTUs or more. A lot of heat.

Living with a corn stove

Pour a 50-pound bag of corn into the hopper, light the fire, and go about your business. Unlike the wood stove, after the initial lighting, you do not have to keep an eye on it, poke it, or refill it every hour or so. It burns for at least 24 hours. After filling the hopper of your corn stove, you can go away overnight in the winter without fear of the pipes freezing. To a person who is accustomed to burning wood, that is a luxury.

No more chopping or splitting. No more stacking. No messy ashes. There is no danger of fire, no smoke, no poisonous effluent released into the air, and a minimal amount

of dust settles inside the house. For every bag of corn you burn there is a small “clinker” left in the stove to poke out to the side of the fire box. Later, when it is cool, you crumble the clinker and add it to your compost or save it to sprinkle it on your lawn in the spring. The corn stove is safe to touch on its exterior surfaces. Only the door and its window would cause a burn if touched.

The corn stove does not have to use air from inside the house for combustion, although frequently it is hooked up to an available chimney. Instead, it can draw air for combustion from outside, thus alleviating the usual dryness that afflicts homes heated with wood.

There is no need to clean the chimney each year. In fact, you do not need a chimney. A corn stove can be situated free standing and without a hearth next to an outside wall. A dryer-like vent is all that is required.

Unless you have a woodlot, corn costs less to burn than all of the other fuels except for natural gas. A renewable resource, corn can be replaced in three months’ time. Compare that to 30 years replacement time for trees, and 3000 years for oil, and you have one of America’s largest and least expensive resources. Yet corn is actually stockpiled by our government, while it struggles endlessly with the politics and the cost of importing oil from other countries. The search for

more sources of coal, oil, and other fuels here in our own land is conducted at great expense to taxpayers, while corn and ethanol are, for the most part, ignored.

There may be other, more personal reasons why Americans have not yet begun to use corn for heat. New Englanders, for instance, are loyal to what warms their nest. They discuss wood stoves with the same fervor they ordinarily save for their cars and trucks. Models are important. Form and function are fascinating. Economy in terms of cords burned is as important as gas burned in miles per gallon. Although we New Englanders are not pioneers when it comes to trying new-fangled gadgets, we reverted to wood burning quickly enough when oil prices skyrocketed a few years ago. Wood after all is a time-honored fuel.

Will corn catch on?

So when will we catch on to corn? Soon. At least 500 stoves have been purchased each year over the past three winters in Maine and another 700 in New Hampshire. Vermont is the slowest to acknowledge the advantages of corn heat. As the yarn goes, a Vermonter will not buy an item unless it is recommended by a Vermont native, preferably a neighbor or friend who already has one. That makes it a challenging market to break into.

Changing from one source of fuel to another can be expensive. Not everyone can afford to abandon a current source of fuel, even if corn is cheaper and cleaner. (I paid about \$2000 for my corn stove. I’ve heard there will soon be a model available for half that.) Still, those who are tired of paying high fuel bills owe it to themselves to check on prices and do some figuring:

1. Research into actual heating costs in four north-



eastern U.S. cities found shelled corn fuel to have the lowest cost-per-unit of effective heat over nine other “traditional” heating fuels, from oil to wood pellets. (I got this information from the distributor who sold me my corn stove.)

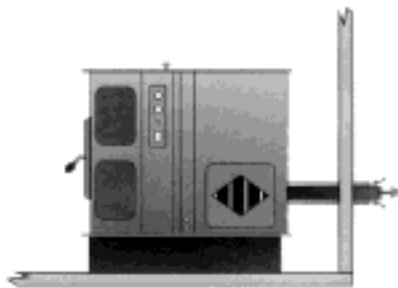
2. It takes 2.2 bushels of corn to produce one million BTUs of heat, at an average cost of \$8.79. Producing that much heat by burning wood costs, on average, \$22.07. (You can use other oil-bearing grains, too.)

3. Heat from wood stoves can’t be controlled as well, so there is some waste of heat. Corn stoves are designed to feed the burn unit automatically with the exact amount of fuel required to produce heat at a pre-set temperature. There’s no waste. And corn stoves are much more efficient than wood stoves, so you get more heat from the fuel.

The downside

For those heating with wood, there are two advantages that corn cannot offer. One is radiant heat. I have heated with both wood and corn for years. Members of our family often stand near the woodstove for the comfort it offers (a habit so ingrained that they are apt to do it even in summer, when the fire is not burning). A corn stove, however, does not radiate that kind of immediate warmth. You can’t cook on it, either. Although it can be every bit as attractive to look at as a wood stove, it is not hot to the touch, so the heat from within must be forced out by an electric blower.

The second advantage of wood heat is for emergency power outages. A corn stove needs electricity to operate the auger and to blow the heat into the room. When people purchase a corn stove, they often save their old wood stove as a standby for those occasions when the power fails and for the incredible sub-zero nights when extra heat is needed. Corn stove distributors also offer a 24-hour battery backup in



A corn stove doesn’t need a chimney: it’s vented through the wall.

case of outages, but that costs an extra \$300 or more to install, and the battery, of course, has to be re-charged.

If you cherish silence in your home, the hum of the corn stove’s motor may be a temporary annoyance. I live in rural Maine, and I had always heated with wood. The mechanical sounds of the corn stove, like the fan on my computer, seemed an intrusion at first. I had forgotten how quickly I became deaf to the sound of furnaces in other houses, as well as the refrigerator and the water heater in my own home.

In addition, like any other appliance or piece of equipment, corn stoves have little idiosyncrasies you learn to live with. You will need to experiment for a few weeks (or longer) to feel comfortable running the stove. Starting up the fire is not that much different from starting a wood stove. You can use paraffin blocks, twigs, or wood chips. Once started, the stove regulates itself. At first, you will need to watch for signs that the corn has actually caught and that the auger is dropping the right amount of corn into the fire box.

With wood, it is a given that there is some dirt and other residue attached to the bark. Corn, on the other hand, should not be dirty. If a piece of stalk, for instance, gets twisted and caught inside the auger, that slows down the fire and can cause the fire to go out. Sometimes there is a buildup of corn in the fire box, and then when more corn drops down, the fire is smoth-

ered. There are similar inconveniences with a wood fire, but on a different scale.

Use a good grade of corn

Buying corn from a farmer or a feed supply store means insisting on clean, dry fuel. Ask about the grade of corn for sale. The higher the quality of the corn, the hotter it will burn. Any grade corn can be burned, but the corn that supplies the most energy as animal feed also burns the hottest. Most suppliers are beginning to understand that there is a growing market for fuel corn. Those who do are glad to supply clean, high quality corn at a good price.

When thinking of storage for corn, think small. You can store two tons of corn in 50-pound bags in one corner of your garage (about six feet high, six feet wide, and two feet deep). That is the usual amount delivered at one time and is enough to heat your house for two or three months.

The corn stoves of today are much more efficient than the one invented in 1969. Even five years ago there were no thermostats for them. Today, thermostats are an option. Five years ago there were probably only two stove models available. There are at least six now. One early model, the one owned by the author, could be mistaken for a clothes dryer.

Occasionally, because our stove is attached to the chimney, on a day when we turn the corn stove down low, we notice the faint but sweet perfume of cooking corn in the air outside. This is in conspicuous contrast to the smoke billowing from a neighbor’s chimney. Our corn stove, home-ly as it is, has won our allegiance hands down.

(Judith Monroe lives on a Maine mountain at the edge of a 600 acre wood. She buys her corn from a farmer in a nearby town and burns wood from her own land. She writes poetry and fiction, and is the author of two books about life on a Maine island where she lives in the summer.) Δ

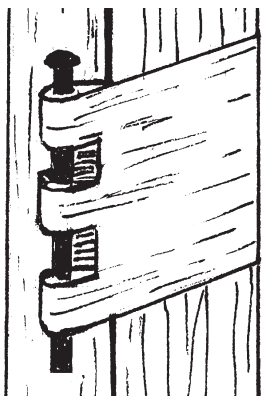
Save time and money, and get that custom look, with hinges you make yourself

By Rev. J.D. Hooker

Many times rural folks get involved in a project that has to be finished right away but find themselves running short of time, money, material, or all three. So they end up with something that's sort of "temporarily" cobbled together. This temporary fix often remains in place until it breaks or falls apart, and needs to be totally redone.

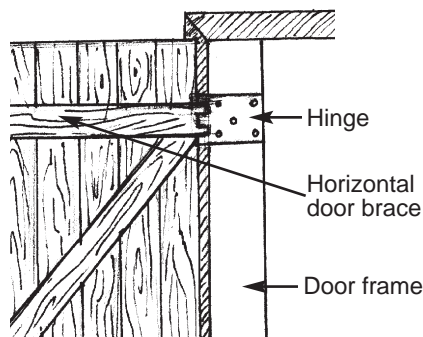
A lot of these times, there really isn't any other alternative, and a little ingenuity and some baling wire can usually fix just about anything. At least temporarily. Believe me, there's a lot of truth to the old saying that "Without American ingenuity, and lots of baling wire, most of the world would starve." Other times, though, especially when it comes to things like simple hardware, it's really not difficult to come up with a reliable and permanent solution.

I realize that lots of simple things, like metal strap hinges, aren't very expensive. Almost everyone can come by the necessary cash to purchase a pair if they're really needed. For a lot



Notch the door frame and insert the hinge piece.

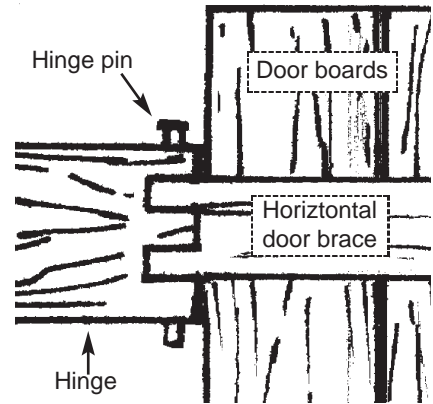
of us, though, it's simply not worth the extra ten bucks in gasoline to run into town for a set of two dollar hinges. Other folks simply can't give up the time for that trip into town, without being forced to postpone completing the project completely. Still others find the clean, simple lines of some kinds of do-it-yourself hardware visually pleasing and its production satisfying.



Wooden hinge shown with door open. The hinge is let into the door frame.

Me? I'm one of those people who almost never seems to wind up having time and money both at once. I mean, it's always seemed pretty easy for me to end up with enough of one or the other, but all too rarely both at once. So I've gotten to be pretty good at putting things together while avoiding most of those extra trips to town.

From what I've seen, hinges are one thing where most folks will end up skimping by at first. I've seen a great many gates hung on a couple of loops of rope or wire; pieces of leather, or webbing straps, tacked on to swing chicken coop doors; lids that just sit on top, rather than hinging open; and so forth. I'm sure you have seen many of these and other such jury-rigged "get-bys."



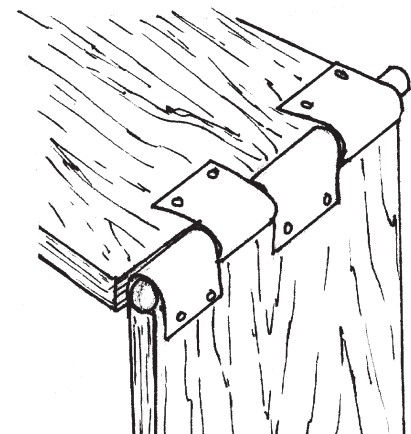
Closeup view of wooden hinge

However, like many other folks, I've found producing strong, not-bad-looking hinges, as needed, to be a pretty quick and easy undertaking. And these home-made hinges often add a nice custom-built look to a project.

Wooden hinges

My own first experience with making hinges involved building and hanging a Dutch door for an outbuilding. This solution turned out to be so sturdy, simple, and nice looking that with occasional modifications, I've adopted this method as my favorite way of hanging most doors.

Fashioning this type of hinge is simplicity itself, especially if you're putting together one of those simple and quaintly attractive cross-buck doors. Just allow the horizontal wood-



Bent metal hinge

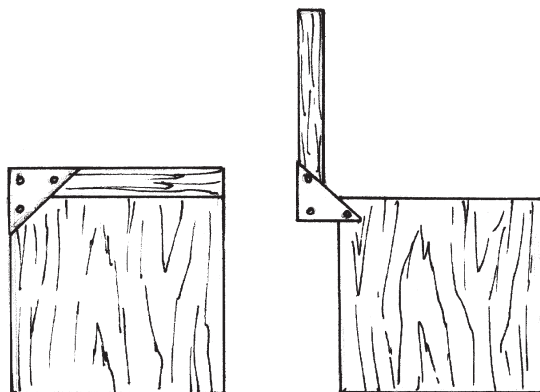
en braces of the door to extend a couple of inches beyond the door's edge on the hinge side. Notch these cross braces as shown. Then cut mating notches in a similar piece of wood to form the other half of the hinge. Fit the hinge together and drill a hole with a diameter equal to half the thickness of the wood through both pieces ($\frac{3}{4}$ " hole for $1\frac{1}{2}$ " lumber, $\frac{3}{8}$ " hole for $\frac{3}{4}$ " lumber, etc.). Insert a slightly loose-fitting dowel for a trial fit.

Next, use a rasp to round off all the edges, and sort of smooth things up, until the hinge works freely. This usually requires the hinge to be assembled and disassembled through several trial runs, until everything is finally just right. Now you can sand everything smooth and apply your choice of finish. Once the finish has dried, hang your door and step back to admire your ingenious handiwork.

Gusset hinges

I've found gusset hinges to be handy for smaller items, like woodbox lids, cabinet doors, and chest or tool box lids. It's even easier to make.

Just cut a triangular gusset from metal, hardwood, or plywood, drill three holes, and attach with screws, as shown. That's it, you're done.



Gusset hinge

For lightweight items, gussets cut from galvanized flashing material will work fine. With heavier projects, or where plenty of strength is required, cut the gussets from $\frac{1}{4}$ " to $\frac{3}{4}$ " plywood, or even from plate steel. I have often used a torch to cut gussets from pieces of broken leaf springs, to use as hinges for larger tool boxes. I'm sure you can think of many other scrap materials that would work as well for your own needs.

Using this type of hinge, the lid (or door) will swing clear of the box (or cabinet) when opened, and will hold itself open as well. However, this hinge places a limit on how far the lid (or door) can travel. So this type of hinge is terrific for some applications, but not so great for others. It all depends on the requirements of each project.

Bent metal hinges

With many types of simple projects, like a lid for a rabbit hutch, good looks aren't that important, but reliability is. In these cases I've often found that very simple hinges fashioned from bent pieces of light metal (cut from tin cans, old license plates, or similar scrap), and any sort of wooden or metal rod to be ideal. Simply use tin snips to cut strips of the required size from whatever light-gauge metal you have available. Bend these strips over the rod you'll be using for the hinge pin. Then tack the

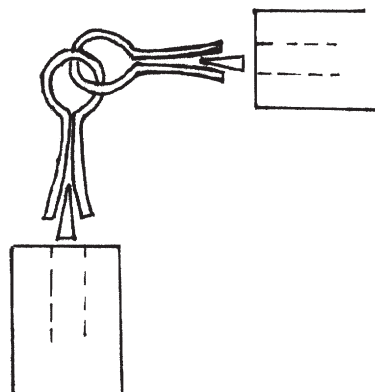
strips in place along the edges of the boards you'll be hinging together, as shown. Shove your hinge pin into place, and you're finished.

Kept painted, as protection from the elements, these simple scrap metal hinges will normally last for many years.

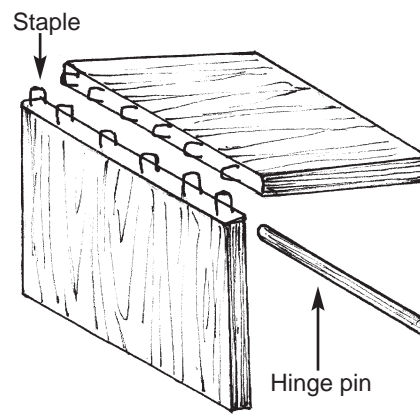
For the same kinds of uses, a row of fence staples can be driven into the edge of each board, with a dowel, long bolt, or other rod pushed into place as a hinge pin. This is another type of "instant hinge" for lighter-duty uses, where good looks aren't overly important. Should you wish to adapt either of these last two hinges for longer term outdoor use, tack a piece of scrap inner tube over the hinged area, to make a fairly watertight joint.

Temporary hinges

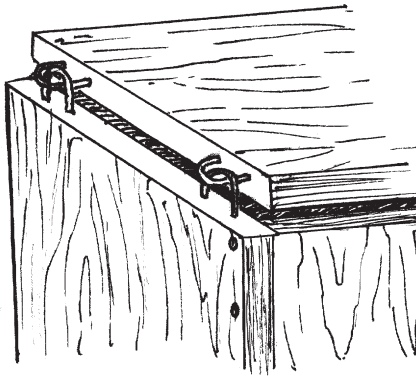
Finally, for applications that are intended for only short-term use, I've got a couple of temporary hinges you might find pretty handy. Both of these cobbled-together hinges were formerly used as hinges on salt box lids, where the corrosive action of the salt would waste away metal hinges. Ready-made hinges were pretty expensive in those times, so these cheap, easily-replaced hinges were popular.



Cotter pin hinge



Staple hinge



Double staple hinge

For the first of these methods, just drive a fence staple into the edge of one piece of wood. Then drive a second staple through that first one into the other piece of wood to form a hinge. Eventually the staples will work loose, or they'll corrode if exposed to wet weather, salt, etc. But for short-term use, they're quick, simple, really inexpensive, and they work well enough.

The second method for fashioning temporary hinges is a variation of this method, but the staples are replaced by cotter pins. Just drill appropriately sized holes in the edges of the boards, link the cotter pins together, and drive them into place. If you place a tiny wooden wedge between the "legs" of each cotter pin before driving them in, they will hold better. Again, these are cheap, quick, and simple, but they're only suitable as temporary solutions.

So, whether you've decided to build a fancy wooden front door for your house, where a finely finished set of hardwood hinges would add that extra something, or you're tacking together a temporary home for a garter snake or other critter that one of your kids is bent on adopting, maybe you'll find one of these simple, home-made hinges to be just what you need. Why not *plan* on using one of these hinges on your next project. It's satisfying to realize that even the hardware resulted from your own skills and efforts. Δ

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Listening to shortwave radio broadcasts from around the world is informative and fun

By Charles A. Sanders

The voice from the radio was clear, yet was speaking in an unknown language. Tuning in another frequency brought the staccato dits and dashes of a Morse code transmission. A little more tuning brought in an understandable yet noticeably foreign English broadcast.

If you can recall the first shortwave radio broadcast you ever heard, you may remember it as a crackling voice or melody, with the signal fading or growing in strength. The fact that these signals were coming from far around the world was amazing, to say the least.

One does not have to be a *ham*, or amateur radio operator, to enjoy tuning the airwaves. An amateur radio license is required only for transmitting on the air. As a listener, you are free to tune in to your heart's content. Long distance monitoring or "DXing" is not only an interesting pastime, it can be an efficient method of acquiring information not available elsewhere.

Unlike normal AM or FM radio broadcasts, shortwave radio depends upon the atmospheric layers surrounding the earth to "go the distance." These radio waves radiate from their transmission point, then actually "skip" off of the ionosphere, then back to earth to some point far distant from where they originate. The radio signal may actually skip several times before

it loses its strength. This characteristic is what enables you to glimpse life halfway around the world, via your radio.

A good, dependable radio receiver is a definite asset for monitoring these distant broadcasts. For the homesteader, or other remote location, or the casual listener, shortwave radio listening can be a very enjoyable and infor-



mative pastime. During normal times, dozens of entertaining broadcasts may be picked up on just about any evening. In emergencies or during events of international significance, these radios can help the listener monitor important events as they develop, often right where they are occurring in the world.

What's out there

There are identifiable shortwave broadcast stations in dozens and dozens of countries around the world. Some of the big "powerhouse" stations include broadcasters such as the Voice of America, the BBC World Service, Radio Canada International, Radio Australia, Radio Netherlands, Swiss Radio International, Deutsche Welle, Radio Moscow International, Radio Japan, Radio South Africa, The Voice of Free China, and many others. One thing you will learn about foreign broadcasts is that not everyone is exactly sympathetic to the United States.

Many religious broadcast networks use the shortwave frequencies. They broadcast their particular messages along with music, commentary, etc., all over the world, and seem to have a very large following. One of the largest and best of these broadcasters is HCJB in Quito, Ecuador. Others include WRNO, WCCR, WYFR Family Radio, and WHRI.

Other broadcasters direct their programming to "patriotic" groups and individuals. There are programs describing how to deal with the predicted economic collapse, how to buy gold and silver, acquiring various items for a survivalist's stores, and other subjects. Their news coverage and commentary convey a noticeably "conservative" stance. On the other hand, at least one broadcast station

works to counter these with their own “liberal” broadcasts. Even the short-wave frequencies are not without some controversy and name-calling.

Scheduled broadcasts in English are made from almost every international station. Broadcast schedules can be obtained from most of the international stations, particularly the larger ones. Most of these broadcasters include their mailing addresses in their programming. Some stations even offer on-air language instruction as a part of their programming

As I mentioned, it is possible to listen to events of international importance as they develop, from where they develop. For example, back when Operation Desert Storm began, we had two television sets (tuned to two different networks) and our shortwave radio turned on. The shortwave was tuned to the British Broadcasting Company (BBC). After a while, we pretty well abandoned the network TV coverage in favor of the more complete shortwave coverage.

Universal Coordinated Time

One thing which you will quickly learn is that shortwave programming is set up on Universal Coordinated Time (UCT). UCT is the time at the *zero or reference meridian* on the globe. UCT was formerly referred to as “Greenwich Mean Time (GMT). GMT refers to the fact that the reference meridian passes through Greenwich, England.

Time changes one hour with each change of 15 in longitude. EST, CST, MST, and PST are 5, 6, 7, and 8 hours “earlier” than the time at the reference meridian. They generally correspond to the 75th, 90th, 105th, and 120th meridians.

The table on this page is useful in computing listening times for short-wave radio broadcasts originating from countries around the world.

Buying your radio

Now that you’ve decided that you want to tune in the world, which radio do you want to buy?

A good quality portable radio can do double duty, serving as your AM-FM receiver to receive regular commercial radio broadcasts, as well as picking up shortwave broadcasts. The small portable set which I have does just that. I listen to shortwave broadcasts from around the world in the evening, and the radio wakes me up to the local stereo FM country station in the morning. Select a radio that covers the portion of the radio spectrum in which you are interested. Fortunately, this is not as difficult as it sounds. Most portable DX radios on the market

today include the standard AM-FM broadcast bands. Some may also offer some combination of bands to tune in aircraft, TV, weather, or police.

I recommend picking up a copy of the current Passport To World Band Radio, even prior to purchasing your radio. Not only will the book provide information on tuning in practically every international shortwave station in the world, it also contains information on most of the popular shortwave receivers available, all “star” rated by the editors. This book helped me to decide on the model which I purchased to replace my old radio. Another attractive feature of this guide is the hour-by-hour guide to what you can find across the bands.

Converting Universal Coordinated Time (UCT) to US times

EST	UCT	CST	MST	UCT	PST
1900	0000*	1800	1700	0000*	1600
2000	0100	1900	1800	0100	1700
2100	0200	2000	1900	0200	1800
2200	0300	2100	2000	0300	1900
2300	0400	2200	2100	0400	2000
0000*	0500	2300	2200	0500	2100
0100	0600	0000*	2300	0600	2200
0200	0700	0100	0000*	0700	2300
0300	0800	0200	0100	0800	0000*
0400	0900	0300	0200	0900	0100
0500	1000	0400	0300	1000	0200
0600	1100	0500	0400	1100	0300
0700	1200	0600	0500	1200	0400
0800	1300	0700	0600	1300	0500
0900	1400	0800	0700	1400	0600
1000	1500	0900	0800	1500	0700
1100	1600	1000	0900	1600	0800
1200	1700	1100	1000	1700	0900
1300	1800	1200	1100	1800	1000
1400	1900	1300	1200	1900	1100
1500	2000	1400	1300	2000	1200
1600	2100	1500	1400	2100	1300
1700	2200	1600	1500	2200	1400
1800	2300	1700	1600	2300	1500

* Or 2400. 2400 is associated with the date of the day that is ending, 0000 with the day just beginning.

Another book which you will find useful is the World Radio & TV Handbook. This guide offers information such as location maps, addresses of many broadcast stations, including standard AM-FM stations. As suggested by the title, it also provides information on television broadcasters throughout the world and satellite broadcasts.

Since most of us are not dripping with money, price will likely be an important factor in selecting your radio. However, quality enters into the equation, too. You do not need to sink a fortune into your new radio, but you will want to stay away from the really cheap ones.

For a world-band receiver, \$50 to \$75 is not going to buy much of a radio. You will be able to pick up most of the big power broadcasters, but anything beyond that will be more difficult and unpredictable. These less expensive radios lack the tuning sensitivity and frequency selectability that higher quality models have.

A decent portable world-band receiver can be purchased for between \$175 and \$400. With the higher prices, you might expect more and better features, and in most cases this is true. The Grundig YB-400 I have costs around \$200 and is doing a very nice job. It has many features of larger and more expensive radios. As I occasionally travel in my work, its compact size permits me to take it along to use for entertainment, information, and wake-up duty.

One feature you should definitely look for in a radio is digital tuning. These sets are much more sensitive and accurate than the older analog or "slide rule" type tuners. It is simply much easier to tune in a station with one of these sets.

Sangean, Sony, Radio Shack, and Grundig are among the more popular manufacturers of compact receivers. They have models for just about any budget.

Drake, Kenwood, JRC, Yaesu, and others offer larger countertop radios

with more features, but these will require a much greater investment. They are equipped with more sensitive tuning, more and better noise filters, and other features which make them attractive to the more serious listener. It is possible to tie up hundreds or even thousands of dollars on one of these sets.

For my money, I selected the Grundig Yachtboy 400. This radio offers standard AM radio, FM stereo, sideband capabilities to better monitor "ham" operators, and good coverage of all of the shortwave bands. It is portable, operable from either batteries or AC/DC, and has an external antenna jack as well as a good telescoping antenna. It includes an ear phone, a padded case, and an external portable reel-type long wire antenna.

External antennas

Speaking of antennas, you should note that in almost every case, shortwave reception will be substantially improved if you can attach an external antenna to your set. The familiar telescoping antennas which are standard equipment on most portable radios will do a very good job, but a simple external antenna can do a lot to improve your reception. The antenna doesn't need to be anything fancy. As long as you have an external antenna jack on your radio, any long length of light wire will serve as your shortwave signal grabber. Merely looping the wire along the baseboard in a room will work. So will running the wire out a window and out to a tree, bush, or post. An outside antenna will usually work a little better in improving reception, due to the fact that you are removing it from the network of electrical devices, wiring, plumbing, and metal structural members which can contribute to signal interference.

A simple way to convince yourself of the value of an external antenna is to tune in a fairly good shortwave station with the external antenna attached. Then unplug the external

antenna, and you will probably hear the radio signal nearly or completely disappear.

There is one thing to remember about using an outside antenna, though. If it is suspended much above the ground, then **be sure to have a lightning arrestor hooked into the antenna** between the antenna and the radio. This simple device will help to prevent electrical disasters.

Regardless of the radio you decide to purchase, you will find a whole new world of music, news, and information waiting right at your fingertips. Those long winter evenings will become a lot more interesting as you sit with a hot cup, tuning the airwaves.

Suppliers

Listed below are a few suppliers of high-quality radios, accessories, guidebooks, and other items of interest to DXers. This is not a complete list by any means, but should get the new listener started.

Gilfer Shortwave
52 Park Avenue
Park Ridge, NJ 07656
Information: 201-391-7887
Orders: 800-GILFER-1
Fax: 201-391-7433

ACE Communications
10707 E. 106th St.
Fishers, IN 46038
800-445-7717 (24 hr.)

Electronic Equipment Bank
323 Mill St.
Vienna, VA 22130
Technical information:
703-938-3350
Orders: 800-368-3270
Fax: 703-938-6911

Universal Radio
6830 Americana Pkwy.
Reynoldsburg, OH 43068-4113
Information: 614-866-4267
Orders: 800-431-3939
Fax: 614-866-2339 (24 hr.) Δ

These chocolate treats make great gifts and delicious holiday desserts

By Tanya Kelley

Just in case the world comes to an end, I plan on keeping plenty of chocolate on hand in my food storage. That is, if I can keep out of it. The trouble is, aside from just eating plain chocolate, there are too many delicious ways to use chocolate.

Although I have met *one* person who doesn't like chocolate, it's a pretty safe bet that holiday gifts of chocolate will be a hit. Fortunately they also meet my other requirements for gifts: inexpensive and quick to make. One size fits all, and no one will complain if you give everyone their own box of chocolates. No more struggling to find something for the person who has everything. And best of all, your recipient will need more again next year.

Here are a few of my favorites for gift giving as well as holiday entertaining. The cookies and candies below all keep well and ship well. Packaged in a box, they make a gift that few can resist.

Dark moons

These buttery cookies will melt in your mouth. Makes three dozen.

- 1 cup butter (not margarine)
- 1 cup confectioner's sugar
- 2 teaspoons vanilla
- 1½ cup flour
- ½ teaspoon baking soda
- 1 cup of rolled oats
- 1 7-ounce chocolate bar, milk or dark chocolate

Cream butter and sugar until fluffy. Add vanilla and rolled oats. Sift flour and baking soda together and add to mix. Mix thoroughly. Shape dough in a two-inch roll and chill in refrigerator for one hour. Slice in ¼" slices. Bake on an



Chocolate cheesecake



Chocolate raspberry torte

ungreased cookie sheet at 325° for 25 minutes, until the cookies are lightly browned. When the cookies are cool, melt the chocolate until it can be stirred smooth. Dip the side of each cookie in the chocolate, rotating it to make the crescent moon shape.

Milk chocolate truffles

Use either chocolate chips or chocolate bars for this rich candy. Dark chocolate can be substituted for the outer coating if desired. Makes 15 to 20 candies.

- 12 ounces milk chocolate (divide in half)
- 2 tablespoons butter
- ¼ cup whipping cream
- 1 Tablespoon shortening
- Sprinkles or finely chopped nuts

Melt half of chocolate and butter until it stirs smoothly. Stir in whipping cream. Refrigerate 30 minutes until stiff enough to form into balls. Freeze balls 30 minutes. Heat shortening, adding remaining chocolate until melted. Using a spoon, dip frozen balls in the melted coating until covered. Place on wax paper. Sprinkle tops with nuts or sprinkles before chocolate hardens. Chill in refrigerator for 10 minutes.

Turtles

Quick and easy. Makes 30 candies.

4 ounces shelled peanuts (preferably jumbo)
3-ounce milk chocolate bar
30 caramel candies

Preheat oven to 300°. Unwrap candies and place on buttered cookie sheet. Place in oven, bake for eight minutes, until caramels are soft but not runny. Push two peanuts in center and five around the outside of the caramel to make legs and head. Let cool. Melt chocolate. Spoon chocolate on top of caramels to make a “shell.” Refrigerate for 30 minutes.

Chocolate caramel

Chewy and chocolatey. Makes 81 candies.

1 cup butter
2¼ cups brown sugar
pinch of salt
1 cup light corn syrup
15 ounces sweetened condensed milk
1 teaspoon vanilla
1-2 ounces unsweetened chocolate
(depending on preference)

Butter a 9x9 pan. In a saucepan, melt butter. Stir in sugar, salt, and corn syrup. Slowly stir in the milk. Add chocolate. Cook over medium heat, stirring constantly, until candy thermometer reads 245°, when a small spoonful of the mixture dropped in a glass of cold water will form a firm ball. (Test with fresh water each time.) Cook for 12 to 15 min-



Truffles and chocolate caramels



Dark moons and turtles

utes. Remove from heat and stir in vanilla. Pour into square pan. When cool, cut into one-inch squares.

The desserts below are perfect for holiday get-togethers. The ingredients might look expensive, but when compared to store-bought confections, you save a bundle. (After all, you don't have the added expense of all the preservatives!)

Triple chocolate cheesecake

The crust is a little crunchy when cutting, but the rich taste will melt in your mouth. Serves eight.

Crust

1½ cups crushed Oreo cookies (about 10 cookies)
¼ cup butter
½ of a 1½-ounce chocolate bar

Melt butter and chocolate. Stir together until smooth. Mix well with cookie crumbs. Press the mixture on sides and bottom of a nine-inch cake or pie pan. Set aside.

Filling

2 eggs
8 ounces softened cream cheese
½ cup sugar
⅛ teaspoon salt
1 teaspoon vanilla
1½ cups sour cream
3 Tablespoons cocoa

Preheat oven to 375°. Beat all ingredients together until smooth. Pour into crust. Bake for 35 minutes. Chill before

serving. If desired, drizzle top with melted chocolate or any remaining cookie crumbs. Top with whipped cream.

Raspberry chocolate torte

It only *looks* like you spent days making it! Serves 8 to 12.

Cake

1 devil's food cake mix
butter for cake

Filling

2 cups raspberries or pitted cherries (fresh or frozen)
2 cups sugar
1 cup water
3 cups whipping cream, whipped
1/2 cup confectioner's sugar
1/2 teaspoon vanilla
1 1 1/2-ounce milk chocolate bar, shaved into curls
(use a potato peeler)
Maraschino cherries for garnish

Mix cake as directed on box, except replace the oil with the same amount of butter. Bake in a greased (not floured) nine-inch round pan according to directions. Let cool.

Mix sugar and water in a saucepan. Bring to a boil and add fruit. Boil for three minutes. If using raspberries, you might want to strain the syrup to remove any seeds.

Whip whipping cream on High until stiff. Add sifted confectioner's sugar and vanilla. Mix in.

Cut each cake layer into two layers (see * below), to make four layers. Place one layer, cut side up, on serving tray. Drizzle one-third of syrup mixture on layer. Spread

one fourth of the whipped cream on top but not on sides. Place next layer of cake, cut side up, on first layer. Repeat topping with syrup and whipping cream with the next two layers. For remaining layer, place cut side down. Top with whipped cream, shaved chocolate, and cherries.

*A quick and neat way to cut a cake layer is to evenly space four toothpicks around the layer in the middle of the sides. Place a piece of sewing thread around the sides, resting on the toothpicks. Cross the ends of the thread and gently pull. The thread will cut evenly from the sides into the center, splitting the layer in two.

Tips for cooking with chocolate

Chocolate scorches easily, so heat on a very low heat in a thick-bottomed pan or in the oven at a low temperature.

If microwaving chocolate, stir every 15 seconds until melted. Do not overcook.

Do not let water get in the chocolate. The chocolate will harden into a lumpy mess.

To keep melted chocolate from cooling while working, place the container on a heating pad.

You can use any kind of chocolate bar for the treats above, but I prefer Hershey's or Nestle's.

Any of the recipes above can be made using white chocolate in place of the milk chocolate. Δ

A country moment



A serene Copco Lake in northern California.

Custom-crafted toiletries make very special gifts

By Joy Lamb

Aromas and scents wafting from the kitchen during the holidays fill us with nostalgia and hunger and a cozy comfort. Odors emanating from the bathroom usually do not.

Now, don't think of unpleasant odors. Think of luxury and relaxation and exotic places or even why you live in the country. Do you have a smell in mind? Would you like to package the scent and imagery as a gift? How do you wrap up comfort in gift paper with a pretty ribbon on top? One way is to give toilet articles that are personalized. You can make, rather easily and inexpensively, toiletries that convey both luxury and thoughtfulness. Obviously, this is not a panacea, but it is fun and fragrant to make and give aftershave, bath salts, bath oil, cleansing sachets, and essential oils.

Most of these gift products can be made up quickly. The ingredients can often be found already in your home or garden. If you need to purchase ingredients, look in grocery stores, drug stores, health food stores, liquor stores, and bath/aromatherapy shops. The ingredients are all easy to find. Packaging the toilet articles should be just as simple. Buy bottles and jars with interesting shapes and colors, or save food and drink bottles and jars, especially sauce bottles, olive and pickle jars, and vinegar, wine, and beer bottles. Any glass container that you think looks good will most likely work. The most appropriate-sized bottles hold six to ten ounces of liquid. A good jar size is one that holds one to three cups. Clean the container thoroughly and remove any labels. Right after the directions for making each toilet article, there is a discussion of the whats and whys of the ingredients and some packaging ideas. Keep in mind, these gifts should be fun to make and fun to receive.

The ingredients used in these toiletry recipes are basic. But before proceeding further, a caution is necessary.

Therefore, *WARNING: Do not take any of these products internally. Also, if a rash or any undesirable effect occurs, discontinue use immediately.*

We all know that making aftershave takes sophisticated chemistry and that it is full of unpronounceable secret compounds. Well, don't we? After all, we have read the ingredients list on the bottle. But guess what: Aftershave is basically alcohol. Adding astringents or moisturizers makes it...well...comfortable, but is hardly rocket science. Adding a scent makes it smell nice and lets you individualize it for the wearer. The ingredients can all be purchased readily and locally. High tech, chemistry lab equipment is not needed, so get out a glass measuring cup and a plastic stir stick or small spoon. This simple equipment and some very available ingredients plus a pretty bottle to hold the aftershave is all you need to make a delightful gift for a lucky man.

Each of the following recipes makes six to eight ounces of aftershave. The names are whimsical, and you can personalize them just as you can adapt the ingredients to fit the tastes of the wearer.

The process for making aftershave is to measure and pour the ingredients into a glass container and mix them up.

For instance, using a glass measuring cup, pour into it each ingredient from one of the recipes below. Stir the mixture and then pour it into a glass container for storage and cap or cork it. Then add a label.



Pirate Aftershave

The rum and citrus scents give it a reckless, Caribbean flair.

<p>1/2 cup vodka 2 Tablespoons rum 3-4 drops oil of bergamot</p>
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Spicy Aftershave

The cinnamon scent is very manly.

1/2 cup 99% isopropyl alcohol
1/2 cup distilled water
3-4 drops oil of bergamot
5-6 drops oil of cinnamon

At Home Aftershave

Soothing for sensitive skin.

1/4 cup vodka
1/4 cup witch hazel
2 Tablespoons distilled water
1 teaspoon camphor spirit (USP grade)

Outdoorsman Aftershave

Moisturizing and gentle with a woody smell.

1/2 cup 99% isopropyl alcohol
1/4 cup witch hazel
2 Tablespoons glycerin
2 Tablespoons distilled water
2-3 drops oil of rosemary (or other essential oil)

After trying some of the above recipes, you will probably want to try some other combinations. Go for it.

About the ingredients

Alcohol: Two of the above recipes use vodka and two use isopropyl alcohol. They are interchangeable. Vodka has a nice feel to it but is more expensive. Most people have no problems using isopropyl, but it does make some people dizzy or sick to the stomach. Be sure to use the 99% isopropyl rather than plain rubbing alcohol, which is 70% and too watery. Vodka and rum are found in liquor stores, isopropyl is found in drug stores or cosmetic sections of grocery or variety stores. It is important to use distilled water because it is pure.

Oil of bergamot is an essential oil made from the rind of the fruit of a tree (citrus bergamia) and is often used in perfumes. The oils of cinnamon and of rosemary are also essential oils. There are lots and lots of essential oils sold in drug stores, health food stores, and bath or aromatherapy shops. Use the ones you like the best. Essential oils have pure and intense scents and are extracted from plant matter. You can make your own. There are directions later in this article.

Witch hazel is found in drug stores or cosmetic sections of grocery stores. It is an astringent, so it helps contract the skin's pores. It works nicely as an additive to aftershave because of this and because it freshens the skin and is a mild local anesthetic that soothes minor cuts.

Glycerin moisturizes and is a by-product from soap making. This sticky liquid is odorless and thick. It is used in many cosmetics. Buy it at drug stores.

Be sure to label the aftershave. Be imaginative in giving it a name. Then list the ingredients in the order of amount of each used, starting with the largest amount first, just like the purchased stuff. Put the date you made it on the label, too. You can purchase gummy labels to write on or labels that work on computer printers. Another idea is to design your own and tie it around the neck of the bottle.

For the bath

A bath duo that makes a wonderfully thoughtful gift for either a woman or a man is bath salts and body oil, because the recipient is encouraged to have a relaxing and indulgent time. Besides being easy, inexpensive, and quick to make, these products are *fun* to make. Experiment with color and scents, making them with the recipient in mind.

The easiest way to mix up bath salts is in a one-quart plastic zip-lock bag. Simply place the ingredients in the bag, expel much of the air, zip-lock the bag, and knead it. Knead by rolling and squeezing, much as you would bread dough. It will take a few minutes to completely distribute the contents and color. The bag can be used as the storage container, or you can pour the contents into a jar with a cap. If you don't wish to use a plastic bag, mix up the salts using a bowl and spoon. Be sure the storage container is airtight. The salts can get crusty or even solid if they take on moisture. Luckily, the salts will still dissolve in water.

Bath salts

2 cups Epsom salts
1/2 cup baking soda or cornstarch
scant 1/4 teaspoon essential oil
food coloring (optional)

Soaking in a warm or hot bath containing Epsom salts is very relaxing. It soothes tired muscles. Epsom salts (magnesium sulfate) can be bought in drug stores and beauty/health care sections of grocery stores. Both baking soda and cornstarch are, among other things, soothing to the skin. They are probably already in your kitchen. Otherwise buy them in the baking section of the grocery store.



Perfume may be used in place of an essential oil. Be creative when matching up the scents and colors. You can mix up one or more batches without the food coloring, then divide it up and make several colors. Layer these colors in a jar for a pleasing visual effect. Do not use more than one scent per package, as you don't know how they will interact. Be sure to label the salts with date and contents and use clever names that indicate the scent. To write directly on the plastic bag, try using a pen that is for labeling freezer packages. It is waterproof and smear-proof. Find it anyplace that sells canning and freezing materials. On the label, include instructions to add a big handful of the bath salts to the bath water as the tub is filling.

You might note that the bath water will be the color of the salts. Keep this in mind when making up the salts. Some people will prefer clear water, which means no added color in the salts. Oil of coconut might be an appropriate scent here. Others will find blue and green relaxing. Pine or lavender essential oils are very nice with these colors. Peppermint scent with red color is invigorating and invokes holiday memories of candy canes. Just hope the user sees the red bath water as funny, not scary.

To make a body oil to go with the bath salts, first find a glass bottle with a cap or cork that holds six to eight ounces of liquid. Recycled sauce bottles with those plastic inserts that allow you to squirt out small amounts work well. The process is simply to combine the oils and, if desired, add a fragrance. Cover the bottle tightly and shake well. That's it.

Body oil

1/4 cup each of three or four of the following oils: almond, apricot kernel, avocado, canola, coconut, corn, hazelnut, peach kernel, peanut, olive, safflower, sesame, sunflower, walnut, and wheat germ

A very nice combination for people who love the country is almond, sunflower, and walnut oils. Another winner is almond, avocado, peanut, and sesame oils. The oils used to make body oil are cooking oils and are found in grocery stores. A teaspoon of perfume or essential oil to match the bath salts is a nice touch, but this body oil can stand alone.

A fun and useful bath gift for adults or children is cleansing sachets. They are a use-once-and-toss-away sack that can be used for very dirty hands or to clean the entire body in the bath or shower. Personalize them with your own selection of herbs and essential oils. All the equipment needed is a kitchen grater, a measuring cup, and some small bowls for mixing.

Cleansing sachets

1 bar soap (plain)
1 1/2 cups oatmeal (regular, not "quick cooking")
cheesecloth
cotton string, colored yarn, or colored ribbon (colorfast)

To make these aromatic cleansing sachets, start by cutting the cheesecloth into squares, four inches on a side. If the weave is really loose, double the fabric. The above recipe makes about 45 sacks. Next, grate the bar of soap to make about 1 1/2 cups of flakes. Place soap flakes and oatmeal in a bowl and mix. Divide mixture into three small bowls so that you can add different herbs and scents to each bowl.

To each bowl add:

3 Tablespoons dried herbs (leaves rather than ground)
3-4 drops essential oil

After adding the herbs and essential oils, mix the contents of each bowl well. Each bowl will make about 15 sachets. Place one Tablespoon of mixture in the center of a cheesecloth square. Bring up the corners and twist. Secure tightly with string, yarn, or ribbon. Be creative, using different colors of yarn and ribbon for each scent.

Oatmeal is a cereal that is soothing and cleansing to the skin and can be bought in a grocery store. The herbs can be purchased, or use some you dried yourself. The same for essential oils: make them or buy them. The following are some suggestions for the herbs and oils to use in the cleansing sachets. They are listed along with fanciful names.

Paul Bunyan Washout: dried sage leaves and oil of rosemary

Sweetheart Clean: dried rosehips and oil of rose

Christmas Scrub: dried peppermint leaves and oil of peppermint

Relax in the Tub: contents of one bag of chamomile tea and oil of lavender

The above recipes use essential oils. They can be purchased in a variety of places. The biggest selection will be at bath shops, tourist shops, and aromatherapy shops. They are pricey at about \$4-5 for 9-15 ml. This makes them the most expensive item that you need to make toiletries. However, you only need a few drops for each product.

There are two practical alternatives to buying essential oils. One is to use perfume that you already own in place of the oil. The other is to make your own essential oils using plant material from where you live. The following method is ancient and easy to do. It is called *effleurage* and uses sun heat to extract flower aroma. The only equipment you need is a small glass jar that will hold six to eight ounces of liquid, a measuring cup, and a tea strainer. When finished, you will need a tiny bottle with an airtight cap to store your essential oil.

Effleurage: making an essential oil

fragrant fresh flower petals (examples: gardenia, lavender, lilac, pink carnation, and rose)
light vegetable oil (examples: almond oil, very light olive oil, and sunflower oil)

Place flower petals in the small jar. Pour oil over petals to cover them. Place the jar in a sunny place and let stand for 24 hours. Of course, if your sunny place is outside, bring the jar in at night. Strain the oil into the measuring cup, pressing the petals with your fingers to get as much oil out as possible. Discard the used petals. Pour the oil from the measuring cup back into the jar. Place new, fresh flower petals in the jar, using as many as the oil can cover. Place in the sun for another 24 hours. Repeat this process for four or five days, or until you are satisfied with the scent. Each day you will have less and less oil, because it is impossible to get it all out of the petals. When finished, you will have a tiny amount of essential oil, which can be stabilized for storage by adding a few drops of castor oil, glycerin, or a pinch of orris root powder. Orris root powder is found in kitchen or spice shops.

Besides using essential oils in the toiletries described in this article, they can be used as-is. Simply put a drop on the skin and rub it in for an enchanting aroma. Another idea is to put some drops on dried flowers, leaves, or cones. Pine, cinnamon, and wintergreen are wonderful for the holidays.

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A BHM Writer's Profile: R.K. Henderson



Robert Henderson has studied rural history and traditional technologies in many countries. Following several unhealthy years as a public school teacher, he left the ranks of the salaried to become a writer. Today, he specializes in preparing tasty foods from unusual ingredients, and helping others to do the same.

Henderson's articles have appeared in *Backwoods Home* and other magazines. He also writes a column on linguistics, a vestige of an academic past, for *Suite 101.com*. Henderson's guide to suburban wild edibles and his first full-length book will be published later this year by *Chelsea Green*.

In addition to food and cooking, Henderson enjoys and writes about amateur radio, social history, and traditional wooden boats. He currently lives with his wife in Canada.

A BHM Writer's Profile: Sally Denney

Sally Denney lives on a 23-acre farm in Warsaw, Indiana. She has been married to her husband, Randy, for 27 years and is the mother of four children and is the grandmother to Skyler James Boruff.

She enjoys living the country life where every day is different and knowledge is gained from the use of your own two hands.



Protect your land title before you buy

By Don Fallick

No one would buy a car without making sure he had valid title to it, yet many of us are content to spend much more money for land without the same assurance. There are three ways to protect yourself when buying land:

- you can have the title history researched
- you can buy title insurance
- you can do a boundary survey

In some states, one or more of these are required to purchase any land. The rules vary from state to state and according to whether the land is designated as “rural.” All three ways make good sense.

A boundary survey

A boundary survey is conducted by a registered land surveyor. He measures the land itself, marking the corners of the parcel according to the “plat”—an official map registered with the county recorder. His corners should be accurate to within an inch or two, depending on the accuracy of the information he has to work with. A modern survey may not agree with one conducted a hundred years ago, or even thirty. Modern equipment is much more accurate. I have seen houses built right across property lines due to the inaccuracy of a century-old survey.

Surveyors work in pairs and charge by the hour, including travel time. In remote, mountainous terrain, it can take hours just to bring “control” to your land from a known position such as a section corner or survey monument. If you can find out who did the most recent nearby survey, you may save yourself a nice piece of change by hiring the same survey-

or. If there’s no control nearby, he will have to set his own work points from a distant monument, survey them, then work from there. He may need to do this anyway, if he can’t see all the property corners from known monuments.

Surveyors keep records of their control points, and they can often re-use them. So it’s smart to hire one who has control points on or near your land. If you can find the plats for your area, you’ll know who surveyed it last. Surveys more than 20 years old may not be too useful. The markers may be impossible to find, or even missing, and the surveyors may have

retired or even died. But you’ll have a better chance dealing with someone who has worked in your local area recently. What seems like a simple survey may turn out to be expensive. But not as expensive as neglecting to get it done.

Boundary disputes

I bought 17 acres of land in Colorado without either a survey or title insurance. My neighbor was a disputatious man who continually threatened to have our boundary surveyed, and warned me that I was going to lose a lot of land when he had it done. Finally, he hired a surveyor. It turned out that I lost about six feet of my driveway and a corner of my garden, while he lost nearly an acre of land, half his barn and five newly planted fruit trees. Since I had no desire to make him tear down his barn, we eventually agreed to trade. He kept his barn, I kept my driveway, and we stayed out of court.

It could have turned out a lot worse. One man I know recently found out that five square feet of his concrete driveway encroaches on his neighbor’s land. The neighbor wants him to relocate his driveway, or buy the five square feet—for \$5000. In another case I know of, a landowner actually started to build on the wrong lot. He eventually had to remove a full basement and restore the land—a very expensive mistake. But the money lost in a land dispute may be the least of your problems.

A horror story

In the Wasatch Mountains not far from where I live in Utah, there’s a beautiful, two-story, log home on a hand-built, stone foundation.



The owner, a retired well-driller, just discovered he doesn't own the land it's sitting on—or any other land, for that matter. I've changed the names, as the case is still in litigation, but the story goes like this: John Doe and his three partners bought five parcels of remote land, intending to sell off the fifth parcel to pay for a community well and water system. When Doe met George Smith, the retired well-driller, he offered to trade him the fifth parcel in return for drilling the well and installing the water system. Smith drilled the well, then exchanged it and the system for a deed to the land, provided by Doe. Smith spent a year building his dream house and moved in.

Meanwhile, the Doe partnership broke up, and the land was sold to Piney Mountain Cooperative. They tried to evict Smith, and the matter landed in court. Doe's ex-partners testified that they knew nothing of his deal with Smith. The judge ruled that Doe had no legal right to convey title, so the sale and Smith's deed were invalid. Smith can try to collect from Doe for his work in drilling the well, but he will have to sue to do it. Piney Mountain is waiting to see if Smith gets enough money from Doe to pay for the land his house occupies. If so, they may sell it to him. Or they may not. Smith dares not spend any more time or money on his house or land until the case is settled. His position could not be more precarious.

Title insurance

Smith could have avoided some of his problems by securing title insurance when he contracted for the land, but that would only have paid his financial losses. It could not have compensated him for his labor of love in building his dream house. Nor would a land survey have helped, as the parcel boundaries are not in dispute. But a title search by a title company or real estate broker would have turned up the fact that Doe's partners'

names were on the title. Had Smith hired a broker or a real estate lawyer, either should have warned him that a deed without all their signatures might not be valid.

Brokers and lawyers

A broker is not the same as a real estate agent. Brokers must pass much more stringent tests than agents, but the biggest difference is in their function. An agent's business is to sell land; a broker's is to advise his client. Regardless of who hires him, an agent only gets a commission if a sale is made, so in a sense, an agent is always working for the seller, or at least for the sale. A broker charges a fee and gets paid for his knowledge, not his salesmanship. A real estate lawyer's job is to scrutinize contracts, including deeds, to make sure they are legal and say what you want them to say.

You shop for a broker, real estate lawyer, or surveyor the same way you shop for a doctor, accountant, or any other professional. Check the local Better Business Bureau to make sure there are no complaints, get names of satisfied customers, and ask them about their dealings. Make sure that your broker and surveyor are state certified or licensed, and that your lawyer is qualified in real-estate law. If in doubt, check with your state bar association.

Your broker should know and advise you about easements, rights-of-way, covenants, and restrictions on the land you are considering. A real estate agent may not know these things.

My friend Bruce spent his life's savings on 40 acres in a beautiful, remote area. His real estate agent assured him he could legally build his backwoods dream home there. The agent was right, too. A two-acre outcropping of rock in one corner of the parcel was legal for building, though not at all practical for it. The rest was protected wetlands, with a total building restriction.

Easements

A broker can tell you what easements apply to a parcel of land, but a surveyor can show you exactly where they are. It may make a difference. I surveyed one parcel for a client who was preparing to purchase it. There was a well on the land, owned by several local land owners in common. The deed specified a 100-foot square easement around the well head, but did not specify the orientation of the square. By orienting it properly, and including the orientation in the deed, the buyer greatly increased the available space in his front yard, which was the only level part of the parcel.

When you make your initial offer to purchase land, it's not a bad idea to make it contingent on the results of a pre-purchase survey. In one such survey, I found that a corner of the cabin being bought was not only off the lot, but it wasn't even in the same section.

But boundaries, buildings, and rights-of-way are not the only things a surveyor can look for. If you suspect problems with drainage, you may wish to include a contingency for a topographic survey. You will certainly need one if you intend to hook up to a sewer, or if you wish to build on a hillside. But you might also need one to put in a leach field for a septic system. The county building inspector can tell you the local requirements.

It can be quite difficult to judge relative elevations by eye. Yet even a difference of half a percent in grade can keep water from flowing properly. When I was young, I hand dug a 500-foot long, two-foot deep irrigation ditch, only to discover that it was sloped the wrong way. By the time I got the ditch deep enough to run water to the garden, it was way too deep to siphon water out of, and I had to build a water-lifting water wheel. But that's another story. Δ

The power to tax involves the power to destroy.

—John Marshall
1755-1835

Next year, grow your own holiday turkey

By Darlene Campbell

If you have difficulty finding the size or type of bird you want for your holiday table, consider raising your own next year. Turkeys are fun birds to raise—they seem to have more personality than other birds, even to the point of being somewhat affectionate, at least while you are carrying the feed bucket. A few turkeys will provide feasts all year long.

When we first started out with turkeys, we bought a trio of Broad Breasted Bronzes that were advertised in the classified section of the newspaper. These are the big guys that were originally bred from the wild turkey, so they still possess the wild turkey markings, only they're larger and meatier. You can select from several other varieties such as Bourbon Red, White Holland, Narragansett, Black, Slate, and even a few newer ones, but you may have to order them from a poultry supplier. Watch for ads in magazines like this one for poultry catalogs and then choose from there.

After breeding the Broad Breasted Bronze for several years, we went to the Broad Breasted White for two reasons:

1. We were living in the Arizona desert, and I thought the White would tolerate the heat better. Our Bronze tom got too heavy and died from the 110° heat when he was about two years old.
2. The White turkeys are smaller and better suited to a homestead. After all, who wants to put a dozen or so huge turkeys in the freezer? Small ones are perfect for company dinner all year long, and can be halved and frozen for family use.

Start with poults

It's always best to start with *poults* (young turkeys), rather than attempt breeding them yourself, because the tom is so large and cumbersome that he has difficulty mating. Most people don't realize that a 20-pound bird purchased in the store may have weighed as much as 40 pounds or more before it was dressed. Today most commercial turkey growers artificially inseminate their hens, but years ago the hen wore a muslin harness on her back to prevent injury during the mating process, and also to give the tom something to grasp. Without a harness, the hen suffers injury during mating. This can be lessened by clipping the tom's toenails and by using a young male that has not gained too much weight. At best, the hen will lose all the feathers on her back, and at worst she will have large lacerations that could become infected. One tom is sufficient for 12 to 15 hens.

Turkeys are seasonal breeders and will begin breeding in the spring when the tom starts his strutting. If the hen is allowed to roam free on the premises, she will choose a secluded spot to lay her eggs, one a day, and then begin sitting on them. If she is confined, provide her with a nest that is two feet square, with enough nesting material so that the eggs can pocket as they pile on one another.

You'll want to help hatch and raise them

Although provided with natural instincts to hatch and raise her young, the turkey hen is a poor mother, due to the size of her breast and excess weight. If she sets her own eggs, she is capable of breaking them, and when the poults begin to hatch, she may crush them with her weight. Some of the smaller breeds may be more efficient at raising poults.

At first, we removed the eggs from the hen and placed them under a setting hen. This is an excellent method, except that some hens will grow weary of waiting for turkey eggs to hatch. (It takes approximately four weeks for turkey eggs to hatch, compared to three weeks for chicken eggs.) Such a hen may leave the nest, thereby ruining your eggs. A duck's incubation time is more equal to that of a turkey, so a duck would be a good choice.

Another way to hatch turkey eggs is to place them in an incubator, turning them at intervals. This method has a very high rate of success. The temperature of the incubator should be increased each week, starting at 100.5° the first week and increasing one degree per week until the eggs hatch. Follow the directions supplied by the manufacturer of your incubator. Beware of power outages, as a power failure can cause you to lose all your incubating eggs.

Brooding turkey poults is much more difficult than brooding chickens. The poults must be taught to eat. We found the best method for teaching them to eat is to boil some eggs and remove and crumble the yolk. Drop the crumbled egg yolk from your fingers over the feeding dish. As the day-old poults see the yolk fall, they will peck at it and discover the feed in the dish. The egg yolk is also a good source of added protein. You may have to go through the teaching process for several days before the young birds learn to eat on their own. Turkeys are high-protein birds and require a game bird feed. Also give them access to grass and insects.

Keep them safe

Keep a light burning in a brooder box, the same as for baby chicks. If turkey poults become chilled, they are likely to pile on each other, smothering the ones on the bottom. Be sure to keep them warm with a light bulb or a thermostat-controlled brooder.

Also, be sure the place where you keep them is safely constructed. Don't make the mistake we made with our first hatch. I had constructed a temporary pen on the enclosed back porch of our house. The boards were not nailed in place, just leaning against the wall. One day when the poults were about three weeks old, I let a dog into the house, a good dog who never harmed the birds. I left her and the young birds indoors and drove to town to do some shopping. When I returned, the dog had moved one of the boards, probably to investigate the turkey poults, and the 1x12 boards fell on the young turkeys, killing them all. Because my pen was not safe, this could have happened with children around as well as the dog, so be sure to construct pens that are securely nailed.

After we lost our Bronze tom to the heat, we sold the hens (they were too old to be eaten) and began purchasing White turkey poults from a commercial hatchery. These birds, too, must be taught to eat, but we are always successful with them and dress them at six months of age.

I cut the carcasses in half through the breast with a meat saw and freeze them in two pieces. Each half is a meal for us, and I always keep two whole birds in the freezer for serving on the holidays.

Turkeys are delightful birds that bond to you. Perhaps it's because you must teach them to eat, just as nature intended the hen to do. But don't get *too* attached, or you might forego turkey dinner and decide on weenies for Thanksgiving. Δ

Here are 10 ways to beat corrosion in the garage

By Sandy Lindsey

1 To keep spare nails, screws, and other small parts from rusting, save empty jars of hand or face cream. Not only will the jar help keep the spare parts organized, but the greasy residue in the jar helps prevent rust.

2 To keep corrosion away from infrequently used tools, coat the tools with a thin layer of oil and wrap them in plastic wrap. Placing carpenter's chalk in a tool box will help absorb moisture and prevent corrosion, too.

3 Another popular anti-corrosion technique for tools is to store them in a wooden box with camphor and sawdust.

4 All new tools should be protected with the following anti-rust, anti-corrosion coating: $\frac{1}{4}$ cup lanolin and $\frac{1}{4}$ cup petroleum jelly. Heat until melted, stir until blended. While the mixture is still warm, paint it on your tools with a cheap paint brush. Allow to dry. You can reheat it in a microwave as needed.

5 For a quick cleanup of corroded tools and those with surface rust, dip a soap-filled steel wool pad lightly in kerosene and rub with some elbow grease on the offending areas of the tool. Then take a balled-up piece of aluminum foil and rub hard. Wipe off the residue with a paper towel and

apply a fine coating of olive oil. **NOTE: Do not work with kerosene near an open flame.**

6 Cola and other carbonated sodas poured on a rusted screw or bolt will help loosen it.

7 To remove corrosion from car battery terminals, mix three parts baking soda to one part water, and apply the paste to the terminals to allow the alkaline baking soda to neutralize the corrosion. **NOTE: Always take precautions when working around battery acid.**

8 To prevent further corrosion to battery terminals, apply a thin coating of petroleum jelly or silicone dielectric grease.

9 To prevent a potentially dangerous moisture buildup in stored electronics (cameras, tape recorders, etc.), put some dry rice near them to absorb moisture. Heat the rice in a clean, dry frying pan until it browns. Place the brown rice in a cheesecloth bag to keep the grain from getting into the equipment and harming it. Check the bags frequently and replace as necessary when the rice becomes moist.

10 To keep spare batteries from becoming corroded, or old before their time, store them in a Zip-lock bag placed inside the refrigerator. Δ

Make this classic Shaker-style butcher block

By Dana Martin Batory

For a piece of furniture that is useful and at the same time will add a special touch to a rustic cottage, homestead, or log cabin, try your hand at building a Shaker-style butcher block.

This project is adapted from a block made at the Shaker community at Pleasant Hill, Kentucky, about 1850. The original can be seen at the Shaker Museum in Old Chatham, New York. Made from a sectioned three-foot-diameter sycamore tree, it is a testament to the Shakers' skill at seasoning lumber. Nearly 150 years later, the block shows no sign of checking (cracking).

Materials: one block, 21" in diameter and 13" tall; three legs, 2¹⁵/₁₆" in diameter and 24" long

Instructions:

Using a chainsaw (or a large one- or two-man crosscut saw) cut a 13" thick section from a sound tree trunk 21" across—sycamore or ash preferably, though other hardwoods will work. These dimensions are approximate, as the block can easi-



The rough-cut block (ash)



The finished butcher block

ly be made from larger or smaller wood. Mine came from a wind-damaged ash.

If it's from an old trunk, remove all badly weathered wood. Make the cuts as parallel as possible to save work later on. The bark can be peeled off and the exposed wood wire brushed, sand blasted, or sanded with a flexible flap-wheel. I prefer to leave the bark intact for a nice contrast. Even so, all loose bark, mud, stones, etc., must be removed with a stiff brush or a garden hose. I allowed my block to season under cover for over a year. But don't worry about checking, as it doesn't harm the block and only adds to its rustic charm.

Use a belt sander with increasingly finer grits to dress both surfaces as

smooth and level as possible. Select the best side for the top.

Roughly determine the block's center. Using a compass, a trammel point, or simply a pencil tied to a string fastened to a nail driven into the block's center, draw the largest possible circle whose circumference falls within the block's bark ring. Lay out three 3" diameter holes at 120° intervals whose rims are about 1" in from the bark ring.

I prefer to make the holes with a drill press, but the throat on the average drill press is not deep enough. No elaborate jig is called for. I nailed together an auxiliary table that could be fastened to the drill press table with bolts and tee nuts. A temporary 80° drilling surface can also be made by simply tilting a plywood sheet on cement blocks, a bench top, etc., and securely blocking its bottom edge to prevent kick-out.

Place the block on the table. Rotate the block. Ideally the 3" drill bit should come within about 1/4" of each hole's center mark. If the top and bottom are badly angled, then each hole must be custom-drilled to reach the 3" depth. This can be corrected later on. Run the drill press on



Layout lines on the block



*Drilling the block on
80° auxiliary table*

its slowest speed and back out the bit frequently to clear the hole of chips.

After drilling the holes, sand off all layout lines and varnish the bottom at least twice. Try to keep the varnish out of the sockets.

Prepare leg blanks about 28" long. Any hardwood will work—oak, ash, beech, etc. Turn to the dimensions shown. The legs can be sanded and varnished right on the lathe, but leave at least three inches of the leg's top bare. Glue will not adhere to varnished surfaces.

To determine the legs' correct lengths, simply place a three-foot rule against the hole's bottom and outside



*Measuring for correct
height and leg length*

edge. Measure up from the ground with another rule. The block should be one or two inches below waist height, so the point where your desired height cuts the rule in the hole gives you the correct leg length. It pays to check each leg separately both for length and fit. It's easier to correct any mistakes at this stage than later on. Mark the legs and their respective sockets to avoid confusion.

Cut the legs to length. Apply glue to the holes and push the legs into place until they bottom out. Turn the block upright so the weight of the block will



Turned leg (red oak)

act as a clamp. Wipe off excess glue with a damp cloth. After the glue has set, the leg bottoms can be sanded to bring the top into alignment if needed.

Apply a salad bowl finish such as Behlen's (or a non-toxic varnish) to the block's top and sides, following the instructions that come with the product. Since you're treating end grain, it will take at least three coats to seal the top.

The block is heavy, about 150 pounds. I've found it best to move it "litter fashion" by sliding a couple of stout 2x4s underneath, running a strap clamp or a rope around them and the block, and putting someone else on each end.

The beauty of the project is the fact that the end result does not necessarily depend on the quality of your tools and machinery, but mostly on the effort you wish to put into it.

The block can also be made totally by hand. After the block is cut, it can be smoothed using a jack plane or block plane. The three holes can be

drilled with a brace and bit simply by sighting the angle. Three straight tree limbs can be cut to length and their ends whittled down to fit the holes. Δ

Home Before Christmas

*For days before,
I thought of their surprised looks
If I crossed the country and appeared
on their doorsteps.*

*And, for days afterward,
I thought of what it would be like
To arrive,
As if I were a late present,
When they thought Christmas was
over.*

*By New Year's Eve I realized
I'd just spent another Christmas
Alone.*

**John Earl Silveira
Ojai, CA**

A Groaner



How far can a dog run into the woods?

Halfway, because then he's running out again.

The sole end for which mankind are warranted, individually or collectively, in interfering with the liberty of action of any of their number is self-protection.

—John Stuart Mill
1806-1873

Seed art — it's fun to collect the seeds and to create these unusual pictures

By Alice B. Yeager
 Photographs by James O. Yeager

Seed art is an old craft going back to long, long ago. Where the art of turning seeds into pictures first began is obscured by time, and I doubt that anyone of our day and age could solve the mystery.

However, I know where *I* came into contact with this fascinating craft. I attended a Junto Club meeting one evening when the program centered on crafts, and seed art was one of the crafts. Naturally, being an avid gardener and fascinated by plants, I was a prime candidate to get hooked on seed art.

You'll find seeds in lots of places

Creating seed pictures is a fun pastime. Anyone can participate, and it can be a year-round hobby. Collect seeds when the weather is good, then create pictures indoors when the

weather takes a downturn. Seed hunting can be fun for the whole family. Select a nice day, see who can find the most varieties of seeds, and highlight the outing with a picnic. Watch how quickly young minds are alerted to different kinds of seeds.

Don't overlook the kitchen spice rack, as seeds are there, too. Saving seeds from your own plants is another way to start your collection. Involvement with seed pictures brings out artistic ability while teaching us about the plant world. And you can make unique and inexpensive gifts.

Remember to spread fresh seeds out on a tray indoors where they can dry thoroughly before being put in containers. Newly gathered seeds may mold if put away too soon.

Seed pictures are not confined to small frames. An example of this is the gigantic display on the outside of the Corn Palace in Mitchell, South Dakota. That large municipal auditorium is redecorated each year with huge amounts of grains and grasses depicting cowboys, buffaloes, Indians, etc. The theme varies annually. Those murals take a lot of effort and talent, and the end result is not only pleasure for human spectators . . . the bird population is most appreciative, too.

I have seen a few seed pictures of lesser dimensions in museums, but the artists' names are unavailable. I wonder who creat-



"The Prairie," 14" x 21 1/2"
 Flowers are cantaloupe seeds with an althea seed center. Larger flowers are dipper gourd seeds with acorn cap centers. The butterfly is morning glory and marigold seeds. Grasses are wheat and wild oats.



"Basket of Flowers," 8" x 9 1/2"
 Basket is made of grains of rice in alternating groups to form basket weave pattern. Flowers are made from seeds of mimosa, pepper, mustard, cantaloupe, and four o'clock.

ed the lovely pictures and how they came by the art form.

Several years ago, when I was one of the judges of a craft show housed in a barn, I discovered someone's masterpiece of corn, sunflower seeds, and lima beans had been the target of hungry rats. Not much left to judge there.

I have learned from experience that destruction can also arrive in very small forms. Tiny seed-hungry bugs can create havoc. It's a good idea to spray seed pictures lightly with a non-oily insecticide every few months. Bugs love to discover a cache of unprotected seeds, so don't forget to protect your supply of seeds, too.

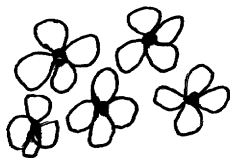


“Owls and Mushrooms,” 5" x 9½"
The tree is made of rice. The owls are dipper gourd seeds. Each eye is a pepper seed with a larkspur seed on top. Each mushroom is a horizontal cantaloupe seed over a vertical one.

Materials

Egg cartons are useful storage containers. Names of seeds may be written on the lids, and the cartons stacked to save space. This is better than using odd-shaped bottles and jars. When my collection reached extensive proportions, I bought an organizer—a small metal cabinet with lots of drawers. Horizontal dividers in the drawers make it possible to keep many varieties of seeds separated.

Burlap is an excellent fabric to use as background for seed art. It is available in several colors and is usually reasonable in price. A yard of burlap



Small flowers: Pepper with mustard centers

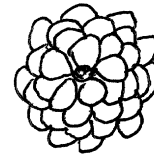
will make a number of pictures, depending on size. Buying half-yard pieces in several colors will provide variety. Not all colors will complement all seeds. Light-colored seeds such as cucumber and pepper will not show up as well on a beige background as they would on a darker color. Mimosa and apple seeds won't stand out on brown. Light green is a good neutral color.

A lightweight board or a discarded piece of Masonite—something that won't bend—is recommended for a stiff backing. Cardboard is undesirable, as it will soon buckle. If you have a friend who has a woodworking shop, you're in luck, as there are usually scrap pieces of wood lying around that are free for the asking.

Here's how it's done

I suggest keeping your first picture simple in order to learn the basics. A 3x5" size picture is best for an initial attempt. Be sure that board is clean of all dust, and cut the burlap so that it is slightly larger than the board. Coat the board well with Elmer's Glue-All and place the burlap backing on it, smoothing out any wrinkles and keeping the fibers straight. Let it dry completely, then trim away the overlapping burlap along the edges of the board.

A vase of flowers is an easy subject. Use a piece of chalk or a pastel pencil to lightly outline the vase, keeping it centered and in proportion with your background. (Some folks like to draw a rough sketch on paper as a visual aid.) Seeds suitable for the vase itself include rice, mimosa, cantaloupe, and many others.



Rose: Pepper with mustard center.
(Begin on outer edge and work toward center.)

Apply glue along the top edge of the vase. Touch the end of a toothpick to the glue and use the moistened tip to pick up a seed. Place the seed in the middle of the top line and work toward the left and right until the top line is completed. Repeat for the next line and so on until the vase area is covered, using glue as needed.

Select the highest center point for the flowers and taper downward toward the sides. This is the easiest way to keep the design balanced in appearance. There are lots of “flowers” to choose for your vase. Cucumber seeds make nice daisies. Four o'clock seeds give a cone effect to centers, such as those seen in black-eyed Susans. You can use pepper seeds to make perfect full-blown roses by laying an outer circle and lapping each inward circle until they meet in the middle. Finish with a mustard seed for the center. Four pepper seeds with



Materials: Seeds, burlap on stiff backing, pastel pencil or chalk for outlining forms, glue, toothpicks (touch glue and pick up seeds), and imagination.



Owl: Dipper gourd with pepper and larkspur eyes

tips touching in the middle and a mustard seed for the center will make a four-petalled flower such as a bluet. These are good fillers for blank spaces. Another filler that gives an airy touch is fern made from a double row of dill seeds.

A dipper gourd seed resembles the shape of an owl sitting on a tree limb. To the wide end of the seed add two pepper seeds and a couple of larkspur seeds placed vertically on the pepper seeds, and you have a wide-eyed owl. Make a tree using rice grains and place a few owls on the limbs. Put some mushrooms on the ground simply by using a cantaloupe seed in a vertical position with another on top horizontally. Seeds are versatile. The same dipper gourd seeds may be petals for a large flower, with an inverted acorn cup as the center. Cantaloupe seeds make asters. You are limited only by your imagination.

Frame it

I consider it a downright waste of time and talent if I don't show off a seed picture masterpiece by giving it a proper frame. I don't use a fancy gilded design, as that type of frame detracts from the picture. A simple hardwood frame is best. I always put



Small flowers: Grape with millet centers

A BHM Writer's Profile: Linda Wallin Smith

Linda Wallin Smith lives in Roundup, Montana, where with her husband she built her own earth bermed, rock and turf-covered roof log home using hand tools and horse power, while living in a tent year-round from 1980 to 1983. She also witched and drilled two water wells, and sews most of her family's clothes.

Linda has sold articles to *BHM*, *Home Power Magazine*, and *Farm Journal*, and is currently working with her husband on a non-fiction book series about some of the numerous miscarriages of the jurisprudence system.



my initials in the bottom right corner of my pictures. That's in case they get past the rats and bugs and end up in museums.

When special gift-giving days roll around, have some seed pictures handy. You'll be surprised how much

people appreciate the extraordinary. You might consider entering some seed pictures in a fair or hobby show. Whatever you do, by all means display your creations in prominent spots in your home. They are great conversation pieces. Δ

A country moment



The Backwoods Home Magazine bookstore in Gold Beach, Oregon

Make delicious, eye-catching holiday breads

By Richard Blunt

Beginning in early September and lasting through St. Patrick's Day, my mother's kitchen became the neighborhood's weekend community bakery. Our kitchen was not the largest in the housing project nor was it better equipped than many others. But on the weekends when my mother didn't have to work, women from our part of the housing project gathered in our kitchen to drink coffee and tea, munch on a variety of home-baked pastries, and discuss how to prepare each one. Before long the kitchen resembled a busy professional bakery, with women performing various baking procedures while sharing with others some of the ethnic folklore associated with their bakery project for that day.

What follows is a composite of 15 years of listening, sampling, and sometimes helping during my Mom's weekend bakery seminars. Throughout this column I have scattered some of the homilies that were exchanged between my Mom and her local bakery group—things said by her generation and countless generations before hers, but which are rarely heard today. Things such as:

*A large hole in a loaf of bread
is the sign of an open grave.*

An old Hungarian saying claims bread is older than man. This isn't difficult to believe once you realize that the story of bread and bread baking reaches back over 15,000 years into the time when the 100 century reign of the last Ice Age was loosening its grip, and the earth's rock-hard frozen soil began to soften.

In the wake of the receding ice sheets and warming climate conditions, a wide variety of wild grasses and other edible plants began to flourish. The hunter-gatherers of this changing time found the seeds of the grasses to be a valuable food source. Using mortars and mills hollowed out of rock, they crushed the seeds of these grasses and mixed them with water to prepare crude porridge. Crushed nuts and roots were often added to the porridge to make tasty substitutes for the flesh of animals which were dangerous and hard to hunt on the partially frozen wastelands. The wonders of fire made it possible to cook the porridge, first over open fires, and later on hot stones to create the first breads.

These breads were totally flat and unleavened. Leavening wasn't possible anyway, because wild grass seeds were not really suitable to support any leavening action. Their hulls were hard and brittle and had to be parched to separate the germ and bran from the endosperm. This application of heat greatly reduced the effectiveness of the gluten-forming pro-



Richard Blunt

teins in the endosperm. A wheat plant with seeds that could be easily husked was necessary if the civilizing of man was to stay on course.

Just how this happened is not clear. One theory suggests that people in the ancient Palestinian city of Jericho, in 10,000 B.C., discovered that a small percentage of the wild wheat plants did not bear the characteristically brittle seeds. These seeds could be husked easily, without the use of heat. It seems as though, in a whimsical way, Nature had created a mutation. After a few accidental sowings by Mother Nature, and some innocent assistance by ancient farmers, a wheat perfect for bread making was born. It was now possible to make a gruel with a high percentage of raw wheat endosperm. The discovery of leavened bread would only be a matter of time.

In Egypt, around 4000 B.C., a small amount of bread dough, left unattended by an unwitting baker, became contaminated by wild yeast and, voila, the long journey to the age of Wonder Bread had begun. The Egyptians quickly made the connection between this activity in bread dough and the fermentation of beer, and by 300 B.C. yeast production was a specialized craft in Egypt. By the 12th century B.C., the Egyptians began to create baking techniques that were both creative and predictable.

Set your bread to rise with the sun.

As time passed, baking techniques improved as the result of gradual improvements in the quality of wheat crops and milling practices which produced a finer flour. Each successive civilization left its mark, and Greek bread was better than that of the Egyptians, and Roman bread was far superior to that of the Greeks.

Agriculture shapes civilization

Agriculture colored the way civilization evolved. Generations of now-nameless men tilled the soil, put seeds in the ground, then watched the birth and death of the new plant that sprung from there. The following year, a new generation reappeared when the fruit of the harvested plant was returned to the soil. Why this should all happen was an ominous mystery to them. As a result, agriculture, and cereal plant domestication in particular, became interwoven with folklore, religion, and mythology, and bread became the supreme symbol of this wondrous relationship. The number of myths, fables, and mysteries relating to breads and cakes exceed all other food forms except salt.

Many early cultures believed that the existence of grain was the result of supernatural forces. The ancient symbolisms and superstitions attached to wheat and other grains by most civilizations center around a group of agrarian deities. The Egyptians believed that Osiris, a god that was cast into the Nile and returned to life, and the god Manerous were responsible for the sprouting of wheat.

The Greeks believed that bread was the gift of Demeter, goddess of the wheat field. Hestia, the Greek goddess of the hearth, who was known as Vesta to the Romans, along with Fornax, strictly a Roman goddess, bore myths that attached symbolisms of fertility and sexual fantasy to cultivation of grains and the act of bread making. Of course these myths start at the first sprouting of the grain and are carried through to the formation of the loaf in the oven.

Chinese emperors of the Chou dynasty were considered ancestors to the celestial deity, Prince Millet, and were regarded as trustees of the agricultural cycle.

Many of the ancient superstitions and myths associated with the cultivation and processing of

Put a slice of bread and a cup of coffee under the house and ghosts will stay away.

grains were acted out in rites and rituals that were savage and sinister. In ancient Greece and in the Bible lands, people were burned alive to propitiate the sometimes terrifying agrarian gods and goddesses. Today there still exist remnants of bread folklore that are directly connected to the ancient rites of cannibalism.

To understand this connection, we must realize that the idea of ritualistic cannibalism comes not from the dearth of food, but from the belief that the strength and power of those devoured can be assimilated. In the bizarre ritual of

sin-eating, once practiced in parts of Wales and England, bread was used as a totem object to divest a corpse of any virulent tendencies that might be directed against living relatives. The sin-eater, usually selected from the ranks of the poor, was positioned over the corpse just before burial with a small loaf of bread and a tankard of ale which he or she would consume while hovering over the casket. By doing so, the sin-eaters would take upon themselves the sins of the deceased. This wasn't all bad for the sin-eater as after the ceremony he or she was paid a fee for their services.

***If wheat is cut in the light of the moon,
the bread will be dark.***

Very few of the ancient rituals—which included everything from animal sacrifices to the burning of children alive—or the breads associated with these rituals, have survived to modern times. But some had their savage and sinister

genesis removed and were adopted by the emerging

Christian churches. Some

were given a brighter “fun and games” image to make

them suitable in public celebrations. Among them is

England's Plough Monday, which is based on a

pre-Christian fertility rite, but is now celebrated on January 6 when

ploughs are blessed in front of the altar. Lassas Day, or “offering of the

loaves,” is an English festival celebrating the beginning of the harvest where the

first wheat (called corn in England) is harvested and made into flour, baked into loaves, and

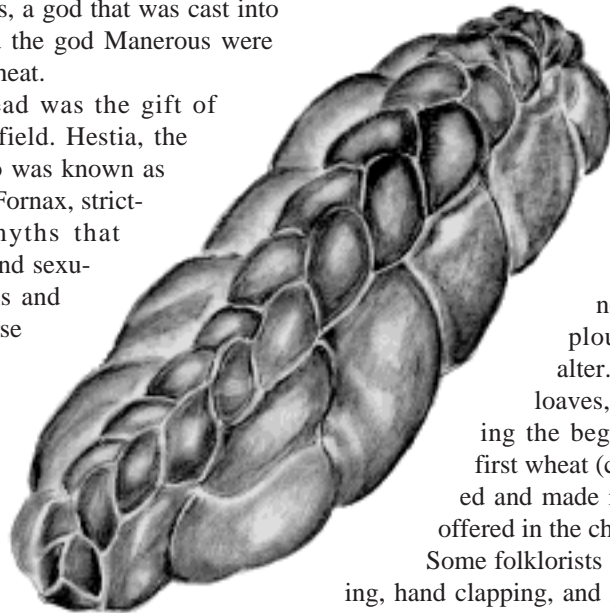
offered in the church to God.

Some folklorists associate many of the foot stamping, hand clapping, and reeling folk dances of the British Isles, Ireland, and much of Northern Europe, to ancient Celtic sacrificial and fertility rites that were themselves associated with the sowing and reaping of grain.

The stories surrounding bread, harvests, and crops go on and on, and vary from culture to culture. They all extol the nutritional or the spiritual significance of bread. In the Bible, Jesus recognized bread as synonymous with nourishment. “Man shall not live by bread alone,” he said. And in declaring, “I am the bread of life,” he metaphorically associated bread with spiritual nourishment.

As we have seen, bread making is an ancient and universal craft that has afforded its practitioners much creative pleasure since neolithic times, while at the same time satisfying their nutritional and spiritual needs.

If you are a veteran home loafer, you already know that holidays are a golden time. They give you the opportunity



to demonstrate your level of perfection in the art while providing you with many hours of creative pleasure.

“Wherefore do ye spend money on that which is not bread.” The prophet Isaiah

If you are a newcomer to baking, you must realize that the fancy looking holiday and other festive breads that you see in markets and specialty bakeshops during the upcoming holiday season are not as difficult and complicated to prepare as their appearance may indicate.

To successfully prepare many of these breads all you need is a little time, a work surface, flour, water or other liquid, yeast, salt, and a means for baking the dough. Much of the long-winded technical stuff that you read in some cook books has its place, but bread making is not an exact art, and it is a surprisingly forgiving one. Many ingredients, including flour, salt, and liquid, can be eyeballed rather than measured precisely. I’m not suggesting that you completely ignore the measuring guidelines of a recipe, but scraping a knife across a cup or a measuring spoon to get an exact measure is not necessary.

The recipes I am sharing with you in this issue are all festive breads that were favorites in my Mom’s neighborhood bakery. So relax, make a cup of coffee or tea, and invite a friend over to share in some old time baking fun.

One important thing to remember is that the fancy configurations I’m about to describe will not improve the taste, texture, or aroma of your loaf, but they will impress on your friends the fact that food is better when it’s pleasing to the eye.

Braids, twists, ladders, etc.

Braiding and twisting adds a professional touch to yeast leavened breads. With a little practice it is possible to combine twists and a variety of braids into one loaf for a spectacular presentation.

Twisting is simple and requires only two 2" ropes of bread dough of equal length. To make the ropes, divide enough



Braiding bread dough

bread dough for one loaf into two pieces and form these pieces into ropes 2" thick. Now, loosely twist the ropes together and tuck the ends under the loaf.

The three rope braid is done using the same technique as braiding hair. Divide enough dough to make one loaf of bread into three equal pieces. Form three 2" thick ropes

equal in length, and lay them on your work surface crossed in the middle. This will create a star with six legs, three on each side of the apex, kind of like a giant asterisk. Start on one side and braid the three legs as you would braid hair. Gently turn the loaf around and braid the other side in the same fashion. Pinch the ends together and tuck under the loaf.

Four and five rope braids may sound a little intimidating, but by using the simple formula that I outline here, you will be turning out complex looking braided breads without any headaches, anxiety, tears, or frustration.

Four rope braid

Divide enough dough to make one loaf of bread into four pieces. Form each of these pieces into ropes of equal length that are about 2" thick. Lay the ropes side by side on your work surface and pinch them together at one end.

If a man eats the last piece of bread on the plate, he must kiss the cook.

Here is the formula: Starting from the rope on the left, number the ropes 1, 2, 3, and 4. It is important to remember before you start moving the ropes around that the numbers apply to the position that each rope is in, and not to each individual rope. Example: If you move a rope from the number one position to cross the rope in the number four position, that rope is now in number four position and the rope that was in the number four position is now in number three position. If this sounds strange, make a batch of your favorite white bread dough and practice using the steps outlined below. If you are not happy with the formation of your practice braid, you can knead it back into a ball and try it again. If you get tired of trying it, form the dough into standard loaves and bake them as usual. But don’t try to use rope or string for practice because these multiple strand braids need the adherent qualities of bread dough to work properly.

Move each rope in the direction indicated in the box below:

Method:

1. Rope 1 over Rope 4 (to the right)
2. Rope 3 over Rope 1 (to the left)
3. Rope 4 over Rope 3 (between Rope 2 and Rope 3)
4. Rope 2 over Rope 4 (to the right)
5. Rope 1 over Rope 2 (between Rope 2 and Rope 3)

After you complete Steps 1 through 5 the first time, finish the braid using only steps 2 through 5 until all of the dough is braided, then pinch the ends and tuck them under the loaf.

Cut a cross on your dough to make it rise right .

Five strand braid

Method:

1. Rope 2 over Rope 3 (between Rope 3 and Rope 4)
2. Rope 5 over Rope 2 (between Rope 1 and Rope 2)
3. Rope 1 over Rope 3 (between Rope 3 and Rope 4)

Repeat the steps until all of the dough is used. Then pinch the ends and tuck them under the loaf.

Jacob's Ladder

I use this method more than the other braids because it is quick and easy. The braid forms vertically instead of horizontally and it adds a nice finishing touch to loaves baked in standard bread pans.

Method:

Divide enough dough to make one loaf of bread into two equal pieces. Form the pieces into ropes of equal length that are about two inches thick. Lay the ropes on your work surface so they intersect at their centers (see drawing). Take the opposite ends of the bottom rope and cross the ends over the center so the ends change places.

Do the same with the other two ropes. Continue alternating the folding of the ropes until all of the dough is used. Pinch the ends and fold under the loaf. Bake the loaf in a bread pan or free form style without a pan.

Now for the recipes.

Barmbrack

In my old neighborhood the Irish families called this bread Speckle Cake. The Irish moms would start making this bread at least two weeks before Halloween. They would store many of the loaves in my Mom's freezer to hide it from their own kids. If they didn't, there wouldn't be enough to pass out to all of us hungry trick-or-treaters who would start piling up at their doors as soon as the sun went down.

This recipe makes one medium loaf.

Ingredients:

- 1/4 cup unsalted butter at room temperature
- 1/4 cup whole milk
- 1/2 cup water



Jacob's Ladder

- 1/2 tsp sugar
- 1 pkg active dry yeast
- 1 egg (at room temperature) slightly beaten
- 3 cups all purpose flour (approximately)
- 1/2 tsp Kosher salt
- 1/2 tsp grated lemon peel
- 1/2 cup dried currents
- 1/4 cup chopped mixed candied fruit

Method:

1. Heat the butter, milk, and water in a small sauce pan to 115 degrees F, then combine with the sugar and yeast. Stir the mixture to dissolve the yeast. Set the mixture aside and let the yeast proof.

2. Add the beaten egg to the proofed yeast mixture.

3. Combine the yeast mixture with 1 1/2 cups of flour, the salt, and lemon peel and mix with a wooden spoon to combine.

4. Continue to stir in more of the remaining flour 1/4 of a cup at a time, until the dough forms a shaggy mass and pulls away from the sides of the bowl. (This means you may need more or less than the three cups of flour.) Lift the dough from the bowl and place it on a floured work surface.

5. Knead the dough for about 10 minutes or until it becomes smooth and elastic. Place the dough in a greased bowl, cover and set aside until the dough has doubled in bulk.

6. Punch the dough down, remove it from the bowl and knead the fruit into the dough.

7. Shape the dough into a loaf and place it into a standard bread pan. Cover it and set it aside to rise a second time. When the dough is just above the edge of the pan it is ready for the oven.

8. Bake in a preheated 350 degree F oven for about 45 minutes or until the loaf sounds hollow when tapped on top. Remove the loaf from the oven and set on a rack to cool.

Challah

Challah (hal-la) was as popular in my neighborhood as bagels are in every metropolitan area in America today. Every bakery in the area had its own version. One of my mother's closest friends, Mrs. Sibley, lived in the apartment right below us. When she was expecting guests for dinner on Rosh Hashana or Yom Kippur, she would ask my Mom to help her make her loaves of Challah. She could make the dough from memory, but she had trouble forming the four strand braid or Jacob's ladder fold. When they were finished baking for the day, Mrs. Sibley would ask my mother to join her in the "act of Challah." They would both place a small piece of raw bread on a barbecue stick and burn it over the gas flame of our stove. This was a symbolic reenactment of a woman's creation.

The following is a recipe for three medium loaves.

Ingredients:

2 pkg active dry yeast
1 cup warm water (110 to 115 degrees F)
2 Tbsp sugar
1/3 cup light vegetable oil
2 eggs, lightly beaten
4 1/2 to 5 cups flour
1 tsp salt
1/2 cup dried currents

There is a glaze that goes with this.

Ingredients:

1 egg (beaten slightly)
2 Tbsp water
2 Tbsp poppy seeds

Method:

1. Combine the yeast, warm water, sugar, and vegetable oil in a bowl. Stir until the yeast is dissolved and set aside until the yeast shows sign of activity.
2. Add the egg to the proofed yeast mixture.
3. Combine the flour and salt. In a large mixing bowl combine 3 cups of the flour/salt mixture with the yeast mixture and mix with a wooden spoon to form a sticky paste, then add the currents. Continue to add flour a little at a time until the dough pulls away from the sides of the bowl.
4. Turn the dough onto a floured work surface and knead it until it is smooth and elastic, about 10 minutes.
5. Place the dough in a greased bowl, cover it with a clean cloth, and set it aside until it doubles in bulk.
6. Punch the dough down and knead on a floured work surface for 1 minute
7. Follow the instructions for shaping the dough into a Jacobs Ladder or 4 strand braid. When the loaves are formed place them on a well greased baking sheet.
8. Combine the remaining egg with the water and beat briskly with a fork until blended. Brush the egg glaze on the shaped loaf and sprinkle the loaf with poppy seeds.
9. Allow the loaves to proof, uncovered, until doubled in bulk, about 1 hour.
10. Place the loaves into a preheated 375 degree F oven and bake until the loaves are done, about 40 minutes. Remove the loaves from the baking sheet and transfer them to a wire rack to cool.

Italian Christmas Bread

This recipe was prepared by the Italian women in our neighborhood. It's called panettone (pahn-uh-toe-nay). Over the years I have prepared and/or tasted more versions of this classic bread than I can remember. The original recipe is

A cross cut on top of a loaf, lets the devil out.

quite involved and takes at least two days to prepare. The following is a recipe that my long time friend Joe Troiano gave me. Joe was born and raised in the south side of Hartford, one of Connecticut's largest Italian neighborhoods, and teaches school there today. This free-form loaf is available year around in Hartford's Italian bakeries, especially at Christmas time.

Ingredients:

1/4 cup warm milk (110 to 115 degrees F)
1 pkg active dry yeast
1/2 tsp brown sugar
1/4 cup honey
4 Tbsp unsalted butter (melted)
2 eggs (at room temperature)
2 tsp crushed anise seed
2 to 3 cups flour
1/2 tsp kosher salt
1/4 cup chopped mixed candied fruit
1 Tbsp pine nuts
1/4 cup golden raisins
corn meal

Topping

1 Tbsp butter

Method:

1. Combine the warm milk, yeast, and brown sugar in a mixing bowl. Stir to dissolve the yeast and set it aside to proof.
2. Combine the honey, butter, eggs, and anise seeds in another bowl and beat with a wire whisk or fork until well blended, then add the yeast mixture.
3. Combine 1 1/2 cups of flour and the salt. Add the liquid ingredients to the flour and stir to make a soft sticky dough. Add the remaining flour 1/4 cup at a time, continue to stir until the dough pulls away from the sides of the bowl.
4. Place the dough on your floured work surface and knead for 10 minutes or until the dough is smooth. Continue to add flour, while kneading, if the dough shows signs of being sticky.
5. Place the dough in a clean bowl, cover it with a clean cloth and set aside.
6. Mix together the candied fruit, pine nuts, and raisins.
7. Shape the dough into a plump ball and pat down the top slightly to form an oval. Place half of the fruit mixture on top of the dough, fold the dough over and knead the fruit into the dough, then repeat with the rest of the mixture. Continue to knead the dough until the fruits are well distributed.

8. Place the dough in a well greased bowl, cover with a towel, and set aside to double in bulk, about one hour.

9. Remove the towel and punch the dough down. Place the dough on a floured work surface and shape the dough into a plump round ball. Place the loaf on a well greased baking sheet that has been lightly dusted with corn meal. Cover the loaf with a clean light cloth and allow the dough to rise for about 1 to 1½ hours or until double in bulk.

*If all of the bread is eaten at the table
the next day is sure to be fair .*

10. Preheat the oven to 375 degrees F.

11. Cut a ½ inch deep cross all the way across the top of the loaf with a razor. Place the loaf in the oven on the middle shelf. Five minutes after the loaf is in the oven drop the final tablespoon of butter on top of the loaf in the middle. Bake for about 40 minutes or until the loaf sounds hollow when tapped on the bottom. Allow loaf to cool completely before slicing.

Irish Soda Bread

This is a bread that was always available in my neighborhood. It was the perfect food for a hard working mom to prepare for her family and could be made in at least a dozen variations that I am aware of. This recipe was given to my Mom by Barbara Sullivan, a neighbor that lived on our floor. She had six children, and the original recipe produced 12 loaves. On St. Patrick's Day she would send a loaf of this bread to my Mom along with a mug of real Guinness Stout.



Irish Soda Bread with a cross baked into it

Ingredients:

2½ cups all purpose flour
½ cup sugar
1 tsp salt
½ tsp baking soda
1¼ tsp baking powder
1 Tbsp caraway seeds
4 Tbsp unsalted butter
½ cup dried currents
1¼ cup buttermilk
1 egg (slightly beaten)
corn meal

There is no substitute for the buttermilk in this recipe. The acid in the buttermilk is critical to the leavening action of the dough. However, you can use powdered buttermilk if you can find it.

Ingredients for the topping:

1 Tbsp sugar
1 tsp water

Method:

1. Combine the flour, sugar, salt, baking soda, baking powder and caraway seeds in a mixing bowl. Cut in the butter until mixture looks like coarse meal. Slowly stir in the currents, buttermilk and egg. Mix all the ingredients thoroughly.

2. Scrape the mixture from the bowl onto your floured work surface. Control the stickiness by sprinkling flour on the work surface and rolling the dough in the flour. This dough is not to be kneaded.

3 Shape the dough into a plump ball and place it on a well greased baking sheet that has been lightly sprinkled with corn meal. Pat down the top slightly and with a razor blade cut a ½ inch deep cross on the top.

4. Place the loaf on the middle rack of an oven that has been preheated to 375 degrees F and bake it for about 45 minutes, or until it is browned and has opened dramatically along the cuts.

5. Just before the loaf is ready to be removed from the oven, mix the sugar and water for the topping. As soon as you remove the loaf, brush the bread with this mixture.

6. Remove the finished loaf from the oven and place it on a rack to cool.

There are many variations on the four breads I have just presented, so experiment and personalize these recipes until they're your own. Share with me any variation you create but, in particular, send me recipes for any festive breads you think I might enjoy.

Happy holidays. See you next issue. Δ

Where I live

By Annie Duffy

Chasing down cows at Jenny Creek

By Annie Duffy

A couple of months ago I went on Fall Creek Ranch's last cow chase of the season. Pat Ward, owner of the ranch, her daughter, Stevie Odom, a hired hand named Donnie, and I had to round up about 30 cows at Jenny Creek and move them to a different pasture.

I rode my new horse, Diego, a full blooded black bay Arabian gelding. He looks a lot like Pat's horse, a Peruvian Paso named Nevaro El Prim. We mounted up about 10 a.m.

The dirt road to Jenny Creek was fine until we got to the main hill down to the creek. It was slippery, dusty, and very steep. With every step, more dust flew into the air as the horses slipped. We talked calmly to our horses as if we were reassuring them, but we were really reassuring ourselves. After about 30 yards, our horses got used to the steepness and made it down the rest of the way fine.

In the winter, Jenny Creek is a raging river and impassable, whether by vehicle or horse. The only way to get to the other side is by an old foot bridge that sways back and forth. The first time my father took me on it I was six; I was scared at first, but then I found how exciting it was to rock the bridge back and forth as the creek roared past underneath. Now, however, the water was reasonably shallow and slower moving.

Once across Jenny Creek we followed the road around a bend and went about two miles over rocks, through low-hanging scrub oak trees, and thick bushes searching for the cows. The trail was on an incline that dropped off steeply to our right. Several fallen logs laid across the

path, and we had to ride around them. I didn't see one log until we were right on it, and Diego surprised me by jumping it. Pat, riding just behind me, was surprised too. She said she'd never seen a trail horse fly before.

We finally found the cows at the farthest end of the pasture and saw that one cow was on the wrong side of the fence. Donnie got off his horse and took his wire cutters out of his saddle bag, thinking he would have to cut the fence to get the cow back into the pasture. As Donnie neared the fence, though, the cow panicked and jumped the fence with its front legs tucked under him just like a horse. We were all surprised, and Donnie was relieved he would not have to mend the fence.

Finally we started to move the cows. Included in the bunch were about eight calves and a bull. The bull, although huge, did not look very menacing, but I still kept my eye on him. The ride went fairly smoothly. One

cow and her calf lagged behind and slowed the herd. The calf, looking only a few days old, was almost stepped on several times by Donnie's horse as he tried to hurry them up. A couple of cows tried to go back but were headed off by Pat, who reminded me that if a cow got by you it was okay to swear. Some cows went in the creek and had to be chased back.

We moved most of the cows to the new pasture, but a couple went through the wrong gate, and Pat and Donnie had to chase them down. Stevie and I remained near the pasture gate to block the road so they would go through the gate.

Once the cows were inside the pasture we closed up the gate and rested the horses. I was tired too. We drank from our canteens, and after about a half hour headed back. Ascending the hill from Jenny Creek was even more of a struggle than descending it, because now we were all tired.

But it had been a great day. I patted Diego on the neck, and I meant it when I said, "Good horse!" Δ



Pat Ward, left, Stevie Odom, and Annie Duffy prepare for the roundup.

This method lets you make quilts that are artistic and very personal

By Carole Perlick

My friend Gladney Weishaupt is a person with artistic flair. She has artistry and drama in her personality, and expressed these qualities for years, painting seascapes with her hands. After many years of enjoyment, she was forced to stop her painting due to lead poisoning acquired through the medium she used. When she was told that she couldn't paint again, she thought that she would go crazy. But as so often happens, when one door closes, another door opens.

During a visit, her niece asked Gladney if she could make a baby quilt to be given as a gift. This was a challenge to Gladney, and it sounded interesting. She took a soft white piece of cotton cloth, approximately 36 by 40 inches, and drew stick figures with an indelible black ink pen. She then filled in her drawings with bright colors, using acrylic tube paints. Following this process, each drawn figure was quilted around with black embroidery thread. Using quarter-inch batting as filler, the reverse side was finished with printed flannel to ensure warmth. The pieces were sewn together and strips of very fine ribbon were placed at intervals, through the three layers and back again, then knotted. The baby quilt was the hit of the baby shower!

Tasting success, Gladney expanded her vision and began making larger coverlets using designer sheets, embroidering various stitches and patterns that appealed to her.

It took her approximately two months to complete one of these coverlets, which were sold for over \$500.

Outline quilting, not piece quilting, became a major source of expression for Gladney, and the following 15 years were spent making quilts for family and friends. Great nephew

including Mom and Dad, brother, Sadie the dog, and finished it off with other figures that would appeal to a child that age. The quilt became a family project as everyone was allowed to draw whatever they wished on it. Gladney then took over and finished the painting and quilting as needed. The batting was one inch thick, and the backing was done with flannel and bordered with satin bias. Kady enjoys the feel of silk and satin, so this was important to Gladney. It

took well over a month to complete this project.

The quilt was admired so much that Gladney went on to make one for her great-granddaughter Jessica and for other grandchildren of friends. At her family's urging, Gladney entered one of these special quilts called "Selena's House" in our local county fair under



Gladney and personalized quilts with her great-niece and great-nephew, Kady and Jason Lemke. (photo by Frank Tickle)

Jason, who is a normal rough-and-tumble kid, was given a Disney-designed quilt, much to the envy of his sister Kady. When Kady asked where her quilt was, Gladney felt that Kady should have a very personal quilt. It had to be different from her brother's.

Gladney took a piece of soft, white cloth 48 by 56 inches and began by drawing a house in the center of the material. On the house was a sign, "Kady's House." She then drew anything that was important to the child,

Children's Quilts and won second place. The judges wrote about her quilt, "Anyone would enjoy looking at this, but Selena most especially. There is great color, wonderful development of figures and the painting techniques work well."

My personal opinion is that these quilts are not only works of art but the story of a living family. There are a lot of "I Love You's" worked onto the quilt but there is also a lot of "I Love You" in the *making* of the quilt. Δ

Make your own nifty gift bags

By Darlene Polachic

Why pay big prices for Christmas gift bags when you can make your own for nothing, and use up all those scraps of wallpaper and gift wrap, and even the undamaged portions of last year's extra-nice wrapping paper that you didn't have the heart to part with?

Use the pattern given to create cute little 3" by 4" bags; double the measurements for larger bags; halve them for teeny-tiny bags that make great Christmas tree ornaments.

Materials

- Paper for pattern
- Ruler
- Pencil
- Scissors
- Scraps of wallpaper, gift wrap, etc.
- White glue

Hole punch

String, yarn, or decorative cord for handles (about 30 cm for small bags)

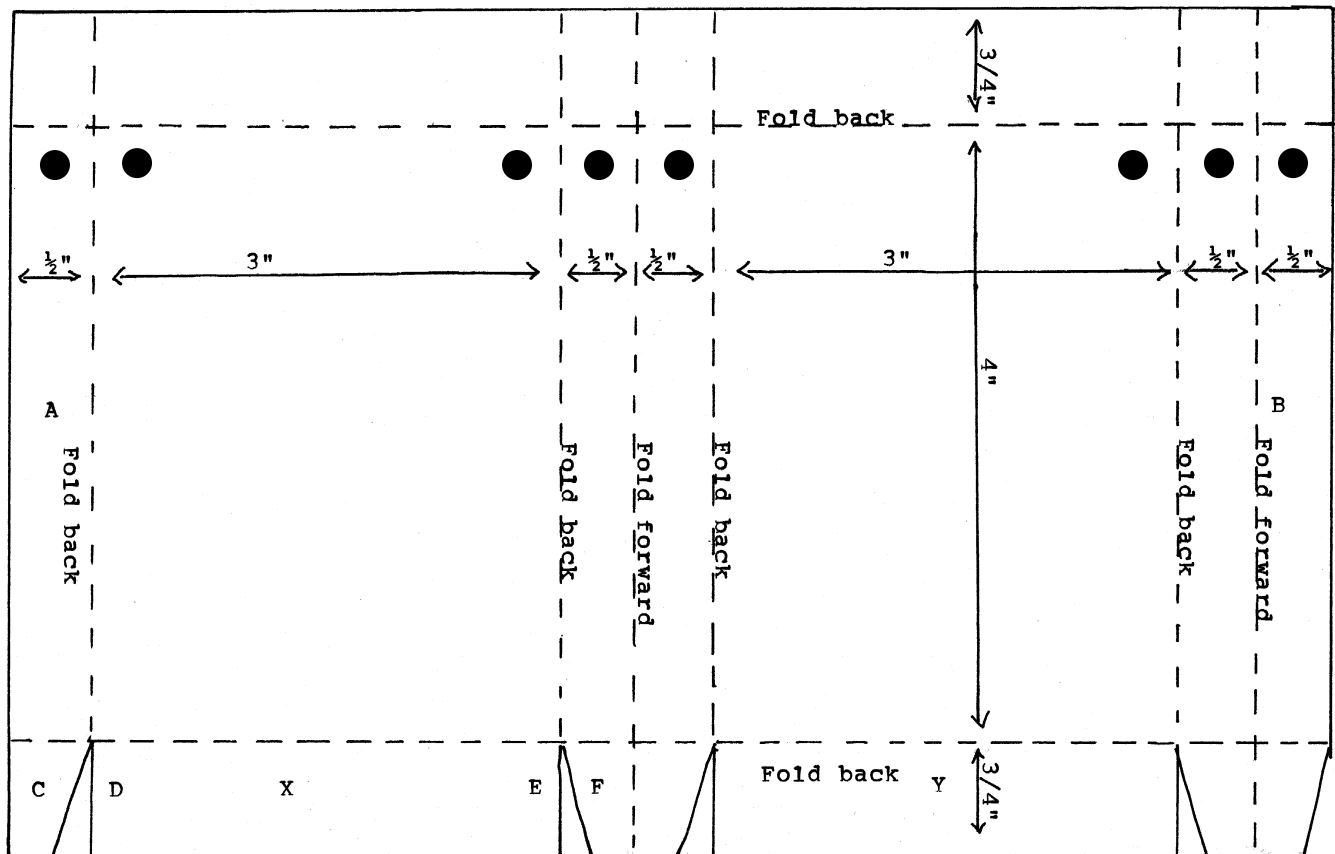
Instructions

1. Spread out paper. Press with a warm iron, if necessary, to remove creases.
2. Make a master pattern for the size of bag wanted and fold it as shown along all fold lines, beginning with top and bottom sections. Unfold and trace onto paper being made into a bag.
3. Cut out bag, and using the pattern as a guide, make the necessary folds, again beginning with top and bottom sections.
4. Lap section A over section B, with top cuff of B sliding snugly inside cuff of A. Run a bead of white glue all



along underside of section A and press along the length of section B.

5. Fold side flaps at bottom in. Apply a bit of glue to get ready for next step.
6. Run a bead of glue around three sides of section X and press ends to glue to flaps.
7. Run a bead of glue around three sides of section Y and press to section X.
8. Punch holes where indicated through all thicknesses of paper.
9. Thread cord or yarn through holes and tie ends so knot is hidden inside a corner of the bag. Δ



You can make these beautiful pinecone wreaths at home

By Darlene Polachic



Glue pinecones to form, beginning with an inside row.

Materials

- 14" wire wreath form
- Newspaper
- Black plastic garbage bag
- Hot glue gun
- Pine cones
- 12 to 15 clusters of artificial or dried berries with foliage
- Dried baby's breath or seafoam statice
- Spray shellac
- Masking tape



When four rows of pinecones have been glued on, the wreath form will be pretty well covered.

Instructions

- 1 Crumple newspaper and stuff into back of wire form all around.
- 2 Cut black plastic garbage bag into three-inch-wide strips and wrap snugly around padded form using masking tape to secure ends.
- 3 Sort pinecones into three piles according to size. Beginning with the largest size, glue cones to inside circle of wreath, placing cones close



Pinecone wreath with dried strawflowers in place of berry clumps

enough so "petals" interlock a little. Place a generous dollop of glue on base of cone and press to plastic, holding cone in place until glue is firm.

- 4 Add a second row of medium-sized cones, fitting as snugly as possible to each other and to the previous row.
- 5 Repeat for third row, then glue large cones around outside edge for a fourth row. The wreath form will be completely hidden.
- 6 Fill any holes with smallest-sized cones.



Completed wreath embellished with clumps of dried berries and baby's breath

- 7 Position clusters of dried berries on wreath as desired and glue in place. Glue a few sprigs of baby's breath to each clump and in any empty-looking spaces.
- 8 Spray the whole thing with spray shellac, particularly if natural dried berries are used. Let dry and hang. For a different look, substitute dried strawflowers for berries. Δ

Want to talk to other self-reliant people?

Visit the BHM website at:

www.backwoodshome.com

Use these tips to avoid problems with your sewing machine

By Reuben O. Doyle

There never seems to be enough hours in the day to do all that we have to do. The last thing a sewer needs when she sits down at her sewing machine is to have everything go wrong. The needle breaks, thread jams in the bobbin area or keeps skipping stitches, or there are other frustrating problems that keep the project from being completed. These problems happen to the seasoned pro as well as the novice sewer, and while we would like to blame the sewing machine and perhaps “throw it out the window,” there are measures the home sewer can take to correct most problems or even prevent them from happening in the first place. (I service sewing machines, so I know.)

The needle

The sewing machine needle is probably the number one cause of problems for sewers and crafters. This may sound silly, but the first thing to check when having stitching problems is whether the needle is in backwards. Oh, I know you’re saying, “I’ve been sewing most of my life, and I know how to put the needle in the machine,”

but in about 25% of the sewing machine repair jobs I go out on, the only problem is that the needle was put in backwards. If your machine will not pick up the bottom thread or skips stitches badly, in most cases it’s because your needle is in wrong.

Each sewing machine requires that the “flat” side of the needle be put in a specific way, facing the front, the back, etc., depending on your particular machine. Sewers in a hurry to get a project done may simply insert the needle, not pay attention to the position of the flat side, and immediately begin having problems. If by chance you have a sewing machine that takes a needle that doesn’t have a flat side, you’ll notice that each needle has a groove in it where the thread lies as it penetrates the fabric. Depending on whether your machine shuttle system faces to the front or left, the groove of the needle will also face front or left.

A needle that is dull, bent, or simply the wrong size or type can cause major sewing problems. Just because the needle “looks good” doesn’t mean that it *is* good. A small “snag” on the tip of the needle can cause runs in the fabric, and a needle that is even slightly bent won’t sew properly. A good



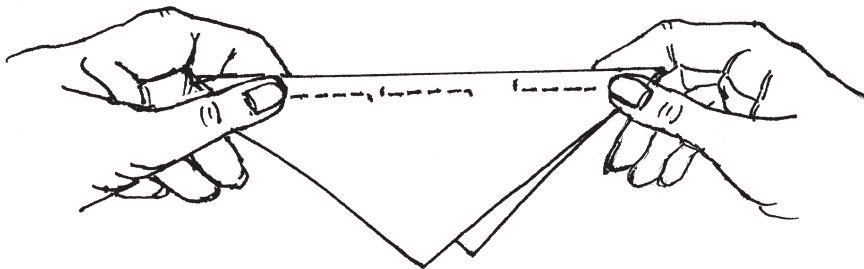
The author at work

rule of thumb would be to change the machine needle before each new project. And because some fabrics and fabric finishes can increase wear on the needle, you may even need to change the needle *during* the project if you notice stitching problems beginning to appear.

Always use the right size needle for the type of fabric you’re sewing. I’ve seen sewers trying to sew denim with a fine lingerie type needle simply “because the needle was in the machine and still a good needle,” and others trying to sew fine fabrics with needles that are much too large. A needle too fine for heavy fabric can bend or break when it hits the fabric, while too large a needle for the fabric can make puncture holes in the fabric and cause the thread to pull unevenly while stitching. Do yourself a huge favor and check the machine needle before you begin any new project.

The thread

The second thing to check is the thread itself. I have found that “cheap” thread is definitely *not* a bargain. The fibers of cheap thread split easily while you’re sewing and can cause knotting or breakage of the thread, and can also cause a build-up of lint in the bobbin area and along the thread line



Testing thread tension

from the spool to the needle. If you hold a length of cheap thread up to the light, you can see the frayed edges and roughness of the thread. Stick to a good quality thread and you'll minimize the potential problems.

As you change projects and start sewing on different weight materials, you should test stitch on a piece of scrap material of the same weight before beginning the actual project, so you can adjust your upper tension to that particular material. As an example, if you're changing from a denim type material to a silky type material, you would definitely want to make sure the tension is correct and the stitching looks right before you start to sew on the garment.

To determine whether the upper tension is too tight or too loose for the fabric you're wanting to use, try the following test. Take a small scrap of the fabric, fold it, and stitch a line on the *bias* of the fabric (that is, diagonally across the weave), using different colors of thread in the bobbin and on top. Grasp the bias line of stitching between the thumb and index finger. Space the hands about three inches apart and pull with an even, quick force until one thread breaks. If the broken thread is the color of the thread in the needle, it means that the upper tension is too tight. If the broken thread is the color of the bobbin thread, the upper tension is too loose. If both threads break together and take more force to break, it means that the tensions are balanced.

Using different weights of thread on the spool and in the bobbin will cause ragged stitches, as well as other stitching problems. Never mix different sizes of thread in the bobbin and on the spool. (The exception is when you're doing sewing machine embroidery, where you might be using a heavier thread on the top to get a certain effect for the embroidery project).

You should also check to be sure the sewing machine is threaded properly. Each machine has a certain sequence for threading, and it only takes one

missed step in the sequence to cause your machine to skip stitches. If in doubt, take the top thread completely out and start all over again.

Many times it's the small things that cause a lot of frustration and loss of sewing time. Taking just a few minutes before starting a project to make sure everything is in order can avoid hours of "down time," not to mention frayed nerves and the possibility of an unnecessary trip to the repair shop.

(Reuben Doyle has written [Sewing Machine Repair For The Home Sewer](#) (\$17.95 plus \$2 P&H) and [Serger Repair For The Home](#)

[Sewer](#) (\$17.95 plus \$2 P&H). Write Reuben Doyle, 7267-F Mobile Hwy., Pensacola, FL 32526.) Δ

A country moment



A little old house from the past.

A country moment



BHM Publisher Dave Duffy and Paul Luckey shovel out a frozen backhoe in the Oregon woods.

Delicious holiday cakes don't have to be diet-busters

By Jennifer Stein Barker

Most people just sigh and forget about their diets during the holidays. That's because the main ingredients of most holiday treats are sugar, saturated fat, and eggs with just enough white flour to bind them together. The rationale for eating this stuff is that "it's only once a year." I'm telling you that you don't have to eat this way to feel like the holidays are special.

The principal ingredient of the recipes in this article is whole wheat flour. Its hearty goodness will satisfy your appetite more quickly than white flour and sugar, but you will feel you've eaten something special when you taste the vibrant spices and moist, soft texture of these cakes. They don't really need any dressing up, but for a festive occasion, try frozen yogurt, ice cream, or the honey cream cheese frosting recipe given here.

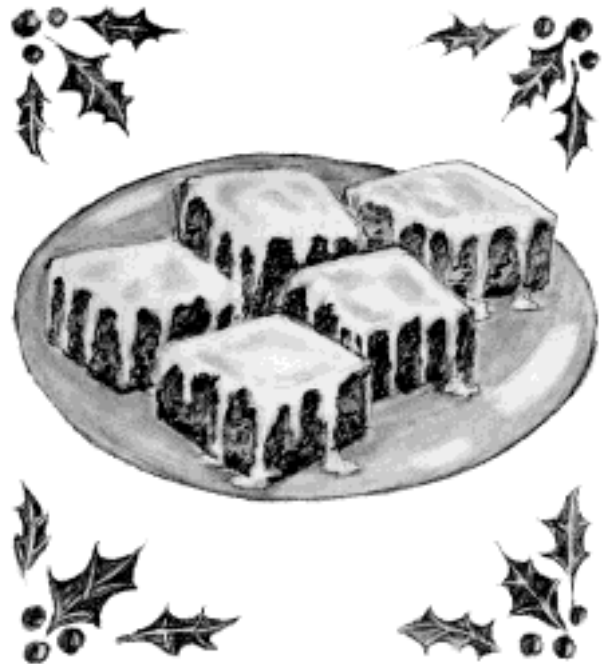
For a holiday buffet, arrange the pre-cut squares on a doily-lined plate. Don't pre-chill the frosting, but drizzle a little as a glaze over each square; then chill just to set before serving or wrapping up the plate for later use. These cakes go great in lunch boxes, too. Put these tender morsels in rigid snap-lid containers, and be sure to include a fork, as they are too delicate for finger food.

Gingerbread

A moist, gingery cake that is spiced just right. Use dark, or blackstrap molasses for best flavor. Makes an 8x8" cake.

1²/₃ cups whole wheat pastry flour
 1¹/₄ teaspoons baking soda
 1¹/₄ teaspoons ginger
 1 teaspoon cinnamon
 1/4 teaspoon ground cloves
 1/3 cup oil
 1/2 cup honey
 1/4 cup dark molasses
 1 egg
 3/4 cup boiling water

Preheat the oven to 325 degrees and lightly oil an 8x8" square cake pan. Sift together the flour, soda, ginger, cinnamon, and cloves into a medium bowl. Spoon the mixture back into the sifter. Measure the oil, honey, and molasses into the bowl. Add the egg. Beat with a mixer until frothy. Sift the dry ingredients into the wet mixture in three parts, beating well after each addition. The batter will get very stiff with the third addition. Add the boiling water, and beat



with a mixer or rotary beater for a full minute. The batter will be thin. Pour the batter into the prepared pan, and bake at 325 degrees for about 45 minutes, until the cake tests done.

Pineapple-coconut cake

Good when served warm for a treat. Makes a 9x9" cake.

2 cups whole wheat pastry flour
 1 teaspoon baking powder
 1 teaspoon soda
 1 Tablespoon buttermilk powder
 1/4 teaspoon nutmeg
 1 egg
 1/2 cup oil
 2/3 cup honey
 2/3 cup yogurt
 1 cup crushed pineapple
 1/2 cup unsweetened flaked coconut
 1 Tablespoon lemon juice

Prepare a 9x9" cake pan by oiling it and lining with baker's paper. Preheat the oven to 350°. Sift together the flour, baking powder, soda, buttermilk powder, and nutmeg. In a large bowl, stir together the egg, oil, honey, yogurt, crushed pineapple, coconut, and lemon juice until thoroughly mixed.

Add the dry mixture to the wet mixture in three or four installments, beating with a spoon until well-mixed each time. Scrape the batter into the prepared pan. Bake 30 to 40 minutes, until the cake tests done. Let cool five minutes in pan, then remove from pan and cool on a wire rack. May be served warm or at room temperature.

Tahini spice cake

A simple spice cake, with a subtle nutty flavor. Makes an 8x8" cake.

1³/₄ cups whole wheat pastry flour
1 teaspoon baking powder
1/2 teaspoon soda
1/2 teaspoon cinnamon
1/4 teaspoon nutmeg
1/4 teaspoon cloves
1/4 cup cocoa powder
1 egg
1/4 cup oil
2/3 cup honey
1/4 cup tahini
1/2 cup yogurt
1/3 cup lukewarm water

Preheat the oven to 350 degrees. Prepare an 8x8" pan by oiling it lightly. Into a medium bowl, sift the flour, baking powder, soda, cinnamon, nutmeg, cloves, and cocoa powder. Set aside. In another medium bowl, put the egg, oil, honey, tahini, yogurt, and water. Beat until frothy and well-blended. Add the dry ingredients in four parts, beating well after each one until smooth. Scrape the batter into the pan, and bake at 350 degrees for 35 to 40 minutes, until the cake tests done. Remove from pan and cool on a rack.

Chocolate cake

A great classic chocolate cake: moist, heavy, almost gooey. A cake-and-ice cream cake. Makes an 8x8" cake.



1 cup whole wheat pastry flour
1/3 cup unsweetened cocoa powder
1/2 teaspoon baking powder
3/4 teaspoon baking soda
3 Tablespoons buttermilk powder
1/4 cup oil
1/2 cup honey
1 egg
1 teaspoon vanilla
3/4 cup boiling water

Preheat the oven to 325 degrees and prepare an 8x8" pan by oiling it lightly. Set your sifter on a plate. Measure the flour, cocoa powder, baking powder, soda, and buttermilk powder into it, and set aside. In a medium bowl, beat the oil, honey, egg, and vanilla together until frothy. Sift in the dry ingredients in three parts, beating each well until blended (be sure to use any bran left in the sifter and any flour that fell on the plate). If you are using a hand beater, you may have to finish this with a spoon. Add the boiling water, and beat for one minute. Batter will be thin. Pour the batter into the prepared pan, and bake at 325 degrees for 30 to 35 minutes, until the cake tests done. Cool in the pan, then cut into squares and remove with a spatula to a rack.

Honey cream cheese frosting

Use light or natural cream cheese. This is a soft frosting, almost more of a glaze.

5 ounces cream cheese, softened
3 - 4 Tablespoons honey
1 Tablespoon dark rum
-or-
1/2 teaspoon vanilla

Beat the cream cheese and honey until they are well-blended and creamy. Beat in the rum or vanilla. Refrigerate at least an hour, or until somewhat firm, before frosting the cake. Δ

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Ayoob on firearms

By Massad Ayoob

The best deal in home-defense guns

Backwoods home folks tend to be practical and economical. In that vein, they'll appreciate the best buy available today: traded-in police service handguns that glut the secondhand firearms market. There are two generations worth, and all are good buys.

Best of all are the "first generation" trade-ins. The majority of the nation's police have swapped their six-shot service revolvers for higher capacity, quickly-reloaded semiautomatics. Far from being worn out, many of these .38 Special and .357 Magnum revolvers were latest generation heavy duty weapons that were nearly new, such as the Smith & Wesson L-frame Model 686 or the Ruger GP-100. Virtually all got routine maintenance from factory-trained department armorers. I know that when my department traded in its .357s for Ruger 45 autos in 1993, a bunch of choice Ruger Security Six and GP-100 revolvers went out to be resold cheap to smart citizens. Some were bought back by our own officers as home defense guns.

Because there are so many of these trade-ins, hundreds of thousands of them, they're available dirt cheap...generally under \$250 and often under \$200 buys an excellent condition used revolver in the same condition as a new one that would sell for over \$450.

The second generation of used guns are the high capacity 9mms purchased circa 1985 to 1995. They're being swapped by departments for identical pistols in .40 S&W caliber to give the officers more potent ammo. This is largely a tacit admission of the failure in the field of the 147-grain subsonic

9mm hollow point that the FBI popularized among police. Civilians, of course, can load a 9mm with much more effective high-speed 115-grain hollow points.

The Crime Bill of a couple of years ago banned new magazines of over 10-shot capacity. These guns, usually issued to officers with three magazines, are grandfathered and both guns and mags can be legally bought by civilians. However, the unavailability of new ones has forced up the price of the old ones to the extent that departments can trade even—old 9mms for new .40s—because the dealers expect to resell the old 9mms for so much to civilians. Thus, while still good buys, they're not nearly as economical as traded in late model service revolvers.

In the revolver, I'd recommend the .357 Magnum over the .38 Special. The .357 will take the more powerful round and mild 38 Special ammo for unexcelled versatility, but the .38 won't fire a Magnum cartridge. Adjustable sights let you zero in for out to 100 yards when you want to carry your gun afield to pot crop-stealing critters of various sizes. You wouldn't hunt a bear intentionally with a .357 Magnum, but if you have one and can't afford a .44 Magnum, the .357 always on your hip is better than no insurance at all against close encounters of the ursine kind.

Adjustable sight service revolvers include the Ruger GP-100 and Security Six, and any of several models of Smith & Wesson .357. You may also run across a few Colt Trooper and Lawman .357s. All are quality handguns you won't go wrong with.

I'd also recommend a stainless steel model, any of the Rugers or such



Massad Ayoob

S&Ws as the Models 66 and 686. Their slightly greater expense is offset by their easier maintenance for the all-weather outdoor person.

Frankly, you can get by with one of the rugged fixed sight guns that usually sell for less. I have an old Ruger Police Service Six that I bought for \$100 in 1988. It shoots dead on for windage but high, so I just take a six o'clock aim on the target. With Federal Match .38 target wadcutters, it'll stay in the ten-ring of the regulation 50-foot NRA rapid fire target all day long. At six times that distance, a hundred yards, this old beater with much of its blue finish worn away in a policeman's holster put five out of five Pro-Load 125-grain .357 hollow points on a man-size target, from a standing two hand position on a tree-type rest. This is comforting capability if you're ever afield and run across some good ol' boy with a gun who thought "Deliverance" was a training film. Still, the gun would be even more versatile with the tough adjustable sights Ruger put on their more expensive Security Six and GP-100 models.

I no longer use a .357 revolver for deer hunting after shooting a petite doe twice in the chest with one and



COUNTRY MOMENT PHOTO: Wintering horses at Fall Creek Ranch in Oregon (Photo by Pat Ward)

watching her run an unacceptably long distance before collapsing. However, such credentialed handgun hunting experts as Robert Shimek and Dick Metcalf have had success with the .357 on whitetails. They recommend taking only standing shots, sideways into the rib cage, at reasonable distances. Fifty yards makes sense as a maximum distance limit for most people with an iron sighted .357, which will usually have a four inch barrel.

The traded-in police revolver makes excellent sense and gives the most “bang for your buck” in a home-defense handgun that also serves as a survival and forage tool in the great outdoors, and a source of recreation in target shooting. A top-quality brand in .357 Magnum caliber will give you the most versatility. It’s simple to operate and easier than a semiautomatic to learn to manipulate safely. It’s your most economical buy in a handgun today. Δ

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For many people, these natural remedies can reduce high blood pressure

By Christopher Nyerges

People ask if there are any herbal remedies for high blood pressure. There is evidence that there are. So, as I set out to write this article, I spoke with several doctors and consulted my many books and files to come up with the latest medical findings.

Dr. Wayne Flicker from Sierra Madre sent me a thick wad of data from various sources, mostly medical journals. He pointed out that high blood pressure—referred to as *hypertension*—is a complex topic, and that whole books have been written on this subject. Dr. Flicker also pointed out that the causes are many and doctors simply don't always know what causes hypertension. The cause is ascertained in about 1 in 20 cases. Doctors refer to hypertension as "essential," which is medical jargon for "We don't know the cause."

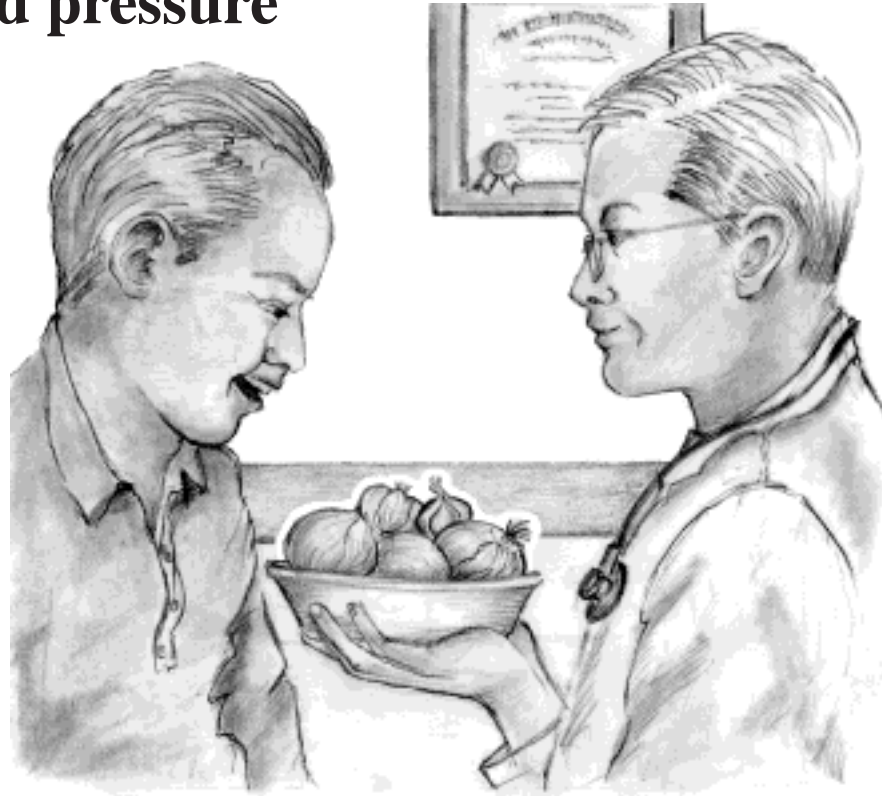
However, I was able to come up with some concrete advice, some dietary and some herbal.

Lifestyle factors

Overweight: For starters, if you are overweight, lose some weight. This will probably mean that you increase your physical exercise, which in itself is a good way to reduce hypertension. If you simply can't get out to a gym, go for walks or exercise on a stationary bicycle.

Smoking: If you smoke, stop.

Alcohol: Excessive alcohol consumption may elevate the blood pressure. Hypertensives should limit alcohol consumption to less than one ounce of ethanol daily. That means less than eight ounces of wine, or less than 24 ounces of beer. Even better is to eliminate the drinking of alcohol.



Salt: In at least half of the cases of hypertension, the reduction of salt in the diet proved to be helpful. The elderly and Blacks are the most likely to benefit from restricted salt intake. Read the labels on foods, since you might be surprised to find out which foods are high in salt/sodium. A food is considered high in sodium if it contains over 250 mg. of sodium per serving, and this includes most cheeses, sausage, Danish pastry, many salad dressings, many olives, bouillon, etc. Read those labels.

Coffee: Drinking coffee is believed to be insignificant in hypertension. Thus, if you drink coffee, no change is warranted.

Though the above recommendations are considered some of the best ways to reduce high blood pressure, there has also been some attention given to the benefits of including calcium, magnesium, potassium, and fish oil in the diet.

The garlic and onion family

Garlic and onions have also been regarded as helping hypertension. In a variety of tests, garlic and onions (and members of that family) have been shown to reduce cholesterol, reduce high blood pressure, and reduce the incidence of flu. For example, Dr. Alan Tsai, Ph.D., of the Michigan School of Health, has tested rats and humans for the effects of garlic on cholesterol levels. He fed test groups high-cholesterol diets, with one group receiving garlic. Those who received garlic had cholesterol levels that rose about 4%, as opposed to those without garlic, whose cholesterol levels rose 23%. Dr. Tsai noted that the incidence of cardiovascular and other diseases is lower in countries whose populations consume large amounts of garlic, though he was reluctant to attribute this effect solely to garlic.

Studies reported in the *Indian Journal of Nutrition and Dietetics* concluded that both onions and garlic in the diet lowered blood cholesterol levels. Studies in Germany and in the U. S. have produced similar results.

Cholesterol builds up in fatty plaques on the artery walls, and so it is believed to be a major factor in the onset of heart disease. Anything that reduces high cholesterol levels helps to keep the heart healthy.

Dr. Truswell, at the Queen Elizabeth College of London University, conducted research by feeding human subjects high-fat meals with and without onions. He found that blood platelets stuck together faster after the high-fat/no-onion meal, whereas the effect was neutralized when onions were included. Platelets are a component of the blood that are an important aid in coagulation, but when they “malfunction,” they can form clots in the arteries of the heart and brain, which can result in strokes and heart attacks. Dr. Truswell believes that by simply including onions in the diet, the chances of having a stroke or heart attack are reduced.

Though there are countless studies pertaining to the effects of garlic and onions on the human body, it may still be some time before doctors make conclusive statements, such as “Eating garlic will prevent high blood pressure.” Again, this is due to the complexity of “high blood pressure,” its various causes, and the fact that no two people are alike. Still, I eat garlic every day. For centuries, Russian folk healers and herbalists the world over have suggested that garlic be used to relieve a host of ailments, including high blood pressure.

We do know that garlic contains small amounts of selenium and germanium. Selenium is believed to prevent abnormal blood clotting, to normalize blood pressure, and to prevent infections. Germanium is being investigated for its reputed ability to retard or prevent the growth of some cancers. Garlic also contains a number of bio-

chemical compounds, such as allicin (considered to have antifungal and antibiotic properties), alliinase, allyls, allithiamine (which makes vitamin B1 more effective), and alliin (which makes proteins easier to digest). Allicin, left alone, turns into a substance that some researchers have called “ajoene,” believed to be responsible for garlic’s ability to inhibit blood clotting as effectively as aspirin.

Enough books and research papers have been written about garlic, onions, shallots, leeks, and the entire *Allium* genus to fill a small library. I will list a few of my references below, so you can pursue these on your own.

There are two other good sources of herbal information which I want to share.

Michael Moore

Herbalist Michael Moore has written several good books on medicinal plants. In his book [Medicinal Plants of the Pacific West](#) (Red Crane Books), he lists hawthorn (*Craetaegus Douglasii* and *C. columbiana*) as beneficial in cases of hypertension. He writes, “Hawthorn is a heart tonic—period. First of all, it is a mild coronary vasodilator, increasing the blood supply to the heart muscles and lessening the potential for spasms, angina, and shortness of breath in middle-aged or older individuals... I have seen it help the middle-aged mesomorph, with moderate essential hypertension, whose pulse and pressure are slow to return to normal after moderate exertion, and whose long, tiring days leave the pulse rapid in the evening. It will gradually help to lower the diastolic pressure and quiet the pulse... The benefits take weeks or even months to be felt, but are well maintained, not temporary.”

In the “Preparation” section, he describes using the flowering tops or berries of hawthorn made into an infusion, and drunk three times a day.

In [Medicinal Plants of the Mountain West](#) (Museum of New Mexico

Press), he describes an herb found in China called *Ligusticum wallichii*, which is used clinically for lowering blood pressure. He only describes this herb in passing, since his main discussion is about a related Western U.S. herb named Osha (*Ligusticum porteri*). He says the Chinese relative is nearly identical to Osha.

Indian herbology of North America

Over the years, I have found useful information in [Indian Herbology of North America](#) by Alma Hutchens.

Among her references to high blood pressure, she includes black cohosh (*Cimicifuga racemosa*). The root is made into a tincture which is used alone or mixed with other herbs to treat high blood pressure.

She also states that in Russian folk medicine, “They have found that corn oil is prophylactic for high blood pressure.” Though she provides no more details, I presume that these benefits are derived by consuming the corn oil with salads or other foods.

Hutchens includes onions on her list of herbs which are used for high blood pressure, citing as her source the [Atlas Lekarstvennych Rastenia USSR](#) ([Atlas of Medical Plants of the USSR](#)).

See a doctor

Anyone suffering from high blood pressure should seek competent medical advice. The dietary and herbal information provided above is to be considered general information, but due to the chemical and biological differences between human bodies, there is no way that this general information can substitute for talking face to face with a doctor who can interview you and consider your particular situation.

((Christopher Nyerges is the author of [In the Footsteps of Our Ancestors: Guide to Wild Food](#) and other books. His schedule of outings is published in the *Talking Leaves Newsletter*, available from the School of Self-Reliance, Box 41834, Eagle Rock, CA 90041. The newsletter can be viewed on-line at <http://home.earthlink.net/~nyerges/>.) Δ

With papier mache, you can make treasures from trash

By Sally Denney

In the late 1700s, a pioneer woman named Sarah Miller needed a tray for her home. The general store was a day's ride away, so a quick trip into town to buy one was out of the question. She had far too many chores to do before she could allow herself so many hours away from her homestead, but she still needed that tray. What did Sarah do? She used the art of papier mache to supply her with her emergency needs.

Women settlers used papier mache techniques to supply their families with containers, wall decorations, lamp bases, and other household requirements. The lightweight items were easily made, strong, and conveniently transported.

Today in the United States, papier mache is making a comeback, due to recycling efforts. The art form allows you to make new and useful products from articles you would normally throw away.

The process is great family fun, it is economical and environmentally practical, and children can easily learn to master the method. I learned the process and techniques during a high school art class. I liked the flexibility of the wet paper and the durability of the final dried product. While in high school, I filled my bedroom walls with papier mache art. My favorite piece was a pretend stoplight I made using toilet tissue holders and shoe boxes.

Today, as a source of added income, I rent space in two craft malls. My craft booths are now filled with a variety of papier mache products: holiday decorations, birdhouses, fake fruit, puppets, jewelry, jewelry boxes, sewing boxes, and canisters.

The items cost me very little to make. The only purchased supplies I use are paint, masking tape, and all-purpose glue. I have also had good luck using a homemade flour paste as the binding material. (Recipe follows.)



Here are the steps



Finished birdhouse ornament

The papers I most often use are newspaper and brown craft paper (in the form of used lunch sacks). I have also used wrapping, construction, tissue, and typing papers. It is best to *tear* the paper into usable strips, because the torn edges stick better and the product will have a smoother, stronger finish. When dry, the ragged seams are also more easily sanded.

The bases for my articles are objects I find around the house (or scavenge from friends): boxes from bar soap, butter, tissue, and cereal are some of my favorite containers to make into birdhouses, jewelry and sewing boxes, baskets, and canisters. Round oatmeal or salt boxes can be turned into band boxes, or trunk-style lids for a more masculine jewelry box.

The tools needed are common household supplies such as scissors, a utility or razor blade knife, a pencil, masking tape (used to strengthen base seams), paint brushes, and a bowl or ice cream bucket for mixing and dipping the newspaper strips into the glue.

Before starting any project, it is a good idea to cover the work space with several layers of newspaper, so that cleanup will be easier. I also take my telephone off the hook or turn the

ringer off before my hands are immersed in the glue. I learned this after having to wipe glue from the telephone receiver one more time than I wanted.

Always allow the papier mache to dry completely after each coat of paper and glue. By doing this, you will greatly reduce the amount of overall drying time for each finished product. Papier mache usually air dries within 24 to 48 hours.

Like Sarah Miller, whenever I need a new decorative item, toy, tray, or bowl on my homestead, I study the form of the object I want and then start searching for a base I can form my papier mache around. Soon I have an article very similar to the one I first desired, only better because I've painted the item to match my home's decor.

One fun Christmas decoration I have made and sold in my crafting business is a birdhouse made from a five-ounce bar soap box. Here are my directions so that you can make them for your tree, too.

Birdhouse Christmas ornament

Materials

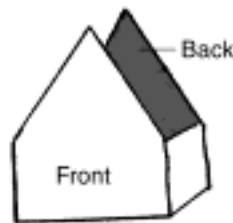
- Five-ounce bar soap box
- Cereal box
- Newspaper
- Brown lunch sack
- Flour paste, or white all-purpose glue (Elmer's or equivalent brand), or wallpaper paste
- Ruler
- Scissors
- A nickel
- Pencil
- Utility knife
- Masking tape
- Decorations: Spanish moss, rose hips or red beads, arborvitae or pine sprig
- A used wooden match stick (for a perch)
- Paints: antique ivory acrylic, gold Testers model enamel
- Paint brushes

Instructions

Step 1: Remove opening flaps from soap box. Mark the centers of the wide sides of the bar soap box (front and back) at the top where the tabs were removed.

Step 2: Make marks two inches from the bottom on the edges of those sides. Draw a line from the left-edge two-inch mark to the top-center mark. Draw another line from the right-edge two-inch mark to the top-center mark. Do this on both sides of box. This is the pitch for your birdhouse roof. Along the narrow sides of the box, draw a line from the front two-inch mark to the back two-inch mark.

Step 3: Cut along the lines, creating the roof pitch. Also cut along the narrow sides front to back on the two-inch line.



The box should look like this at the end of Step 3.

Step 4: From the cereal box, cut a roof piece $8\frac{1}{4}$ " x 2". Fold in half, printed side facing out. You should have at least a half inch overhang on each side of the box. Eaves will be less than $\frac{1}{2}$ ".

Step 5: Secure roof to soap box with masking tape.

Step 6: Cover the house with a layer of paste or glue-coated paper sack which has been precut (or torn) to the dimensions of the birdhouse sides, bottom, and roof. Allow these to dry.

Step 7: Decide which side is the front of the birdhouse. In the center of the front, trace around the nickel with a pencil. Cut this section out with the utility knife. This is the birdhouse opening. Centered $\frac{1}{4}$ " below this, use your utility knife to make a small X

pattern of slits for inserting the wooden match for a perch. Glue perch in place. Paint birdhouse with antique ivory and roof with gold metallic paint. Paint perch to match either the roof or the birdhouse. Once paint is dry, seal with a coat of all-purpose glue or varnish. Air dry.

Step 8: Place a small piece of arborvitae or pine sprig at the top of the peak. Glue this in place. (I use a glue gun, but all-purpose glue will work, too.) Glue beads or rose hips to the greenery. If you wish, use white paint on top of the gold metallic at roof peak and roof edges to give the effect of snow.

Step 9: Insert some Spanish moss inside birdhouse. Glue a piece of gold string or red ribbon to the roof of the house so you can hang the ornament on the Christmas tree.

Flour paste recipe

- 1 cup flour
- 1 cup sugar
- 1 Tablespoon powdered alum
- 3 cups water
- 30 drops of clove oil or wintergreen or liquid Lysol (to prevent mildew)
- 1 quart boiling water

Place first four ingredients in a double boiler. Blend until mixed to the consistency of a smooth paste. Gradually add the quart of boiling water. Cook until mixture is clear and the consistency of a thin to medium white sauce. Remove from stove and add the mildew preventative. The paste will last for several months. Pour extra paste into jars.

For more information

[Creative Papier Mache](#) by Betty Lorrimar

[Papier Mache](#) by Robin Capon

[Papier Mache Style](#) by Alex MacCormick

[The Step by Step Art of Papier Mache](#) by Cheryl Owen Δ

Here's how to make a musical bamboo flute

By Robert E. Kramer

Materials

- 1 propane or butane torch or campfire to heat up metal rod.
- 1 steel rod at least 1/2" diameter
- 1 oven mitt or heavy cloth
- 1 fine-tooth saw such as a hacksaw
- 1 grease pencil or magic marker
- 1 sheet fine grit sandpaper
- 1 old 1/4" drill bit
- 1 pair of vise grip pliers
- 1 old bamboo fishing pole
- 1 measuring tape
- Linseed oil and rag

Instructions

Cut out a piece of bamboo, at least 18" to 20" long with a diameter between 3/4" and 1", from the bottom of an old fishing pole. Be sure to cut it so as to leave one end blocked by the fibrous material that is between the sections. (See Figure 1.)

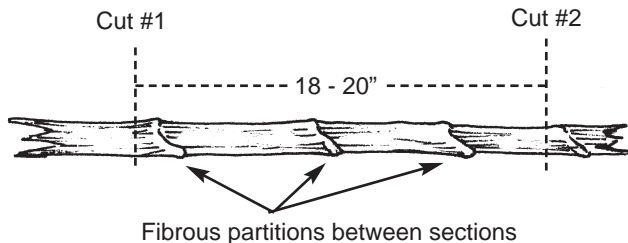


Figure 1

Measure and mark a spot 1" from the blocked end of the bamboo. Then measure a distance of 6" from your first mark and then make five more marks at 1" intervals. You should, when finished, have a total of seven marks. (See Figure 2.)

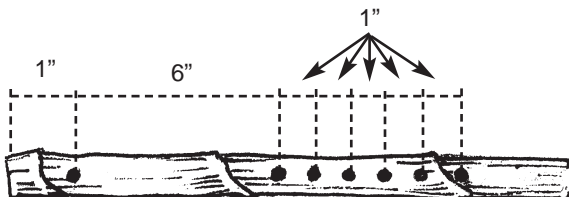


Figure 2

Your next step is to use the 1/2" steel rod to burn out the unneeded fibrous material. To do this, heat one end of the steel rod until red hot. ***CAUTION*** — BE SURE TO USE THE OVEN MITT OR A HEAVY CLOTH TO HOLD THE UNHEATED END OF THE ROD, AS IT WILL GET VERY HOT. When the rod is hot, insert it into the open end of the bamboo and apply moderate force to burn through the fibrous partitions. *Be sure to leave the last (end) section of fibrous material intact.* (See Figure 3.)

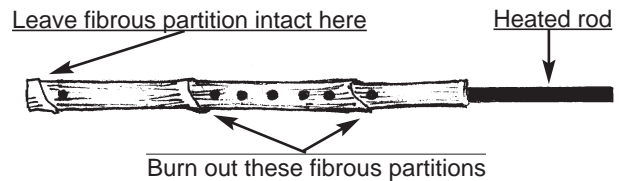


Figure 3

Next you need to heat the 1/4" drill bit until it is red hot. Use the vise grips to pick it up and burn out the holes at the places that you measured. Do not drill out the holes in the bamboo, as this may cause the bamboo to crack. (See Figure 4.)

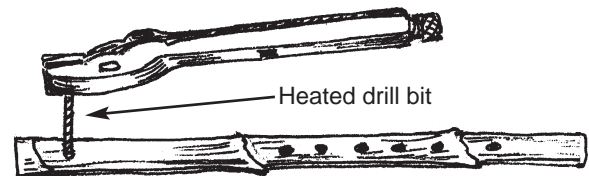


Figure 4

Take a piece of fine-grit sandpaper about 3"x3" and roll it up. Use the rolled-up sandpaper to remove the black charcoaled bamboo from around the holes that you have burned. You can also use the sandpaper to widen the blow hole. This will make it easier to get a sound, but be sure not to make the hole too large. (See Figure 5.)

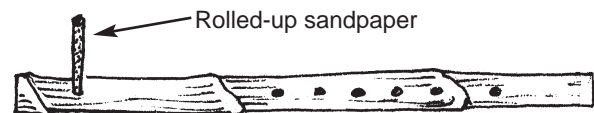


Figure 5

Rub a coat of linseed oil on the finished flute. Cover the last six holes with the first three fingers of each hand. Blow across the blow hole as you would on a soda pop bottle. Keep trying until you get a constant note. Now you can remove a finger to get a different sound. Experiment and practice. Have fun. Δ

Homesteading on the electronic frontier

By Martin Waterman

Looking for love in cyberspace

I have always said that the Internet is more a social phenomenon than it is a technological revolution. It continues to enhance and change people's lives by bringing people with common interests closer together as well as making the task of finding information and products much easier. The Internet has also been credited with providing a medium which has resulted in many new relationships from simple friendships to marriage.

Recently, there has been much written and published about Internet romance as online romances flourish and become more commonplace. Meeting someone online has completely different dynamics than meeting someone in person, with the former becoming increasingly easier to do than using the traditional methods.

A hundred years ago, or so, many rural-based men often ordered a mail-order bride. Today, finding that special person, for both genders, continues to be a difficult proposition especially if you are far from major urban centers and population areas. However, the Internet is responsible for making the entire world a much tighter-knit global community and is causing relationships to spring up all over the planet which was not one of the anticipated benefits of the Internet.

There are probably two principal reasons that explain why Internet romances are occurring at such a great frequency.

As human beings we are very diverse creatures. Normally, we tend to date and marry people from our immediate environment such as our neighborhood, workplace, church, etc. If that special person for you is one in

a million or even just one in a thousand, it is unlikely that you may meet them in your immediate area. By using singles groups on the Internet and on the WWW, you can expose yourself to potentially hundreds of thousands (or more) of members of the opposite sex which gets the laws of averages working in your favor to find that special person.

Another reason the Internet is such a potent match-maker is that it is still a somewhat blind medium. In the real world, when you meet someone, you are prejudiced by many factors such as what an ideal mate should look like and a number of other factors based on your past experiences, morals, values, even the television shows you watch. The Internet forces you to get to know a person first without arbitrarily dismissing them because they are too tall, too short or perhaps bear too close resemblance to some man or woman in your past for which you may have not had a good experience. In other words, you are less likely to throw away a person who might be the ideal mate on a decision that judges them primarily on physical appearances and other aspects which alone could do little to guarantee the success, intensity or longevity of any union. Furthermore, in getting to know them on the Internet, the bonding process has already started. Since you don't have to worry about your appearance or mannerisms in front of the computer, you can feel free to be yourself. How many times, in the real world, have you wanted to approach someone only to be too shy or fear rejection and then be left to wonder "what if" for the rest of your life.

Cyberspace is a fertile environment for communicating and establishing friendships which as we all know often lead to something else.

How and how-not to find a Cybermate

More and more and more people are getting their own WWW sites and posting their photos on the Internet. This is one way but not the best way to start to let potential mates find you on the Internet. However, if you do have your own Universal Resource Locator (URL), this can be used once you have a rapport with someone or used in conjunction with an ad in the USENet news groups and the WWW.

Of course, people are always meeting because of common interests, because they participate in mailing lists or meet in chat groups. However, if you really want to use the full power of the Internet in your favor, you have two potent options; singles news groups and single sites on the WWW.

Singles news groups

There are dozens and dozens of news groups that cater to singles on the Internet. However, most of them are unmoderated and are frequented by those who are marketing 900 numbers or some other products or services. But many are still a great place to advertise because of the high volume of people who read the ads.

The different groups represent different attitudes. Two of the most popular are alt.personals and alt.personal.ads. There are also other more specific groups such as alt.personals.tall and regional groups such as chi.personals (Chicago area).

Single sites on the WWW

Single sites on the WWW represent some of the best and easiest ways to find a mate. If you do a WWW search using the words or the word "Cupid", or go to <http://www.cupidnet.com> you will find links to the most important single sites on the World Wide Web. Although you can find the modern equivalent of mail-order brides from Russia, South America and the South Pacific, the two biggest and most popular groups are American Singles and WebPersonals. While the majority of ads are from North America, both have people from around the world placing ads, and of course anyone on the planet with WWW access can answer your ad as well.

Placing an ad on American Singles or Web Personals is quick and painless. You simply fill out a form and specify such things as if you are looking for a Pen Pal, Just a Friend and Maybe More, A Committed Relationship possibly leading to Marriage, Marriage as well as other options. Some of the sites allow you to search a data-base using key words. For instance, under activities or hobbies you can immediately find all those who list sailing or boating.

Another popular WWW singles site is WebPersonals. These sites are very potent and many internet matches have been made many of which lead to marriage. Many of the sites have a collection of "happy endings" available.

Writing an ad

Writing an ad is not difficult. The first consideration is to be honest. If you are not, it will eventually catch up with you. The second thing is to take some time to consider two very important things; what you have to offer and what you want. This is important and studying other people's ads may spark some ideas.

One of the most common mistakes is when people go overboard on the

"wants". For instance, if you say you are looking for a person who is blonde, with blue eyes, a preferred height and other qualities, the more you say, the more potential respondents you eliminate thus reducing your chances of finding that special someone. Furthermore, many women find it objectionable when men list physical requirements so that even if she does measure up, she may never respond.

Unlike a newspaper ad, the Internet allows you more words to work with. Good things to mention are your dreams, ambitions, hobbies and personality traits. Simple things such as whether you like to cook, like pets or have a sense of humor are important as they can be the initial spark to get a reply or start a conversation that leads to something special.

If you are particularly nervous about writing your ad, there are two very simple solutions. First, have someone else, a friend perhaps who is objective, write the ad for you. Second, and probably best, read the Internet ads and see which ones have phrases or qualities you feel describe yourself. Borrow these to help you build your own ad.

Another very important piece of advice is that it is far better to place an ad than to reply to one. A good ad may bring in hundreds of replies. Therefore, if you reply, you may be just one of the crowd. If you place the ad, you get to pick and choose.

Getting someone to answer your ad is usually not the difficult part. Checking your e-mail can become a very exciting proposition as you never know when there may be a response. Once you are communicating with people the challenge becomes finding out how compatible they are with you. The trick is to have fun, be yourself, and do not be in too much of a rush.

Many of the sites offer you the chance to use anonymity so that no one need know who or where you are until such time as you wish to make that information available. This is

comforting for many people since the Internet is but a reflection of the real world meaning that there is some pretty strange characters out there.

If you are a man and really serious about finding a companion, an excellent book on the subject is [A Man's Guide to Advertising for a Woman](#) by Sebastian Phillips (Loompanics: ISBN 1-55950-146-4). It can be ordered by calling 1-800-380-2230 and is an inexpensive investment for \$16.95 when you consider the book has so much useful information that may help you find that mate for life. It is my understanding that the publisher is considering a similar book for women but published the book for men first since men have the most difficulty writing ads that can solicit the large volume of replies that women's ads seem to do almost automatically. Of course, the challenge for women is to qualify and sort through all the replies to make sure they are getting what they are seeking.

One of the great things about the WWW single sites is the fact that they also have information on placing and replying to ads. Using this information and a site that suits your style, you can quickly place an effective ad and be meeting potential mates in the comfort of your own home or wherever you have your computer. With e-mail, you can carefully consider your replies (unlike a personal encounter) and correspondence and unlike snail mail, the interchange can speed to quite a fervent pace if the chemistry is there.

Of great importance is that you can find someone who shares the same love of the backwoods as well as your other values and beliefs. Of course, you will also be introduced to all kinds of new philosophies as you meet other people. Internet dating will also give you the benefit of having a social circle similar to that of a large metropolitan area without all the drawbacks that led you to embrace the backwoods home lifestyle in the first place.

Δ

In the classroom and at home, this system will help you grow self-reliant kids

By Marjorie (Sultzbaugh) Harrison

My husband Allan started teaching sixth grade at the Moreno Valley, California, Unified School District in September of 1959, without even slightly knowing how. Fortunately for him, teachers were needed so badly that the district hired just about anybody. They grabbed Allan fresh from military service and shoved him into a classroom without any training in teaching methods. (He had a BA degree.) Although it didn't seem so at the time, this also proved very fortunate for the many pupils, parents, and teachers he later taught.

Since he'd not been trained in methods of instruction, Allan had to devise his own. This required an examination of his colleagues' techniques. The more he scrutinized contemporary

teaching methods, the more dissatisfied he became. It was obvious that pupils were being taught to need management forever, rather than become self-reliant and self-responsible.

The classroom management methods taught to teachers in college, approved by school administrators, and advocated by teachers' unions (the controllers of education) made students rely on an authority for almost everything. Pupils were offered little opportunity to think for themselves. Even a drink of water or a trip to the bathroom must be approved first. When the teacher couldn't force the student to do his will, he had to try to rely on the parent for coercion. This seemed a terrible way to teach in America. (Of course, in Nazi Germany or Communist Russia, the rulers would have been delighted.)

Self-responsibility

Allan decided authoritarian methods were not for him; he would quit teaching first. But how could self-reliance and self-responsibility be taught? Allan realized that they can't. It is something one learns by being self-accountable and relying upon participatory laws for self-rule. In other words, the rule of law must prevail, rather than the rule of authority. It was that simple.

To accomplish this required a "scorekeeper" to get kids involved—something similar to our adult money. Academic test scores would be ideal. He could call them Scholar Dollars, or Points. The Points could accumulate in Student Bank Accounts, recorded in a notebook with a sheet for each student. His best pupil would be allowed to earn the position of Banker for the



month, and the next best could become his Personal Secretary to record grade scores. Each would be paid a monthly wage in Points for the chore. Thus the program would be run by the kids. The students would learn self-responsibility, and Allan's teaching workload and stress would be reduced.

Making the Points valuable was easy: all he had to do was ask himself what his pupils would buy in exchange for Points. At an auction held once a month, Allan sold the following to the highest bidder:

1. The right to move a desk next to a friend
2. King or Queen for a half day (advises teacher on the fun subjects taught)
3. Teaching contracts (with a miniature lesson plan, a set time for instructing the whole class, and a test given when finished)
4. Bulletin boards
5. Extra credit projects
6. White elephant items brought from home and no longer needed
7. Six seats in the teacher's car going to the beach, mountains, or desert once a month for a two-hour educational outing
8. Classroom "companies" which help the teacher and are motivational to kids, since the operator collects the fees charged (*e.g.* the Bathroom Company, the Water Works, the Pencil Company, the Finance Company, the Service Company, the Clean Up Company, and many more as needed)
9. First, second, or third in line at dismissal or lunch.

Self-discipline

Now that Allan's pupils were self-motivated, they needed to become self-disciplined. This required Classroom Laws to take *him* out of the management business and put the students into self-management and self-

punishment. With Allan's guidance, pupils devised a Constitution (for inalienable rights) and voted proper Laws (with fines for infractions) into existence. These were all set forth in a loose-leaf notebook for all to read at any time.

The only thing remaining for a good self-accountability learning program was a simple system of justice. Since Allan remained the only person in the classroom who was completely neutral, he automatically became the "Judge and Jury" for deciding damage amounts, collecting fines, or hearing evidence of guilt.

Student teachers

To reduce his classroom workload to a minimum, and to offer leadership opportunities to students, Allan devised an earned Tutorship or Student Teacher position for the top pupils in each major subject. This worked fantastically well. Perhaps an example can explain why.

Of the 30 pupils, five of the top students in math, English, social studies, etc., became Student Teachers, and they selected five pupils each from the remaining 25. After Allan taught an important concept, he turned the five groups loose for reinforcement instruction. He paid each Student Teacher a bonus of 10% of what each of their pupils earned at test time. Thus the whole class moved rapidly along together, without any horseplay.

Eventually his class size was raised to 66 pupils in a "pilot project," supposedly to test the productivity of self-accountability learning. Actually, his administrators believed and hoped this would torpedo the program for good, since they had agreed to his request that the other sixth grade teachers in his district would send him the students that *they* didn't want.

The administrators got a rude surprise. With an average IQ of 94, Allan's pupils *doubled* their overall achievement averages in six months. Moreover, all his pupils so drastically

improved their previous *attitudes* that most of the teachers wanted their former students to return. Instead, Allan secretly taught teachers at home to implement self-accountability methods in the classroom, much to the teachers' delight and the dismay of administrators.

The reason for administrative dismay is this: all of the controllers of education know that self-reliant and self-responsible pupils will eventually destroy the educational empire and eliminate the need for much management.

Allan maintains that there is no magic in self-accountability learning. Any teacher can achieve better results teaching 180 self-managed pupils than an instructor can achieve attempting to manage 30 dependent students. The reason for this lies in the Tutorship technique. For instance, suppose a teacher had 180 fifth grade pupils with 30 Student Teachers who had five self-reliant and self-responsible pupils each. The adult teacher could easily teach 30 top pupils who knew they would be expected to impart that information to their peers and then be paid for their efforts on a productivity basis.

Proof of this can be found in the early newspapers of the 1800s. Joseph Lancaster, a Quaker schoolmaster in New York and Pennsylvania, taught 1,000 elementary school pupils all by himself and at the same time. Furthermore, he started over 100 private schools that did the same thing. His accomplishment lay in his ability to get self-responsible pupils to help self-responsible pupils, as any good self-accountability teacher should do.

A program for the home

After the great success of the pilot project, one of Allan's parents asked him, "Why haven't you designed a program for the household? It's just as badly needed at home." So Allan helped him set up a self-accountability learning program for his home.

John and Mary Jones's family consisted of four children, ages 12, 10, 8, and 4. Allan asked John to purchase a hand-held calculator, two notebooks with loose sheets in each (one for the Bank Book and one for the Law Book), and some tokens to be used for keeping score, such as foreign money, play money, poker chips, or even credit slips John and Mary designed. Then the parents selected a household Banker whose position would rotate monthly among the capable persons in the home.

Next, Allan suggested that everyone regularly hold a Family Council meeting once a week or once a month. At the meeting, John and Mary were asked to decide how much of a vote each child would exercise, depending upon their capabilities. Tom, age 12, was permitted $\frac{3}{4}$ of a vote; Steve, age 10, was allowed $\frac{1}{2}$ of a vote; Alice, age 8, was given $\frac{1}{4}$ of a vote; while little David, age 4, was not considered capable of voting yet. Nevertheless, David could express opinions and desires which would help him earn a portion of a vote in the future. The parents possessed a full vote each, which reserved a majority control of the household to them. The children's fractional vote could increase at the discretion of the parents, as capabilities were demonstrated.

A monthly budget

Allan asked the Family Council to devise a monthly budget. The Council decided on \$2,400. This meant that 24,000 Points (real money times 10) would be available for a self-accountability program. Since the family is made up of six people, each person's "fair share" contribution should be either \$400 in cash or 4,000 Points earned around the house doing chores, or any combination of the two.

John and Mary agreed to contribute \$400 cash each, so each received 4,000 Points they could use to pay their children for their own personal needs at home, such as shining their

shoes, etc. Tom, age 12, said he wanted to contribute \$100 cash from his paper route, so he received 1,000 Points for personal use. He was required to work at household tasks for the remaining 3,000 Points. Steve, age 10, thought he could contribute \$25 cash and got 250 Points for personal use. He was expected to work for 3,750 Points. Alice and David had to work for their 4,000 Points each. Henceforth, any household work Mom or Dad cared to contribute free would be greatly appreciated by the other working members of the family.

Naturally, Allan said, the parents also had to contribute the other \$1,475 in cash, but what they received in return would be truly wonderful.

First of all, the Jones family would be welded together in a family partnership. Kids even as young as David would now know why some things could not be purchased and where the money must go. All things could be discussed and solutions discovered with the whole family behind decisions. This generated a great feeling of strength that "management" households cannot match. Moreover, the family would draw closer together as self-control, self-reliance, and self-responsibility were exercised, and as the family learned to work together and make decisions together.

Allan next advised the Council to make a list of household tasks and then assign Points to be earned for each (without exceeding the total available). The children were then allowed to select enough tasks to fulfill their Point requirement of 4,000 (or less). Thus the kids would learn self-responsibility while the parents' work and stress were reduced.

Household laws

After this, the Council was required to devise a Constitution and then make a list of household Laws with infraction fees which were placed in the Family Law Book. A system of justice was implemented. Mom and

Dad rotated monthly as "Judge and Jury" to hear lawsuits, try criminals, set penalties, and award damages.

Spending Points

Finally the Council discussed ways that Points could be spent. The following were approved for the month (with many more added later):

1. TV and telephone time carried a set price unless two or more wanted the same time; then it was auctioned.
2. Overnight sleeping rights at friends' were popular.
3. Rental of vehicles such as bikes was spirited (cars come later).
4. Real money allowances for each child could be bought at a 20-to-1 rate (\$20 for 400 points, \$10 for 200 points, etc.).
5. The household "companies" were normally auctioned because they were popular and earned points for the operator (Baker, Mechanic, Cook, etc.).
6. The parents agreed to take each child to some special place he or she desired for a specified number of points. Also, special meals, attire, etc., would be permitted if a set number of points were paid.
7. Tickets to games, special events, etc. carried a set price.
8. Toys and games wanted by the children would be available for a set price or auctioned.

Basic necessities, such as ordinary food, water, etc., were not sold. How motivational an item was for the child determined whether it would be sold (unless it was clearly harmful; if it was, the Council denied the item). Thus the Council managed the household, rather than just the parents. This effectively eliminated most parental stress and guilt.

(Anyone needing further assistance or do-it-yourself manuals can write to the author at 21863 Brill Rd., Moreno Valley, CA 92553. Please enclose a SASE for a reply.) Δ

Grow winter salad greens on your windowsill

By Sally Denney

Greens for your winter salads can be as close as your windowsill. When the price for iceberg lettuce doubled at the grocery store, and I had leftover summer garden seed stored in my freezer in a resealable freezer bag, I decided to try growing lettuce in containers on my windowsills.

I had extra seeds from each of the four varieties of lettuce. My leaf lettuce types were Black Seeded Simpson Oak Leaf (heat tolerant) and Salad Bowl. These mature in 40 to 50 days. Butterhead varieties on hand were Buttercrunch and Bibb, which mature in 60 to 75 days. Romaine matures in 75 to 85 days. Head lettuce, Iceberg, matures in 85 to 95 days. I wanted lettuce as quickly as possible, so I considered Romaine and Iceberg imprac-

tical for speedy indoor use. I settled on Black Seeded Simpson, with Buttercrunch for my experimental crop. My impatience prompted me to use the Buttercrunch leaves like the leaf types, although the plants did eventually form heads.

If you have no saved seed, check your local seed suppliers. They will often have seed left over from the growing season. If you choose to buy seed through mail order, be sure to explain that you want the seed sent immediately, or they may wait until your regular growing season begins.

Cool but sunny

Having grown lettuce outside for over 20 years, I know lettuce to be a shallow-rooted plant which loves cool but sunny growing conditions. To adapt my house to these growing

requirements, I used a window in a room with a southern exposure and a consistent room temperature of 65°. I also used a sunny east-facing enclosed porch window in the morning, switching the pots in the afternoon to a sunny west-facing window. These pots grew equally as well as the southern-exposed pots, but required more of my time and energy seven days a week, switching them from one place to another.

Knowing I needed to use the most sunlight available for lush plant growth, I removed the window screens and kept the windows clean. I also made a tinfoil backdrop to reflect as much light as possible back to my plants. I also used mirrors in the places where I could prop them up without their being accidentally bumped and broken.



The plants grew almost directly against the window glass. Since lettuce is cold-tolerant, the plants thrived under these cool conditions on some extremely cold nights. (We have no storm windows, but the windows are double-paned.)

Keep an eye out for any curling of leaves and for signs of minute spider webs, which are signs of spider mite infestation. To keep spider mites at bay, prevent the plants from drying out. Spider mites love to attack plants suffering under arid conditions. I ran a humidifier near the plants during the day. If the plants still appeared to be dusty or dry, I occasionally spritzed the foliage with temperate water. If I had suspicions of insect invasion, I took the plants to my kitchen sink and used the vegetable sprayer for a quick shower. This usually took care of any pests.

During short winter days, or if cloudy days were numerous, I found it helpful to supply the plants with supplemental artificial light for at least 16 hours per day to help keep them growing vigorously.

Creating planters

The containers I chose to use were inexpensive. Since growing indoor salads was a spur-of-the-moment decision, I used plastic bowls as growing containers. Whipped topping and margarine tubs work well. They were four inches deep and fit comfortably on my windowsills.

I did not make any holes in them for drainage. To keep the lettuce roots from becoming waterlogged, I filled the bowls in layers, using a few small stones first, then vermiculite, and topping it with a thicker layer of seedling starter potting medium. Do not use the heavy black potting soil sold for re-potting houseplants: it is too heavy for potted lettuce. Their roots need a light, loose soil to thrive. Use a mix with a good portion of peat moss that is relatively light to carry when bagged.

Another alternative to this would be pure decomposed compost.

When watering, keep the plants moist but not soggy. To fertilize the plants, I used fish emulsion (one-half capful to one and half quarts of water) each time I watered them.

Planting

A dozen plants were sufficient for four to eight people (the number depended on how many of the older self-supporting children showed up at mealtime), but I also have a couple of non-salad eaters in my family. Plant two or three seeds per six-inch pot, or about three to four inches apart in a larger container. Barely cover the seeds, no deeper than their size. After watering the seed, I covered the pots with plastic to prevent them from drying out and placed them on top of my refrigerator to speed sprouting. This took two to four days at 75°. Germination was spotty at temperatures above 80°, so it is a good idea to place a thermometer near the pots, so you will know what conditions they have while they are sprouting. Refrigerated saved lettuce seed tends to emerge more quickly for me than seed stored at room temperature.

As soon as the seeds develop, move them to a sunny windowsill, where it should be much cooler. With vigilant care, the lettuce will be ready to use in six to seven weeks. To have a steady supply of fresh lettuce, start a new batch of plants every two to three weeks. Plants grown inside with temperatures averaging around 65 to 70 degrees take longer to bolt, which allows you more time to use them. I began harvesting my lettuce when the leaves were of useable size. Plants which ooze milky liquid when broken or cut are past their prime and are usually bitter tasting.

The only thing I am planning to do differently this year is to start the pots earlier, so I will already have a supply of lettuce maturing when the price of lettuce doubles at the grocery store. A

good time for me to start these pots will be in the fall when I thin my outdoor-grown seedling crops. I will re-pot the plants I would normally discard and be a few weeks ahead of schedule for my first indoor winter harvest.

For added flavor for your winter salads, you may also want to try growing chives, parsley, and sweet basil in windowsill pots.

Dressing for loose leaf lettuce

2 strips bacon
Pan drippings from bacon
1 Tablespoon flour
1 cup water
1 Tablespoon sugar
1 Tablespoon vinegar
Dash of salt (optional)
2 Tablespoons sour cream
2 hard-boiled eggs, diced

Cut up bacon in one-inch bites and pan fry. Use part of pan drippings to make pan gravy with the flour. When brown, stir in water. Let boil and then add sugar, salt, vinegar, and sour cream. Fold in boiled and diced eggs. Just before serving, add the lettuce.

Mail order seed suppliers

R.H. Shumway's, P.O. Box 1, Graniteville, SC 29829; Thompson & Morgan Inc., P.O. Box 1308, Jackson, NJ 08527-0308; Gurney's Seed & Nursery Co., 110 Capital Street, Yankton, SD 57079; Park Seed Co., Cokesbury Road, Greenwood, SC 29647-0001. Δ

Fear of serious injury cannot alone justify suppression of free speech and assembly. Men feared witches and burned women. It is the function of speech to free men from the bondage of irrational fears.

— Louis D. Brandeis
1856-1941

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A Backwoods Home Anthology

The Eighth Year

***A Backwoods Home* Anthology:**
The Eighth Year

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Introduction

Here it is, folks, the *8th Year Anthology*. Hope you enjoy it as well as you have the others.

Dave Duffy
Publisher and editor

This anthology is dedicated to

*Sister Mary St. Helena,
Sister Mary Michels,
and Sister Mikelline*

who taught me how to learn.

Contents —

Issue Number 43

- ❑ *My View: Start your own newspaper* — 14
- ❑ *Heat and cool inexpensively with a ground source heat pump* — 15
- ❑ *Tankless water heaters offer some important advantages* — 18
- ❑ *Rough day? You need to sip some yeller wine* — 22
- ❑ *Is steam power in your future* — 24
- ❑ *Considering life in rural Arkansas* — 30
- ❑ *Try these simple ways to get started in solar hot water* — 33
- ❑ *Better health from common plants* — 35
- ❑ *Getting the most out of a solar electric system* — 38
- ❑ *Sometimes a good old bucket of coals is the best solution* — 41
- ❑ *We built a homemade community fire truck* — 42
- ❑ *Where I live: Nine-patch, baby, and log cabin quilts* — 44
- ❑ *The incredible cattail — “The super Wal-Mart of the swamp”* — 45
- ❑ *Here’s the best way to split gnarly firewood* — 47
- ❑ *Here’s how to store LP gas, gasoline, diesel, and kerosene — safely* — 48
- ❑ *Improve FM and shortwave reception with a do-it-yourself antenna* — 51
- ❑ *Homesteading on the electronic frontier: Solar, wind, and other independent energy information can be found on the Internet* — 53
- ❑ *Ayoob on firearms: Teaching your lady to shoot* — 55
- ❑ *Here’s a cabbage with class — Early Jersey Wakefield* — 57
- ❑ *Make your own Old World culinary delights* — 59
- ❑ *Just for kids — Fairies in your garden* — 62
- ❑ *Good-bye old friend* — 64
- ❑ *Seventeen great tips for caring for windows, mirrors, and other glass* — 65
- ❑ *Here’s an easier (and cheaper) way to make wooden beams* — 66
- ❑ *You can grow gourmet strawberries from seed* — 67
- ❑ *These salads are hearty dishes* — 69

Issue Number 44

- ❑ *My View: A history lesson from Ayn Rand* — 72
- ❑ *Save time and energy with the fenced chicken coop/garden* — 73
- ❑ *Rid your garden of snails and slugs—organically* — 74
- ❑ *Try these 13 metal cleaning tips to keep your house shining* — 75
- ❑ *Many choices for mulch* — 75
- ❑ *You can make your own fertilizers* — 76
- ❑ *Soil aeration is essential to a successful garden* — 78
- ❑ *Lawn care tips* — 80
- ❑ *Make your own effective fishing tackle while you save money* — 82
- ❑ *You can learn to help chicks live through “problem hatches”* — 86
- ❑ *Repel garden pests with companion planting* — 88
- ❑ *Enjoy snap beans—fresh from the garden* — 90
- ❑ *These rolls will enrich a meal, or even be a meal* — 93

- Ayoob on firearms—Accessible to you, but not the kids — 95*
- Telling time by the sun and stars is fun, and it's also surprisingly accurate — 96*
- Think of it this way—Losing our rights as we watch television — 99*
- Set 100 steel fence posts a day with a home-made driver — 106*
- Gold is where you find it—and it's found along the Klamath — 107*
- I remember the day the lynx attacked — 112*
- Do leather repairs the frugal way — 114*
- Trees enhance any yard, but...remember these tips — 115*
- If you can boil water, you can make a good stew — 116*
- Raise your own feed crops for your livestock — 120*
- Where I live—Kiss critters—they're cute and they sell — 122*
- Make superior hay the old-fashioned way — 123*
- Make manure tea for a more bountiful garden — 126*
- Build your own backwoods mulch machine — 129*
- The dandelion is a healthful, great-tasting weed you can eat — 130*
- There are lots of ways to compost—Find the one that's right for you — 131*
- Trimming feet is important — 133*

Issue Number 45

- If you build your own (legal) house, you'll have to deal with the permit process — 136*
- Get low-cost, high-quality lumber by investing in an inexpensive planer — 140*
- I found that special somebody, and you can too—with safety — 143*
- The marvel of baking soda — 144*
- Lay vinyl flooring the foolproof way — 145*
- Make you own ulu—it's the ultimate backwoods knife— 150*
- Build an inexpensive but durable jackleg fence — 152*
- Build a homestead Copy Cart — 154*
- These double-steep half stairs save space — 156*
- Ayoob on firearms—The M1A—a rifle that makes a statement — 157*
- Here are some answers to often asked questions of anti-gunners — 158*
- 10 strong mildew deterrents — 159*
- Go camping on a low budget or go on no budget at all — 160*
- Think of it this way...Prohibition: then, now, and always — 163*
- Build an all-purpose ladder — 171*
- Try alfalfa for bigger plants — 173*
- Greens and rhubarb are spring tonics — 174*
- Mom's wash was rainwater clean — 178*
- There's still a lot of life left in dead trees — 179*
- Grow sweet Tetsukabuto squash — 180*
- Barbecue—it's America's national cuisine — 182*
- Make your own quality rope — 188*
- Understanding paint and stain — 190*

Issue Number 46

- My view: The militia movement — 192*

- Multi-level marketing—is it the road to riches or disaster? — 193*
- For lots of summer fun, make a super squirtgun — 195*
- Build a seed starter and make a nice part-time garden income — 196*
- Roadside marketing: the best of two worlds — 199*
- A canoe livery—an honest, clean business — 202*
- Get the taste of India in your kitchen tonight — 205*
- Get paid to take vacations — 212*
- Ayoob on firearms—Mossberg Model 500: the backwoods shotgun — 216*
- Here’s five reasons adults should read kids’ books — 218*
- How about them \$mushrooms@ — 219*
- Think of it this way...Science and truth—are they related? — 222*
- Grandma will love this personal “Helping Hands” wall hanging — 230*
- Yesterday’s furniture today—a puncheon bench — 231*
- Drip irrigation saves a lot of water and weeding — 232*
- Build a “solar powered” clock—it’s fun, educational, and even useful — 235*
- Collect (almost) free money by gathering readily available wild plants & botanicals — 240*
- Heat your household from the outside — 242*
- Make lemonade without lemons — 245*
- Build a bat house to control insect pests — 246*
- Cool your home with this simple device — 248*
- Substitute teaching—the pay is good, but it ain’t always easy — 250*
- Wild garlic—independent and delicious — 253*

Issue Number 47

- Be prepared for “after the accident happens” — 256*
- Acorns are not just squirrel food — 259*
- Ayoob on firearms—Kids, values, and “junior shooting” — 261*
- Let your imagination guide you to making money in the country — 263*
- You can cut your costs in half by installing a chain link fence yourself — 264*
- You can furnish an entire homestead at Lehman’s hardware store — 268*
- From apple crisp to French tarts, tasty apple treats are just right for fall — 270*
- Make a sidewalk garden bench — 272*
- Enjoy America’s sugarplum—the persimmon — 273*
- Save your harvest leftovers with a vegetable stew mix — 276*
- Where I live—Following in the footsteps of the Mormon pioneers — 278*
- Making paper at home is a fascinating process — 281*
- You can become a hardcore forager — 285*
- Fish—this gourmet food is fun to catch, easy to cook, and healthy to eat — 289*
- The saga of the brand name computer and why you should buy a “clone” — 296*
- Make a fully functional cold storage pit/mound — 303*
- Seven secrets of Dutch oven cooking — 310*
- Comfrey is a powerful healing herb — 314*

Issue Number 48

- My view: Thanks for not killing them — 318*

- ❑ *You don't have to be a historian to make money writing your hometown's Pictorial History — 319*
- ❑ *For a unique taste treat and a lot of fun, grow Native American corn in your garden — 323*
- ❑ *Plant your Irish potatoes this fall or winter — 327*
- ❑ *Protect your chickens from predators by installing this electric fence — 328*
- ❑ *Herbs make your canned and frozen foods more appealing — 329*
- ❑ *Try these pasta desserts for unusual holiday fare — 330*
- ❑ *How to maintain a dirt road — 335*
- ❑ *Ayoob on firearms—Old guns for the old homestead — 339*
- ❑ *Give the old chair a lease on life — 341*
- ❑ *Use this system to make "quicke quilts" for the whole family — 343*
- ❑ *For float-hunting, you'll want to make a native American canoe paddle — 346*
- ❑ *Make a gold or silver wire cross in 10 easy steps — 349*
- ❑ *Commonsense preparedness just makes sense — 350*
- ❑ *Here are four sure catfish baits — 356*
- ❑ *Homemade wax bullets let you practice shooting on a budget — 357*
- ❑ *Protect your small buildings from wind damage — 358*
- ❑ *"You squeezes de tail an' sucks de haid" — 359*
- ❑ *Grow windowsill peppers the year-round — 360*
- ❑ *Winter is a lot more pleasant if you use these tips to stay warm and dry — 362*
- ❑ *Make diapers with a flair — 366*
- ❑ *Tofu—healthful, delicious, versatile, and you can make it yourself — 367*
- ❑ *The irreverent joke page — 371*
- ❑ *Winterize your animals without going broke — 372*

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My view

Start your own newspaper

For some time now, I've been thinking of starting my own newspaper. Not because I want to run a newspaper (I've got enough to do running this magazine), but to show conservatives and libertarians like myself how they can change the way today's liberally-biased mass media reports the news. It has been long obvious to me that the mass media in America has become a de facto arm of the liberal wing of the Democratic Party.

After the media played such an important role in reelecting Bill Clinton, ignoring third party candidates, and generally misleading Americans about the issues in the election, I listened in mocking disbelief as one newscaster after another interpreted the reelection of Clinton as an endorsement of the direction in which he had been taking the country. Rather, his reelection was a rejection by conservatives of Bob Dole, and a reaffirmation, via their reelection, of those young conservative Republicans who took control of Congress in 1994. But you'll never hear that from the mass media.

I'm tired of trying to scold the media into reporting the truth. Instead I'm going to launch my own local newspaper as an example of how ordinary people can take control of the mass media at the grass roots level. We'll use it as an example that hopefully will spread across the nation. Starting your own newspaper isn't difficult to do, especially in this age of computers. I'll show you how it can be done, starting with this column.

Recruiting reporters

Many people wonder how the mass media ended up being 85% liberal. That percentage, by the way, is by their own admission. My educated guess, being a former member of the news establishment myself, is that the figure is closer to 95%. There are several reasons for this, but I'll list just consider one major one because it drives almost everything else.

The news arena is a mecca for would be do-gooders, for people who want to save the world and impose their vision of what's right on everyone else. Most of those people come out of colleges, and every year colleges graduate enough journalism majors to replace every working journalist in the country. So when a newspaper hires a reporter, the huge heaps of resumes editors sift through are almost all those of young liberal idealists eager to right what they see as society's wrongs. The homeless must be sheltered, the poor fed, the high and mighty brought low, and the disadvantaged raised up. These young journalists are like evan-

gelists, eager to jump straight from their cradle of ignorance onto the world stage. They have no desire to stop and try to learn how the real world operates, nor do they have time to study history and try to learn its lessons. They are a vast swarm of do-gooders on a mission.

Not only does this oppressive heap of resumes guarantee an inordinantly high percentage of liberal reporters in the mass media, but it has another depressing effect: it depresses salaries in the newspaper business, driving out older reporters who are forced to seek higher paying jobs to support growing families. So the liberal college journalists who probably got a bit more conservative as they matured are usually forced out of the business due to their own economic needs.

In the newspaper I will start, we won't draw our reporters from this liberal pool. Instead we'll do exactly as we do at *Backwoods Home Magazine*, namely draw writers from the population at large. This has many beneficial effects:

We'll recruit people who are living in the real world—the world of business, engineering, farming, etc—not the insular world of the newsroom. That will give us people who know what they are talking about, people who have knowledge of how the world really works, rather than the knowledge that fills a young liberal's head about how they would like the world to work.

But that brings up a critical question: These people in the real world are already making a much better living than most news reporters, so why would they want to become news reporters? The answer: they won't, but they **would** be willing to contribute an occasional article related to their field of expertise. That, in a nutshell, has been the secret of *Backwoods Home Magazine*. For the eight years of our existence we have drawn our articles out of people living in the real world, not the world of journalists and writers. We have long realized that it is knowledge, not clever writing, that people want, and that older experienced people have knowledge where younger, less experienced people have lots of energy.

Running a newspaper is not unlike running this magazine. In fact, it is much easier. At *Backwoods Home Magazine*, we require a fairly sophisticated form of writing for a lot of the articles we print, but the newspaper requires what is known in the journalism trade as "inverted pyramid" writing. It involves putting the salient facts first, then adding on the less important facts in paragraphs that can be easily cut, from the bottom up, as an editor deems necessary to fit each article into the space allotted him.

And just as we help our knowledgeable writers write for this magazine, we'll help others write for our pilot newspaper. I'll share our success with you in future columns. Δ

Heat and cool inexpensively with a ground source heat pump

By B.B. Bunting and Don Fallick

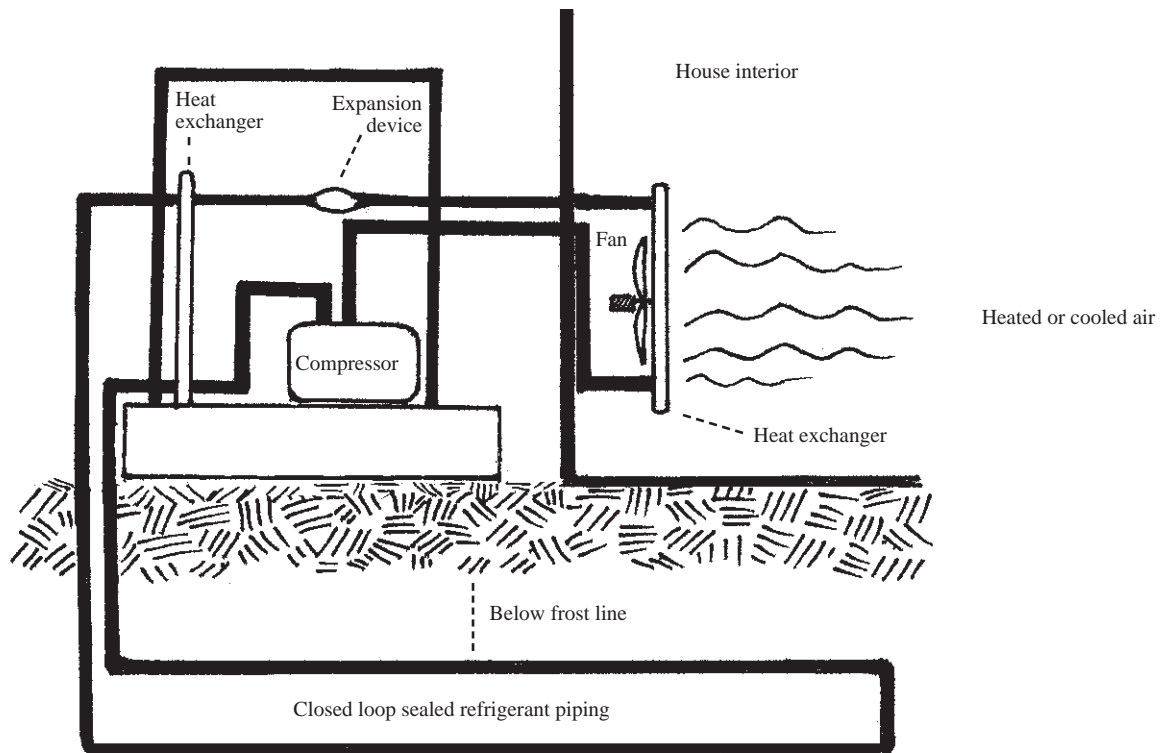
A few feet beneath the ground, just below the frost level, the earth maintains a constant temperature of about 50 to 60° F year-round. A heat pump can tap this reservoir of constant temperature to heat your house in the winter and cool it in the summer. Heat can be concentrated to provide domestic hot water as well, with minimal use of electricity, no pollution, no air-conditioner, no furnace, and no other fuel. It sounds like magic, but the technology is both available and affordable in the form of a ground source heat pump (GSHP).

The heart of a GSHP system is a pump which circulates a refrigerant

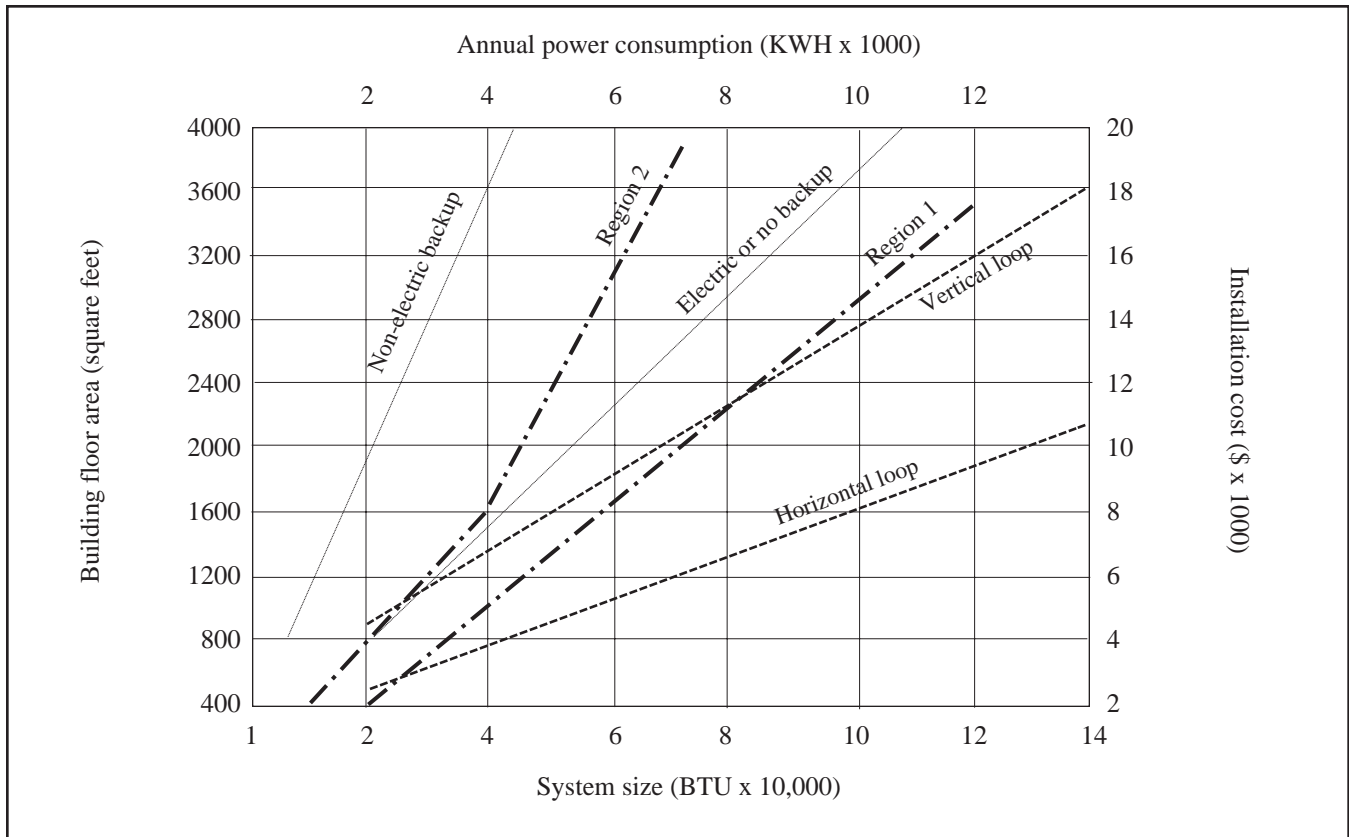
solution through long pipes buried in the ground below the water table. The pipes are completely sealed, so the refrigerant never contacts the environment, but it can still pick up heat from the moist earth. Heat from the soil causes the low pressure refrigerant to vaporize. Above ground, a compressor concentrates the heat, raising the fluid temperature high enough to heat domestic hot water, and to heat the house through a heat exchanger and standard central heating system. The fluid then is allowed to cool and expand to its original density, ready for another trip underground. Because the system removes heat from the ground and pumps it into the house, it

is commonly called a heat pump. But that's not all it can do.

In summer the pump runs in reverse. Refrigerant heated by a heat exchanger in the house is pumped into the ground, where it transfers its heat to the cooler earth and returns, in effect pumping "cool" into the house. The same pump can transfer heat in either direction, so there is no need for separate water heater, furnace, and cooler. The whole system consists of only the underground pipe, heat exchangers, compressor, pump, expansion chamber, and a hot water tank. Its simplicity makes it much more reliable than most central air conditioners, and much cheaper to operate than even the most efficient furnace.



Components of a GSHP. Underground piping may be vertical in a borehole, horizontal in a narrow trench, or in the form of a continuous coil in a wide trench. Piping may be above or below the water table. Compressor and expander can be in the building being served or in a shelter outside.



TO FIGURE APPROXIMATE SYSTEM COSTS

1. Determine your region. Region 1 is temperate areas, Region 2 is areas with temperature extremes. Also determine whether you will have a vertical or horizontal loop, and the type of backup heating system you will have, if any.
2. From building size at left of chart, read right to proper region line, then vertically to intersect the vertical or horizontal loop line, as appropriate. Read installation cost at right.
3. From building size at left of chart, read right to appropriate backup system line, then up to annual power consumption. Multiply this figure by your local power company's charge per KWH to find annual operating cost.
4. From intersection of building size and region line found in #1, read vertically down to heat pump size at bottom of chart. Compare to operating and installation costs of non-electric heating systems of same BTU rating.

Design considerations

A GSHP system may cost as much as \$2000 more than an equivalent conventional heating/cooling system. Costs for a typical 2000 square foot house will vary, depending on soil type and moisture content and other design considerations, but might average about \$6000 to \$8000. This figure can be reduced by a third or more if the homeowner does his own excavation. But GSHP's great benefit is that it requires no fuel at all to operate—just the electricity needed to run the

pump and compressor, which is approximately the same amount of electricity you'd use to run a standard hot-air furnace. If your heating and hot water systems use \$500 worth of fuel per year, for example, it would take only four heating seasons to recoup the higher installation price. After that, there would be a savings of \$500 or more in operating costs every year. GSHP systems must be buried deep, and are built to last, so the savings normally continue for the life of the building.

One problem with GSHP systems is the great length of the required underground loop. The typical house mentioned above requires a total loop length of 200 to 400 feet, depending on soil, pipe material, and the particular refrigerant solution used. The pipe should be buried below the water table, with a one-foot minimum radius around each pipe, to allow for transfer of heat. The hole can be horizontal or vertical, and the loop can be divided into several shorter "parallel" loops to reduce costs. Horizontal trenches are cheaper to dig than vertical holes, so

trenches are usually preferred where there is room, as long as the proper soil conditions can be obtained. Dry soil does not transfer heat readily, so the wetter the soil, the better. If necessary, water can be pumped into the hole or trench to moisten dry soil. But the soil must be well below the frost line. If the solution freezes, the pump will self-destruct trying to move it.

Different refrigerants require different length loops. Potassium acetate or potassium carbonate solutions require the shortest loops, but alcohol solutions, glycol solutions, and even salt solutions can work. Proprietary (brand name) solutions of potassium acetate or carbonate are available, but pricey. Salt solutions of sodium chloride or calcium chloride are cheap and readily available, but corrode pipes and fittings badly. Ethylene and propylene glycol mixtures have a high viscosity, making them harder to pump. Methyl, ethyl, and isopropyl alcohol solutions are better, and readily available, but don't work as well as potassium refrigerants. An engineer familiar with GSHP will be able to determine the best refrigerant for your particular needs.

A single, long ground loop is simpler to make and easier to test than a complex system of parallel loops. But long pipes must be larger in diameter to reduce pressure loss, so most systems use parallel loops. A two-foot-wide trench can contain two or more complete loops in parallel, reducing excavation costs by almost 50%. In new construction, ground loops can be located in septic system leach field trenches, using the leach field drainage to improve heat transfer. Vertical loops can be placed in well holes, either inside or outside the well casing. Vertical and horizontal loops can be mixed in a single system, if desired. It is much better to have more loop length than necessary, than to have too little, but too long means using excess pump power. Ground loop piping should be constructed of materials recommended by refrigerant

manufacturers. Check with the manufacturer or a competent engineer for specifications. Sources of information are listed at the end of this article.

Systems can be designed to accommodate buildings of many different sizes, or can even be shared among multiple users. In rural Colorado, there are about 40 homes currently using GSHP. Many of them share a system among several houses, to reduce costs. In addition, The Rural Electric Association has erected a 50 foot x 100 foot shop heated only by GSHP. It uses the same size heat pump as a 4000 square foot house.

Get it right

Perhaps the best way to reduce the initial cost of a GSHP system is to do most of the work yourself. It is possible for a technically minded homeowner to do much of the design and installation himself. The design and installation guides mentioned at the end of this article are good places to go to begin thinking about a GSHP system. Because there are many factors affecting the performance of a ground source heat pump, it is imperative to get some input from a heating/cooling engineer familiar with GSHP. The actual excavation and plumbing is straightforward, for those with appropriate skills and equipment. But because the system is difficult to repair or replace once installed, an amateur should go out of his way to get help in the design and testing of the system.

High quality equipment and seam welding is an absolute must for longevity and performance. This means using pipes made of Polyethylene 3408 (Schedule 40 or SDR 11) or Polybutylene 2100 (SDR 13.5 or SDR 17). GSHP also requires a really good, well-made, rotary type compressor. These can cost \$350 to \$700, depending on the size needed, or even more with built-in thermostatic controls. A large compressor with a two-way "flop valve" for reversing the

pump direction automatically could run as high as \$1000, so it pays to get knowledgeable advice before building. Sources of such help are listed at the end of this article.

Not all such help costs money. For information on your local soil, its moisture content, frost level, and constant temperature level, see your local U.S. Soil Conservation Service engineer, especially if you are considering a horizontal loop system. For vertical loop systems, your U.S. Geological Survey agent would be more helpful.

A GSHP may seem like an expensive option, but it has several advantages, besides using no fuel. Heat pumps are completely sealed, so they pose no environmental threat whatever, aside from the electricity they use. In an active heating/cooling system, where electricity is going to be used to move the heat around anyway, the additional power consumption is minimal. Even this can be reduced, though, by the use of a non-electric backup heat source, such as firewood, passive solar, etc., during the periods of greatest demand.

For more information:

[Manual H, Heat Pump Systems: Principles and Applications](#), Air Conditioning Contractors of America, 1513 16th St. NW, Washington, D.C.

[Closed-Loop/Ground Source Heat Pump Systems-Installation Guide](#), International Ground Source Heat Pump Association, PO Box 1688, Stillwater, OK 74076-1688

[Directory of Certified Air-Conditioning Products](#), Air Conditioning and Refrigeration Institute, Vice President, Engineering, 4301 North Fairfax Drive, Suite 425, Arlington, VA 22203

Check with local heating/air conditioning engineers, or contact B.B. Bunting, 708 N. Fourth St., Sterling, CO 80751, who provided much of the drawings for this article. Δ

Tankless water heaters offer some important advantages, but they have some drawbacks, too

By Greg Guiltner

Should we buy a tankless hot water heater? That's the question my wife Vicki and I faced in 1981, when we began to plan our own superinsulated house. We were looking for the most efficient choices in everything from lighting to windows. Since water heating accounts for about 20% of home energy use, we really wanted to make sure we made the right choice. Advertisements for tankless hot water heaters, also called *demand-use* or *instantaneous* heaters, were appearing in many magazines at the time. For several reasons (which I'll explain later) we took the plunge and bought an Aquastar tankless heater. At the time, we knew of no one who owned one of these heaters and in fact had never even seen one. If you wonder if we made the right choice or if a tankless heater might be right for you, read on. Perhaps our experience over the last ten years can help you decide.

Why tankless?

While planning to build our house, I approached my friendly former banker about a building loan. He showed his keen interest in the project by laughing in my face. Though I never even finished completing the loan application, the bank further demonstrated their enthusiasm by mailing out a written rejection: No building experience, no credit history, no collateral, no loan. As a result, we decided to scale back and try to build on a cash-and-carry basis, using meager savings and income from my job as we progressed.

Our goal changed from building the house we would live in forever, to building a small superinsulated house that would be low-cost to build and live in and easy to sell later. We would use this house as our testing ground to discover what worked for us and what features to incorporate in our dream home later.

The first advertisements I saw for tankless hot water heaters mostly promoted their ability to provide endless hot water. The ads typically showed a large family with Mom, Dad, and a bunch of kids in their bathrobes, right after they'd all taken showers, one right after the other. "Who needs

that?" I thought. "We don't even have any kids."

But later, when several energy-related magazines did reviews comparing the energy-saving features of these heaters, I began to take notice. We sent for information from several companies. The literature we received confirmed that there was a drawback: these heaters were not cheap. They cost about three times what a mid-range hot water tank cost.

The up-side was, the heater we picked was supposed to save 20-50% of the cost of heating water. If this panned out, payback would come well within the time frame that we expected to remain in the house. Still, that was a lot of money for us. I cringed as I mailed the check, sincerely hoping the expected savings appeared. Vicki encouraged me by saying, "Well, if it doesn't work, we'll know what not to get next time."

How they work

If you have a conventional hot water tank, you've probably never had anyone ask, "What's that thing?" At our house, visitors often ask just that. Tankless water heaters don't look anything like their conventional cousins, and they work differently, too. As the name implies, they have no tank and store no hot water. As a result, they are much smaller—about the size of a suitcase. Also, they hang on the wall, taking up no floor space whatsoever. If you're as squeezed for space as we were, this can be a real benefit. We were able to put our water softener on the floor space that



Is your hot water heater smaller than a four-year-old? Benjamin Guiltner shows how this Aquastar measures up. The model shown in the photo is one of the largest tankless heaters available.

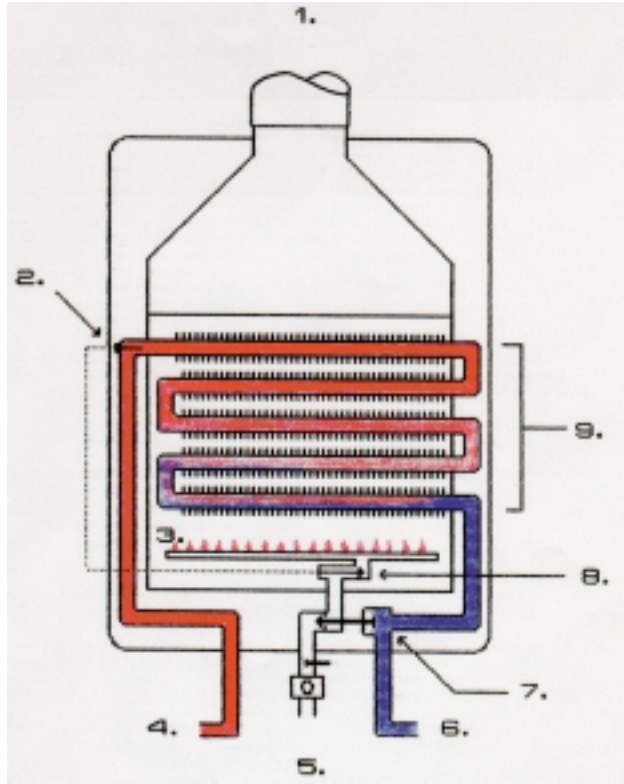
would have been occupied by a conventional hot water tank.

Tankless water heaters are available in propane and natural gas models. There are also electric models, but these aren't energy conservers. The gas heaters have a pilot light, just like a regular hot water tank, but the burner never comes on until someone uses hot water. Water flow causes the heater to open the gas valve to the burner. Water is heated as it flows through a heat exchanger. The exchanger is nothing more than copper tubing that loops back and forth above the burner. Heat fins on the tubing increase the surface area and therefore the heating efficiency.

A conventional hot water tank heats water like a pan on the stove, only this pan is four or five feet high. A tankless exchanger is much more efficient than this. Better heat transfer is where some of the energy savings are accomplished. The rest of the savings come from the absence of any stand-by heat loss. No matter how well a regular hot water tank is insulated, some heat is lost through the walls of the tank, especially through the uninsulated flue, which passes through the center of the tank. On a tankless unit, more of the heat produced from the burner is actually delivered to the tap.

Modulating burners

That's about all there is to some tankless heaters. The better heaters also have a modulating burner. On these heaters, a thermostatic sensor measures the temperature of the water exiting the heater, and adjusts the gas flow to the burner accordingly. Modulating heaters will continuously provide the precise temperature you have set them for, over a certain flow



(1) Gas vent [flue]. (2) Thermostat sensor. (3) Burner.
 (4) Hot water outlet. (5) Gas pressure regulator.
 (6) Cold water inlet. (7) Gas flow valve [water controlled]. (8) Gas flow modulator [temperature controlled]. (9) Heat exchanger.

range. If you exceed this maximum flow, the water exiting the heater will be cooler than the temperature you set it for. Assuming a 60° temperature rise, maximum flows range from around one gallon per minute on the smaller heaters, to about 4.4 gpm on the largest heaters.

The heater we bought had a modulating burner. I wouldn't recommend those that don't, though they are cheaper. With non-modulating units, the temperature of the water varies whenever the flow rate changes. You may eventually get used to this, but you might need to give visitors an instruction manual. Most people are accustomed to increasing the hot water flow when they want hotter water. On a non-modulating heater, this will actually *decrease* the temperature, since the water flows through

the exchanger faster. Conversely, when someone turns the water flow down low, the temperature can become scalding hot. Also, when running water at very low flow rates, the high temperatures produced tend to cook any hardness in the water onto the inside of the heat exchanger tubes, reducing their efficiency.

Installation

Our heater was delivered in an impossibly small box. I'd seen the photos in brochures and magazines, but seeing this little box sitting in the middle of the living room floor brought home just how small these things really are. If you've ever wrestled a regular hot water tank into place, installing a tankless water heater is going to be a real delight.

First you'll want to carefully consider where to put your heater. You must pick a place where it will not freeze.

Remember, tankless heaters store no hot water. The meager pilot light is not enough to save your heater or your plumbing. The fact that you can put a regular hot water tank in a small, unheated space and have it maintain enough heat to preserve the tank and piping to it, should tell you something about where part of your energy dollars are going.

Hanging the heater is simple. My Aquastar came with a heat shield mounted on two wall brackets that screw onto the wall. The brackets were designed 16" apart to fit normal stud spacing. The heater itself then slid over the wall brackets. After the heater was hung, all that was left was connecting the water and gas lines and the flue. The front and sides of my heater had to be removed to provide easier access for these connections.

Connecting the water lines was just like on any water heater, except that the inlet and outlets are at the bottom of the heater, rather than on top. One difference: there is no place on the heater to put a temperature/pressure relief valve. This doesn't mean you don't need one. You have to install a T fitting in the plumbing at the hot water outlet to provide a place to mount the relief valve.

When you're ready to connect the vent, you'll find that a tankless unit will require a larger vent than a conventional water heater. This was no problem on my new installation. However, if you are replacing an old hot water tank, you'll have to make some changes. Conventional hot water tanks use small 3" vents. All propane or natural gas tankless heaters will need a bigger vent than this. Ours used a 5" vent. You definitely don't want to just put in a reducer. The reason standard hot water tanks use such small vents is because they burn slowly over a protracted length of time, to heat or reheat the water in the tank. The burner on a tankless heater, however, is only on for a short time, while you are using water. It must heat the water quickly as it passes through. As a result, when you are using a lot of hot water, gas is burned at a faster rate, but for a much shorter time. You need that bigger vent to keep up with the increased burn rate on the tankless heaters. Since the vent is so close to the wall, we used a type "B" gas vent. This double-walled vent can be used with as little as 1" clearance from combustibles.

Just as the vent pipe was larger, the gas supply piping must be larger. The supply pipe on our

Aquastar was 3/4", rather than the 1/2" typically used with a hot water tank. Other than the pipe size, the only difference in connecting the gas piping was that a pressure regulator (included with the heater) goes just before the heater. The regulator had 3/4" female connections at the inlet and outlet, so installing it required a 3/4" nipple between the heater and the regulator.

Trying it out

At last we were ready to try out this expensive device. Lighting the pilot on one of these heaters is almost exactly like lighting a conventional heater. Turn the burner knob to the "pilot" position and hold in the button until the pilot is lit. Our heater had a convenient piezo igniter, like what you'd find on a gas grill. Just push the button, and the igniter throws a tiny spark that lights the pilot. Lighting it

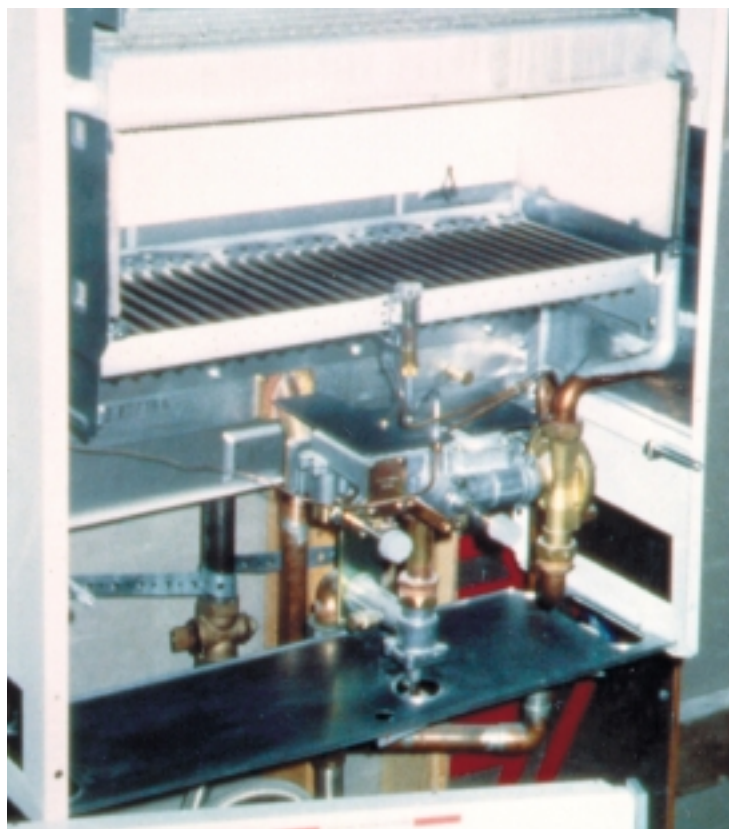
the first time took a bit longer, since all the air had to purge from the gas piping before it would stay lit. After the pilot is lit, you turn the burner knob to the "burner" position.

While our first hot water at the new house may not have rated up there with the first flush, it was at least a close second. I sent my dad, who was at the house helping me install the heater, to open a water faucet. As soon as he did, the burner popped to life, sounding much like a gas furnace coming on. In seconds, hot water was flowing out the faucet in the bathroom. When he turned up the water flow, the burner flame grew bigger, maintaining a constant temperature. When he cut back the flow of water, the flames cut back. The temperature on the outside of the heater cabinet remained surprisingly low, getting warm only on top. When he shut the water off completely, the burner instantly went out. I was ready to say "WOW" backwards. I won't own up to how many times I turned the water on and off just to watch that burner start and stop. It's enough to say that I didn't accomplish much the rest of the day.

Dollars & sense

My family has lived with a tankless water heater for over a decade now. Do they live up to all their promises? Do they provide endless hot water? Do they cost 20-50% less to use than a conventional heater? The answer is Yes . . . with a few caveats.

Tankless heaters do provide an endless flow of hot water, but at a lower flow rate than most people are accustomed to. With the low-flow



In this photo, the front and combustion chamber panels are removed to show the burner and heat exchanger.

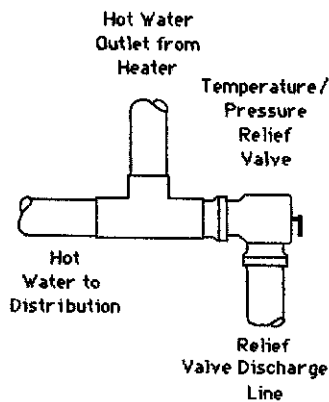
shower heads we were using anyway, this was not a problem. We did have to cut back the cold water valve going to our clothes washer, to prevent it from mixing in too much cold water, due to the lower flow rate. On the other hand, at the time we moved into our house, we had a water bed. We were able to fill the mattress completely with warm water, without pause, so we could sleep in it that same night. You'll have a bit less flow, but you can have that flow for as long as you like.

No big lifestyle changes, but how about the energy claims? Here's how we came out. The first full year we used the tankless heater, we saved 35% in hot water costs over the cost of using the fairly new hot water tank we had before we moved. Before you get too excited, note that this was an average savings of only \$6.50 a month. This is not big potatoes, but it does add up to annual savings of \$78. Unfortunately, we spent about \$560 for this heater, \$380 more than for a mid-range conventional hot water tank. This means it took almost five years to pay back the difference in cost with energy savings from the tankless heater. After that, the \$78 savings was just that, savings. That may or may not seem like much to you, but when's the last time you threw four \$20 bills into your wood stove, just to heat your house for a short time? If you still have a conventional hot water tank, that's almost what you're doing . . . throwing away money for a negligible short-term benefit.

Would we buy another tankless heater? After living inexpensively in our little superinsulated house for eight years, we wanted a bit more room and more land, further out in the country. We bought five acres, and in the spring of 1993, we started building the house where we live now. We incorporated everything we liked about the first house, and yes, we installed a tankless water heater. The surprise came when we discovered that these heaters have remained about

the same price as they were ten years ago. With increased propane and natural gas costs, your fuel savings may be even greater today.

This time around we bought one of the bigger Aquastar models that have since become available. The smaller heater we had before would have been fine, but for one small fact: after 15 years of marriage, we've accumulated seven children. With the old heater, if two people tried to use hot water at once, we would exceed the maximum flow the heater was capable of. With a large household like ours, this was happening more and more frequently.



To install a temperature/pressure relief valve on a tankless hot water heater, use a T fitting in the hot water outlet line as shown.

The larger heater has enough capacity to use hot water at two different points without exceeding the maximum flow.

Although the larger heater has more capacity, the energy savings are still there. Buying a bigger tankless heater is not like buying a bigger hot water tank. The larger unit does not use more energy at all times. The modulating burner only burns at whatever rate is needed to raise the water to the desired temperature. The only time the extra burner capacity is used is when two people are using hot water at once.

Longevity

This extra convenience didn't come without a cost. While the first tankless heater was expensive, this one cost both arms and both legs. Payback, counting energy savings alone, would be on the order of nine or ten years. While this may seem like a long time, there's something else to consider. The main component that fails on a conventional hot water tank is the tank itself. There's no reason to believe that a tankless heater won't last the lifetime of your home. The two tankless water heaters we've bought both had stainless steel burners. The copper heat exchangers had ten-year warranties. We never had to do a thing to our first heater, and it's over ten years old and still working like new. If necessary, heat exchangers, burners, and other parts are all replaceable. Try replacing just the tank on your regular hot water heater. If you add in the cost of replacing an ordinary hot water tank every eight years or so, the payback on a tankless heater suddenly looks considerably better.

Obviously we're sold on using a tankless water heater. There are a few drawbacks however. For one thing, you'll probably have to buy mail order. We bought our first heater directly from the manufacturer. Our latest heater came from Kansas Wind Power. (They advertise in *BHM*.) Buying mail order means a wait for parts, if you ever need them.

Another problem may be resisting the temptation to use more hot water. With a conventional hot water tank, when the hot water runs out, I guarantee you, whoever's in the shower is coming out. With a tankless heater, the hot water never runs out. At our house, "shut off that water" has joined the frequent petition of "shut off the lights." It takes discipline not to use more hot water just because it's there. The cost savings are available, but it's still up to you to make them real. Δ

Rough day? You need to sip some yeller wine

By Rev. J.D. Hooker

Today has really been a rough one. Seems that one of my daughter's spotted squirrel dogs got under the house yesterday and ripped up most of the insulation. So, of course, most of our water lines froze and burst sometime last night. This morning I shut down the well pump and made up a list of plumbing supplies I'd need, then drove in to town.

You probably already know that when your morning starts out like this, things generally just keep getting worse. So you won't be surprised to hear that my old Dodge pickup snapped a U-joint on the way home. Or that the day warmed up during the time I spent fixing my truck, so I ended up crawling around in the mud under the house, replacing pipes and fittings.

I did finally manage to get everything all put back together and working right, finishing up just after dark. So finally, with all of the grease and mud showered off, clean, dry, and tired, I kicked back by the fire, stuffed my old briar with homegrown tobacco, and started to relax a little. That's when things really improved.

My wife and I have been married a long time, and by now she knows when my spirits need a little lifting. Even though it had been a pretty bad day, the first sight of the Mason jar, full of bright yellow summer sunshine, really brightened up my evening. That cool, sparkling, yellow, watermelon wine went down just perfect. I decided that the day was not all that bad after all, when it ended like this.

Then I thought about all of the poor folks who have never tasted this terrific yeller wine, and I decided to sit down and get this typed up, so I could get it in the mail to *Backwoods Home* in the morning. So here's the way I learned to make yeller wine. It does take a lit-

tle time, but it's a really simple process, and more than worth the time invested.

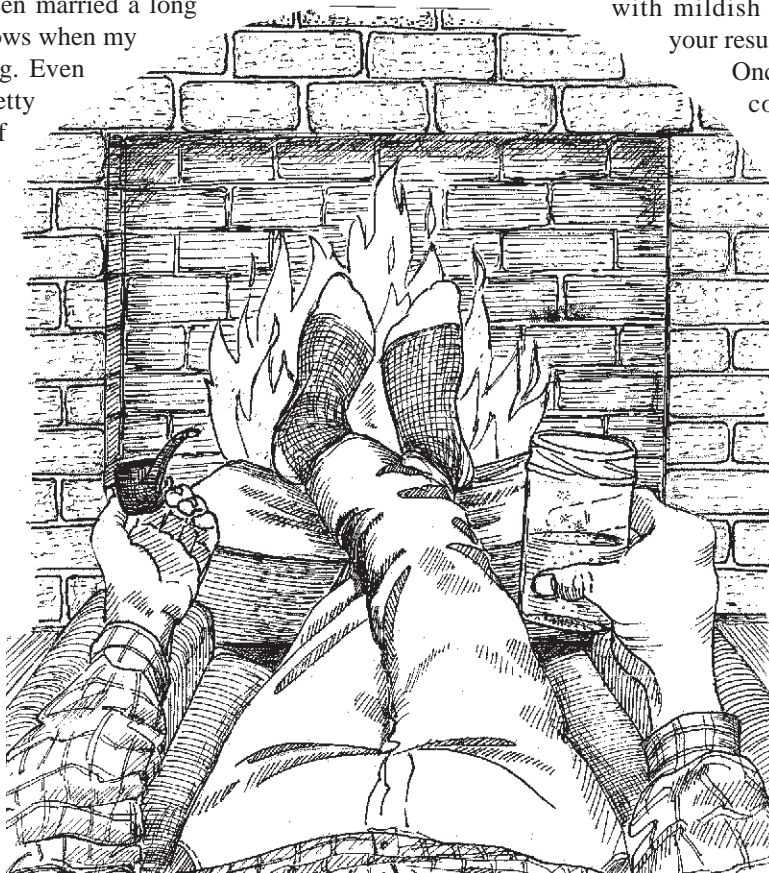
To start with, you're going to need to grow yourself a good supply of yellow-meated watermelons. Yellow melons seem to have been around longer than the red type, but aren't nearly as popular with commercial growers. They aren't something you can just walk in to the supermarket and buy. I've had my best results using any of these three varieties: Desert King (available from most mail order seed catalogs), Navajo Yellow Melon, and Hopi Yellow Watermelon (both available from Native Seeds SEARCH, 2509 N. Campbell Ave. #325, Tucson, AZ 85719).

In the South, you can plant these seeds directly in the ground in early spring. North of the Mason/Dixon line, you'll need to start the seeds indoors, about a month before the last frost date, and transplant them into your garden after the soil has warmed up.

If you only allow the first two melons on each vine to grow, you'll end up with larger and sweeter fruits to work with. Just keep pinching off all the other flowers so that each plant puts all of its reproductive energies into just the two fruits. Feeding the vines once or twice a week with mildish manure tea will improve your results quite a bit.

Once the melons have ripened completely, you'll need to harvest them and remove the yellow juice. I just halve the melons and scoop out the sun-colored fruit. Then I run the fruit through the hand-cranked juicer my wife uses for making tomato sauce, jellies, and such. I save all of the seeds, some for next year's planting and some to give away. A regular cider press, or any other method for extracting the juice, would work just as well.

Since watermelons never seem to ripen perfectly all at once, I usually make this up in 4¹/₂-gallon batches. Once you've got about



4 1/2 gallons of juice, sample it to check for sweetness. You'll want the sweetness to just about equal regular grape juice, and you may need to stir in a cup or so of regular white sugar to sweeten it just a touch.

I usually use a five-gallon ceramic crock for a container, as its heavyish lid seems to work perfectly as an imitation airlock, letting fermentation gases escape, but keeping mold spores and such out. A five-gallon plastic bucket, with its lid just laid on top and weighted with a brick, seems to work equally well. Anyway, put your juice into the container you'll be using, and stir in a half packet of regular baking yeast.

After a couple of days you'll be able to see bubbles rising to the surface of your now-fermenting juice. After a week or two (or even three or four, depending on the temperature), this fermentation will ease off, and then stop completely. Once the fermentation has quit, you'll need to siphon the wine off into a clean container, being very careful not to stir up the sediment on the bottom. Now add three cups of white sugar for every four or five gallons of wine, and another half packet of yeast. In a day or so, your wine will begin to ferment again.

You need to check this second fermentation daily. Once the violent fermentation has eased up, but while the wine is still really bubbly, it's time to siphon it off into canning jars. I wouldn't recommend trying any other sort of jars or bottles, but regular canning jars seem to hold the champagne-like pressure just fine. Use new lids, and screw them on quite tightly, then store in a coolish dark place.

This wine doesn't seem to keep very well, maybe three years tops. But it is delicious. So share, whether it's a good day or bad, 100° August afternoon or sub-zero January evening, and especially with good friends. This bright, bubbly, sun-colored, yeller wine is a for-sure spirit lifter. Go ahead and try this one yourself. I'm certain you'll be happy you did. Δ

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Is steam power in your future?

By Skip Goebel

If you're thinking steam is old-fashioned, consider this: Almost a century ago, steam cars and ships attained speeds and efficiencies which are still difficult to attain, even with today's modern internal combustion engines.

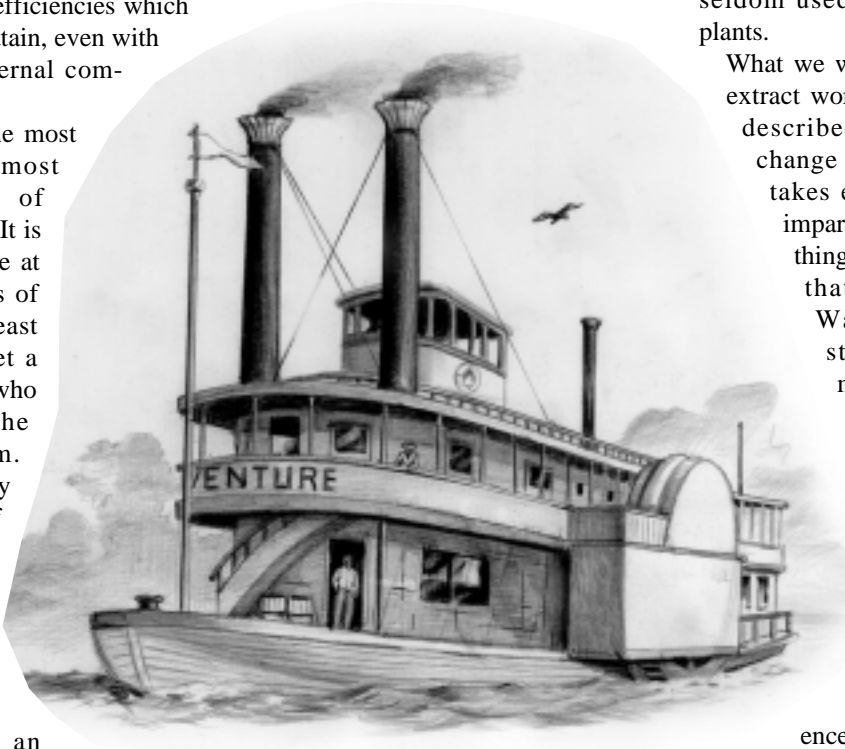
Steam is one of the most powerful and the most dangerous forms of independent energy. It is so powerful that here at Tiny Power, makers of steam engines, at least once a week we get a call from someone who is going to save the world with steam. Usually, it takes only a few minutes of conversation to reveal that the caller needs more education in the basics of steam engineering.

This article is an attempt to answer some of the many questions people have about steam. And I guess the first question is: can it save the world, at least as far as your personal energy needs are concerned? That depends.

For the initial investment in this most labor intensive form of home power, you could probably buy a diesel generator and 5-10 thousand gallons of fuel with no significant changes in your lifestyle. If you plan to burn wood, you should know that it is a very established science to gasify wood and burn it in an internal combustion engine. This may be a more practical application for you.

If you have a need for large quantities of controllable heat, say to heat a large home, chicken house, or even a

kiln, steam plants excel in that the waste heat (exhaust) of a steam engine will give you excessive amounts of BTUs to play with.



What is steam?

What is steam? "Water gone crazy with the heat" is as good an answer as any. Water will actually turn into steam in a vacuum if its temperature maintains 40 degrees F. Conversely, at a pressure of 3200 lbs. per square inch, and a temperature around 720 degrees, steam becomes "supercritical" and actually has a density the same as water. Modern steam systems run at these pressures because steam, which is a 'super-radiant' gas, absorbs and gives up heat much faster than water.

Only "dry" steam produces usable work. Steam is a dry, clear, tasteless gas. The cloudy stuff you can see

coming out of a kettle is actually just water vapor and has no use for our needs because if you can see it, all the work has gone out of it.

Once water is turned to steam, you can raise the temperature of the gas and store more energy/work in it. We call this "superheated" steam and though it is a desirable condition, it is seldom used in small-scale steam plants.

What we want to do with steam is extract work from it. Work is best described as the movement or change of velocity of mass. It takes energy to do work. To impart energy to a mass is one thing, and to transmit and use that energy is another.

Water, in the form of steam, is an excellent medium to transmit energy.

Water is a practical, safe and effective non-organic chemical that will readily absorb and transmit energy. To understand how this happens, try to think in differentials, i.e., differences in temperature, differences in pressure, or more specifically, differences in volume. As steam goes from one volume to another, work is done. An example of this is a piston going down in a cylinder creating more space or volume (expansion). As volumetric changes occur, temperature and pressure changes must also occur. These are laws of nature that you cannot change. We have units to measure the properties of mass. Generally, pressure is measured in pounds per square inch, volume in cubic feet, and temperature in degrees Fahrenheit. (I ain't metric yet, folks.)

At this point, let me introduce you to the British thermal unit (Btu). It's the United States unit of measure, which is similar to the metric system's calorie. It is nothing but a unit of heat. One Btu is the amount of heat

required to raise one pound of water one degree Fahrenheit. Conversely, if a pound of water drops one degree, it releases one Btu.

When any fuel is burned, it gives off energy in the form of heat, and that heat can be measured in either Btu's or calories. We'll use Btu's. An example is oak wood, which has 6-11 thousand Btu's per pound. Consider it as potential energy or energy waiting to happen. When oxidized (burned), it releases energy, and if we make steam with that energy, we can use the steam to transmit that energy somewhere else to do useful work.

Other sources of Btu's can be a hot spring or solar. Remember, what we are looking for is a difference in temperatures; the higher we can raise the temperature of water, the more work we can get out of the water. Unfortunately, the less the difference in temperature is, the greater the volume of water must be. For example, one pound of steam at 800 degrees has a certain amount of work in it; to produce the same amount of work at 400 degrees, you need a much greater amount of water.

So, we take one pound of water from 60 to 212 degrees and it takes 152 Btu's. ($212 - 60 = 152$) Now we add one more Btu and it all turns to steam at atmospheric pressure. Right? Wrong!

Raising water temperature is easy; changing water to steam is a whole 'nother ballgame. It takes a lot of energy to change the physical state of matter. Remember, it is not wasted here; rather it is stored.

To convert one pound of water from 212 degrees water to 212 degree steam (still one pound by weight) at atmospheric pressure takes another 970 Btu's. If we contain all of this, as in a boiler, we get a pressure differential (inside vs. outside). That pound of water, at 212 degrees, had occupied only .2 cubic feet. The steam at 212 degrees and at atmospheric pressure (or 14.7 lbs. per square inch) will occupy 27 cubic feet.

Now, if that steam isn't allowed to expand into those volumes because it is contained, we get an increase in pressure. It is this pressure that we will use to do our work.

What type of boiler?

The container in which we will make our steam is called a boiler. There are basically three types of boilers.

The Fire Tube boiler. This is the oldest, simplest, and the one that creates the steadiest production of steam. It is also the most dangerous (tends to blow up). Therefore, no more on this one. Forget it, nada, noway, etc. Paste this sticker on your brain: *There is a stick of dynamite in a gallon of water.*

The Water Tube. This is more efficient, safer, common, easy to build, etc. Basically, the design incorporates a series of tubes that stem downward from a drum and surround the combustion chamber (firebox). Steam is then drawn off the top of the drum where it is routed to its intended use by a pipe. (See figure 1.)

A common example of these types is a home heating boiler. Big ships and power plants use these designs as

well. We have one in our 23' steamboat that burns wood, and it works rather well. Let me interject here that if you burn solid fuel (wood or coal), *you will attend your boiler at all times.* If you can't, just drop the whole idea. If you can, be prepared for perpetual bliss.

The basic layout is as illustrated in the figure. Do not, by any means, use this illustration to design your own boiler. If you had to educate yourself by reading this article, you cannot, will not, and shall not build one of these. Remember, death is final (and painful).

There are countless plans available that are approved, certified, and well tested. Steam is definitely a 'finalized' science. If you look in the yellow pages, you will find certified boiler-makers who will do the job right. Technically, you are breaking the law by building a non-certified boiler.

Monotube or flash boilers. This by far is the most efficient, lightest, and safest boiler. It is easy and inexpensive to construct. They work best on continuous, steady operation. However, with little reserve capacity, they are sensitive to fluctuations in fuel and water supplies, not to mention loads. The most common versions

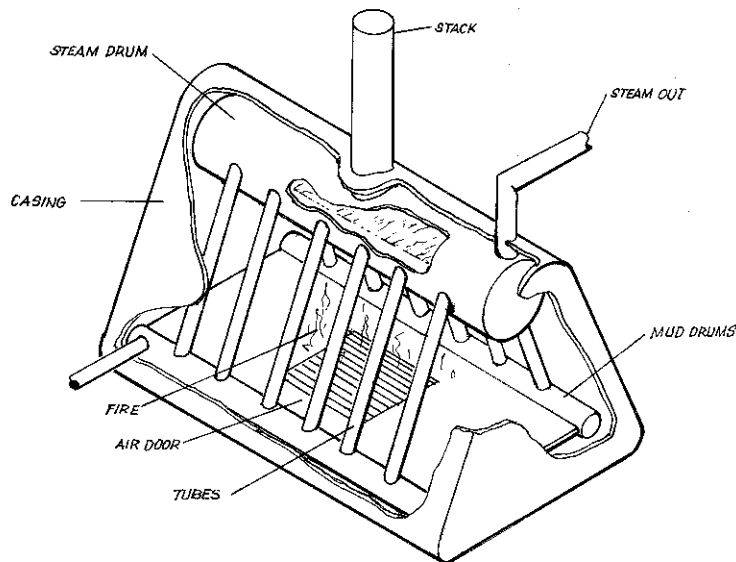
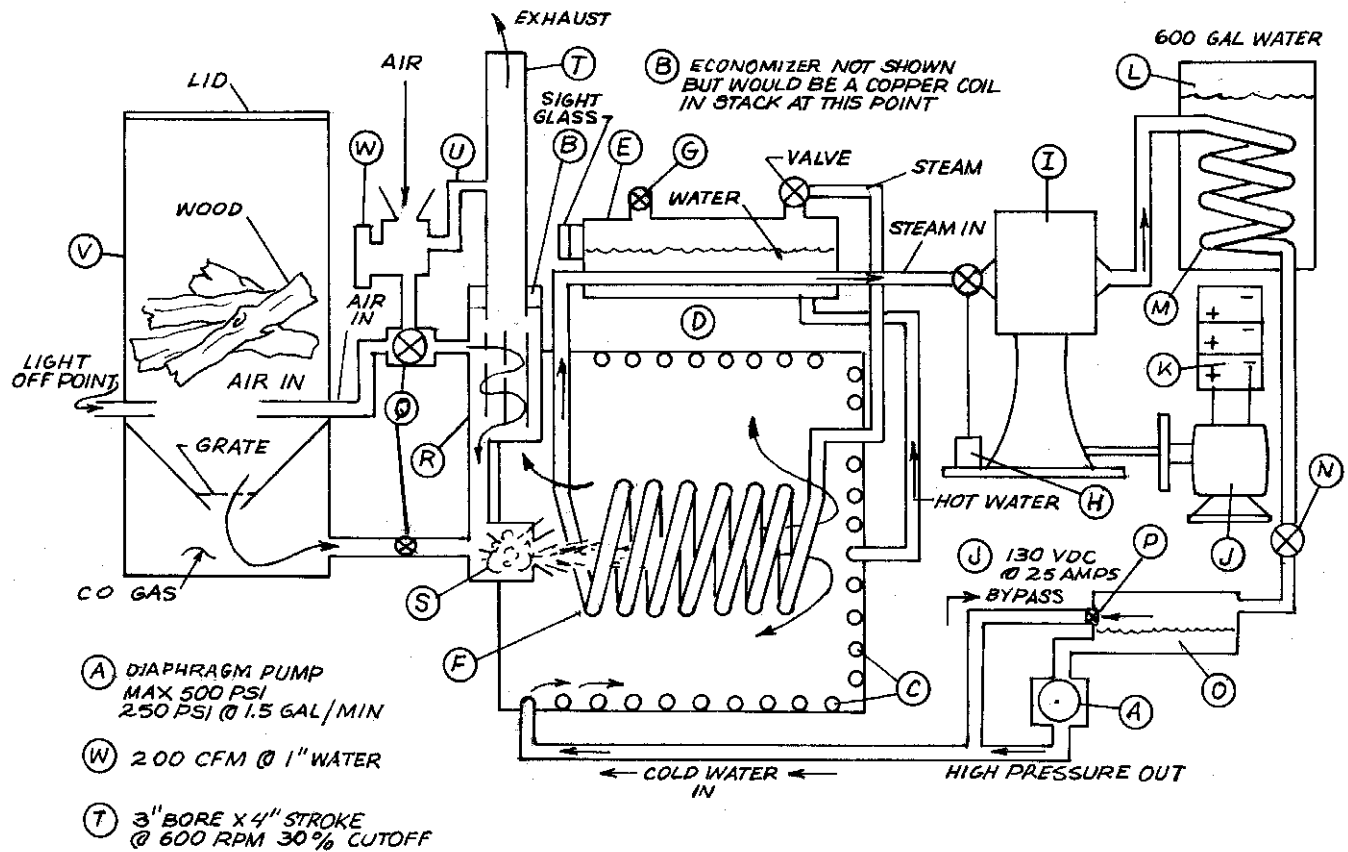


Figure 1. Water tube boiler



- A. Feed pump (pumps water to boiler)
- B. Economizer (picks up initial heat)
- C. Outer coil (brings water to steam temperature)
- D. Desuperheater (exchanges heat from superheater to the water)
- E. Separator (space for water and steam to separate)
- F. Inner coil or superheater (where steam will pick up massive Btu's)
- G. Safety valve (set to release excessive steam pressure. Very Important!)
- H. Governor (valve that regulates speed of engine)

- I. Engine (where steam does its work)
- J. Generator (turned by the engine to make D.C. electricity)
- K. Batteries (store electricity)
- L. Water tank—600 gallons (provides hot water for home and stores around 500,000 Btu's)
- M. Condenser coil (where exhaust steam will give up heat and condense back to water)
- N. Vacuum pump (pumps condensed steam or water back to hotwell—optional)
- O. Hotwell (holds a given amount of water to be pumped to boiler)
- P. Float valve—regulator (bypasses excessive water being pumped and regulates system)

- Q. Pressure activated draft (controls amount of fire)
- R. Air heater (preheats combustion air)
- S. Combustion chamber or burner (where fuel/air mixture is burned)
- T. Exhaust stack (spent gases are expelled here)
- U. Exhaust gas recirculation (provides flame control)
- V. Carbon monoxide generator (gasifies wood through destructive distillation)
- W. Air pump (forces air through system via carbon monoxide generator and burner)

Figure 2

are portable steam cleaners. Modern motels use a variation as water heaters.

Basically, they consist of one continuous coil of tubing or pipe in various configurations. Hence the name "Monotube." If we can provide exacting control of our fuel/water supply, then we have the ideal home-power boiler. Gas and liquid type fuels are the ideal type of fuel for monotubes because they are easy to regulate. And yes, there are approved designs out there for monotubes, and a professional can build them rather cheaply.

Combustion facts

A given amount of fuel needs a given amount of air to burn—no more and no less. It also needs the right amount of space to burn. Not enough air and you get incomplete combustion. Too much air and you're heating air.

Also, if we make the air meet the fuel too quickly, we get too hot a flame. That's bad because at temperatures over 1800 degrees, the nitrogen in air and some other chemicals start to oxidize. Not only is that poisonous, but it is wasted energy.

Combustion space is important because too little and we snuff the flame. Hold a lit candle so the flame touches an ice cube and if you look real close, there is an invisible layer of gas insulating the flame from the surface. That layer is unburned gases like carbon monoxide and is caused because the surface temperature was below the ignition temperature of the burnable gases. The rule is: Flame shall not touch metal.

Also, too much space and we can lose our coefficients of radiation. Generally speaking, a boiler gets 60-70% of energy transfer from radi-

ant energy, rather than hot gases.

The idea here is to gently unite air and fuel together and give it plenty of space or time to do its thing. There are set formulas for all of these factors, and your boiler builder will know what to do once you tell him what your needs are.

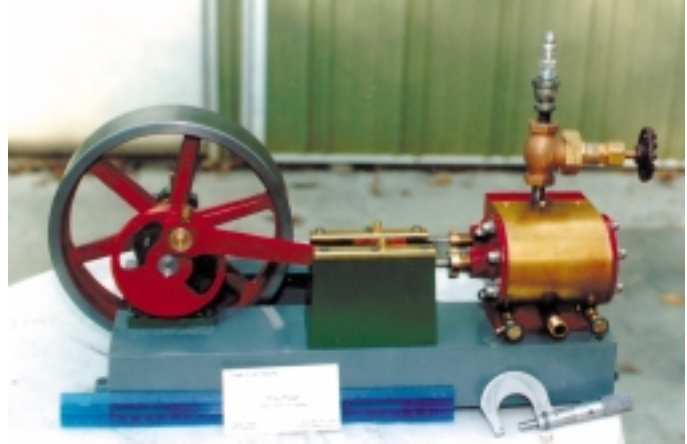
Enormous torque

Now that we have our steam, let's use it. We extract the work from steam by allowing it to expand in a controlled environment such as with a piston in a cylinder or a nozzle in a turbine.

Turbines are nice, and I have one myself, but in home scale sizes, they are very inefficient. It's just a matter of physics and costs. I know there are plenty of folks out there that will argue this point, but if they can come up with an efficient, home-scale turbine and sell it at a reasonable cost, I'll buy it.



Steam launch Santa Cruz II, Echo Lake, California



One of the small, high-quality steam engines made by the author's company, Tiny Power, Inc.

So, we're stuck with the piston (reciprocating) engine. Take heart. They work, they last, and they've been around for a long time. Steam engines are quiet, heavy, long lasting, and if modern, easy to maintain (our larger models use sealed ball bearings).

You can find plenty of used engines at old shipyards, refineries, ancient factories, mines, and railroads. Or you can buy a new one.

Consider steam engines akin to a fast acting hydraulic cylinder with an automatic valve. The ram is connected to a crank which turns and gives useful work. It is important to note that most steam engines are designed to take steam on both sides of the piston, which makes it a "single-stroke" engine. That also makes piston engines produce enormous torque at almost any rpm. You can figure this torque by taking the square inches of the piston, multiplying that by the average cylinder pressure, and multiplying that figure by the length of the stroke measured in feet divided by 2. An example would be: A single cylinder engine has a bore of 3 inches and a stroke of 4 inches and runs at 100 lbs of average cylinder or "mean" pressure. A three-inch piston has



A bigger steamboat

approximately 7 square inches ($3 \times 3 \times .7854$) and a stroke of .33 feet. ($4/12$). $7 \times .33 = 2.31$. Times that by 100 pounds pressure $\times 2.31 = 231$ and divide that by 2, and you get 115.5 foot-pounds of torque. In reality, however, there are friction and efficiency losses.

Efficiencies are measured by how much steam/water an engine consumes to do a given amount of work. This is usually measured in pounds of steam/water per horsepower hour. In English, that means that for every horsepower produced for one hour, a certain amount of steam/water will pass through the engine.

Our shop unit has been in use for the last 18 years producing 4000 watts an hour. It consumes about 250 pounds of water (that has been turned to steam) in one hour. 750 watts is considered one horsepower, and when you figure efficiency losses, that works out to about 47 pounds per horsepower hour (250 lbs divided by roughly 5.3 horsepower). Put another way, for every horsepower the engine produced, we evaporated 47 pounds of water to steam and passed it through the engine.

There are engines that are much more efficient, but they cost a lot more than you want to pay. Efficiency is nice, but if the fuel is free, why should you care? Because the less wood you burn, the less you have to cut. I've used as much as a cord of wood in 10 days, and for me that's too much work.

All that brings us back to the question of why steam vs. other forms of independent energy? Because, if you have a use for large quantities of heat, the exhaust from the engine will give you just that.

Steam engines and boilers are usually most efficient at full settings, all valves open, full fire, etc... so that brings us to the next subject:

AC vs. DC

In a home setting, electricity is the most common form of energy. Therefore, a steam engine/generator proves to be the most practical application.

Generators are either A.C. or D.C. and both have their applications. At Tiny Power's shop, our 4kw Winco is A.C. Unfortunately, A.C. requires precise speed controls in the form of a delicate governor and heavy flywheel. I would suggest that most folks should use D.C. instead. D.C. is easier to make, control, and most importantly, you can store it. By making D.C. electricity and storing it, the steam system can run at max capacity for a short period (most efficient) rather than idle along all day (inefficient). It is practical because you can make your electricity early, then get on about your business.

I ran a 1kw D.C. steam power plant as a tourist attraction here in Branson, Missouri, for a time and fell in love with high voltage D.C. The system ran lights and motors at 120 volts. The only drawback is D.C. is hard on contacts and switches. You have to buy those expensive switches and breakers that are rated for D.C.

Steam for home power

Tiny Power has 13 different models of

engines plus accessories, and we cater mostly to hobbyists such as retired machinists and steamboaters worldwide. However, our heart still yearns towards self-sufficiency.

I myself am in the process of starting another company devoted to steam as a home power. I won't put it on the market until the system is foolproof, efficient, and affordable.

The following design will show a practical concept of a home-scale steam generator system. It is not an actual blueprint and I assume no liability for anyone who uses it as such. For those folks who think they are going to use their woodstove to make steam, please do the following: put me in your will, send the kids to live with grandma, give fair warning to the neighbors, and pay off your ocean-front property in Arizona.

Let us start with needs. Our home will need 2400 watt/hours of electricity per day. Since we only get 75% from a battery of what we put into it, we need to put in 3200 watt/hours ($2400 / .75 = 3200$). Even though 750 watts = 1 horsepower, there are inefficiencies in generators, belts, etc. A safe figure is a 30% loss, so 3200 watts over 70% efficiency = 4266 watts ($3200 / .70 = 4571$). Round up to 4600. Our horsepower requirement then is 4600 watt/hours divided by 750, which is 6.1 horsepower ($4600 / 750 = 6.1$).

Using 47 lbs of steam per horsepower hour to be consumed by our engine,



One-half-scale steam tractor

we take the 6.1 and multiply it by 47 and we get 286.7 or basically 287 pounds of steam/water is required.

We'll say that 1200 Btu's per pound of water/steam will be required to turn the water to steam at our working pressure of 120 psi. So, 287 pounds of steam/water x 1200 Btu's = 344,400 Btu's are required (287 x 1200).

Our boiler is 70% efficient, so 344,400 Btu's divided by 70% gives us the figure of 492,000 Btu's actually required (344,400 / .70 = 492,000).

Our wood contains a heat value of 7,000 Btu's per pound, so we need 70.3 pounds of wood (492,000 / 7,000 = 70.3). Let's spread the load over two hours, and we can see that we will burn 35.2 pounds of wood an hour (70.3 / 2 = 35.2), or about 35 pounds. To put that in perspective, that is a hefty armload of wood.

Remember, these are "real world" figures and are dramatically different from what some pink-hands so-called "educated" type will come up with.

If you follow the illustration in Figure 2, notice the direction of flow of fuel and water. This is a monotube design and will use electric pumps and blowers, giving easy control.

It will burn wood gas from "digesters" which heat the wood to ignition temperature but starve it for oxygen. This unburned gas is then mixed with heated air and burned at the base of the boiler. The combustion gases pass over the tubes of water and then over the air heater and on out the exhaust stack.

The water will enter the outside coil, pick up heat, go into the heat exchanger (desuperheater) and into the separator. Steam will exit the top of the separator and into the inner coil which acts as a superheater. The excessively hot steam will pass through the desuperheater, releasing some Btu's into the incoming water. The now "tem-



This steamboat, with its typical power plant, was used in the movie Maverick.

pered" steam will head towards the engine, where it will do its work. The engine exhaust will travel into a coil which is inside the large tank and release its remaining heat into the water. Having done that, our steam will have condensed into water and is forced through a vacuum pump which exhausts into the "hotwell." From this point, it is pumped back to the boiler via a high pressure feed pump to start all over again.

Getting educated

I can't emphasize enough the importance of getting educated before you tinker. Large sawmills usually have a power plant, and engineers are congenial folks who always want to show off their "baby." Tour old ships or refineries, and don't be afraid to ask questions. You'll get more from somebody if you ask questions than if you try to tell them what you know.

The ultimate education is to attend a steam club show. There are literally thousands every year. Chances are you are less than an hour's drive from one. Make sure you bring the kids. The shows are definitely a family affair. Any hobby shop should be able to tell you where one is in the area.

Also, check out the various publications available. There are several magazines about steam engines. All have a large classified ad section. We strongly recommend one called *The Steam*

Show Directory listing over 500 steam shows in this country and Canada.

Welcome to the fraternity.

For further reading

Live Steam

P.O. Box 629

Traverse City, MI 49685

(Steam engines of all kinds, on the Web, too)

Model Engineer

4314 W. 238th St.

Torrance, CA 90505

(Premier model making magazine, covers toy steam engines too)

Modeltec

P.O. Box 1226

St. Cloud, MN 56302

(All kinds of working models—steam, gas engines, hot air, etc.)

Steamboating

Rt. 1, Box 262

Middlebourne, WV 26149

(For the steamboat connoisseur, all sizes, great reading!)

Iron Men Album

P.O. Box 328

Lancaster, PA 17608

(Old steam tractors and stationary engines, large classifieds)

Engineers & Engines

1118 N. Raynor Ave.

Joliet, IL 60435

(Loaded with old engines and machinery, large classifieds)

Steam & Gas Show Directory

P.O. Box 328

Lancaster, PA 17603

(Lists all shows in Canada and U.S. This is a 'must have')

(Skip Goebel is chief engineer and part-owner of *Tiny Power, Inc.*, which manufactures steam engines. You can buy their 50-page catalog for \$5, or their 90-minute videotape for \$10 by contacting them at P.O. Box 1605, Branson, MO 65616. Tel.: (417) 334-2655.) Δ

Considering life in rural Arkansas

By Sharon Goodman

The Northwest Arkansas area has been touted as an ideal place to live for those of us who want a quiet and natural rural setting, seclusion, etc. And it is. But like any such place, it does have other features.

I fell in love with this area 15 years ago, but I had to leave it after a couple of years, when the self-sufficient lifestyle I'd wanted more than my husband did predictably destroyed my marriage. (Best thing that ever happened to me, as it turned out.) Two of my sons moved me back to Texas, where I spent 10 years complaining about the virtual Texas police state and brutal heat before I could get back here in 1994.

Well, it's been an eye-opener. I still love the area, do not want to be any-

where else, and you may guess (rightly so) that I'm a natural born complainer anyway. But I do believe people should know as much as possible about what to expect when they make the move beyond the sidewalks. It's easy to be attracted to a beautiful chosen place when we only see its good points, but we don't need travelogues. We need an occasional disgruntled actual resident of the area to give us the lowdown on what we can't see. We're not likely to meet any of those until later, and it's a shame we have no source for the "nitty gritty" before we're in it.

I've been devouring *BHM* almost since the beginning, and I often notice letters from readers asking for real information on various places they are considering. So, because I qualify as "disgruntled" today, I'd like to start

the ball rolling by volunteering some on the Northwest Arkansas Ozarks.

The climate is great, and property is comparatively low priced, just as you've heard. That's about it. There is no industry, but you can find work. You'll never make much more than minimum wage . . . or what it used to be, as they stay a little behind here, and that isn't going to change. The police are not too overbearing here; there aren't many. As long as you don't kill anybody or grow pot in the National Forest, they'll leave you alone.

Bureaucrats: we've got 'em

But be prepared to be messed with by the State of Arkansas to an inordinately high degree. First off, the State is going to tax your teeny wages.



Then they'll give that back to you next year because most people in Arkansas are too poor to owe any taxes. They are going to tax your food—not just your Kleenex and soap, but your cheap hamburger and your day-old bread. We have some of the highest sales tax rates in the country here, especially in tourist towns, and what they do with all that money, I don't know. They don't fix roads or bridges, and services of any kind range from few to non-existent. (All bridges have one of two signs: "Bridge may ice in cold weather"—no kidding!—or "Bridge impassable in high water"—this one about a foot from said bridge.)

Whether you need to use a photocopy machine or a medical facility, services mostly require a 60 mile drive and/or are closed on weekends (including the Saturday mornings that they advertise). When you find a job, work on weekends if you can: you'll need a weekday off to accomplish any personal business at all.

Property taxes are still fairly low, but that's changing fast. You will be reassessed and get your tax raised any time you build so much as a chicken coop that a person from the Assay Office can see by getting out of his car up on the road and trespassing on your property when you're not home. You'll be seeing the folks at the nearest Assay Office real often, so try not to slam the door hard enough to break the glass, because they know where to find you.

Every year when you renew your auto license, be prepared to provide six pieces of paperwork, each for the correct year, which you can't do right no matter what. So save time and present your personal body at the Motor Vehicle office on the square by the water tower of the nearest town, where they will send you to the courthouse to (A) collect papers for the right years, and (B) voluntarily present yourself to be assessed a personal property tax again, every year, on every vehicle you own. If you had to

trade in a dead one for one that runs during the previous year, you're really in trouble.

Also be prepared to drive around to four different places to obtain an Arkansas driver's license. This is one of the several occasions per year when you have to get another inspection sticker, even if your present one is just three months old. When you take the

...the only thing a pig understands is rapid gunfire, and then only when it hits him personally.

eyesight test, do not put your face against the machine as instructed or you may get head lice. (I was warned and I didn't.)

Roads

Drive with utmost care—country roads are a given hazard anywhere, but if you live down a few miles of dirt road here, and your county has a road grader (some don't), they "grade" the road by covering it with large, pointy rocks that chew up your tires, even if you don't go over 10 mph on it. And believe me, don't. Be just as careful driving on blacktop after the snow and ice melt, because they don't use road salt here; they use little round gravel ball bearings. These are mountain roads, and there are no guard rails anywhere. I learned that by sliding off one head first, over the side and into the (thankfully thick) woods. Stay off of "Scenic Routes" if at all possible, since they tend to have your half of the road crumbled away and laying down in the holler. And you'll have to get used to all the dead animals in the roads, because nobody ever picks them up.

You'll learn to go places by landmarks: even before you leave the blacktop here, the roads may be unmarked, and where they go is a big secret, known only to third-generation natives. The road that goes up my mountain has a name on the county

plat map, but no sign anywhere tells what that name is. I know it because I live here; you won't. Don't try to give visiting relatives directions to your house; meet them in the Wal-Mart parking lot of the nearest town. If they get on the wrong mountain, they may never be found. I nearly lost my son-in-law that way.

Shopping? Wal-Mart.

There are few towns in Arkansas without a Wal-Mart, and if you're moving here, you need to check one out. Anything they don't have in Wal-Mart you will do without for the rest of your natural life. If you're used to buying any specialty items in your city or town, such as premium cat food, save a label so you can call the 800 number and have them ship it to you; you won't find it here. If you still smoke, quit. You can't afford it here.

Be prepared to live without all newspapers except local weeklies (and even if we were in a world war, the local weeklies wouldn't mention it), all good magazines (except they will deliver *Backwoods Home Magazine* here), and to never see a bookstore or a movie theater again. I do get one clear TV channel with the bonus of weather forecasts for southern Missouri, which is at least close.

Energy

If you have electricity here (and I refuse to do without it), it will be REA. Like any mountainous area, spring storms get pretty wild, and heavy snows cause a lot of damage. Still, they do a good job of keeping the electricity on, much better than rural East Texas does, that's for sure. Since I live on a mountaintop, my main rule (learned the hard way like everything else) is to yank every plug in the house out of the wall when I see lightning, and that includes the refrigerator if you can reach it.

REA rates are not high, but propane gas costs an arm and a leg. Plan on a

woodstove for winter heat; firewood, even if you have to buy it like I do, is cheap and plentiful. I would perish without my woodstove.

Water and soil and food

The water is no more pure here than anywhere else, and don't let anybody tell you different. Have your well tested before you drink from it, and never, never drink any surface water, no matter how clear it looks. There is a cause of certain pollution problems in my own area that I dare not name. If you come here, you'll know. Our water is extremely hard. You'll never see lather again. Chunks of minerals float in it after it's boiled, so I strain my coffee.

You'll want to grow as much of your own food as you can—no easy task in our alkaline soil that produces rocks in abundance—since grocery store produce is elderly by the time it gets here. Ocean fish is very expensive, and shellfish . . . well, just don't buy shellfish in Arkansas.

Varmints

Protect yourself at all times from ticks, chiggers, brown spiders, and poison sumac. You do not go into the woods without long sleeves, long pants, and a cap (I don't care if it's 100°) or step outside for even a minute without spraying your feet to keep chiggers off, from April to first frost. If you can't stand moths and other flying beasties in your house, dive-bombing your head all night, you really don't want to live in the woods.

And you don't go picking wild blackberries without a hoe sharp enough to kill a large snake. Rattlesnakes and copperheads are rampant in these hills. But at least we don't have fireants. Yet.

If you'll have chickens or other poultry, don't skimp on building their house. It will have to be a virtual fortress from underground to roof, in which you lock them up every night, or the raccoons and other varmints

will wipe them out very fast. Yes, I know all the tricks for keeping raccoons away. No, they don't work. Neither does any effort to keep snakes out of the chicken house except underground rabbit wire. Wish I had it.

Keep everything you find laying around on your property because you'll need it sooner or later. I was sure glad to have an old boat tarp available when I accidentally caught a skunk in my Havaheart trap. The tarp was great to cover up my error and remain socially acceptable until I figured out what to do about him. Fortunately, he pulled the boat tarp into the trap bit by bit to eat, and died of tarp-poisoning. It's easier to dispose of a dead skunk than a live one. I don't dispose of anything live except for turning somebody's cat loose that was enticed into the trap by a sardine (coon bait). I got the Havaheart because it works, not so I could be humane to any animal that kills 10 of my birds in a week.

Domestic varmints

Unfortunately, wild varmints in the woods will not be all you have to contend with, and though I realize this kind of advice is not area-specific, I'd still like to pass it on: Don't shoot a neighbor's wild dog unless it actually has your dead favorite hen in its mouth. It will, at the first opportunity. Nothing keeps other people's packs of dogs off your property except a lot of expensive fencing that you get to pay for yourself.

Do shoot his loose pigs if they stampe over your place, and make him carry them off when you're done. A herd of grown pigs ("herd" being defined as any number greater than one) can destroy your entire vegetable garden and kill all your chickens in two minutes flat. Nothing can stop them; the only thing a pig understands is rapid gunfire, and then only when it hits him personally. There are no Babes in the real world. You just shoot until you run out of bullets. It

takes three to knock down a grown pig.

Somebody's loose cattle are easy: you just run toward them yelling and waving your arms, and they'll generally head for home. The same thing works if your turkey escapes her pen and meanders off down the road, but it takes longer. You deal with animals much more than with people in these hills, but they fall into the same basic groups, from "family" to "criminal." Except, of course, the ones you raise for meat, and I presume you know not to give those names. It's hard to slaughter Bootsie.

A good place to live

In spite of all these adventures (at my age it's "in spite of," not "for"), this is a good place to live out your days, as I intend to, below poverty level but in relative peace. It's a good idea to keep as low a profile with the state as possible, and that might be easier for younger people. Of course, you are not going to expect progressive schools. I don't know much about the "guy" stuff, such as fishing, but all a new guy has to do to find out is hang out at the feed store for a day or so.

It's no easier or harder to be a woman alone here than anywhere else I've been. The people are no better or worse than those in other rural areas. But the natives and old-timers here, the hill people, are not your stereotypical hillbillies. They are tough, capable folks with a lot of good, practical knowledge that you need. Listen to them every chance you get. Most likely, you will not be invited into their inner circle, and there's not much you can do about that, but your grandchildren might. Very small towns can be very closed, here as elsewhere. You'll have a better chance of acceptance in tourist towns, where everybody is from somewhere else, or in retirement communities where everybody is from Chicago. Δ

Try these simple ways to get started in solar hot water

By Don Fallick

If you're looking for a cheap, easy, quick, and permanent way to secure hot water for your home, all year long, or even all day long, this article is not the place to look. In dealing with solar heat, those qualities are mutually contradictory. There are ways to have some of them, though, if you don't mind doing without the others, or figuring out some other way to get them.

The following solar water heating systems are good only for the months of spring, summer, and fall, and only provide really *hot* water when exposed to direct sunlight. Some work better than others, but all of them do work. I have used them myself and seen them in use in the homes of friends and neighbors.

Quick and easy

Ever leave a length of black "poly" pipe in the sun for a couple of hours? The water gets hot! The simplest way to build a solar water heater is to leave a coil of one-inch-diameter, black irrigation pipe in the sun. A 300-foot coil of pipe holds about 15 gallons of water. By mid to late afternoon, you'll have enough scalding hot water for two or three showers or a wringer washer load of laundry. On really bright summer days, you can even get two batches. You won't have to cut any firewood to heat it, pay the propane dealer, or even give any thought to it. Hot water "just happens" every time the sun shines.

Of course, there are disadvantages. The pipe cools off faster than it heats up, so if you want those showers *hot*, you'll have to take 'em when the water's hottest, between 2:30 and 4:30 in the afternoon. So it's not necessari-

ly as convenient as most of us would like. (This problem can be eased if you connect the coil to a tank. If the tank is above the coil, you'll get thermosiphon circulation.)

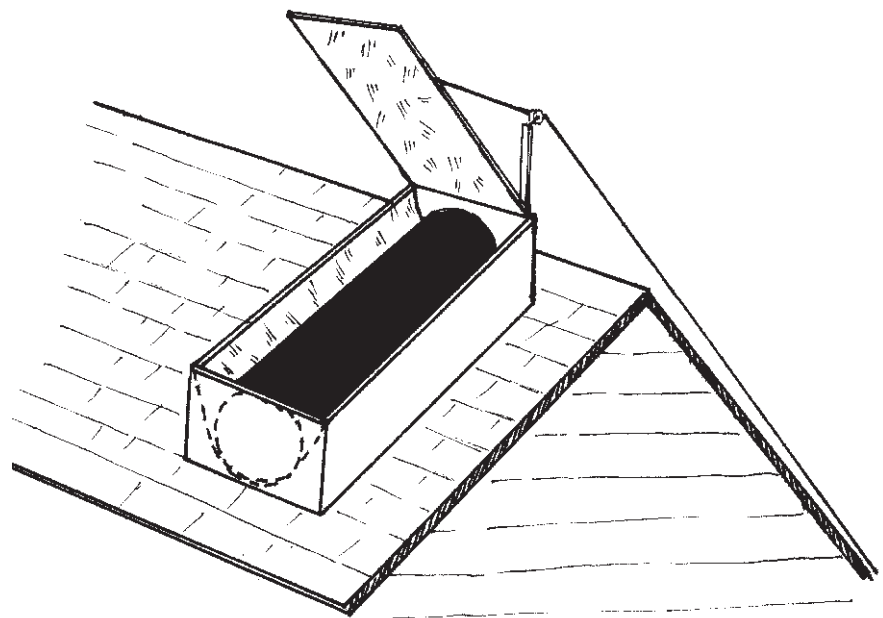
Nor is it exactly cheap. A 300-foot length of one-inch poly pipe will cost around \$65 to \$80. Worse, the pipe will have to be repaired annually and replaced every few years. Admittedly, this is still much cheaper than even a small propane water heater, and there's no expense for fuel. But considering the disadvantages in convenience, you may not think it worthwhile, except as a temporary expedient. Faced with a choice between building a house and cutting the extra firewood needed to heat water on the wood stove all summer, I installed a temporary "pipeline" heater. The savings in time and energy outweighed the inconvenience and added expense, and I eventually reused the pipe for irrigation.

Black tank

More convenient, and even cheaper, is a water heater made from the inner tank of a regular gas or electric water heater. A 30-gallon tank is about the biggest you want for this, unless you live somewhere with lots and lots of sunshine. As tank size increases, the relative area of the tank, compared to its volume, decreases. A solar-heated water tank absorbs at a rate proportional to half its surface area. The bigger the tank, the less heat is absorbed per unit of volume. A tank bigger than 40 gallons may not absorb enough heat in a whole day to get more than warm.

Strip the outer sheet metal and insulation from an old water heater, paint it black, plumb it into your hot water line, and you're in business. Not elegant, but it does work. Gas heater tanks have a fire-plate at the bottom, and a flue through the middle of the tank. This makes it easy to convert the tank into a wood-fired water heater for wintertime use.

A gas-fired water heater may be your best bet for another reason. Most folks keep electric water heaters until



Jeff Moore's rooftop solar water heater

the tank springs a leak, so you may have to haul home, check out, and haul away several before finding one that's intact. But gas heaters are rendered inefficient by calcification or silt in the bottom, which keeps the gas heat from reaching the water. A little sand in the bottom of a solar tank makes no difference at all, since that's the one part of a tank's surface that never receives any sunlight.

A solar water tank takes longer to heat up than a pipeline heater, so you may get only one batch per day. But even without insulation, it will retain heat much longer than a pipeline heater due to its much higher relative volume. Unfortunately, a solar water tank can only absorb heat on the side facing the sun, but loses its entire surface. So it loses heat twice as fast at night as it gains it during the day.

Earth is a much better conductor of heat than air is, so it's important that the tank not be in direct contact with the ground. The usual way to accomplish this is to stand the tank up on its end, as it was designed to do. Just remember that water weighs eight pounds per gallon, so a full 30-gallon tank weighs close to 300 pounds. Be sure tank supports and bracing are up to their job.

The ultimate

If there were only some way to insulate a solar water tank, it would sure work a lot better. Fortunately, there is. My friend Jeff Moore painted a 30-gallon tank with black stove paint and mounted it on the south side of his roof, inside an insulated plywood box. There's a curved reflector behind the tank, made of thin paneling covered with aluminum foil, and a sheet of glass over the open top of the box. Jeff made an insulated cover for the glass by gluing a two-inch thick foam board to another sheet of paneling, and covering the inside surface with more aluminum foil. The cover is hinged at the top, and is arranged so it functions as an additional reflector in its open posi-

A country moment



Shelley Felt, age 3 1/2, of Kalkaska, Michigan

(If you have a country moment you'd like to share with our readers, please send it to us at Country Moment, *Backwoods Home Magazine*, P.O. Box 712, Gold Beach, OR 97444. Please include a self-addressed, stamped return envelope if you want the photo back.)

tion. A clothesline, some braces, and a couple of pulleys allow Jeff to open and close the cover from the ground, and secure it in any position. It's so light that his seven-year-old daughter has no trouble opening it.

In its final form, Jeff's homemade solar water heater requires very little maintenance. It takes about two minutes every morning and evening to open and close the lid. And every now and then, Jeff directs a spray of water from his garden hose at the glass to clean off any accumulated dust. Every couple of years the aluminum foil gets dull from corrosion and has to be replaced. This costs about \$5.00.

In its original form, though, the collector did have one near disaster. No, it didn't come through the ceiling. Jeff knows how heavy water is, and he made sure the roof was properly braced before filling the tank. But he

had no idea how *hot* the water would get. He originally used black poly pipe to connect the tank's output to his house plumbing system. The first sunny day, the poly pipe melted, and all his hot water ran off the roof. Now he uses ABS Type II pipe, designed for hot water, and has no problems. Δ

Fishing with Dave

*The sun's going down,
The clouds are high,
We're fishing,
Drinking rum and Coke.
There are no broads
And the bugs aren't biting.
We need a few of these times
Before the black sack of eternity
Is slipped over our heads.*

(Reprinted from the book, *Sex and Sins in the Cemetery*, by John Silveira, available from *Backwoods Home Magazine*.)

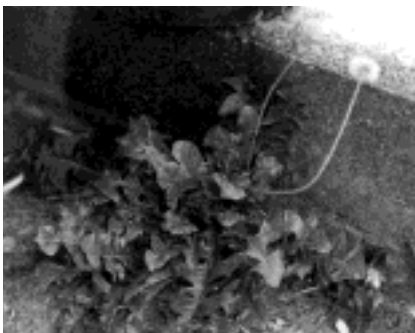
Better health from common plants

By Christopher Nyerges

We've all heard it: The true prophet is never accepted by his own people. By some strange quirk of human nature, we tend to think that only something from a faraway country can be of the greatest value. This blindness also affects us when it comes to herbs and nutrition. We think that the best substances for our health and nutrition are only those herbs and roots imported from faraway China or India or South American rain forests, sold at tremendous costs in small bottles at the herb shop.

When you scan the shelves of herb shops, it would be easy to come to the conclusion that health can be purchased in a bottle. In fact, many businesses push that very idea: "Buy our (expensive) product and you'll be happier, live longer, be free of disease, and have a great sex life besides."

But in this country we are surrounded with an unbelievable bounty of nature. Just about everything that you'd want for your health and nutrition can be found in your backyard or in the wild, or it can be easily grown. No money need change hands. Shockingly, many of the most nutritious plants on the planet are despised as common weeds, and at any nursery in town, you can buy poisons to kill off these valuable weeds. Such sad ignorance.



Dandelion



Ginkgo leaves and nuts

Here are some of the wild and free plants which you can use for your health and well-being.

Poor man's ginseng

Ginseng seems to be a valuable herb, but it doesn't grow around here—which means you have to buy it, and it's very expensive. On the other hand, just about everyone has dandelions on their lawns. Dandelions are probably better for you than anything in your garden, wild or cultivated. An analysis of 100 grams of dandelion greens by the U.S. Department of Agriculture shows 14,000 I.U. of vitamin A, 35 mg. of vitamin C, 397 mg. of potassium, 66 mg. of phosphorus, 187 mg. of calcium, and 36 mg. of magnesium. Dandelion greens are also the richest source of beta-carotene, with 8.4 mg. per cup. By contrast, carrots—considered an excellent source of beta-carotene contain 6.6 mg. per cup.

Only young dandelion greens are good in salads, and the older, bitter leaves can be cooked like spinach or added to mixed-vegetable dishes. And

the young dandelion roots can also be eaten when cooked.

Nature's mineral tablet

The health food store shelves are full of pills, including mineral tablets. But nature provides an excellent "mineral tablet"—one that you take advantage of by eating. This is lamb's quarter, a spinach relative found worldwide in the wild. It probably grows in your garden even if you don't plant it. Used raw in salad or in juice mixes,



Lamb's quarters



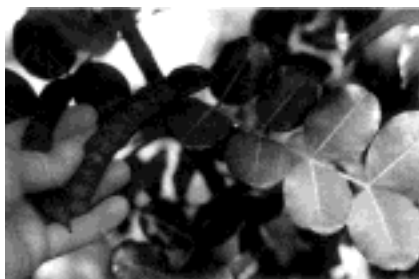
Rose hips

100 grams of lamb's quarter (about a cup) contains about 80 mg. of vitamin C, 11,600 I.U. of vitamin A, 72 mg. of phosphorus, 309 mg. of calcium, small amounts of thiamine, riboflavin, niacin, and iron. These figures are slightly lower when you cook the lamb's quarter as a spinach-replacement, or in soups, egg dishes, or vegetable dishes. You could almost survive on lamb's quarter alone.

Clear thinking with ginkgo

Ginkgo leaves and nuts have been used in the Orient for centuries, and are one of the new popular herbal medications. Some researchers suggest that it may help Alzheimer's patients, and that it should help any one increase mental alertness. And there are several processed bottles of pills on the shelf with the expensive price tag.

Ginkgo is widely planted as a park and street tree. It is very common, and you can simply take the leaves and brew your own tea. Never mind that the pill manufacturers tell you can't do this-you can. Make an infusion of the leaves, or if you prefer, simply



Rose hips

powder the dried leaves and fill gelatin capsules if you prefer to take your herbs that way.

And don't overlook the nuts which fall in September and October. The fleshy outer layer of these nuts have a foul odor, but that is easily cleaned off. The nuts can then be dried or roasted and eaten, and many of the same qualities of the leaves have been attributed to these nuts.

Get your daily vitamin C

Roses are great to grow in any garden because they provide beauty and fragrance. Also, if you let the fruits mature (referred to as the "hips"), you'll have a rich source of vitamin C. The only known source of vitamin C that is richer is the acerola. Rose hips contain about 7,000 mg. of vitamin C per pound, a remarkable amount. By contrast, a pound of oranges (depending on the type of oranges) contains anywhere between 100 to 250 mg. of vitamin C.

To use rose hips, you snip off the orange-red mature fruit. Once you cut it in half and remove the fibrous seeds, you could just eat it raw. However, most people find it more enjoyable to simmer it into tea, or to make it into jams, jellies, or blended nutritional drinks.

A good source of calcium

One hundred grams of the edible portion of the carob pod (which is about a cup of the entire pod, minus the seeds) contains 352 mg. of calcium. That makes carob one of the very richest non-meat calcium sources. Even when that same volume is compared to milk-generally considered a good calcium source-carob is nearly three times richer in calcium. Carob is also a good source of B vitamins. Though not a complete protein, it is said that this is the food that sustained John the Baptist in the desert for 40 days (hence the name, Saint John's bread). You can simply eat the pods

and spit out the seeds. Also, you can crack the pods, remove the seeds, and grind the pods into a flour which you add to bread and pasty products, or blend into liquids like rice or soy milk.

There are tens of thousands of carob trees throughout Southern California and the Southwest, mostly as street and park trees. The brown leathery pods ripen from September through February.

Cough and sore throat

Oil of eucalyptus is a common active ingredient in many cough medicines, and eucalyptus trees are extremely common. You can simply pick a few eucalyptus leaves, make a hot tea by infusion, and drink it. The flavor of the various eucalypti vary, so you might smell around until you find a variety you like. This tea is useful for most breathing and respiratory ailments.

Cuts and bruises

When you get a few minor cuts and scratches while doing work, do you reach for that tube of creamy stuff and rub it over your cuts? There's some-



Aloe vera plant



Purslane

thing better. You could just pinch off a bit of an Aloe vera plant, break open the leaf, and spread that gel directly onto the wounds. Aloe has been used for centuries for just such medicinal applications. Aloe is easy to grow in pots or in the garden and is widely available at nurseries. Even the best bottled aloe preparations are not as good as the fresh plant.

Cholesterol

You have high cholesterol, and there are a number of things your doctor has told you to do: Cut out salts, fatty and oily foods, stop smoking and eliminate alcohol. Exercise more, and lose some weight. Did you know that numerous studies have shown that including garlic and onions in your diet can reduce your cholesterol level? We don't normally think of garlic and onions as "medicine," but they have a variety of proven or reputed medical properties, and the lowering of cholesterol levels is perhaps the most documented. In this case, you simply eat your garlic and onions-ideally raw where possible, but cooked also-in order to receive the benefits.

Speaking of cholesterol, another good way to lower cholesterol levels is to include foods in your diet that are high in Omega-3 fatty acids. In 1986, two biochemists (Norman Salem, Jr. with the National Institute on Alcohol Abuse and Alcoholism in Bethesda, Maryland, and Artemis Simopoulos of the American Association for World Health in Washington, D.C.) discov-

ered that a common weed, purslane, is the richest leafy-plant source of Omega-3 fatty acids. And purslane is such a common weed, world-wide, that you shouldn't have to plant it you may just need to look for it. It is common in rose beds. To take advantage of purslane's benefits, you simply eat it in salads- or cook it into soups, stews, vegetable dishes etc.

Headaches

Have a headache? Before you automatically reach for that aspirin, first ask yourself: What is the source of the conflict which is resulting in my headache. Perhaps your pain is trying to tell you something. Then, consider the original source of aspirin, the inner bark of the willow tree. The cambium layer of willow bark contains salicin, which the body converts to salicylic acid-the active ingredient in most aspirin. If you grew a willow bush or tree in your yard, you could prune off a small twig, remove the bark, and brew that bark for a few minutes in warm water, and then drink it for headaches. The tea may be mildly bitter, but will work (more or less) as well as aspirin. Willow is extremely common world-wide along waterways.

Diabetes

According to long-standing traditions throughout Northern Mexico, eating the young prickly pear cactus pad (once the stickers are removed) is said to help with diabetes. In the past



Willow



Prickly pear cactus

20 years, we have met dozens of people who claim to have had relief from adult-onset diabetes by consuming the cactus, and we've met three who actually stopped taking insulin. Doctors who have researched this have come up with some medical verification. They say that the prickly pear contains a substance which strengthens the pancreas so it is more able to produce insulin. Plus, they say the fibre content of the cactus is beneficial. In addition, consuming the cactus fruits has been shown to be helpful where prostate problems are present.

These are just a few examples of how we can obtain many of our needed healthful vitamins, necessary nutrients, and even medications from plants growing all around us.

Needless to say, none of the above is intended to replace competent, professional medical care for serious illness. In the interest of increasing wisdom and self-reliance, learning which plants can be used in place of bottled vitamin pills and simple medicines can be health-promoting.

(Christopher Nyerges is the author of In the Footsteps of Our Ancestors: Guide to Wild Food and other books. His schedule of outings is published in the *Talking Leaves Newsletter*, available from the School of Self-Reliance, Box 41834, Eagle Rock, CA 90041. The newsletter can be viewed on-line at <http://home.earthlink.net/nyerges/>.) Δ

Getting the most out of a solar electric system

By Paul Jeffrey Fowler

When our son Terry was born in March of 1992, my wife Lea and I made the formidable decision to sell the remaining half of our solar electric business to our partner. We wanted to spend as much time as possible with Terry during his preschool years. In addition to our homestead work, we hoped to make ends meet through independent, home-based employment, such as writing books and articles about independent living.

As the head of our solar electric business for 10 years, I had spent a major portion of each day designing solar electric systems. These ranged from sample systems for the next catalog or book to the solar electric systems for our many customers. When I was not designing systems, I was trouble-shooting them on the phone. I enjoyed the work and found time to upgrade our home system as an example for customers, but I never had enough energy left over to play with my own solar electric toys.

Within months of my departure from Fowler Solar Electric, Inc., my interest in solar electricity started to percolate once again. Lea and I had decided not to work professionally for the first year, to compensate for the vacation days we had always neglected to take. We wanted to finish the house and the home-related projects we had been waiting for years to do. I began to daydream about improving our solar electric system. I would follow my wife around, accosting her with my latest brainstormers. It was great fun thinking about our own solar electric system instead of a customer's system.

After a year of finishing the house and working on our homestead, I start-



The Fowlers' home has solar modules on the house and on the garage.

ed writing my new book, [The Evolution of an Independent Home](#). As I chronicled the development of our home and the coming of age of solar electricity for four hours each day on the computer, I relived the design and installation of each generation of our own solar electric system. In the afternoons, while I cared for Terry, I would design my next and ultimate solar electric system.

I had one problem: Lea and I were already the proud owners of a very large solar electric system. We owned a large system because we had tried to be an example for our customers, and we had had the good fortune to own a business that sold the components to us at distributor cost. Our solar array consisted of 24 33-watt Mobil Solar modules on the house and eight 48-watt Hoxan modules on the garage. These modules produced 1200 peak watts, the equivalent of an array of 20 modern 60-watt modules.

We stored our power in a 1600-amp-hour 24V (24-volt) battery bank consisting of 32 200-amp-hour, 6V Trojan golf-cart batteries (the equivalent of 16 L-16 6V batteries). Our large battery bank was designed to even out the sporadic winter sunlight in New England, and to decrease the need for a generator to supplement our low winter solar electric production. Our Trace 2624SB 2600-watt inverter was large enough to power any and all of our 120VAC (120-volt alternating current) loads.

A wind machine?

A few weeks after I completed the first draft of my book, Lea, Terry, and I helped our neighbors, Bob and Karin Cook, raise their new Bergey 850-watt wind machine and tower. Bob had read Paul Gipe's new book ([Wind Power for Home and Business](#)) on wind power. He decided not to expand his 440 peak-watt solar electric system, but instead to add a wind

machine to it. He hoped to produce a lot of power from winter winds to balance the low winter output of his solar electric system. Bob, a great student and researcher, came to the conclusion that the Bergey was the best in its size class. My old business offered to purchase the wind machine for him at a discount, to facilitate the experiment.

Naturally, I got personally involved in the project. Our solar electric system was large, but we could still benefit from an additional supply of electricity in the winter. I wanted a new alternative energy project so badly that I too considered installing a wind machine that fall. I hesitated even though we live at a good wind site. We have grown to live in awe of the lightning at our home site. Summer thunder storms are violent. I spent my early years with solar electricity learning to protect our solar electric system from lightning damage. I was worried that the addition of a tower would give me another source of lightning-induced high-voltage surges to endanger the inverter and controls that I had worked so hard to protect. And Lea and I knew we really could not rationalize the \$3000 it would cost for a wind machine and tower.

Our neighbor's new wind machine was just visible above the tree line from our upstairs bedroom, a third of a mile away. Though I knew that installing a wind machine at our house was unlikely, I could still watch our neighbors' wind machine every day. I realized I had a unique opportunity to monitor the wind machine's energy production in comparison with our own solar electric system. I learned to roughly estimate the output of the wind machine by watching the speed of the propeller. Every day, I observed the production of the wind machine and then checked the state of charge of the battery bank in my system. Whenever the battery bank was fully charged, I knew that the wind machine, if it had been part of our system, would have been producing power that we could not have stored.

On other days I could see that the wind machine could have restored our battery bank to full charge, but that the next several days were sunny. Our solar modules would soon have recharged our batteries without the additional power from the wind machine. There were also cloudy spells when my solar modules did no charging, but the wind machine had no wind to turn it.

A generator?

After monitoring my neighbor's wind machine that fall and winter, I knew it would not be a good partner to my large alternative energy system. I began to suspect that I really did not need additional electrical production for the whole winter. What I needed was an on-demand source of electricity for a few selected days during the occasional winter when there were one or two three-week cloudy spells. In the past, we had managed these cloudy spells by lowering our electrical usage until the sun returned. We had avoided the obvious solution of owning a backup generator.

We had always owned an inverter with an integral battery charger and transfer switch. If ever we accidentally ran our batteries too low, we could always get a generator and power the house with it while the inverter's internal battery charger replenished the battery bank. I had considered improving our winter supply of electricity by charging the batteries with a backup generator. However, I could



4000-watt Trace sinewave inverter

not rationalize purchasing a \$1,500 generator that would sit idle in the garage for most of the year. It would require plenty of maintenance just to keep it ready to use. My final solution was to rent a generator for one day during an occasional bad winter and run it for 24 hours to get our money's worth.

The more I worked on plans to expand our solar electric system, the more I realized that I could get the greatest amount of usable output by balancing our energy use to the system's production. Instead of purchasing a wind machine, a generator, or more solar electric modules, I could conserve electricity in the winter when sunlight is less plentiful, or find a suitable way to provide on-demand additional power, or both.

A new inverter

Once I have worked long enough on a project to have my theory in place, I find many of the practical considerations just happen. An old friend of mine in the alternative energy world offered me a 4000-watt Trace 4024 sinewave inverter at a great price. It was an early test model that had been scratched and dented but was fully updated to the latest specifications.

I bought the inverter because it was the right price to upgrade to a true sinewave inverter from my standard quasi-sinewave inverter. The increase in output from 2600 watts to 4000 watts did not seem very important, because the old inverter was adequate for my home. Even the true sinewave output did not seem that important. However, the new inverter had one feature that I coveted, a completely redesigned internal battery charger. My old inverter could produce a 60-amp maximum charge at 24V, but unfortunately it worked by taking the tops of a generator's sinewave. That type of charger really needed to be powered by at least a 5000-watt generator to supply its full 60 amps of charging. Furthermore, the charger

was fussy about which makes of generators powered it.

The new charger in the Trace 4024 was much more efficient in its conversion of 120VAC power to 24VDC. It could produce a maximum of 120 amps, and do it from most generators 2500 watts or larger. This charger would charge my battery bank in half the time, so the generator would only run half as long and consume only half as much fuel. With the new charger, we could theoretically run our large battery bank down to half-full during a long cloudy spell and recharge it on eight hours of generator run time. The new charger made it more attractive to utilize a backup generator to supplement our system, because the generator would be running fewer hours.

Tractor power

One day, I had the brainstorm to track down a PTO (power takeoff) generator to be powered by our tractor. PTO generators have no engine; they are rotated by a drive shaft that connects to a power takeoff on the rear of a tractor. The tractor is parked in neutral, and the tractor motor turns the drive shaft and the generator. This sounded good to me, because our tractor is new and in good repair, and there would be no extra motor to maintain.

I was disappointed to find that 8000-watt PTO generators were not available, and the larger models cost \$2000-3000. However, several more phone calls produced a 25-year-old 15,000 watt model that had been gathering dust for years at my tractor dealer. I tested the windings, gave them \$475, and loaded the 400 lb. unit in my Bronco II. Somewhat serendipitously, I had completed my design for an on-demand source of power for our independent energy system.

I upgraded the three-point hitch frame for the generator to make it mount easily on the tractor. I could even mount it in the garage, back the

tractor up to it, and exhaust the diesel fumes out the wall of the garage, if ever I planned to use the generator regularly. Ideally, I might never need to use the generator.

Reducing demand

The second part of my plan to enhance our power for winter was really another anti-expansion plan. I wanted to improve the load side of our system such that we would use less power for the same appliances and level of comfort, and thus have more power for additional loads and a lesser likelihood of utilizing the backup generator in cloudy times.

I had been slightly concerned about the efficiency of our new 4000-watt inverter. The efficiency curves looked good, but the unit required 15 watts to power its own electronics whenever it was powering a load, while our old inverter had only used eight watts. This would be a negligible factor for large loads, but would be very inefficient when we were powering 25 to 50 watts of lighting. I estimated the inverter would be on for ten hours per day and use 70 more watt-hours per day than our old inverter.

I noticed that our large vacuum cleaner ran quieter on the new inverter. It also ran cooler. The same pattern was true for our clothes washer, large power tools, and most likely for our deep-well pump. With the help of my friends at Trace, I came to the rough conclusion that our motor loads were running 10-20% more efficiently on our new sinewave inverter. At 1000 watt-hours per day of motor loads, we were saving more watt-hours than I was worried about losing to the 15 watt base drain of the electronics of the inverter.

I purchased an AST notebook computer to use as my main computer, and relegated my desktop computer to my wife's computer needs, which take less time than mine. The desktop computer consumes 100 watts, but the new notebook only consumes 15 watts.

That first winter, I averaged three hours of computer use per day while I completed my book project. I saved 255 watt-hours per day of electrical energy.

In the spring, we purchased a Staber washer machine because of its high efficiency. The Staber is a full-size washing machine that uses 250 watt-hours per load, versus the 450 watt-hours per load consumed by our old standard clothes washer. This innovative washer also cleans so much better that we save another 25 watt-hours because we can wash clothes on a shorter wash cycle. The Staber needs only one ounce of powdered detergent per wash load, one quarter what we used in our old washer. This feature saves no power, but it does save a lot of money. Finally, it washes with half the amount of the water, a savings of 40 watt-hours of water pumping per load. In total, the Staber saves 265 watt-hours per load, which at two loads per day represents a savings of 530 watt-hours per day.

We had been somewhat sloppy in our use of lighting. We had several pretty brass and glass ceiling fixtures in the living room, kitchen, and bathroom (installed before compact fluorescent bulbs came to market), which used 40-watt 120VAC incandescent bulbs. They were fairly efficient, because all of the light that they produced was transmitted to the room through the clear glass. To increase our efficiency, we installed extra fixtures and lamps in these rooms that hold 15-watt compact fluorescent bulbs. When the weather is cloudy, we can use these new lights to save another 250 watt-hours per day.

Adding up the savings

Our conservation methods saved us an average of 1035 watt-hours per day. These savings were projected for the winter when our solar electric array produces only half of what it does in the summer. For our area, one 50-watt solar electric module pro-

duces a daily average of 100 watt-hours per day of electrical energy that is actually usable in our home. Therefore, our conservation resulted in a “negative-need” for ten 50-watt solar electric modules, or 500 peak-watts of our array. You could consider that 500 watts had been freed up to be used to make the long no-sun parts of winter easier, or to power additional loads. Or, to look at it another way, if we were purchasing our solar electric system today, we would need ten fewer 50-watt modules.

It cost \$500 to upgrade to the newer sine-wave 4000-watt Trace inverter. We also spent \$475 for a backup generator. For a total of \$975, we now have an on-demand power supply to supplement our alternative energy system in the worst years of electrical production.

We spent \$500 more for a notebook computer than for a comparable desktop computer. We spent \$900 on a Staber washing machine, which is \$450 more than a standard model. We spent \$200 on compact fluorescent bulbs, lamps, and fixtures. This comes to a total of \$1150 we invested to conserve 1035 watt-hours per day in the winter. To produce these 1035 watt-hours of electricity energy in the winter, we would have needed ten \$300 50-watt modules, a \$3000 investment.

In the beginning, I flirted with spending \$3000 to install a wind machine and tower to supplement our solar electric system in the winter. I invested much less money to conserve energy and meet the same goal. If you have a very small solar electric system, you will most likely find that it will be necessary to invest in more energy-producing components, such as a wind machine or solar electric modules, and additional storage capacity. But if you have a medium or large system, you might spend some time to see if you could invest in more efficient appliances to meet all or part of your expansion needs.

(Paul Jeffrey Fowler is the author of the Solar Electric Independent Home Book,

available from *Backwoods Home Magazine*, and most recently the author of The Evolution of an Independent Home: The

Story of a Solar Electric Pioneer, 1995, ISBN 0-9645111-7-7, distributed by Chelsea Green.) Δ

Sometimes a good old bucket of coals is the best solution

By Nancy Owen

Twenty years ago, like many beginning homesteaders who don't plan ahead carefully enough, we created a problem for ourselves. Our well, with its pump and tank, needed protection, so when we had cement blocks left over from a construction project, we built a 4' x 4' well house. The thought of freezing pipes didn't worry us: those heating cables with thermostats would supply the needed BTUs.

But what about those winter ice storms that knocked out the electricity? Or the mouse that chewed a cord in two? Or those unusual cold fronts that whipped through our woods with 20 mph winds and temperatures near zero? We hadn't planned for those nights and for pipes freezing in only a few hours because cement blocks with an insulating R-value of about one simply won't hold heat.

Our first solution was to collect styrofoam “peanuts,” remove the well house's portable roof, and painstakingly fill the cores of the cement

blocks. Halfway through that chore, we decided sand or sawdust might have worked better, as the peanuts were difficult to poke through the off-set cores. But we persisted, and probably got the R-value up near two. But then on windy, bitterly cold nights, the pressure switch line would still freeze.

One day, after surviving a night of 2°, it froze at 8:15 a.m., and that morning we stumbled onto an answer. We set a small bucket of live coals from our woodstove in a corner of the well house. Fifteen minutes later the temperature had hit 85°, and the pump came on.

Experimenting with the coals, we discovered the best method is to use a minnow bucket, which has a perforated container inside a regular bucket. We put ashes on the bottom, coals in the middle, and more ashes on top. Then the coals don't just die as they do in a regular bucket, but, breathing through the holes, burn slowly and keep the temperature above 32°.

Our bucket of coals also enables us to be just a little bit less dependent on the electric company. Δ

We built a homemade community fire truck

By Don Fallick

It takes our local volunteer fire department 45 minutes to respond to a call for help. This is actually pretty fast, considering that they have to assemble, dress, and drive 12 miles of rutted dirt road in a big fire truck to get here. But because the first 45 minutes of a fire are the most important for fire fighting, it's a potential disaster. After years of fighting fires with buckets and shovels, my neighbors and I decided to do something about it. We built a homemade fire truck capable of fighting a local fire for that critical first 45 minutes.

Design considerations

One neighbor donated a gas powered irrigation pump capable of pumping ten gallons of water per minute. This determined the size of our tank truck. To last 45 minutes, we needed at least a 450 gallon tank. Another neighbor had an old 500 gallon water tank that was too rusty to use for domestic water. That fit our pumping capabilities just fine, but when we went looking for a truck we had a problem. Water weighs eight pounds per gallon, so 500 gallons weighs **two tons!** The tank itself weighed several hundred pounds more, plus another couple hundred pounds of hoses, shovels, and other equipment, which makes for a heavy load. Much too heavy for even the biggest pickup truck. Fortunately, another neighbor owned a broken down, two-ton flatbed

truck that he wasn't using. It didn't have many miles left on it, but then, we weren't planning on driving it very far. We were able to fix it up so it would start reliably and haul our gear and water everywhere we needed to get it.



We decided at the beginning to design our fire truck to be as mechanically simple as possible. We wanted to be able to get water out of the tank by gravity flow, even if the pump failed. We also wanted to eliminate the necessity to either keep the pump "wet" all the time, or to prime the pump or establish a syphon before starting it. So we mounted the tank like a barrel on its side, with the outlet at the bottom.

Building the truck

The hardest part of building the truck was mounting the tank. First we had to clean it out thoroughly, to be sure no rust or gunk could clog the pump. Rinsing out a 500 gallon tank takes a while. When the water finally ran clear, we used chains and a neigh-

bor's tractor to load it onto the truck. Then we had to fasten it there. Another neighbor with an arc welder fabricated straps out of some flexible scrap steel, which we welded to the tank and the rim of the truck bed. Between the straps and blocks fastened to the bed, we created a cradle that kept the tank from rolling, even when full.

Mounting the tank this way had an added advantage—it left room for hoses and equipment. Our pump was intended for irrigation, not high pressure, so we didn't need high pressure hoses. We did need long hoses, though. We hoped to park within several hundred feet of a fire, but knew that our hoses might have to reach a thousand feet under less than ideal conditions. At this distance,

you need the largest diameter hose you can get, to minimize pressure loss at the nozzle due to friction. You also need non-kinking hose, especially when working in a forest. We used 100 foot sections of 3/4" diameter, reinforced garden hose. Each neighbor bought and donated a section, which minimized individual expenses.

We live in an area with many springs and creeks, so it seemed foolish not to provide a way to pump water out of them directly if necessary. For intake pipe, we stocked 300 feet of 1" diameter, black, "poly" irrigation pipe in hundred-foot lengths, figuring that the pump probably wouldn't be able to draw a useable amount of water much further. Finally, we stored about a dozen five-gallon, plastic buckets on the truck for an emergency bucket brigade.

Other equipment

The hoses, pipes, buckets, pump and tank comprised our water-handling equipment, but not all of our fire-fighting gear. We also included axes, shovels, and rakes for building fire breaks. Through experience, we had learned that these tools can be as effective as water in preventing the spread of fire. It was our intention to include a chainsaw as well, but nobody was willing to donate a good one, and a fire truck is no place for unreliable equipment. Everybody always brings whatever gear they have to a fire anyway, so we did without a chainsaw, though we did include a nice, sharp bow saw, “just in case.”

We also included a large First Aid kit, stocked mostly with large dressings, burn cream, and salt tablets. We hoped never to have to use these, but figured the best place for them would be in the cab of the community fire truck. One neighbor suggested a citizen’s band radio might be useful, but we never did get one. The truck had a six-volt electrical system, and all the available CBs were twelve-volt.

We parked the fire truck under a shady tree at the side of the county road, near the center of the community. Originally, it was our intention to mount a fire bell there as well, but we found that large bells are extremely expensive. We finally decided on a goofy sounding horn from J.C. Whitney & Company, mounted right on the truck. But it turned out that we didn’t need it. The truck’s original horn was loud and distinctive enough. I was disappointed. I think it would have been fun to have the only fire truck in the county that could whistle “Dixie” on the way to a fire.

Conclusions

As it turned out, we never used our homemade fire truck. We had three wet summers in a row, with no natural or man-made fires in the area. There were constant battles over who was in



The Farm fire truck

charge of training volunteers and maintaining the truck. Neither ever got done. Then the owner of the truck got into financial difficulties, and it turned out that the truck didn’t really belong to him. There was a big legal battle; the truck’s registered owner took it back, and much of the other equipment was lost or stolen. The irrigation pump’s owner did get his pump back, but refused to get involved in another fire truck project. The tank was accidentally destroyed while being removed from the truck, and the project died. The very next summer was hot and dry, and we had to fight two forest fires and a grass fire. We could certainly have used our homemade fire truck then, but nobody was interested in starting over.

If I had to do it over again, I would do a few things differently. The design of the truck was fine, but I would create a legal entity to accept ownership of the truck and responsibility for it. This could be a partnership or property owners’ association. Equipment would be donated outright, not loaned. I would get expert training for all the volunteers, from local fire departments, the U.S. Forest Service, or both. Finally, I would put one person in charge of the truck. This could be a rotating job, but at any given time,

there would be someone accountable for maintaining and stocking it. When all is said and done, it turned out that our community relations generated as much heat as a fire—and were nearly as disastrous. Δ

A New World Order

*The dogs strut freely in the yard.
They’ve broken their chains.
Their master is dead.
There’ll be no more kicks
From his cheap boots.
And no more tyranny.
We heard them howl all night
About their new found freedom.
But look,
Their muzzles are red.
They can hardly keep from
Sinking their teeth
Into each other’s flesh.
And some have gone into the
house
And searched through Master’s
closets.
They’ve tried on his boots and...
Surprise!
They fit their little doggy feet
Perfectly.*

(Reprinted from the book, *Sex and Sins in the Cemetery*, by John Silveira, available from *Backwoods Home Magazine*.)

Where I live

By Annie Duffy

Nine-patch, baby, and log cabin quilts

In the old days, girls had to complete a certain number of quilts before they were married. Now, though, girls rarely quilt. I learned to sew at an early age, with my mom and Baba (grandmother). But I didn't learn to quilt until I was eight.



Annie Duffy with baby quilt

Nine-patch

My first quilt was a nine-patch. With my particular quilt, each block is made of three different fabrics, and no fabric is repeated in another block. Each block has nine four-inch squares—four of one color, four of a second color, and one square of yet another color. The blocks are put together like a checkerboard, with the unique square in the middle. Two of the blocks have horses in them, so I refer to the quilt as the "Horse Quilt." I didn't have quite enough fabric for the back, so I winged it by adding a border of the horse fabric around the edge. I wanted something special to bind the quilt, and when I found a binding that looked like rope I knew it would be perfect. I entered the quilt in

the county fair, where I received a blue ribbon along with an invitation to exhibit it at the state fair.

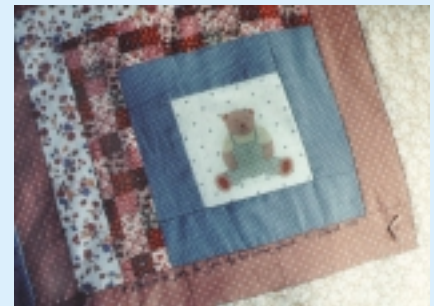
Baby quilt

Before my baby brother, Sam, was born, I wanted to make him a quilt. Since we didn't know whether he would turn out a boy or a girl, I didn't use blue or pink. Instead, I used different shades of grey and brown. I didn't really use a pattern to make the quilt, but realized afterward that it was a variation of a log cabin quilt. Each block is identical. I used a teddy bear fabric for the center square, then put a border of grey around it. I had planned to put subsequent borders of dark and light brown around it, but found that I wouldn't have enough fabric for the whole thing if I did it that way. Instead I did half borders. I only bordered the top and left sides of each block. I joined all of the six blocks with a thin lattice and border of medium brown. Then I put on a wide border of light brown, and an even wider border of dark brown. Again, I miscalculated the yardage for the back of the quilt, so I added a strip of dark brown down the center. I didn't use any special binding because I wanted the edge to be soft. I did, however, add some fancy stitching to the border. I finished the quilt by writing a dedication with a permanent fabric pen: "Made with Love for Sam by his sister Annie, March 1995."

Log cabin quilt

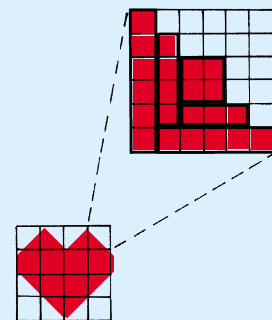
I'm now in the process of making a log cabin quilt. Each square of this type of quilt is made with two inch strips of fabric, increasing in length that surround a smaller square. I

designed this quilt with 16 blocks. I had seen it done with only nine, but it looked too blocky. It's going to be a Valentines quilt. I'm using only red and white fabrics, and all of the fabrics (except the solid red and white) have a heart design. All but two of the



Close-up of baby quilt

16 blocks have a red center. The two that don't have a white center with all light-colored strips. Six of the red-centered blocks have all red-colored strips. The remaining eight blocks are made as follows: on two sides of the small square, light strips are used, and on the other two sides red strips are used (see sketch).



Block arrangement for log cabin quilt

I arranged the blocks to form a heart shape, then put three thin borders all around it. The only thing left to do is sew it to the batting and the back. Then I'll quilt it. Who knows? Maybe next fair I'll get a blue and an invitation to exhibit it at the state fair. Δ

The incredible cattail — “The super Wal-Mart of the swamp”

By Kevin F. Duffy

I can think of no other North American plant that is more useful than the cattail. This wonderful plant is a virtual gold mine of survival utility. It is a four-season food, medicinal, and utility plant. What other plant can boast eight food products, three medicinals, and at least 12 other functional uses?

The Common Cattail (*Typha latifolia*) and its brethren Narrowleaf Cattail (*Typha angustifolia*), Southern Cattail (*Typha domingensis*), and Blue Cattail (*Typha Glauca*), have representatives found throughout North America and most of the world. While living in Northern Japan, I spent many chilly mornings in snow storms among miles of cattails while duck hunting. Cattail is a member of the grass family, Gramineae, as are rice, corn, wheat, oats, barley, and rye, just to mention a few. Of the 15 most commonly consumed domesticated plant foods, 10 are grasses. However, of more than 1300 wild grasses, none holds a loftier position



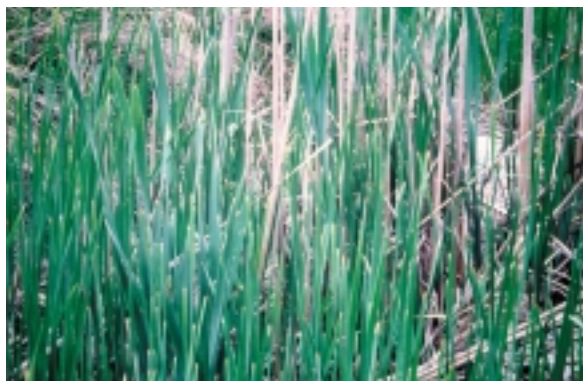
Cattails in winter

as a survival food than cattail. Just about any place you can find year-round standing water or wet soil, you can usually find cattails.

In Euell Gibbons' *Stalking the Wild Asparagus*, his chapter on cattails is titled “Supermarket of the Swamp.” As you will see, this title aptly applies to the cattail. However, due to its medicinal and utilitarian uses, we may want to mentally modify the title to “Super Wal-Mart of the Swamp.”

Identification

Cattails are readily identified by the characteristic brown seed head. There are some poisonous look-alikes that may be mistaken for cattail, but none of these look-alikes possess the brown seed head. Blue Flag (*Iris versicolor*) and Yellow Flag (*Iris pseudoacorus*) and other members of the iris family all possess the cattail-like leaves, but none possesses the brown seed head. All members of the Iris family are poisonous.



Cattail, Common and Narrow-leaf

Another look-alike which is not poisonous, but whose leaves look more like cattail than iris is the Sweet Flag (*Acorus calamus*). Sweet Flag has a very pleasant spicy, sweet aroma when the leaves are bruised. It also does not possess the brown seed head. Neither the irises nor cattail has the sweet, spicy aroma. I have seen large stands of cattails and sweet flag growing side by side. **As with all wild edibles, positive identification is essential. If you are not sure, do not eat it.**

Corms, shoots, and spikes

In just about any survival situation, whether self-imposed or not, one of the first plants I look for is the cattail. As a food plant, cattails are outstanding and offer a variety of food products according to the season. In early spring, dig up the roots to locate the small pointed shoots called *corms*. These can be removed, peeled, and eaten, added to other spring greens for



Cooked male and female pollen and bloom spikes

a salad, or cooked in stews or alone as a pot herb. As the plant growth progresses to where the shoots reach a height of two to three feet above the water, peel and eat like the corms, or sautee. This food product is also known as “Cossack Asparagus” due to the Russians’ fondness for it.¹

In late spring to early summer, some of my favorite food products come into fruition on the cattail. Soon after these shoots become available, the green female bloom spikes and the male pollen spikes begin to emerge. These spikes can be found in the center of the plant and form a cylindrical projection that can only be detected when you’re close to the plant. Peel back the leaves in the same way you would shuck corn, and both the male portion above and the female below can be seen. The female portion will later develop into the familiar brown “cattail” seed head from which the plant’s name is derived. The male portion will atrophy into a small dried twig that may easily break off the top of the seed head. Both the male and female pollen spikes can be boiled and eaten like corn on the cob, and both are delicious. The male portion provides a bigger meal at this stage. They have a flavor that is corn-like, but distinct from corn. I cannot imagine anyone finding the flavor objectionable. Both may also be eaten raw.

Pollen and root starch

Later, the male pollen head will begin to develop an abundance of yellow pollen with a talcum powder consistency that can easily be shaken off into any container. Several pounds of this can be collected in less than an hour. The traditional use of this pollen is to substitute for some the flour in pancakes to make cattail pancakes. This also works well with cornbread. Other uses of the pollen include thickeners or flour extenders for breads, cakes, etc.

In late summer to early fall, the tender inner portions of the leaf stalk may



Yellow Flag, a poisonous cattail look-alike. None of the look-alikes has the characteristic brown seed head.

still be collected, but the availability of this Cossack Asparagus begins to dwindle, due to the toughening up of the plant. During this period and all the way to spring, the most abundant food product, the root starch, may be harvested. It is so abundant, a study was conducted at the Cattail Research Center of Syracuse University’s Department of Plant Sciences. The chief investigator of the project was Leland Marsh. The reported results were as follows:

Yields are fantastic. Marsh discovered he could harvest 140 tons of rhizomes per acre near Wolcott, NY. That represents something more than 10 times the average yield per acre of potatoes. In terms of dry weight of cattail flour, the 140 tons of roots would yield approximately 32 tons.²

To extract the flour or starch from the cattail root, simply collect the roots, wash, and peel them. Next, break up the roots under water. The flour will begin to separate from the fibers. Continue this process until the fibers are all separated and the sweet flour is removed. Remove the fiber and pour off the excess water. Allow the remaining flour slurry to dry by placing near a fire or using the sun.

Cattail root flour also contains gluten. Gluten is the constituent in

wheat flour that allows flour to rise in yeast breads. The Iroquois Indians macerated and boiled the roots to produce a fine syrup, which they used in a corn meal pudding and to sweeten other dishes. Some Indians burned the mature brown seed heads to extract the small seeds from the fluff, which was used to make gruels and added to soups.

Medicinal and other uses

The medicinal uses of cattails include poultices made from the split and bruised roots that can be applied to cuts, wounds, burns, stings, and bruises. The ash of the burned cattail leaves can be used as an antiseptic or styptic for wounds. A small drop of a honey-like excretion, often found near the base of the plant, can be used as an antiseptic for small wounds and toothaches.

The utility of this cattail is limited only by your imagination. The dried stalks can be used for hand drills and arrow shafts. The seed heads and dried leaves can be used as tinder. The seed head fluff can be used for pillow and bedding stuffing or as a down-like insulation in clothing. The leaves can be used for construction of shelters or for woven seats and backs of chairs, which has been a traditional use for hundreds of years. They can be woven into baskets, hats, mats, and beds. The dried seed heads attached to their stalks can be dipped into melted animal fat or oil and used as torches.

The next time you see “The Super Wal-Mart of the Swamp,” why don’t you do some shopping?

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Here's the best way to split gnarly firewood

By Jim Deaton

Perfection in splitting troublesome firewood is not accomplished with a splitting maul and wedge or with a gasoline-powered mechanical wood-splitter, but with a chain saw.

Some of us have spent hours and sometimes days splitting troublesome rounds of firewood with countless swings of a maul to hit a wedge that either jumps from the wood and tries to hide from us on the ground, or gets so buried in a crack that it takes us several minutes to remove (and sometimes several oaths). Others have spent the money to buy a gasoline-powered mechanical wood-splitter or borrowed their neighbor's and had to pay for something that "never broke before." A chain saw can do the job not only cheaper and faster but better. Better because you have uniform slabs of wood to build the ends of your firewood stacks.

The first step is to lay rounds of wood side by side (Fig. 1), with the long sides touching, on a level wooden surface (which protects the chain from cutting into the ground or other



Figure 2. Making little slabs out of big rounds. If a round needs more than one cut, make the side cuts first.

unfriendly material). Any wooden surface will work, either boards, waferwood, or plywood. If the wooden surface is elevated, so much the better. I started by laying plywood on the ground and rounds on top of that, but later elevated my plywood platform to reduce stooping. A wooden platform on top of a pair of sawhorses will eliminate stooping.

The next step is to place something heavy—like other rounds of wood placed crosswise at both ends of the row of rounds, like bookends—not only to keep the end rounds from rolling off the platform, but to keep enough pressure in the row so rounds do not roll or turn during the cutting.

Using this method, you're not really *splitting* the wood: you're *ripping* it. Ripping wood—that is, cutting *with* the grain in the horizontal position—is faster than cutting *across* the grain. In addition to being faster, it creates a useful by-product: shavings that can be used to mulch around bushes, to construct a meandering trail through a rose garden, or to attractively line a rose garden.

Before you start ripping with your chain saw, your main caution is to **make sure the bottom tooth of the bark-dog is stabbed into the end of the round before the moving chain touches the side of the round** (Fig. 3). If you don't do this, small, light rounds can be pulled rapidly into the end of your saw; while large, immovable rounds can cause your saw to be pulled quite rapidly into the end of the round. This is not particularly dangerous, but it can be alarming if you are not prepared for it to happen.

If a round of wood only requires a cut down the center—through the heartwood—to have two manageable pieces, no problem. But if a round of wood is fair size, as in Figure 2, and will require several cuts to make slabs of wood from two to four inches thick, it is best to make cuts on both sides of



Figure 1. Lay the rounds side-by-side on a wooden cutting surface, with heavy blocks on the ends.

the round first. Otherwise, one side will be lopsided, and lopsided things tend to turn, always when you don't want them to.

After the cuts are made and the slabs are looking like freshly-cut pieces of thick bread, the slabs can be laid flat on your platform to be cut into smaller pieces that will resemble rough-cut boards. Usually, additional splitting is not needed, because slabs will fit in most stoves. Besides, wide slabs work well for building vertical ends on your wood pile. Wide slabs can be split later with a splitting maul. A wedge is not needed, because a chop with a splitting maul or heavy axe in the heart of a two- to four-inch thick slab, or along the annual growth rings, will split it without too much effort, to reduce it to a chunk of wood just right for your stove. Δ



Figure 3. Make sure the saw's bark-dog is touching the round before the moving chain touches the wood.

Here's how to store LP gas, gasoline, diesel, and kerosene on the homestead — safely

By Emory Warner

Home storage of fuel is a necessity for homesteaders. Even if you are still on the grid, your truck, tractor, standby generator, etc. will still require fuel. I intend to offer appropriate methods of storage for LP gas, gasoline, diesel fuel, and kerosene. I will also offer some tips on safe fuel handling.

Fuel types

LP gas is one of the easiest fuels to store and also one of the most dangerous. It is a highly versatile fuel which can be used to power internal combustion stationary engines, tractors, and other motor vehicles, as well as for cooking and heating. LP has two serious drawbacks: First, it must be stored under pressure to remain a liquid; any leak (which may not be visible) could leak away all of your fuel without your knowledge. Second, LP is only slightly heavier than air, and will disperse at the exact ratio to produce an explosion. It will also “puddle” in low spots, waiting for an ignition source.

Gasoline has the advantage of being a liquid at room temperature. But it is probably the hardest fuel to store for any length of time. It has a high vapor pressure (which means it evaporates quickly) and will go stale in a few weeks if not chemically treated. It does have a fairly high ignition temperature (about 1100° F) even though it does not need a large volume of heat to ignite. Stored gasoline must be treated with a BHT additive like Sta-Bil and protected from moisture if it is to be stored for any length of time.

Large quantities of gasoline make me nervous. I used to live on the water in southern Maryland, and was wit-



Salvaged 275 gallon horizontal fuel tank with hand fuel pump and filter. This type of pump is suited for all fuels; current use is for diesel fuel..

ness to several boat explosions and fires due to gasoline vapor in the bilges.

Kerosene is one of the easiest fuels to store, and is more versatile than most people think. It does not evaporate as readily as gasoline and will remain stable in storage with no special treatment. Many pre-1950 farm tractor engines were designed to run on kerosene, and diesels will run on kerosene if necessary. Kerosene stoves and refrigerators are also available and would definitely be preferable to LP models from the safety standpoint.

Diesel fuel stores almost as easily as kerosene and is becoming more and more popular among the self sufficient. It is difficult to ignite intentionally and almost impossible to ignite by accident. Two grades are available: #1 diesel which is old-fashioned yellow kerosene, and #2 diesel which is the

same thing as #2 home heating oil. (You may see literature to the contrary, but #2 diesel is #2 heating oil. Period.) Diesel fuel presents its own unique storage problems: The first is that it is somewhat *hygroscopic*; that is, it will absorb moisture from the air. The second and related problem is sludge formation. Sludge is the result of anaerobic bacteria living in the trapped water and eating the sulfur in the fuel. Left untreated, the sludge will grow until it fills the entire tank, ruining the fuel. Stored diesel fuel should be treated with a biocide like methanol or diesel Sta-Bil as soon as it is delivered. Unique to #2 is the fact that some paraffin wax is dissolved in the fuel and will settle out at about 20° F, clogging the fuel filter. This “fuel freezing” may be eliminated by adding 10% gasoline or 20% kerosene to the diesel fuel. Commercial diesel fuel supplements are also available to solve the same problem. Diesel should be filtered before use.



Thirty dollar drum pump mounted on a 55-gallon drum of kerosene. This type of piston pump is not suitable for gasoline.

Alcohol (ethanol) is not commonly considered a storage fuel, but here is the data on it for those who distill their own. Alcohol is as hygroscopic as it gets, and must be stored in a sealed container to prevent moisture contamination. It is about as volatile as kerosene and presents the unique problem, when ignited, of burning with an almost invisible blue flame. It may be best to store the raw material for stilling the alcohol and producing the fuel as needed, rather than producing a large quantity and storing it.

Whatever fuel you store, it would be a good idea to monitor your fuel usage and plan your storage around a 90-day supply.

Safe fuel handling

Regardless of the fuel in question, all liquid fuels should be handled in the same matter as the most volatile, which is either gasoline or LP gas. Fuel should be stored in an isolated area, downhill and downwind from any other buildings. Fuel vapors are heavier than air, and will flow downhill. LP tanks should be left in the open and not enclosed in any way. Liquid fuel tanks can and should be stored in a well-ventilated building or

open lean-to to prevent solar heating from evaporating the fuel. If the storage location is permanent, consider using a buried tank. If set below the frost line, temperatures are stable at 55° F or so, which will inhibit evaporation. The tanks will be safe from everything, including stray (or aimed!) gunfire, brushfires, and just about everything else except the EPA. If buried fuel tanks offend your sense of environmental responsibility, then consider an underground vault. This has the added advantage of being able to inspect the tanks from time to time.

Regardless of the tank location, a dry chemical or CO₂ fire extinguisher should be hung on the outside of the building or near the pump. Any electrical fixtures should be “explosion proof” (sealed) and wired in sealed conduit to prevent fuel vapors from coming into contact with electrical sparks. Prohibit smoking or carrying of smoking materials within 50 feet of the fuel pumps. Electrical fuel pumps should have a heat sensitive shutoff to stop the pump in the event of fire. Always shut down the engine of the machine being fueled. Promptly clean up any spills. Last of all, be certain to use only the equipment that is approved for the fuel in question. (Some fuel pumps are approved for diesel only, and are unsafe to use for gasoline.)

Fuel storage methods

Liquid fuels use the same storage systems and will be covered as a group. LP gas is normally stored in pressurized tanks supplied by the LP dealer, and will be only briefly covered.

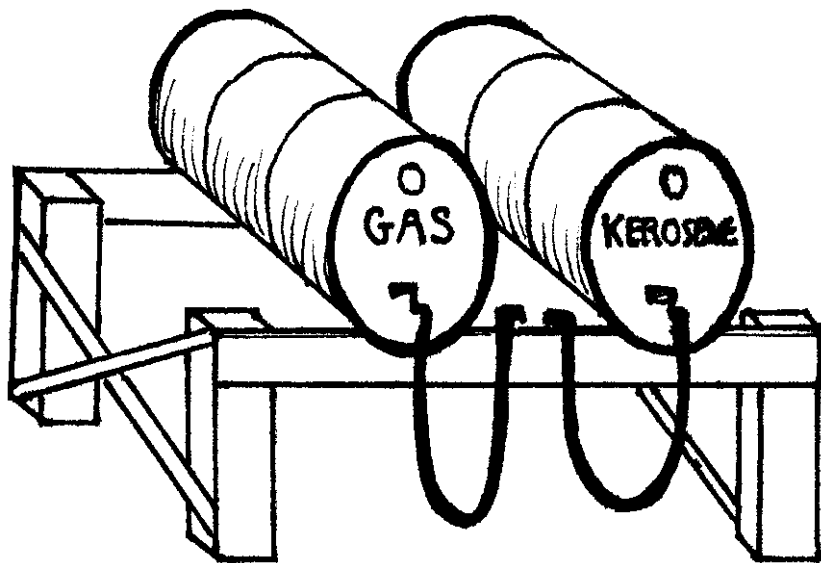
The most basic fuel storage system is the common portable fuel can. If you are still on the grid and have a job “off the property,” then this is a workable and economical method of fuel storage. A minimum of three cans will be required: one full at all times, one for use as needed, and one to be refilled at the first opportunity.

Rotation of the cans will ensure some amount of reasonably fresh fuel at all times. This storage system has the added advantage of portability in the event that the storage site must be abandoned. Use only approved containers, and use caution not to mix up containers. The standard color code for portable cans is blue for kerosene, red for gasoline, and yellow for diesel fuel. This is not cast in stone. Use whatever color scheme you like, but be consistent with it. Gasoline introduced into a diesel tank will make the diesel engine hard to start when hot. Gasoline in a kerosene heater will explode like a Molotov cocktail. Diesel #2 in a kerosene lamp will smoke and stink and soot up the globe. If you use all three fuels like we do, it seems that you will be filling a fuel can every time that you go out. Delivered fuel is much more convenient, and usually cheaper.

The next storage system is the 55-gallon drum used with a hand pump or horizontally on a rack. This is a highly flexible storage system, as drums may be added as needed to suit individual requirements. Most fuel dealers have a 100-gallon minimum delivery, so at least two drums will be needed. You can even load one drum in your truck, drive to the service station and fill it, then bring it home and pump the fuel into your storage drum. Drums are also portable enough in the event that the storage site must be abandoned. The only disadvantages are the negligible cost of the drums and that the drums will eventually rust and leak.



One type of approved and properly marked portable fuel cans.



A horizontal drum storage system. Front and rear 2x6s are notched to hold drums and are bolted to 4x4 posts. Braces are 2x4s. This would be nice to have under a lean-to beside the tractor shed.

We use drums for our kerosene and gasoline storage. Label each drum clearly if you are storing more than one type of fuel.

If you wish to store large quantities of fuel, then the built-for-the-purpose fuel tank is the system of choice. Tanks are available new in capacities from 100 to 10,000 gallons in above ground and underground types. Most commonly used here in the Northeast is the standard residential 275-gallon fuel tank. These are available new at plumbing and heating suppliers for about \$150. Used tanks are usually available free for the hauling, including whatever fuel is in them. As a side note, an individual with a pickup truck and a reciprocating saw could make a fairly decent living removing old fuel tanks as homeowners change away from fuel oil to natural gas. This is about the dirtiest work available, and pays about \$100 per tank. The removed tanks could be cleaned up, painted, and resold for \$50 or more. I have accumulated about five or six tanks in the last few years without really looking for them.

Fuel dispensing is a matter of choice. An elevated tank needs only a valve and filter; gravity will do the

rest. We prefer to use hand pumps for our kerosene and diesel tanks. Valves have been known to leak, and vandalism is an unfortunate reality of modern life—especially if the vandals elect to open the valve on a tank of gasoline and follow it up with a lit match. Hand pumps are safer, and they are more easily secured if the tank must be left unattended.

The author's system

My personal fuel storage system is a salvaged 275-gallon fuel tank with a hand pump and filter for our diesel fuel storage. Our principal tractor is diesel powered. We also use it to operate a PTO (power takeoff) generator for standby use. We use two or three 55-gallon drums for kerosene storage, with a lift pump for dispensing. (We rely on kerosene heaters to supplement our woodstove.) But, as I have a job "off the property," and we have two old gasoline engine tractors, as well as a chainsaw, lawnmower, etc., the fuel can system works well for our gasoline supply. This is particularly suitable for us, as I feel uncomfortable about storing large quantities of gasoline. Δ



SEND IN THE WACO KILLERS

Three times the International Society of Newspaper Editors has included Vin Suprynowicz in their list of the 12 top weekly editorial writers in North America. For years his shoot-from-the-hip style has opened the eyes of thousands to government abuse of our liberties. In this book, *Send in the Waco Killers*, he blends material taken from his syndicated column with new commentary to give the reader a detailed, reporter's-eye-view of how the rights and freedoms of Americans are being subverted.

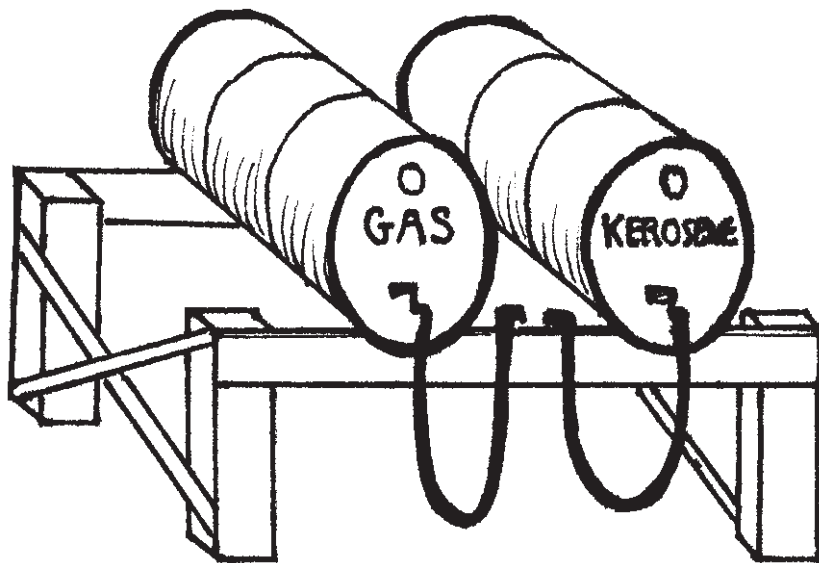
He uses factual accounts from the daily news to show how the Feds use the drug war, the public schools, jury rights, property rights, the IRS, gun control, and anti-militia hysteria to increase its power and control over us. He details how agents of the ATF and FBI have routinely lied, how they use paid informants to infiltrate Constitutionally-protected militia groups, then fabricate evidence to get arrests and discredit them.

Had he lived 225 years ago he'd have written a book to detail how King George III and Parliament have tried to enslave us but, sadly, this book is about how our government today is depriving us of our freedoms and ruining the lives of thousands without changing even one word of our Constitution.

If you read no other book this year, read *Send in the Waco Killers*. Just keep your blood pressure medication handy. 506 pages, trade paperback, \$21.95 + \$3 S&H.

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Improve FM and shortwave reception with a do-it-yourself radio antenna

By Charles A. Sanders

Almost all radio listening can be improved with the use of an outside antenna. A radio antenna grabs radio wave energy out of the air, then relays it to the radio receiver which amplifies the signal to an audible level.

AM radio reception usually relies upon an antenna built into the “innards” of the radio. Although some external antennas are available for AM radios, an external antenna will not usually help to pull in weaker signals.

On the other hand, portable FM and shortwave receivers normally come equipped with a telescoping antenna. Many of these radios also have a “jack” (or socket) to attach an external antenna. Attaching an external antenna will greatly enhance the signal-gathering capabilities of these radios.

Ideally, an antenna is constructed so that it can be tuned to the particular frequency it is receiving (or transmitting on). However, for general listening, a simple “long-wire” antenna can

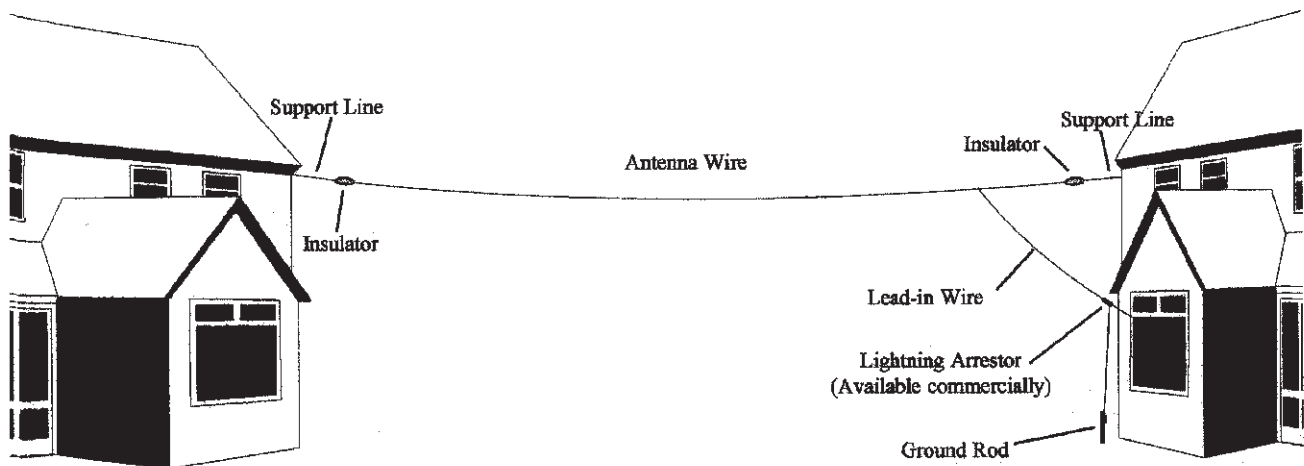
be made easily, quickly, and cheaply for just about any FM or shortwave receiver. The antenna described here will pull in a lot of distant stations that were either too faint and scratchy to listen to, or even completely inaudible.

For general listening on FM and shortwave, the length of the antenna itself is not critical. It may be made as long or as short as space will permit. It may be suspended from an outside windowsill to a tree or building by attaching it between two insulators, or merely laid around the baseboard of the room. I have used a length of flat TV lead-in wire as a makeshift shortwave antenna. I just attached it to the terminals on my old Hallicrafter receiver and laid it around the room along the walls. It worked pretty well. I have also seen an effective antenna made by suspending a light-gauge insulated wire with thumbtacks along the walls of a room near the ceiling. These types of “quicky” antennas are especially handy if you live in an apartment, where neighbors might

complain, or in other situations where an outside antenna is undesirable.

In a pinch, an unusual makeshift antenna can even be made by making up a length of insulated wire with an antenna plug on one end and about three or four inches of bare wire on the other. Insert the plug into the antenna jack on your radio and wrap the bare wire around one of the strands of barbed wire fencing on your place. You will instantly have an antenna considerably longer than any you can construct—a real “long-wire” antenna.

As you can see, the antenna arrangement can be made very cheaply and easily. The illustration depicts the construction of a more permanent long-wire antenna suspended between two insulators. Commercial glass insulators are readily available and inexpensive, or you can make effective substitutes by using a couple of pieces of PVC pipe from the scrap pile. The important thing is to separate the antenna wire itself from the support line.



A simple long-wire antenna setup

Copper wire makes the best antenna. The wire used for both the antenna and the lead-in can be the same size, usually 12, 14 or 16 gauge. Try not to use solid-core wire. The long-term effects of wind and weather can take their toll on lighter wires, and stranded or braided wire will provide the best durability.

Another important item is to be sure to use a lead-in wire that can be attached to your radio. Visit the local radio supply store and purchase a plug which will fit the antenna jack of your radio. These plugs are inexpensive and easy to use.

Since the lead-in wire will likely be run over a windowsill or otherwise come into contact with other surfaces, it must be made of insulated wire. It cannot come into contact with anything which will absorb the energy of the radio signals. If you use a separate antenna wire and lead-in wire, be sure to carefully cut away any insulating covering, then twist the two together, bare wire to bare wire. It is best to then solder the connection and securely wrap it with weatherproof electrician's tape. In a pinch, you can get by without soldering the wires together.

As seen in the illustration, a short piece of support line is anchored near the site where the radio is located (in most cases, the outside wall of the home). An insulator is then secured to the free end of the short line. Next, the antenna wire is secured to the insulator. You may either secure the end of the antenna wire and attach the lead-in wire later, or simply provide one piece of wire long enough to serve as both the antenna and lead-in wire. Using one piece of wire will eliminate the need to solder or wrap the lead-in wire to the antenna wire. In either case, the wire is attached to the insulator to separate the antenna wire from the support line.

Out on the far end of the antenna wire, attach another insulator. Then attach another piece of support line to the free end of the insulator. Run the support line to a tree limb, pole,

another building, or other support. The whole assembly does not need to be suspended too tightly, but hang it high enough so it's out of the way. In fact, the higher and longer the antenna is, the better the reception will be.

Be sure to run a ground wire, routed through a lightning arrestor, from this suspended antenna. It is obvious that in the event of a lightning strike, it is better for the million-some-odd volts of electricity to go to ground than to come leaping out of your radio. Use a six- to eight-foot copper or brass rod and drive it in a good five to seven feet into the ground. Firmly clamp one end of the ground wire to the rod and secure the other end to the lightning arrestor. It in turn is connected to the lead-in wire. (The lightning arrestor *won't* conduct small currents to your grounding rod, but it *will* ground out a lightning strike.) This arrangement will provide some cheap insurance and considerable peace of mind.

When selecting a site for your outside antenna, remember that the antenna picks up best those signals which come in at a right angle to its length. In fact, it is a relatively simple matter to construct two of the long-wire antennas described in this article and place them at right angles to each other. If you do this, you can connect both antennas to your lead-in wire, but you may find some "clutter"—that is, weak stations crowding in on the station you're trying to hear. If that's a problem, you can add a switch to the setup, so you can switch from one antenna to the other.

It is also important to place the antenna away from sources of electrical interference. That may include power lines, transformers, thermostats, TV sets, fluorescent lights, electric motors, electric fence chargers, and even passing automobile traffic. Rheostat switches such as those used on household light dimmer switches will also wreak havoc with radio signals if close by. Electrical storms will also disrupt your recep-

tion. And remember, when erecting your antenna, **never cross over or under power lines** with it.

If you want to enhance your radio set's reception, consider trying an external radio antenna. Whatever your location, I think your set's performance will be improved. Δ



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Homesteading on the electronic frontier

By Martin Waterman

Solar, wind, and other independent energy information can be found on the Internet

Whether you are on or off the grid, you may have an abundance of untapped energy on your property waiting to be harnessed. At the Very least, there are many ways you could be saving energy by using different construction and renovation methods. With the Internet, you can quickly find hundreds of useful sites pertaining to renewable energy sources such as wind, water, and solar power as well as information on saving energy by using heat pumps or just common sense.

Alternative energy and energy conservation used to be a hot topic during the energy crisis of the early 1970s which coincidentally ended when interest in alternatives to fossil fuels peaked. There has been a great deal of progress in the last few decades, and apparently systems have become much more efficient and viable. I have listed but a few of the sites that are worthy of attention.

Useful sites

<http://www.aral.com/enrenew.htm> is a site packed full of renewable energy links to companies that specialize in solar, wind, and hydro power. There are also links to organizations and the latest news and information. This is an excellent place to start out, especially if you want to gather information and prices on materials or systems. There are over 150 links, and most of them are companies that market various energy-generating and energy-saving equipment.

<http://www.afdc.doe.gov/> is the Alternative Fuels Data Center (AFDC) which claims to be the

nation's most comprehensive source for information on alternative fuels. The AFDC is operated by the National Renewable Energy Laboratory (NREL) with funding and direction from the Office of Alternative Fuels within the Office of Transportation Technologies at the U.S. Department of Energy (DOE). The AFDC collects operating information from vehicles (in programs sponsored by the Alternative Motor Fuels Act) running on alternative fuels, analyzes those data, and makes them available to the public. The AFDC also maintains information on research reports conducted for both the Biofuels Systems Division and the Fuel Utilization Data and Analysis Division of the DOE Office of Alternative Fuels.

This is an interesting site, particularly the alternative fuels Web site statistics and useful links, including those to the DOE and to the NREL.

<http://nwtc.nrel.gov/> is the National Wind Technology Center, which is operated by the NREL. Before you go thinking that this is just another government agency blowing hot air (and taxpayer dollars), the site has a great deal of easy-to-understand information on wind research and wind power. If you are just starting out on the learning curve, there is a great deal of basic information. Of course, there is also much here for those requiring advanced information. I did have a problem with the site. Whoever created the site went overboard with the graphics to the point where it is slow to load.

<http://www.igc.apc.org/awea/> is the American Wind Energy Association (AWEA). This is the

trade organization for the wind energy industry. The site offers a publications catalog, a Frequently Asked Questions (FAQ) document, articles from the Wind Energy Weekly newsletter, a catalog of wind energy publications, a list of small turbine manufacturers, policy issues (that almost always reflect a pro-alternative-energy agenda), information on utility restructuring, and news releases on topics important to the future of clean energy. Since 1974, AWEA has been involved in wind energy as a reliable energy alternative.

For those who are really in search of hard core info, there is also much technical information. There is also information on Windpower '97, AWEA's annual conference and trade show, as well as links to other related sites. Their e-mail address is wind-mail@mcimail.com.

<http://www.realtime.net/~gnuudd/~react/epsea.htm> is the home of the El Paso Solar Energy Association (EPSEA), which was founded in 1978 and is the oldest continuously active local solar organization in the United States. EPSEA publishes a monthly newsletter on solar energy and EPSEA activities.

The purpose of EPSEA is to further the development and application of solar energy and related technologies with concern for the ecological, social, and economic fabric of the region (West Texas, Southern New Mexico, Northern New Mexico).

There is some very practical and free information on this site. For instance, if you are thinking of building or renovating a home, there is information on passive solar and energy-efficient home design. To quote, "It is a fact, that everything we build is solar. When we ignore solar energy during the design stages we end up

with a building which may benefit from solar, though it is just as likely to be beat up by solar energy." The guidelines cover orientation to the sun, avoiding blockage by trees and other obstructions, formulas for amount of glass as a percentage of total square footage, glass formulas for each side of the house, proper landscaping (planting deciduous or evergreen trees on the east, west and north sides of the home), insulation formulas, and general construction information. You can go directly to this page at <http://www.txses.org/epsea/design.html>.

<http://www.eeba.org/> is the home of the Energy Efficient Building Association, Inc. (EEBA). This is an international non-profit group dedicated to fostering energy efficient design and construction, and environmentally responsible development practices that provide quality living environments. EEBA promotes environmentally respectful development through development and dissemination of information and conducting training for use by the housing industry, consumers, and governmental agencies. They have a bookstore and a list of publications that may be beneficial for those looking to save energy in their new buildings.

One of the best things about the Internet is that you can get news and new information before it is old. There are many universities, colleges, and organizations involved in alternative energy research, and finding out the latest studies and technologies is just a point and a click away. If you go to <http://www.esl.tamu.edu/> you will end up at Texas A&M's Energy Systems Laboratory. This lab is used for studies of energy conservation and heating, ventilation, and air conditioning within the Texas Engineering Experiment Station in the Texas A&M University system. The laboratory is one of the largest university-based research programs of its kind in the United States. One of its principal projects is the Texas LoanSTAR

Program, a State Energy Conservation Office program designed to "Save Taxes And Resources" by monitoring energy use and recommending energy-saving retrofits.

When you consider that many individuals have home pages that mention solar, water, or wind energy, there are thousands of sites that can be useful.

Another benefit of the Internet is that not only can you obtain a great deal of accurate and up-to-date information, you can also e-mail questions to users and get first-hand information and feedback.

Virus alert

What is the most important part of your computer? The hard drive? Your CPU? Your RAM? Your files? If your computer is vulnerable to a virus, all of the above could be rendered useless. Just imagine for a moment what it would mean to lose all your files as well as have your hard drive turned into a piece of scrap metal. How long would it take you to get up and ruiiring again? How much time and how much money would it take even if you religiously back-up your files?

Computer viruses are a serious problem, so much so that in some businesses, introducing a disk that could be infected could cost you your job. If all your software comes in shrink-wrapped plastic direct from the computer shop, the chances of your computer catching a virus is quite low. However, the famous Michelangelo virus actually found its way into some commercial software. This particular virus spreads quietly until March 6th and then overwrites the information on your hard drive with random characters.

Today's modern viruses can attach themselves to e-mail files and enter your system totally undetected.

If you are like most users-that is, you share files, are on the Internet, receive e-mail, and download files or programs-the chances that you may be hit with a virus increase dramatically.

This means it is highly advisable to practice safe computing in the 90's, and this means protecting your computer and your business from these attacks.

I have been fortunate never to have had a virus. However, friends and business associates of mine have had their systems down and damaged by these virus attacks. In some instances, the virus has resulted in losses of thousands of dollars because files have to be keyed in all over again.

Simply put, the computer virus is a program designed to replicate and attach itself to programs. Depending on the programmer who created it, the virus can do damage by corrupting programs, playing pranks, deleting or changing files, displaying political or pornographic messages, or destroying or reformatting your entire hard drive.

No computer should be without a virus checking program to find, correct, and delete these parasitic programs. There are over 10,000 known computer viruses, and as you read this, no doubt new ones are being spawned out of demented programmers' minds.

One of the best known anti-virus programs is Norton AntiVirus. It is available for different operating systems, including Windows 95 and Windows NT, and there is also a network version. Norton's AntiVirus program can be updated monthly by simply downloading a file from the Internet. Of course, disks can also be ordered.

There seems to be a new rash of computer viruses striking lately. It seems that after all the publicity associated with Michelangelo, many users have let down their guard. This, combined with the newer generation of polymorphic and boot viruses, makes it more important than ever to practice preventative maintenance. In the case of a computer virus, an ounce of prevention can save you a ton of expenses and headaches.

(Martin P. Waterman can be reached at waterman@mailserv.nbnet.nb.ca) Δ

Ayoob on firearms

By Massad Ayoob

Teaching your lady to shoot

By Massad Ayoob

Backwoods Home Publisher Dave Duffy wants his wife to learn to be comfortable with a handgun. Cougar attacks on humans are increasing in the region where she walks with their kids. Makes sense to me. Dave asks, “How do you teach your wife to shoot?” My best answer would be, “By making an appointment for her with an instructor.”

Teaching your wife to shoot is like teaching your spouse to drive. If you’re like most of us, marriage is a partnership of equals. That relationship of equals is tilted out of balance when one becomes the teacher to the student, the parent to the child as it were.

It works in reverse. My wife and I went through the same thing when she tried to teach me computers. We both gave up in frustration. She learned to shoot, long ago, from my gun club’s pistol team, and I learned computers (if “learned” is the word at my present stage of computer literacy) from a hired consultant. It worked out better that way.

Had we needed the skills acquisition simultaneously, trading each hour on the range (I teach her) for an hour at the terminal (she teaches me) would have worked. Another possibility is that shooting is something you both need to learn. This is ideal: go to class together.

This worked great for two friends of mine, Otto and DeeDee Orive. They went to their first basic class together, and today share not only a hobby but a lifestyle. Otto went on to become a cop and one of the top police firearms

instructors in the Pacific Northwest, while DeeDee is also a firearms instructor. Both are splendid shots.

I’ve seen DeeDee outshoot Otto, and it’s not a unique phenomenon. Firearms instructors almost unanimously agree that female students have a much faster learning curve than males. Part of it is that there is no subconscious baggage of an alpha male learning something with macho overtones from another alpha male. I think there’s also an inherently better fine motor coordination at work. There’s also an attitude difference, most starkly seen when teaching children firearms safety. Young boys react to their first firing of a gun with, “Wow! It’s loud! It kicks! And it’s a grown up guy thing!” Young girls are more likely to respond with, “If I do this exactly right, I can put every bullet in the same exact place. Neat!”

When a bonded couple attends a class with me at Lethal Force Institute (call 1-800-624-9049 for class information), I generally put them on different ends of the firing line. That way she doesn’t have to worry about performing in a way that pleases him, and he doesn’t have to worry about shooting well enough to impress her, and they can proceed with learning at their own pace much more naturally.

One who agrees with spouse not teaching spouse is Gila May-Hayes, author of the book [Effective Defense: the Woman, the Gun, the Plan](#). She was trained by her husband, Marty Hayes, and then developed the relationship that led to their marriage. Together, they run the Firearms Academy of Seattle (call 1-800-FAS-AMMO for class information), and



Massad Ayoob

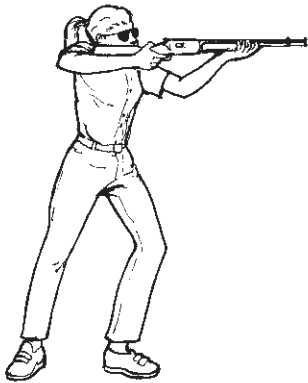
Gila advises, “Get the training from professionals.”

If a firearms academy per se is not available in your area, ask local cops, conservation officers, and gunshop proprietors who the people are in your area who are (a) highly competent with firearms, and (b) capable of transferring that knowledge. (Being a good practitioner doesn’t necessarily make you a good teacher.) You might even have skills you can barter with the local instructor for true “backwoods living values.”

Gender differences

None of this is to say that the male can’t teach the female in his life, or vice versa for that matter, only that it can be more difficult. But both teacher and student will have to know what professionals know about what firearms and shooting techniques best suit typical female sizes and learning attributes.

You wouldn’t teach someone five feet tall to drive in a car whose seat was set for a six-foot-six driver. Don’t teach someone to shoot with a gun that’s too big for them. This isn’t a “women’s issue”; rather, it’s an issue



The “aggressive forward” stance is more stable for a small shooter.

of physical size and proportional hand size vis-a-vis firearms that impacts women disparately because they tend to be shorter-statured with smaller hands than the “average adult male” most firearms are designed to fit.

On a rifle or shotgun, the critical measurement is *pull length* of the stock. The rule of thumb is this: If she grasps the empty shotgun or rifle with her finger on the trigger, and the buttplate or recoil pad comes just to the crook of her elbow, it will fit her; if it's longer than that, it won't. A too-long stock will force her to cantilever her shoulders back to hold it up, taking her so far off balance that recoil will kick her around, and she won't be able to get the proper eye position to use a telescopic sight.

On a handgun, the key measurement is *trigger reach*. She wants to be able to put the empty pistol or revolver in her hand with the gun barrel directly in line with the long bones of her forearm, and be able to reach the trigger with (ideally) the farthest (distal) joint of the trigger finger, or at least the pad of the fingertip. If she can't do that, she'll have to crook her hand around the gun to work the trigger in a way that will compromise her grasp. Shooting that way can hurt her hand, and she won't have good control of the gun.

Most American manufacturers make rifles and shotguns with “youth stocks” for shorter-statured persons

with shorter arms. Any long gun's wooden stock can be cut down to fit.

The bargain-priced SKS military rifles imported from China and Russia tend to have shorter stocks than American guns, in the one case to allow for smaller-statured Asian males and in the other to allow for heavy Russian winter military uniforms. They fit women well, particularly the “paratrooper” models, and with American-made softnose ammo, their 7.62 x 39 cartridge is comparable in power to that favorite of deer hunters, the .30/30.

In a bolt-action rifle, a light .243 like Remington's Model 7 makes enormous sense.

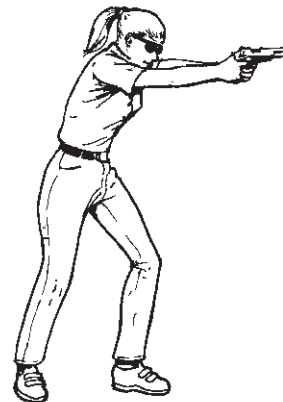
In handguns, short-trigger-reach autoloading pistols that are ideal for petite women include the powerful 1911A1 .45 (yes, they can handle the recoil), the 9mm or .40 caliber Browning HiPower, and if price is no object, the HK P7M8. Revolvers especially well suited for small hands include the Smith & Wesson J-frame series in a variety of calibers from .22 to .357 Magnum, the Ruger Sp-101 in a similar caliber range, the new Colt SF-VI .38s, and the smaller Taurus models. Of course, if she has long fingers, you don't need short-reach triggers. My oldest daughter, five-nine with proportional hands, used the long-reach Beretta 9mm to place High Woman at the 1996 National Tactical Invitational.

Shooting positions

You also want to emphasize shooting positions that don't need the typical male's upper body strength. Your wife doesn't have your biceps, but pound for pound she's stronger than you in the legs, so let her shoot the long gun with an aggressive forward stance. Her sharply flexed leading leg takes proportionally more of the weight and stabilizes her better.

With a two-handed pistol stance, instead of the muscle-tone-intensive Weaver posture with its isometric

push-pull, let her use the skeletal-support-intensive Isosceles stance, with her arms locked straight out in that same aggressive forward stance we talked about, with her powerful leg muscles taking proportionally more of the outboard weight of an extended firearm.



An isosceles stance with the aggressive forward stance offers stability.

Encourage her to use stable positions like kneeling or sitting, which in all probability she can do better than you. Women have about 30° more flexibility in the pelvic axis than men, and lower centers of gravity even irrespective of relative height. The competition rifle shooter's sitting position makes me want to cry out for a chiropractor, but my daughters sit this way by choice when they talk on the telephone.

The relative difference in upper body strength means she'll appreciate a lighter gun than your favorite, and perhaps one that kicks less than yours. As with any new shooter, start off with a .22 for its negligible recoil and mild sound report, and work the student up through the calibers as she (or he) becomes accustomed to shooting. Starting off with a too-powerful gun is always a bad idea.

Good luck. More women than ever are becoming involved in the shooting sports, and are acquiring firearms for personal protection. It's an idea whose time has come, a statement of female empowerment that has been long overdue. Δ

Here's a cabbage with class — Early Jersey Wakefield

By Alice B. Yeager

Photos by James O. Yeager

When considering what to plant for an early yield in our garden, there is a variety of cabbage that always comes to mind: Early Jersey Wakefield. Over the years it has earned a reputation of being one that will succeed for us where some others have failed.

Living in Southwest Arkansas (Zone 8) where heat and humidity play a big part in our gardening decisions, we need a cabbage that matures before the threat of hot weather. Early Jersey Wakefield meets the challenge and gives us something to anticipate. It's a cabbage with quality and class, and a good keeper that lasts several weeks when refrigerated. Coleslaw made from this cabbage is sweet, with no hint of heavy flavor or bitterness. Heads are pointed and average about two to three pounds apiece. Texture is crisp and tender—great for making kraut. Side leaves are good for cabbage rolls.

By trial and error, we have learned that some of the later-maturing varieties, like Savoy King Hybrid or Copenhagen Market, sound good in the seed catalogs, but don't perform well here. They seem to be subject to sun scald and splitting. They would probably do better farther north in a cooler climate.

Cabbage plants need moderately rich soil and plenty of sunshine to reach their full potential, but cabbage is a cool season crop, and plants should be set out as early as the ground can be worked, after danger of a heavy freeze has passed. Our garden soil is rich in humus, being the dumping ground for an endless supply of leaves and pine needles. To this we add chicken litter during fall and winter, and it all comes together to produce a soil that will grow almost anything within reason.



A mature head of Early Jersey Wakefield cabbage. At this stage it makes excellent coleslaw, sauerkraut, soup, etc. Some of the side leaves may be used for cabbage rolls.

Cabbage requires a soil with pH of 6.0 to 7.0, making it a suitable vegetable to grow in most fertile garden soils. To develop good heads, cabbage needs a moderate amount of moisture but doesn't like boggy locations.

Planting

Our plants are started from seed in a cable-heated seed starter in our small greenhouse while winter winds are still blowing around outside. After the seedlings have produced a second set of true leaves, we move them out of the starter to small individual plastic pots filled with a good quality potting soil. (We once used peat pots, but quit when prices soared.) Young plants are watered with a liquid plant food and remain in the greenhouse until it's almost time to be transplanted to the garden.

In order to avoid sun scald from outside exposure, we harden off plants by placing them in a spot protected from wind where they will receive direct sun for a couple of hours each day, gradually increasing exposure until they can take all-day sun without having their leaves damaged.

Cabbage variety determines spacing of plants in the garden. As a general rule, early-maturing varieties are planted closer together than varieties that have larger heads and

need more room and time to mature. We space Early Jersey Wakefield plants about 18 inches apart in rows about 2½ feet apart. Cultivation is virtually unnecessary, as we surround the plants with a light organic mulch, gradually adding more as the plants grow. Occasionally a stray weed or bit of grass will appear, but the mulch keeps them from being strongly rooted, and they are easy to pull up.

Young cabbage plants will endure cooler temperatures than many spring plants. Generally

a light frost will not harm them. If temperatures are predicted to dip into the mid-20s or below, however, we take no chances, but cover the plants with plastic flower pots, Hotkaps or whatever is handy to protect them. Metal conducts cold, so no plants should ever be covered with metal cans, buckets, etc.

It is well to remember to rotate garden crops. That is to say, don't continue to plant the same thing in the same spot year after year. If there are any diseases connected with a plant group, chances for having problems with those diseases will be increased. Cabbage is subject to clubroot, a fungus disease affecting all members of the Crucifer family (cabbage, broccoli, Brussels sprouts, cauliflower, etc.) Plants wilt during daytime and recover at night. Older leaves yellow and drop off, and roots become swollen and distorted. This fungus can live for years in the soil, but rotating crops will minimize chances of having to give up planting any of the crucifers.

Pest control

Different parts of the country have diverse concentrations of pests to confront when it comes to raising cabbage or any other vegetable. Flea beetles, cutworms, slugs, snails, cabbage worms, etc., all share our love for cabbage. With the exception of flea beetles, most of these will find their way into the cabbage heads, where they are not discovered until the cabbage is harvested. The best method that I have found for getting rid of slugs and snails before they zero in on the cabbage is to place shallow pans of beer (rims even with the ground) in the



Head 'em up! Young Early Jersey Wakefield plant beginning to form a head.

cabbage patch. The interlopers don't seem to mind whether cheap or expensive beer is served and will literally drown themselves. You can also buy traps and baits from gardening supply companies.

Diatomaceous earth, with its silica-like texture, is a good defense against pests with soft bodies, such as slugs and cutworms. Earthworms are not affected, probably because they are not surface dwellers. DE is most effective when the ground is not too moist. Showers render it useless.

I do not like to resort to inorganic methods for controlling pests, but if I find that sowbugs and cabbage loopers are having a heyday with our cabbage plants, I resort to five or ten percent Sevin dust. Sevin is death on sowbugs and other leaf chewers. If the looper infestation is light, I eliminate them by hand picking.

Needless to say, cabbage is good for you. It has an abundance of vitamins and minerals and is low in calories. An entire meal can be based on steamed chunks of cabbage, onions,

potatoes, and carrots seasoned with a bit of oleo, pepper, and bits of ham. Served with a pan of piping hot cornbread, this steamed mixture lets you know a gardener's life can be downright rewarding.

Seed sources

Most seed companies list Early Jersey Wakefield.

Savoy King Hybrid:

Thompson & Morgan, Inc.
P.O. Box 1308
Jackson, NJ 08527-0308

Copenhagen Market:

Gurney's Seed & Nursery Co.
110 Capital Street
Yankton, SD 57079 Δ

Playing Poker

*The cards fall in the night
With neither prejudice nor pattern.
But I look around the table
And I believe the others are here
To find God
And elicit from him some favor,
Or a hint,
Or just a smile from eternity
That will show up for them
in the cards.
Smoke hangs over the table
Like celestial clouds,
And chips click like rosary beads.
It makes me uncomfortable.
But I am here because I believe
I can impose my will
On a luckless and godless
universe,
And rule my own destiny
And fashion rationality
And buck the never-ending
entropy
And mold meaning out of the dis
order
The way a sculptor carves
meaning
Out of lifeless stone
And leaves a statue
Where only a rock
Had been before.*

Deal.

(Reprinted from the book, *Sex and Sins in the Cemetery*, by John Silveira, available from *Backwoods Home Magazine*.)

Make your own Old World culinary delights

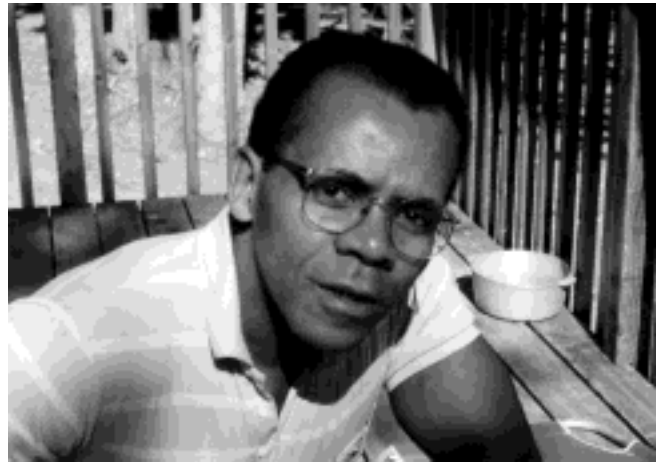
By Richard Blunt

As the years go by I find myself more and more out of step with the incessant noises, signs, and fast moving trends our onrushing society imposes on me. Every time I go into a supermarket I feel more like a victim of mass production and mass merchandising than I do a shopper with my own desires and tastes. Walking up and down the maze of aisles, cluttered with processed foods stuffed into strange colored cans and boxes, I feel out of place. I have difficulty registering any connection between the food on the shelves and the land from which it came. I leave the market with a feeling that I have lost another link in the chain that connects me to the basic culinary arts that have been my mainstay since childhood.

This issue I will share with you some of my childhood experiences with Old World culinary crafts, and the simple recipes I've learned that have kept me connected to a culinary heritage that has otherwise almost completely disappeared in this country.

I spent my early school years at a small parochial school in one of Boston's largest suburban areas. At that time almost every Catholic parish in Boston's suburbs had its own elementary school. The size of the parish along with the economic status of the parishioners determined how well equipped the school would be. My mother and I lived in a small parish that was made up of a diverse mixture of working class families. The parish didn't have a lot of money and most of the families had children attending the parish school. This created a space problem that could only be solved by converting the cafeteria into classroom space.

For some reason the teachers would not allow the students in the sixth, seventh, and eighth grades to eat lunch at our desks, so we were sent home for lunch each day. We left school at 11:30 a.m. and were expected back to resume classes at 12:45 p.m. Unfortunately, I lived far enough from the school to make this daily trip an exercise in endurance. In good weather (no rain, snow, hurricanes, floods, or tornados) I could hurry home and, with little time to spare, eat my lunch, then return to school within the time allotted. It wasn't easy. Fortunately, my mom recognized the seriousness of my problem from day one and made arrangements for me to eat lunch at the homes of kids who lived closer to the school than we did. The neighborhoods close to the school consisted mainly of Irish, Scot, Italian, and Greek American families. Some of the moms in this area were active members of my mother's weekend holiday bake shop (see my last column) and also worked with her on various church projects. Lucky for me, they were all great cooks



Richard Blunt

and took the preparation and service of lunch to us kids seriously.

The lunches served in these homes would be considered unusual by today's standards because the kitchens were controlled by women who prepared foods according to Old World traditions. The main theme was wholesome food prepared in an economical but elegant fashion, with little or no waste.

Mrs. Tassalari once served a leftover Moussaka casserole, baked with a sauce made with fresh home made yogurt. My taste for homemade Greek food was fixed from that day on.

Mrs. Troiano always had a hearty pasta dish for lunch, and she never served me the same sauce twice in a row. My favorite was a sauce made with home cured green and black olives, fresh mushrooms, and fresh herbs from her garden, all marinated in a light olive oil.

Mrs. Griffin always served cold sandwiches and soup, but the sandwiches were not the peanut butter and jelly type that are so popular with kids today. Her sandwiches were made on a variety of homemade whole grain breads, embellished with one of several English cheeses, braised fresh brisket, roast turkey, or sliced roast pork. All sandwiches were enhanced with a fiery homemade malt whiskey mustard that would take your breath away at first bite.

My mother often served salads made with fresh greens tossed with blanched and raw vegetables and an English cheddar cheese she bought from Mrs. Griffin. These salads never contained lettuce. When I asked why, she replied, "lettuce is rabbit food." She made her salad dressings with her own home-fermented apple cider vinegar, or malt vinegar (made from a strong beer or ale), that was better than any vinegar you can buy in a gourmet store today.

If an Old World culinary connection of the kind that used home cured olives—such as Mrs. Troiano made—marinated in the dressing of your choice, or homemade mustard—like Mrs. Griffin made—that can be custom blended to satisfy any taste, sounds interesting to you, read on, relax, and take a little time to enjoy some of the Old World culinary arts that were once the mainstays of family kitchens.

Brine cured green olives

If you live near the Great Central Valley of California, finding fresh olives for curing will not be a problem. California has over 35,000 acres of olive trees, and picking fresh olives in the fall is similar to picking apples on the East coast. If you live elsewhere, most Italian and Greek markets start stocking the best green olives in October. The best black—or ripe—olives start arriving in late November and continue in stock through January.

Unlike other fruits, olives cannot be eaten raw from the tree. They contain a bitter glucoside called oleuropein which must be removed by processing to make them edible. I'm going to introduce you to a brine curing process. It is safe, simple, and produces a finished olive that is full of flavor without being bitter. This isn't the only method for curing olives. Others methods include, dry salt curing, lye curing, and fermentation with lactic acid. These are methods that are worth exploring at another time as each produces a finished olive with a different taste. You can cure as many olives as you like. I have a full flat (about 16 pounds) curing as I write this column. Just keep in mind that this is a curing process, not a preserving process. The finished olives will be safe in brine for about a month. After opening they must be refrigerated and consumed within a couple of weeks.

Ingredients for Primary soak:

2½ pounds dark green olives
Cold water for primary soaking

Method:

1. Place the olives in a large plastic or stainless steel bowl add enough cold water to just cover. Place a plate on the olives to prevent them from floating.

2. Change the water every day for 10 days. This prevents fermentation from setting in. During this period, and the brine curing process that follows, store the olives in a cool, dark place.

Ingredients for brine solution:

1 cup sea salt or kosher salt
1 gallon bottled spring water
1 whole head of garlic, unpeeled
4 bay leaves
2 tsp whole coriander seeds (Buy these in bulk at an ethnic market where they can be purchased cheap.)

Method:

1. Heat the spring water over a medium heat to just below the boiling point. Remove the water from the heat and stir in the salt until it is dissolved.

2. Add the garlic head, bay leaves, and coriander seeds and allow the brine to cool.

3. When the brine has cooled to room temperature, cover the olives with the cooled brine and return them to a cool dark place.

4. Each week for the next five weeks drain off the brine and repeat steps 1 through 3. On the sixth week strain the olives from the seasoned brine and prepare weaker unseasoned brine solution.

Ingredients for unseasoned brine:

½ gallon bottled spring water
¼ cup sea salt or kosher salt

Method:

1. Heat the water to just below the boiling point, stir in the salt, and let the mixture cool.

2. Transfer the olives into two sterilized quart-size canning jars and add just enough brine to cover. Seal the jars and return them to a cool dark place until you are ready to eat them.

When will my olives be ready?

The whole process should take about three months. Let your own taste be the judge. Rich olive flavor without bitterness is the key.

How should I serve my home cured olives?

Try this. Remove the fully cured olives from the brine and rinse them in plenty of cold water. Dry them completely and marinate them in the refrigerate in your favorite olive marinade.

If you don't have a favorite olive marinade (which, at this point, is quite likely), try this one. This is a dressing that Mrs. Tassalari always made for the olives that she used in her favorite Greek salad. It was a perfect match for the sharp flavors of her feta cheese and Kalamata olives.

Garlic herb olive marinade

Ingredients:

½ cup extra virgin olive oil
½ tsp English mustard powder
4 cloves fresh garlic, minced fine
2 tsp dried oregano
½ tsp dried red pepper flakes
¼ tsp ground cumin
½ tsp lemon zest
½ tsp ground coriander
1 Tbsp dried cilantro

Mustards

The Mount Horeb Mustard Museum in Wisconsin has over 1700 types of prepared mustard in its collection. Horseradish, garlic, chilli peppers, honey, hard cider, fruit brandies, numerous spices and even peanuts are added to prepared mustards as custom flavor and texture enhancers. So, if you have any preconceived notions about just how mustard should taste, the world of mustard holds many surprises for you. Creating the perfect imitation of Grey Poupon is not the ultimate success when making your own mustards. The real success is having fun with the endless variety of tastes and textures that this true culinary craft offers it's practitioners.

There are three types of mustard seed, yellow, brown and black. All three of these seeds can be purchased in any East Indian grocery store at good prices because mustard seeds are standard ingredients in Indian cooking. Black and brown mustard seeds are used to make the most pungent commercial mustards. Yellow seeds are the primary ingredient in mild "hot dog" mustards.

Mustard seeds are somewhat mild and uninteresting until you break the shell of the seed and add liquid. Once the endosperm is wetted, the chemical reaction between enzymes and other compounds in the seed form the pungent mustard oils. I mention this not for scientific reasons but to let you know that the most important phase in preparing mustards is the addition of the liquid ingredients. The success or failure of a prepared mustard depends on what you, the craftsman, thinks of the taste. Before you add a new and unproven liquid to your mustard, place a small amount of the powdered dry mustard in a dish and add some of the liquid. Give the mixture about one hour to develop its flavor, then taste. You'll know then if you want to mix a larger batch.

While you are experimenting, crush a few of each type of seed and see if you can tell the difference between them. Also add a little water to each type of mustard powder that

you intend to use (yellow, brown, or black) and let the flavor develop and taste the difference. It should be considerable. I know it sounds like a lot of work but by taking a little time to test your main ingredients in the beginning, you will save yourself a lot of disappointment later on.

Let's make mustard. This is a favorite mustard in my house. If the mustard is intended for a mixed group (children and adults) I cook the whiskey to remove the alcohol.

Highland Malt Mustard

Ingredients:

½ cup brown mustard seeds
½ cup yellow mustard seeds
4 Tbsp water
½ cup honey
⅔ cup cider vinegar
1 Tbsp fresh ground nutmeg
1 Tbsp kosher salt
⅔ cup single malt Scotch whiskey (Use Scotch for a full body and smokey flavor. For a lighter flavor substitute Irish or Canadian whiskey. For alcohol-free, substitute fresh apple cider.)

Method:

1. Grind the brown and yellow mustard seed together to a desired consistency in a blender. Some people like a coarse mustard and some like it smooth. It's up to you when you grind it.

2. Mix the processed seeds with the water in a glass or stainless steel bowl and let the mixture stand covered for one hour.

3. Combine the mustard mixture, honey, vinegar, nutmeg, salt, and whiskey (or cider) in the blender or food processor. Process until the mixture forms the desired consistency. Add more honey if the mixture looks dry.

4. Transfer the mixture to a glass or stainless steel bowl, cover and let stand for 24 hours.

5. Pour into sterilized 4 ounce jelly jars and process in a boiling water bath for ten minutes. Store in a cool dark place for three weeks. Refrigerate after opening.

This will yield about 10 four ounce jars (about 2 ½ cups).

Well that's enough for this column. In future columns we will discuss home brewed vinegars. We will also learn to make, age, and enjoy some wonderful English and French cheeses at home. I find an overabundance of how-to books on wine making but very few on how to make real apple cider, and none on how to make pear cider. These and other culinary arts, that are now residing in the shadows, will be brought into the sunlight. Δ



Just for kids — Fairies in your garden

By Lucy Shober

Have you ever seen a real fairy? One with tiny gossamer wings and a gown that changes colors with the sunlight? You can attract one to your garden and watch her as she sips nectar from your flowers and then builds her home with thistle-down, lichens, and spider silk. If you are very still, she might light for a moment on a branch that you hold. These fairies have magical names like Calliope, Ruby Throat, Black Chin, and Rivoli.

They can fly straight up and down, or in a square, or even backwards. For meals, they enjoy gnats and spiders, with flower nectar for dessert. In fact,

they eat so many meals a day, that if you tried to keep up with them, bug for bug, you would have to eat 300,000 calories (about 2,500 chocolate fudge cookies) a day! After an exhausting day of hunting and eating—they beat their wings 50 to 80 times *per second* and can fly as fast as 50 miles an hour—these enchanted creatures gently light on a pine twig and fall into a sleep so deep that they actually hibernate!

Attracting fairies

If you decide to try and attract them to your back yard, beware! If the fairy feeder is empty, these little imps might drive you crazy by fearlessly taunting you until you fill it up again.

There are two ways to attract the fairies to your yard or window sill. The first way is the prettiest: Simply plant lots of bright red and pink flowers. Flowers with tubes are their favorites, like trumpet vine, salvia, and columbine. Others could be red zinnias, four-o'clocks, nasturtiums, and poppies. This combination might also attract bright, colorful butterflies to enhance the presence of the fairies.

The second way to attract these woodland nymphs is to create a small cafe for them and to place it in the branches of a tree. Here are the instructions for making an environmentally correct fairy feeder. (Would they want any other kind?) You can use recycled materials for this feeder.



Cut out the picture of the ruby-throated hummingbird and place it over the backyard fairy to discover the true identity of your visitors!

Tools For Fairy Cafe



- Get a green plastic soft drink bottle whose contents you have enjoyed.
- Take the top off of a small bottle of dishwashing liquid. Clean it thoroughly and screw it onto the top of the pop bottle, leaving the spout in an opened position.

• Cut a circle about three inches in diameter from an old piece of red cloth (a red bandanna would be fine) and pierce the middle of it, then slip it over the spout and secure it with a rubber band.

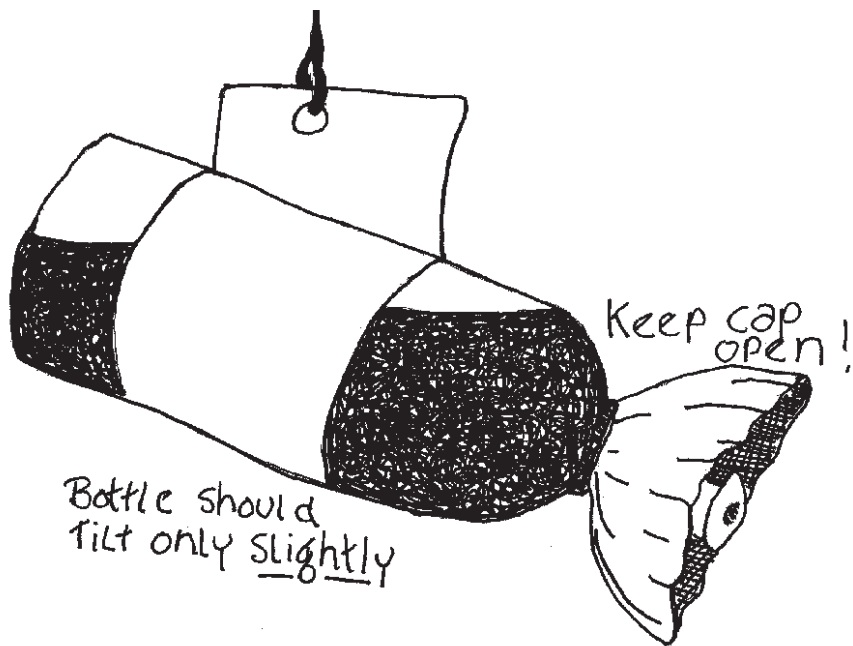
• Check out the tool room and find a roll of duct tape. (It's probably fallen behind the shelf, so scrape around under there with a yardstick.) Wrap a piece of duct tape around the bottle just a tad below the center of the bottle, leaving enough extra tape to form a sort of handle (see picture).

• Punch a hole in the top of the handle just a bit off center, toward the rear.

• Thread a stout piece of string through the hole. Make the string as long as you will need to hang your feeder from a branch.

• Now fill your feeder with fairy bait (recipe below) and check a couple of times a week to see that it stays full.

This gizmo should attract fairies to your yard within three or four weeks, but it only works during the summer months, as they tend to move south during colder weather.



Fairy bait

Have a grown-up help you to boil four cups of water, add two cups of sugar, and stir it until it is dissolved. Fill your bottle to the tip top with the cooled solution and save the rest in the refrigerator.

Have fun with the summertime visitors that you will attract, and if you are lucky, perhaps they will hatch some babies in your yard! (Did you know that fairies came in eggs?)

Some tricks to know

If you would like to hold a fairy (or any type of bird) on a stick, you must be very patient. First make sure that a feeder is being used by the type of creature that you want to attract, then find a long branch that's not too heavy for you to hold for a long time. Now drape yourself in a sheet so that none of your body shows. (Make a peep hole to look out, though.) Hold the branch very still while you sit beneath the feeder. If you have patience, your efforts will pay off with the visit of a woodland friend. This trick works especially well with black capped chickadees, and they like sunflower seeds a whole lot.

There are other creatures to attract to your home. These come out at night, and just can't resist a plate with attractively-arranged dinner leftovers. Try leaving a dish of goodies out, then dust around the plate with flour or corn meal. Check in the morning for footprints left in the flour. Can you guess who your visitor was by the tracks left behind?

Another great way to catch footprints is (with adult permission) to set a small dish of goodies in the center of a cooking tray that has been filled about halfway full with water-based paint or food coloring. Put this on your porch or deck, and wait to see if it is decorated with tiny footprints in the morning! Δ

Good-bye old friend

By Lucy Shober

Big Poney died today. He was 34 years old and had been going down pretty rapidly over this hot, dry summer. His bones seemed to poke out at every joint, and as much as I could feed him it never really made a difference.

He had been missing all morning. Following a storm last night, this was the first real day of crisp weather. Something seemed different about the way Poney was missing. Butterball, our other horse, seemed nonchalant enough, but he rarely left the side of his massive partner, and this morning he grazed alone. When I found Poney, my heart sank. He had lodged himself between two trees, and had obviously fallen, then struggled to get up all night . . . through the storm. He was mostly deaf, but when I yelled his name, he let out a deep, scared kind of whinny, and lifted his head. "Oh God, Pone, I'm so sorry . . . Oh, this isn't the way you were supposed to go . . ." He reached for my hand with his sweet old muzzle. His nubby teeth showed as he stretched his neck.

I phoned Charley, our neighbor, who it seems is always handy to help with the little dirty things that come up on a farm. "Charley," I started out in my strongest voice, "John's at work, and Poney is trying to die, and I can't use a gun. I've got a big favor to ask . . ." Then of course I dissolved.

The first time we saw him was when, as a 25-year-old, Poney (whose official name was Rasputin) came to live with us. He had been a jumper for most of his life, then a school horse. His owner had figured that he would be dying soon, and wanted him to live out the year or two he had left in peace and quiet. He was a Frenchman. He ran a tight ship with his horses,

you could tell by the way he walked with a click. John and I could hardly understand his speech, but just did a lot of nodding and smiling as he handed over the reins to this sixteen hands of solid horse. Our first horse.

I laugh when I remember that first evening, and the silhouette of John and Poney cutting a line first across one pasture, then another. We had to ride bareback, for the lack of a saddle. John was really flying. My heart swelled with pride, and when they finally returned, I ran to greet them. "When did you learn to ride so well? That was beautiful!" Poney was huffing, and John looked half dead. "What the heck are you talking about?" he almost swore at me. "I couldn't get off! That son of a gun has a mind of his own!"

It's true, Poney did have a mind of his own, but he used it well. He was a school horse, and after he had schooled us on how he was to be treated, his big-hearted gentle nature couldn't help but show through. When we rode him, we always seemed to follow *his* orders, going at his pace and in the direction he chose. If he decided to take a swim, we had to swim, too. If he wanted to take a path filled with briars, so did we, by golly. If on occasion we happened to slide off his unsaddled girth and end up on the ground, he would be right there sniffing to see if everything was OK, awaiting a remount.

On one occasion—a "Fairy Party" thrown by our three year old daughter Wren—he stood patiently while his hooves were painted purple and flowers were woven into his mane and tail. He even submitted to sporting a flowered red sheet and unicorn horn for the day. He knew when to behave. He would shuffle behind as fairy after

fairy sat upon his massive back for a magic ride.

Those were warm days, those days of clip clopping along with the baby "June bug" riding contentedly in my lap, the deep comfortable smell of that big old horse wafting back to us. That seems like a long time ago today. The "baby" goes to school now, and he has a new baby brother. Wren lost a hard battle with leukemia, but spent long hospital hours weaving fantastical stories about "What Big Poney is probably doing right now."

It seems that in our family, we keep time by the animals we have known and loved and said good-bye to. Big Poney's death marks the end of an era. Our young era. Older isn't bad though, just more knowing and even a little more glowing. I like it, but I sure will miss that big black horse. So will his young hot blooded partner Butterball.

When Charley came, Butter was grazing quietly. I had locked him into another pasture. After the shot, all was silent. I thanked my good neighbor and we turned to leave when a shrill scream and then another tore out of Butterball. He raced across the field as if he had suddenly gone berserk. Back and forth along the fence line he just flew and kicked. I don't know how he knew, he couldn't even see the woods where Poney lay. But he knew, and he wanted to be with him. Clods of dirt hit my face as Butter rounded the corner into the opened gate. He stopped short, then quietly stepped up to his friend. He bit him sort of softly on the shoulder and made a gentle snorting sound. He's been down in the woods beside Poney for several hours now. I guess I'll let him stay all day. Somehow it doesn't seem like I have much right to intrude on what's going on with them there. Δ

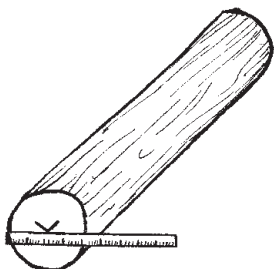
Seventeen great tips for caring for windows, mirrors, and other household glass

By Sandy Lindsey

- 1 To make windows and mirrors sparkle, dip a clean cloth in a 50/50 mixture of borax and water or denatured alcohol and wipe down. Polish with a lint-free rag or paper towel.
- 2 To achieve the highest shine and clearest view on windows and other glass surfaces, after washing and drying thoroughly, wipe them down with a clean, dry blackboard eraser.
- 3 To clean windows that you've put off for so long that they're now absolutely filthy and completely daunting, add three Tablespoons of clear ammonia (not sudsy ammonia, which will leave streaks) or three Tablespoons of vinegar to a small bucket of cool water. (*Note: Do not use both ammonia and vinegar, as they will neutralize each other*)
- 4 For particularly hard spots, use full-strength rubbing alcohol or mineral spirits, a clean rag, and some elbow grease.
- 5 To make cleaning small window panes easier, cut a squeegee to the exact window size. First remove the rubber blade, then use a saw to trim the metal blade holder. A pair of good scissors or garden snips should be all that's needed to cut the rubber blade to match. For streak-free cleaning, run the squeegee across the top of the window pane, wipe the blade, then run the squeegee in downward strokes starting at the bottom of the horizontal line just squeegeed. Use overlapping strokes to eliminate water lines at the edges.
- 6 Another way to make window cleaning quicker and easier is to use an old 100% cotton sweatsock on both hands. Wash with one hand, dry with the other.
- 7 To get accumulated grit out of window edges and corners, use a Q-tip dipped in vinegar. Rinse thoroughly afterwards.
- 8 To keep frost from accumulating on exterior windows during the winter, add two cups of antifreeze or rubbing alcohol to each gallon of wash water.
- 9 If your last house painting left tiny paint flakes on your windows, saturate the paint spots with a cloth dipped in vinegar to soften the dried paint. Scrape off with an ice scraper, or if necessary with a razor blade.
- 10 If hard water leaves a cloudy film on your windows and drinking glasses, rub the glass down with warm vinegar to loosen the film buildup, then wash with bottled or filtered water. This works equally well with windows that have a build-up from dirty rain water.
- 11 Tape a reflective vinyl coating to the inside of windows to protect interior furnishings and curtains from the harsh effects of the sun. It will also help keep a warm room cooler and more pleasant to use.
- 12 To cover clear bathroom windows from prying eyes, mix four Tablespoons of Epsom salts in 1/2 pint of flat beer, and paint on with a brush to create temporarily opaque windows. To remove, wash with borax and water as suggested in #1.
- 13 Use a vacuum cleaner to periodically clean dirty window screens while they're still in place to save yourself the trouble of removing and replacing them for washing.
- 14 To make metal window screens last longer, paint them yearly with a light coating of spar varnish.
- 15 To keep aluminum window screens clean, remove them every few months and scrub down both sides with a rag dipped in kerosene. Wipe off the excess and allow to dry. The remaining kerosene will act as a rust inhibitor. **Warning: Work with kerosene only in a well-ventilated area away from open flame.**
- 16 The quickest way to repair a small hole in a window screen (whether metal or fiberglass) is to push the weave back together and seal with clear nail polish, to keep out small bugs.
- 17 To repair a larger hole in a fiberglass screen, remove the screen and lay it down flat in a work area. Lay a sheet of aluminum foil beneath the hole in the screen. Place a fiberglass patch over the hole, and lay another piece of aluminum foil over the spot. Run a hot iron around the edges of the patch. The heat will fuse the old fiberglass screen with the new. Remove the foil and reinstall. Δ

Here's an easier (and cheaper) way to make wooden beams

By Rev. J.D. Hooker



1. Find and mark the center of each log end.

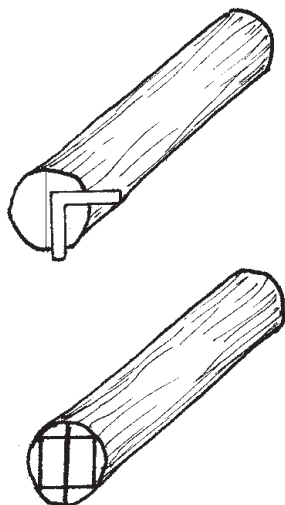
I know that there are a lot of really fine products available for turning logs into lumber, from bandsaw sawmills to chainsaw attachments. I've seen a lot of these at work, too, and most of them are actually terrific pieces of equipment, if you're interested in producing a large quantity of dimensional lumber. However, if you're really only in need of a few good squared beams, then those gadgets become more of a waste of your hard-earned dollars—and time wasters to boot—than any sort of worthwhile investment.

Most of the older barns you'll find still standing—and most other post-and-beam-type buildings—were put up without the aid of any such machines. I wouldn't advocate the idea of producing all of those beams and timbers using only hand-powered equipment, like those old-time builders had to. But

if you're already the owner of a chainsaw (which is probably how you'd obtain all the logs to start with), I can't see where purchasing a mill would speed up your production of beams or timbers at all.

Producing timbers and beams from logs is a pretty simple and straightforward process. Once you've completed your first beam, you'll have it all down pat. In fact, you'll be something of an expert after only three or four. You can see how it's done by looking at the drawings in this article.

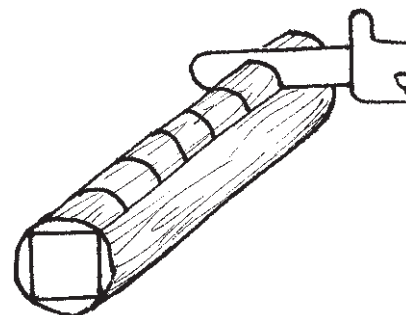
Splitting away the waste slabs from the outside of the log is just a little easier if you can find one of those old-style



3. Use a square to mark the dimensions of the beam at each end.

hewing axes, the kind they used to fashion the original hand-hewn barn beams. If you can't locate one, don't worry about it; any axe will do almost as well. Normally I use my old double-bit axe, but truthfully I'd recommend using a single-bitted axe, for safety, unless you're already something of an expert with a double bit.

I didn't say this would make for an easy job but, on the other hand, using even the most expensive of the mills

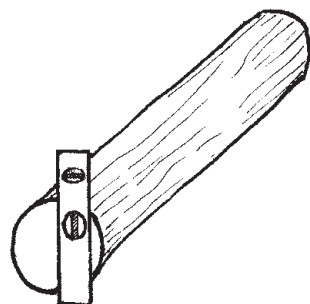


5. Saw notches down to the chalklines, six to eight inches apart, using a chain saw.

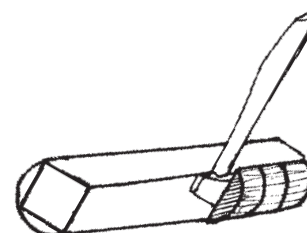
for this task is no easy job, either. I'd put it at a tie, as far as the hardness of the work. For the speed of producing usable timbers, this method has a slight edge on the machines. For economic considerations, though, this method is the hands-down winner.

From what I've seen, the readership of this magazine is mostly made up of pretty intelligent folks, most of whom aren't afraid of hard work (as long as it's productive hard work), and who are frugal enough not to toss away their hard-won income on gadgets or equipment they don't really require.

So, if you should be considering any use for beams or timbers—whether you might be contemplating a full-scale post-and-beam house or barn, or only enough 4x4s and 4x6s for a small pole building—why not try following these simple illustrated instructions for producing your own timbers, using tools you already probably own. Try it out before opting for the cash outlay involved in purchasing one of the mills to do the job. I'm sure you'll be satisfied with the results. Δ



2. Use a level to mark a vertical baseline at each end of the log.



6. Split off the waste pieces with an axe or a maul.

You can grow gourmet strawberries from seed

By Diana W. Morgan

I was raised by parents who had lived through the Depression as young adults. Recycling, conserving, and being frugal was a way of life for them. My father always had some sort of garden, even when he had little time to tend one. Being a baby boomer, I have more environmental awareness than my dad and tend towards organic gardening, but his pinch-penny ways rubbed off.

My father never raised plants from seed, saying he couldn't because he didn't have a greenhouse. When I inherited his four-story house with a southern exposure and lots of windows, I couldn't understand why he never tried starting his own plants. A couple of trips to the local nursery quickly convinced me that buying plants was not the way to go, cost-wise.

My husband built me a potting bench out of scrap lumber and left-over vinyl floor covering, and I began starting bedding plants from seed. I kept to the easy stuff at first, like tomatoes and marigolds, but soon got adventuresome. Now I start several hundred plants, both annuals and perennials, from seed each year. I buy potting soil from my local nurseryman instead of plants.

When my husband expressed a desire a few years ago to start a strawberry bed, I began to price bare-root plants. The price made me gasp. I love strawberries, but I am too tight to pay about \$100 for those plants. My husband pointed out that we paid about a fourth of that each year to pick-your-own growers. If we wanted our own strawberries, we were just going to have to buy expensive plants.

Alpine strawberries

I was cruising the seed catalogues, trying to find the most reasonable price on plants, when one small entry for a single variety of alpine strawberry caught my eye. Alpine strawberries are derived from the wild ancestors of modern cultivars. The fruits are smaller than commercial berries, but much larger than the wild ones. The flavor of these berries is intensely strawberry. The plants are everbearing and do not produce runners, making them ideal for container growing. Most plants will bear a small crop the first season if started in mid-winter.

Start alpine strawberry seeds 12 to 16 weeks before the last frost. Use a good grade of moist commercial potting soil, or a home-made mix if you prefer. Sprinkle the seed sparingly on top, cover with an additional quarter inch of potting soil, and firm gently to assure contact with the soil. Keep the seeds moist, but not wet. Plastic covers can help regulate the moisture content, or set a six-cell pack inside a recycled clear plastic bag and loosely knot the bag. I like to use multi-celled growing trays with a cell diameter of at least 2½ inches. This gives each plant room enough to grow and avoids transplanting to a larger pot, reducing the risk of transplant shock. It will take two to three weeks for

the seeds to germinate, so be patient. Give them plenty of light and not much heat. Alpine strawberry seeds germinate best at temperatures near 65°F (18°C) and about nil at 75°F (24°C) or higher.

When the seedlings emerge, remove the plastic covering and thin them to one plant per cell. The easiest way to do this is to take a pair of scissors and snip off all but the strongest plant.

However, I just can't bear to waste a plant. I transplant the extras into moist potting soil in new containers. Strawberry seedlings are fragile, with spindly stems, so wait until the plants have developed at least four leaves. Then they should be sturdy enough to handle. Fill the new containers with moist potting soil and make a hole in the soil using a pencil or similar object.

Be sure the hole is deep enough to accommodate the plant's roots. Take an old plastic picnic fork and break off all but the two center tines. Grasp the seedling by a top leaf and, using the plastic fork, gently pry out the plant. Be sure to dig deep enough with the fork to get the whole root. I usually go right to the bottom of the container. It is all right to get fairly close to the plant stem. The root system isn't very bushy at this stage of growth. Pop the seedling into its ready-made hole and firm gently in around it. The plant should be set at the same depth it was growing in the old pot. Sometimes seedlings are growing too close together to be separated safely. In that case, snip off the extra plants with scissors. The loss can't be helped.

When your strawberry plants are ready to set out, after the last frost, harden them off for a few days. This entails setting them outside in a warm, sheltered area for a few hours



each day. Start with a half hour and increase the time they're outside by an hour every day. This will allow the plants to become accustomed to sun and wind, and the outdoors in general. Once they are hardened off, in about three to four days, plant them in a sunny location at the same depth as they were growing in the pots. Strawberries have crowns where the leaves and fruiting stalks emerge. If the plant is set at a depth below this crown, it will not bear fruit.

Alpine strawberries do not tolerate heat well at all, so choose their permanent location carefully. I learned this the hard way. I lost $\frac{2}{3}$ of my first year's crop because I treated them like commercial strawberries and gave them strong sun and a southern exposure. The only plants to survive were some that were shaded for the hottest part of the day. A northern or eastern exposure with full sun is best. Barring that, give them partial shade in the afternoon. Remember, they are *alpine* strawberries: their ancestors grew at high, cool elevations.

They also like plenty of rich organic matter and plenty of moisture. Mulching with straw will help retain moisture and keep the roots cool. Pinch back the first set of blooms in the spring. Hard as this is to do, it allows the plant to get strong by putting its energy into making roots and leaves rather than fruit. Never fear, these are everbearing plants, so some fruit will come along later in the season. If you live where the winters are frigid, protect the plants with a deep mulch; but be sure to remove it

as soon as the snow melts in the spring.

There are several varieties of alpine strawberry seed on the market:



• **Temptation** is a hardy type with good-sized fruit, and does well in hanging baskets.

• **Reugen** is a very hardy variety that produces compact plants and small, elongated fruit.

• **Baron Solemacher** produces $1\frac{1}{2}$ " berries on compact plants.

• **Alexandria** is similar to Reugen and is the first variety I grew. The berries are small, barely larger than wild ones, but are very sweet and intensely flavored.

In 1996, for the first time I've seen anywhere, W. Altee Burpee & Co. is offering seed for a strawberry that is not an alpine variety. The strain is called "Picnic," and according to the catalog, is everbearing, producing medium-sized fruit and a few short runners. The seed for these berries is rather pricey, about $2\frac{1}{2}$ times the cost of alpine strawberry seed.

The larger-sized fruit may be worth the price of seed, however. I've found germination to be about equal to the alpine.

Even if you haven't much room, growing your own strawberry plants from seed can be rewarding. Just a few plants in a hanging basket outside the door will provide berries for your morning cereal. The dainty plants are a joy to look at and the fruit is well worth the effort of starting them from seed.

Seed sources

All these catalogues are free:

Johnny's Selected Seeds
Foss Hill Road
Albion, ME, 04910-9731

Thompson & Morgan
P O Box 1308
Jackson, NJ 08527

Pinetree Garden Seeds
Box 300
New Gloucester, ME 04260

Vesey's Seeds
P O Box 9000
Calais, ME, 04619-6102

W. Altee Burpee & Co.
Warminster, PA 18974 Δ

These salads are hearty dishes

By Jennifer Stein Barker

When most people think of a salad, they first think of lettuce or fruit, but a salad may also be made of vegetables or fruit, combined with other foods like meat or grains, dressed with a savory sauce, and served cold.

These hearty carbohydrate-based salads will complement a meal that might otherwise be light on protein. They make good dishes to take to potlucks (where you never know if everyone else will bring snacks and desserts). They also make a great lunchbox addition when packaged in a small container and tucked in with a fork and napkin.

Curried rice salad

Cook the rice any time and stick it in the fridge. Then make this salad ahead for a carefree meal. This serves four as a main dish.

1³/₄ cups raw brown rice
 1/3 cup finely diced dried apricots
 1/2 cup raw cashews, toasted
 2 cups bok choi, sliced

Dressing:

1/2 cup mayonnaise
 2/3 cup yogurt
 2¹/₂ teaspoons curry powder
 2 cloves garlic, minced
 1 teaspoon minced fresh ginger root
 Pinch cayenne pepper

To toast cashews, spread the nuts on a pie plate or cookie sheet. Toast in a preheated 350° oven for 5-10 minutes, until lightly golden.

Cook the rice with 3¹/₂ cups water for 45 minutes. **Do not stir.** When the rice is done, cool in the refrigerator until well-chilled before proceeding with the rest of the recipe.

Put the apricots, cashews, and greens in a large bowl with the rice. Mix the dressing ingredients in a small bowl, and pour over the rice in the large bowl. Toss all well to combine. Chill at least two hours before serving. This keeps well for two or three days.

For an elegant presentation, save out the prettiest bok choi leaves, and use a higher proportion of stems in the salad. Dress the leaves lightly with oil and vinegar, and arrange them on a shallow dish or platter with the rice salad on top of them.



Black-eyed peas with mustard dressing

A simple bean salad. Serve with lots of home-made bread.

1¹/₂ cups uncooked black-eyed peas
 3 green onions, sliced thinly
 1 cup sliced celery stalk
 Sliced olives for garnish (optional)

Dressing:

1/3 cup olive oil
 1 teaspoon lemon juice
 1 clove garlic, minced
 2 Tablespoons cider vinegar
 1 teaspoon Dijon mustard
 1 teaspoon tamari soy sauce
 Freshly ground black pepper

Cook the black-eyed peas in plenty of boiling water until tender, about 20 minutes. Drain well. Put the warm peas to soak in the dressing for 30 minutes, then add the green onions and sliced celery. Chill well. Serve on a bed of lettuce, garnished with sliced olives.

Ranch potato salad

A hearty western-style potato salad. Serves six as a side dish.

2 lbs. waxy potatoes
1/3 cup diced cucumber
1/3 cup diced celery
1/4 cup coarsely grated carrot
1/4 cup sliced black olives
A few olives for garnish
3/4 cup creamy herb dressing (the recipe is below)

Scrub the potatoes, and peel if desired. (I leave the peel on for more flavor.) Steam them in a steamer basket, or boil if preferred, until tender. Chill the potatoes thoroughly before combining with other ingredients.

Prepare the creamy herb dressing, using two cloves of garlic. Combine the potatoes, cucumber, celery, carrot, olives, and 3/4 cup dressing in a bowl. Toss to coat ingredients with dressing. Taste, and adjust amount of dressing or add salt if desired.

Creamy herb dressing

A homemade version of the thick buttermilk-and-herb dressing that is far better than store-bought. This recipe makes one cup of dressing.

1/2 cup yogurt
1/2 cup mayonnaise
1 teaspoon honey
1 or 2 cloves garlic (to taste), pressed
2 teaspoons finely chopped fresh basil
2 teaspoons finely chopped fresh oregano
2 teaspoons finely chopped fresh thyme or lemon thyme
(If you don't have fresh herbs, use approximately 3/4 teaspoon dry herb for each kind.)

In a small bowl or 2-cup measure, whisk all ingredients together until well-blended. Transfer to a glass jar for storage. Chill at least an hour before using.



Oriental bulgur salad

This quick and delicious salad is a standard around our house for taking to potlucks. Use tender young bok choy or mild mustard greens. Serves four as a main dish.

2 cups bulgur wheat
2 cups sliced bok choy or greens
1 clove garlic, minced
2 green onions, sliced thin
1/2 cup cilantro leaves
1 teaspoon ginger root, minced finely
1/4 cup dark sesame oil
1/4 cup tamari
2 Tablespoons balsamic vinegar
1 1/2 teaspoons honey
1/4 teaspoon Tabasco
Toasted cashews as garnish

In a large bowl, cover the bulgur with boiling water and let soak 20 minutes. Taste, and if it has soaked up all the water and is still not tender, add a little more boiling water and let soak until tender. If the water will not all soak in, but remains on the bottom of the bowl, you will have to drain the bulgur in a sieve. Let cool to room temperature.

Dice the leafy part of the greens into coarse pieces, and slice the tender parts of the stems finely. Put the greens in the bowl with the bulgur. Prepare the garlic, green onions, cilantro leaves, and ginger root, and add them to the bowl.

Sauce: Combine the sesame oil, tamari, balsamic vinegar, honey, and Tabasco. Whisk well, and pour it over the bulgur and vegetables. Stir to combine thoroughly. Chill before serving. Δ

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My view

A history lesson from Ayn Rand

For the past several weeks I've been reading the Letters of Ayn Rand, which is a collection covering her letters from 1926, when she arrived in America from Russia, to 1982, when she died. Ayn Rand is the author of, among other things, two brilliant novels called The Fountainhead and Atlas Shrugged, both of which defended American capitalism and individualism during an era in which all the rage in this country, at least among the media and academia, was the apparent success of Soviet Communism.

Her letters apply to today for two important reasons:

- 1) They reveal a climate in America during the 1930s and 40s when there was intense bias from the media and academia against people like Rand who supported individualism and opposed collectivism, which, in an accurate sense, is the umbrella term encompassing all the state-controlled political systems of that day, such as Communism, Fascism, Nazism, and Socialism.
- 2) They reveal a climate of timid opposition to collectivism by capitalists and conservatives, who Rand believed far outnumbered the collectivists who controlled the media, publishing houses, universities, and the entertainment industry. It was Rand's contention that the media, publishers, Hollywood, and academia so controlled the information Americans had access to, that it created an artificial climate in which many people were cowed into thinking there was widespread approval of collectivism. And any time someone did speak up loudly for capitalism or individualism, the media of the day branded them as "capitalist exploiters," or even more effectively, the media simply didn't report their views, so few people knew these vocal opponents of collectivism even existed.

Does that sound familiar to you today, in the 1990s?

The media and company still sing the praises of collectivism, and they still have timid, scared opponents in us conservatives. They have, of course, discarded discredited terms like collectivism and communism, since all the countries who adopted those anti-individualist philosophies have collapsed under the weight of their own bad ideas. They now ride new horses that push collectivist thinking, such as environmentalism, feminism, welfarism, etc. These are all good causes, they say, and require the federal government to tax us heavily, interfere strongly in our personal affairs, and pass hundreds of laws and impose thousands of regulations on individuals, just as the old collectivism did.

And the media and their allies, still hostile to those who think American capitalism and self reliance are best, still

deal with them in the same way they did in the 1930s—not by calling them capitalist exploiters (that term is too foolish sounding in light of capitalist success all over the world), but by calling them "right wing extremists," "patriot haters," and "racist militia members." But still the best way the media has of dealing with these modern individualists is by ignoring them. The media perfected that technique in the 1930s and 40s. As Ayn Rand wrote in 1943 to a sympathetic company owner who had experienced labor problems: "We are not allowed to be heard and the country at large does not even know that we exist, fight and are being murdered by methods much dirtier than those used against you by the thugs of the CIO. You were facing a firing squad. We are being choked in a cellar."

Does that ring kind of true today for all you conservative groups out there who can't get your side of a story into a newspaper or on television? You bet it does.

But if the tactics of the media and their allies have not changed since the 1930s, neither has the timidity of conservatives. We have our prominent talk show hosts, but many conservatives run from them as soon as the media begins calling them hate mongers. We are afraid we too might be branded a hater, even though we know that the media people who would call us haters are liars.

Maybe it's time we conservatives stood up and showed the media and their allies just how big we are. Maybe it's time we began actively supporting those conservatives who stick their neck out in the cause of individualism and against modern collectivism.

In a 1943 letter, Ayn Rand wrote: "*The indifference of most of our conservative national leaders to young beginners who wish to serve our cause, has ruined us and delivered the whole intellectual field to the Reds. A new 'conservative' writer, these days, is left in the position of having his throat cut by an organized Red gang, while the leaders of his side look on, faintly bored, or turn away.*"

It's obvious to me that the organized Red gang is still in place. Soviet Communism may have failed after a 70-year disastrous experiment, but the Red gang is still succeeding at slitting the throats of emerging conservatives.

In a letter in 1941, Rand wrote: "*If I were a defender of Communism, I'd be a Hollywood millionaire-writer by now.*" That's still true today. Write a book about saving the planet and the media will push it for you, get you on the Donahue show, and make you a star. Write a book about saving your country from the collectivism that destroyed the Soviet Union, and it'll never be published.

Nothing has changed. The collectivists are too stupid (or too determined) to accept the reality that their ideas are junk. They won't give up until we take the media, Hollywood, academia, and the universities back.

(If you'd like to read Ayn Rand's letters for yourself, the book was published in 1995 by Dutton, a division of Penguin Books USA, 375 Hudson St., New York, NY 10014. ISBN 0-525-93946-6, \$34.95.)

Save time and energy with the fenced chicken coop/garden

By John Silveira

My engineer father was not fond of wasting time or energy. He was always searching for a better, more efficient way to perform chores, especially chores that reoccurred often. Two re-occurring chores he enjoyed were gardening and raising chickens, and he decided that he could make both the gardening and the raising of a chicken flock even more

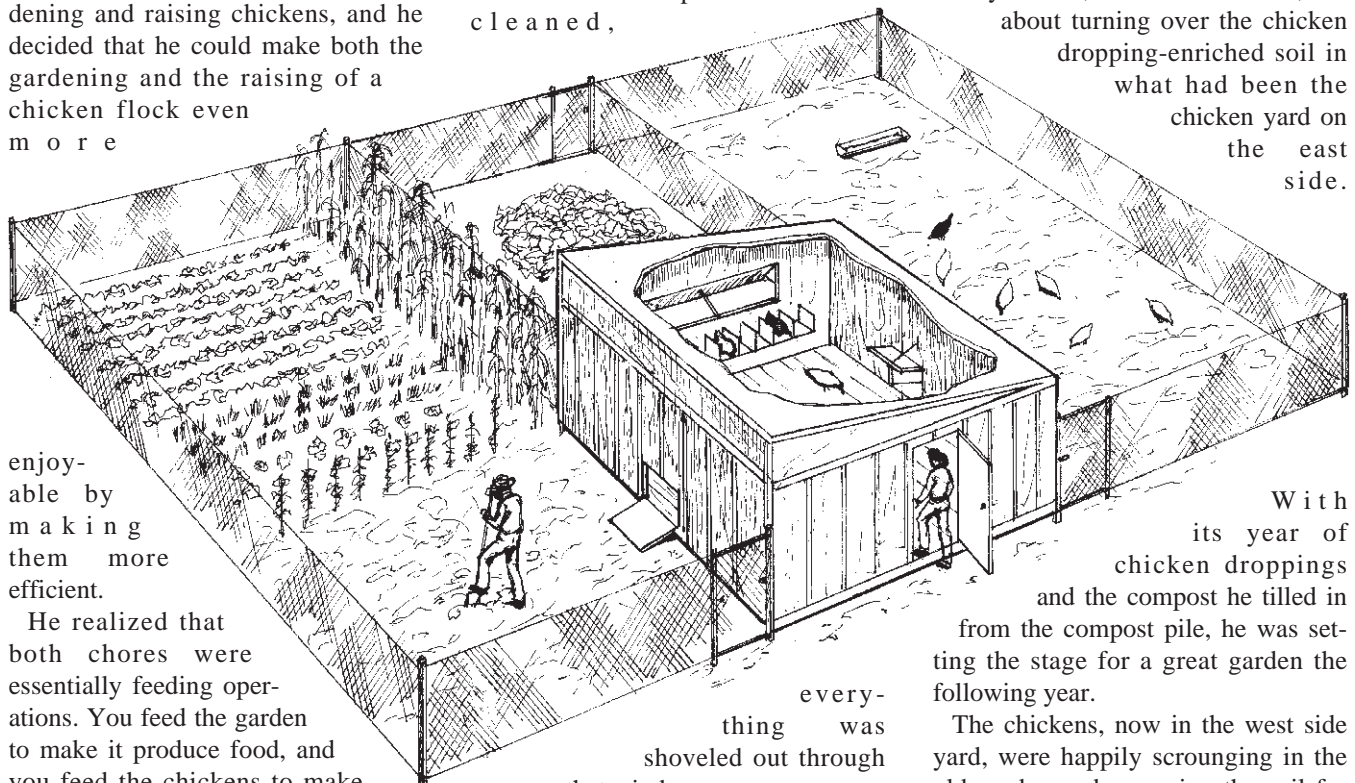
west side. Each door was for the chickens, and they led to separate fenced-in yards.

On the north side of the coop was a regular sized door for us. On the south side was a wide window with a hinged wooden cover. That window looked directly out onto a compost heap. Each time the coop was cleaned,

where he wanted them, he kept predators away from the chickens, pests out of the garden, the neighbors' dogs out of the compost, and they provided a lattice upon which his beans and other climbing plants could flourish.

In the fall, after that year's garden had been harvested, he closed the door on the east side of the coop and opened the west side. The chickens now had the run of the old garden with its remnants of the harvested plants as well as the plants that had gone to seed.

My father, in the meantime, set about turning over the chicken dropping-enriched soil in what had been the chicken yard on the east side.



enjoyable by making them more efficient.

He realized that both chores were essentially feeding operations. You feed the garden to make it produce food, and you feed the chickens to make them produce eggs and, well, more chickens. So he decided that the best way to make both more efficient was to combine them and let them help feed each other.

To achieve this he built his "self-fertilizing" chicken coop/garden. The idea was so simple that he probably wasn't the first person ever to have done it, but I've never seen another one like it.

What he did was build a chicken coop with two small access doors, one on the east side, and the other on the

everything was shoveled out through that window.

That first year the chickens had the run of the yard on the east side of the coop. He kept the access door on the west side closed, and in that yard he planted the family's vegetable garden.

By putting the yards on the east and west sides, he ensured both yards had maximum exposure to the sun. With the coop on the north side, he later told me, he minimized the shadow the chicken house cast over the garden.

Our access to each fenced yard was through a gate in the fence. With the fences, he not only kept the chickens

With its year of chicken droppings and the compost he tilled in from the compost pile, he was setting the stage for a great garden the following year.

The chickens, now in the west side yard, were happily scrounging in the old garden and preparing the soil for next year's garden. It was so efficient that he never found the need to improve upon it, and he kept that engineer efficient chicken coop/garden going for years. Δ

News Flash

In England, a vegetarian organization has declared the chicken to be an honorary vegetable.

Rid your garden of snails and slugs—organically

By Nancy Gordon

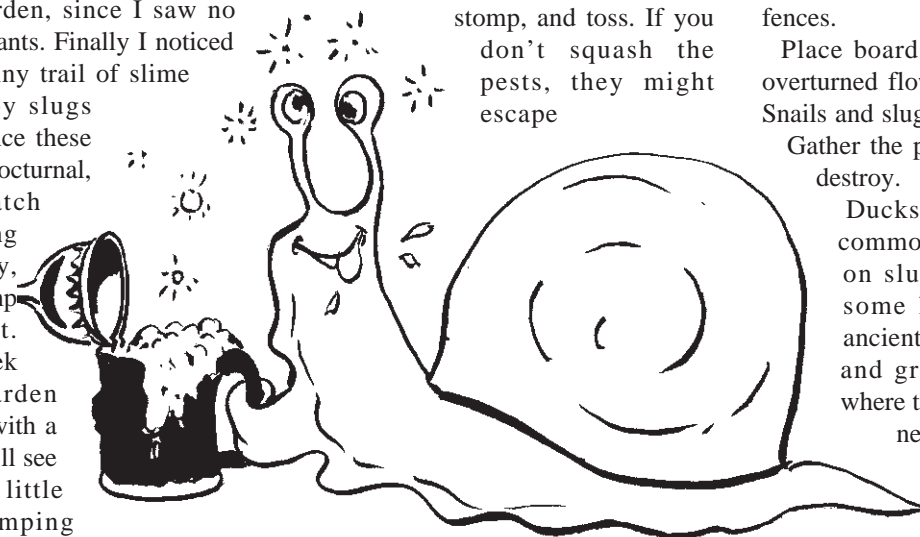
Snails and slugs often eat more of our garden produce than we do. As a beginning gardener, I was astounded that a bed full of lovely little seedlings could be reduced to a bunch of leafless stems overnight. At first I couldn't figure out what was eating my garden, since I saw no pests on the plants. Finally I noticed the telltale shiny trail of slime left behind by slugs and snails. Since these mollusks are nocturnal, you won't catch them munching during the day, unless it's damp and overcast. But if you peek into your garden about 10 PM with a flashlight, you'll see plenty of the little devils, chomping away at your precious seedlings.

We all want to rid ourselves of these pesky critters, yet many gardeners hesitate to poison snails and slugs — with good reason. Snail bait sickens and sometimes even kills dogs, who love eating this toxic substance. Also, constant use of poison simply creates pests resistant to the toxins. Gardeners can help solve their snail and slug problem easily, quickly, and cheaply by using the following organic methods.

Hand-pick slugs and snails between 10 and 11 PM, using a flashlight to spot them. Wear gloves if you hate getting your fingers slimy. Kill your prey by stepping on them or drowning them in soapy water. This tried and true method has been in use for almost three hundred years. The author of *The Compleat Florist*, written in 1706, suggests seeking for snails “by Break of Day, or after Rain, that being the

time when they come out of the Earth to feed, and are easily squashed.”

Place lettuce or cabbage leaves, overturned grapefruit shells, or potato or turnip slices in your garden at dusk. Snails and slugs will feed on these treats during the night. In the morning, gather the veggie lures, along with the pests on them, place in a plastic bag, stomp, and toss. If you don't squash the pests, they might escape



from the bag and head right back into your garden.

Another method provides a less violent, possibly even enjoyable, death to slugs and snails. Scoop out some dirt from your garden, and place a shallow pan or bowl of fresh beer, or yeast mixed with water, in the ground. Make sure the lip of the bowl is even with the soil. Pests will drink from the bowl, fall in, and drown. The beer or yeast and water need to be replaced every day.

Snails and slugs have soft, sensitive bodies, so they dislike crawling over rough surfaces. Sawdust, sand, cinders, crushed oyster shell, and/or eggshells spread in a strip around a vegetable bed creates a barrier that these pests will not want to cross.

Sprinkling salt, lime, or soot twice on their bodies will kill slugs and snails. The first time you sprinkle, the

creature will give off a protective exudation. The second sprinkle causes them to shrivel and die.

Copper barrier tape, available in nurseries, will deliver an electrical charge when it comes into contact with slime. This charge repels slugs and snails. Wrap the tape around trees, planters, raised beds, flower pots, or fences.

Place boards, shingles, planks, or overturned flower pots in the garden. Snails and slugs will hide under them.

Gather the pests each morning and destroy.

Ducks, chickens, and many common ground beetles feed on slugs and snails. So do some humans. In fact, the ancient Romans adored snails and grew them on ranches, where they fed their future diners wine and spicy soups

to preseason them.

If you gather snails from your yard

with the intention of eat-

ing them, purge them for two weeks by feeding them flour, cornmeal, or thyme before preparing *escargots*.

Unfortunately, ridding your garden of mollusks one year does not mean they will be gone forever. They will travel over from your neighbor's yard, arrive on new plants, or in new soil. Slugs can live up to two years, and snails for as long as twelve! Since one snail or slug can lay up to one hundred eggs, it only takes a few new pests to fill your yard once again with mollusks. The eggs don't hatch until in contact with moisture, so be sure to begin your abatement program early in the spring.

Don't let these slimy little devils eat the food you worked so hard to grow, when getting rid of them is so simple.

△

Try these 13 metal cleaning tips to keep your house shining

By Sandy Lindsey

1 To remove water spots from metal, rub it down with a sponge dipped in lemon oil. This works on metal all over the house, including shower enclosures.

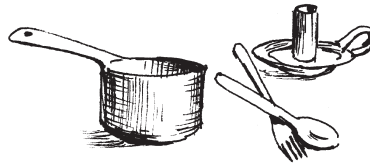
2 To give stainless steel a long-lasting high shine, rub it down with a lemon peel, then wash as usual. The lemon oils in the peel cuts through grime that other cleaners may miss and restores lustre. If using a lemon peel is too strange for you, rubbing alcohol from your home's first aid kit works almost as well.

3 To remove rust from almost any metal, tools, or on the bumper of your car or truck, dip a Brillo pad in kerosene or turpentine and rub off the rust. For the highest lustre, wipe down afterwards with a wadded ball of aluminum foil, shiny side out.

4 One of the cheapest cleaners for brass can be made at home by mixing 1 Tbsp. flour, 1 Tbsp. salt and 1 Tbsp. vinegar. Apply the powdered mixture with a clean damp rag and watch the tarnish wipe off as the shine reappears. To keep brass looking its best between cleanings, coat exterior brass with a paste wax. Interior brass should be protected with lemon oil.

5 For a quick brass cleanup, slice a lemon in half and dip it in salt, and rub to a high shine. Wash with warm soapy water afterwards and buff dry with a clean rag.

6 To remove chipping lacquer from coated brass, soak it in a mixture of 1 cup baking soda to 1 gallon boiling water. Afterwards, you can either relacquar the object or clean



and polish it as you would regular uncoated brass.

7 Both brass and copper respond well to a cleaning with 1 Tbsp. of salt mixed in 1/2 cup of vinegar.

8 Sweet pickle juice cleans just about everything copper, from cooking pans to dirty ends on electrical wires.

9 To restore those tarnished old family treasures that are made of pewter, rub them down with the outer leaves of a head of cabbage. (We're not making this one up.) Buff to a shine with a clean soft cloth.

10 To clean chrome on appliance dials, dip a soft cloth in rubbing alcohol or window cleaner and wipe gently.

11 To remove oxidation from aluminum, wipe down with a fine steel wool or a mild laundry detergent such as Wisk. Wax thoroughly afterwards with car wax to retard further damage.

12 To make gilt fittings and fixtures gleam, wipe down with a rag dipped lightly in turpentine.

13 To make a canister of powdered metal cleaners last twice as long, tape off the top half of the shaker holes. This will also help you keep the powdered cleanser to only the areas you wish to scrub. Δ

Many choices for mulch

By Tom R. Kovach

Many gardeners will tell you that there is no real substitute for peatmoss, because most other mulches are less absorbent. Actually, there are a number of other mulches which can be used.

First off, you should select material that is readily available where you live. This can be anything from ground corncobs to buckwheat hulls, or even sawdust.

Under normal conditions, paper mulch is not very practical for the average garden. It is more expensive and is very difficult to keep in place. Peatmoss, peanut shucks, or some of the other materials mentioned here are much better and far more practical.

As soon as plants are well started in a vegetable garden, the ground cultivated, and the weeds removed, the area should be thoroughly watered and the mulch applied.

Mulch is used to keep weeds under control with crops which do not need frequent cultivation. Also, it conserves soil moisture, it absorbs the rain, and it keeps the soil beneath it loose and *friable* (that is, easily crumbled or pulverized).

Then there is "dust mulch." This is simply the layer of dust-dry soil, usually about one to two inches deep, which is produced by frequent shallow cultivation with a hand cultivator or *scuffle hoe* (a garden hoe that has both edges sharpened and can be pushed forward or drawn back). A good many gardeners (especially the older ones) believe this sort of mulch conserves soil moisture. Δ

You can make your own fertilizers

By Christopher Nyerges
and Dolores Lynn Nyerges

For some people, home gardening is an expensive pursuit, which seems a bit backward to us. At one time, people gardened because home-grown produce was far better and cheaper than anything from the store. And every farmer some 50+ years ago—whether a farmer of large acreages or an urban backyard farmer, knew that to produce healthy plants, you had to improve the soil. If the soil is weak, your plants will be weak and subject to insect infestation.

Seaweed

There are many low-cost methods for making your own fertilizer. One of the easiest and best is manufactured from seaweed.

We learned a lot about the beneficial properties of seaweed from Ernest Hogeboom, who used to be a professional gardener in the Pasadena, California, area. Hogeboom would collect several plastic trash bags of kelp from areas along the Pacific Coast. He would empty the kelp into a 55-gallon drum, fill it with water, and then cover it. As the seaweed began to decompose, the water would turn brown. Within about two months, the seaweed was fully decomposed. This liquid was used as a concentrate, which Hogeboom would then dilute with water before spraying it on or pouring it around his customers' plants.

We've used this for our own garden service clients, with the addition of fish emulsion. Plants sprayed with this mixture seem more insect repellent, and generally show some renewed growth. The only pitfall is the fishy, oceanic odor that is detectable for a day or two after the application.



The authors with their earthworm compost pit, to which their rabbits contribute by direct deposit. (Photo by Raul Castellano.)

Seaweed is a rich source of potassium—up to 12%. Though seaweed contains many trace elements, it is relatively poor in nitrogen and phosphate, which is why the addition of fish emulsion makes a nearly perfect fertilizer. Also, rather than use the heavy and bulky 55-gallon drum that Hogeboom used, we purchased a plastic trash can at a building supply store for under \$10. This has served us quite well.

Earthworm compost

Another of the easiest fertilizers to make comes from an earthworm compost pit. You add kitchen scraps, grass clippings, leaves, etc. into the pit, and as it is processed by the earthworms, you soon have a rich, black garden amendment. Adding compost in volumes of about 10% into your garden is generally all that is needed to increase the health and insect repellency of your trees, vegetables, and other garden plants.

Though composting is the epitome of simplicity, there are a broad variety

of containers that you can make or buy. Sometimes decomposition does not occur properly if you have used too much of one ingredient. For this reason, we suggest you research composting in a good book, such as Rodale's *Encyclopedia of Organic Gardening*. *BHM* has had some good articles on the subject, too.

Rabbit droppings

When it comes to animal fertilizers, the best readily-available fertilizer is rabbit droppings. Rabbit droppings have the highest nitrogen content of any of the commonly available barnyard manures, such as cow, horse, pig, etc. Rabbit droppings are small, compact, and nearly odorless. One organic gardener described them as "miniature, time-released, fertilizer capsules." If you raise rabbits, or know someone who does, you'll have a source of one of nature's best natural fertilizers.

We have our rabbit friends living atop our earthworm compost pit.

Rabbit droppings can also be called “earthworm caviar.”

The fertilizer provided by our earthworm compost pit is about the best you could find anywhere, and it’s “free.”

Don’t discard those egg shells...

If you’re in the habit of buying all sorts of liquid fertilizers and other commercial treatments for your garden, you may be happy to learn that at least two commonly discarded kitchen scraps are ideal for many of your garden plants.

You’ve heard of “liming” the garden and lawn, right? Most people buy a bag of lime (calcium carbonate) every few years and sprinkle it throughout the garden. Were you aware that eggshells are 93% calcium carbonate?

In addition to the calcium, the eggshells contain about 1% nitrogen, about a half-percent phosphoric acid, and other trace elements that make them a practical fertilizer. Calcium is an essential plant nutrient which plays a fundamental part in cell manufacture and growth. Most roots must have some calcium at the growing tips.

Plant growth removes large quantities of calcium from the soil, and calcium must be replenished, so this is an ideal way to recycle your eggshells.

We save our eggshells in a pan in our oven. The pilot light temperature slowly dries them out. Then we crush them by hand and powder them in the blender. The powdered eggshells are then placed around fruit trees, in potted plants and roses, and broadcast throughout the vegetable garden.

You can also solve your snail problems with the help of recycled eggshells. Instead of powdering the shells, use them at the hand-crushed stage, with plenty of rough, sharp edges. Scatter the crushed shells in circles around those plants that the snails are eating. Since the shells cause discomfort to the snails, they nearly always retreat and do not cross the shell barriers.

(Did you know that our California brown snails are actually escaped escargot? One method of “control” is simply to eat them—but that’s another story.)

...or those coffee grounds

Another commonly discarded kitchen item is coffee grounds. Coffee grounds can be particularly useful in the garden, or, at the very least, added to your compost pile.

Used coffee grounds contain about two percent nitrogen, about a third of a percent of phosphoric acid, and varying amounts of potash (generally less than one percent). Analysis of coffee grounds shows that they contain many minerals, including trace minerals,



Dolores and Christopher scatter coffee grounds and crushed egg shells under their roses.

carbohydrates, sugars, some vitamins, and some caffeine. They are particularly useful on those plants for which you would purchase and apply an “acid food,” such as blueberries, evergreens, azaleas, roses, camellias, avocados, and certain fruit trees.

We dry our coffee grounds in the oven, too. Then we scatter them lightly, as a mulch, around those plants which we feel would benefit from them. We don’t scatter them thickly when they are wet, because the coffee grounds have a tendency to get moldy.

The growth of plants that like or need lime (which we can provide with eggshells) can be stimulated by adding a mixture of ground-up eggshells and dried coffee grounds.

Smile the next time you drink your morning cup of coffee and eat your breakfast of eggs, since the by-products of your meal are ideal for your urban garden, and need no longer be “kitchen waste products.”

(Dolores and Christopher Nyerges teach classes in organic gardening and have authored several books. A newsletter featuring their activities is available from School of Self-Reliance, Box 41834, Eagle Rock, CA 90041. The newsletter can also be viewed online at <http://home.earthlink.net/~nyerges/>.)

Δ



Otis the pot-bellied pig lives in the authors’ yard. A pig in the yard is a great source of fertilizer.

Soil aeration is essential to a successful garden

By Alice Brantley Yeager

Photos by James O. Yeager

Soil aeration sounds like a dull subject—one that is covered by a stack of dusty pamphlets lying on a free-for-the-asking shelf. But try gardening without paying much attention to the matter, and you'll find out how important it is.

Seed and nursery companies go to great lengths to give advice on proper soil preparation for plants. There are books, magazines, etc., giving step-by-step instructions on how to plant everything. Never will you find any of these sources recommending that the soil be well-packed before planting, or that it's all right to sow seeds without getting the soil in good shape beforehand. That would be music to the lazy gardener's ears, but the harvest would hit some sour notes.



Pepper plants will still be loaded with peppers when Jack Frost appears, if they are given some TLC.



A bountiful harvest from the garden depends on healthy, well-aerated soil.

To produce the crops that Mother Nature intended, plants must have soil conditions that will bring out their potential. One of the most important factors is *soil aeration*, a term that refers to the air spaces between the particles that make up the soil. Veteran gardeners recognize the value of this, and that's the reason they are seen at odd times of the year breaking up their garden spots with various types of digging forks, tillers, garden plows, etc. They also collect fallen leaves and dig them into the soil, add them to compost piles, and so on. Later on during the growing season, gardeners continue to add organic matter in the form of mulch around the base of their plants. Mulch is a multiple purpose additive. It not only protects plants from losing soil around their roots during heavy rains, but it slowly decays, promoting aeration and adding nutrients to the soil.

To the novice gardener, this activity may seem unnecessary. (All that leaf-raking and digging—you've got

to be kidding!) The truth comes out when the crops are compared. On the one hand, there is the bountiful harvest from the experienced gardener's plot, and on the other, there is the pathetic yield from the doubting beginner's garden.

Types of soil

Soil varies greatly. Some of it is closely packed and has very little natural aeration. A good example of this is *clay soil*—it is extremely tough to work with, has poor drainage, and is very hard when it dries out. It is difficult for roots to penetrate clay soil, as the soil particles are very fine, and consequently have little air space between them.

Opposite in texture is *sandy soil*. It has plenty of space between particles, it's easy to work with, and water passes through like pouring it through a sieve. However, even though aeration is ample and roots can penetrate much easier than through clay, its poor

moisture retention eliminates sand as a desirable growth medium.

The best soil for gardening is what is commonly called *loam*. This might be described as a combination of both clay and sand in amounts that complement each other, giving a very worthwhile soil texture. Loam is usually fertile, as it contains organic matter. It has good air spacing between the soil particles, which not only allows for drainage and root development, but it also retains moisture and nutrients for the plants. If your soil has been loamy from the start of your garden, thank your lucky stars.

Improving your soil

The good news about undesirable garden soil is that it can almost always be improved unless there are certain factors involved, such as industrial pollution. Most of us don't have time to hang around while that's being corrected.

Organic materials (leaves, straw, pine needles, grass clippings, yard rakings, etc.) make excellent additions to soil such as clay or sand. It is even better if these materials can be com-



A colorful harvest of peppers

posted or shredded before mixing them with the soil. Smaller bits of matter are easier to work with, and decomposition is faster.

Improved soil does not come about overnight. If your soil is very stubborn, it may require several seasons to develop a friable texture. Even with loam, there must be a continual soil-feeding of organic matter to maintain

good aeration and an ongoing supply of nutrients. This is an excellent way to make use of those bags of valuable organic rakings basking on curbs waiting for the trash haulers. Some states have enacted legislation banning leaves, grass, etc., from being taken to landfills, where available space is shrinking. Many cities now have compost programs, and citizens are encouraged to come and obtain the resulting "black gold" for their gardens. A small fee may be charged to help cover some of the cost of the program, but the product is well worth it.

When we planted our first garden many years ago at our present location in Southwest Arkansas (Zone 8), we began with a plot that had been claimed from a piney woods area. There had been no garden in this spot. The soil was poor, and most of it was sandy with clay pockets. We had heard a myth somewhere to the effect that woody soil was rich and fertile. That was dispelled when we harvested our first crops. Our carrots could have been threaded through the eye of a needle, and our ears of sweet corn came under the heading of "nubbins."

Through seasons of adding organic material, including poultry and rabbit



Tomato plants will continue to bear until frost if soil is kept in good condition.

litter, we have developed soil that rewards us with all the vegetables we can use, plus plenty to share. The fact that the soil is easy to work makes gardening much more of a pleasure than when we first started.

Judging your soil

When soil has good aeration, one can take a handful of it and crumble it, and the texture will be loose but have a tendency for particles to cling together somewhat. (Don't try this with wet soil, but wait until a few days after rain has ceased.) Soil with too much clay will have a slick, sticky feeling when wet and will form clods when cultivated. One's aching back will testify to the difficulty of dealing with clay. Sand will be the opposite—gritty in texture and hard to hold together.

All sorts of fringe benefits accompany good soil. When it becomes loose and fertile, there will be increased activity by earthworms. These creatures are worth their weight in gold to

gardeners. Not only do they constantly aerate the soil by their tunneling, but they eat bits of decaying organic matter such as leaves. The digested remains, or *castings*, are left behind to further improve the soil.

Other benefits include the encouragement of microorganisms—not all of which are welcome, of course. However, there are many that are essential to soil fertility and plant growth. Healthy soil will have an abundance of these unseen workers going about their business of fermenting humus, breaking down fertilizers, etc.

Any gardener considering the use of chemicals to boost production should think seriously about the possibility of driving out or killing some of the best free labor around. Sometimes it is necessary to give plants a little boost, but all chemical soil additives should be used with caution. Read the labels yourself, as not all clerks are knowledgeable when it comes to advice about the products they are selling. After all, why take a chance on dam-

aging the conditions you are trying to promote.

One of the most evident boons of good soil (and one that does not require a microscope to see) is the decrease in labor that has to be performed by the gardener. When soil has been developed to the point that very little tilling is necessary, what a joy it is to set out one's transplants without all the hassle of having to wrestle with the soil.

With all the good organic material available, there's no reason for any gardener to have to deal with hard-packed dirt. Once soil has been improved, a good state of aeration is easy to maintain. The rest is a piece of the good life. Simply put, *aeration* means *loosen up*. Δ

Visit the Backwoods Home website at:
<http://www.backwoodshome.com>

Lawn care tips

By Tom R. Kovach

There are some home-owners who think that they will get a better lawn cover if they let their grass grow until it goes to seed, thinking that the fallen seeds will make the grass thicker as the new seeds take hold. However, lawn care experts say this is not a good idea. Much lawn grass spreads by means of runners, and the best way to get a thick lawn is to keep it growing vegetatively instead of letting it make seeds. The seeds will take energy away from the runner production.

The grass should be mowed on a regular basis, so that the seeds do not have time to ripen. Even if some of the seeds do ripen, they need to fall into soil to sprout and grow well.

Another thing: If you let the grass get too tall before mowing, you are cutting off more than one-third of the height of the plants, which is not recommended for healthy grass. After mowing you would be left with weakened grass, since most of the blades would be removed.

If your grass *does* need some re-seeding, it's best to do this sowing sometime from the middle of August to the middle of September. Make sure the ground is stirred up real well with an iron rake, and use some kind of starter fertilizer. Also, make sure it is watered often.

Speaking of water: Lawn grass, like most plants, should not be teased with small amounts of water. If water is not available in large quantities for some reason, you're better off skipping the watering, if all you can do is "tease" the grass with small amounts of watering.

A lawn that is well cared for in the summer and fall assures you of better chances for winter survival of the grass. Δ

Visit the Backwoods Home Magazine website at:
www.backwoodshome.com

For extra production, try mound gardening

By Edward Love Johnson

I began experimenting with mound gardening several years ago, due to limited garden space. Then as time went by, I found other reasons (or should I say excuses) for elevating the earth into cone-shaped mounds and dotting them with plants of one sort or another.

For example, I have a low place in my garden where water stands during the wet season and drowns out the plants. Without a mound, it is not useable during even a moderately wet season. Yet in 1986 I harvested 44 pounds of beets from a mound in that low spot.

With many plants, I find the mound easier to tend than normal rows. Take beets, for example. I plant my beet seed in a short row in another part of the garden. Then, when the plants are large enough to transplant, I space them evenly in three circular rows around the mound. That way I can have the planting surface free of weeds, and the already-started beets will “get the jump” on weeds that sprout later.

Most root crops do well in the mound, yet there can be problems during dry weather. Sticking up in the air as it is, the earth dries out faster than does the surrounding soil. To overcome this, I make a saucer-shaped depression on top of the mound. Then when the plants begin to need a drink, I pour a bucket of water into the depression. The water soaks down through the center of the mound. This causes the plants to send their roots deep into the earth, rather than come to the top of the ground as they do in normal watering.

Beets can withstand lots of dry weather, so they are excellent for the

mound. Potatoes like well-drained soil. Carrots are good, since they root deep, and sweet potatoes simply go wild if the mound is properly fertilized.

To feed the mound, I turn to my compost heap, which is normally well-rotted horse manure. When I prepare the site, I scatter a generous layer of compost on the area surrounding the proposed mound. Then as I drag in earth to get my elevation, the soil and compost are well mixed. I continue to drag in dirt until I build a thin layer of plain earth over the compost-mixed center. This is the layer that I place my plants in. Then as they begin to push their roots down into the soil, they find the plant food.

Some of the vine plants, such as squash and cucumbers, do fairly well in the mound. However, most of them, particularly the cucumbers, require watering, since they cannot withstand drought.

I don't use the mound for such plants as tomatoes and bunch beans. But pole beans, with long poles set in around the mound and pulled together and tied at the top like an Indian tepee, makes an interesting sight, and you can harvest an unusual crop from that small area.

A truly handsome addition to your garden can be created by covering the mound with pepper plants, either sweet or hot, and then leaving some of the peppers on until they turn red or yellow. In other words, the mound can be both useful and ornamental.

Maybe I am a bit oversold on my pet garden project, but I get lots of good vegetables and much pleasure from my garden mounds. Δ



A Growing Season

*I'm sitting at the park
in a welcome, cool breeze,
happy to be alone for a while
and quiet.*

*I notice the tree in front of me—
scraggly, old, struck by lightning
(more than once).*

*Its trunk is tiny compared to
its height, and most
of its lower branches are
hanging by a thread, ready to
fall in the next strong wind,
or during a thundershower,
or maybe on their own,
just from being tired
of holding on.*

*I have to admit I envy that tree,
dropping the dead wood
that keeps it from growing.*

*Welcoming storms
as a chance to stretch
tired limbs and bend
without breaking.*

*I guess all of the scars and
storms don't matter much
as long as it grows deep roots
and keeps its green-feathered head
up high
where the sun shines.*

Melissa Sullivan
Petersburg, IL

Make your own effective fishing tackle while you save money and recycle scrap

By Rev. J.D. Hooker

My long time friend Hearold Ruby passed away. Death came as sort of a reprieve. He'd been terribly sick and utterly miserable for years and he was worn clear out. He was ready to go on home to rest.

Hearold never made much money in his life and he never was much of a hand when it came to hunting, shooting, or a hundred other important things. But he was the most fantastic fisherman I ever met. He was a live, walking, talking fishing encyclopedia, able to "read the water" of any lake, river, pond, or stream, far easier than you can read this page. The man was a fishing marvel and he was always happy to share his treasury of angling lore, knowledge, and experience with anyone. But he's gone, so I won't get the opportunity to ask him anything else.

But most of what I do know about catching fish, including making much of my own fishing tackle, consists of bits of information gleaned from Hearold over the years. And though *BHM's* readers were never fortunate enough to have met Hearold Ruby, if

you try your hand at making and using a few of these self-manufactured tackle varieties, you'll be glad that I did.

Sinkers

Let's start off with something really simple—producing your own lead fishing sinkers. At one time or another I've used almost every imaginable sort of scrap lead for this: used wheel weights, scrap lead plumbing pipe, broken battery cable ends, scrap linotype, and even used X-ray room shielding plates from a remodeled hospital. You name it, I've pretty well used it all, and all with equal success.



Drilled bullet sinker

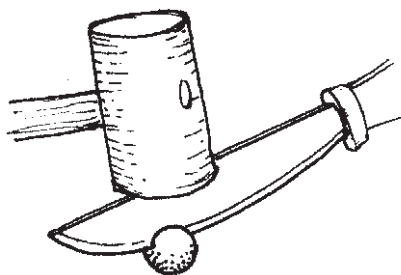
Making your own split shot is really simple, especially since I already have several different sizes of round ball molds for use with muzzle-loaders and hunting guns (.25" for #4 buck, .311" for 00 buck and a squirrel rifle, .440" for a Kentucky style rifle, .490" for a .50 cal. muzzle loader, etc.). I simply cast extra round balls in varying sizes, then use an old butcher knife and a wooden mallet to make a slice nearly through some of the lead balls. Through others, I drill a tiny hole all the way through and these I use as sliding sinkers.



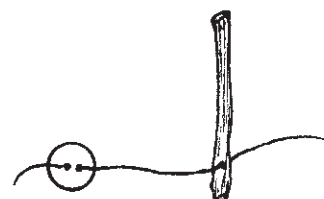
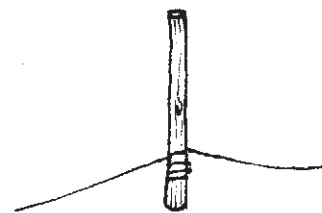
Use a spoon bowl as a mold to cast lead sinkers. Barely touch the spoon to the water to cool it.

Bullet style sinkers are just about as easy to make. I drill a small hole through a bullet I've cast using any sort of regular bullet mold. Many times I'll even deliberately under-fill the mold to provide an even larger range of weights to choose from.

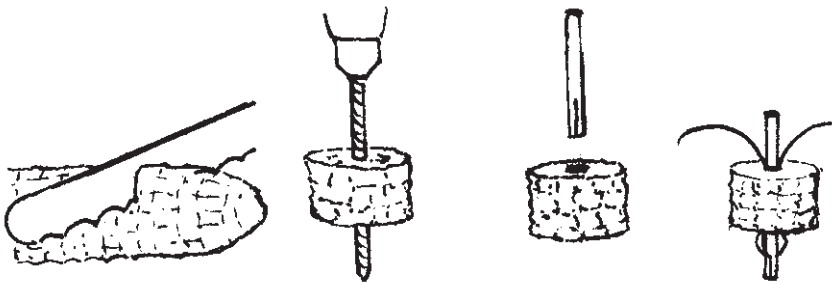
I think, however, that my favorite method for manufacturing lead fishing sinkers is to use a standard set of metal measuring spoons. I simply fill the desired sized measuring spoon with molten lead and then carefully



Split shot sinkers: Cast round lead balls in the sizes you need, then split them with a knife and mallet.



Stick bobbers, plain and slip-style



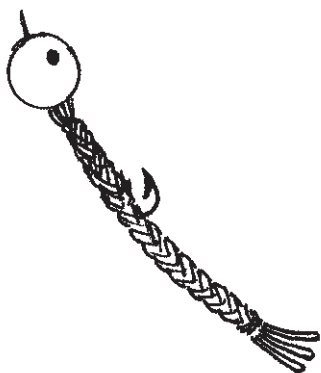
The "Hoosier Farm Cork Float" made from a corncob

touch the base of the spoon to the water in a bowl. Dump out the hardened chunk of lead, wipe the spoon dry, and repeat the procedure. Once you've cast a sufficient quantity of sinkers in this manner, drill a small hole near the edge of each one for affixing to a line.

I also learned to keep a small spool of regular solid core solder in my tackle box from which I can snip short sections for instant wrap-on style sinkers of any size.

Floats and bobbers

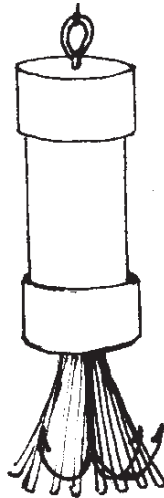
Floats and bobbers in any size are also readily fashioned by any angler with a minimum of DIY inclination. The simplest float is nothing more than a piece of twig tied in place on your line. Drill a hole near an end of a twig, or bind it on a wire loop, and add some high visibility paint, then thread a button onto your line as a



A braided worm

bobber stop. This makes for a handy slip style float for easier casting.

My own favorite type of user-built fishing bobber has to be what I call the "Hoosier Farm Cork Float." It is readily fashioned from a piece of



A rattling lure, made with shot or BBs inside plumbing fittings

dried corn cob. In fact, these floats work so well, and have such an unusual yet attractive appearance, that I've never understood why no one has started producing them commercially.

To make up a few of these for yourself, use a piece of extra coarse sandpaper to smooth up the rough cob a little. (Smoothing up the cob on a belt sander will leave you with an appearance very like those commercially made corn-cob pipes and give you some really nice looking floats.) Then saw the corn cob into appropriate

lengths. Drill $\frac{1}{4}$ " to $\frac{3}{8}$ " holes through the corn cob's center, then slot one end of a piece of dowel or smooth stick and insert this through the hole. Occasionally I'll use one of these "corks" without its dowel center as a slip type bobber.

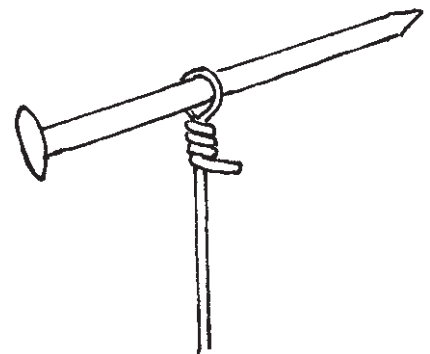
Unless you apply some sort of finish, these corn cob "corks" will gradually become water-logged and useless as you fish. So when I make up a batch of these, I just dip each one in any sort of exterior paint or varnish, and hang them up to dry—instant water proofing.

Of course, if for some odd reason you found corn cobs unobtainable, pieces of $\frac{3}{4}$ " dowel or suitably sized sticks will work just as well, though they will be slightly less buoyant than the corn cobs.

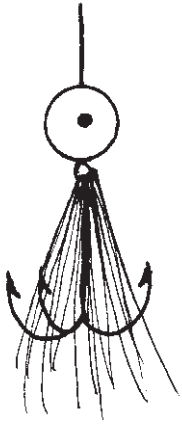
Besides floats and sinkers, a whole slew of different lures can also be very easily user-manufactured. These lures have the additional benefit of being tailored to specific requirements. This allows most, if not all, of your hand-crafted tackle to out-produce *anything* you could purchase.

Artificial worms

For bass fishing I used to buy a lot of relatively inexpensive plastic worms. Now, I braid my own artificial worms in a variety of lengths and thicknesses, from bulky acrylic yarn. While I'll admit that using a loose braid to produce fake worms probably



Using a nail to form an "eye" in the end of a wire



Skirted treble hook with a slip sinker

doesn't end up saving me any money, I do catch more fish with them. One method that really seems to work well is to add an extra color. For example, adding one strand of red and another of yellow, when braiding together a purple worm, makes it more effective.

Of course these braided worms can be rigged and fished in exactly the same manner as regular artificial worms and they perform *at least* as well as the purchased varieties.

Lures

Another home-built lure that I've come to like adds sound as an extra attractant. This lure is easily put together from plumbing fittings and a few buckshot or BBs. You can use either copper or plastic plumbing supplies, depending on the particular size and action you prefer as well as whatever it is you have available.

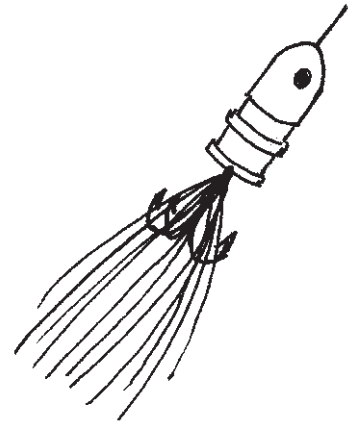
Drill small holes in the centers of a pair of end caps, then glue or solder one cap in place. Run a length of copper or stainless steel wire through the hole and make an eye, as shown in the illustration. Drop in a few BBs or buckshot, run the wire out through the other end cap, and glue or solder the second end cap in place. Fashion another eye in this end of the wire.

Now, attach a treble hook and tie on a "skirt" of horsehair, yarn, feathers, or whatever you prefer. Use paint or left-over nail polish (with a wife and

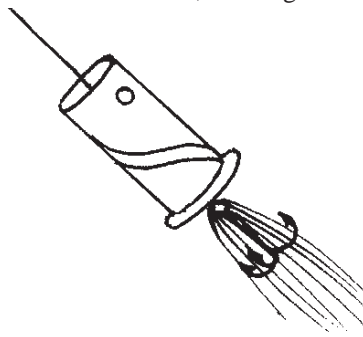
four daughters, there's *always* plenty of that around here) to add some color and you're ready to reel in some fish.

Even more easily fashioned is another home-built lure that I've had plenty of success with. I just tie a skirt of brightly colored yarn onto a treble hook, then affix this to the line right behind a brightly painted slip-style round-ball sinker. A lot of times this will turn out to be my most productive panfish lure.

I also often use a bullet sinker and a long "streamer" of yarn, put together in the same fashion, to bring in large-



Bullet sinker with treble hooks and yarn streamers



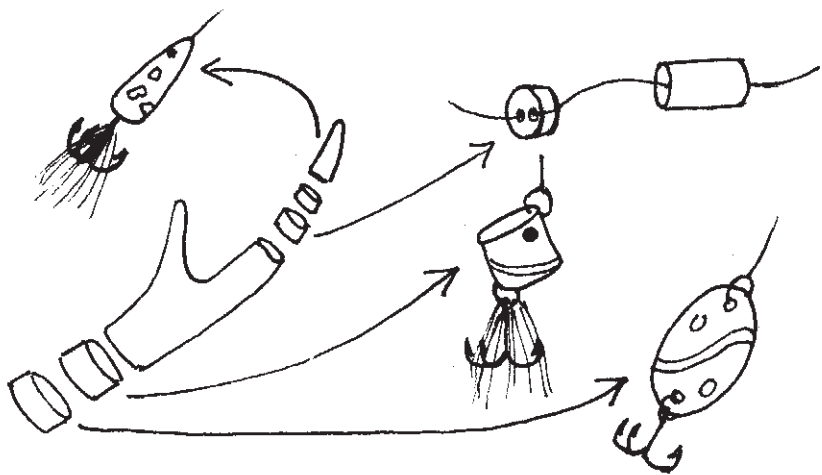
Cartridge case lure

mouth or walleye with similar excellent results.

Eventually, even most empty cartridge cases usually end up being recycled into fishing lures at our house. Centerfire cartridges, that have

outlived their reloadable life spans simply have their primers punched out at the loading bench. For spent rimfire cases, I use a hammer and nail to punch holes through the base. Then I paint a couple of bright eye spots onto the case and thread this empty case onto a line ahead of a yarn skirted treble hook. This very quickly produces another lure that catches fish.

With the aid of a drill, hacksaw, and some sandpaper, a whole bunch of really nice lures can be produced from a single deer antler. First, saw off all of the tines (or points). These are drilled through, painted, and have treble hooks attached to produce the torpedo-shaped lures illustrated.



You can turn a single deer antler into a collection of nice lures and bobber stops, using the points and sawn slices.



Setting a hook into a cast spoon-mold lure

Now, diagonal slices of varying thickness can be sawn off the remaining antler. These are sanded smooth (maybe even buffed and polished), painted in differing patterns, and drilled as shown. With skirted hooks attached, these are usually *very* productive lures. Leftover antler pieces, too small to make into lures, can be sawn into thin slices and drilled button fashion to be used as bobber stops.

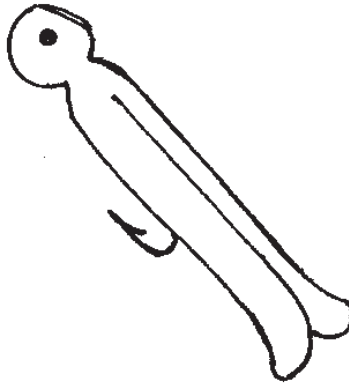
While you're using your metal measuring spoons to cast sinkers anyway, it's not a bad idea to occasionally insert a hook into the molten metal, as shown, and hold it in place with pliers until the lead solidifies. Paint these spoon-type lures in varying color combinations. I also produce spoon type lures from thrift shop silverware by cutting off the handle and filing the lure smooth.

Many top water lures, or plugs, can be simply fashioned out of wood by even a mediocre whittler. Just about



Lure made from a thrift store spoon: cut off the handle and file smooth.

every lure I've ever made in this manner has done a good job of catching fish. For your very first attempt, you might want to try turning an ordinary clothespin into a fine floating bass lure, as shown, just to give you a sense of how well this can work.

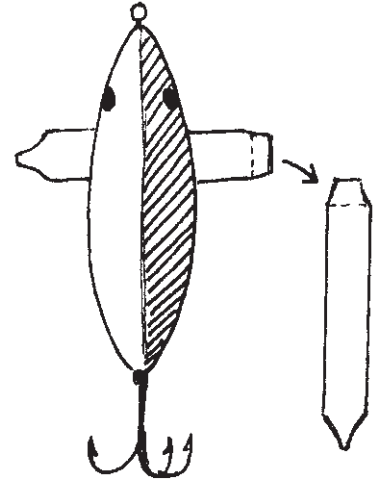


Plug-type top water lure made by setting a large single hook into a wooden clothespin

Possibly my very favorite wooden lure, though, is a copy of the ancient Devon Minnow, one of the first successful artificials ever recorded. To fashion this lure, you'll first need to carve one piece of wood into a nice tapered cigar sort of shape, then sand this lure body real nice and smooth.

Now, take a piece of dowel about half the diameter, and two-thirds the length of the lure body. Trim the ends of this dowel so that each end forms a flat section at approximately 90° to each other. Drill an appropriate sized hole crosswise through the body of the lure and glue the dowel in place through this hole. Insert a small screw eye at each end of the lure. Attach a treble hook (with or without a skirt) at one end, with the opposite eye serving to attach your line.

Paint each side of the lure with a different color, and paint on eye spots. This lure spins much like a rifle bullet as you retrieve it through the water, producing just as many catches today as when it was originated hundreds of years ago.

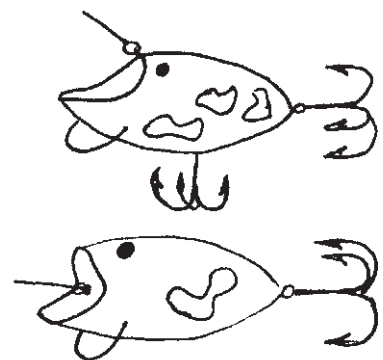


The Devon Minnow lure

A couple of other carved wooden lures are also illustrated to help add a little inspiration as you begin thinking up your own styles and designs for producing these sorts of lures.

I've also learned to keep a sharp eye out at our area thrift stores for cheap costume jewelry. Until you get some experience of your own, you just can't believe how many fine quality "fish catchers" you can produce from a 50¢ "junk" necklace. Sometimes you might need to add a short length of polished copper tube, a spoon blade, or some other extra to the beads and baubles you string on your line. But junk shop jewelry always seems to be even more attractive to fish than it was to its original wearer.

So, good fishing, and enjoy. Δ



Carved wooden lures

You can learn to help chicks live through “problem hatches”

By Susan BetzJitomir

One of the most rewarding aspects of backwoods living is raising your own food from livestock. Chickens, with their meat and eggs, are a particularly sensible choice. Each individual has a low feed requirement, and can rustle up much of it without help from you. Sometimes, in June, the hens will “go broody” and successfully hatch a nice crop of baby chicks and rear them without much help. The free food is wonderful.

However, things do not always go according to plan. You may have a variety that doesn’t mother well. A hen may sit on a nest of fertile eggs which never hatch due to chilling or other problems. You may lack a rooster, and therefore not have fertile eggs. Your hen may hatch a beautiful brood which gets killed by predators or weather. Any number of things can go wrong, and if they do, your hen won’t try again until next year. Even if all goes well, she’ll do it only once a year. This is where artificial incubation comes in. As this is an article about difficult hatches, I am going to assume some knowledge on the part of the reader about the basics of hatching.

Artificial incubation has its drawbacks, but you get to keep trying until you get it right. To incubate successfully, you need humidity, the right temperature (99° for a moving air incubator and 102° for a still air incubator), and to turn the eggs three times daily. If all stays right, in about 21 days your chicks will pip. *Pipping* is when the chick first pokes its beak through its shell. Do not give up on slow-to-pip chicks. All of the literature that I have read says that chicks hatch within 22 days of setting them

in the incubator. Don’t believe it. As I write this, there is a chick pipping now on the porch, 23 days after setting. My record for a healthy chick is 24 days. So be patient.

Occasionally, there is a chick which pips, and doesn’t get much further than that. It used to be thought that such a weak chick would die no matter what you did, and it was not worth the effort to try to save them. New research with rare and endangered parrots and birds of prey has shown that this is not the case. Each of these babies is so valuable for species survival and captive breeding programs that they just couldn’t let weak ones die without trying to save them. I took a course recently at Cornell University from Drs. Muscarella and Parks, and tried their assisted hatching information at home when I had a problem hatch. (My thermometer was off by a couple of degrees.) I also found out more through experience.

You have to be very careful, and move slowly, but you can help a weak chick hatch and live. The more practice you have, the better you will get at it. Eight out of ten living chicks in the problem hatch were assisted hatches. I think it is worth the effort to learn.

Step 1: Be patient

Don’t even think about trying to help unless the chick has tried on its own for 24 hours. Some chicks just take a long time to struggle out, and they need that time for all of the blood to be absorbed from the equivalent of a placenta inside the egg. They pip before this process is complete. This is one of the reasons assisted hatches can fail. If you are not careful, they can bleed to death because a vein in the shell is punctured.

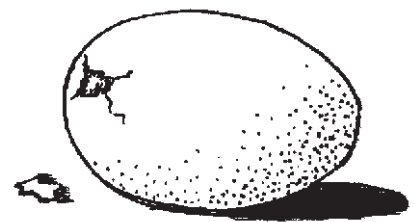
Step 2: See if your chick is alive and breathing

You may want to open up a dead chick to see if you can figure out what went wrong, but you may not. Carefully lift the flap from the pip and look for signs of breathing or movement. Listen for a “peep peep” coming from inside the shell. A chick that is peeping is breathing. A chick that is only moving may not be breathing: it may still be relying on the egg mechanisms for oxygen. A chick that is not breathing will not live if hatched with help. You have to wait until it breathes on its own, which it may never do. If you have a breathing chick which has been trying for 24 hours to get out, move on to Step 3.

Step 3: Tear the membrane slightly

Very carefully tear a small piece ($\frac{1}{16}$ of an inch) of the membrane (the “skin” inside the shell) by where the chick has pipped. *If it bleeds at all, stop.* Put the chick back in the incubator. Be sure to put it back in such a way that the chick will not drown in its own blood. Put the pip side up. Don’t be discouraged by what seems like a lot of blood. If you made a very tiny tear, the chick can survive this. Moisten the membrane with a wet paper towel. Don’t get it wet, don’t drown the chick, just moisten it. Wait a half day and try again. If it still bleeds, wait another half day.

At this point, it is a tough call. Keep moistening the membrane. By now the



After about 21 days of incubation, a chick will pip — that is, poke its beak through the shell.

shell really shouldn't be bleeding, but it might do so anyway. If the chick is too long in the shell after being exposed to the air, its bones will start to harden and its feet will be malformed. With tender care, chicks with malformed feet survive a few days. Then they die, probably from other difficulties. All chicks have "malformed" feet at first, and take a day or so to walk, so if this is your first time, don't be discouraged. Be patient. But a chick with truly malformed feet cannot get to the food and water well enough, and will be brutalized by the other chicks if you don't take it away and separate it.

Of course, if the blood has not been absorbed, they may bleed to death. I assume that most of the blood has been absorbed after two days, and proceed as for the others.

Step 4: Remove the shell, not the membrane

The membrane should not be deliberately torn again after Step 2. You want to be as careful as possible not to cause bleeding. You are just determining readiness in Step 2, and there really is no other way. Now you remove the shell, but not the membrane. This is not as hard as it sounds; it actually comes away from the membrane quite easily if the membrane is moist.

An important note: You must keep the chick very warm during this process, so you may want to do it in stages, putting the chick in the incubator or brooder in between. They can get a chill and die at this point.

If the membrane near the pip is dried out and white-looking, do not assume that all of the blood has been absorbed. The membrane can still be active further back in the egg. This is why you remove the shell only. You can see through a moist membrane and know what is going on. The chick will probably still be attached to the membrane on its bottom end. Leave it attached. The chick should have reacted to this invasion of its space. If it

doesn't, it may be dead, but keep going; they can surprise you sometimes. If it ever peeped, it might still be alive.

Step 5: Check it out

At this point, you should have in your hands a membrane sack full of chick, with a small tear that the chick is breathing through. So far, so good. The chick is attached to this sack by its *cloaca*, an all-purpose reproduction and elimination vent on its hind end, by something resembling an umbilical cord. This is important. Moisten the sack with warm water, and look for blood and veins. If they are bright red, put the chick back under heat for a few more hours, maybe even overnight. With any luck, the chick will finish the job without you. The chick needs to absorb all of that blood from its cord. If you don't see blood, look for yolk yellow. The last thing that happens is the chick absorbs the yolk into its abdomen. If you see yolk, put it back under the heat. A chick can survive some blood loss, but I have not had one survive membrane removal before the yolk was absorbed.

Step 6: A chick is born

Assuming that there is no blood or yolk visible, very carefully start peeling the membrane back over the chick's head. Try not to tear it. Peel it over the body. Do not detach it from the chick. If at any point you realize that you see blood or yolk, stop, give it some time, and start again. You must not detach the membrane, because the chick's stomach may come with it. Let it dry on its own, and usually it will fall off of its own accord. If not, you can cut it when it's dry, with sterile scissors.

Things to keep in mind

- Keep weak chicks separate from the others, and sometimes from each other, until they are fully mobile.

Placing them in separate cardboard boxes works well.

- Weak chicks will spend most of their first day sleeping, and will probably fall asleep immediately after you put them under the lamp. Let them sleep. They are also very "floppy," so be sure to support their heads when you hold them. Put them down on their stomachs.

- Keep children away, at least until the chicks are fully feathered, and preferably until the chicks are chickens. Even good children are death to chicks, especially weak chicks.

- The first chick that I assisted out of its shell came out easily and thrived. This fooled me into thinking that assisted hatching is easy. It isn't. A 50% survival rate is very good. Remember that these are unhealthy chicks to begin with.

Out of 42 eggs set in the incubator in my problem hatch, 2 hatched without help, and 17 more pipped, but got no further on their own. Of the problem 17, in which an effort was made to assist in the hatching process, 8 lived. So 9 assists were failures. The other 23 never pipped. Most hatches go much more smoothly than this, with a near-100% survival rate, with no hatching help required. This is assuming that you have eliminated the dead or infertile with candling.

Try not to be too discouraged by the "failures." Remember that if you left them alone and did nothing, these problem babies would die anyway. Being able to save any gives you a good feeling. If any that can't hatch on their own live, you have done a good thing.

(My thanks to Dr. Muscarella, Dr. Parks, their staff, guest speakers, and those featured in print and on film in Cornell University's *Exotic Avian Husbandry* class, for the concept of assisted hatching, for the research and experimentation that they did, and for sharing this information with the public.) Δ

Repel garden pests with companion planting

By Inez Castor

Recently, while innocently hunting mushrooms, I was viciously attacked by a poison oak bush. We can skip the gory details of the next week: the part about looking like raw hamburger and not being able to sleep. The point is that now, when I suspect there is poison oak nearby, I get as far from it as I possibly can. And that, my friend, is how repellent plants work.

The mystery of *companion planting* has fascinated gardeners for hundreds of years, and only now are scientists beginning to give the subject serious study. Of course, their first action was

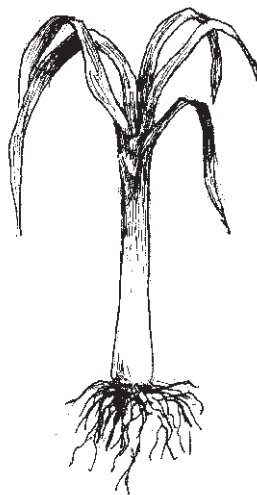


Rhubarb

to give the study of chemical interactions between plants an unpronounceable name; they call it *allelochemicals*. Why didn't we think of that?

Gardeners just call it companion planting and are content to know that it works. There are several different reasons for choosing specific companion plants: You can plant to increase the health and vigor of your crops. You can plant to get more plants into less space. And you can plant to repel or attract insects.

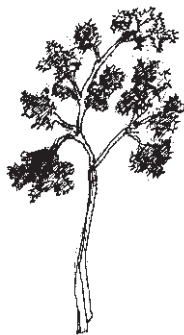
Repellent plants are those that discourage harmful pests. Or, as in the case of poison oak, they can discourage people. Among the vegetables



Leek

there simply *aren't* many repellent plants. Let's face it, veggies like everyone, even flea beetles and slugs. Among the herbs and flowers, however, there are some real tough guys.

Herb gardens are becoming popular as more people realize how easy herbs are to grow. Rather than planting them all together, try scattering them around the garden where they can help with pest management. Have you noticed that herbs rarely have slug or insect damage? The trick is to plant herbs where the pests they repel are likely to be.



Parsley

If bean beetles are having three-martini lunches in your snap beans, plant **summer savory** with the beans. Then throw a few sprigs in the pot when you cook the beans; savory enhances their flavor.

Onions, garlic, chives, leeks, shallots—just reciting the names of the onion family can affect your breath. These are the most powerful of all repellent plants, and should be a part of the defensive arsenal of every organic grower.

The most commonly used repellent is **garlic**, which repels everything from aphids to neighbors. It is especially useful planted around roses to discourage aphids and red spider



Marigold

mites. Roses are the focus of more poisonous sprays and dust than any other flower, but you can have beautiful roses without poisons.

Clumps of **garlic chives** planted around and among your rose bushes are both attractive and repellent. They please the eye with delicate white blossoms while repelling red spider mites and aphids. They are nearly as effective as garlic, and much better behaved. Though it has not yet been scientifically proven, it appears that members of the onion family exude a chemical from their roots that helps to prevent black spot.

Chives and **garlic chives** can be started from seed in the spring, but they're very slow starters. It's easier to divide and replant clumps. Pick up a pot of chives at your local nursery. Once you have a single clump of chives, you can propagate all you'll ever want or need.

Scatter clumps of **chives**, **onion sets**, and **garlic cloves** throughout your garden. Those you don't eat will come back even stronger next year. Unlike commercially grown garlic, which has usually spent weeks in storage and under lights before reaching your table, homegrown garlic, harvested as you need it, is never hot or bitter.

Marigolds are among my favorite repellent herbs. They exude a chemical from their roots that discourages the growth of harmful nematodes. Nematodes are nasty microscopic worms that damage or destroy the roots of many crops.

Marigolds also repel Mexican bean beetles from snap beans and improve the health of strawberries and potatoes. It's the small, aromatic French marigolds that repel pests; the tall, odorless plants, such as "Crackerjack," are not effective.

The chemical in marigolds that repels nematodes is very slow to release, so grow marigolds every year and in as many areas as possible. Recent studies have found the incidence of nematodes was cut by 83% where marigolds had been growing for at least one full season.

Catnip repels flea beetles, but, being a mint, it is both perennial and invasive. Plant it in a pot buried in the center of a large bed. Plant potatoes around the catnip, and scatter a few small pots of the herb around the bed. If you have cats that enjoy the catnip, their presence may help to repel gophers, a pest unaffected by catnip.

Both potatoes and the Chinese cabbage bok choy are favorite foods of the flea beetle, and they work well in rotation. After digging potatoes, scatter bok choy seeds around the catnip as a fall crop. Bok choy is easy to

start, and once started, will self-seed in mild climates.

Another fine garden ally is **coriander**, also called **cilantro**. This strongly scented herb not only repels aphids, but grown among carrots, will protect them from the carrot rust fly.

Rhubarb is a beautiful plant that's not grown as often as it deserves to be these days. People think of it only as an old-fashioned pie ingredient, but plant it with columbine to repel red spider mites or near potatoes where it will exude a root substance that improves the health and productivity of the potatoes.

Rue is a beautiful herb with blue-green fronds and a bitter taste and smell. Plant it in flower beds where it will complement bright colors and repel Japanese beetles. If you have dogs, put rue leaves in their bedding to repel fleas.

Feverfew is one of my favorite herbs, and I scatter it around the garden with a liberal hand. It has repellent properties, grows easily, and makes a fine filler flower in bouquets. Barely a foot and a half tall, with finely sculpted foliage, it makes a fine border plant to grow around roses.

Feverfew can be started from seed in the spring or grown from cuttings or root divisions. It even self-seeds readily. If you're interested in exploring the use of medicinal herbs, all good herbals abound with recipes for this excellent, safe herb.

Some plants both repel damaging insects and attract beneficial ones. **Parsley** discourages carrot flies and provides a favorite home for ladybugs.

Borage is another double-duty herb. It repels the tomato hornworm while attracting bees. Borage is an easily-grown self-seeder, often found growing wild. In our garden, we permit at least a dozen scattered bor-

age seedlings to grow each year. They can get large and weedy, but they provide food for the bees both earlier and later in the year than most other plants.

Repelling insects makes much more sense than poisoning them along with bees, spiders, ladybugs, your vegetables, and your soil.

Companion planting is not an exact science, so do some experimenting on your own. Most of what has been learned about repellent plants has been learned not by scientists, but by observant gardeners and farmers. There is still so much to be learned, and it's a field wide open to anyone who has a genuine interest and the ability to keep good records.

As long as you're experimenting with herbs, plant plenty of **valerian**. Being rich in phosphorus, it adds to the vigor of plants grown near it.

And if the strain of trying to decide which plants should be together gets to you, cut a piece of valerian root and make yourself a nice cup of tea. Valerian is the precursor to Valium. It has all of the calmative and muscle relaxant properties, with none of the adverse side effects. Δ

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Enjoy snap beans—fresh from the garden

By Alice Brantley Yeager

Photos by James O. Yeager

My least favorite vegetable is a snap bean out of a store-bought can. Blah! But cook these tasty veggies fresh from the garden and it's all the difference between *blah* and *bon appetit!*

Snap beans come under the heading of "Easy-to-grow vegetables." There's a wide choice of bean varieties to suit every taste and locale. *Bush beans* yield earlier than *pole beans*, but the pole beans produce over a longer period of time if given some care and attention throughout the hot, dry season. Many pole beans like Romano and the old reliable Kentucky Wonder will produce until frost, giving plenty of tasty beans to be enjoyed fresh, or frozen for later use. Once summer's peak has passed, however, don't expect the bumper crops that came along earlier.



Prolific Romano beans have wide, flat pods of mild flavor and are stringless. Romano is a heavy yielder, with pods hanging in loose bunches.



Blue Lake Bush is an excellent, easy-to-grow bush variety. Like its counterpart Blue Lake Pole, it is a heavy bearer with great bean flavor.

Drying beans for storage

Some gardeners like to plant bean varieties that are especially recommended for drying. Bean pods are left on the plants until the leaves drop off, and the green pods are far outnumbered by the dry ones. After the dry pods are harvested, they are hung up in mesh bags or spread out (preferably indoors) where there is good air circulation and left to dry completely for a few weeks. After shelling, dried beans may be put in a freezer for about two days to kill any bean weevils that might hatch while the beans are in jars on the pantry shelf. To be sure the beans haven't absorbed any moisture while in the freezer, just put a few beans in a glass jar, screw the lid on tightly, and set it in the sun. Watch for tiny beads of moisture. If none appear, the beans are ready for pantry storage. As an added precaution against weevils, put a dried bay leaf in each jar.

Some of the bush bean varieties that have produced well in our garden are Venture (a Park variety), Tendercrop, Topcrop, and Blue Lake Bush. An

unusual variety called Sequoia has not only given us a good yield, but has added beauty to the garden with its lavender flowers and prominent purple pods. (After blanching or cooking, the purple changes to a bright green.)

Planting beans

Beans should be planted according to directions on the packet, with one exception. Directions will usually say to plant seeds two to three inches apart and thin plants to stand four to six inches apart. I prefer to plant about four inches apart to begin with, to avoid thinning and have seeds go further. There is something about discarding perfectly healthy plants that doesn't appeal to me. I always keep a few seeds to fill in any gaps that might occur.

Rows should be about two feet apart for bush beans—more if you use a rotary tiller to cultivate. This spacing gives plenty of room to move around between the rows when harvesting. Seeds should be planted after all danger of frost has passed and the ground

has warmed up somewhat. Temperatures just above freezing for several days, combined with wet soil conditions, will spell disaster, as seeds will rot or seedlings will come up stunted.

For best results, beans should be given a spot open to all-day sun. If the bush varieties are overshadowed by corn, tomatoes, etc., they will not yield well. Soil should be loose, well supplied with humus, well drained, and have a pH factor of 5.5 to 6.5, which is slightly on the acid side. Beans do well in almost any good garden soil, and they do not need a lot of fertilizer.

Supporting bean plants

Bush bean plants laden with blossoms and pods have a tendency to fall over when heavy rains and winds occur. I have found that it pays to build a simple support system of stakes and stout string before the plants mature and spread out. Down each side of a row, I space a line of 12-inch stakes about four feet apart and about eight inches apart from side to side. Six to eight inches above soil level, I tie string tightly between the stakes the length of the row and across each end. This type of support makes picking easy and can be removed after the plants are through bearing.



Pole beans should have stout support. These Romano vines are growing on hog wire stapled to tall posts. Beans supported this way can be reached from either side of the supports.

Pole beans need stout supports, so that there is no danger of toppling over if a gusty thunderstorm comes along. Ask any gardener who has had the experience of lifting fallen bean vines, especially if they have gone down on shorter plants such as squash or peppers. It's a real mess—enough to make a preacher cuss!

One of the best supports can be made by putting in a line of tall posts with woven fence

wire (hog wire) stapled between them. Be sure that the posts have been in the ground long enough to become “set” before putting up wire, usually a matter of a few days. The bottom of the wire should be about 12 inches above ground. When young plants put out runners, it is a simple procedure to guide them onto the wire. The plants will do the rest in a race to the top. The taller the support, the better, as pole beans will form a dense, leafy mass when they can climb no higher. If the support system is too short, picking beans becomes a hide-and-seek game, as the vines smother themselves and produce few pods. We make our supports about seven feet high.

Grass and weeds will choke plants. It is well to deal with the undesirables early-on by hand pulling or by cutting them off with a sharp hoe just below the soil's surface. Caution should be exercised when weeding, as bean plants are shallow-rooted and subject to root damage if soil is cultivated over an inch or two deep. A good organic mulch of straw, grass clippings, leaves,



Sequoia adds color to the garden with its purple pods and flowers. This variety has good bean flavor, and if they get past the snap stage, as some of these have done, just shell them, discard the hulls, and enjoy.

etc., will discourage weeds, cut down on watering during dry spells, and keep dirt from splashing up on the plants, particularly the bush varieties. As a fringe benefit, mulch encourages earthworms to till the soil and keep it aerated. Gardeners need all the help they can get!

Snap beans should be picked every second or third day while at their peak of perfection. If allowed to go beyond the snap stage, the quality will not be as good, as the pods toughen. If pods are left on the plants too long, the plants will not achieve their maximum production. Snap beans are actually immature pods, and it is the harvesting of those pods that stimulates the plants to keep on producing.

Pests and diseases

Bean plants are subject to a number of diseases, and each locality seems to have its own particular problems—anthracnose, bacterial blight, etc. Cooperative Extension Offices are good places to obtain information, as their agents are familiar with local plant diseases. Wherever one's garden is located, however, a wise practice regarding bean plants is never to work around them or walk among the rows while they are wet with dew or rain, as you might spread a disease.

Each section of the United States is also concerned with its more visible bean foes—Asiatic garden beetles, cutworms, Mexican bean beetles, and so on. Sow bugs, slugs, and snails are the main culprits in our garden. When we have an epidemic of these uninvited guests, I resort to a bit of Sevin dust (10%). Sprinkled sparingly at the base of plants, Sevin stops the pests in their tracks.

Nutritionally, beans are one of the most beneficial vegetables we can eat. Low in calories, green beans are packed with protein and are a good source of Vitamins A and C. Their mineral content—including iron—is first-rate. Beans steamed with chunks of new Irish potatoes and seasoned with butter or oleo are a real treat for the taste buds. (See recipe below for leftover beans.)

In our family, we have a green bean gourmet. Her name is Sarah Kathleen Gray, and she is our nine year old granddaughter. She loves green beans

prepared very simply—steamed with chopped onions and seasoned with oleo, a pinch of salt, and white pepper. When at home, she has been known to insult her non-gardening parents by saying, “These green beans don’t taste right. Grandma’s green beans are good!” The reason *my* green beans are good is because they’re fresh from our garden!

Seed sources

Venture: Park Seed Co., Cokesbury Road, Greenwood, SC 29647-0001

Sequoia: Vermont Bean Seed Co., Garden Lane, Fair Haven, CT 05743

Most seed companies sell Romano, Kentucky Wonder, Topcrop, Tendercrop and Bluelake Bush.

Leftover snaps

First of all—don’t throw them out! Leftover cooked snap beans need not

go to waste. I purposely cook more green beans than we need for a meal, as there is a very tasty way to enjoy a good side dish of leftovers.

- 3 - 4 slices bacon
- 2 Tablespoons bacon drippings
- 1/3 cup onion, chopped
- 1/3 cup green bell pepper, chopped
- 3 cups cooked, leftover snap beans
- 1/4 teaspoon dried sweet basil
- 1/4 teaspoon white pepper
- 2 Tablespoons fresh parsley, chopped

Fry bacon until crisp. Remove bacon to a small plate, cool and crumble into small pieces. Sauté onion and bell pepper in bacon drippings until almost tender. Add leftover snap beans, basil, white pepper, and parsley. Turn mixture frequently until beans are hot. Drain off any excess liquid, put bean mixture in serving dish and sprinkle bacon pieces on top. Δ

A country moment



Jordan and Chad Schira with their “hand-raised” steer, Moo, on their S.W. Montana cattle ranch

(If you have a country moment you’d like to share with our readers, please send it to us at Country Moment, *Backwoods Home Magazine*, P.O. Box 712, Gold Beach, OR 97444. Please include a self-addressed, stamped return envelope if you want the photo back.)

These rolls will enrich a meal, or even *be* a meal

By Jennifer Stein Barker

Try these healthful and delicious roll recipes to add substance to a soup-and-salad lunch, a hearty dinner, or a lunchbox.

Kaiser rolls

These rich rolls are glazed and sprinkled with sesame or poppy seeds for an elegant presentation. Leftovers make great sandwich buns. Makes a 9x13" pan of 8 or 12 rolls:

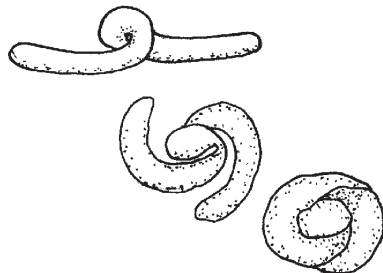
- 1 1/2 cups warm water
- 1 Tablespoon yeast
- 2 Tablespoons honey
- 1 egg, beaten, divided
- 2 Tablespoons olive oil
- 1/2 teaspoon salt
- 3 - 4 cups whole wheat bread flour
- 2 Tablespoons gluten flour (optional)

In a large bowl, dissolve the yeast with the honey in the warm water. Let sit 10 minutes in a warm place. When the yeast foams up, beat the egg in a small cup and pour most of it into the yeast, reserving about one Tablespoon of it for the glaze. Put the reserved portion of the egg in the refrigerator.

Add the oil and salt to the yeast mixture, and beat in two cups of the whole wheat flour and the gluten flour (if you're using it). Continue beating vigorously until gluten strands form. Add more whole wheat flour until the dough becomes too stiff to stir.

Turn the dough out onto a floured board, and knead 8 to 10 minutes until smooth and very springy. Place the dough in a clean, oiled bowl, turning to oil the top. Cover and let rise in a warm place until double in bulk, about 1 1/2 hours.

Punch down and form into rolls as follows: Decide if you want 8 large rolls, or 12 medium ones. Oil the 9x13" pan lightly. Divide the dough and roll each piece into a rope about eight inches long. Grasp the middle of the rope and wind the "legs" around it in a spiral. Pinch the ends to the body of the roll. Place in the pan, four rows long by two or three rows wide. Pat the rolls into place.



Let rise until double in bulk, about 45 minutes. Dilute the reserved egg with an equal amount of water, and brush it over the tops of the rolls with a pastry brush. Sprinkle poppy seeds or sesame seeds lightly over the glaze.

Bake in a preheated 350° oven for 30 to 35 minutes, until tops are golden and rolls test done. Cool in pan 10 minutes, then remove and serve, or cool thoroughly on rack before storing.

Multi-grain rolls

These chewy rolls accompany a hearty dinner or soup. Makes a 9x13" pan of 24 rolls:

- 1 1/4 cups rolled multi-grain cereal
- 2 cups warm water
- 1 Tablespoon yeast
- 3/4 cup lukewarm water
- 1 teaspoon honey
- 1/2 teaspoon salt
- 2 Tablespoons honey
- 3 Tablespoons oil
- 4 - 5 cups whole wheat bread flour
- 2 Tablespoons gluten flour (optional)

In a small saucepan, combine the cereal and the two cups of water. Bring to a simmer and cook for five minutes, stirring frequently. Remove from heat and scrape into a large bowl. Add the salt, two Tablespoons honey, and oil to the cereal, then cool the mixture to lukewarm.

Dissolve the yeast in the 3/4 cup of water with the one teaspoon honey. Let sit 10 minutes in a warm place. When the yeast foams up, combine the two mixtures. Beat in two cups of the bread flour, and the gluten flour if you're using it (it will make the rolls lighter). Beat well until gluten strands form between the spoon and the bowl. Add more bread flour, 1/2 cup at a time, until the dough is stiff enough to knead.

Knead the dough on a floured surface at least seven minutes, until it is smooth and springy. Place the dough in a clean, oiled bowl, turn and cover it, and let rise in a warm place until double in bulk.

Oil a 9x13" baking pan, and set it near your work surface. Turn the dough out onto the surface and divide into eight equal portions. Further divide each piece into three equal portions. You will have 24 little pieces. Form them into rolls as follows: Flatten each piece between your palms and work the air out of it. Fold and roll it and shape it into a ball, then place it smooth side up in the pan. Make six rows

of four rolls. Cover the pan and put in a warm place to rise until double.

Preheat the oven to 375°. When the dough has risen, gently brush the surface of the rolls with water. Bake the rolls for 25 to 30 minutes, or until the tops are golden. Serve warm, if possible.

Onion/herb rolls

These are flavorful rolls to serve with a simple soup meal or to make a whole lunch with the addition of a little cheese or spread. Makes a 9x13" pan of 15 or 24 rolls:

1 Tablespoon yeast
1½ cups warm water
3 Tablespoons honey
2 Tablespoons olive oil
1 teaspoon salt
1 cup finely chopped onion
1 teaspoon dried basil, crushed
1 teaspoon dried rosemary, crushed
4 - 5 cups whole wheat bread flour

In a large bowl, dissolve the yeast with the honey in the warm water. Let sit 10 minutes. Add the oil, salt, chopped onion, and herbs to the yeast mixture, and beat in two cups of the whole wheat flour. Continue beating vigorously until gluten strands form. Add more whole wheat flour until the dough becomes too stiff to stir.

Turn the dough out onto a floured board and knead 8 to 10 minutes until smooth and very springy. The bits of onion may fall out as you knead, but just keep putting them back on the dough and folding it over them. Place the dough in a clean, oiled bowl, turning to oil the top. Cover and let rise in a warm place until double in bulk, about 1½ hours.

Oil a 9x13" baking pan and set it near your work surface. Turn the dough out onto the surface and divide to form 24 rolls as in the recipe above. Make six rows of four rolls. Cover the pan and put in a warm place.

Let rise until double in bulk, about 45 minutes. Brush the tops gently with a little water. Bake in a preheated 350° oven for 30 to 35 minutes, until tops are golden and rolls test done. Cool in pan 10 minutes, then remove and serve, or cool thoroughly on rack before storing.

Filled rolls

Are you frequently short of time? Just keep these in the freezer for emergency sack lunches. Each roll has a nugget of cheese and vegetable filling in the center. Pull one out and pop it into a lunchbox. It will be thawed and ready by lunchtime. Makes a 9x13" pan of eight rolls:

1½ cups warm water
1 Tablespoon yeast
2 Tablespoons honey
2 Tablespoons olive oil
½ teaspoon salt
3 - 4 cups whole wheat bread flour
2 Tablespoons gluten flour (optional)

Filling:

1 Tablespoon olive oil
1 cup chopped onion
2 cups shredded cabbage or other vegies
½ teaspoon caraway seeds (optional)
tamari and grated pepper to taste
½ cup grated mozzarella cheese

In a large bowl, dissolve the yeast with the honey in the warm water. Let sit 10 minutes in a warm place. When the yeast foams up, add the oil and salt. Beat in two cups of the whole wheat flour and the gluten flour (if you're using it). Continue beating vigorously until gluten strands form. Add more whole wheat flour until the dough becomes too stiff to stir.

Turn the dough out onto a floured board and knead 8 to 10 minutes until smooth and very springy. Place the dough in a clean, oiled bowl, turning to oil the top. Cover and let rise in a warm place until double in bulk, about 1½ hours.

Make the filling as follows: In a large skillet over medium heat, sauté the onion, cabbage, tamari, pepper, and caraway seeds (if you're using them) in the olive oil until the vegetables are limp and beginning to turn golden. If vegetables start to brown too fast, moisten with a small amount of stock or water and turn the heat down a little. When done, remove from heat, cool for 15 minutes, and stir in the grated cheese.

Oil a 9x13" pan lightly. Divide the dough into eight equal pieces. On a floured board, roll each piece into a six-inch disk. Place a spoonful (about one eighth) of the filling in the center of the disk. Pull up the edges of the dough around the filling (like a little bag), pinch the edges together, and place seam side down in the pan. Repeat the process until you have two rows of four rolls in the pan.

Let rise until double in bulk, about 45 minutes. Brush a little egg or water gently over the tops of the rolls to make a glaze. Bake in a preheated 350° oven for 35 to 45 minutes, until tops are golden and rolls test done. Cool in pan five minutes, then remove and serve, or cool thoroughly on rack before storing.

To freeze, wrap each roll individually in foil or plastic. Then put all in a bag or airtight container, and freeze. Δ

Ayoob on firearms

By Massad Ayoob

Accessible to you, but not the kids

You want a firearm readily accessible to defend yourself and your family (maybe because you live in a very rural area hopelessly remote from immediate police assistance), but at the same time you don't want it where your little kids can reach it. You might have an adult living with you whom you wouldn't want to lay hands on a firearm, either. Are these mutually exclusive goals?

Not necessarily. Years ago I wrote a book called Gun-Proof Your Children, which gives parents a lot of ideas about this. For now, here's the short-form answer to that specific question (which by no means covers the waterfront on all kids-and-guns issues).

When my own rug rats were little, I had done enough policing and received enough death threats that I wasn't comfortable without a loaded gun where I could reach it. With the children not yet at an age of responsibility, my answers were twofold.

One was to simply put the gun on when I dressed in the morning and take it off when I undressed for bed. Could this work for you? Well, isn't the ability to do what you want on your own property one reason you've opted for the backwoods lifestyle?

The other half of the answer was a gun that would only work for me. This was a Model 66 Smith & Wesson .357 Magnum revolver modified with a device called a MagnaTrigger that allowed it to fire only when properly grasped by someone wearing a special magnetic ring. Around my house it became known as "Fluffy, the pet revolver" because it wouldn't speak for anyone but its owner.

You've been hearing and reading a lot about "smart guns," including the

microchip semiautomatic pistol Colt has announced but not yet offered in production. It will cost an estimated \$1,000. For half that price, you can get right now a good used S&W service revolver fitted with a Magna-Trigger in the caliber of your choice, from .22 to .44 Magnum. For less than \$350 (including a ring for each hand), you can have the device fitted to your own Smith. Contact Tarnhelm Police Equipment, 431 High St., Boscawen, NH 03303.

The problem with storing the gun someplace is you're never sure if you'll be able to get to the storage point in time should you need a weapon suddenly and desperately. But if keeping it somewhere other than on you is your choice, you've still got options. A lock box? The gun shop will offer any of several that can work with a push button combination. Make sure there's a keyed system for backup, and that you carry the key.

It's cheaper to do what generations of cops have done: secure a loaded handgun with a pair of handcuffs. Yes, they're legal to own. One bracelet goes around a steel ring embedded in the floor, or something similarly solid. The other bracelet goes between hammer and breechface and outside the trigger guard of a cocked and locked Colt or Browning auto, or behind the trigger (between it and the guard), and over the hammer, holding it down, on a double action revolver or semiautomatic. You'll want to have a handcuff key with you at all times, preferably an oversize one that will be a lot easier to handle under stress. You can buy it in the same place you buy the handcuffs for just a few bucks, or you can get a catalog from Armor of New Hampshire,

PO Box 122, Concord, NH 03301 to order both oversize keys and top-quality Peerless handcuffs.

The key can go on your regular keyring, which you may have on all the time as you go about your property anyway. If not, loop it on a chain around your neck. If anyone notices the handcuff key on the little necklace, they'll probably just assume that you have a more interesting sex life than they do.

Yes, you can lock the gun in one place and the ammo in another, but you'll never be able to reach the two and put them together in time to short-stop a fast-breaking intrusion or a sudden attack by a wild or feral animal on one of your animals...or on one of your children.

Simply wearing the gun gets my vote. I'd suggest discreetly tucking it under a shirt-tail so you don't frighten passing strangers or UPS men, but what the hell, it's your property. A secure inside-the-waistband holster like the Bianchi Belly Band has a reassuring safety strap and snaps positively onto your belt. It's comfortable enough to wear all day, and won't displace if you're rolling around playing with the kids. Another option is to carry a small-frame .38 revolver, or even Ruger's rugged little SP-101 .357 Magnum, in the front pocket of your jeans or overalls.

When the gun is on your person, it is simultaneously where you can access it instantly, and where no one else is likely to access it at all. Be sure, though, that you have a place to secure it when you're asleep.

The point is this: If the job is protecting your kids from guns they aren't ready for, *and* protecting them from sudden, lethal danger in animated form, the fact is, with a little thought and preparation, you can have it both ways. Δ

Telling time by the sun and stars is fun, and it's also surprisingly accurate

By Don Fallick

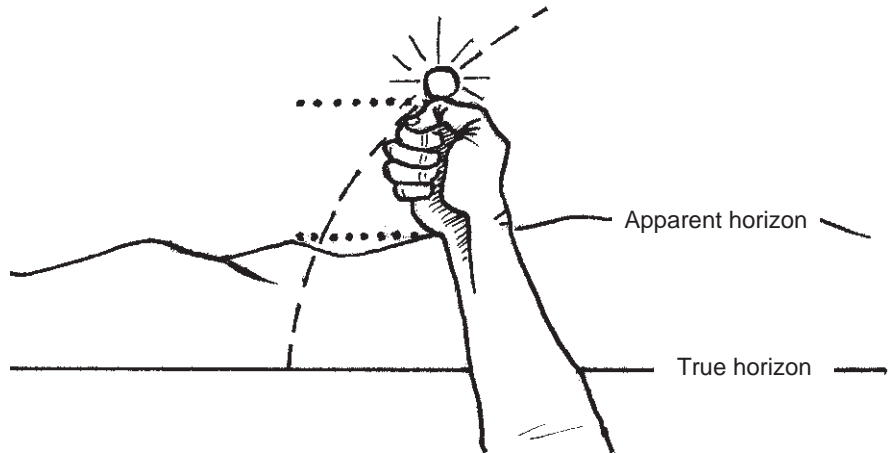
Long before the first clocks were invented, our ancestors measured days, nights, and hours by the movements of the sun and stars. Although exact hours and minutes were not as important to most of them as they are to most of us, such celestial timekeeping can be as exact as you want it to be. Even in this age of crystal-controlled watches and nuclear clocks, we still check our standards against the movements of the heavenly bodies for accuracy.

Few of us need to be this accurate. The simple time-telling techniques that sufficed before the age of railroads can tell us most of what we need to know about time. They're easy and fun to learn, and the only equipment needed is what you were born with—your hand, your eye, and your brain.

Using the sun

Here's how to tell time by the sun:

1. Stick out your arms in front of you, elbows locked, palms facing each other. Now drop one arm and make a fist in the hand that's still out. Point



“Two fists” above the true horizon along the sun’s path equals two hours.

your arm so the bottom of your fist appears to just touch the horizon.

2. Moving only your eyes, sight over the top of your fist. This distance, from the horizon to the top of your fist, is equal to one hour of sun time. Note the position of this spot and measure “hours” with your fist, along the line the sun travels, until you reach the sun. **DO NOT STARE DIRECTLY AT THE SUN!!!**

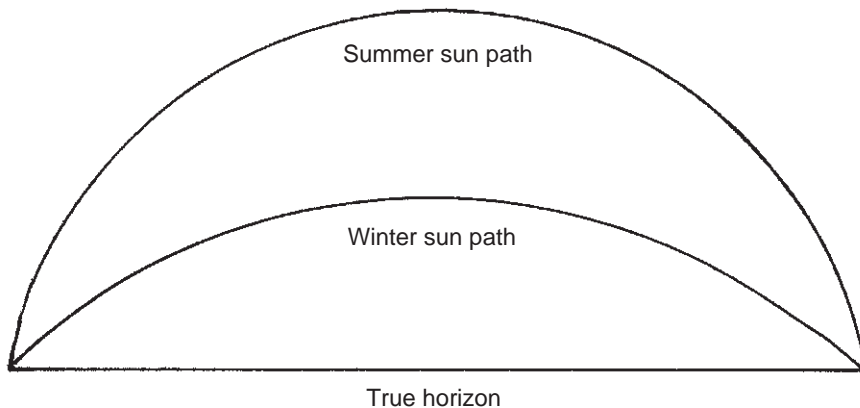
3. Sight up from the point on the horizon where the sun rises in the

morning, and you can tell how long it's been since sunrise. Add the number of hours you measured to the time of sunrise, and you've got the current time. In the afternoon or evening, sight up from the point where the sun sets, and subtract from the time of sunset for the current time.

Cautions

You must be careful to use the *true horizon*, not the *apparent* one. The apparent horizon includes trees, houses, and mountains that may happen to be in your way. The true horizon is the one you'd see if the earth in your vicinity were perfectly flat. And you must always measure along the sun's line of travel.

You can accurately measure time periods as small as a quarter hour by this method: just count each knuckle as 15 minutes. In theory, you could count each half-knuckle as 7½ minutes, for even greater accuracy. In practice, the method is just not that accurate. If you must meet a schedule, buy a watch.



The sun's path changes with the seasons.

Adjustments

The system depends for its accuracy on the fact that the proportions of most people's arms and hands are such that the fist blocks a segment of sky that equals an angle of 15° with the elbow locked. The distance from the eastern horizon to the western horizon is defined as half a circle, or 180°, so there are 12 "fists" across the sky. This is exactly so on the Vernal Equinox (March 21) and the Autumnal Equinox (October 21), when days and nights are of equal length. Unfortunately, the days get shorter in the winter and longer in the summer. The points where the sun rises and sets, and the track it follows through the sky, vary throughout the year, too.

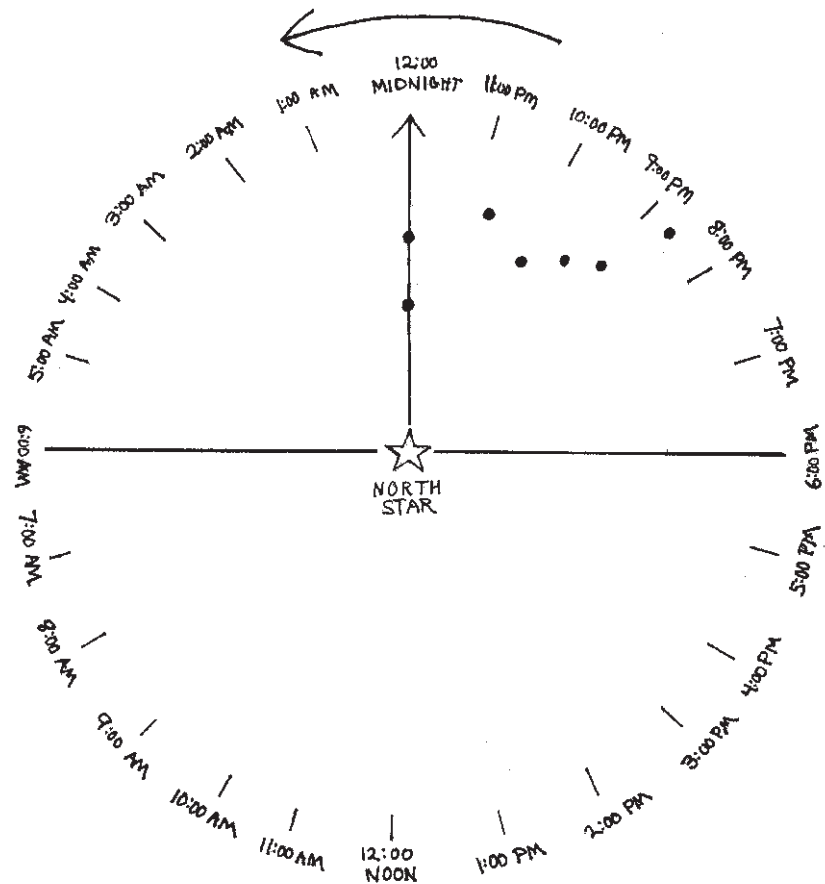
Keep it simple

There are many complicated methods of compensating for all these variables, devised by astronomers and mathematicians. They love looking at the sky and calculating, and have the time and equipment to do it. For simple people who simply want to know what time it is, there's a simpler way: *if you know where the sun's track was yesterday, it'll be about the same today.* This may not be either elegant or exact, but how precise can you be while waving your fist about the sky? It works well enough to get you home in time for lunch, and make most folks wonder at your sagacity.

Telling time at night

There are darn few people who need to know how to tell time accurately by the stars, especially in this day of three-dollar digital watches, but it's even easier than telling time by the sun. There's a clock in the night sky. Actually, there are two of them, one centered on each pole.

In the Northern Hemisphere, the "pointer" stars of the Big Dipper point at the North Star, forming the hour



*The Celestial Clock (February 20, Northern Hemisphere).
To adjust for the present date, add two hours/month (or 1/2 hour/week)
since February 20. Note: This clock runs counter-clockwise.*

hand of a **backward-turning** 24-hour clock. (The pointer stars are the two at the end of the "dipper," opposite the handle.)

In the Southern Hemisphere, the "vertical" part of the Southern Cross points to where the "South Star" would be if there was one. Not to worry: you don't need to know the exact position of the South Pole, just where the pointers are. The Southern Cross forms the "arrow" on the end of the hour hand of a 24-hour clock. Actually, it's easier for Southern Hemisphere folks to read their clock, because it turns "clockwise."

In either case, when the "hour hand" points **straight up**, away from the pole, it's midnight. Remember, the

hours on your sky clock are only half as big as hours on a 12-hour clock, and the hour hand turns counter-clockwise (in the Northern Hemisphere), and you should have no trouble estimating the time within half an hour.

Setting the sky clock

Of course, the night sky is subject to changes with the seasons, too. In this case, though, they are very simple to calculate. The northern "hour hand" points straight up at midnight only on February 20, the southern one only on August 2. Due to the tilt of the earth's axis, the celestial clock "loses" two hours each month, or about half an hour per week. Actually, it works out

to almost exactly four minutes per day, but most people can't read a 24-hour clock with no numbers on its face that accurately.

Daylight Saving Time

You can't set the stars forward or back for Daylight Saving Time, so you have to **subtract** one hour from the celestial clock when DST is in effect. This happens on different dates in different states, except in Arizona, which doesn't have DST at all.

Time zones

More difficult is compensating for your position within your time zone. The kind of time most of us are familiar with is "time zone time." Before the day of the railroads, each community kept its own local solar time, with noon when the sun was highest, and all local clocks synchronized to that time. This worked fine for the locals, but it made calculating a train schedule impossible. Over the course of a century, the nations of the world agreed to standardize time zones throughout the world, so that all clocks within a zone 15° wide would be set the same.

Corrections within a time zone

If you live near the center of your time zone, your local celestial time will agree with your clock pretty well. But if you live closer to the border of your zone, you will have to adjust. *Subtract* two minutes for each degree you are *east* of your time zone's center, or about one minute for each 13 miles in most US latitudes (Alaska and Hawaii excluded). *West* of your time zone's center, *add* minutes to observed celestial time to get standard time. Right at the border, add or subtract half an hour. (My personal feeling is that it's silly to make this correction if the difference is less than 15

minutes, since I can't read the time any better than that, anyway.)

You don't have to correct for local time when telling time by the sun, because the correction has already been made. When you note the time of sunrise or sunset, you are noting it in **standard** time, and that takes care of the correction.

Fascinating details

There are lots of other fascinating details you can take into account if you wish to increase the precision of your chronometry. For example, the earth's orbit is not a perfect circle, but a slightly elongated ellipse, with the sun at one focus. This makes Northern Hemisphere summers about a week longer than the winters, and vice versa in the Southern Hemisphere.

The sun is not in the same place, relative to the earth, during northern summers, but appears to move, lengthening days, minutes, and seconds. Since we operate on the fiction that the days are all the same length, adjustments have to be made. I figure these corrections are well within the margin of error of my fist, and ignore them.

The sun's apparent track through the sky also varies, due to the tilt of the earth's axis, from a perfect, vertical arc directly overhead in the tropics, to a complete circle, low in the sky, in the Arctic and Antarctic. In fact, the behavior of the sun on Midsummer's Day *defines* the tropics and the Arctic/Antarctic circles. The tropics are defined as those parts of the earth where the sun is directly overhead at noon on the Summer Solstice (June 21). The Arctic and Antarctic are those regions where the sun never sets on Midsummer's Day and never rises on Midwinter's Day. So above the Arctic Circle, the "fist" method of telling sun time only works part of the year, while in the Tropics, virtually no adjustments are ever required. In the Temperate Zone, where most of our planet's population lives, the "fist"

A country moment



*Jennifer Nordyke, 8, gives
her pet goat a hug.*

(If you have a country moment you'd like to share with our readers, please send it to us at Country Moment, *Backwoods Home Magazine*, P.O. Box 712, Gold Beach, OR 97444. Please include a self-addressed, stamped return envelope if you want the photo back.)

method works pretty well, which I figure is good enough.

Duration

People began using clocks and standardizing hours and time zones for good reasons. Yet the old ways still work, and are even useful, especially if what you really want to measure is *duration*. If you're not concerned with the exact time, but merely with how much time is passing, you can forget about all the adjustments and just read the great clock in the sky. Δ

Think of it this way...

By John Silveira

Losing our rights as we watch television

Dave's poker playing friend, O.E. MacDougal, came back. I don't know where he's been and he doesn't volunteer much in that regard. I'd heard he'd been playing a lot but I have no idea where.

For six months we hadn't seen him and suddenly he came up to the office to see Dave—and to try his hand at duck hunting. We were all going to try: me, Dave, and Mac, but not Bill. Bill was one of the guys Dave and I knew from our college days and he'd stopped by for old times sake. He was already packed and getting ready to drive north to Eugene, Oregon.

Mac was in the kitchen making a fresh pot of coffee. He'd already told us his doctor had advised him to cut it out because it was causing a heart arrhythmia in him. And he tried. But he didn't last and now he was just trying to cut down.

In the background I heard the newscaster on the radio say, "Even though poll after poll has shown that the pub-

lic overwhelmingly supports gun control, the NRA continues to lobby against it. While the slaughter continues in our streets, the NRA continues to support gun ownership for its members."

"Do you think that's true?" I asked.

"What's that?" Dave asked.

"That the majority of American people want gun control."

"Nah, I don't think so."

"Me neither," I said.

"I think they do," Bill said.

I turned and looked at him. He was reading one of our back issues.

"Really?" I asked.

He nodded.

As Mac came back into the main office, Dave asked, "What do you say, Mac?"

"About what?"

"Did you hear the newscaster?"

He nodded as he sat down.

"Well?"

"Bill's right."

Dave looked surprised. Bill beamed. I'd love to know what I looked like at that moment.

"I guess I'm a little surprised," I said.

"The reason they want it," Mac said, "is that most people equate gun control with crime control. I sincerely believe that if they knew the facts, they'd feel differently."

"Well, I don't think you're right on either account," Bill said.

When Mac didn't respond, Bill went on, "I think people are just tired of guns. They're a national health epidemic. And if the majority want them gone, I don't think the NRA or anyone else should stand in our way."

"Stand in *our* way?" Dave asked.

"Yeah. I actively campaign against them, and I contribute money to gun control causes."

We were quiet for a few minutes, Dave and I because we weren't looking for an argument with an old school buddy, but I couldn't understand Mac. I thought he'd have something else to say about it.



But he was staring into space. "I can feel it already," he said.

"What?" Dave asked.

"My arrhythmia."

"Why don't you cut out the caffeine?" he asked.

"Because I love it."

"So what do you guys have to say about it?" Bill asked.

Dave said, "Well, I guess if people want gun control, I suppose eventually they're going to get it." There was a little resignation in his voice.

"What do you think?" I asked Mac.

He didn't seem to be listening to me. He now had one hand on his chest and he seemed to be concentrating. "There it goes again," he whispered. "The doctor said it's not going to kill me, but it sure does scare me. He got up and went into the kitchen. From where we were sitting we could see him dump his coffee down the sink.

When he came back into the room I asked him again. "What do you think?"

"I think it'll eventually happen. We'll have gun control. But it won't be right."

"Why?" Bill asked like a lion hopping onto a kill. "This is a democracy," he said.

Mac just kind of stared at him for a second.

"It's a democracy, right?" Bill asked.

Mac still didn't say anything for another few seconds. Then he said, "No."

"Well, maybe figuratively it's not, but legally, or whatever, we are a democracy."

"No," Mac said as if carefully choosing his words, "we're not a democracy."

I tried to think of why he would be saying that, what point he was trying to make.

"Well, I see what you're trying to say," Bill added. "We've botched things so badly in this country that, although we're technically a democracy, we've..."

"No, what I'm trying to say is that we're not a democracy. There's a popular misconception that we are, but we're not."

"But we vote—or at least I do" Bill said.

"Some of us do. But that's neither here nor there. What I'm trying to tell you is that we're not a democracy either in theory or in practice."

Bill rolled his eyes. "Then why don't you tell us what is it you think we are?"

"We're a constitutional democratic republic."

"That sounds like a lot of mumbo-jumbo that amounts to the same thing I've been saying."

"It's not."

"Well, it doesn't matter. If the majority of the people want the country run a certain way, then that's the way it should be. If they want gun control, then we should have it."

"It's a matter of rights..." Mac said.

"Democracy means we have rights," Bill said.

Mac shook his head. "Democracy doesn't confer individual rights. It isn't empowerment of the individual, it's empowerment of the majority, and

you are only empowered if the majority allows it."

"You're crazy," Bill said.

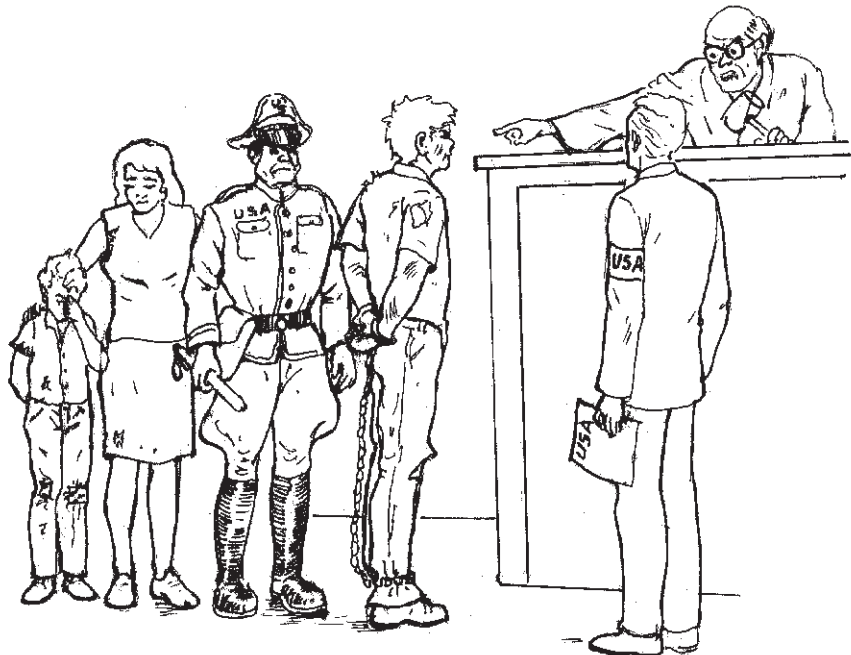
"Tell me what you mean," I said to Mac.

Athens and Rome

"A pure democracy would be a society where all matters of the state are resolved by a popular vote. The Athenians of ancient Greece had as close to a pure democracy as has ever existed. Policies were discussed as thousands stood in a public square listening to speakers, then they voted on those policies. Majority ruled—in all matters. There were no middle men. The populace spoke directly.

"Of course, even in Athens, democracy didn't mean everyone participated. The only ones to practice it were Athenian men. Women, slaves, foreigners—about 90% of the people of Athens—were excluded. Of the 10% left, a simple majority, roughly 5% of the overall population, could deprive an individual of his rights. But still, it was a pure democracy. It just wasn't a universal democracy"

Bill made a face at me, then turned to Mac and asked, "What has this got



to do with how people feel about gun control?"

"It doesn't matter whether we're talking about gun control, free speech, freedom of religion, or whatever," Mac said.

"I thought we had our rights because we are a democracy," I said.

"No. Let's clear something up about democracy first because ancient Athens is a good example of a place that had a democracy without rights."

Bill crossed his arms and legs and sat back in his seat.

"In Athens, even trials were conducted by majority vote. Juries were formed the same way in which all public matters were resolved—with the crowd. You went on trial and, if a majority in the crowd felt you were not guilty, you were freed. But if they felt you were guilty, you paid the consequences. Socrates lost his trial by something like 500 to 300—don't hold me to the the figures."

"What was he accused of?" Dave asked.

"Corrupting the youth because he had led them to question the state. You see, there were no individual rights to free speech. He was also accused of sullyng the state religion, another crime, because there was no right to freedom of religion either.

"The majority voted him guilty and he was ordered to drink hemlock—commit suicide. Free speech and religion, rights we regard as fundamental, were literally determined by the whim of the crowd."

"This isn't Athens," Bill said.

"That's right," Mac said.

"But we think of Athens as the origin of democracy in western society," I interrupted.

"That's right, too," Mac said.

"Did the Athenians see the flaws in their democracy?" Dave asked.

"Sure. In *The Republic*, Plato wrote that democracy leads to tyranny. Later, the Romans, seeing the problems of the Greek democracy—namely, that crowds could be impassioned and that the voters couldn't always be

available to vote on every issue at hand, created a representative form of government.

"The crowd still voted, but in Rome popular voting was to elect those who were to represent the people, just as it is today. They elected representatives to be on hand for all state matters that required informed decisions, and to act as a buffer between the needs of the state and the passions of the crowd. At least that's what they hoped would happen."

"That was the origin of the Roman Senate, right?" Dave asked.

Mac nodded. "The trouble was, those elected were self-aggrandizing, and the republican form of government eventually turned into tyranny.

Our Founding Fathers

"Centuries later, our own Founding Fathers saw the major defect of both the Athenian and Roman systems—that the individual was still at the mercy of the state. So, what they did was to create a Constitution, a set of principles that listed the powers of the state. Any powers not specifically given to the state—in this case, the federal government—were reserved to the people and the separate states that make up these United States. With the first 10 amendments, which were added shortly after the Constitution was ratified, they also guaranteed that we, as individuals, had certain rights which the government could not take away.

"It was the first and only time this has ever happened in history. The United States is a quirk in history. Never before, nor since, and perhaps never again will people have the rights Americans have."

"What do you mean, never again?" Bill asked. "You make it sound as if we're losing our rights. What about the progress we're making? We're pushing for democracy all over the world."

"What I'm trying to tell you is that democracy doesn't mean rights and it

especially doesn't mean individual rights. The "progress," as you call it, is toward collective rights as seen by the majority, whoever's in power, or even just some special interests. Our rights are separate from our democratic principles and they're probably more important. I could live without democracy if I had certain rights guaranteed, but I couldn't live with democracy and no rights."

Bill scowled, but Dave asked, "What do you mean?"

"In virtually every other country that has even admitted that individuals have rights, it has always been at the pleasure of the state. Our Constitution, and only our Constitution, has the revolutionary idea that individuals—little guys, like us—have inalienable and natural rights.

"Read the press, listen to the neo-socialists, the religious right, the environmentalists, the media, and the humanitarians: to them individual rights exist only at the pleasure of society and must submit to some greater good which only they can define—which means our rights don't exist at all because the state, the majority, or whatever it is we call society can change its mind—and often does."

"So, it's democratic in the sense that we vote; it's republican, in the sense that we vote for representatives; and it's constitutional in that there's a set of rules," Dave said.

"And some of those rules implicitly acknowledge the existence of a set of rights that the government may not infringe upon," Mac added.

"Then we're pretty lucky," I said.

"About what?" Mac asked.

"Our rights."

"Maybe."

"What do you mean, 'maybe'?"

"We're giving them away."

"How?"

Losing our rights

"Year in and year out the government assumes more power. The only

way it can assume more power is to take it from the citizens. It's happening and we don't care."

"Bureaucracies now regulate us and they never have to answer to the electorate. Both the democratic and republican aspects of our government suffer. These bureaucracies even have their own court systems and those courts, by design, never have juries."

"Come on, name some," Bill said. He was still sounding hostile.

"The IRS. Family courts. Those are two. And we are now entering into treaties where issues can be resolved by the World Court or various treaty organizations. None of these courts operate with 'juries of your peers.' This means that American citizens are becoming evermore at risk of being deprived of jury trials when it is clearly stated in the Constitution that you are entitled to one. If you ask one of these politicians why this is so, they'll tell you that you won't be subject to these treaties, and if you are, you'll be treated fairly. And lastly you'll be told that this is a matter of progress. Yet, there's no provision in the Constitution for Congress or the President to be able to surrender your rights."

Bill got up and walked out to the kitchen. We watched him go.

"On top of that, drug laws, laws on sex, and numerous other laws all say the individual must submit to the desires of the majority—or the state—though the Constitution not only makes no provisions for such an interpretation, it specifically—in the 9th Amendment—prohibits it. But we have politicians who think those rights can be abrogated in treaties and votes. And we, the electorate, sit home watching *Friends*. That's why we're losing them.

"So, we've got to protect our constitutional rights," I said.

"Not constitutional rights," Mac said. "Just 'rights.' I thought I was making it clear; the Constitution does not confer any rights upon you. It assumes they already exist. The whole

purpose of the Bill of Rights is that it prohibits the government from violating them. Once we assume the government is the source of our rights, then it follows that the government can take them away."

"Where are the rights supposed to come from?" Dave asked.

"The Constitution doesn't address that. It doesn't have to."

Bill walked back into the room. "I can think of why a jury wouldn't be appropriate for every trial," he said.

"Please tell me," Mac responded.

"A lot of the rules and regulations the IRS has are too difficult for the average person to understand. You'd need a jury of accountants to understand them."

"If they're too difficult for the average man to understand, they're too difficult for the average man to know when he's violating them. We can't have laws that it takes experts to determine when you're in violation.

"Until recently" he continued, "if an IRS representative gave you advice, and he advised you improperly, you were responsible and fined. What this meant was that you could be in violation of laws even they didn't understand. You were then hauled into an IRS court, staffed almost exclusively by former IRS personnel, and tried. You almost never won. I've often wondered how many of those verdicts would have stood up if there had been juries drawn from the public who were to decide the cases?"

"Well, why don't we just demand juries for these kinds of trials," I asked.

Mac shrugged. "Too stupid? Too ignorant? Too lazy?"

Dave laughed.

The jury system

"You put a lot of stock in juries," Bill said.

"Our jury system is the most priceless legacy we inherited from our legal ancestors, the British. Because of it, we are able to keep an eye on the

state. Ever since the time of William Penn, whose crime was preaching a 'dangerous' religion, Quakerism, the people have had the right to consider the validity of the law as well as the guilt of the person accused of breaking that law."

"I was on a jury," Bill said, "the judge specifically said we weren't allowed to question the law. That's what we have the legislature for."

"Actually, under the legal system of this country and several others, including Britain and France, the jurors have the right to nullify a law, and the state has no recourse when a jury does so."

Bill was adamant. "The judge said we had to follow his instructions to determine whether or not the D.A. had proved his case beyond a reasonable doubt. He said whether or not we agreed with the law was irrelevant."

"Some judges may actually believe that's true," Mac said. Others...I don't know. But the undeniable truth is that, if a jury does in fact overrule a law, the state has no recourse against that jury. The state must abide by the jury's decision, recognizing it as the de facto final determiner of whether or not a law is valid."

"But jurors shouldn't be allowed to ignore a law passed by the legislature," Bill said. "We'll have anarchy."

"And what is a juror supposed to do? Mac said. Send someone to jail, give him a record so they become less employable, and disrupt and destroy his family when a law is obviously wrong? If I'm on a jury, I know that I can determine the fairness of the law as well as the guilt of the defendant, and I'll act accordingly."

"I still don't think a jury disregarding the judge's instructions is legal," Bill said. "There's a whole body of precedent law our system is based on. The jury is not above that."

Mac said, "There are two and only two bodies in this country allowed to ignore precedent law. They are the Supreme Court of the United States and any American jury. Juries are not

bound by any rules of precedent nor are they accountable to the state for their decisions, except in the case of jury tampering. And, contrary to what a judge may think, informing a jury of this right is not jury tampering.”

“Give me an example of a trial you wouldn’t bring a verdict of guilty in, even if it was obvious that the defendant broke the law?” Bill asked.

“I can think of several. One would involve so-called drug crimes where there was no victim of violence.”

“Are you saying you’re condoning drugs?”

“Of course not. I’m just saying that if an adult wants to do drugs, it’s no business of yours or mine.”

“But lives are destroyed by drugs,” Bill protested.

“From a medical perspective, making drugs illegal hasn’t saved anyone. But, from a legal point of view, more lives have been ruined in the courtroom trying to enforce drug laws than from drugs themselves.”

“Drugs kill,” Bill shouted.

“The overwhelming majority of people who do drugs do them recreationally, the same way that the overwhelming majority of people who drink alcohol do so recreationally. There are people who have their lives ruined by alcohol. But does that mean you should be thrown in jail for drinking because the guy down the street has an alcohol problem?”

“What about people giving drugs to kids?” Bill asked.

“People give alcohol to kids, so should we go back to Prohibition? People have sex with children, so should we make sex illegal?”

“That’s ridiculous,” Bill said.

“Of course it is. What I’m trying to show you is that if you want to ban drugs because they ruin lives, it would make more sense to repeal the drug laws than to enforce them. But, of course, saving lives has never been the reason for having drug laws.”

“It’s not?” Dave asked.

Crime as big business

“In the beginning, people may have been well intentioned but what they wanted was to force their beliefs on others. They were, in effect, saying, I don’t think you should do drugs, therefore, let’s make it illegal for you to do drugs. It was the same during Prohibition days. But now it’s gone beyond that. It’s now a matter of economics. The courts, prisons, police, social workers, and criminals—who just want to keep the price of drugs high—all have a vested interest in keeping drugs illegal.”

“...the Constitution does not confer any rights upon you. It assumes they already exist. The whole purpose of the Bill of Rights is that it prohibits the government from violating them. Once we assume the government is the source of our rights, then it follows that the government can take them away.”

“What do you mean, a vested interest?” Bill asked.

“The prison population of the United States has more than doubled since 1980,” Mac said. It’s almost entirely due to victimless drug crimes. The result is that we now have a higher incarceration rate than any other country in the world. This includes China with all of its political prisoners, all of the two-bit dictators in Africa, and right-wing and left-wing dictatorships in Latin America. This includes Cuba. We’re the ‘land of the free,’ but we quite literally jail more people per capita than any other country on earth—and the problem is getting worse.

“Enforcing drug laws has become big business. How would you feel about your job as a prison guard, policeman, lawyer, judge, or social

worker if a change in the laws meant you were going to lose your job? These people need all those ‘law-breakers’ in prison to buy their kids gifts at Christmas.”

“That’s a pretty stupid way to put it,” Bill said.

“It’s metaphorical, but it’s also true.”

“The war on drugs has done for the drug culture what Prohibition did for drinking. Prohibition ruined individual lives, corrupted the police and politicians, created a whole vista of organized crime, and finally we decided that booze wasn’t so bad. We repealed the Amendment, but left behind a litter of broken lives, corrupted public servants, and criminals.”

“So, what would you do if you were on a jury...” Bill started to ask.

“And someone was on trial for buying, selling, or possessing a controlled substance...”

“Yeah...but why do you seem to be putting some constraints on what I’m about to ask?” Bill said.

“Because there are numerous crimes that I wouldn’t excuse, such as murder, burglary, robbery, and such, whether they’re connected to drugs or not. Ironically, though, many of these crimes would disappear if the government got out of the drug business.”

“Then for use or possession of drugs...”

“...or even selling,” Mac added, “I would not bring a guilty verdict. I’d hang the jury if I had to.”

“Really?”

“Absolutely.”

Rights vs. privileges

“Let me ask one thing,” Bill said. “Why shouldn’t the individual states be allowed to regulate guns within their own states?”

“...or regulate speech?” Mac said. “...or religion, or ignore any other Constitutional guarantees? Well, there was a time when states could. And they sometimes did. But the 14th Amendment says that no state can

now make a law contrary to the Constitution. So, they can't anymore. Not only that, but the Supreme Court has ruled that neither the states nor the federal government can turn a right into a privilege, license it, or attach a fee to it. Of course, that hasn't stopped them."

"Give me examples," Bill said.

"Concealed weapons permits are one. Radio station licensing, automobile registrations and licensing..."

"But we don't have a 'right' to drive. That's actually a privilege," Bill said.

"Why do you say that?"

"Because driving is not mentioned in the Constitution."

Mac was being very patient. "Read the Constitution. It is not a list of our rights. It's a list of proscriptions against the U.S. government. In fact, the 9th Amendment specifically says that the Bill of Rights is not only not a complete listing of our rights, but that just because a right is not mentioned does not mean that the government can disparage or deny us that right. Does anyone think the Founding Fathers believed that personal travel over public roads was a privilege? The right of movement and travel was taken for granted. It was a right reserved by the people. Now, it's regulated. I'm not saying that there aren't practical reasons for regulating it and I'm not saying there are. I'm just saying that it is unconstitutional to regulate it."

"Then why is it regulated?"

"To raise money. When only the rich and so-called rich could afford automobiles, it was easy to push something like that through. I mean, 'We're only taxing the rich.' By the time automobiles became commonplace, no one questioned the legality of licensing.

"But, if you were to try to dismantle the organizations that do the regulating now, well, it's like drugs—there are hundreds of thousands, if not millions, of people whose livelihoods depend on keeping them in place."

"Then why isn't the 9th Amendment invoked?"

"It's dead. There's already the supposition that anything not mentioned in the Constitution is the province of the government. This is despite the fact that the 9th says quite clearly that it isn't so. But, in letting the 9th die, the citizens of the United States have made any right not mentioned in the Bill of Rights a right at the pleasure of the government."

"Why do I get the feeling that you gun owners wrap yourselves in the flag every time you want to keep your guns," Bill blurted out.

"We wrap ourselves in the Constitution. We do it because we not only fear losing the Second Amendment, we feel we're losing all our rights."

Controlling the Internet

"Where else today do you see the big bad government depriving you of rights?" Bill asked.

"There's one right there," Mac said and he pointed to the computer beside Bill. "The government wants no cryptography in the public domain. There's no precedent for them being allowed to do this, but they've decided to do it and, if allowed to, we will have been denied yet another right, and future generations will assume computer privacy is a privilege, just as our generation sees driving as a privilege. But this time we're lucky. The Internet grew so large so fast, there's been a loud, sustained outcry against monitoring it, and the government is backing off."

"But there are good reasons for regulating the Internet?" Bill said.

"Like what?"

"There's the threat of pornography getting into the hands of children. Terrorists, hackers, and spies stealing secrets or bringing down the economy..."

"Porn, terrorism, hackers who can supposedly bring down the economy. The nightmares proposed seem end-

less," Mac said. "Anyone can come up with a nightmare scenario of havoc that they can avert, forestall, or solve if we will only let them infringe on some 'unimportant' rights."

"The guys who wrote the Constitution didn't have the dangers confronting them that we have today," Bill said.

"The guys who wrote our Bill of Rights had just overthrown the most powerful country in the world by bearing arms, speaking freely, and doing pretty much whatever they wanted. Then they provided for these freedoms in the new nation they were forming. Don't tell me the newly formed government didn't appreciate the danger of putting these freedoms into the hands of the people, because they knew these same rights that were used to defeat England could be turned against the newly formed government. But, in almost two and a quarter centuries, they haven't been. But now, we are told that by imagining scenarios where there can be abuse on the Internet, our rights should be denied."

"But the shutdown of our economy today could cost billions," Bill protested.

"Even if the economy was shut down for a few days, what would it mean? We've had blackouts, market crashes, and even a recent government shutdown, and the country continued to run with hardly a sputter."

"But it cost billions."

"Let me ask you a question. If a foreign power wanted to take away our liberties, would they be worth fighting for?"

"Of course."

"But for billions, it's worth giving them up. So they're worth dying for, but for the right price we'll sell them."

"I didn't say that."

"I think what you're saying is we can send 18-year olds out to die for them but we don't want to lose money over them."

Bill looked at the ceiling.

Mac said, "Almost from the beginning, the government has worked against the Bill of Rights. Every political party but one, and every special interest has tried to convince the government that denying one right or another would benefit the country. The only people who still push for the entire Bill of Rights are the Libertarians."

"What about the ACLU?"

"The ACLU is, at most, for six of the ten rights in the Bill of Rights. They are against the 2nd which deals with personal firearms, the 10th which says rights not explicitly given the federal government belong to either the states or the people, and they deny the just compensation clause in the 5th, which says the government cannot take private property for public use without just compensation. And, as to the 9th, which simply says we have more rights than are listed in the Bill of Rights and that the government cannot deny or disparage them—I don't think they're even aware it exists."

"I can never remember what the 9th is," I said.

"You should know the Bill of Rights like you know the alphabet because you should know when they're being taken so you can scream. The trouble is, when our rights are gone, we won't even miss them. Most people I know aren't even going to be aware that they had them."

"I still don't think we should have personal ownership of firearms," Bill said.

"In that case, I would prefer to see the Second Amendment repealed, not subverted. If you really don't want it, change the Constitution. Don't undermine it, actually change it."

"What are you going to do about it in the meantime?" Bill asked.

"Fight like hell," Mac replied.

Dave was at the door. "I'm going duck hunting," he said.

Mac and I jumped up. Mac grabbed his thermos of coffee and went out.

"Mac," I shouted,

"Oh, yeah." He came back and grabbed his shotgun.

It was much later when we got back from hunting. Mac got two ducks. Dave and I were skunked. I got to cook.

Mac looked around. "Bill's gone?"

"He was just here for the night."

"Oh." I was hoping we could continue our conversation.

"He left you a note," Dave said and handed it to Mac.

Mac looked at it and laughed.

"What is it?" I asked.

"Dear Mac, BANG, you're dead." Δ

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Set 100 steel fence posts a day with a home-made driver

By Don Fallick

I am 5' 6", 145 pounds, 50 years old, and have always been known as a wimp. Working alone, I have driven to town, purchased, laid out, and set as many as forty steel fence posts in three hours. Just today, I set 69 posts in less than two hours, but I had a helper to lay them out for me. The secret is a home-made fence post driver. It's made from a three-foot section of a truck drive shaft and a couple of two-foot lengths of 5/8 inch diameter, solid rod. If you're handy with a welder, you can make one from junk in an hour or less. If not, you can probably get a welder to make one for you fairly cheap.

Cut the three-foot sleeve from the end of the drive shaft. The last six inches or so are solid, adding significantly to the driving weight, as well as being strong enough to take repeated pounding. The handles are bent from

5/8 inch diameter rod. Cut off a three-foot length, then heat up the rod with a torch, at a spot about six inches from the end, until the spot is cherry red. Clamp the end in a sturdy vise and bend to a right angle, then quench in water or oil. If you don't have a sturdy vise, drive a 1" diameter pipe into the ground and use the open end for a vise. Repeat the process at the other end, so the handle is shaped like a printed bracket []. Weld the handles on either side of the sleeve, approximately centered on its length. Use plenty of welding rod to make the joints, as they'll have to take a lot of pounding. The whole driver weighs about 30 pounds, which is why it drives posts so well.

It's perfectly OK to make the handles align with each other in a straight line (180°), when viewed from the top. But it will be less tiring to use and carry if you weld the handles on at about 135° instead. Remove all burrs, and you're done.

To use the tool, hold it approximately horizontal and slide the top of a steel fence post into the sleeve as far as it will go. Stand the post up in place, lift the driver almost off the post, and slam it down hard. Five to ten strokes is enough to set a post in even the hardest soil. Wear sturdy, leather, well-fitting gloves, and hold the driver by the long, vertical parts of the handles, NOT the short, horizontal parts, or you'll blister your hands. It's a good idea to grip the handles loosely. This allows your hands to slide a bit, cushioning the shock to your hands and arms, while still keeping control of the driver.

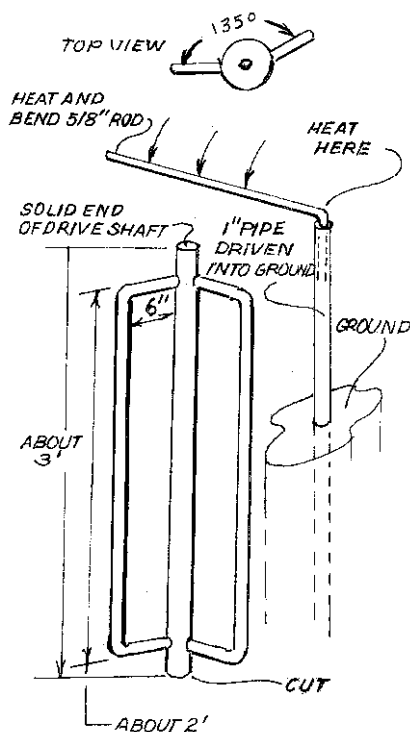
It's easiest to control the driver if you hold it with the sleeve closer to you than the handles are. Holding it this way puts very little strain on your



Don Fallick demonstrates his fence tool.

back, neck and shoulders. I have a bad back, yet I can set 100 posts with no back pain. The angled handles also let you carry it by one handle without the other slapping you in the leg when you walk. This brings up an important point. Unlike a sledge hammer, which concentrates all the weight at one end, the driver is heavy all over. If any part of it hits you in the toe, ankle, or knee, it's going to hurt. Because the driver is heavy, the tired user has a tendency to just drop it when finished. Not a good idea. Either set it down carefully or toss it slightly away from you when you drop it.

You can set posts even faster if you have a helper to carry the posts and hold them up while you start the post. Two people working together can set posts more than twice as fast as one working alone. Anybody want to try for 200/day? Δ



Gold is where you find it — and it's found along the Klamath

By Gene Sheley

One of the emerging recreation activities in various parts of the country is placer gold mining, a term that requires some explanation for those who may confuse it with other types of mining. Books, videos, and assorted other information have been produced for several years explaining how one goes about the activity and no single article can cover the details of a rather complex but easily understood activity.

Placer is simply a term for “free gold,” that is, free in the sense that it is generally unattached to something else. Considering the time that must be invested in seeking the romantic metal, along with varying costs for equipment and travel, the term “free” in an economic sense really doesn't apply in most cases.

Placer mining, which really isn't mining, is far removed from the hardrock, tunnel-building, death-dealing business of breaking and grinding solid rock. It may seem that the primary ingredient for successful placer mining is the gold but actually the elusive yellow stuff is only a part of a necessary whole for even a minimum success in finding it.

“Gold is where you find it,” is one of those popular, but dead end statements which mean little to even the experienced miner. “If you want to find gold, go where it is,”

is another common statement in the argot of the mining fraternity and one that makes considerably more sense.

Considering the migratory nature of this nation's early pioneers and the irresponsible nature of those hit with gold fever, probably every potential gold area in this country, including those in Alaska, has been tested or prospected.

Some areas may remain undiscovered but they will have to be found by those who don't work a day job, chop wood, hoe gardens, wash clothes, irrigate the apples, and feed the chickens.

In any quest for gold, it's always best to consider historic gold-producing

areas, and one of the primary placer gold areas in the nation is the Klamath River watershed, a complex of the main stem Klamath along the Oregon-California border and its tributaries that originate in hard rock or gold lode sources.

Backwoods Home Magazine is produced a few yards from the main stem Klamath but most of the gold area is in the western reaches of the river along a 100-mile stretch of the meandering calms and rapids that ultimately flows into the Pacific Ocean.

The Klamath is a fluid part of the Cascade Range, a geologically separate chain of volcanic mountains joined on the south by the batholithic Sierra Nevadas.

The Klamath area is dominated by Mt. Shasta, a multiple volcanic cone that rises more than 14,000 feet and



which is part of a complex of smaller volcanic remnants containing hardrock gold. From these mountains, time and natural forces have freed the placer gold.

Transported by the Klamath tributaries, placer gold was distributed through the lower reaches of those tributaries and eventually into the main Klamath course. Water plays a critical role in most placer mining because the presence of adequate water makes separation of gold from “spoils” a much more simple process.

Gold finding techniques

Gold in varying amounts can be found in the most arid regions. The Nevada desert contains levels of gold but, with some exceptions, economic extraction requires a huge investment

in earthmoving equipment to provide enough processing dirt for a nonhydraulic separation process.

Other areas with high gold concentrations are in the deserts of Arizona and New Mexico, enough to encourage recreation and some commercial mining where “dry washers” vibrate gold from the unwanted soils.

Seasonal rivers and streams can be worked by both the dry washing and the water washing methods, depending on the season.

There is also the technique of separating the heavy rocks and gravel by various sizes of screens and transporting the remaining sand to a convenient water source, such as the backyard faucet. This article, however, will deal only with water-related placer activity.

Because gold generally is associated with volcanic activity, most of the

states west of the Missouri are considered the better gold-seeking prospects. However, the Carolinas have a long history of gold production and North Carolina today is a particularly active area.

Placer mining is conducted in relatively loose material, principally sand and gravel, but it does require some sweat investment. Cobblestones must be pulled loose and cast aside to get to the loose material, so some moderate digging is required. Carrying a couple of 40-pound buckets of sand—usually a repeat process required in any gold washing effort—to the river edge can be a real muscle-builder.

The pan

Placer prospecting, that is, testing for gold presence, normally is done with a “pan,” a misnamed descendant of the early sloping metal dishes used by the Forty-Niners and for several decades after their classic period. While every real miner has one of the old fashioned metal, blued pans in the equipment inventory, today’s pans are for the most part made of fiberglass with ridges, called riffles, cast into about a one-quarter arc of the pan’s sloping side. These riffles trap the gold and “black sand” while the unwanted sand and gravel pass over the riffles and back to nature.

Black sand, being nearly as heavy as the gold, is worked to the bottom of the pan with the gold. Placer gold is always found in the presence of black sand but even the appearance of black sand doesn’t guarantee gold will be present.



Pans come in the classic round shape or in a rectangular shape in a couple of sizes, all with the cast-in riffles. Various colors also are available and the preference for the shape and color have more to do with visual effect than any real difference in effectiveness. The standard size pans usually are best for adults, but the smaller pans, and consequent less weight of the contained material are perfectly suited to the younger set.

Pans are used to locate “color,” which may range from one or two barely visible grains to small nuggets. Panning as the primary method of extracting any significant quality of gold can be a tedious and time-consuming process, and those factors lead to sloppy pan operation and loss of gold.

Once the color is found, the miner usually will graduate to one of several devices that more efficiently process and separate the gold with less labor.

Sluice, highbanker, and mid-river dredge

The most simple and economical step up is the “sluice,” once made of wood. The old time device usually was fitted with wooden riffles to slow

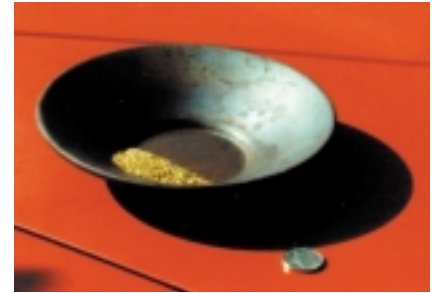
the flow of dirt and water allowing the nuggets to fall into the riffles while burlap in the bottom trapped the fine gold.

Modern sluices are basically aluminum components engineered for the most effective riffle configuration and equipped with “miner’s moss” in lieu of the less efficient burlap. A good small, lightweight sluice, new, can be purchased for less than \$70.

Beyond the sluice is the “high-banker,” a gasoline-engine equipped water-suction device with a sluice of larger dimensions, fitted with a hopper to accept material up to the size of small cobblestones.

The next step is the mid-river “dredge,” often little more than a high-banker with pontoons, that can be floated on the surface of the water. A suction system pulls river-bottom rock, sand, gravel and hopefully gold, to and through the dredge’s sluice. Use of a mid-river dredge, however, requires a permit in most states and in some cases dredging may be prohibited. All other types of placer gold mining require no special permits.

The old boys didn’t have these powered units and one of the romantic advantages of pans and sluices is the connection they provide today’s miner



A lot of work went into collecting this placer “color.” Those who have experience know that only small amounts are likely to be found.

with those intrepid, and sometimes loony, individuals who sought for gold in the long-ago.

There is also the matter of economics. A pan, a gravel screen, and a couple of on-hand garden tools mean an investment of less than \$20, and a deluxe large sluice can be purchased for less than \$100.

However, a moderately adequate new high-banker can cost more than \$1000 while even the small dredges start at more than twice that amount.

There is also the advantage of portability with a pan/sluice setup carried in hand and in a small backpack, while two healthy men may be required to tote and set up a high-banker, not to mention the associated tools and buckets. Putting a dredge into operation is something akin to launching a battleship, and operation requires at least a minimum of underwater wear and breathing equipment.

For the environmental purist, high-bankers and dredges may be a problem because of the engine noise and a small amount of exhaust gas.

However, relying on a sluice has one fundamental problem. A sluice needs an adequate flow of water and often a required flow isn’t convenient to where the best gold is located. The choice of equipment depends entirely on pocketbook, physical strength, preference for nostalgia, and gold source/water access to avoid rocks and other debris that could tear to pieces the heavier equipment such as a



Panning is the basic gold extracting method but usually is employed to find “color” only. Sluices and powered units are more efficient.

dredge or put some hurts about the knees and elbows.

In many cases, a small boat with an adequate engine expands access to the “other side of the river” stuff regardless if one is simply panning or involved all the way up to a dredge.

Environmental damage

Regarding the environment, gold mining using all but the most intense commercial levels causes no environmental damage. In fact, the “tailings,” which is the term for the rock, gravel, and sand that is deposited by sluices, whether river-powered or engine equipped, often leave an alluvium bed that some see as the foundation for “redds,” the official name of salmon spawning beds.

Staking your claim

The final element in the equation, closely associated with an adequate gold-bearing area, is the matter of a claim. First of all, claims normally are on public lands such as those managed by the U.S. Bureau of Land Management (BLM) and the U.S. Forest Service (USFS).

Certain other claim situations exist on state lands, which are subject to varying state regulations, and on private land through agreements with the landowner and the miner. If the site is owned by the miner, a claim is not an issue.

In the case of public federal land, a claim is a legal registered right to exclusive use of a site, but for mining purposes only. A claim right does not bar the public from use and enjoyment of the claim site related to other outdoors activities. The claim holder has only exclusive mining rights.

Securing a federal land claim is done through the BLM even though the property may be USFS jurisdiction. The process involves accurately defining the claim site, perhaps to the extent of providing a survey, hassling with the federal government which

often is philosophically opposed to mining, “proving the claim,” that is, somehow showing that there is a valuable deposit presence, and certifying gold-production improvements on the property to meet the \$100 per year “assessment” requirements. Construction of permanent living accommodations not only is illegal in most cases, but the improvements don’t count in the assessment requirements. Access roads, sluiceways, and tailings retention ponds are among the acceptable types of improvement.

Claims are not absolutely necessary on any public lands that aren’t pre-claimed or are not associated with developed campgrounds and other visitor facilities. This open land can be worked by anyone.

The “anyone” part is what can cause the problem. Without a claim, another



Summer is the best time for placer mining, and the miners here take advantage of the cooling water.

miner can work the area and reap its golden rewards and also claim the area to the exclusion of the individual who “proved” it in the first place.

A more convenient way to participate in placer mining and avoid the claim problems—although there is some expense involved—is to join a prospecting organization that takes care of all the problems and paperwork and assures that each member has access to all claims held by the organization.

The New 49’ers of Happy Camp on the Klamath River has some 50 miles of claims on the Klamath and its tributaries which are available to all members throughout the year. Their address is P.O. Box 47, Happy Camp, CA 96039. They also publish *Gold & Treasure Hunter Magazine*. Also represented on the Klamath is the Lost Dutchman’s Mining Association headquartered in Temecula, California.

Both organizations have dozens of books and videos on all phases of placer mining and both regularly issue gold mining and treasure hunting publications with mining articles, outlines of club and membership activities, and advertising focused on gold mining and prospecting.

Those who want to try placer mining should realize that usually it’s not a money-making activity. It can be profitable for those who want to invest in extensive equipment and spend the



This youngster takes a break from the digging required to keep the “high-banker” (in background) busy. The unit takes all sizes of rock and sand quickly washing buckets of aggregate as fast as the workers can pour it in.



The channel in the foreground acts as a settling pond to assure that nearly pure water returns to the river. Tiny fish and tadpoles swim around the shallows unbothered by typical placer activity.

days and months prospecting for a well-paying lode.

For the most part, it is a recreation. It's likely one could spend a week collecting enough "color" just to off-set the cost the pan.

Finding those first flakes of gold is something akin to one's first solo aircraft flight, the first golf par hole, seeing a foal struggle to a standing position, watching a chick peck its way out of its shell, or seeing spring's first apple blossom.

Placer mining is a way of participating in nature in the most simple and unobtrusive way while journeying back into history to share the same hardships and achievements of those who helped pioneer this country.

(All photographs in this article are courtesy of Gold & Treasure Hunter Magazine.) Δ

Only in a police state is the job of a policeman easy.

Orson Welles, 1915-1985

Panning with nature and history

By Gene Sheley

A Blue Heron flew upriver as his big strong wings nearly touched the surface of the water with each lazy flap. An osprey fed its young in a nest in a tree snag that reached almost to the puffy summer clouds above.

A group of deer, unseen, rested in the shade of a Douglas Fir grove, and trout occasionally jumped to catch the bugs that buzzed near the surface.

However aware he was of all these workings of nature, the man with the odd-shaped dish was intent on other things. His "pan" was half-full of what appeared as nothing but dirt and forest debris as he squatted in a quiet riverside pool teeming with tadpoles.

He dipped the pan in the water to mix the contents into fluid mud and then shook the mixture vigorously backward and forward, side to side.

Then he washed away some of the material by deftly dipping the muddy

pan into the river and dumping only the upper part of the mixture. First went the light dirt and dry pine needles, to leave only cleaned sand. He repeated the process often, shaking or tapping the side of the pan, followed by another washing. The heavier sands caught in "riffles" in the pan but he kept washing until it appeared that only some dark fine material called "black sand" was left.

With a little water scooped into the pan, he put the tiny amount of remaining material into a swirling pattern and, with a slowing circular motion, he tipped the pan towards him.

He gently shook the black sand to the lower part of the pan.

And there it was—"color," as gold is called. The gold was easy to detect because, unlike "fools gold" or iron pyrite which reflects light only in one direction, gold reflects light from every angle. It also is the last type of

material that can be moved by the swirling action of the water. Gold will stick to the bottom of the pan when everything else, including the black sand, can be washed away.

The man found the yellow metal—several small flakes—by the same process that has been used for at least 150 years.

Panning gained its initial fame in the California Gold Rush, and today "placer gold"—the metal freed by river action from its original hard rock—still is found by the same method along California's known gold-bearing rivers.

Some try to make a living extracting gold from the rivers, usually with more efficient equipment than the simple pan. But others seek the gold, not only as a form of recreation, but to experience the rush of adrenaline generated when gold is found just as it was by the Forty-Niners long ago while at the same time sharing, without changing, the active nature that surrounds them. Δ

I remember the day the lynx attacked

By Dorothy Simpson Croxton

I was just a small child, but I clearly remember the day Mama saved our eggs. It was in February of 1951 when a lynx cat raided our chicken house, oblivious to the barking dogs and the scent and sound of the humans living in the cabin just a few yards away.

We had moved to a small cabin in the Sangre de Cristos in 1950. Just 18 miles southwest of Las Vegas, New Mexico, our log cabin was situated on the last piece of private property on the mountainside, with the Santa Fe National Forest behind us. The nearest village, San Geronimo, was six miles away. My mother, Audrey Simpson, my 10-year-old sister Crystal, and I lived in the quiet retreat.

My parents were separated, and although they eventually got back together, my mother decided to live on the property that was paid for, rather than pay rent in town. My father worked in Oklahoma, sending money and visiting as often as possible.

Mother had bought 50 chickens, and we had an abundance of eggs. My mother used every recipe she had that required eggs. For a while, eggs were our diet staple, supplemented by vegetables from a garden.

One morning my mother and sister and I had gone to bring buckets of



Several years after their encounter with the lynx, Dorothy (right), her mother (left), and her sisters Holly and Crystal sit in front of their cabin.

drinking water from the spring that flowed out of the mountainside just beyond our cabin. I was five years old, and proud that I carried a small bucket of my own. When we returned, a rooster was lying dead in the front yard. The dogs had evidently frightened away the animal that had killed it.

My mother wondered what kind of animal would kill a rooster in broad daylight with humans and dogs so near by. Coyotes were too frightened to come around in the daytime, she decided. "It must have been a big cat," she said, examining the evidence. She instructed us girls not to wander far from the cabin.

Later that afternoon, we were listening to the radio, enjoying Clyde Beatty's Wild Animal Show. Just before the afternoon rays of the sun began to fade, our own wild animal show began. We heard the chickens fluttering and squawking. My mother went out to see what the commotion was about. As she stepped out where she could see past the end of the cabin, she saw a big lynx cat killing a hen. Although he was only about 25 feet away, he paid no attention to the sight of a human.



The Simpsons' cabin, with the chicken house in the back

The dogs were off in the woods, probably chasing a rabbit, not realizing there was bigger game to be had in their own backyard.

My mother ran inside, grabbed her .22 rifle, told us girls to stay inside the cabin, and hurried back outside. She shot into the air above the lynx, hoping to frighten it away. Mother never intended to shoot the cat. She decided that the little .22 slug would only wound it, and she knew a wounded animal is dangerous. The initial shot didn't have its intended effect. The hungry animal just kept right on chewing the hen.

Mother then began shooting around the cat. He sat up and looked at her, his front feet on the hen, feathers on his face, and stared back. Mother was standing at the corner of the cabin, ready to dash back into the front door if the cat charged.

When she realized the cat was not going to be frightened away from his dinner, she decided to shoot him. Now aiming in earnest, she got in one good shot. Realizing she had now wounded the animal, she knew she had to kill him. She steadied herself, took careful aim, and fired. There was only a click this time. The gun was empty.

Mother hurried back into the house and dumped a box of shells on the bed, reloading the rifle. Her hands were shaking so violently I wondered



Dorothy (right) and her sister Crystal, who is holding up the body of the lynx with a chain

how she could manage. She instructed us not to leave the cabin.

"There's a lion out there killing chickens and I can't scare it away. I'm going to have to kill it," she said. I had seen lions in the zoo and in movies. I now visualized a huge, male African lion with a majestic mane and paws as big as saucers, attacking our chickens.

Mother went back outside to confront the starving lynx and discovered that the dogs, hearing the gunshots, had returned to the house. The two cocker spaniels immediately attacked the lynx and were well clawed for their trouble. After a few well-placed cat scratches, the two dogs headed for the cabin door and hid under the bed.

My sister and I did not stay inside as instructed. We wanted to see this ferocious lion, so we stepped outside the cabin door and peeked around the corner. We were disappointed. This was no African lion, only a skinny cat about the size of our dogs.

Our collie Bonnie had now returned. She circled the wounded cat once, then charged. The lynx grabbed her by the throat and clawed with all four feet. Bonnie yipped in pain, but got a grip on the cat and refused to let go.



This old photo shows Dorothy (left), Crystal, the cocker spaniels, and Bonnie, the valiant collie.

Unlike the cocker spaniels, she was in this fight to the death. The two snarled and chewed and struggled, rolling down a little hill behind our house. It was the biggest cat and dog fight I ever hope to see.

While Bonnie and the wounded lynx fought furiously, my mother moved in as close as she dared, trying to get an opening so she could shoot again. She didn't want to kill Bonnie! She finally spotted a brief opening and fired. This time the bullet was fatal.

Bonnie shook the lynx savagely to be sure it was dead, then dropped it. She came limping and bleeding into the house beside my shaken mother. Fortunately, Bonnie had a heavy winter coat, and although the scratches and bites were serious, after a few days of rest and lots of TLC, she made a complete recovery.

We all made a big fuss over Bonnie, how she was the heroine, how she had bravely fought for her family. Of course, we didn't leave out the cocker spaniels. They received praise for trying.

We were sorry for the old lynx. He had been through a severe winter and was so old his teeth were worn down. He had been trying to survive the only way he knew how. But mother was afraid he might kill a chicken every day, leaving us without our main food supply—or even try to attack a dog or one of us kids.

I now appreciate my mother's courage in living alone in such a wilderness area, with only a .22 rifle and three dogs for protection. After a few more months, my father returned to stay, we moved into a nice house in town, and our frontier days were over.

Papa had provided the bacon. But it was Mama who saved the eggs!

(Dr. Dorothy Croxton is a professor in the Communication and Fine Arts Department of New Mexico Highlands University. She has written three books and numerous articles.)

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Opinion is ultimately determined by the feelings, and not by the intellect.

Herbert Spencer, 1820-1903

Do leather repairs the frugal way, using tools and materials you already have

By Gary D. Kirchmeier

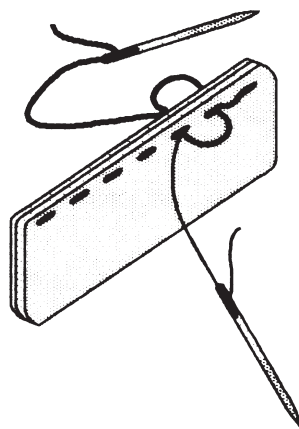
What do kitchen forks, dental floss, and horseshoe nails have in common? Plenty—if you're looking around the house for something to use to repair your leather goods or horse tack. Most people don't own the specialized tools and supplies needed to make minor leather repairs, but a little ingenuity will turn up all kinds of tools. As an example, many old-time cowboys used 30-30 rifle casings to punch holes in leather. Here are a few ideas.

Restoring moisture

To restore an even moisture content to leather, get an old bath towel soaking wet. Wring it out, roll the item up in the towel, and let it set for a few hours, or even a day. Make sure the towel stays pretty wet. This is called *casing* leather.

Shave a bar of glycerin soap into a wide-mouthed container and add a cup of hot water. Let that set and form a gel that you would call soap scum if it were in your sink drain. When the leather is nice and pliable, rub in a generous amount of soap gel into the leather and let it dry for a few minutes. I purchased three bars of glycerin hand soap for 97¢ recently, which makes it very economical to use. If you would rather not bother making your own soap, buy saddle soap.

Next, buff it with a soft cloth. If the leather doesn't stay as soft as you would like, repeat the whole process as often you need to. Frequent cleaning keeps your leather looking nice, and more comfortable to use. When cleaned this way, the moisture content will keep your leather soft. When you are satisfied with the moisture content, give the item a final rubdown with a



Sew with two needles.

dry bar of glycerin hand soap and buff. That gives it a nice final shine and a good feel.

Do not use neatsfoot oil, or anything like it, because it will make the item waterproof, and the process will not work. Some leather that has been oiled, and then dried out, will not soften after days of soaking. If you do have equipment that has been oiled, then you must continue to oil it from time to time. Just make sure it never dries out.

Once a piece of gear has its moisture restored, it is ready for any other repairs. Often thread has rotted out and sewing is in order. Sometimes the old holes can be re-used simply by enlarging them with an awl and sewing, or you might have to start fresh in a new place.

A kitchen fork slit punch

Assuming you have no leather tools, try this: To make neat, evenly spaced holes, flatten an old kitchen fork by hammering it on a piece of steel. If you have a hacksaw handy, cut the handle about in half and smooth it with a file. The result is a good four

pronged slit punch. It will work as is, or you can sharpen the tines a little with a file.

Place the leather to be punched on a piece of soft wood or scrap leather. Line the tines of the fork up on the stitch line and strike it with a hammer. You now have four holes. Place one tine of the fork in the last hole and strike again. Now you have seven evenly spaced holes in a straight line. You may punch as many holes as you need in this manner. If you have a commercial slit punch, try the fork idea anyway. You may find you prefer the fork over its store-bought cousin.

Punching holes

If you need a single hole, use a horseshoe nail as a punch. If you need to punch round holes, use various sizes of scrap automotive brake line to make punches. Bevel the outside edge 45° in order to sharpen the tube. Brake line has a good hardness for this purpose. Many other types of tubing will work, but the edge won't last as well.

Sewing

When you have your holes laid out and punched, you are ready to sew. Some kind of an awl is needed to enlarge holes as you sew. Regular awls or ice picks are common items around many homes. You will need needles. I purchased a package of tapestry needles at Wal-Mart for 57¢. The largest ones were the same size as saddler's needles, and just right for the job. Dental floss doubled over makes good waxed thread.

Using two needles, begin sewing by threading each end of the dental floss through the eye of a needle. Enlarge the first hole with your awl, and push through a threaded needle. Now you

have a needle on each side of the work piece. Center the thread by pulling equal amounts of slack on each side. Thread both needles, one at a time, through the next hole in opposite directions. This completes a locked stitch. You may be surprised at the neat job that you can do.

Continue in this manner until you reach the end. When you reach the last hole, stitch back one hole in the opposite direction. Leave a little loop before pulling one side all the way through. Twist the other end through this loop twice, pull tight and end. The

resulting knot will be buried in the stitch hole.

Many old repair tricks were used back when using horses was a way of life, and resources were limited. Oddly enough, many of those methods were better than the substitutes that can be found in stores today.Δ

Trees enhance any yard, but...if you're planning your garden near trees, remember these tips

By Tom R. Kovach

Trees enhance any yard. They provide shade, wind-breaks, and snowbreaks, they hold soil, etc. But if you're going to grow a successful vegetable garden, don't place the growing spot too close to trees.

There are not many vegetables that grow well without plenty of sunshine. Some leafy plants can grow fairly well with partial shade, but most plants require a fair amount of sunshine. To grow good vegetables in an area of tall trees, stay at least 10 feet from the outer edge of the branches. Almost all vegetables must receive some of the morning sunshine.

Certain trees, like some pines and birches, which either let the sunshine through or have shorter reaches on their branches, can be allowed a bit closer to the garden. That's

something you have to judge by seeing how far the shade falls.

The garden plot should be 20 feet or more from the bases of the trees. The biggest problem is to keep the roots of the growing trees from robbing the nutrients and the moisture from the vegetable plants. If trees are a little closer than you'd like, and you have no choice because of limited space, additional fertilizer and water will certainly help.

Some trees (like oaks) can add acid to the soil. If your soil is too acid, put on sufficient pulverized limestone to "sweeten" the soil. If the soil is heavy, you should consider putting on leaf mold or manure. You could even mix coal cinders with it. If you're not sure, have the soil tested.

Trees are wonderful. They have many uses besides being great to look at. But they don't mix well with the raising of a good vegetable garden if they're too close. Δ

Visit the popular *Backwoods Home Magazine* website at:

<http://www.backwoodshome.com>

If you can boil water, you can make a good stew

By Richard Blunt

Since childhood, homemade soups and stews have been high on my list of favorite foods. The aroma of a savory soup or stew slowly simmering on the stove top gives an added feeling of warmth and comfort to my home, especially during the winter months. I credit this life-long love affair to the infinite variety of colorful, rich, and wholesome soups and stews that my mother and grandmother prepared from their mixture of German, African, English, and Native American culinary heritage.

The aromatic signals that broadcast from a slow simmering Virginia Brunswick, Kentucky Burgoo, French Chicken, Irish Lamb, or Louisiana Jambalaya stew, brings everyone into the kitchen anxious for a taste. Add the complementary aroma of fresh baked bread, and the sensory experience can only be described as sublime.

Dig into your memory and think of the best stew that you ever ate; it could be a spicy Mulligatawny, a Hungarian Goulash served with fresh sour cream, or any one of the limitless varieties made around the world. If all of the stews of the world were gathered together and published in a single printing, the result would resemble an encyclopedia. A glance at such a publication would reveal that there is a stew for every taste, level of kitchen savvy, and activity schedule. Stews make the best use of all seasonal ingredients, offering the imaginative cook the possibility of unlimited variety at relatively low cost. Most stews keep well in the refrigerator or freezer, allowing the busy cook to make the best use of limited production time.

My mother exemplified the busy, imaginative, cook who was forced to make best use of a limited amount of time to plan and prepare meals. She overcame this obstacle with an old, used, chest-type ice cream freezer, a large cast-iron Dutch oven, and an old gray metal box full of my grandmother's hand-written recipes. On days when she didn't have to work, she would make one of my grandmother's hearty soups or stews, using whatever meats and vegetables were on hand. The large capacity Dutch oven made it possible for Mom to prepare more than was needed for a single meal. She would then quickly cool the leftovers in the refrigerator and place them in the freezer for a future meal. There were always a few extra biscuits or pieces of corn bread to be saved as well. If she had some extra time, she would make a few loaves of what she called pastoral bread, a wonderful and simple bread that we used for sandwiches, toast, or as a complement to one of her delicious leftover soups or stews.

When she was short of time because of her unpredictable work schedule, we always had the "stew freezer" to provide



Richard Blunt

us with a delicious and hearty meal. Leftover stew, by the way, usually develops more nuance and full body than it had the day that it was made. But you knew that.

Soups and stews have been part of the American diet from the beginning. During the early years, in contrast to modern times, the meat protein ingredient for soup and stew was supplied primarily from game animals. Today, domestic animals provide the bulk of our protein. In the earliest cookbooks, recipes for stews are hard to find. This is probably because stew was so common at every table that cookbook authors felt recipes were not necessary. It's a rationale worth considering because there is nothing elaborate or complicated about preparing a good homemade stew.

Experience has taught me that, if you can boil water, you can prepare any of the world's classic stews. Any of them. Enjoying a hot bowl of homemade stew accompanied by a crisp salad and hot bread, fresh from the oven, is an experience that you, your family, and your friends will look forward to repeating often.

The two stew and bread recipes I am sharing with you in this issue have been in my family for three generations. Both my mother and grandmother were never reserved about sharing their wealth of culinary talent with everyone, so I am sure that they would be happy to know that their tradition of sharing good recipes still lives.

Before I start, the only piece of special equipment that I would suggest is a cast-iron Dutch oven with a capacity of at least five quarts. The most valued tools in my kitchen are the pieces of cast-iron cookware that I inherited from my mother. I have three skillets—two 10½-inch and one 14-inch—a chicken fryer, and a large Dutch oven. The chicken fryer and Dutch oven belonged to my great-grandmother. Cast-iron cookware has always been, and still is, inexpen-

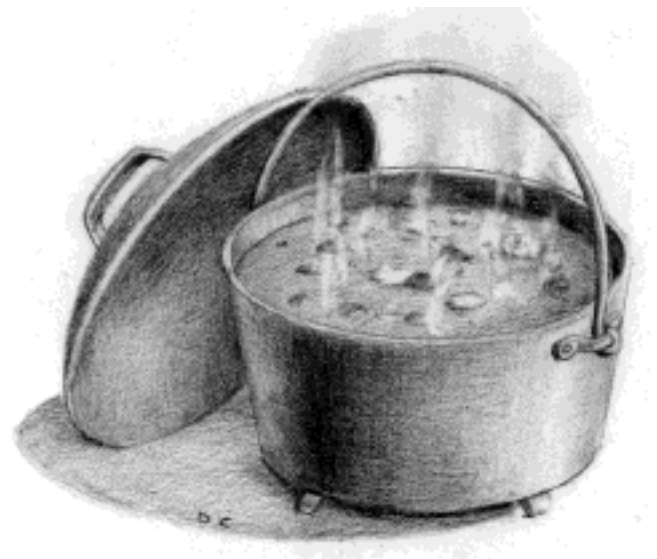
sive. It is the original nonstick cookware. Once seasoned properly, it will continue to improve with age. If you have a cast-iron Dutch oven, the following recipe will demonstrate just how easy and rewarding the preparation of a classic stew can be. A stainless steel pot with a heavy gauge aluminum bottom can be substituted for the cast-iron. But be aware that this type of pot does not distribute the heat as well as cast-iron, and scorching the stew is more likely.

Jambalaya Stew

Jambalaya stew is a classic representation of one of the most sophisticated cuisines indigenous to this country—Cajun/Creole. Since Creole and Cajun cuisines are often referred to as if they were the same cooking, let us pause to reflect on why they are close, but not the same.

Both cuisines were born in Louisiana and have French roots. Cajun is very old country cooking that originated in southern France. When the French speaking Acadians were expelled from eastern Canada because they would not swear allegiance to the English government, they migrated to southern Louisiana. They held fast to their culture and adopted their traditional French dishes to incorporate the wild fruits, vegetables, and greens that grew in the area. Cajun cuisine and culture is still very much alive in many Louisiana homes.

Creole, on the other hand, is city cooking that was born in New Orleans. In the early days many flags flew over New Orleans including French, English, Spanish, and Italian. Each nation that laid claim to the city imposed its own cuisine on the remaining residents. The resident cooks, most of whom were African, were usually retained in their positions by new reigning families. These Africans were creative and imaginative cooks, with a flair for incorporating their own home style of cooking into the ever-changing cuisines that flowed into the city. The result was the birth of Creole cuisine, a complex and sophisticated style of cooking that even reflects some Native American influence.



My jambalaya uses pork as the main protein, but chicken, shrimp, oysters, scallops, and rabbit can be substituted individually, or combined in quantities, that suit your own taste and budget. The sausage and ham in this recipe are flavor boosters. Cajun smoked tasso ham and Andouille sausage are preferred flavors, but other smoked hams and sausages will also work well in this recipe. I use Basmati rice in all stews and casseroles that call for rice. It's rich nutty flavor adds nuances that no other rice can provide.

Special Note: Do all of your measuring and dicing before you start cooking. You will then be able to devote all your attention to the progress of this delicate dish.

Special Equipment:

1 seasoned 5-quart Dutch oven with lid

Ingredients:

2 Tbsp peanut oil
3 oz smoked sausage, chopped medium (Andouille, Kielbasa or other smoked sausage)
6 oz smoked country ham, chopped medium
12 oz boneless pork cut into ½ inch cubes
1 medium green pepper, seeded, deveined and diced medium
2 medium onions, diced
4 ribs celery, diced (about 1½ cups)
1 tsp dried cilantro (1 Tbsp of fresh cilantro if you can find it at a decent price)
2 bay leaves
1 tsp cayenne pepper
1 tsp dried oregano
1 tsp dried thyme
½ tsp ground cumin
1 tsp Kosher salt
1½ tsp fresh ground black pepper
¼ tsp fresh ground nutmeg
4 cloves fresh garlic, diced fine
1 28 oz can Italian plum tomatoes (drained and chopped)
¾ cup juice from the tomatoes
2 cups Basmati rice, rinsed in cold water and drained
2 cups fresh chicken stock (or 1 cup canned chicken stock and 1 cup of water)
½ cup scallions, chopped
8 oz bay scallops (optional)

Method:

1. Heat the peanut oil over a medium heat, add the sausage and ham, and cook until it's well browned. You will notice considerable shrinkage, but don't be alarmed. This is meant to add flavor and color to the stew, not bulk.

2. Raise the heat and add the pork and saute until the pork loses its pink color and starts to brown.

3. With the heat still raised, add the green pepper, onions, and celery and saute until the onions become translucent. Stir frequently with a good wooden spoon, scraping the bottom to prevent anything that sticks from burning.

4. Reduce the heat to medium and add the herbs, spices, salt, and garlic. Continue cooking the mixture for one minute. Add the chopped tomatoes and continue cooking until the pork is cooked through and tender. This should not exceed 10 minutes because pork, by its nature, is not a tough meat

5. Add the tomato juice, rice, chicken stock, and scallions and allow the mixture to come to a boil. Reduce the heat to bring the mixture to a slow simmer. Put the lid on the Dutch oven and allow the rice to cook for exactly 10 minutes. Remove the lid from the Dutch oven and place the scallops on top of the mixture; replace the lid and continue to cook the stew for exactly two minutes, and remove from the heat.

6. Allow the pot to sit, covered, for 15 minutes before serving, then remove the lid and gently fold scallops into the stew.

Brunswick Stew

Brunswick Stew and its close regional cousin, Kentucky Burgoo, are two of the finest regional stews in this country. Both are classic Southern hunter's stews that are traditionally prepared with whatever game meats are brought home from the day's hunt, along with fresh vegetables available from the garden. This stew is named for Brunswick County, Virginia, which has a history dating back to the days when Virginia and the Carolinas were British colonies. If you have read *Gone With The Wind*, you may recall from the first chapter that Brunswick Stew was served at the Twelve Oaks barbeque.

Both of these stews are at their best when prepared in large quantities and held under refrigeration for at least 24 hours before being served. I have chosen Brunswick for this column because it's easier to prepare than Burgoo and does not have to be prepared for an army to maintain its integrity. Of the wild game meats, squirrel or rabbit are the first choice for this recipe. But I have chosen chicken thighs because the meat remains sweet and moist during the cooking process, as does squirrel and rabbit, and it is the meat you're most likely to find available. Although the taste of chicken isn't as interesting as squirrel or rabbit, the overall quality of the stew does not suffer.

Your choice of vegetables and starches need not follow my recipe. Feel free to use cabbage, okra, beet greens, spinach, collards, turnip, rice, or anything else that suits your taste. Be aware, that the volume of this recipe uses all available space in a 5-quart Dutch oven. If anything you substitute increases the volume of the stew, you will have to use a larger pot. However you make it, I think you'll find sitting down to a steaming bowl of Brunswick Stew, a tall

glass of English porter, and a warm chunk of pastoral bread on a cold winter night is wonderful.

Ingredients:

4 lbs chicken thighs with skin removed
flour for dredging
1/3 cup peanut oil
4 cups fresh unsalted chicken stock—or 2 cups canned chicken stock and 2 cups of water
1 cup dry fruity white wine—or 1 cup English pale ale
1 28 oz can diced plum tomatoes (without the juice)
2 medium potatoes, peeled and cut into 1/2 inch cubes
2 cups yellow onion, diced medium
3 medium size carrots, peeled and cut into 2 inch chunks
3 ribs celery, diced medium
2 cups fresh or frozen butter beans (use baby limas if you can't find butter beans)
2 cups fresh or frozen corn kernels
2 dried bay leaves (If they have been in your kitchen for more than six months, get some new ones)
1/2 tsp dried rosemary
1 tsp dried thyme
1 tsp cayenne pepper
1/2 tsp fresh ground black pepper
1 medium yellow summer squash, split along the vertical and cut into one inch chunks—or 1/2 cup fresh or frozen okra
3 cloves fresh garlic, minced

Method:

1. Place the flour in a large paper bag, like the ones that you get at the supermarket. Add the skinless chicken thighs and secure the bag at the top to prevent the flour from escaping. Shake the bag until all of the chicken is coated evenly with flour.

2. Heat the peanut oil in the Dutch oven over a medium heat. Shake any excess flour from the chicken pieces and place them in the oil, without crowding, and brown evenly on both sides. You will find it necessary to do this in two batches, adding additional oil as necessary. Take care to periodically scrape the bottom of the pot to prevent any sticking matter from burning. After browning, set the chicken aside on paper towels to drain.

3. Deglaze the bottom of the pot with two cups of chicken stock, then add the remainder of the chicken stock, the wine, and the chicken pieces. Bring the stock to a boil, then reduce the heat to a point that will maintain the stock at a slow simmer. (Slow simmer means no bubbles popping at the surface.) Cover the pot and simmer the chicken until tender, between 45 minutes and one hour.

4. Turn off the heat and remove the chicken to a platter to cool. Carefully remove all the fat and scum that is floating on the surface of the stock. Return the stock to a boil over medium heat, and add the diced tomatoes, potatoes, onions,

carrots, celery, butter beans, corn, and seasonings. Return the stew to a slow simmer until the vegetables become tender, about 45 minutes. While the vegetables are cooking, remove the bones from the cooled chicken.

5. Return the chicken to the stew, along with the squash and garlic, and continue simmering until the squash is tender, but not mushy. Adjust seasoning with salt and fresh ground black pepper. Turn off the heat, cover the stew, and let it sit for at least one hour before serving. Slowly reheat if necessary.

Pastoral Bread

To make this bread you need only one pan—your 5-quart Dutch oven. The ingredients are basic as well: bread flour, water, yeast, sugar, and shortening. I always make a double batch of this dough, bake half, and freeze the rest for another time. When you bake this bread in the Dutch oven, the resulting loaf is one of the most impressive breads in existence. It is a full 10 inches in diameter and at least 8 inches high at the top of its peak. A full-sized Italian panettone looks like a muffin standing beside this bread. This loaf is also a beginning baker's dream because it comes out of the oven picture perfect every time and it tastes as good as it smells and looks. If you don't have a Dutch oven, use three standard loaf pans. But I must stress the importance of using hard wheat bread flour when making this bread. All purpose flour does not contain enough gluten to meet the special proofing and baking requirements of this loaf.

Ingredients:

2 pkgs active dry yeast
2 Tbsp sugar
1/3 cup peanut oil
3 cups warm water (110° to 115° F)
5 cups hard wheat bread flour
2 tsp kosher salt
4 to 5 cups additional bread flour as needed
shortening

Method:

1. Combine the yeast, sugar, peanut oil, and warm water in a suitable size bowl, and mix with a wooden spoon or wire whisk. Set the mixture aside for the yeast to proof, about 15 minutes.

2. In a large bowl mix the five cups of flour with the salt. Add the yeast mixture and beat with a wooden spoon to form a heavy batter. Stir in additional flour, one cup at a time, until the mixture forms a stiff dough that does not stick to the sides of the bowl. Turn the dough onto a floured surface, then knead until the dough is smooth, does not stick to the surface, and springs back into shape when poked with your finger. This requires 15 minutes, minimum.

3. Coat the inside surface of a large mixing bowl with shortening, place the dough inside, cover with a clean cloth, and allow the dough to rise until triple in bulk. This will take about one hour.

4. Punch the dough down and knead it into a smooth ball. Coat the inside of the Dutch oven and lid with shortening. Place the dough inside and put the lid in place. Let the dough rise until it touches the lid. Watch this rising carefully; you do not want the rising dough to lift the lid.

5. Place the loaf in a preheated 375° F oven. Bake for 10 minutes, with the lid in place. Remove the lid and continue baking until the loaf sounds hollow when tapped. This will take between 35 and 50 minutes. Remove the fully baked loaf from the pot and place it on a rack to cool.

As you will discover, this makes a loaf large enough to feed a small army. Take heart with the fact that, just like your stew, it freezes well.

Corn bread for a Cajun/Creole stew

Jambalaya is a casserole type stew that cries out for a good corn bread. The following is a recipe that I created as a special complement for this spicy, rich tasting stew. The recipe makes enough corn bread to feed eight hungry adults. If you are lucky, there may even be a piece or two left over for you to enjoy with your morning coffee.

Ingredients:

1 cup all purpose flour
2½ cups yellow or white corn meal
3 Tbsp sugar
2 Tbsp baking powder
1½ tsp Kosher salt
4 whole fresh eggs (slightly beaten)
1¾ cup buttermilk (any milk—whole, skim, or lactose free—will also work well)
½ cup melted butter or margarine

Method:

1. Combine and mix together the flour, corn meal, sugar, baking powder, and salt in a large mixing bowl.

2. In a small bowl combine and mix the eggs, milk, and melted butter or margarine.

3. Gently fold the egg mixture into the dry ingredients using a spatula or wooden spoon. Do not overmix; a few lumps in the batter are OK.

4. Spoon the batter onto a 12 x 16-inch greased baking pan. Let the batter rest for 10 minutes.

5. Bake the corn bread in a preheated 425° oven for about 25 minutes or until it is nicely browned on top and a tooth pick comes out clean when inserted into the middle. Δ

Raise your own feed crops for your livestock

By Rev. J.D. Hooker

It's my wife and our daughters who primarily wield control over our kitchen garden. I do exercise a bit of control over some aspects, such as our tiny tobacco crop, which not only keeps my pipe pleasantly stuffed, but provides us with stock wormer, insecticide, and other needs. But it's the women who have the handle on our family's (families' now, as our two eldest daughters are now grown, moved out, and have their own households) dietary preferences. They also determine the quantities needed to sustain us through each year.

Basically, I just get the garden beds prepared for them and they just sort of take over. Actually, they do a great job and really enjoy their gardening tasks. So this sort of voluntary "division of labor" seems to work out very well for us.

All told, our garden beds, along with their skills, efforts, and experience, provides nearly all of the produce needs for ten people in three different households, with a plentiful surplus to share with relatives and friends.

The major share of the crop production responsibilities that I end up carrying through involve producing the required feed for our family's hogs, goats, poultry, burros, and other livestock. This isn't such a minor undertaking, given the rather limited acreage we have available for feed production. Often in such efforts, just one poor decision can mean a considerable increase in livestock raising costs, and a very major dent in any profit margin.

While I do have to admit that over the years I've sure made my share of mistakes (seems like the only way to keep from ever making a mistake is to never do anything), I have learned at least a little from each one. The result is that I have finally settled on raising five different crops, which seem to fill out our feed requirements ideally.

Growing corn, sorghum, amaranth, oats, and beans seems to keep our animals and our soil, as well, in really good condition. Hopefully, this article

and other needs and habits of these two crops are nearly identical and they seem to do very well together.

Most years I'll put in Santo Domingo Blue Flour corn, along with Apache Sugar Cane sorghum, both of which always seem to produce especially heavily and prolifically in our area. Seed for both are available from Native Seeds SEARCH (2509 N. Campbell Ave. #325, Tucson, AZ 85719) which is one organization that I heartily endorse.

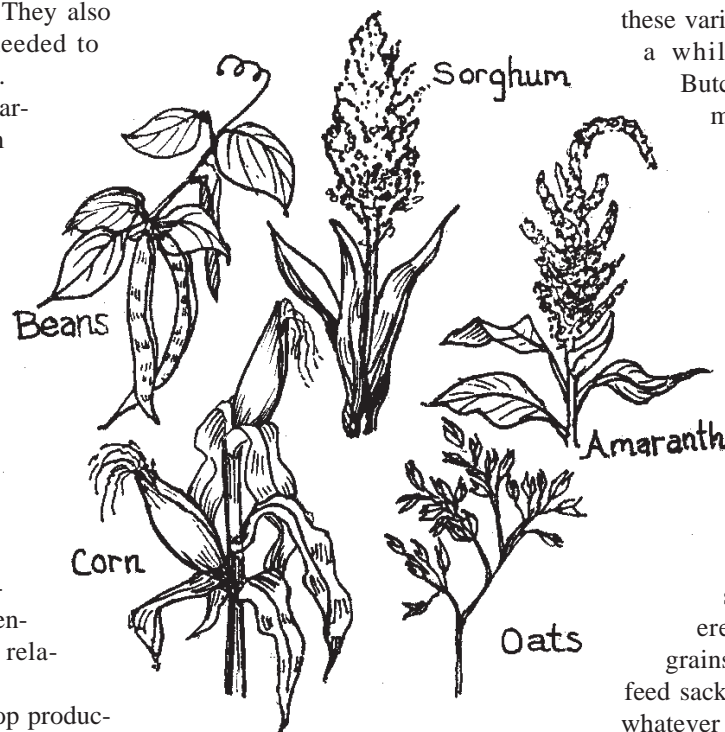
While I can't recommend either of these varieties highly enough, once in a while I plant either Bloody Butcher or Seneca corn because my daughters just like to see these very colorful corns.

You might also want to experiment just a little on your own as well.

Also, I have heard that in very many areas, Texas Black Amber Molasses sorghum is a better producer with other corn varieties, possibly giving higher yields in other areas as well.

The ripened sorghum seed heads are cut off, gathered in, mixed with the other grains we produce, and stored in feed sacks, wooden bins, barrels, and whatever we have available. Most of the sweetish stalks are then cut and made into shocks, just like corn, then left right in the field until needed as fodder. Goats, sheep, cattle, horses, ponies, donkeys, and hogs, seem to especially relish these sweet stalks.

From our corn crop, we need to meet all of our cornmeal and corn flour needs while keeping a fair portion as grain as well. So, a large portion of our crop is harvested and stored in cribs (as covered in *BHM* #41) with most of the stalks, including



can provide you with enough information to help in making decisions about raising your own animal feeds.

Corn and sorghum

Our feed growing acreage is divided into four sections with a different crop planted in each quarter. These crops are rotated annually. In the first section I'll plant a mixture of corn and sorghum, as the growing, nutritional,

the ones still bearing unharvested ears, also being shocked up and left in the field until needed.

I do, however, run a fair portion of our corn crop, along with a roughly equal proportion of sorghum stalks, through our shredder, bagging up the resultant chopped feed for use during the coldest weather, when it seems as if the less effort our animals need to exert in eating, the better they handle the bitterest cold.

Amaranth

I'll follow the mixed corn-sorghum crop with a remarkable Meso-American crop, amaranth, which, while also a fairly heavy feeder, seems to draw predominantly on different nutrients than the preceding crops. Here again the heavy grain heads are cut, mixed with other grains, and stored. When added to our other grains, the amaranth adds a high lysine content, which really boosts the nutritional value of the feed dramatically. We realize an increase in our poultry's egg production, among other benefits.

All of the leaves and stems are put through our homebuilt shredder, providing an extra nutritional addition to our chopped fodder type feed.

Amaranth is another high quality feed type crop for which seed is available from Native Seeds SEARCH. Many amaranth varieties are also quite colorful and add a rather spectacular look to your field. At one time or another, I believe I've tried every variety of amaranth that NSS offers and all seemed to produce abundantly.

I probably also need to mention that my wife also includes a couple of varieties of amaranth in our kitchen garden as well. Many people enjoy the fresh tender leaves added to salads or served up as cooked greens, while the flour ground from the tiny seeds is both highly nutritious and very tasty. When heated and popped like popcorn and mixed with a little honey, maple syrup, or even melted caramels, these

seeds can yield a mighty nice confection as well.

Oats

In the quarter of the field where I'd grown amaranth the preceding year, I'll put in oats. Oats being a fairly quick producer and a relatively light feeder, this has worked out very well for us. However, if your own soil is in pretty poor shape, you may be better off skipping the oats, at least for the first few years or until you can build up your soil's fertility to a higher level.

Once the grain heads are fully ripe, but the stalks still carry just a trace of green, I'll cut the whole crop with our old sickle-bar mower. A day, or at most two days, later, I'll rake everything in and store the oats, hay-stack fashion, under the roofed area between two of our corn cribs. The oat straw, with grain heads still attached, is easily fed out to cattle, goats, horses, and such, the straw providing roughly the same nutritional value as good hay while the attached grain heads meet most livestock's needs just as well as any measured out grain ration would.

This is also what we'll primarily use as poultry bedding as well. The chickens, turkeys, and other fowl happily scratch and peck around, picking out the grains of oats while leaving the straw to soak up moisture and provide insulating warmth.

Beans

Oats are then followed with beans in our planting rotation. I especially like edible soybeans, available from most vegetable seed suppliers which, unlike regular soybeans, are completely digestible and nutritious when raw. They also have a nice bushy, easily cultivated growth habit, and pretty nutritious (nutritious to livestock anyway) stalks. Really though, any other bush type bean should prove just as suitable and I've had excellent results

with many different beans. Favas, bush type cow peas, and bush limas are also among my favorite feed type beans.

There have even been a few years where, running a little short on feed in the spring, I've put in early peas, fed them out straight from the field, then followed the peas with a short season bean variety. This has worked out well when unforeseen feed requirements outpaced time constraints. Like our other feed crops, the beans are harvested, stalks and all, after which they're also run through the shredder and mixed in with our feed grain supply. When mixed with the other grains, beans add a big protein boost for growth and egg production while also upping the fiber and carbohydrate content for added energy and warmth.

I'll vary just a little from this schedule at times, occasionally including sunflowers (another great crop for providing both grain and fodder) to the area planted to corn and sorghum for instance. But basically I've found that by sticking with these five crops, in a four-step successive rotation, our stock feed requirements are always well met.

It's well worth adding that all of our feed crops are always grown from open-pollinated (non-hybrid) seed. This means that it's now been several years since we've even needed to purchase any seed for our feed-raising efforts. At the same time, working all the manure, used bedding, and other waste from the stock we produce back into our soil, we've precluded any need of purchasing commercial fertilizers. This leaves a little more of the income, produced through our livestock raising efforts, in our pockets.

Whether you might be raising rabbits, goats, chickens, cattle, or whatever, you really might want to take a serious look at putting these versatile crops together in some similar rotation plan to achieve the best results for your own efforts. Δ

Where I live

By Annie Duffy

Kiss Critters—they're cute and they sell

Two of the things I enjoy most are crafts and making money, and anytime I get a chance to combine them both, I do. Making and selling “kiss critters” does just that.

Kiss critters are not only easy to make, but are also very profitable. They cost me between 10 and 25 cents (depending on the variation) for the raw materials, and they sell like hot-cakes at \$1.50.

Kiss critters are small, three-sided boxed faces that open by pressing the mouth corners with your fingers. The open mouth has just enough room inside it for a chocolate kiss. The outside can be decorated for different seasons, or can be made into little animals. I have made kiss critters as frogs, cats, reindeer, mice, bunnies, and pigs, but there are unlimited possibilities.

Even after you eat the chocolate kiss (or whatever type of candy you put in them) they are great toys. Their facial expression is so goofy that both young kids and adults love them. Here's how to make them:

Supplies you'll need

- plastic canvas (assorted colors)
- yarn (assorted colors)
- google eyes
- pom-pons
- chocolate kisses
- pipe cleaners, chenile, and felt (for some)

The basic body

- 1) Cut three squares of plastic canvas that measure 10 holes by 10 holes. (See figure 1)

- 2) Fill all three pieces in with matching yarn using a diagonal long stitch. (See figure 2)
- 3) On two of the three pieces, edge stitch two adjoining edges. These will become sides 1 and 2. (See figure three)
- 4) Edge stitch the two unfinished sides of side 1 to any two sides of side 3.
- 5) Edge stitch the two unfinished sides of side 2 to the remaining sides of side 3.

Adding Character

Frogs: I have made frogs by cutting floppy feet out of green felt, then hot gluing them to the bottom of the kiss critter. I glue two smallish pom-pons where the eyes would normally go, and glue google eyes onto them to make eyes that stick out. On some frogs I glue a little bit of red felt into their mouths for a tongue. I tried glu-

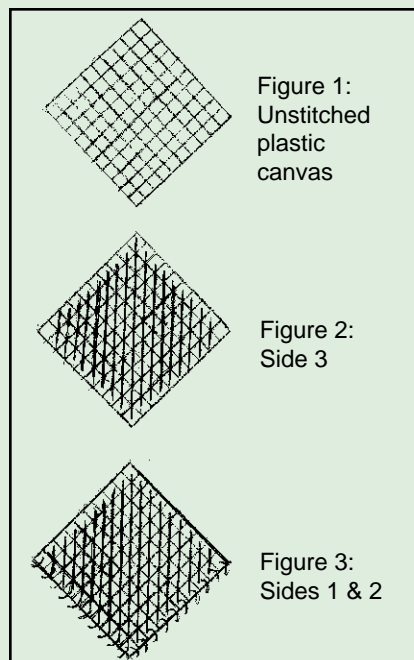


Figure 1:
Unstitched
plastic
canvas

Figure 2:
Side 3

Figure 3:
Sides 1 & 2



Annie and brother Jake
play with kiss critters

ing a fake fly onto its tongue once, but no one could tell what it was.

Cats: I make cats by gluing on triangular felt ears that have been gathered slightly. I add whiskers and glue two small pom-pons over them (horizontally), then add a tiny black pom-pon just above them for a nose.

Reindeer: Reindeer can be made by gluing pipe cleaner antlers on to the back of the head and adding a small black, brown, or red (Rudolph) nose.

Mice: I make mouse ears by cutting a half-circle out of felt and folding them several times so that they pucker. I glue on tiny, pipe cleaner whiskers with a little pink pom-pon glued over them for a nose.

Bunnies: I make my bunny ears out of chenile pipe cleaner (pipe cleaner that gets fatter and thinner). I use small, white pipe cleaners for whiskers, and glue a little black or pink pom-pon over them for a nose. I glue a smallish pom-pon on for a tail.

Pigs: I have made pigs by gluing on pink felt ears and a small felt nose.

Ornaments: Kiss critters can be made into ornaments by putting a loop of yarn through the top of their head.

To finish the kiss critters off, place a message (on a sliver of paper) between their lips reading “Give me a squeeze and I’ll give you a kiss.”Δ

Make superior hay the old-fashioned way

By Jacqueline Tressl

Hay didn't used to be dusty and moldy. In the old days when our great grandfathers put it up, hay was sweet and clean. It is only in these modern times that puffs of white powder waft out of a bale of hay and that cows and horses cough through most of the winter. The advent of the baling machine changed the quality of hay. However, making good, affordable hay is still possible by using the methods of the old-timers.

The advantage of modern haymaking using the balers is that it goes fast. Several hundred large round bales can be made in a week if the weather is just right. But because the hay is rushed along and baled just a little too soon, the grass is not quite dry. The hay is compressed tightly when it is baled and the little bit of dampness left in the grass has no way to get out.

These bales are then put aside to cure. Small, square bales are usually put in a dry barn. Large, round bales are cured outside. *Curing* hay means that the last of the moisture left in the cut grass slowly evaporates while it sits drying till winter. Because the moisture is trapped inside the bale, mold forms on the curing hay. When the bale is opened and the hay is fed, the mold gives off a cloud of dust as the sections of hay are separated. This mold is unhealthy, and farmers are cautioned not to breathe it. Unfortunately, livestock can't avoid breathing in the dust as they eat the hay, and because of it, they often suffer respiratory ailments.

If hay is being fed to cows that are intended for slaughter, the quality of that hay isn't as important. But dairy cows must have clean hay to produce good milk. On large dairy farms, the production of hay is an exacting science. Dairy farmers spend a lot of time and money making perfect square bales of alfalfa and orchard grass.



Sickle bar mowing the field



You just might find your haying equipment, free for the asking. (No, probably not the tractor.)

Horses must have dust-free hay or they will be unfit to ride. The molds will hurt their lungs, and any gait faster than a walk will set them coughing. A horse eating dusty hay will suffer from digestive disorders and be more prone to pneumonia, both of which can prove fatal.

Our great-grandfathers knew that good hay meant thoroughly dry and loosely-stacked hay. They didn't know about mechanical hay balers. They knew that the hay they were curing needed a lot of air circulation. Their hay was stacked in roomy lofts in the top of the barn, and on humid days, the barn doors were kept shut.

Unfortunately for modern agrarians, barn space has diminished. Most farmers are pressed for time, and many have "day jobs." Hay must be cut and baled when the weather is hot and dry and often must be rushed along because the farmer has so many other demands on his time. By winter's end, he will hear his cattle coughing or his horse blowing, and he will wish he had better hay. Saddled with so many other responsibilities, like mortgages and car payments, he does the best he can. For him, large-scale hay-making is a necessity.

An alternative method

But for the small-scale farmer with weekends free, there is an alternative method to large-scale haymaking that will provide dust-free hay. It does not require expensive equipment. It allows the farmer to make hay at his own pace and in whatever amounts he needs. He can make it the old-fashioned way, one load at a time.

First, the small-scale farmer needs several acres of good grass. Brome and timothy grass will make good hay. Fields

containing “volunteer” red clover, hop clover, or bird’s foot trefoil make excellent hay. These clovers and legume plants will provide extra protein and succulence for livestock over winter. Contrary to what some say, clover is safe to feed to horses as long as it is thoroughly dried and no mold is allowed to develop on it. It is the mold on the clover that is detrimental to horses, not the clover itself.

If acreage is at a premium, or the small-scale farmer wants a higher rate of hay production from his field, a soil sample can be taken from the field, and the local grain store will send it out to be tested. A full analysis of the soil will be provided to the farmer. Armed with this report on what nutrients the field is lacking and what the pH of the soil is, the farmer will know how much fertilizer and lime he needs to add. Or he can load up the manure wagon with tons and tons of livestock waste and spread it over the fields. The fields can also be reseeded into higher quality grasses and legumes.

However, all of that lab analysis and reseeded is unnecessary if the hay fields are managed properly. No fertilizer or lime is needed if livestock aren’t permitted to graze on the hayfields in the winter months and eat the grass down to a stubble. If hay fields are given the benefit of a little manure and the animals are kept off of it, the fields will stay lush and productive for many years. After a few seasons of cutting hay off of a field, all the weeds and brambles will be gone, and what remains will be high quality forage.



Raking the hay into rows

The beauty of making hay the old-fashioned way is that only manageable amounts of hay are made at one time. This permits the grass to dry properly and doesn’t overwhelm the person making the hay.

Second- and third-cutting hay is preferred over first cutting. The fields can be “rented out” to a local farmer for the first mowing, and he can bale up the early grass. Or the field can be mowed in May; the grass that is allowed to grow back qualifies as a second cutting. Second and third cuttings are more nutritious and easier to digest for livestock. The hay it produces is higher quality.

Hay equipment

To make hay using the old-fashioned way, standard hay equipment is still needed. But with this method, the haying equipment being used is outdated and usually free for the asking. The tractor can be old. It does not need a big engine, a hydraulically-driven PTO (power take-off), or more than one clutch. It needs only to be able to run at a steady pace while pulling an antiquated mower or rake behind it. The two tractors we use on our farm were manufactured in the early fifties and both work great for hay making.

A mower to cut the hay is needed. In this county, fields upon fields have rusted and busted sickle bar mowers that were cast aside with the advent of the modern haybine. Farmers were glad to



Hay rows ready for collecting

upgrade to the modern cutters, because they crimp the grass after cutting it, thereby shortening the drying time. But, when making hay the old-fashioned way, the drying process is not hurried, so crimping is unnecessary. The tremendous expense of the haybine can therefore be avoided.

A free mower and rake?

Old sickle bar mowers are usually available just for the asking. Farmers are glad to have them out of their fields. To restore the old mowers, the cutting sections will need to be sharpened. Some sections may need replacing. The gear box and grease fittings will need to be lubricated. The sickle bars are simple to hook up to the tractor. The drive shaft of the mower is connected to the PTO, and the mower hitch is coupled to the draw bar. The mower is now ready for business.

The unique thing about making hay the old-fashioned way is that hay is cut in small batches, so if the weather turns rainy or the equipment breaks, acres and acres of cut grass are not ruined. By cutting fields a little at a time, the small-scale farmer can avoid ever having to bale up hay that’s been rained upon. He can also avoid costly equipment repairs caused because he’s in such a rush to get the hay up out of the fields.

Three acres at a time can safely be cut. Watch the weather reports and

pick a three-day stretch of sun and low humidity. Cut the hay on the first day. The sun will dry it by the second day. The second day is when most large-scale farmers rake and bale their hay. But for the highest quality hay possible, it should not be raked until the third day.

Raking the hay is also done with equipment found in the old timers' farm fields. Many years ago, hay was raked with hay rakes pulled by horses. There are still many hay rakes lying around, free for the taking. They have been overlooked in favor of the more modern and expensive rake pulled by a man on his tractor.

The horse-drawn rake needs two people. One person drives the tractor and the other person sits on the rake's seat and operates the foot pedal that releases the hay when the rake gets full. Husband and wife, father and son, or any team of two will enjoy working together operating the hay rake.

The raking is done around noon on the third day. Raking goes quickly. A whole field can be raked in less than an hour, and when raking is completed, the hay will be in long, neat rows waiting to be collected.

Collecting the hay is simple. Any truck or trailer will provide a bed into which the loose hay can be loaded. The hay is pitched into the bed with a pitchfork. With someone driving the

truck along the hay row, the other person simply pitches the hay into the bed. The hay weighs next to nothing because it is dried so completely, and with the truck always moving along the rows as the hay is forked up, it takes only an hour or two to get the hay collected. The

truck is then parked in the barn and can be unloaded the next day or next week. As long as it is up off of the fields and under the barn's cover, there is no rush to get it stacked.

Loose stacks are the key

Stacking the hay loosely is the key to having great hay. In order to retain the freshness and the green color of the hay, it must be up off the barn floor and have good ventilation. We stack ours on ladders laid lengthwise a few feet off the floor under south-facing barn windows. This allows the air to move under the hay as well as around and over it. The extra heat from the sunshine coming through the south windows helps the hay to cure.

To properly cure the hay, open the barn doors on dry, hot days and close them at night when the dew comes out. On rainy and humid days, leave the barn doors closed up tight.

By mid-autumn, the hay will be perfectly cured. It will still be green. It will look fine and delicate. It will smell like the fresh fields. There will be no dust when it



Collecting the hay into the truck

is lifted out of the stacks. It will be far superior to any baled hay.

Every hot, dry summer weekend, a two-acre field can be mowed, raked, and stacked. If it's cut on Friday, it will be dry and ready to lift up by Sunday afternoon. If two weekends in a row are rainy, then the haying can be postponed and done on subsequent weekends. By making hay the old-fashioned way, the small-scale farmer works with Nature and the weather and does only small patches at a time. If he's feeling extra energetic and the weather reports are favorable, bigger fields can be mowed. One five-acre field put up into hay using this method will generously feed two horses or four cows over the winter.

Using the old-time equipment allows anyone, no matter how tight their budget, a chance to put up high quality hay. It provides the small-scale farmer independence from the big hay producers who often sell inferior hay at high prices, and it gets us better connected to our land, the weather, our hayfields, and our livestock. Δ

With a great price our ancestors obtained this freedom, but we were born free...But that freedom can be retained only by the eternal vigilance which has always been its price.

Elmer Davis
1890-1958



Three acres of hay stacked in the south side of the barn

Make manure tea for a more bountiful garden

By Sharon Erickson Ropes

No, it's not high tea in the British tradition, with currant scones, bowls of clotted cream, herb-flavored jellies, or delicately-crimped watercress sandwiches. But the tea *is* fresh brewed and ready for a garden party.

Manure tea, that is.

Steeped in garden wisdom, this homemade brew is an old recipe for rich, liquid fertilizer. Back in the days before modern flowers and vegetables were fed with commercial Kool-Aid-colored water, homesteaders made their own plant food. Eleanor Perenyi writes, "In Asia, the composting of vegetable, animal, and even human wastes has been practiced for thousands of years, yielding China's famous 'night soil' which has supported populations many times greater than America."

Composted barnyard manure is an excellent general garden fertilizer, because it contains valuable nutrients and organic matter for improving soil condition, and it is a renewable resource. Anything which improves your soil by making up for a deficiency or by enhancing the quality is called a "soil amendment." The chief amendments are organic materials (like manure, peat, grass clippings, or composted yard wastes) and inorganic plant foods (such as commercial fertilizers, lime, rock, and sand).

Key ingredients

Manure tea is a rich plant food which can be used weekly or bi-weekly throughout the growing season on heavy feeders like annual flowers, tomatoes, eggplant, rhubarb, and corn. The three key ingredients in plant food are nitrogen (N), phosphorus (P), and potassium (K).



Generally, **nitrogen** is associated with the vegetative growth of leaf and stem. Foliage plants, vegetables, and greenery like cabbage, celery, parsley, basil, and turfgrass are enhanced by healthy nitrogen levels. Too much nitrogen, however, can cause root damage or excessive leafy growth.

Phosphorus stimulates root development and gives plants an energy boost that hastens maturity, flowering, and fruitfulness. The high phosphorus ratio of bone meal or superphosphorus is particularly sought by flower gardeners who plant tulips, daffodils, and other flowering bulbs.

Potassium aids root development and general growth of fruit and seed. It is especially valuable for root crops like potatoes, onions, and beets.

"If I want a good steady nitrogen source that will break down over a period of time and simultaneously improve soil texture, I add well-rotted manure," says the popular "commonsense" gardener Barbara Damsrosch. "For a fast-acting nitrogen supply, I use a liquid source that will go straight to the roots, such as manure tea."

Brewing your own

Manure tea is one of those flexible recipes reminiscent of grandmotherly instructions like "a pinch of this," or "a goodly amount of that," or "enough to satisfy the eye." Not to worry, there are only two ingredients: manure and water. The actual ratio of manure to water is not critical. Manure tea is an easy, cheap organic mixture for backyard use. You can brew up a single serving in a small watering can, or several weeks' supply in a 50-gallon drum.

I have used manure from three sources: poultry manure from our bantam chickens, aged cow manure from a local dairy farm, and the commercially packaged manure sold in gardening centers.

My favorite tea is the traditional brew of gardeners past. I scooped Holstein manure at the Speltz farm, whose huge heap was not diminished in the slightest by my one garbage can full. Transferring about a third of it to a second plastic garbage can, I filled the remaining two-thirds space with

rainwater. My tea solution steeped for one week, stirred occasionally with the end of a garden rake. When the color turned dark amber, it was tea time.

The second source, our backyard flock of bantam chickens, provided scarcely enough manure to make a bi-weekly watering can of tea. But brewed in small batches, the poultry tea is credited with capturing a blue ribbon for my son's pumpkin. The higher nitrogen level of chicken manure proved successful in sustaining the nutrient demands of massive vines and leafy growth for his portly pumpkin.

I was particularly satisfied with the process and results of the barnyard teas. Feeling like an active participant in responsible land stewardship, I could do my small part in composting, recycling, and returning biomass to the earth. Another internal benefit was retaining a sense of horticultural independence, as opposed to relying on big business to nurture my gardens. The abundant blossoms, herbs, and vegetables plucked from our beds flourished with only simple gifts of compost and manure tea.

The third source for manure was the store. As the "real stuff" is increasingly difficult for urban gardeners and country families without livestock to rustle up, two or three handfuls of commercial manure in a large, full watering can is an easy option. Cover

the container loosely and steep for five to seven days.

Tea tips

Before you serve this vintage fare to your flowers or vegetables, check the temperature of the tea. Baking in the sun might speed up the brewing process, but hot tea can kill your plants. Summer sunshine will heat a metal or plastic can to damaging degrees, as you know if you've ever scalded your fingers with water that's heated up in a prostrate garden hose. Allow the tea to cool in the shade until it's lukewarm.

If you let the manure tea sit a bit, most of the particulate matter will sink to the bottom. The easiest way to draw tea out of a large container is by the dip method. Use a watering can to dip out small portions. Remove the sprinkler top from the watering can to avoid clogging by any floating particulates. Some gardeners like to strain the manure tea through a cheesecloth, just like pouring brewed loose tea through a metal strainer, but all those little pieces are actually good for the garden. For example, entire buckets of compost, lawn clippings, and manure are spaded into gardens every spring as valuable soil amendments and organic conditioners.

When the tea is nearly gone from the large brewing container, slosh the dregs into the compost pile or use them to side-dress garden plants.

Another technique for making manure tea is to sew up cheesecloth, permeable plastic, or burlap baggies, like giant teabags filled with manure. Dunked and steeped as usual, this brew will more clear and free of dregs. The advantage to using teabags is that it's thought to reduce seed dispersal. Although well-rotted manure should not have any viable seeds, due to the heat of the composting process, any seeds which escaped breakdown would be trapped within the teabag.

To be honest, I find the teabag idea too fussy. Between swimming lessons, garden tending, poultry keeping, family camping, three children, two kittens, one foreign exchange student, and everything else . . . sewing manure teabags drops into oblivion on the priority scale.

Perfect and aromatic

You may wonder if manure tea has a strong smell. Depends what kind you use. I have discovered that store-bought manure seems to be mixed with added soil or peat. Like many processed goods, the end result often belies its full-bodied origins. Consequently, the infusion made with commercial manure smells earthy and mellow.

If you use dehydrated manure or the good old stuff of pen and paddock, then the tea smell is more suggestive of barnyards. My urbanized children and I differed in our opinions of this pungent aroma. While they made dramatic faces and squeezed out gasping "Eeeewws," I shrugged and enjoyed the odorous reminder of my immigrant farming heritage. The smell of manure triggers visions of scrambling over farm fences, playing in the sheep-loft, moist earth, and green growing things. It is curiously pleasant and warm and full of summer.

Author E. B. White grasps the very essence of rural well-being when he writes, "There is no doubt about it, the basis of satisfaction in farming is manure, that always suggests that life

Nutrient values for common animal manures (% by volume)

	<u>Nitrogen</u>	<u>Phosphorus</u>	<u>Potassium</u>
Chicken	1.1	0.8	0.5
Cow	0.6	0.2	0.5
Duck	0.6	1.4	0.5
Horse	0.7	0.3	0.6
Pig	0.5	0.3	0.5
Rabbit	2.4	1.4	0.6
Sheep	0.7	0.3	0.9
Steer	0.7	0.3	0.4

can be cyclic and chemically perfect and aromatic and continuous.”

Praise your favorite dung

The charm of old England is echoed in the ancient words of John Evelyn, the Gardiner of Sajs-Court, concerning assorted manure teas: “Pidgeons and sheepes dung infused in water is excellent for Oranges, choice greens, and indeed any Fruite. The scouring of muddy ponds, where cattell drinke and stand, is good for all plants. The scouring of privies and sinkes so well dried and made sweete, well mixed with fresh earth so as to retain no heady scent, is above all others excellent.”

An evaluation of the primary nutrients of common manures has been accomplished by scientific studies. According to this list, published in Rodale's Encyclopedia of Organic Gardening, rabbit droppings rate the highest in two elements. Chicken manure is generally considered the overall best fertilizer of the common animal manures. (See table.)

You can experiment with your own recipes and sources for manure tea. See what works best for you and your plants. What renewable resources are available for you to try? Deer sign, buffalo chips, bat guano? When friends raise their eyebrows at your newfound (yet ancient project) you might defend the experimental excreta with garden author Ruth Page's retort:

Though others are surprised
to hear it on your tongue,
You're a gardener, why not praise
your favorite dung?

1-2-3s of doing tea

Manure tea comes with a few reminders. First, it is important never to use fresh manure in the garden because of its chemically “hot,” damaging character. Fresh manure can cause burn injuries to plant roots and stems. Use barnyard manure which has been aged for several weeks or the

commercially processed varieties which have been composted.

Second, be careful to avoid pouring fertilizer across a plant's crown. The ground-level centers of many plants, like delphinium or peony, are very susceptible to crown rot from the super-rich pool of tea. Do not apply full-strength manure tea to foliage. You can dilute the tea to half-strength if your fertilizer application uses the spray method, or if your weekly feedings splash repeatedly on leaves. Watering around the edges of plants and between rows is an old technique used by wise gardeners.

Third, keep in mind that some plants are happier in lean soil. Many herbs like sage and yarrow, and annual flowers like cosmos, morning glories, and nasturtiums will bloom poorly if they are too well fed. Carrots dislike rich earth. By knowing the needs of your garden crops, you will ensure healthy growth and successful harvest.

Fourth, most literature on composting and manure warns against the use of three common animal wastes. According to Carl Rosen *et al.* of the University of Minnesota's Department of Soil Science, “Because they may pose a health hazard, or create a nuisance, certain organic materials should not be used to make compost. Adding human feces, and dog or cat feces cannot be recommended because they may transmit diseases.”

Lastly, do not cover the manure tea with a tight lid. I made this hot, gaseous error during my first gardening year, thinking that the snug garbage can lid would keep flies away and prevent rainfall overflow. After several July days simmering in a tight, darkened container, the cover nearly blew off as I touched it one afternoon. Like a science experiment gone bad, the Jekyll-esque manure tea was foaming and growing and dangerously hot. Under a protected, shady overhang and allowed to breathe, the manure tea became much more civilized. Δ

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Build your own backwoods mulch machine

By Rev. J.D. Hooker

Mulch, in some form or other, is often one of the most valuable garden aids available. It prevents, or at least greatly retards, weed growth, conserves moisture, and adds important organic nutrients to your garden's soil. At the same time, producing mulch for use in your garden can present you with a great opportunity to turn a whole lot of refuse and residue into something useful and valuable.

Dead cornstalks (at least the small percentage of ours which aren't used up as livestock fodder and bedding), grape vine and fruit tree prunings, old straw and spoiled hay, leaves, and considerable other scraps and trash are regularly run through our homemade shredder for use as effective garden mulches.

Additionally, whatever organic residues aren't used as mulch are put through our shredder anyway to produce compost for further soil enrichment. The finely shredded material decomposes many times faster than it would in its original state.

Unfortunately even used chippers and shredders are usually prohibitively expensive to many gardeners. Even

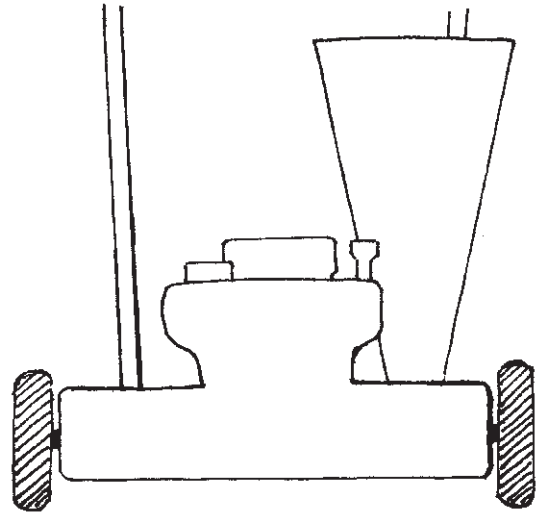
well-heeled gardeners can find it mighty hard to justify adding such an expensive piece of equipment to his gardening inventory. I mean, in spite of the efficiency and unique usefulness of garden or estate sized chippers and shredders, they just aren't the sort of machines that you'll be using every single day.

However, several years ago, when my wife and I were giving serious consideration to purchasing one of the commercially produced "mulch making machines," I came across a much less costly, though equally valuable, solution which I'm certain could prove just as valuably useful to many readers. Our solution was to make a simple adaptation to a regular piece of power equipment that most of us already own.

I didn't come up with the idea on my own. It was actually the brain child of my longtime close friend, David Wirt, who, along with his family, has been living an independent backwoods lifestyle for longer than I have.

Anyway, his idea is really so simple that, if you may have been thinking of adding some type of shredder to your operations but the prices kept getting in the way, you're probably going to be wondering why you didn't think it yourself. I know, because that's exactly how I felt when he first showed it to me.

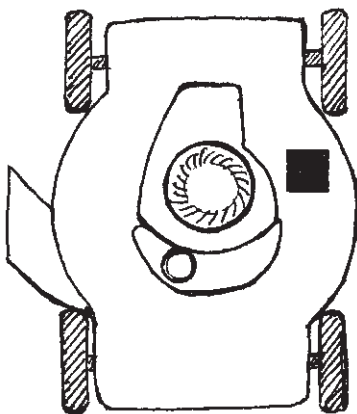
All you need is your regular hand-pushed, rotary-type power lawn mower. Most everybody already owns at least one of these and, since the



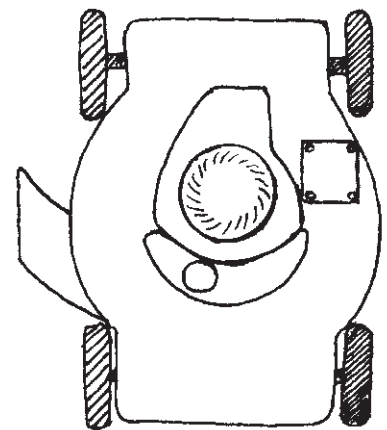
2. Make a feed chute and bolt it in place over the hole.

adaption needed to convert it to a mulcher is readily installed and removed, you don't need to run out and purchase another mower for this project.

To make the alteration, on the side of the mower opposite the discharge opening, use a torch, cold chisel, sabre-type saw with a metal cutting blade, or whatever, to cut a roughly 6" by 6" opening in the top of the mower deck. (The size of this opening isn't



1. Cut a hole in the top of the mower deck.



3. Make a lid to cover the hole, so you can still use the mower as a mower.

critical and can be varied according to the size of the mower's deck.)

Next, fashion a fairly tall (two feet works nicely) funnel shaped feeding chute, to fasten over the opening. My friend Dave used heavy sheet metal, pop-riveted together. I used plywood scraps and a couple pieces of angle iron to make mine. But any reasonably strong, not too overly heavy material, should work just as well. It just needs to be of a material that allows it to be securely bolted atop the opening you've cut in your mower deck.

You'll also need material from which to cut a cover, just slightly larger than the opening atop, that you will bolt in place whenever the feed chute is removed so your mower can be returned to its regular lawn care duties when you're not using it as a mulcher.

To use your "new" piece of equipment to produce mulch, simply start up the mower and **carefully** drop your cornstalks, leaves, or whatever down the funnel-shaped chute. Your mower's blade will do as fine a job shredding these sorts of materials into valuable mulches as any expensive shredder on the market.

Should your mower be equipped with a bagger attachment, use it to catch the resultant mulch as it discharges for easy handling. When shredding up refuse for producing compost, I've found it easier to position the machine so that the shredded material is just discharged directly into one of our compost bins.

When using any sort of shredder (or any other power equipment for that matter), you need to **employ a high degree of caution**. Shut off the mower while removing the bagger or whenever reason or safety would dictate. If you should need to shove something down the chute (maybe a clump of leaves), use a piece of wood. Never use your hands or any metal object. And **never** push yourself when you're overly tired. Remember, you are much more important than your machine or the mulch it produces. Δ

The dandelion is a healthful, great-tasting weed you can eat

By Carol Williams

Want to eat a weed? One that's easy to find and tastes great? Just start hunting for those first spring dandelions.

The dandelion's true name is *Taraxacum Officinale*, which means "the official remedy for disorders."

Legend has it that the people of Atlantis used the dandelion as a food and a tonic. The early colonists brought the dandelion to America from Europe. They used all parts of the plant, even the roots, which they roasted and ground for a coffee-like drink. We know that frontier healers often recommended dandelion greens as a spring tonic. They are full of vitamins unavailable to pioneers during the winter. There is no doubt dandelions have saved lives.

Our name for the weed comes from the French *Dent de Lion*, meaning "lion's tooth." This refers to the jagged points on the leaves, which look like sharp teeth. The French grow dandelions to eat, just as we grow lettuce in our gardens.

Modern science has analyzed dandelion greens. They are a good source of calcium, potassium, vitamin A, and vitamin C. They have twice as much vitamin A in a one-cup serving than most vitamin pills. They also have as much calcium as a children's vitamin or half a glass of milk. That's more than most other vegetables. Without vitamin A, people have eye problems and have trouble fighting infections. Vitamin A helps kids grow tall and keeps skin healthy. Calcium keeps bones strong and growing and nerves working right.

Your parents might have heard of eating dandelions, but even your grandparents might not know how to prepare them. The first steps are



knowing when and where to gather the tasty greens. Dandelions are best picked where the grass grows tall and free. Yard dandelions, which have been cut often, do not have as good a flavor. Also, many people try to poison the dandelions in their yards, and those chemicals are not healthy to eat. The best time to gather is long before the last frost of spring.

The first edible portion appears as a slightly reddish tangle of leaves. The greens grow from these. Dandelion greens are the leaves above the surface. They must be gathered before the plant blooms to be delicious. The best time to gather them is just when the bloom bud appears, before the stalk grows. If you wait too long, they will taste bitter. Eating the leaves after the yellow flowers bloom is like chewing yesterday's gum.

To cook dandelion greens, wash them well with water, then place them in a pan and pour boiling water over them. Let them boil for five minutes, then season with salt and butter. Eat them hot. If the taste is too strong, gather the bloom buds and cook them with the leaves to smooth out the taste.

This spring, cook up a batch of nutritious, delicious greens for dinner. And you may want to invite your grandma . . . it could bring back some memories for her. Δ

There are lots of ways to compost — Find the one that's right for you

By Connie Glasheen

Manure. Eggshells. Wood ashes from the woodstove. These are just a few of the organic ingredients I like to use to build a thriving compost pile. Recycling kitchen and garden wastes is great, but what I'm most interested in is building up the nutrients and organic matter in my soil.

There are many different composting methods: the University of California method, the three-pile system, sheet composting, pit (trench) composting, and vermicomposting, among others. The trick is to pick out what is best for you, or use a combination of methods, like I do.

The UC method

The University of California method is a "Get compost quick" method. There are three essentials for success:

1. Chopping or shredding the organic matter is important because it will help it to break down quickly.

2. Fresh manure is needed to help heat up the leaves, grass clippings, and other organic materials.

3. Mixing the ingredients thoroughly by frequent every-other-day turning will help speed the process.

It's a lot of work turning, mixing, shredding and blending, but doing this will result in having usable (though somewhat chunky) compost in about two to three weeks. Don't worry about the chunkiness: once it's in the garden it will finish rotting down.

The three-pile system

The three-pile system uses three piles or bins. In **the first pile** goes fresh manure and a combination of brown carbon-type material (cornstalks, dried leaves, hay, straw) and

green nitrogen-type matter (grass clippings, weeds pulled from the garden, fruit and vegetable peelings). Turn it with a pitchfork and occasionally wet it down with a garden hose, and after a while this first pile will start to break down.

When the material has partially decomposed, move it to **the second pile**. When you have fresh ingredients to add, don't add them to the partially decomposed pile: start a new pile. By the time this new pile has started to break down, the material from the original pile (now in the second pile) should be ready to use.

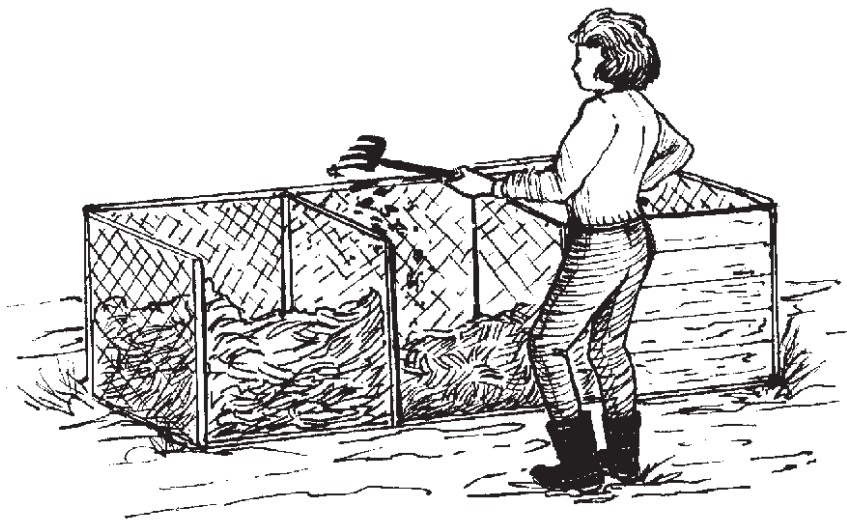
This is the time to move it to **the third pile** or bin, where it will wait for you to use it. When using this three-pile method, you will always have three stages of compost: fresh, partially decomposed, and ready to use.

Sheet composting

Sheet composting is sometimes confused with mulching. When you mulch with organic matter, the main reason is to help cut down on weeds. When you spade or till organic matter into the ground, that is sheet composting. Usually this is done at the end of the garden season to give it time to break down before planting. This is especially important when using fresh manure that is "hot" enough to burn tender plants.

Pit composting

Pit or trench composting is quick and easy. Dig a hole, throw in your kitchen or garden wastes, cover with soil, and let nature do the work.



Ingredients to use and ones to avoid

No matter which type of compost pile you make, there are ingredients you'll want to include and others you'll want to avoid.

Use a combination of any of these organic ingredients:

- farm animal manure
- leaves
- twigs
- grass clippings (untreated—you don't want any herbicides in the compost pile)
- kitchen scraps such as fruit and vegetable peelings
- corn husks, cobs, and stalks
- eggshells
- animal bedding (straw or shavings)
- organic mulches
- wood ashes
- seaweed
- sawdust
- sod (herbicide free)
- coffee grounds
- garden refuse (including weeds)
- pond silt
- orchard windfalls
- fish scraps

Avoid these:

- animal scraps
- meats, oils, and fats
- cat, dog, and human manure
- colored newspaper and magazines
- coal and charcoal ash
- plastic

Vermicomposting

Vermicomposting is a method that is done inside, using earthworms. All you do is build a wooden box about 1' x 2' x 3' (a little bigger or smaller won't hurt). Fill it half full with garden soil, then place your worms inside. I recommend using Red Wigglers, not nightcrawlers. Tear some newspapers into strips, making sure you don't use the glossy colored advertisements. Soak the strips in water, squeeze them out, and lay them on top of the soil.

Now you can feed your worms. Bury banana peels, coffee grounds, and other kitchen wastes once a day in a corner. Alternate corners, and by the fifth day, you'll be back where you started. *Worm castings* are the rich compost that will result, and they will need to be removed periodically. Use them in your garden for enriching your soil—your plants will love it.

The worms will increase, too, so you will need to remove some. (Need some fishing bait?) Be sure the box doesn't freeze or get too warm, and keep the newspaper strips moist, not soaking or dried out.

Combining methods

What I do is use a combination of ingredients and methods. In my flower and herb gardens, I just dig a hole and bury prunings, peelings, and leaves. I'm careful when doing this, so I don't disturb the roots.

Every fall we add large amounts of manure to the vegetable garden. After plowing and tilling it under, we allow the manure to compost right in place.

My large compost pile is a variation of the three-pile system. I start with one pile right by the vegetable garden. In this pile I throw weeds pulled from the garden and all the left-over peelings from canning. Once in a while, I turn it with a pitchfork, and if rain has been scarce, I soak it with the garden hose. After about a month, the pile has

started to shrink. By the end of summer, this pile has yielded some usable compost, but most of it is still decomposing.

I start a new pile and allow the first pile to continue breaking down. Once spring comes, I move it to the back of the garden, forming a long mound of rich compost. I plant this mound with pumpkins and squash. They like the warm, fertile compost mound, and since the vines like to sprawl and take up a lot of room, they aren't hogging valuable garden space. When the vines stop producing, I spread the compost mound on the garden and add the vines to the newest compost pile. There are drawbacks to this method: it takes a lot of time and room. But I like it because it's easy and convenient to the garden.

As you can see, there are many interesting ways to compost. Experiment and find out what's best for you. You'll find that whichever method you use, your garden and plants will grow better with your homemade compost. Δ

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Trimming feet is important

By Jayn Steidl Thibodeau

You've had a pretty successful year with your sheep flock. Cattle prices are hovering somewhere south of sea level at the present time, but lamb prices are good, and the outlook for the next year still looks good. So why do you have a nagging feeling that something is wrong when you look out over your little flock? Could it be that three out of every five ewes are grazing on their knees instead of walking solidly on all four feet? You've been in the sheep business long enough to know that a sheep who kneels to graze is suffering from sore feet, and that means that the time to trim feet has arrived.

Foot trimming time can be a real rodeo if certain techniques are not followed, but avoiding the job is going to cost money. If a ewe's feet hurt, she will not perform at optimum level. Her weight gain will be reduced, which is not only a stressful situation for the ewe, but may cause her to miss a pregnancy cycle. If she does, by chance, become pregnant, a thin ewe



Lifting the head to set her on her rump

is at higher risk for aborting a fetus, for giving birth to weak lambs, and for producing an inadequate milk supply. Looking ahead to the spring lamb crop, deciding to trim feet now is a no-brainer decision.

Trimming tools

There are several tools made to make the job of foot trimming easier on both the sheep and the handler. Available from most vet supply catalogs are foot-trimming shears made especially for sheep and goats. This tool resembles a pair of scissors with wide blades and costs under ten dollars. It's real handy for a foot that is not badly overgrown. Small rose-pruning shears are also a useful tool, particularly on a young lamb or a ewe with tiny feet. The blades are curved, making it easy to access hard-to-reach areas. A hoof knife, such as that used by farriers on horses, is good, but don't try to use a farrier's hoof nippers. They are too long and cannot reach into the tight spots of the foot. In a pinch, a plain old pocket knife can be used to trim the feet.

Handling the animal

Using a hoof knife intended for horses is about the full extent of the similarity to trimming a horse's hoof. While a horse's foot should be trimmed by standing alongside the animal and picking up the foot, a sheep or goat will be much more manageable if handled in a manner similar to that used by a shearer. This method has the added advantage of letting you do the entire job without needing a second person. In fact, even the smallest person can handle quite a large sheep this way. When my daughter was about 13 and weighed about 80 pounds, she was my top helper and could catch a ewe and have the feet trimmed in about ten minutes.



The ewe will sit quietly in this position.

When you have caught the ewe, stand behind her with one leg on each side of her rump while lifting her chin straight ahead, slightly elevated. Firmly and carefully pull her straight back until she is in a sitting position. A particularly large breed, such as a Suffolk, might require that you reach across the ewe as you pull her back, grabbing one back leg above the hock and pulling it forward to slide her rump into a sitting position. When the ewe is sitting up and resting against your legs, you will be able to reach across her and trim all four feet with no outside assistance necessary. Goats can be done using the same method. If the goat has horns, just be careful to avoid getting hooked by a horn.

Some people have found it more comfortable to back the ewe into a sling-backed lawn chair and let her sit in it. If you have a lot of sheep to trim, or have a bad back, this is a highly recommended option.

The temptation is always there to lay the sheep or goat on the ground to trim the feet. The main problem with this method is that an animal can pack a powerful wallop if she kicks, even if she is lying down. By standing behind the animal to trim, your body is safely removed from the line of fire in the unlikely event that she kicks. Most

sheep are unable to kick while on their rumps.

When you trim the foot, remember that the foot is not all horny substance, but is living tissue with bone, nerves, and blood. Trim off only the overgrown areas, then progress to shaping the foot. The outer, horny layer will be brittle, while the soft, blood-carrying tissue will have a slightly different color to it. Observe the foot closely as you trim, and you should have no trouble.

If you do cut a little too deeply and draw a little blood, stop immediately and wait to be sure that the bleeding stops. If it does not, apply some blood-stop powder. The animal will be a little sore for a few days—much



This foot is badly overgrown.

like you would be if you had trimmed a toenail too closely, but the foot will grow out and she will be fine.

Foot rot

Check the foot and between the toes for evidence of foot rot while you are trimming the foot. An infected foot will smell, and the foot may show evidence of a pus-like discharge. The sole of the foot will scrape away easily instead of being firm to the touch. Infected areas should be trimmed away as much as possible.

Foot rot is highly contagious, and certain precautions should be taken to prevent the spread of the disease. The



The rose pruning shears reach into tight areas.

trimming tools should be disinfected before trimming another sheep or goat, and medication should be applied to the affected areas. A zinc sulfate foot bath is a time-honored remedy, but for a small flock, there are some new products which are quite effective and readily available. The infected animals should be quarantined away from healthy stock until all signs of the disease have healed, and, if at all possible, the pasture should be rested for a period of time (two weeks to a month) before any animals are returned to it.

Foot rot seems to be most prevalent in wet weather, and some breeds seem



The foot is properly trimmed.

to be more susceptible to it than others. If you are adding sheep or goats to your flock, it is a good idea to quarantine them for a few weeks to make sure that you are not introducing this problem to your flock.

Prevention

If you choose, this might be a good time to vaccinate your animals with a vaccine that prevents foot rot. The vaccine doesn't do too much to help an animal that is already infected, but it is an effective prevention method for several strains of the disease. The vaccine is available from any of a number of veterinary supply catalogs.

You might consider another preventive measure which is somewhat



Checking between the toes for hoof rot

labor-intensive at first, but well worth the effort in the long run. Foot rot is often found in a sheep or goat with overgrown feet because the bacteria have a damp, dark area in which to hide. Preventing overgrown feet (and thereby reducing the need for trimming feet) is a simple matter. Rocky ground is a natural hoof-trimmer. Since your pasture is (hopefully) composed of rich, loamy soil and lush grass, it probably doesn't have the rocky areas a hoofed animal requires for healthy feet. The addition of an area of rocks, such as limestone, which the animals need to cross every day should be enough to keep most of your flock on solid footing throughout the year. Δ

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If you build your own (legal) house, you'll have to deal with the permit process

By Skip Thomsen

Permits have become a way of life. Some of the permits required in the building process are more-or-less justifiable, but others fall into the categories of create-a-job and revenue collection. The bottom line is that we all have to deal with this system to some extent, and it's a lot easier when we know what to expect and what's expected of us.

The building code

A few years ago, the building code was in place mainly to insure that structures would be built to last, that joists and beams were of sufficient size to do their intended jobs. That's history. Now, mostly because of our country's flair for insane lawsuits and because of the legislative clout of the consequently paranoid insurance companies, the building codes for most states reach out into areas in which government has little legitimate concern. In addition, the successful lobbying efforts of many major suppliers of building materials account for lots more of the current rules.

If you live in a spot in the U.S. where it is still (more or less) legal to build a house on your own land without some bureaucracy's esteemed permission, you'd better get on with it before it's too late.

Having some familiarity with the building codes and how they are applied in your area is central to avoiding a lot of hassles during your permit process.

Before you get serious about even designing your (legal) house, you'll want to become familiar with your state's uniform building code (UBC). You can sidestep this process if you



are already familiar with general building regulations, and if the structure you plan to build is fairly conventional in design. Even so, it wouldn't hurt to get a copy of the latest addenda. For most states, the UBC is from 1000 to 2000 pages of rules and regulations governing exactly how you must build your house—right down to how much room you must leave in front of the toilet.

The UBC will tell you how many windows you may have, whether or not good old aluminum-frame windows are still legal, whether or not skylights are legal in your area (believe it or not), how much insulation you must install and how and where you must install it, what your exterior doors must be made of, and all sorts of other details to stifle your creativity.

Of course, the folks at the building department will tell you that the rules are not intended to stifle creativity,

complicate construction, or raise costs; they are there to protect us. Too bad we don't have the option of signing a waiver that releases the bureaucracy from its perceived obligation to protect us, in exchange for our freedom to make some of our own decisions.

If you need to consult the state UBC, you might wish to do your research at the library. The volume is very expensive and is hardly a practical purchase if you just plan to build one house. First, find out when the latest revision was published, and make sure that your library has it. Significant changes sometimes happen from one revision to the next, and there's no point looking at an obsolete book. In some areas, many of the newest changes to the rules can be sidestepped by submitting plans that are signed off by an engineer or architect. Do your research.

Meet your building inspector

It wouldn't hurt at this point to go introduce yourself to your local building inspector. This is the person who will inspect your building as it progresses to make sure you're not cutting any corners and are doing everything according to local codes. Show him (or her) a rough sketch of the house you plan to build and ask if there is anything out of the ordinary that you should know about that might apply to a building like the one you're planning. If any unusual design features are in your plan, make sure that they are easily recognizable in your sketches. Ask about any relevant recent code changes that might affect you.

Some building inspectors are happy to help and encourage owner-builders. Others prefer to work with contractors who won't bother them with questions about anything, and they feel that owner-builders are a pain. Some areas of the country actually have separate owner-builder codes designed to be friendlier to those who don't have the resources, skills, and equipment available to most contractors. Be nice to your building inspector.

Your house plans

If you are planning a more-or-less conventional building—one that looks like others in the area—you're safe to go ahead and draw up your basic house plans. Structures that include unconventional details like fabricated girders, unusual cantilevers, and such will usually need to have the plans approved and signed off by a structural engineer or architect licensed in your state. This just means that after you draw up your plans, you will need to have an engineer or architect check them over, and if everything is in order and you've paid his fee, stamp them as approved. If you are particularly unsure about a certain detail you plan to incorporate into your structure,

talk to the engineer first. It will save you having to do it over and paying him twice.

The permits

In the course of building a house, there will be several permits required, and knowing the order in which they are needed can save a lot of time and hassle over the course of building your home. Almost all of the permits involve an inspection process as well, and the timing is again central to the efficient flow of progress. This is especially true if you are hiring any of the work done, but it applies to the owner-builder, too. I've heard more than a few gripes from owner-builders who were sitting on their thumbs waiting for the bureaucracy to do its thing while the first snowfall was coming closer and closer.

Generally, the permits for residential construction are the following. (Not all are applicable in all cases.)

- Land use permit
- Building permit
- Electrical hookup, temporary
- Electrical, permanent
- Plumbing permit
- Water hookup (public water system)
- Sewer connection
- Septic system permit
- Mechanical permit

Inspections

Each permit initiates at least one inspection process. It's a good idea to make appointments with inspectors a little ahead of when you'll need them on the job site. Most will be available only on certain days of the week, and a little planning on your part will insure that your job won't be held up any longer than necessary waiting for inspections.

Inspection schedule (Not all inspections are applicable in all cases.)

Site prep: After any foundation concrete forms are in place, but before the concrete is placed in them, an inspection of reinforcing steel, footing sizes, form sizes, and placements, and in some cases, proximity of forms to setbacks.

Foundation: After foundations are completed and all forms removed, but before any subfloor construction is started, an inspection of the quality of the concrete itself, placement of anchor bolts and other necessary hardware, electrical and plumbing accesses through the foundation (where applicable).

Subfloor framing: After subfloor framing is complete, but before any decking is installed, an inspection of the framing lumber dimensions, any necessary steel reinforcements, and adherence to approved blueprints.

Subfloor plumbing: An inspection of all subfloor plumbing, before any decking is installed.

Rough framing: When all framing, roofing, exterior wall-sheathing, vapor-barriers, and windows are in place, but before any interior walls or ceilings are covered, a general inspection to check for adherence to approved blueprints. Special attention is paid to all structural-member dimensions and general quality of workmanship.

Rough plumbing: After all rough plumbing is installed, but before any of it is covered, an inspection of adherence to code practices.

Mechanical: After any furnaces, fireplaces, ventilators, range hoods, and any related duct-work are installed, but before any are covered, an inspection of adherence to code requirements.

Rough electrical: After all rough wiring is in place, but before any of it is covered, a visual inspection of adherence to code practices. Emphasis on visual here, because if you're doing

your own wiring, now is the time to make certain that it's all done right.

Insulation: After all wall, ceiling, and floor insulation is in place, an inspection for correct "R" values, correct installation procedures, and installation of any vapor-barriers called for by the local code.

Finals: After all interior walls are properly covered and finished, and all (permanent) electrical appliances, outlets, and switches are installed and tested; and after all plumbing fixtures are installed and tested, the following final inspections will be necessary before the building inspector will sign off the permit:

- Electrical
- Plumbing
- Mechanical (where applicable)
- General inspection by the building inspector.

And as if that isn't enough to deal with, some building departments also demand a final survey, which means that you will have to hire a surveyor or engineer to come to the job site and measure the distances from any foundations to the nearest lot and/or setback lines, and prepare drawings acceptable to the department. This is to assure the building department that you didn't move your foundations between the time the building inspector made these measurements the first time and when the building was completed. At least that's the only reason I can think of for this expensive redundancy.

The building permit

When you apply for your building permit, you'll find out if your area is one that requires a land-use permit first. If so, the building department will advise you where and how to obtain it. Land-use permits are required in some rural areas and are mostly about keeping rural land rural.

In the blueprint package you'll submit for approval (after receiving your building permit), you will need a plot plan that shows exactly where the building will be on the property, and how close it is to the setbacks. Setbacks are the distances any buildings must be from the property lines. On a parcel of land that is several acres or more, the setbacks aren't as critical because you won't likely be building very near a property line anyway. On smaller parcels, the setbacks become more important.

Another consideration regarding where you may or may not put your house is an easement. If your deed specifies any easements, look them over carefully for restrictions.

Some building departments also require a professional (read: "expensive") survey to verify that your property is exactly as described in the legal description. Other information usually required on the building-permit application is the estimated cost of the building (on which the fee is usually based), the names of any contractors you plan on using, and the square footage of the building.

When you apply for your permit, you will be told how many sets of plans are required. Ask also what size the plans must be and to what scale they need be drawn. Some agencies are more particular than others about these things, and will reject your plans without even examining them if the rules aren't followed to the letter.

If there is a problem with the plans, the building official will discuss it with you; and when it's fixed, you'll get your approval. Depending on how things are done in your county's building department, resubmitting plans after corrections might be enough of a hassle that you will want to take every measure to get them right the first time. Some building departments will do a fix right on the spot, and others require another fee and more waiting until the right people can get around to checking your corrections.

If your building project will be using a septic system or a cesspool, the necessary permits should be obtained as soon as possible. The building department official will direct you to the right places to obtain these.

The house plans

Your plans should include a drawing showing all electrical facilities, including the locations of all outlets, light fixtures, refrigerator, disposal, dishwasher, water heater, etc. A copy of this drawing is what you will use to secure bids from electricians if you will not be doing your own wiring.

The plans will also show the locations of all plumbing fixtures, including tubs, showers, toilets, disposals, washers, and anything else that will have plumbing running to it. This is the drawing you will use to get bids from plumbers, if applicable.

Some areas do not allow us mere mortals to plumb or wire our own homes. If you will need to hire contractors for these jobs, it's a good idea to submit your drawings for bids before you get very far along with construction. That way, you might get the help when you need it. Any time you get a contractor to do something like wiring or plumbing, he will generally be the one to secure any relevant permits and inspections. This is another good reason to talk to him as early as possible, and when you do, get very clear on who is going to get the permits.

Independent energy considerations

If you are building beyond the power lines and are going to install your own electrical system, consider a safely assembled, temporary hookup of your equipment before you start construction. If a photovoltaic array is to be part of the plan and is not going to be mounted on the house, having it installed prior to construction is a good idea. Otherwise, at least assem-

ble your batteries, inverter, and back-up generator in such a way that you don't need to run the generator all the time. Run the generator only for power tools big enough to require its use, and have the batteries charging at the same time, so that your small power tools can be run off the batteries through the inverter.

However you set up your temporary power system, install it in an enclosure that will allow plenty of ventilation and protect the equipment from the elements (and from tampering, if applicable).

If you're going to hire an electrician, be sure to talk over your independent energy system before even asking for a bid. Some electricians welcome the challenge of something different and innovative; others want to stick with what they already know how to do. Find one who encourages the use of independent energy. Also, be sure to tell the building department right up

front that you intend to install your own power system. That's always good for a laugh.

The rest of the permits

There's not much more to getting the rest of your permits than just appearing at the right agency and paying your fee. Have your building permit and blueprints with you, and don't forget your checkbook. If the legal description of your property does not appear on the blueprints (it usually doesn't) take that with you, too.

A possible variable is if you are far enough from the existing utility facilities that a service-extension is required, and then it usually comes down to that checkbook again.

Another variable can come up if there are any environmental restrictions on septic systems. If you plan on building anywhere near a stream or

other body of water, look into this carefully right up front.

That about wraps up the permit process. Some building officials (and departments) are very agreeable when it comes to working with owner-builders. Others are not. If you happen to get involved with some officials who appear to be of the latter persuasion, give 'em a break. A big smile goes a long way toward the start of a good relationship with your building officials. And at the risk of being called sexist, I'll just say that I have heard of several times when the sweet smile of a lady got an approval for the same issue that her macho ol' man was turned down on. Happy building!

(This article was excerpted in part from the author's book, The Modern Homestead Manual, which contains a chapter on every aspect of building your own home. The book is available from *Backwoods Home Magazine*)
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Get low-cost, high-quality lumber by investing in an inexpensive planer

By Robert L. Williams

Most adults have heard the advice that you must spend money to make money, and the dictum is true. However, there is another side of that particular coin, which I had just invented. It says that to save money, you must spend money.

The reference I have in mind here is a recent investment that I made. We are constantly at work on some project or another for the house or outbuildings. We have a 40-acre farm, most of it in semi-destroyed woodland. So when I want lumber, I usually hook a chain to a fallen but living tree, cut the tree loose at the stump, top it, and then drag the log to the back yard where I butcher the tree trunk into usable chainsaw lumber.

The lumber straight from the chain saw is usually good enough for the uses I have in mind for it, but now and then I need some truly great lumber for special projects that won't tolerate jagged edges and rough surfaces. At that point I must resort to a planer to get the best possible lumber for my work.

I also feel that the planer is the sort of investment that will pay for itself within a matter of hours.

So I put it to the test. Like many *Backwoods Home Magazine* readers, I suspect, I am not overloaded with money, and even if I were I would not want to pay a lot of money for something that would yield only minimal returns.

So I shopped around for a planer large enough to do the job and small enough to be affordable. I settled on a Collins Quality 12-inch Planer. The cost was slightly more than \$200. Before I made the purchase, I did some calculating on how much lumber

it would take for me to earn back my investment.

Here's what I learned. (And, along the way, we made a brief study on how cheap our wages were, in terms of how much lumber we received in exchange for the amount of work involved.)



We started by halving the log and then sawing boards from the halves. Here is Robert III with the first board he cut from the log. Even though in the photo it looks smooth, up close you can see rough spots. And mine were much worse.

Figuring our costs

In preparing this article, we used a stop watch on each and every piece of lumber cut, and we measured out gas and bar oil with a graduated beaker so that we could know precisely how

much money and how much time we spent.

The first part of this unscientific study was conducted with the aid of a traditional chain saw, no attachments of any sort used at any time, and with a badly dull and worn chain. Then we sharpened the chain and cut again. Finally, we installed a factory-new chain and repeated the cuts, all the while timing each cut.

Here are our results, as compared with the costs of lumber at the lowest-priced builders' supply house in our area, a national chain noted for its lower-than-average prices for lumber.

We started with a huge poplar log that was 12 feet long. We cut nine boards, each of which was eight feet long. Time for the cuts with the dull chain was seven minutes per board. After the chain was sharpened, our average time was four minutes per board.

So there is the first and best argument for keeping the chain sharp. We used only a round file and stroked each tooth five light times. The second argument was that the subsequent boards were all much smoother than were the boards cut with a dull chain. The third argument was that we used significantly less gas and oil.

Then we installed a factory-fresh chain and cut the cutting time to two minutes per board. While this time cannot compare with the speed of a traditional sawmill, it's a darned good time with a chain saw.

We then devoted two minutes each to planing the boards with our portable planer. When we had completed our work, we had nine boards that were smooth on all four sides, and the surfaces were as well-dressed as any that you can buy at the lumber supply house.



We lay the halves smooth side up and then trim off the edges. Smooth edges make the planing much easier.

Now, how long did we work, how much did the work cost us, and how much could we have earned if we had been, for example, bagging groceries at the local supermarket at \$6.50 per hour?

Our actual sawing time was 39 minutes. If we had used a sharp chain for all the sawing, the time could have been reduced to 36 minutes, and if we had used the new chain the entire time our time would have been 18 minutes.

If we take the mid-range speeds, we'd have used about half an hour for the nine boards. We used 18 to 20 minutes total on the planer, so the entire duration was about 45 minutes or less. If we had been bagging groceries, we'd have earned \$4.86. If we add the total cost of gas, oil, and electricity to operate the planer, our total investment was \$1.12 for gas/oil mixture, 32 cents for bar oil, and, based on the kilowatt hours used by the planer compared to the entire month's bill per kw hour, we used twenty cents worth of electricity. Our total investment, then, was \$2.06, and this amount includes the gas needed to operate the tractor as we pulled the

logs from the woods and the gas needed to drive to the store to buy chain saw gas and oil.

If we add the \$2.06 to the amount two people would have earned while bagging groceries, our investment in terms of earned income plus operating costs would have been \$11.78. Keep in mind, however, that all of the gas was not used just for cutting boards. We also cut up the scraps for firewood.

Now, we have spent \$11.78, tops, to get nine boards 12 feet long and six inches wide. All boards were 1.5 inches thick. At the discount lumber house, if we had bought one poplar board that was six feet long, one inch thick, and six inches wide, we'd have spent \$11.32. That's for six-foot lengths. Ours were 12 feet long, which would have made each board worth \$22.64. Since we cut nine boards, our total value of all boards would have been \$203.76.

We did not bother with depreciation of the chain saw and wear and tear on the truck or tractor when we went to buy gas and oil and when we pulled the logs from the woods. We figured that if anyone is that concerned over economics he'd be better off not to



Here are all the boards we managed to cut from the one large log.



We started by feeding the longer boards through the planer. A planer like ours will remove about one-eighth inch of surface wood. The finished product is not only smooth and straight but very valuable.

buy any boards at all and just live in a tent.

Our savings

Our total savings were \$192.44. If we had used a new chain (we did not deduct the cost of the chain because it will last us for days and days, even months) our time would have been cut sharply but the savings in dollars would have been nearly the same. We'd have saved a few cents on gas and oil, but nothing significant.

From another log we also cut one poplar board one foot wide and 16 feet long. This one-inch board, based on retail prices, would have cost us \$59.36, plus tax (which we did not include in the cost of buying any of the other lumber).

Then we cut 12-foot pine boards six inches wide and one inch thick. (Actually, the thickness of the board doesn't matter; you must cut the same thickness of wood, no matter whether the board is one-quarter inch thick or 12 inches thick.) Our pine boards cost

us \$1.23 for gas and \$.40 for oil. We did not include cost of driving to the store again or pulling the logs from the woods. We have paid that amount already and counted it. Our total cost for the nine boards was \$1.63.

Total value of the boards was based on the same dealer's retail price per board foot, which was \$1.54. Therefore each board was worth, to us in terms of savings, \$18.48, and the total value of all nine boards was \$166.32.

Then we cut oak boards six inches wide, eight feet long, and 1.5 inches thick. It took longer to cut the oak (about one minute longer per board) and it cost slightly more. Our total cost for gas and oil was \$2.58.

An oak board six inches wide (and these were essentially knot-free, as were most of our boards) would have cost me \$2.93 per board foot. An eight-foot board, then, would have cost \$23.45, so our nine boards were worth \$211.08.

We also cut 10 12-foot oak boards, worth about \$35.16 each for a total savings of \$351.60 for the ten boards.

At this point our total value in lumber cut was \$992.20. Our cost was less than \$10.

If I had been working during the time I sawed boards, I could have earned about \$50 if I had been a bag boy and \$19,896.79 if I had been a lawyer.

Is the time and energy spent in cutting boards offset by the savings? Yes,



When we finished planing the wide surfaces, we stood the boards on edge and planed the edges.



The finished product, ready for use.

in eleven languages. Not only do you save money, you also get a better quality of lumber. We did not leave bark on the edges of boards, and there were no pitch or bark pockets. The knots were few and far between. In much of the lumber there were no defects at all.

Was the planer worth it?

We figured that we paid for our planer during the first day of use and had enough money left over to buy some other equipment for later work. Our big question was whether the planer would actually do the job we wanted it to do.

Again, the answer was a resounded "Yes!"

We found that even rough surfaces are planed smooth and even with only a few passes through the planer. Our work went much smoother if we took off one-eighth of an inch per pass. And the work goes much faster if the chain-sawed lumber was not pitted and gouged. Keep in mind, if you decide to follow suit, that if you let the saw get off course and make a half-

inch dip in one surface, you must run the board through the planer several times in order to smooth out the rough place.

We also found out that warped lumber is very rough to plane, because the blades will not cut the board down to a uniform size. The blades keep ripping off the high side and never touching the low side, so we realized quickly that we needed to cut our boards as accurately as possible the first time around.

Finally, when the planing was done, we dipped the ends of each board into melted wax and then stored the lumber to dry. The wax keeps the boards from cracking. When we were finished, we had enough prime lumber to complete the first projects we had in mind. And the money we saved was enough to make us feel that our planer investment was one of the best we had ever made.

Because of the improvement in our lumber, we became far more ambitious concerning future work. Recently I came up with 30 projects to do around the house, these ranging from cutting and installing flooring for one room to making picture frames and swing sets. I anticipate that it will cost me \$48.35 to complete all thirty of the projects. Total value of the projects will be well above \$5,000.

Again, is it worth it to saw your own lumber and to invest in a modestly priced planer? In a word, si, oui, jawohl, sim, and dern tootin'! Δ

Hell hath no fury like a bureaucrat scorned.

—Milton Friedman
1912-

Imagination

*Tree, boat, doll, dragon,
train, clown, giraffe, birthday cake
Children watching clouds.*

Ryan Thornsberry
Cape Girardeau, MO

I found that special somebody, and you can too — with safety

By Jayn Steidl Thibodeau

It might seem from reading the letters written to *Backwoods Home Magazine* that living the good life in the backwoods is not the best way to either keep a mate, or find a mate. Complaints of spouses who have been unwilling to make the transition to less-than-comfortable facilities are common, as are complaints of the inability of individuals to find a partner willing to settle into a back-to-basics lifestyle.

Some of you folks who have been reading *Backwoods Home* for any length of time have seen the articles I have written on the homesteading projects my husband and I have experienced. Mike and I have dealt with a variety of enterprises on our acreage such as sheep, goats, cattle, rats, horses, and rabbits, just to name a few.

What I haven't written about is how we came to be together—a man from northern Vermont and a city girl from Chicago—now settled in the rustic backwoods of southwestern Arkansas.

Mike moved to his homestead in 1976. He was married at the time to a lovely lady who had difficulty adjusting to the idea of hillbilly heaven. When she left for the greener pastures of L.A. (and I am not referring to Lower Arkansas), he was alone for quite a while, raising rabbits, working odd jobs, and enjoying the comfortable companionship of his faithful dog.

I was working with race horses in 1976, traveling the circuit from Chicago to Florida when my husband decided to detour to Arkansas. After a fierce battle, I acquiesced and joined him in what was, to me, an uncivilized land. But when the husband left, I stayed, and ever since have been an "Arkie" by choice rather than chance.



Of course, Mike and I still weren't together. He lived in a town that was little more than a hole-in-the-wall two hours south of my chosen location of Hot Springs. So what destiny brought us to meet?

A newspaper ad in a publication that neither of us normally read. You know, one of those supermarket tabloids that you hide under your coat in the check-out line so that no one will see you with it.

One of Mike's neighbors had encouraged him to place the ad, and one of my neighbors, listening to me moan about the dearth of decent men in my life, had pointed out Mike's ad and told me to answer it.

"Take a chance," she had told me.

I did. We wrote for two months before we met, and we were married three months after our first meeting. That was in March of 1984. Thirteen years later, we are still waiting for our first argument. (By the way, his neighbor was the best man and mine was the matron of honor.)

Homesteaders today have an easier time meeting people. The internet has spawned quite a few relationships during its short lifespan. Groups which focus on sustainable agriculture and homesteading sponsor workshops and seminars where numbers of people get together to learn and discuss ideas on

those topics closest to their hearts. And this magazine, which didn't even exist back then, has a "personals" section where advertisers can reach readers with like interests. All of these are great places for a single to meet the perfect person with whom to share a homesteading life. No matter which method you choose, there are a few things you should keep in mind, for safety's sake.

- If you are writing letters, **use a post office box** instead of a street address. Unfortunately, there are a lot of crazies out there in the real world. You don't want to invite trouble by letting some idiot know where you live.

- **Talk on the telephone** if you can, but remember that a street address can be tracked down through a telephone number. It is best to be certain of the people to whom you give your number.

- **Screen your new friends.** If you are writing letters, ask the same question in consecutive letters, and compare the answers. Mike received 40 replies to his ad, and had thrown most of the letters away by the third reply because of inconsistencies that seemed suspicious. If you are talking on the telephone, listen to background noises, and compare your telephone conversations to the letters you receive. It is hard to keep important subjects (like a husband or wife) consistent unless you are telling the truth.

- **When you meet, do so in a public place.** (We met for the first time in a restaurant and sat over cold coffee for four hours.) A friend disregarded this advice, falling head over heels for a fellow she had met through a popular equine magazine. When they decided to meet, she invited him to Arkansas ...and he proceeded to move in, jobless and broke, for three months. It took nearly an act of Congress to evict him from her home.

- **Arrange your own transportation to and from the place where you meet,** and make sure someone knows where you are and when to

expect you to return. An even better idea is to arrange to meet the person at a friend's house or a family gathering. Sometimes another person will be able to spot trouble signs that you alone might miss. And while someone can cover a character flaw in one public meeting, meeting with a group several times should give you a pretty good idea of the type of person with whom you are dealing.

• **Don't rush things.** If you want to get married, that's fine. But wouldn't you rather marry Mr. or Ms. Right-for-You instead of just anybody—even if it does take a little longer?

• **Be honest.** That seems like it shouldn't even have to be said, but it seems like honesty is something that many relationships are sorely lacking. If you are 50 pounds overweight, don't hide it in your letters. If you hate dogs and you lie about it, you could

wind up with someone who dreams of raising Rottweilers. And if you can't stand kids, you'd be miserable with someone who wants a large family. So tell the truth and suffer the consequences. It's better to bring all your cards out into the open and lay them on the table instead of trying to bluff your way through a relationship.

• **Be prepared to compromise.** When Mike and I got married, I loved animals and had worked with horses for half of my life, but I didn't know the front end of a cow from the back end. And I was real concerned about the idea of raising animals for meat. Mike was concerned about my passion for the arts since we would live in the boondocks and there just wasn't much of cultural interest in the area at that time. He also knew that I wanted to return to college, an impossibility at that time in that location. We con-

fronted these problems and others that arose head-on, talked them out, and we both learned something in the process. Today, there is not much I can't do with a cow, the arts community in our area has grown to a comfortable level, and I am back in college.

Life in general is a growing and learning experience. Finding the right person to grow and learn with is the frosting on the cake. Mike and I were lucky to have found each other and to have been able to adapt and enjoy each other's very different lifestyles.

But then, homesteading is about adapting to a different lifestyle. It's about dedication, learning and listening, compromise, and hard work. And I guess that gives just about any homesteader an advantage in building a lasting relationship. Δ

The marvel of baking soda

By Richard Bauman

Is there anything baking soda can't do? A box full of baking soda is like a box full of magic.

In a single box of baking soda you get a deodorizer, cleaning agent, first aid product, toothpaste and mouthwash, fire extinguisher, and an antacid. And you can cook with it too.

Not only is baking soda versatile, it is safe and virtually harmless.

Because baking soda is a natural buffer, it can neutralize both acids and alkalines. This uncommon property makes it useful as a cleaner and hygiene product.

As a tooth powder baking soda neutralizes mouth acids that promote tooth decay. Its mildly abrasive action can make teeth sparkle. Dissolve a little baking soda in a half-glass of water and you have an instant mouthwash.

Many doctors recommend using a paste made from baking soda and

water to soothe the pain, inflammation and itching of insect bites and stings.

A severe sunburn can be cooled by bathing in a tub of warm water with a few tablespoons full of baking soda added to it.

A half-glass of water and a teaspoon of baking soda can do wonders for acid indigestion or an upset stomach.

Baking soda's cleaning ability is hard to beat. It does some jobs other products can't touch. For instance, nothing cleans automobile battery terminals like a mixture of baking soda and water. A damp cloth and some baking soda easily removes bird droppings, spattered bugs, and other stubborn residue from your car's finish.

Where else can you use baking soda? How about on plastic surfaces, colored tile, stainless steel, and chrome finished items in your home. They will sparkle after treatment with baking soda and a damp cloth.

Baked-on food residue in pots and pans practically floats away when you

soak them for a couple of hours in a solution of warm water and baking soda.

Nearly every one knows that an open box of baking soda in the refrigerator soaks up odors like a sponge.

Light, fluffy pastries and cookies get that way because recipes call for baking soda. It doesn't affect flavor but gives off carbon dioxide gas when heated, causing bubbles in the dough and making it "airy."

Keeping a box of baking soda near the stove is a sound idea. In case of a grease fire, tossing a couple of handfuls of the white powder on to the flames will usually put them out in a hurry.

Have you ever spilled something in your oven and had it smoke and smell? Sprinkle some baking soda on the smoldering stuff to stop it from smoking—and it makes clean-up easier, too.

There are literally hundreds of different uses for baking soda. You'll look long and hard for another product that can do so much, cost so little, and is so safe to have around the home. Δ

Lay vinyl flooring the foolproof way

By Oliver Del Signore

“Hey, honey, what do you have planned this weekend?” It was my wife, Martha.

“Why do you ask?” I queried non-committally.

“You said you were going to finish the mud room after Christmas. It’s the middle of January. Don’t you think you should get started?”

I really wasn’t in the mood.

“Hon, I’d love to get started, but how can I possibly carry in the paneling and stuff with all the snow on the

12 foolproof steps:

1. Measure the room
2. Buy the materials
3. Prepare the room
4. Clean the floor
5. Make the template
6. Level the floor
7. Cut the floor covering
8. Sand the leveler
9. Fit and trim the flooring
10. Glue the flooring
11. Roll the flooring
12. Clean up

ground. Besides, there is no place to set up horses to cut on. Surely you don’t want me to do it in the parlor or the kitchen.”

I had her now.

But suddenly, she appeared in the doorway. “No. But you can put down the vinyl flooring can’t you? And I have a great idea. How about teaching me to do it? It’s about time I started learning to do some of these things. We can work together. It’ll be fun!”

I groaned. My enthusiasm knew no bounds.

There are 12 steps to successfully laying sheet flooring—which is another term for continuous roll vinyl flooring, as opposed to tiles.

1. Measure the room

The first step is to measure the room. You want to measure the length, at the longest point, and the width, at the widest point. In a kitchen, for example, where the layout will be very irregular due to cabinets and appliances, you need to mentally expand the room until it becomes a rectangle whose sides meet all the widest points. [Figure 1]

Our tape measure told us that the mud room was 11’ 4” by 4’ 5 1/2”.

2. Buy good vinyl

Sheet flooring can be purchased from rolls that are either 6’ or 12’ wide. The greater selection of patterns is found in the 12’ wide size, especially if you’re willing to purchase stock patterns rather than wait for special orders. With measurements in hand, we headed out to our local building supply store.

There are a number of manufacturers of vinyl flooring and each produces several different grades of flooring. While price is often a consideration, you get what you pay for.

Most vinyl sheet flooring consists of three layers. The bottom layer of felt is what gets glued to the floor surface. The middle layer, made of vinyl, is the one imprinted with the pattern or design. The clear top layer, called the wear layer, is made from urethane or vinyl and is the most important since it is the one that takes all the abuse.

The major difference between grades of vinyl flooring lay in the overall thickness as well as the thickness of the wear layer. The higher the traffic, the thicker you want the wear layer to be. On

Materials/tool list

Building felt, pattern paper, or installation kit
2” wide masking tape
Tape measure
Heavy scissors
Utility knife
Flat trowel
Floor leveling compound
Mixing bucket
Stick for mixing
Notched trowel
Adhesive
Vacuum cleaner
Crayon
Pencil/pen
100 grit sandpaper
Hand roller/rolling pin
May also need:
Hammer
Ring shank nails
Dividers
Carpenter’s saw
Chisel
Staple gun
3/8” or 1/2” staples

many self-stick floor tiles, the wear layer is about the thickness of plastic kitchen wrap, while on sheet vinyl it can be as much as 20 times thicker.

Four grades were offered by our supplier. Each grade offered its own distinctive patterns. Typically, the pat-

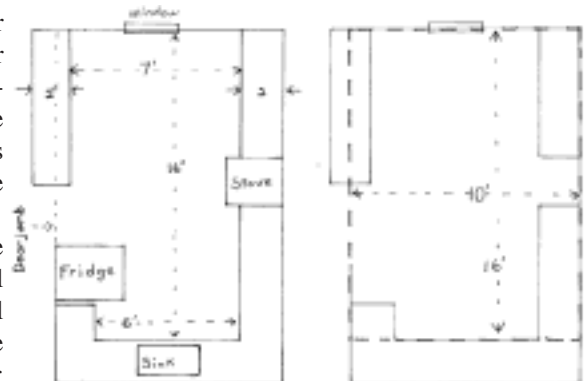


Fig. 1. The layout of a typical room and the actual size of sheet flooring required to lay vinyl in it.



Fig. 2. Remove baseboard quarter-round moulding or vinyl wall base with a tool such as a putty knife.

terns of one grade cannot be purchased in other grades. For reasons of cost verses quality, we chose a pattern from the second best grade. Had we been laying flooring in the kitchen or a bathroom, we would have chosen the best grade, even if we would have had to order the flooring to get a pattern we liked. I avoid the lower grades at all costs, having had the experience of seeing how quickly they can deteriorate. I would rather pay double the amount per square yard and lay something that will last for 10 or more years than to have to replace a cheap product when it starts to wear out in two or three years.

You are going to want the sheet of flooring that you purchase to be several inches wider and longer than the room dimensions, to allow for trimming it to a precise fit. Many suppliers do this anyway, but make sure yours does, even if you have to pay extra. In addition, when they roll the piece up after cutting, make sure they roll it with the pattern out to prevent any creasing or tearing of the backing or marring of the finished surface.

Along with the flooring, we needed several other items: floor leveling compound, adhesive, a notched trowel and some masking tape. The other items—a flat trowel or very wide putty knife, a pair of heavy duty scissors or metal shears, a small bucket in which to mix the leveling compound, and a utility knife—we already had at home.

3. Prepare the room

All furniture and moveable appliances and fixtures should be removed from the room to be covered with the new flooring. In the kitchen, the refrigerator and stove can usually be moved with little trouble. In a bathroom, removing the toilet will allow the new flooring to go under it, resulting in a neat, more attractive job and a much easier installation. Steam radiators that stand on the floor should be removed as well to prevent having to make cutouts for each foot.

The job will also be easier and look neat if you can tuck the edges of the flooring under baseboard and door mouldings. You should remove any baseboard quarter-round moulding or any vinyl wall base with a putty knife, thin screwdriver, or similar tool. [Figure 2] Make sure you pull out any nails that remain in the baseboard itself so they will not get in the way when you lay down the flooring.

To prevent having to make complicated, precise cuts on the part of the flooring that will go around door mouldings, you can cut out the bottom of the door mouldings with a carpenter's hand saw held flat, right at floor level. [Figure 3] This will allow the flooring to slip under the moulding. Make sure to remove all the sawdust and wood chips that remain under the moulding with a thin screwdriver or chisel and by vacuuming.



Fig. 3. Cut out the bottom of the door mouldings with a carpenter's hand saw held flat, right at floor level.

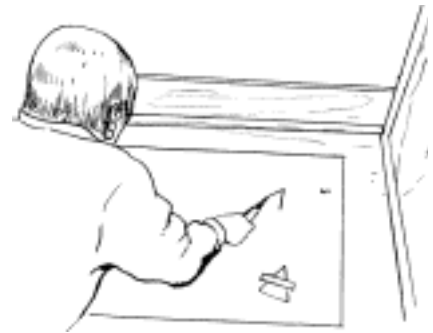


Fig. 4. Fastening parallel strips of felt with triangular pieces.

If you will be applying new flooring over old sheet flooring or tiles, you will have to remove every trace of wax or floor finish to allow the new adhesive to bond properly. Any loose or missing tiles should be replaced with tiles of the same height. Now is also a good time to check for loose or squeaky floor boards, which can be tightened by nailing them down into the floor joists or subflooring with ring-shank floor nails.

Fortunately, we did not have to worry about any of that since we were applying our sheet vinyl over a new plywood floor and we had not yet installed any mouldings.

4. Clean the floor

During the course of the installation, we cleaned the floor several times. Removing all dust and dirt from the floor is important to allow the leveling compound and the adhesive to bond well. This also prevents tiny bumps which can cause the flooring to wear prematurely.

5. Make a template

The salesman had offered to sell us an installation kit. Such kits make laying out and cutting the flooring virtually foolproof. With them, you make an exact template of the area to be covered, which you will use as a guide to cut the flooring.

The kits often come with a guarantee that offers to replace ruined flooring if you follow the directions and still mess it up. Of course, if you fol-



Fig. 5. Tucking the pieces of felt under the threshold.

low the directions you *can't* mess it up, so I don't imagine they have much to worry about. If you are doing a large floor, they are a good investment at \$15.

However, since this was a relatively small, rectangular installation, I decided to use a roll of building felt I had down the cellar to make the template. You could use other materials, such as a large roll of heavy paper or even sheets of paper that you tape together.

After vacuuming the area well, we made our template out of several pieces of felt that we fitted to follow the lines of the room. Here's how we did it.

First we cut a strip of felt several inches shorter than the length of the room. We set it in place along one long wall, making sure to keep it about $\frac{1}{32}$ " away to make it easier to remove the template when completed. A second long strip was cut and applied parallel to the first on the opposite long wall. The two were taped together to prevent movement.

In a larger room, where the two strips did not overlap, we would have

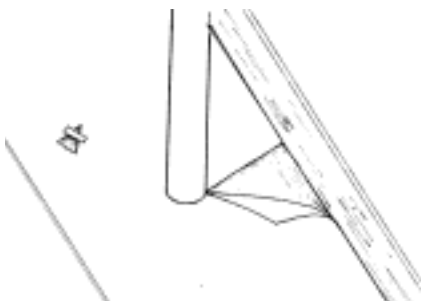


Fig. 6. Cut the felt to slip it around pipes or radiator legs.

fastened them to the floor by cutting several small triangles in the felt and taping across them. [Figure 4] We would then lay parallel, overlapping strips to fill in the space between the two starter strips, taping them to each other as we went along.

On one side, we noticed the wall angled out a bit. Cutting several small strips, we placed them so they followed the wall in that area, taping them in place as we went along. We did the same at both ends, making sure that the strips of paper matched the angles at the corners. At the door end, we remembered to tuck the pieces under the threshold [Figure 5] and we would have done the same had there been any door mouldings to go under.

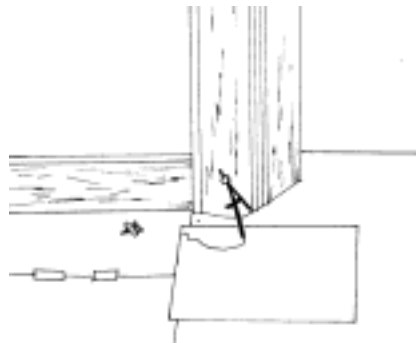


Fig. 7. Trace outline of moulding onto felt. Cut to fit.

Some installations require you to fit the flooring around the door threshold or moulding, or around pipes or along other irregular objects such as stone or brick walls.

The threshold is easiest. We would have cut the pieces of felt to follow the outline. For pipes, or radiator legs, [Figure 6] we would have cut the felt to slip around it, then cut out an opening the exact size of the object.

For a door moulding, stone wall or other irregular object, we would have used dividers to trace the exact pattern on a piece of felt. [Figure 7] After cutting it out with scissors, we would have fit it in place and taped it down. If you do not have dividers handy, you can use a popsicle or similar small stick and a pencil or pen. Sharpen one

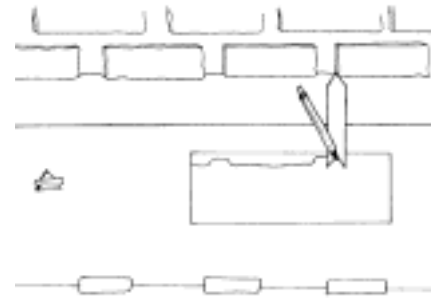


Fig. 8. Tracing the outline of an irregular moulding or wall.

end of the stick and cut a V notch in the other end. Place the tip of the pencil or pen upright in the V groove. Keeping the stick perpendicular to the moulding or wall at all times, trace the outline of the object onto the paper [Figure 8] then cut and tape in place as above.

With all the pieces cut and in place, we double checked to make sure all were securely taped, then we carefully lifted the template, starting at the corners and folding in, until we could lift it and carry it out of the area.

6. Level the floor

It is essential that the floor you are covering be smooth, with no bumps or depressions. Modern sheet flooring is notorious for following the contours of such imperfections. A slightly elevated nail head becomes a bump that wears through quickly, while small gouges, or the joints between pieces of plywood, become visible depressions or lines.

Prior to applying the compound, we ran the edge of the flat trowel over the whole surface, to check for high spots



Fig. 9. Apply the leveling compound with a trowel.



Fig. 10. Tape the template to the flooring.

or raised wood grain, which can be sanded down and for high nail heads, which were pounded down. After that, we vacuumed again, then carefully followed the mixing and application instructions on the box of leveling compound.

My wife applied the compound with a flat trowel, although she could have used a wide putty knife instead. She started in the far corner and troweled the compound over every nail head, crack in the wood, seam between sheets and every other depression, smoothing it as she went along. [Figure 9]

At one of the joints, we noticed that one piece of plywood seemed higher than the other and that the gap there was almost $\frac{1}{8}$ inch wide. We did that joint first, knowing that we could not get it perfect with the first pass, and that we would have to come back to it for a second coat after we had finished the rest the floor.

The box said it would take about 30 minutes for the compound to set and dry, but I knew the chilly temperature

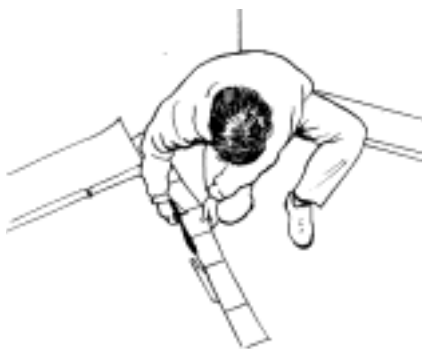


Fig. 11. Cutting the flooring.

in the room would cause it to dry much slower. That was okay though, since it was lunchtime.

7. Cut the floor covering

There are several ways to cut vinyl flooring, but the one I like best is to use metal shears or a pair of heavy scissors. Knives of any kind can slip too easily creating a problem. Shears give you much more control. However, they must be sharp otherwise you can wind up with ragged edges.

We chose a spot in the parlor where we could lay out the roll of flooring we'd bought, then got our felt template and positioned it on top.

We were careful to align the long, straight side to follow a straight line near the edge of the pattern, leaving a strip to trim off. In most installations, there will be one long wall or group of cabinets where the floor is more visible than other places. Keeping the pattern square to that line will make the whole job look better.

Once satisfied with the position of the template, we taped it to the flooring. [Figure 10] Then, we were ready to cut.

My wife did the cutting, and being right-handed, she started on the left side and worked counter-clockwise around the piece, being careful to cut right at the edge of the template. [Figure 11] In a few minutes she was done. We removed the template and, to avoid confusion later, we marked with a piece of tape the end of the flooring that would go by the door.

For pipes and radiator legs, first cut out the area, then make a straight cut to the closest edge so that the flooring can slip around the object. [Figure 12]

More often than not, the piece of floor covering will be too large to lay out flat in the house without first clearing an entire room of furniture. When that is the case, you can lay the sheet of flooring out on a freshly swept driveway or patio. If none of those are options, you can ask the



Fig. 12. Cutting the flooring to fit around pipes and radiator legs.

building supply store, at the time you buy the floor covering, if they have a space you can use, or even inquire at a local church or function hall.

8. Sand the leveler

Unless you are very lucky, or extremely talented, there will be some slight ridges or drips of leveling compound that you missed with the trowel. Even when I don't see any, I like to take the time to run the edge of the flat trowel over the floor, because I can find the imperfections better by feel than by eye. Often, the ridges or drips will be scraped down by the trowel edge. Sometimes, however, they will need to be sanded down. I generally



Fig.13 Use a crayon to mark the edges that need trimming.

use 80 or 100 grit paper and I always wear a dust mask.

My wife checked the whole floor and sanded down the imperfections, then told me I could do the vacuuming. When I finished vacuuming, I got a clean, white rag, dampened it with paint thinner and went over all the areas that had been sanded, to pick up any dust the vacuum might have missed.

9. Fit and trim flooring

With the surface now clean, we got the piece of flooring and set it in place. With luck, it would fit perfectly. Of course, no piece I've ever installed has fit perfectly on the first try and this one was no exception.

We checked around the whole perimeter, and marked the areas that needed trimming with a crayon. [Figure 13] Then she used the shears to carefully snip off the offending pieces, making sure to remove the trimmings so they would not end up under the flooring to cause bumps. In a few spots, where the amount to be removed was very thin, I used the utility knife to carefully shave it.

10. Apply the adhesive

The moment of truth had arrived. It was time to glue it down. I stood at one end while she carefully lifted the other. She started at the corners, folding and lifting in toward the center until she could fold the sheet back, exposing half of the floor. [Figure 14] She was careful not to crease the backing and was especially careful to make sure the fold remained well rounded.

Most flooring adhesive is applied over wood subfloors with a trowel that is notched 1/16" deep by 1/16" wide by 3/32" apart. Nonporous subfloors, such as concrete, usually require a trowel with notches 1/32" deep by 1/16" wide by 5/64" apart. There are exceptions, though, so you should inquire about the proper adhesive and



Fig. 14. The correct method to lift the flooring, to apply the adhesive, while being careful to avoid damaging it.

trowel for application when you purchase the flooring.

She took a glob of the adhesive out of the can with a stick and plopped it on the floor. Working from the end toward the middle, she did the edges first, setting the trowel at the joint of the floor and wall and troweling it in toward the center for 6 or 8 inches. Keeping the trowel nearly upright along the notched edge, to ensure the proper amount of adhesive being applied, she filled in the center with long wavy strokes until the whole area was covered.

Some manufacturers recommend that the edges of their product be fastened with staples instead of adhesive where ever possible. Your supplier will be able to tell you the proper installation procedure for the product you purchase—either all adhesive, adhesive in the middle with staples around the edges or staples only.

Now came the tricky part—getting the flooring back down smoothly. The best way is to simply reverse the process of lifting it up. Holding the corners up and in, she slowly let it roll back into place, shuffling her feet along the center to bond it and eliminate any air bubbles. Since the edge had to go under the threshold, she stopped about two feet away, knelt down, folded the leading edge slightly and placed it under the lip, then carefully worked it under by gently pushing and rubbing from the already bonded area towards the door. Next, she rubbed outward from the center

line towards the side edges, to smooth those.

Finally, she lifted the other half and repeated the above procedure.

11. Roll it out

The next step is an important one. The flooring must be rolled to eliminate any air bubbles that might have been trapped as the floor covering was being laid and to ensure that the whole floor is pressed firmly onto the adhesive.

This can be done in two ways. Ideally, you have a 100-pound floor roller or a hand roller tucked in a closet somewhere. Since that is rarely the case, a kitchen rolling pin will do nicely.

Always starting at the center line, she rolled out towards the edges, going over each section two or three times. She then rolled the entire floor twice, going over each spot in two different directions.

12. Clean up

Most adhesives can be cleaned, while still wet, with a damp, soapy white cloth. Once dried, use a white cloth dampened with charcoal lighter fluid, taking care to provide proper ventilation and to extinguish *all* flames and smoking materials before using. Check the directions on the adhesive can for specific instructions.

“Ahhhh...”

I settled into the chair at my desk, flipped the switch to turn on my computer and waited patiently as it booted up, anticipating an enjoyable evening of online conversation and games.

“That was fun, honey,” she said, poking her head in the door. “You really are a good teacher you know and I feel so excited at having done a project like that by myself.”

She did look happy, I had to admit.

“Hey!” she said, suddenly looking even happier. “What do you have planned for next weekend?”

Uh-oh. Δ

Make your own ulu — it's the ultimate backwoods knife

By Rev. J. D. Hooker

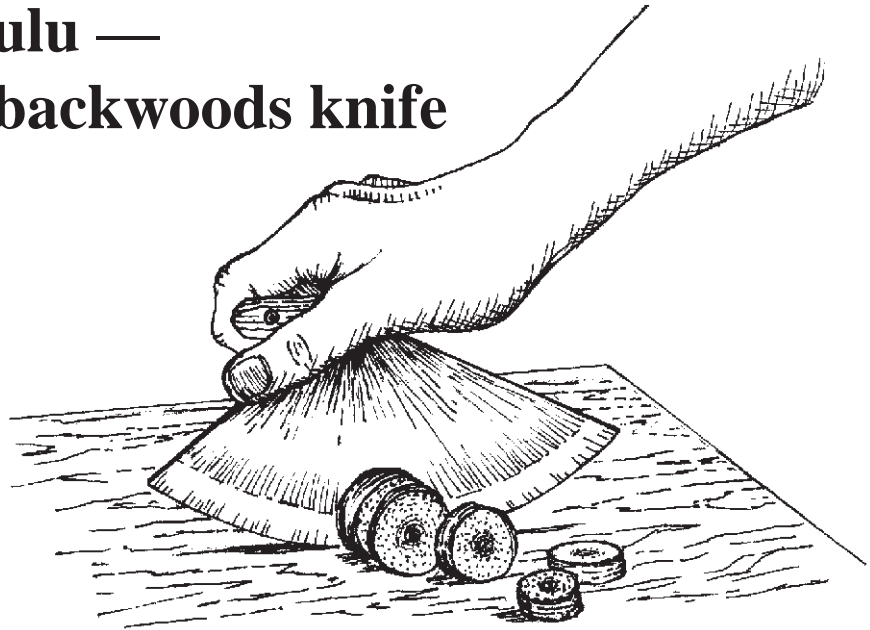
I don't know how many readers may have had the opportunity to see one of these rounded Eskimo cutting tools in use. It doesn't matter whether you need to skin a caribou or just cut up some vegetables—once you've used one of these ingenious Inuit knives, you'll never be satisfied with regular cutlery again.

The way I understand it, all of the original "artifact" type ulus were fashioned from slate, bone, or shell. None of these materials is especially difficult to work with, so of course I've attempted making and using ulus from all three. While the resulting tools were better than no knife at all, I was not at all pleased with their performance. These soft materials require such frequent resharpening that every task took much longer than necessary.

I also have an ulu that a friend masterfully knapped from black obsidian. This tool holds a sharper edge than any surgeon's scalpel, through hours of heavy cutting. However, this volcanic glass is just as brittle as the man-made variety, and the ulu itself looks almost like a work of art to me, so I very rarely use it at all.

However, once the Inuit were able to obtain quality steel from the white folks, they really had something terrific. Now that I've tried using this sort of knife, the ulu has become the tool I normally use for any cutting task. Whether I'm skinning the fall's buck, butchering a hog, filleting a freshly caught large-mouth, or just cutting a piece of string, I usually reach for one of the ulus I've made from steel. I just haven't found any other style of knife as well suited to cutting as this one.

In my experience, the best steels to use in fashioning one of these superb



knives are (from best to good): a piece from one of those old one-man cross-cut log saws (the steel is thicker than the metal from the two-man type, but don't cut up a good saw, find a junk one); a ruined circular saw blade; a section from a two-man log saw; or a piece from a regular hand saw.

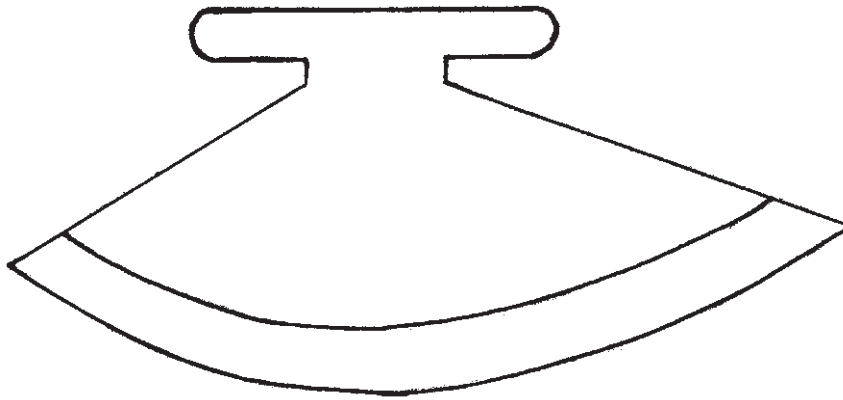
Different methods

Most of the ulus, as well as most of the other knives and tools that I've fashioned over the years, I've cut out with a regular cutting torch (sometimes I've even used an electric "Plasma Cutter"). Then I use an electric bench grinder for smoothing things up, beveling the edge, etc. Should you have any similar equipment available, it will make your work go much more quickly.

However, you can definitely produce just as good a finished product with much simpler equipment (the Eskimo do, after all). I was thinking about writing this article before I started to make two ulu knives that I'll be giving as presents—so I tried a couple of different manufacturing methods, to be certain that any reader wishing to produce a similar tool for himself could do so with very minimal equipment.

For the first of these knives, I traced the outline onto what's left of a cross-cut saw that I've been using for similar projects. Then I used a metal cutting blade in my saber saw to cut out the shape. This was considerably slower than using the cutting torch, but it partially made up for this by leaving such a nice smoothly-cut edge. I then used my belt sander to round over the edges and bevel the blade. That worked as well, and almost as quickly, as using the bench grinder. After polishing the blade, and adding a handle of cherry wood, I was entirely satisfied with the results.

I cut the second ulu from a junk table saw blade, using a hammer and a cold chisel. This method was actually somewhat faster than using the saber saw, but the edges were a little rougher and required more smoothing up. After using a mill file to smooth over the rough edges and bevel the blade, I decided to pock-mark the surfaces using a ball peen hammer, rather than polishing it up. I liked the resultant rougher sort of hand-forged look pretty well, too. A couple of small scraps of black walnut for a handle made this into another nice looking gift.



Cutting pattern

Cutting styles

With its curved blade and off-center hand grip, the ulu is used with a sort of a sweeping, drawing motion in skinning. If you've ever used a regular strongly-curved skinning knife, you'll quickly get the hang of this, and see the ulu's superiority right away. To slice up meat, cut leather, rope, etc., I use a rolling/slicing type of action. When chopping up vegetables, mincing meat, and other similar work, the blade is simply rocked back and forth on the cutting board. The cooks in your house will really love this once they've tried it. With the blade kept seriously sharpened, as all cutting tools should be, these tasks seem to proceed almost effortlessly when using this unique style of knife.

Also, since the blade is beveled on only one side, like a wood-chisel or the iron of a plane, the ulu makes a very useful woodworking tool as well. While it won't replace a regular small-bladed whittling knife, it will admirably handle rough shaping, trimming, heavy carving, rough to ultra-fine scraping, and many other related tasks. A few sharp raps from a stout hardwood stick will let you use the ulu to chop through bone like a meat cleaver or hatchet. And you can use it as a sort of combination chisel and curved adze.

Another major advantage of the ulu is something you'd expect, given its origin in the frozen North: once you've become familiar with it, you'll find the ulu is much easier to use with cold-stiffened fingers, or while wearing gloves or mittens, than any ordinary knife. I've also found this type of knife much easier to control with hands slick from butchering, cleaning fish, and such.

Making your own

The cutting pattern shows the proportions I've found to be ideal for fashioning an ulu. You can make yours larger or smaller by enlarging or reducing this pattern. Use a photocopier, or draw a grid of squares on this pattern and transfer it to a grid of larger squares.

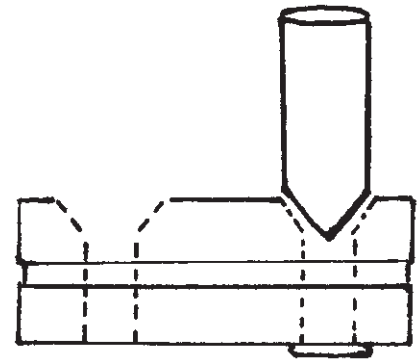
I have yet to encounter an ulu with a blade length of less than four inches or longer than twelve inches. A six- to eight-inch overall blade length has proven ideal for any use that I've found (or seen) for one of these unique knives.

I've seen many different methods used for attaching the handles to these knives, including nuts and bolts, glue (epoxy works best), wooden dowels with tiny wedges, and many more.

You might want to try my own favorite method for holding every-

thing together. I just use a pair of any sort of straight-walled, rimmed cartridge cases; .357, .44, .45 L.C., .45-70, etc. Tape the sides of the handle in place, so they won't move around, and drill appropriately sized holes through the whole thing. Deeply countersink the holes at one end. Insert the empty cartridges, then use a tapered punch to spread open the cartridge mouths, sort of rivet fashion. Any projecting brass can be easily filed and sanded to bring it down to the handle's surface. This method works really well for me, and it adds a nice outdoorsy sort of look to an already distinctive tool.

I'm not going to bore you with instructions for fashioning a sheath for your new ulu knife. It's not difficult to make one out of leather. However, I would suggest fashioning a wooden



Drill wood and metal of handle. Countersink. Insert cartridge. Use tapered punch to spread.

knife holder of some sort, if your ulu is intended mostly for kitchen use. This will protect both the people and the cutting edge of the knife.

If you choose to make yourself one of these exceptional Eskimo ulu knives, I'm sure you'll be pleased with the results. By the way, you might want to be a little careful about showing off your handiwork. I took more care in finishing the ulus I built for presents than I did with the ones for my own use. Now, after seeing these, my wife has requested a matched set of a dozen, for steak knives. Δ

Build an inexpensive but durable jackleg fence

By Dynah Geissal

When we moved to our land in the summer of 1994, we were fortunate that open grazing exists where we live because we had to build shelters for the animals and a house for ourselves before winter. We had only four and half months and so there was clearly no time for fencing.

However, cattle on neighboring range land had grazed everything in sight. Grazing land was leased from the timber company as well as from other private parties, but all the cattle congregated in a meadow. After all, why would they want to be in the forest? Consequently I had to begin feeding hay to our animals a month early because there was literally nothing left. Besides that, the seedling trees were topped, the stream banks eroded, and the native plants so overgrazed that exotics were taking over and no livestock would eat the stuff—not even my goats. Even the beargrass, which really is a lily of no nutritional value, was eaten to the quick.

In addition, our neighbors a mile and a half up the road were concerned that my horses would visit theirs, causing their stallion to perhaps injure himself in the fence. I promised them that I would fence right away in the spring.

We began May 1, the earliest possible time, and finished the lower 15 acres by the middle of June. Our fence is called a jackleg and costs nothing other than the nails and the fuel for the chainsaw. It is extremely labor-intensive, however, and we found that we could work on it for only five hours a day without getting grouchy and irritable. That left the rest of the day for the usual farm chores.

We have no access by vehicle so we carried and dragged our materials wherever we needed them. That was relatively easy when we were working in the woods, but much of our lower 15 is meadow where there are no trees at all. Sometimes we spent the entire day just hauling poles and posts. Still it was very rewarding and the fence is beautiful. It is meant to keep our large



A jackleg fence made from dead lodgepole pines.

livestock (horses, cattle) in and the range cattle out.

Our goats are free to come and go with the blessing of our only adjoining neighbor, Sarah. Our other boundaries are adjacent to U.S. Forest Service and timber company land so there is no problem there with letting the goats range free. If they had to be restricted, field fence could be attached to the jackleg, but it would be quite expensive.

A jackleg fence consists of rails which are supported by two uprights that are joined together at an angle to form a long legged X. We used dead lodgepole pine for our fence. If we were working in an area that needed thinning we would use live poles, but they are extremely heavy to work with. Branches on live trees would have to be removed with an ax to avoid unnecessary use of the chainsaw.

For our uprights we used 6-inch posts at the ends of each section of fence and 4-inch-diameter post for the middle supports. The posts are 5 feet long and when the weight was not too great we left them in 10-foot lengths to carry them to the site.

We laid the posts and poles just outside the fence line and sometimes cut as many as 30 posts at a time. Then one person would cut the notches a foot and a half from the top of each post and to a size that would fit the corresponding post that would be joined to it. The other person used a hammer to remove the diagonally cut kerfs. Then the posts were spiked together using 50 penny nails.

Traditionally the rails were 10 feet long, but in the very old days they were 11 feet long. There were six of these 11-foot rails to a chain which was the standard measurement at the time. The “fence viewer” would merely count the rails to determine the acreage a person had. We began our fence with three rails of 10 feet each.

As we began carrying our rails farther and farther from the forest, we began experimenting with longer lengths. After all, it would mean fewer uprights, fewer spikes and fewer cuts. Also it wasn't much harder to carry a 15-foot pole than a 10-foot one. (The

forest service uses 16-foot rails because they are the longest that are manageable for a single person to use in fence building.)

After a while we were using 25-foot rails with an upright support in the middle. I found that to be the maximum size for my strength if I intended to keep working all day. The actual construction went very fast when there were only four sections for every 100 feet.

When our materials had been laid in place after sighting the boundary line with a compass, we began to erect the fence. One person held a pair of spiked together uprights while the other person placed a rail on top and sighted down it to the boundary marker or the preceding section of fence. Then it was spiked into the upright with a 30 penny nail. Next the other two rails were spiked in place.

Whether you put the rails on the inside or the outside of the fence is determined by whether you are primarily trying to keep something in or out. We put the rails on the outside because keeping out 200 cow/calf



Swinging gate attached to an upright log on the right side of the photograph

range pairs was way more important than keeping in our small herd. We also added diagonals every so often to give the fence added strength.

When we finished fencing the 15 acres containing the meadow, we decided to fence in about an acre around the house. We were getting really tired of having our livestock hanging around the living area. For this fence we used four rails which has proved adequate to discourage the goats for the most part.

We used different sorts of gates for different purposes. Across the driveway entrance we have three poles that slide along the fence rails to open and close. It's easy to use and keeps the goats out. Eventually this will be replaced with a swinging gate, but that requires a deeply-dug hole.

We have three swinging gates, one each on the north, east and south fences of the yard. These are walk-throughs so they don't require any support other than the fence. We attached them as shown in Figure 1. Be sure to leave space below the gate for snow accumulation. We've found that 4 inches is about right. That way we can shovel fairly easily without having to dig through ice pack all the way to the ground.

One of the great advantages of the jackleg fence is that there are no holes to dig. The fence has proved very strong and has had no trouble withstanding the onslaught of the cattle. An unexpected advantage is that parts are easily replaced in the event of blowdown (and it makes for a great kitty highway). We had major wind storms last fall and the only consequence for us was maybe half a dozen poles that were crushed by trees. Our neighbor's barbed wire fence, however, was completely devastated and had to be restrung. It is also, in my mind, the most aesthetic of fences.

Next year we will fence our 25 acres of mountain. Δ



Detail of the construction of a jackleg fence.

Build a homestead Copy Cart

By Charles A. Sanders

I don't know too many homesteaders, gardeners, or small farmers who haven't at one time or another wished for one of those fancy big-wheeled garden carts. It seems that there is always something that needs to be toted around on the place, be it hay or straw, rocks, firewood, garden tools, plants, compost, or whatever. Think about it for a bit, and the need for a hand cart on your own place will probably become evident.

Well, being the basic cheapskate that I am, when I finally decided that I was going to have one of the carts, I figured that I could save some money if I built it myself.

I have a friend who had taken the plunge and bought one of the carts from a commercial outlet, so I took the liberty of snapping a few photographs of some of the structural details which I wanted to replicate. Afterwards, a half hour or so was spent with a pencil, paper, and ruler to come up with the rest of the plans, as well as the measurements for making



Detail of angle-iron bracket

the cuts for the cart body from a single sheet of 1/2-inch plywood.

So, with a good fire going in the stove in the workshop, I set about to



A finished Copy Cart

come up with my own version of the garden cart, the Copy Cart.

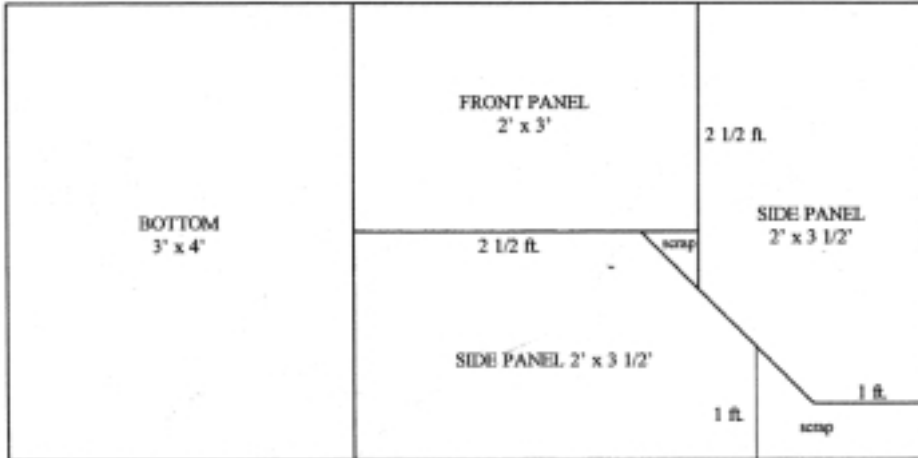
I purchased the wheels for the cart from Northern Hydraulics in Burnsville, MN. They have a big mail order business for all sorts of tools, parts, and equipment. (If you don't receive the almost too frequent catalogs from Northern Hydraulics, phone 1-800-533-5545 to get on their list.) I selected the 26-inch pneumatic-tired wheels for use on my cart. They are on roller bearings and made to take a 3/4-inch axle. For the axle I purchased an ordinary 3/4-inch iron rod from a buggy factory in the nearby Amish settlement.

I planned to cover the edges of the plywood pieces with metal to prevent splinting and to prolong the life of the

panels. For the metal sheathing, I again journeyed over to the Amish settlement, this time to a business specializing in post building and metal construction. There, I had the metal shop do a little custom bending on some 'seconds' and leftover pieces of heavy gauge roofing metal they had available. Soon they fashioned the

metal into pieces of angle-stock 2 by 2 inches by 8 feet and some into U-channel 1 by 1/2 by 1 inch by 8 feet. The 2 by 2's were used on the corners for strength and durability, and the U-channel was used to cover the cut edges of the plywood. All of the metal was secured with either long shanked pop rivets or with small carriage bolts.

The axle was attached by cutting 3/4-inch holes into two pieces of an old bed rail. The heavy metal added strength to the cart bottom and the pre-cut holes where the bedsprings had once been attached provided ready-made holes for attaching the rails to the cart bottom with short 1/4-inch carriage bolts. The axle is positioned so that the leading edge of the wheel is only a couple of inches from the front edge of the cart itself. This



All the panels needed from the cart can be cut from a single 4 foot by 8 foot sheet of 1/2-inch plywood.

provides a very good balance for hauling and is handy for tipping the cart up to load bulky articles such as barrels or large boxes.

The cart handle and stands were made from 3/4-inch electrical conduit bent with a conduit bender. I admit, it took some head scratching for me to figure out how to make two pieces with the conduit bender which needed to be nearly identical. But with some measuring, checking, eyeballing, remeasuring, and rechecking, the



Detail showing tool loops and metal edging attached by pop-rivets

stands, as well as the cross-brace, came out really well.

I wanted to duplicate the general style of the opening system on the front gate found on the my friend's cart, but lacked the hardware which is used in the store-bought version. So, to the junk boxes I went. I came up with two ordinary door slip-bolts. As you can see from the photograph, I attached one to each side of the end gate near the top. When each bolt is set to protrude, they are situated in reinforced holes near the top front corner of the side panels. I drilled a small hole near the end of each bolt and used a small clip pin to hold them secure. This prevents the side panels from splaying outward, and allows the end gate to swing from the top, enabling compost, dirt, or whatever to be dumped out the front, similar to the way a dump truck works. If I want the end gate secured at the bottom, two more of the slip-bolts will hold it in place. As soon as I scrounge up a couple, I'll add them.

Another addition to the cart are the tool loops. I added these to the outside of the cart for carrying pruners, trowels, and other hand tools. It keeps them visible and in one spot until needed. Some scrap of nylon webbing was secured to one of the side panels using small bolts. Washers keep the

webbing from pulling off of the bolt heads. A piece of an old leather belt should work just as well.

Most of the bolts, screws, and assorted small hardware were scrounged from my own collection or from my Dad's gigantic accumulated hardware collection. I had some red paint left from repainting my barn, so the cart was given a good coat of the preservative. By buying new plywood, wheels, and conduit, as well as the axle, sheet metal and long-shanked pop rivets, I ran the cost of my cart up to around \$80. Still, that amount is considerably less than a new commercial version of a similar cart. This custom version is also about 6 inches wider than the commercial model and has side panels about 6 to 8 inches taller as well. For those, I just used what I had. The diagram, however, shows how every piece of wood needed for the cart can be cut from one 4 by 8-foot sheet of plywood.



Closeup of the sliding doorbolt with a clip used to secure the front end gate to the cart panel

Our homemade Copy Cart has proven to be one of the handiest and most useful tools that I have on the place. In fact, we were using it to haul bales of straw in before it was completely finished. Since its completion, I've hauled concrete blocks, some split firewood, old bedding from the chicken house, and some hay bales. Of course, the kids had to have a ride in it as well. Δ

These double-steep half stairs save space

By George W. McLeod

If you need a staircase that occupies minimum space in a small residence or cabin, consider this type that utilizes alternate, overlapping half-treads. The design requires that one adjust to moving down rather than forward when descending. The middle-height handrail is useful when ascending and is needed for smaller children. The plywood panel covering the underside of the staircase is essential to prevent stepping through when descending.

The staircase is sloped at 60 degrees to the horizontal. For those not famil-

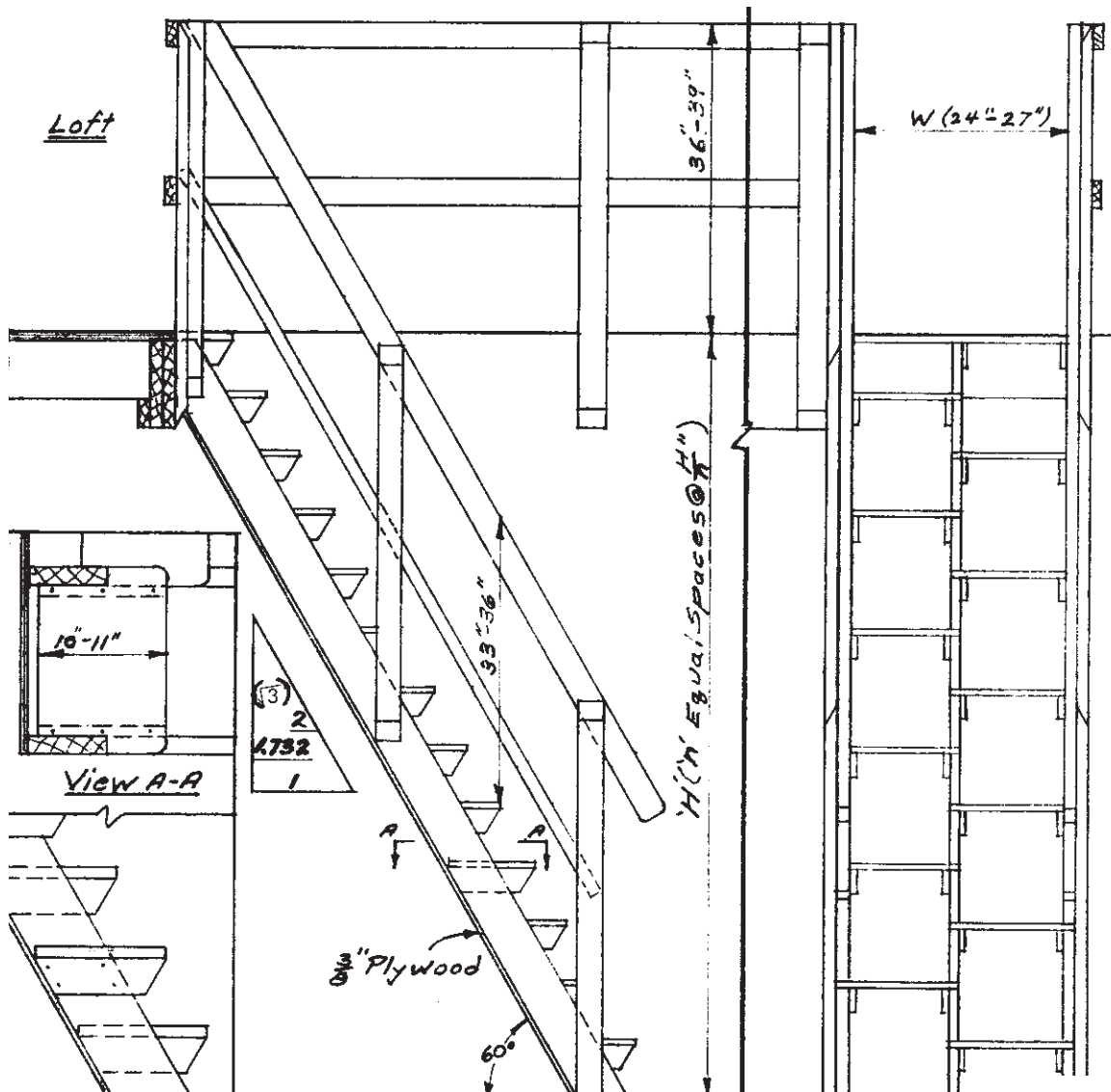
iar with trigonometry, the 30/60/90 degree triangle relationships of 1:2:1.732 are useful in calculations. This slope also provides clearance for one's knees when ascending. The rise per step should be in the range of 6.5 to 7.75 inches.

Determine the number of steps roughly by dividing the total height between floors by seven. Round the answer to the closest whole number to arrive at the number of rises. The number of standard treads will be one less. Don't forget to allow for the thickness of the top special tread when determining the length of the 2x6

stringers. I recommend drawing a full-scale side view of the upper end to get everything right.

The stairs should be assembled as a unit with nails and adhesive (without the handrails, if being transported to the site). Rounding exposed corners is desirable for safety. The narrower 24 inch width is safer for use by children; adults may want additional width.

Treads are 10 to 11 inches deep, made of 3/4 or 1 inch plywood. Tread supports are 3/4-inch plywood, three inches deep. Stringers are three 2x6s. Handrails are 2x4s for the top rails, 2x2s for the mid-height rails. Δ



Ayoob on firearms

By Massad Ayoob

The M1A — a rifle that makes a statement

By Massad Ayoob

Take the Springfield Armory rifle out of the box, and savor it. I seldom do that with guns, but a Springfield Match grade M1A will make a connoisseur out of anyone who knows their rifles.

The M1A is a reincarnation of the M-14 7.62mm NATO military rifle that became this nation's standard and saw our country midway through the Vietnam conflict before it was replaced with the M-16. In the match grade, it is more accurate than many bolt action hunting rifles.

They are used, sometimes with iron sights instead of telescopic sights, at 1,000 yards. That's right. One thousand yards.

The last one of these I had was the M-21 sniper version. It would put every round of Federal Match Grade 168-grain hollowpoint .308 Winchester ammunition (.308 Winchester is the civilian designation for 7.62mm NATO) into a group measuring about an inch and a half at two hundred yards. Being semiautomatic, it would fire as fast as the trigger could be pulled.

I sold that fine rifle to someone who could make more use of it. At the time, I didn't shoot rifle competition and felt no need to reach out a long distance with great precision and immediate repeatability.

Now, I find myself going to the cabin on vacations and taking with me a rifle instead of the shotgun I keep at my home in the city. In a rural situation, home defense is more likely to involve those inside having to engage those outside, often at considerable

distances. A precision-shooting .308 semiautomatic rifle is the ideal tool for that mission.

For many years now, Springfield Armory has been in the forefront of those in the industry fighting legislation that would prevent law-abiding American citizens from owning certain firearms. Since it fires only one shot at a time, the Springfield does not fit a semantically correct definition of an "assault rifle." Its rugged construction and inherent accuracy makes it suitable for hunting, so long



as its 20-round magazine doesn't exceed game law limits.

In the Kalahari Desert in 1987, I took the magazine out of my other M1A and hunted with it as a single shot, with only the one cartridge in the chamber. I shot a handsome Springbok at some 350 yards. The M1A's accuracy speaks for itself.

Springfield Armory has a promotion going that they call "the loaded M1A." Through May 1 of 1997, you can buy one of these rifles through a participating dealer and save up to \$579 on accessories. Each rifle comes with a carbon steel barrel, a trigger fine-tuned to a 4 pound 12 ounce press, and a flash suppressor, all National Match grade. The flash suppressor, forbidden under the Clinton Crime Bill, is legal because it was manufactured prior to the ban. Similarly grandfathered are the three

twenty-round magazines, which can't be manufactured for civilians any more but are legal in this case because, again, they are pre-ban. I ordered mine with the stainless steel barrel option and third-generation telescopic sight mount.

What's a rifle like this doing in a rural cabin? It has the power you need for deer, moose, elk, or bear, so long as there is short enough a magazine in it to conform to the game laws. It also has the power that neutralizes vehicles with judicious shot placement.

But, you know what else? Springfield making this "best buy" available is their way of making a statement, a statement that a law-abiding citizen should be able to own any firearm he or she wants, within reason.

The M1A is definitely within reason. Owning it responsibly is silent proof that you're not the kind of whacko who climbs the Texas Tower and starts shooting at people. It's silent proof instead that you know your rights, exercise your rights, protect your rights, and don't trample the rights of others.

At a time in America when too many people try to make legislation make up for lack of human values, and too many people demonize segments of society for possessing things that the lightweights fear, I appreciate Springfield Armory making this low-cost package of a truly fine firearm available to the citizenry at remarkably low cost.

I haven't fired a shot with it yet, but my new rifle already means a lot to me. It's not just a piece of steel and walnut. It's not just a gun.

It's a statement...a statement about the values of a free and independent people. Δ

Here are some answers to often asked questions of anti-gunners

By *Massad Ayoob*

It has become increasingly politically incorrect to be a firearms owner. This is because trends tend to be set by the fashionable and the media-connected in metropolitan environments. Gun ownership per capita is well under 50% in urban areas of this country. Nationwide, it is estimated that one half of all homes contain at least one firearm. As the demographics move into rural areas, gun ownership well exceeds that 50% margin, and on the frontiers and in the true backwoods home, gun ownership will generally be found to reach the 90th percentile of the population.

When your beliefs and values are challenged, you want ready answers. The following have worked for me when debating the civil rights of gun owners in this country.

Isn't the Second Amendment about the National Guard?

Frankly, no. Serious legal scholars have almost universally agreed that the Second Amendment speaks to the rights of the citizens, not the rights of the states or other communities. Doesn't it seem incongruous that the Framers would have written one states' rights amendment into a Bill of Rights that otherwise speaks entirely to the rights of individuals?

Besides, consider that the document in question was written at a time when the gunfire of the American Revolution was still ringing in the ears of the Framers. A "national guard" of the period would have been Tories loyal to King George, hardly an entity the freedom fighters who wrote the Bill of Rights would have wanted to empower.

Historically, you'll also find that the constitutions written by the separate

colonies prior to the Declaration of Independence and the Bill of Rights spoke of firearms ownership specifically as an individual right encompassing personal protection, and not just a tool to facilitate state militias.

Isn't a gun just a phallic symbol?

If it was, no man would ever have bought one with a two inch barrel.

What about the argument that people die in domestic arguments because a gun is within reach of an angry person?

Certainly, those with uncontrollably violent tendencies should not own guns. When asked this question, I always respond with a question: "Could you pick up a gun and kill someone you love because they angered you?"

If the answer is No, I reply, "Then how dare you imply that I, and everyone else, would be that unstable?" If the answer is Yes, I suggest they stop attempting to counsel well-adjusted people and immediately seek psychiatric counseling for their own self-admitted tendency toward acting out impulses of uncontrollable violence.

Won't criminals just take your self-defense gun and shoot you with it instead?

That has happened, but rarely. It occurs more often with police, whose openly worn service handguns come quickly to the mind and the hand of the high number of criminals they face in the course of their work. If you're worried about it, take a course in handgun retention, the art and science of defeating a physical disarming attempt. Most of this training is limited to cops, but private citizens can take such classes on the East coast from Lethal Force Institute (1-800-624-9049) or on the West coast from



Massad Ayoob

Firearms Academy of Seattle (1-800-FAS-AMMO).

How can one morally keep a lethal weapon when the Fifth Commandment states, "Thou shalt not kill?"

That's not what it actually says. Biblical scholars seem unanimously agreed that in the original Hebrew, the commandment said, "Lo Tirtzah, Thou shalt not commit murder," i.e., thou shalt not kill with evil intent.

This is not an exclusively Judeo-Christian ethos. The Bible, the Talmud, the Koran, and the Book of Mormon all make it clear that there are times when it is both justifiable and necessary for the good to use lethal force against the evil. Provisions for justifiable homicide have existed in every body of law in the history of civilized Man: the Code of Hammurabi, the Napoleonic Code, the English common law, the Dutch-Roman model. From communist nations to capitalist, from the First World to the Third, it has been universally understood that every human being has the right to use lethal force against any individual who unlawfully threatens their life or limb with killing or crippling intent.

Don't all the police favor gun control?

No. A number of high profile police chiefs have espoused gun banning schemes, but they're usually mouthing the platforms of the politicians who appointed them, and in whose good graces they must stay if they don't want to be demoted back to Captain, usually the highest rank protected by civil service laws. In rural areas, polls show, most police chiefs and sheriffs

support citizens' rights to be armed against violent criminals. Polls of working street cops routinely show the overwhelming majority favor the rights of the citizens to keep and bear arms. Indeed, most cops make sure there's a gun at home with their significant other for family protection while they're at work.

There isn't space here to go into all the specious arguments used by those who would take from you your right to own firearms if you choose. If you

find yourself debating the issue, many publications of the Second Amendment Foundation will give you ample ammunition. You can call them for information on literature and membership at (206) 454 7012, or write SAF, 12500 N.E. Tenth Place, Bellevue, WA 98005. Δ

(Massad Ayoob teaches armed self defense classes around the country to both police officers and civilians. For information, write to LFI, PO Box 122, Concord, NH 03302, or call toll free 1-800-624-9049.)

10 strong mildew deterrents

By Sandy Lindsey

Here are 10 handy hints that you will find useful for controlling mildew:

- 1.** Mildew in a storage closet? Place a bowl of vinegar in the middle of the room to absorb dank odors. But don't forget that the bowl is there. If you accidentally knock it over, you will find yourself with a strong vinegar odor that is almost as offensive as the mustiness was.
- 2.** Another alternative to combat cabin mildew is to leave a bare light bulb on. The dry heat from the bulb will combat mildew. To make the process work even better, leave a small fan on to circulate the air.
- 3.** To remove mildew stains from cabin carpeting, spray on a glass cleaner, let sit for five minutes, then scrub. Repeat if necessary. Glass cleaners work better than conventional detergents because they don't contain soap and therefore don't leave a residue to attract further dirt.
- 4.** To deodorize mildewed carpeting, first clean as recommended above and allow to dry thoroughly, then sprinkle on 20 Mule Team Borax generously. Let it sit undisturbed for an hour before vacuuming up unpleasant smells.
- 5.** Oven cleaner is the answer to a fiberglass hot tub or shower stall. First, make sure you've got proper ventilation, then spray on generously. Give it five minutes to attack the grunge before wiping clean with a pad of damp paper towels. A sponge paintbrush works great when it comes to cleaning out tight places such as shower door tracks.
- 6.** If mildew has stained your fiberglass tub or shower, use a liquid detergent or a mixture of baking soda with just enough water to make it into a paste. Apply liberally, let it work for 30 minutes, then wash off.
- 7.** Clean the fridge with white vinegar to remove any mildew odors. For continued deodorizing, don't rinse afterwards. For additional deodorizing, place some fresh (unused) coffee grounds in a cloth pouch and toss it on the center shelf.
- 8.** If your stored clothing, sheets, towels, etc, are becoming musty, put fabric softener sheets in between them to absorb odors and leave a fresh scent.
- 9.** Stored furniture should first be vacuumed thoroughly, then prop any cushions at odd angles to the furniture so that air can flow around them. Sufficient ventilation is the nemesis of mold and mildew. This is especially important if the furniture is stored in a dank basement.
- 10.** To hinder the formation of mildew in a vacation home that won't be used until next season, prop all interior doors open, including bedroom doors, closets, cabinets, and the fridge door, and leave drawers slightly ajar for increased ventilation. If possible, have someone come in occasionally to run the air conditioning or heat to circulate the air. Δ

Go camping on a low budget or go on no budget at all

By Christopher Nyerges

You don't have to spend a fortune to go camping. As a kid, I hiked and camped with my friends in the Angeles National Forest of California for next to nothing. I still do today.

Over the years, I have gradually acquired camping gear that works for me, and that I feel is worth having. I don't mind spending extra money on an item if I know it's the best and if my life can depend on it. On the other hand, to this day I don't care much for useless gadgets that just take up space and add weight to the pack. I like to go as light as I possibly can.

So I thought that you'd enjoy hearing how we went hiking back then. Some of you will chuckle at our youthful enthusiasm and silliness. Some of you might even think we had a few good ideas.

Clothing: We never purchased special clothes designed for hiking or backpacking. We wore what we called our "play clothes" that we didn't worry about getting dirty or torn, but durable enough for a weekend or a week in the hills. We simply dressed for the season, and took an extra sweatshirt along if it was cold.

The one area that could have used improving was footwear. I usually had poor footwear on the trails, but I never let it bother me. The worst time was when I had some old suede shoes while hiking in the snow. My feet

were wet and cold the whole time, so I was either constantly moving or sitting by the fire all the time. Eventually, I learned that one could put a plastic bag over the socks and keep the feet sort of dry in the winter.

But since most of our hiking was in fair weather, wearing our "city shoes"



Christopher Nyerges ties up a pair of long pants, making them into a quick and comfortable pack.

into the hills was usually not a problem.

Knife: Heck, every kitchen has knife, hasn't it? We just wrapped a small kitchen knife in a piece of cardboard for safety and put it in with our gear. Eventually, we received Boy Scout knives as gifts one Christmas, and we carried them all the time.

Mess kit: Why would we need to go out and buy something special just for hiking and backpacking when every kitchen in the world—well, at least *our* kitchen—had dishes and silverware and pots? We'd pack an old pan and pot, and would sometimes just carry an old pie pan and an empty can.

We reasoned that with the pie pan and can, we could crush them and bury them before returning home and wouldn't need to carry them back. We'd also grab a few plastic forks and spoons, and maybe an old metal one. Nothing more was needed.

Canteen: Back in the mid-1960s, plastic wasn't as ubiquitous as it is today, and the plastic that was around back then was low quality. So we didn't have plastic containers to use for water. On occasions, I actually carried a glass mayonnaise jar as my canteen, and I wrapped it with cardboard so it would be protected. Eventually, I spent about \$1 and purchased a metal WWII canteen. It was a very good investment.

However, we tried to plan so many of our hikes around the known water sources that I never bothered to carry a canteen half the time.

Stove: Stove? We simply cooked right on the flames of our small camp fire. I've never carried a stove.

Flashlight: Sometimes we'd find a flashlight in a drawer at home but more often than not it simply didn't work. Perhaps the batteries were no good. So I never got addicted to needing a flashlight at night. Did you know that the average adult has the ability to see in the darkness almost as good as an owl after 30 minutes in the dark?

Lantern: Lantern? If we had a lantern, we'd have to buy fuel and wicks and stuff called "misc." However, on some occasions we actually carried an old soup can. We cut out both ends of the can, and put an old clothes hanger through the can for a handle. Then we cut a hole in the side of the can and inserted a candle. That was our "lantern."



Nyerges wearing his pants pack

Another variation of the can-lantern is to cut open an aluminum can so that, when standing upright, it appears to have two “doors.” You then hang the can by the pop-top, put a candle inside, and you have a lantern. If made properly, the wind will catch the doors and turn the candle away from the wind. I learned about this from fellow survival instructor Ron Hood.

Walking stick: Though we have marveled at the beautifully-carved walking sticks at backpacking stores, we never even came close to buying one. For one thing, after you spend \$40 for a beautiful stick, who wants to mess it up on the trail. Additionally, we discovered that there was never a shortage of sticks in the woods which could serve as a walking stick.

Tent: Tent? Those are heavy and expensive. I have never carried one. The closest I have ever come to packing a tent was when I used tube tents a few times in the early to mid-1970s. But otherwise, you can usually avoid the need for a tent if you simply pick your campsite well.

Sleeping bag: On many of my first backpacking trips, I never carried a sleeping bag. I slept in a hammock with a tarp. I was cold.

My first sleeping bag was loaned to me from my older brother, and it was a layered paper sleeping roll designed for just a few uses. I was cold.

I have carried just a blanket or two with me, and I have gone backpacking

with just an emergency space blanket. I was cold.

I have learned to sleep in holes, in lean-tos, and in various natural shelters with no sleeping bag and stay warm.

A sleeping bag is one item where it pays to get the best you can afford. Buy the down-filled type, and one that can be compressed into a small bag. I have purchased good quality sleeping bags for as little as \$5 (and never more than \$20) by watching the ads in the newspapers.

Toilet paper: Sometimes we went into the bathroom before our camping trip, grabbed a roll of toilet paper and tossed it into our pack. But often we forgot to do this, and discovered that the woods are full of “toilet paper.”

Map and compass: Get real. We simply went up to the mountains and followed the trails, and we often had no idea where we were going, other than some obscure rumor from someone that a friend of a friend had talked to and suggested that maybe this particular trail actually led to some really good place. It all sounds very silly and imprecise as I think back on it, but that’s how we did things.

After awhile, we got to know more and more of our local trails and we would go back to our favorite spots again and again, day or night, summer or winter. No map or compass was ever needed, and we never got lost.

Fire starter: We would take book matches that we got for free at the local supermarket, and stick matches from our parents kitchen, and wrap them up in several wrappings of plastic. Back then, there were no Bics, no magnesium fire starters, and none of the high-tech devices that today assure fire for even the village idiot.

Pack: Again, remember we had no budget. We have actually carried bags of stuff into the mountains, which made us look more like we were running away from home than campers. Eventually we purchased canvas packs at the Army surplus shop that used to be in downtown Pasadena. We spent a few dollars on what was an excellent investment. Still, those heavy old packs are dinosaurs compared to the packs of today.

On occasion, I have used potato sacks to carry things, but that is uncomfortable and doesn’t leave your



Inexpensive trail food can be purchased at the local market. Clockwise from left are a bag of granola, macaroni, rice, avocados, oranges, garlic, carob pods, (picked from the local trees), and French bread.



Handmade or salvaged gear for the trail. Clockwise from left: coconut bowls, a plastic water bottle for a canteen, a can for a cooking pot, a pie pan for frying, a jar lid (in the pie pan) used for a candleholder, a wood burl burned and carved into a drinking cup, plastic fork, knives from the kitchen, chop sticks made from cattail stems, a spoon carved from a yucca stem, book matches, and some twine.

hands free. My best “for free” pack was made by converting an old pair of pants into a pack. You simply stuff all your things into the pants. The legs will be the carrying straps. You then tie off the waist and cuffs, and tie the

cuffs up to the waist. Presto, a pack. If done right, you get a very comfortable pack that everyone laughs at.

I have even made an emergency “pack” from a long sleeve shirt, but I had to do a bit more tying to create the pack.

Food: Food in the backpacking shops always seems to cost too much. Freeze-dried, specially portioned exotic meals, Meals-ready-to-eat (MREs), special candy bars, juices, etc.

We would just go to the supermarket and purchase dry things like rice and buckwheat groats and spaghetti. Then we purchased dry soup mixes and instant potatoes. Then we’d get a bottle of dried spices, some nuts and seeds, fresh fruit like

apples and avocados and perhaps some cheese. After a while, you have good food at a reasonable cost.

But in the very beginning, as I said, we had no budget. We just looked through our parents’ cupboards and picked out anything that was dry and light and that we thought we might like. Doesn’t every kitchen cupboard in the world contain at least enough odds and ends to make a few decent trail meals for a week or so? Ours always did. And though some of our meals were slim, it was partly because we didn’t want to carry any more weight than was absolutely necessary. Which is why I have pursued the study of wild edible plants for most of my life—but that’s another story.

I have always believed that simple enjoyment of the outdoors should be as unadorned as possible. Part of the attraction—to me—is to be in the outdoors where you can think and be with yourself and friends. Why clutter it up with all the overpriced gimmicks and gadgets that take up weight and occupy too much of your time?

(Christopher Nyerges is the author of four books on the outdoors, including *Guide to Wild Foods*, which is available through *Backwoods Home Magazine*.) Δ



A simple hanging lantern made from an aluminum can

A country moment



Brenner Dawson, age 3½, feeds ducks.

Think of it this way...

By John Silveira

Prohibition: then, now, and always

I heard a vehicle pull into the driveway but I was busy setting one of the articles for this issue so I didn't look through the blinds to see who it was. In the back of my mind I heard a car door slam. Moments later, I heard the front door of our office open behind me and Dave yelled, "Just the man I want to see."

"Me?"

That voice belonged to O.E. MacDougal, Dave's poker playing friend, and I spun around.

"We've been trying to reach you," Dave said. "We've gotten a bunch of letters and e-mail over the last article John wrote. Some people are accusing the two of you of endorsing drugs."

"I told you, I didn't," I said defensively. But Dave wasn't listening. His attention was on Mac.

"I didn't either," Mac smiled.

"They're saying you may as well be. I've already discussed this with John at length..."

"Got any coffee?" Mac asked.

Dave continued, "More than one writer said that just because we can't control the problem doesn't mean we should legitimize it. We should consider the children. One even made the analogy that if spousal abuse was rampant it wouldn't be right to legalize spousal abuse and just set up battered shelters."

"He...or she...is absolutely right—that wouldn't be an appropriate way to deal with spousal abuse," Mac said as he stepped into the kitchen. "But that's not even close to the same thing as legalizing drugs."

"There are a lot of people who think it is," I said. I was on Dave's side in this.

Mac put the kettle on, then rummaged around until he found the coffee cone and filters.

"Coffee beans are in the freezer," Dave said.

Mac opened the freezer door and found them.

"Any one want some?" he asked holding the bag up.

We shook our heads and he proceeded to grind enough for one cup.

"A lot of those people make sense to me," I yelled. "I've been wishing I hadn't written it."

He kind of tossed his shoulders non-committally, and he came back into the main office and sat down. "What do you guys know about Prohibition?" he asked.

I must have looked a little puzzled.

"You know, when booze was illegal in this country," he added.

"I want to talk about drugs and that article," Dave said.

"I am," Mac replied. "Prohibition isn't just one of the most interesting periods in American history; it also had a lot to do with what America is today—mostly for the worse—including the War on Drugs."

"How do you figure that?" I asked.

"Parallels between Prohibition and the War on Drugs are disturbing. In fact, it was the failure of Prohibition that took us down the road to this War on Drugs we're fighting so triumphantly today."

"Are you being sarcastic?" Dave asked.

Mac just smiled.

"Isn't Prohibition just ancient history?" I asked. "When did they pass the prohibition law, anyway?"

"There wasn't actually anything titled the Prohibition Law. What you're thinking of are the 18th



John Silveira

Amendment to the Constitution and the passage of the Volstead Act that was meant to carry out its intent."

"You mean there were two things that brought on Prohibition?" Dave asked.

Mac nodded. "On the national level, yes. There were also laws various states and localities passed to enforce it. But the real forces behind Prohibition were the 18th Amendment and the Volstead Act."

"Why did they ban booze?" I asked.

"What did the Amendment say?" Dave asked simultaneously.

Mac got up and got the Almanac from the bookshelf. He opened the book and found what he wanted quickly. "Let me answer Dave's question first," he said as he sat down again. Then he read:

The 18th Amendment

Section 1. After one year from the ratification of this article the manufacture, sale, or transportation of intoxicating liquors within, the importation thereof into, or the exportation thereof from

the United States and all territory subject to the jurisdiction thereof for beverage purposes is hereby prohibited.

Section 2. The Congress and the several States shall have concurrent power to enforce this article by appropriate legislation.

Section 3. This article shall be inoperative unless it shall have been ratified as an amendment to the Constitution by the legislatures of the several States, as provided in the Constitution, within seven years from the date of the submission hereof to the States by the Congress.

"After the Amendment was ratified, Congress passed the Volstead Act to enforce it in accordance with Section 2."

It was a revelation to me. "So they needed a

Constitutional Amendment so they could pass the law to bring Prohibition on," I said.

"That's right," Mac responded.

"Why?" Dave asked.

"Without the Amendment it wasn't legal for the federal government to make such a law."

"Why?"

"Because it wasn't empowered. The 10th Amendment says quite clearly that the only powers the federal government has are those listed in the Constitution. And the 9th Amendment says we have rights beyond those referenced in the Constitution, and they too are inviolate."

He looked from one to the other of us, then picked up the Almanac which he still had in his lap and read:

The 10th Amendment

The powers not delegated to the United States by the Constitution, nor prohibited by it to the States, are reserved to the States respectively, or to the people.

He looked up briefly, then continued:

The 9th Amendment

The enumeration in the Constitution, of certain rights, shall not be construed to deny or disparage others retained by the people.



"It means that just because many of the people's rights are listed in the Constitution, it doesn't mean the government can deny us rights which the Founding Fathers had overlooked or hadn't listed."

"So, the the 18th Amendment was to give the federal government the power," Dave said.

"That's right."

"But why'd they want to ban booze?" I asked.

He looked at me, then Dave. "The answer is a rather long story."

Dave's the boss and we were on deadline, but he indicated he wanted Mac to go on anyway.

"Alcohol was probably invented by cave men and there have been calls to ban it ever since," Mac said.

"Even today?" I asked.

"Even today. There's even a political party, the Prohibition Party, whose single unifying principle is the illegalization of alcohol. The party was founded right after the Civil War and it's still around. It's this country's

third oldest political party with a continuous existence."

"What are first and second?" I asked.

He gave me an odd look. "The Democratic and Republican."

"Oh," I said. "I wasn't thinking."

"The party never grew big but, for a time, it was very influential.

The election of Grover Cleveland to the Presidency in 1884 was the result of Prohibitionists voting for John St. Paul, the governor of New York, who ran on the Prohibitionist ticket. The votes St. Paul got took just enough from Cleveland's Republican rival, James Blaine, to put New York into Cleveland's camp. The state would otherwise have gone to Blaine and sealed the election for him.

"In the elections of 1888 and 1892, the party reached its high-water mark; it captured about 2% of the popular vote nationwide. But they never did that well again, though they've existed on a local and small town level ever since."

"Have other countries tried Prohibition?" Dave asked.

"They have. Various countries have experimented with it. In ancient times, the Chinese did. Various modern European countries have, and even the Aztecs attempted to outlaw drinking. Today, the ban on alcohol is still part of the religious precepts of the Moslems, the Mormons, and several fundamentalist Protestant sects."

"But what brought it on here?" I asked.

"Small-town, rural, Protestant, white America."

"Why'd they want it?"

"Originally, the United States was, for all intents and purposes, small-town, rural, Protestant, and white. But it started changing. People were leaving the farms and going to the city to find work, and at the same time, a

whole new bunch of people were coming here from Europe. They were Slavic, German, and Irish. They were Catholics and Jews. They spoke with strange accents. They drank, and they were settling in the cities.

“To many, these were signs that America was decaying and Prohibition was something that might stem the tide of decay. Get the booze out of the city and all those foreigners would start behaving. Maybe they’d even stop coming here.

Prohibitionist science

“To bolster their argument, prohibitionists advanced the claim that institutionalized Prohibition was both scientific and social progress. Unknown ‘scientists’ who espoused temperance were catapulted to the forefront, and many of these men and women made their fortunes providing scientific ‘evidence’ for the temperance cause. It’s analogous to the experts created by creationists, environmentalists, feminists, and almost any other political spectrum around today that you can mention.

“Many of the dries—and that’s what they called themselves, the dries—believed that an America without booze would become such a powerful force that other countries, both in Europe and beyond, would have to invoke prohibition laws or fail to compete with us economically. They didn’t just want booze outlawed in this country; they wanted to wipe it out everywhere.

“These people became crusaders because they believed they had ‘right’ on their side.”

“So when Prohibition came about, did it just happen suddenly?” I asked.

“No. Long before the 18th Amendment passed, many states had experimented with it, and all were failures.”

“Which states?” Dave asked.

“The first state to go dry was Maine, in 1851. This was the result of the efforts of a reformer named Neal

Dow. Dow then led attempts to secure such laws in other states, and 12 more followed suit. But it was always a battle to keep the laws enforced or even on the books. When the Civil War started in 1861, Prohibition didn’t seem so important and by the time the war was over 10 of those states had given it up.

“But this didn’t stop the Prohibitionists. They formed their political party in 1869 and began running presidential candidates. Among them was Neal Dow.

...the science that backed the ‘drys’ became part of the (school) curricula while the science that questioned or refuted dry claims was suppressed—just as it is today with environmentalism.

“About the same time, the Woman’s Christian Temperance Union was founded. But in 1895 the most politically potent of the Prohibition groups was founded—the Anti-Saloon League.

“The League began endorsing candidates for political office on both the local and national level. It didn’t matter whether you were Republican or Democrat; if you endorsed Prohibition, the party endorsed you. And those who didn’t mouth the League’s line found their opponents endorsed by one of the largest political blocs in the country. It became a political handicap to oppose the dries.

Controlling education

“In the meantime, children were bombarded with temperance virtues and warnings. This went on for decades, from the end of the Civil War to the end of World War I.”

“We wouldn’t let that happen in the schools today,” I said.

“Well, for better or worse, it’s the same way children today are bombarded with environmental virtues and warnings, as well as drug warnings,” he said. “In fact, the science that

backed the ‘drys’ became part of the schools’ curricula while the science that questioned or refuted dry claims was suppressed—just as it is today with environmentalism.”

“How far did they get?” Dave asked.

“Textbooks were rewritten under the supervision of temperance believers, just as today environmental groups have an input into modern textbooks.”

Dave nodded. “It must have paid off for them.”

“It did. And after decades of struggling to get a prohibition amendment to the Constitution, the first serious vote came before the Congress in 1914. The vote was 197 to 190 for an amendment. It wasn’t enough because a two-thirds majority is needed to send an Amendment to the states for ratification. But it was a milestone because more than half of the House had voted for it.

“So, in 1917 the dries tried again, and on December 22, 1917, Congress passed the bill and it was submitted to the states. A little more than a year later, in January of 1919, the 36th state ratified it, making it the 18th Amendment. The Volstead Act, passed immediately after that by Congress, went into effect January 16, 1920.”

“Once most members of the Congress were nondrinkers, I guess it was pretty easy from there,” I said.

Mac laughed. “Many congressmen who voted for it were drinkers. It’s just that by this time it was political suicide not to side with the Prohibitionists. In fact, all through Prohibition, while citizens were arrested on the street for violating the law of the land, many congressmen drank, and liquor was frequently served in the White House.

“This, when there wasn’t a legal ounce of booze in the country,” I said.

“And that’s not true either. There were tons of legal booze.”

“What?” Dave and I asked simultaneously.

“But you said it was outlawed,” Dave said.

“Another of the ironies of Prohibition was that the groups most responsible for the passage of the 18th Amendment, and the subsequent Volstead Act, were the clergy, farmers, and the medical community. After the passage of the 18th and the Volstead Act, those same groups were the only ones who could still legally make and use booze.”

“Oh, come on,” Dave said.

“I’m not kidding. The clergy was still allowed to use alcohol in services, farmers were still allowed to make hard cider, and the medical profession still sold all kinds of liquors—for so-called medicinal reasons only. But as a consequence, of course, the number of prescriptions for alcohol-based medicines skyrocketed.

“Not only that, even after they had made Prohibition the law of the land, many so-called dry politicians made no bones about drinking in their personal lives. During the Democratic National Convention of 1920, a good many of the dry delegates were drunk on the convention floor.

“One of the reasons Warren G. Harding was the Republican nominee was because he had the support of the Anti-Saloon League—but Harding himself was a borderline drunk. The Anti-Saloon League knew this but kept it from the public.”

“This is getting unbelievable,” I said.

“Why? We’ve been hearing family value stories from congressmen and Presidents who have been notorious philanderers for years.”

“Or like today, when we have enforcement of drugs on the street while there are allegations of drug use in the White House,” Dave said.

“Well, I don’t know whether those allegations are true or not, but it would be a case of history repeating itself if they are,” Mac said.

“By the way, why was it called the Volstead Act?” Dave asked.

“Volstead was the name of the guy who sponsored the bill in Congress.

But the man who actually wrote it was Wayne B. Wheeler.”

“Who was he?” Dave asked.

“Wheeler was the general counsel of the Anti-Saloon League. He’d joined the League right out of law school in the 1890s and spent the rest of his life with it. It was under his aegis that it became one of the most powerful lobbies ever seen in this country, and he one of the most powerful nonpoliticians this country’s ever seen.”

...all through Prohibition, while citizens were arrested on the street for violating the law of the land, many congressmen drank, and liquor was frequently served in the White House.

“I never heard of him,” I said.

“I’m not surprised,” Mac said. “For all the power he once wielded—he made and broke politicians and had more to do with the cultural changes that took place in this country, at that time, than any other single man—I’ll bet not one person in a thousand, today, could tell you who he was.”

“What else can you tell us about him?” Dave asked.

“Nothing. All I know about him is what he did as a Prohibitionist.”

Dave and I laughed abruptly. “I thought you knew everything,” Dave said.

Mac smiled. “Well, at least I knew who he was.”

Prohibition & corruption

“You said other countries tried Prohibition at other times. But was this the only country trying Prohibition at that time?” Dave asked.

“No. Prohibition was sweeping through the Protestant countries of Europe and North America.”

“Finland tried it in 1919 and it resulted in organized crime and smuggling, so the law, seen as unworkable, was repealed by referendum in 1932. Sweden tried it and it failed. In fact, almost all the Protestant European

countries went through the phase of trying it, then giving it up.”

“So it doesn’t work anywhere,” Dave said.

“Except in Moslem countries that have centuries long traditions of Prohibition,” he said.

“So, it was illegal to drink in this country,” I said.

Mac took a deep breath. “The 18th Amendment made it illegal to manufacture, sell, or transport alcoholic beverages, but, in yet another ironic twist, it didn’t make them illegal to buy and it didn’t make it illegal to get drunk.

“To compound the problem, many state and local law enforcement agencies refused to enforce Prohibition laws. This was especially true in the large cities where there was little sympathy for the laws. As a result, people started breaking the law immediately. At first, the booze they drank was smuggled into the country, but soon the bootleggers found it easier to manufacture booze here and bribe local officials to look the other way.”

“They paid off officials?” I asked.

“Sure. Illegal alcohol generated incredible amounts of money. With it, the gangsters bought the best and fastest cars, and they armed themselves with Thompson machine guns...”

“To fight off the law?” I asked.

“To fight each other. They usually used the guns only on each other as they fought for turf. They didn’t have to fight the cops. The cops were usually for sale. And if a given cop wasn’t, his superiors were, or the politicians were and the cop was off the case.

“Prohibition not only made criminals rich, it made it possible for them to corrupt the police, politicians, and the courts. And, given the climate where most people didn’t believe the law was a good law, bribes were easily given and graciously accepted.”

“Was corruption really that widespread?” Dave asked.

“In 1920, the agents who were supposed to enforce the Prohibition were

typically paid about \$40 a week, and most of them were political appointees, not men who aspired to a life in law enforcement. They weren't stupid men and it wasn't long before they saw how much the bootleggers were making. Soon, untold numbers of these agents were on the payrolls of the bootleggers.

"In New York City, where there were 64 agents enforcing the Volstead Act for the feds, two agents accounted for over 90 percent of the arrests while the other 62 looked the other way. And there were so many complaints about the two honest ones that after a few years, they were fired—laid off, according to the government official who did it."

"That's incredible," I said.

"There was so much graft, the Prohibition Bureau became the most hated agency of the Federal Government."

"The booze must have really been flowing," I said.

"Sure. It was easy to get. There were tens of thousands of illegal stills and breweries right here in the United States.

"A second source was to bring it in across the borders. Most of the rest of the world had not gone dry and it became very profitable to smuggle part of this foreign production to the U.S.

"In fact, one of the primary reasons Canada, which had also gone dry, repealed its law, was to sell their production to anyone willing to transport it into the United States.

"Booze also came from Europe, the Caribbean, and South America. Many smugglers got small fast boats so they could outrun the Coast Guard. But fishing schooners, yachts, and even seaplanes were pressed into service to bring liquor in. Even though they brought in every kind of liquor imaginable, the smugglers soon acquired the name 'rumrunners.'

"A third way to get booze was to steal legally made booze in this country."

"The stuff produced for medicinal purposes?" I asked.

"That and what was made for export, because even though the 18th Amendment said it was illegal to export alcohol, the government still issued licenses for the export trade.

"But often, shipments of alcohol for both of these purposes were conveniently stolen, often by the manufacturers themselves so they could sell it on what amounted to a black market."

"Wow," I said.

During the Democratic National Convention of 1920, a good many of the dry delegates were drunk on the convention floor.

"The fourth source of booze was the people who started making their own wine and beer at home. It was a funny situation. It was illegal to buy, sell, or transport alcohol—but anyone could buy the equipment to make beer and wine. And many did."

"So the law was essentially ignored," Dave said.

"It depended. You could still get in trouble, especially if you didn't have the money to pay off the officials, or if someone with more money than you had paid a bribe to put you out of business because you were cutting in on their business.

"But people were still getting arrested, tried, and convicted for something which just a few years before hadn't been a crime.

"In fact, four years after Prohibition began, the federal prison population of the U.S. doubled, and it was almost entirely the result of violations of the Volstead Act, and more often than not it was the little guy who was jailed. In contemporary times, the prison population in this country has more than tripled since 1980—when we decided to get really tough on drugs. And I think I told you guys before, this country has a higher percentage of its people in prison than any other in the world—bar none. And just like with Prohibition, no matter how many peo-

ple we put in jail, the problem doesn't abate; it just gets worse as drug trafficking becomes more lucrative.

"There must have been some benefits to Prohibition?" I said.

"It's been said that during its first few years, the incidence of alcoholism fell, then it skyrocketed. But there is every reason to believe it didn't fall at all, that doctors actually failed to report many cases of alcoholism to protect their patients. Let's face it, unless you were a member of the clergy, a farmer, or a doctor, the only way to be an alcoholic was to be breaking the law, somehow."

Prohibition's end nears

"What brought Prohibition down?" I asked.

"It wasn't the politicians—those good folks who had made it the law of the land—because they were still afraid of the dries who were still well-organized and very powerful. Besides, there were other special interests other than the dries that wanted the law to stay on the books. So, to get rid of the law, the people had to do it themselves."

"What special interests?" Dave asked.

"Besides the dries, they were organized crime, the police, the medical community, and those who were living off the graft."

"Why?" I asked.

"Well, it's obvious why the dries didn't want the law lifted. And they had already changed their stand from an economic and scientific issue to a moral one, and they refused to believe that so many Americans—the majority of adults—were flouting the law, just as nowadays we don't want to admit that drugs aren't just used by derelicts and gangsters but by college students, housewives, movie stars and even the politicians who mouth their opposition to them. To admit these things is to admit the laws are doomed to failure."

"In fact, another irony is that, unlike today when anti-drug people call out for more cops and more prisons, the dries stood in the way of appropriations for more funds to enforce the law and for the building of jails."

"Why?" I asked.

"To vote for the appropriations was to admit the law was being violated wholesale, and it meant it was doomed to failure."

"But what about the others you said didn't want Prohibition ended?" Dave asked.

"The gangsters for one didn't want it ended because they were making a great living off of it.

"The police didn't want it ended because they realized their budgets and manpower would shrink.

"The medical community was making money writing prescriptions.

"And as for those who were getting paid-off—politicians, police, and judges—they just didn't want the graft to stop."

"What was going on in Washington all this time?" Dave asked.

"Despite the evidence, those in Washington thought there was a way to make it work. When Herbert Hoover was elected President, he was a dry and he wanted more stringent regulations and enforcement to help Prohibition to succeed. At the beginning of his term, he pushed for the building of more prisons and funds for enforcement, though, as I said, the dries opposed it.

"He also initiated a study under an attorney named George Wickersham. The Wickersham Commission was intended to provide advice on how to make Prohibition succeed. But what they came back with shocked Hoover. The commission's advice was to repeal Prohibition. It wasn't working and would never work barring regulation and enforcement that would be unacceptable within a free and democratic country.

But politics being what it is, the summary report released to the country said just the opposite. Then the

whole report was released with its contradictory summary. Needless to say, it caused confusion."

"Then how did the people stop it?" I asked.

"The death knell for Prohibition was sounded when government at all levels was finding it harder and harder to get convictions for violations to the Amendment and its attendant regulations."

"Why was that?"

"Something we've talked about before—jury nullification."

(Prohibition)...wasn't working and would never work barring regulation and enforcement that would be unacceptable within a free and democratic country.

"You mean where jurors acquit somebody of a crime when they feel the law is bad, even when it's clear that the person broke the law?"

"That's it. Everyone knew Prohibition was the law of the land, but the overwhelming majority felt the law was wrong so prosecutors found it more and more difficult to get convictions for breaking the law, even when the defendants were clearly in violation.

"The courts, in the meantime, were overwhelmed with prohibition violations. More than two-thirds of the violators were allowed to plea bargain to lesser offenses.

"In some places, like Philadelphia, for every hundred people arrested, three or fewer were convicted.

"What the people saw was that these weren't mobsters getting caught, it was working men, college kids, business managers—the backbone of America."

"Everyone saw the law was a failure even while there were still efforts made to save it."

"This is sounding more and more like modern drug enforcement every minute," Dave said.

Mac laughed.

Civil forfeiture

"Do you think drug laws are doomed to failure?" I asked.

"I guess I'm editorializing when I say this, but they've already failed, and I don't know how far we're going to have to go before we realize it. We may have to go all the way to a police state—something America was unwilling to do in the 1920s and 30s."

"But there's no evidence that we're turning into a police state," I said. "At least not yet."

"No? Civil forfeitures in this country, now being exercised at the rate of about 5,000 times a day, conveniently sidestep the restrictions placed upon the government by the Bill of Rights. Government at all levels has found it convenient to punish anybody it wants without the messy requirement of pressing charges, offering writs, or having a trial—all in the name of the War on Drugs.

"If you don't believe me, go to any large airport, buy a ticket with cash, and wave a wad of bills around. The money will be confiscated, but you will not be accused, charged, or tried, and the employee notifying security will get a kickback."

"I don't believe it," I said.

"I wouldn't either, except it happens more and more every day."

"What excuse does the government give for something like this?"

"The premise is that you don't need to carry large amounts of cash—unless you're a drug dealer."

Dave and I were quiet for several seconds. "I'm going to have to look that up," I said. "I still don't believe it."

"Go ahead."

Prohibition ends

"So, how did they finally repeal Prohibition?" Dave asked.

"The stranglehold the dries had on politics was finally breaking. Even the politicians were coming around. It's amazing how courageous they can

become endorsing a popular stand. But there was still an obstacle. Though the majority wanted it repealed, when Constitutional Amendments are submitted to the states, they go to the state legislatures.”

“Why’s that important?” Dave asked.

“By this time, there were more people living in the cities than in the country—but state legislatures didn’t reflect this. The majority of representatives in many states represented the rural areas—even when the majority of the citizens were living in the cities. The rural areas were holding onto Prohibition even while the cities were crying for its repeal. So to circumvent the minority, it was decided that the 21st Amendment, which would repeal the 18th Amendment, which would nullify the Volstead Act by making it unconstitutional, would be decided by elected conventions in each of the states instead of the state legislatures. This ensured that the majority would be heard.

“Then, one by one, the states ratified the 21st Amendment. The 36th state to ratify it, and therefore secure its passage, was Utah, the Mormon stronghold and the state with the smallest percentage of drinkers.

“Did the 21st Amendment just say the 18th was null and void?” Dave asked.

Mac picked up the World Almanac again and read:

21st Amendment

Section 1. The eighteenth article of amendment to the Constitution of the United States is hereby repealed.

Section 2. The transportation or importation into any State, Territory, or Possession of the United States for delivery or use therein of intoxicating liquors, in violation of the laws thereof, is hereby prohibited.

Section 3. This article shall be inoperative unless it shall have been ratified as an amendment to

the Constitution by conventions in the several States, as provided in the Constitution, within seven years from the date of the submission hereof to the States by the Congress.

Prohibition’s legacy

“So Prohibition is dead; ancient history,” Dave said.

“Not really. Its children live on.”

“What do you mean?”

“The United States is a radically different country because we had once had Prohibition. It changed it in a lot of ways.”

“Give me examples.”

...when Prohibition ended, the bureaucracy didn’t want to die with it. Roosevelt recognized the political expediency of keeping these people employed and found a new evil for them to pursue.

“There has always been ‘organized crime’ in various cultures and at various times. But crime as an industry is largely a 20th century American phenomenon, and it started because the 18th Amendment gave criminals money-making opportunities that never existed in this country before. And criminal interests became so large and powerful that, after Prohibition was repealed, the considerable power and wealth of the criminal organizations was invested in other activities, both legal and illegal. One of the problems with the legal ventures of many of these criminal organizations is that they would often still use illegal procedures, including violence, to eliminate competition.

“Among the illegal enterprises they still engage in are gambling and drugs.

“Prohibition also had another questionable legacy, and that was the War on Drugs.”

“How do you figure that?” I asked incredulously.

“Like all bureaucracies, when Prohibition ended, the bureaucracy

didn’t want to die with it. Roosevelt, recognized the political expediency of keeping these people employed, and found a new evil for them to pursue. This time it was an evil few partook of.”

“And that was drugs,” I guessed.

“That’s right. The aggressive enforcement of drug laws came immediately after Prohibition ended. The victims then were blacks and people of Mexican decent. Whites didn’t do drugs. But making drugs illegal not only kept the bureaucrats employed, it ensured that they became the purview of organized crime. Three decades would pass before drug use spread to the white middle class. Then, drug sales mushroomed. Once again people were corrupted by a crime that only recently had not been a crime at all. The prison population has more than tripled in the last 17 years, and the increase has been almost entirely due to drug crimes. Yet, you’d not only be hard pressed to find anyone who thought it was working, but most experts will concede that they’ve actually made the problem worse.

“And to cover up its failures, the government has felt compelled to become even more coercive, resulting in no-warrant search and seizure laws, civil forfeiture, unconstitutional gun-control laws, etc. The government’s claim is that if we’d just divest ourselves of a few of our civil rights, the drug problem would go away—although they don’t quite put it in those words.”

Dave rubbed his chin as if thinking.

Mac went on, “They called Prohibition the ‘noble experiment,’ but it created more problems than it had set out to solve.”

Dave was still thinking.

“I’m sure the guys who passed it had noble intentions,” I said.

“I’m not sure there’s anything noble about threatening to throw someone in jail for their own good. The worst we can say about alcoholism or drug addiction is that it’s a disease. It would be like throwing people who

eat meat in jail because it causes heart disease. Or giving people a criminal record because they had cancer.”

“Wait a minute,” Dave said. “If the Volstead Act needed the 18th Amendment to make it legal, what makes the anti-drug laws legal.

“In 1918, the American public understood that. But the War on Drugs is Prohibition without an amendment to support it.”

“What does that mean?” I asked.

“It means they are unconstitutional laws and those who enforce it—and all who take oaths to uphold the Constitution nowadays—are committing felonies when they enforce it.”

Mac laughed. “I’d always suspected it, but now it’s confirmed, we are being governed, policed, and tried by criminals. Even if it’s only a technicality, they’re criminals. In the same way a judge gives a jury instructions to bring guilt if the prosecution has shown the defendant has broken the law, regardless of how we feel about the law, we would have to bring guilt against any cop, prosecutor, or judge who has ever enforced a drug law.

“In fact, since the Supreme Court has ruled that any law in violation of the Constitution is void, anyone breaking a drug law is technically not in violation of breaking any law at all. It’s a nice little technicality our government overlooks and wants us to overlook. And as long as we are content to sit at home and watch TV instead of protect ourselves, we will overlook it and our rights will be steadily eroded.”

“So you’re endorsing drugs,” I said triumphantly.

“Because I’m insisting that those who govern us adhere to the Constitution, I’m endorsing drugs?” He laughed again. “Those who want to take shortcuts around the Constitution would like to have you think so.”

“Your kettle’s whistling,” Dave said, and he got up and went into the kitchen.

“But how can you say they’re criminals when they’re really just following orders?” I asked.

“It’s the United States who determined that following orders is not a defense—at the Nuremberg Trial.”

I must have looked puzzled.

“That’s when we tried the Nazis after World War II. It was the defense they used. Anyone using that defense is, in fact, taking the Nazi position.”

“Another legacy of Prohibition was that there was more consumption of alcohol after Prohibition was passed than there was before it.

“Not only that, but one of the objectives of Prohibition was to get men out of the saloons and back home. But Prohibition made drinking glamorous, and not only were men heading out to the speakeasies, but women were too. And not only that, but where before the saloons had been filled with laborers, now it was middle class men and women going out to drink.

“Another thing to remember is that people in the 1920s were unwilling to entertain anything that might bring us closer to a police state, and the results of the Wickersham Commission, if you’ll remember, was that Prohibition was unenforceable unless we were willing to become a police state.

“Americans don’t seem to be so reluctant today, and the media isn’t as concerned. Civil forfeiture laws would never have been tolerated in 1920. Today, the only people who complain about them are the innocents caught up in them. But not only are innocent citizens losing property without hearings or trials, but these laws are corrupting police departments nationwide.”

“How so?” I asked.

“The original intention of civil forfeiture was that the funds raised would be added to police budgets to fight crime. But the reality is that almost immediately the amount raised by forfeiture became part of the police budget.”

“Meaning?” I asked.

“If a department raised \$100,000 through civil forfeiture, that was supposed to be \$100,000 extra to fight crime. But the bureaucrats and politicians immediately cut the department’s funding by \$100,000. So the police now have to rustle that money out of the public, whether the citizens have broken a law or not. In Washington, D.C., black citizens are routinely shaken down, and money and jewelry is confiscated to meet the police budget.

“In Malibu, California, a man, Donald Scott, was killed when police stormed his property to confiscate it because someone said he was growing pot. He wasn’t. The Ventura County D.A., Michael Bradbury, has accused the L.A. Sheriff’s Department and various federal drug enforcement agencies of conducting the deadly raid just to get the estate through civil forfeiture.

“What’s happening, even though at the moment it’s on a relatively small scale, is that the police in this country are now robbing and killing our citizens for money.”

“You can’t say that,” Dave said as he came back into the room and handed Mac his coffee.

“I just did.”

Dave sat down and we were all quiet for about a minute.

“How’s the fishing?” Mac asked.

“We can’t fish the river,” Dave said. “The fish are spawning. But the lake is open.” He looked up at the clock. “John and I haven’t been fishing since fall.”

Mac looked at Dave without saying a word.

I turned back to my computer. “I have a magazine to turn out,” I said.

“Twist our arms and we’ll go,” I heard Dave whisper.

“Let’s drag him out and make him go fishing,” Mac whispered back.

“Woo-hoo,” I yelled and turned my computer off. Δ

Build an all-purpose ladder

By Robert L. Williams

The story never varies. If I am doing outside work and need a ladder, I spend nearly as much time trying to set up the ladders as I do in completing the actual work. I find that I need more room, more height, more hands, and more patience for me to handle chores of modest difficulty because of the ladders and their problems.

Ladders, used outdoors, are always on uneven terrain, it seems, and there is considerable danger of falling, dropping and damaging materials, or enduring unreasonable difficulties. So we set out to correct the situation and in the process construct an all-purpose ladder that would meet all of our needs.

Here's what we managed to accomplish: my son Robert III and I built our all-purpose ladder, which is in reality several ladders that solved our problems immediately. First, we have the regular step ladder that everybody knows and hates. But ours is different in that the step ladder is built so that someone can work on both sides of the ladder.

This dual nature of the ladder permits one of us to climb the back side and hold lumber or other materials in place while the other one climbs the



Figure 1



Figure 2

front side to do the nailing or marking or whatever else needs to be done.

But that's not all. If we need two straight ladders, we can simply separate the step ladder and we have two ladders.

If we need to climb higher than the ladder will permit, we make a couple of quick adjustments and we have an extension ladder that is four feet higher than the regular piece of equipment. We can extend the step ladder from 8 feet to 12 feet, and we can do the same with the separate straight ladders.

But that's not all. What if one leg is too high or too low and the ladder(s) lean? We have that covered, too. Our ladder has self-leveling adjustments that can be made within seconds.

And what did it cost us to build this ladder—\$280? Not even close. We have a total of less than \$6 tied up in the entire ladder and its adjustments.

Want to build one? Here's how:

We started with 2-x-4 pine rails and 1-x-4 oak steps or treads. You, if you decide to build the ladder for yourself, will need four of the 2-x-4 timbers and 12 steps. You will also need a top

plate (made of 1-x-6 pine) and two 2-x-4 support and stabilizing timbers for the sides of the ladder. These latter pieces should be about 2.5 feet long. And you will need a number of nuts, bolts, and washers, or you can do the whole thing with either screws and nails. If you use bolts, they need to be 4.5 inches long. Quarter-inch bolts will do fine.

When you have cut your 2-x-4s (we chain-sawed ours and cut back on costs greatly), you can stand them, edges facing out from the wall, so that they lean against the wall at the angle you want to have for the ladder. A reasonable angle can be reached by setting the bottom of the 2-x-4s three feet or so from the wall.

Now use a level to help you mark the bottom and top cuts so that they will be horizontal when the cuts are finished. Cut all four 2-x-4s at both top and bottom.

Next, mark the locations of the steps or treads. We spaced our steps one foot apart, so measure off the step



Figure 3

locations and mark them. Lay them off from both sides and connect the marks with a pencil mark across the entire face of the timber. If your treads are to be one inch thick, make another mark parallel to the first one but one inch either higher or lower. Do this for all step locations.

Next, start at the bottom of the rails and measure and mark off locations two inches apart, or 1.5 if you prefer. These marks should be only pencil



Figure 4

dots along the center of the rail. When this is done, drill a quarter-inch hole through the rail at each of the marks.

Cut four lengths of 2-x-4 one foot long and mark and drill these the same way. When all four are finished, use bolts and wing nuts to attach the lengths to the inside of the rails. Tap the bolts through the holes to be certain that they will move in and out of the holes easily.

These are the leveling strips. When you set the ladder up, if one leg is two inches off the ground, remove the wing nut and bolt in that leg and slide the leveling strip down until it reaches the ground satisfactorily. Then re-bolt



Figure 5

the leveling strip. You can do this with one, two, three, or all four legs, if necessary.

Adding the treads

Your next step is to make a rabbet cut between the tread marks you made earlier. Make the cuts at least one-fourth inch deep, but preferably one-half inch deep. The ends of your treads will slide into these rabbet cuts or notches so that they cannot slip out and cause you to lose your footing.

On the outside surface of all four rails you can lay four-foot sections of 2-x-4s and drill holes at the top and bottom of the sections and rails. Notice that in Fig. 1 the rabbet cuts have been made, the treads installed, and the four-foot strips are being attached. Drill a hole every 12 inches in the four-foot section so that you can extend the ladder one foot at a time, up to four feet.

Note also in the photo that the bottom treads are also supported by braces. Fig. 2 shows the location of the braces.

Cut your treads in the following manner: The first should be at least 15 inches long. The second should be 14, the third 13, and so forth to the top of the ladder. When the treads are installed, use screws driven through the outside of the rail and into the end of the tread. This is double protection to be certain that the steps do not pull loose and cause an accident.

Adding a top cap

When both sections are completed, cut a top cap like the one shown in Fig. 3. The cap should be long enough and wide enough to cover the entire ladder top. Attach the cap by drilling pilot holes and installing long wood screws to keep the cap in place, also shown in the figure. If you wish, you can cut two cap pieces and install them separately so that you can fold the ladder easier.



Figure 6

Adding cross supports

Finally, as shown in Fig. 4., attach the cross-arm support pieces. Notice that the ladder is sitting on uneven terrain and the position causes the ladder to shift dangerously. The cross-arm support appears to be installed unevenly and the two cap pieces are uneven.

In Fig. 5 the cross-arm supports are level, and when the leveling strips are used, as seen in Fig. 6, the cross-arm supports are level and the top caps are again even, even on the uneven terrain.

When the ladder is extended to its full 12-foot height, the cross-arm supports and top caps are still level when an adult is on the ladder, and the ladder is fully stable.

But what about the first step, now that the ladder has been extended?



Figure 7



Figure 8

Few people can step four feet high and carry a paint bucket and brush at the same time. We used a very simple way to solve the difficulty. We drilled a one-inch hole at the one-foot level and another at the two-foot level. Then we used old pipe and drilled a

small hole in each end. We inserted the pipes through the holes and then used a cotter pin, as shown in Fig. 7, to keep the temporary step from slipping loose.

In Fig. 8 you can see the pipe steps, which work fine. When you no longer need the extended ladder, remove the cotter pins and pipes and lower the ladder to its regular height.

One final step. Notice that in Fig. 8 there are short strips just under the top caps. These strips are bolted to the rails of the ladder. The purpose for the strips is to keep the top ends of the ladder stable when you are using the equipment as a single step-ladder. If it were not for these strips, the two ends would move disconcertingly and may cause an accident. Each time you use the ladder, tighten the wing nuts on the bolts to be certain that they are snugly tight.

If you wish to fold the ladder for storage or movement, take the wing nut and bolt loose from one end of each cross-arm support and let the support swing downward. The ladder will then collapse so that it can be carried or stored conveniently.

And that's it. We devoted four hours to building the ladder, but that included time to cut our timbers and dress them. As you build your own, feel free to make any adjustments you like for your own needs.

We have used our ladder many, many times, and we find that it works wonderfully well. And we aren't likely to beat the price. Even the junk they sell in discount stores costs several times what we paid for our ladder, and ours will hold—and has held—more than 400 pounds as two adults work at the same time. Δ

A country moment



Jennifer Nordyke, age 8, gives her goat a smooch.

(If you have a country moment you'd like to share with our readers, please send it to us at Country Moment, *Backwoods Home Magazine*, P.O. Box 712, Gold Beach, OR 97444. Please send a self-addressed, stamped return envelope if you want the photo back.

Try alfalfa for bigger plants

Alfalfa is a natural plant growth stimulant. If applied to plants as a mulch or as a solution in water, it may produce taller, larger plants. It may also increase the number of leaves or produce larger leaves. The cost for this treatment is very low, and it takes just a few minutes to prepare.

Try this growth stimulant on potted plants, house plants, or green house plants. To make a mulch, finely chop good-quality alfalfa hay. Mix about ½ cup of the chopped alfalfa with one or two handfuls of hardwood mulch. Use this mixture as a soil covering for one plant in a six- to ten-inch pot. Water well after applying the mulch. Increased growth will be noticed in one or two weeks in some plants.

An alfalfa solution may be used instead of the mulch. Soak 1½ cups of the alfalfa pellets (from the feed store) in five gallons of water for at least 24 hours. Water the plant with about ½ cup of this mixture every one or two weeks. Δ

Greens and rhubarb are spring tonics

By Jennifer Stein Barker

Rhubarb and greens are classic spring tonics. The reason for this is that they are among the first things to grow to a usable size in springtime, even faster than those other delights, strawberries and lettuce.

By “greens” here, we usually mean members of the Crucifer (Brassicaceae) family like spring mustards, spinach, or wild greens like nettles. Spinach may overwinter in your area and begin growing even before the last spring frost. The others need not wait upon the last frost to be planted, and they grow to usable size within 30-45 days after planting. If you gather greens from the wild, they may be ready even earlier. Rhubarb may be used as soon as you have twice as much as you want to harvest. Don’t ever take all of a plant’s usable stalks from it, and don’t ever use the leaves of rhubarb, as they are poisonous.

The traditional manner of using greens and rhubarb is just to cook them up in water (with a little salt pork in the greens and sugar in the rhubarb). You may get the nutritional benefit of the foods this way, but this doesn’t excite the imagination much (or inspire children to adore the foods). If you would also like to make tasty meals around your spring tonics, try the following recipes.

Lentil and greens soup

An easy soup with a full-flavored broth that serves four.

- 1 cup diced onion
- 1 Tbsp. olive oil
- 2 cloves garlic, minced
- 2 carrots, diced
- 1 bay leaf
- ¼ tsp. celery seed
- 6 cups stock or water
- 1 15 oz. can diced tomatoes
- ½ cup dry lentils
- 2 Tbsp. tamari
- 1 cup macaroni or small pasta shells
- 1 tsp. dried savory, crushed
- 8-10 oz. spinach or other greens

In a large pot or Dutch oven, saute the onion in the olive oil over medium heat until the onion is transparent. Add the minced garlic, and cook another three minutes.

Add the carrots, bay leaf, celery seed, stock or water, tomatoes, lentils and tamari, and simmer until the lentils are tender (30-40 minutes). Add the pasta and savory, and cook until the pasta is tender, about 10-12 minutes.

Meanwhile, wash and chop the greens into 1-inch pieces. Chop the stems finely. Stir the greens into the soup, and bring back to the boil. Serve as soon as the soup is heated through and the greens are wilted.

Spring greens with cornmeal dumplings

You can use any kind of cooking green for this, like mustard or turnip greens. This also serves four.

- 1 Tbsp. olive oil
- 1 cup diced onion
- ½ oz. dried mushrooms, soaked (recommend Boletus)
- warm water to soak mushrooms
- 2 Tbsp. tamari
- dash Tabasco
- 2 lbs. spring greens, washed and chopped
- dumplings:
- 1 cup whole wheat pastry flour
- 1 cup yellow cornmeal
- 3 tsp. baking powder
- ¼ tsp. salt
- 2 eggs
- ⅔ cup milk
- 1 cup grated jack cheese

Make this whole dish in a large, deep cast iron skillet for which you have a lid (my skillet is 10 inches across by 3 inches deep). Start by sauteing the onions in the olive oil over medium heat until they are transparent. Soak the dried mushrooms in warm water (just enough to cover them) in a small dish for 10 minutes. When they are soft, drain the soaking water onto the onions. Chop the mushrooms and add to the skillet. Add the tamari and Tabasco. Simmer until the liquid is reduced and thick.

Meanwhile, get the dumpling dough ready. In a small bowl, stir together the pastry flour, cornmeal, baking powder, and salt. In a medium bowl, stir together the eggs, milk, and grated cheese. Set both bowls ready on the side.

Wash, pick over, and chop the greens coarsely. Add to the skillet, and cover with a lid. Turn the heat to low, and cook just long enough to wilt the greens. Stir to mix the greens and the onions.

Combine the two bowls of dumpling ingredients by pouring the dry mixture into the wet mixture. Stir just to combine (don’t overmix and don’t worry about a few lumps or a dry spot), then drop by spoonfuls over the greens in the skillet. Cover with the lid, and simmer on medium-low heat for 16-18 minutes, until the dumplings are firm and springy.

Serve immediately by spooning the dumplings and sauce into soup plates.

Rhubarb buttermilk cake

Rhubarb needs no added moisture to make a cake, so to get great flavor, I use powdered buttermilk (available at health food stores or in the powdered milk section of the grocery). This makes one 8 by 8 inch cake of 16 pieces:

$\frac{1}{3}$ cup finely chopped walnuts
1 $\frac{1}{3}$ cups whole wheat pastry flour
 $\frac{1}{2}$ tsp. baking soda
 $\frac{1}{4}$ cup buttermilk powder
3 cups diced rhubarb
 $\frac{1}{3}$ cup honey
1 Tbsp. oil
1 egg
1 tsp. vanilla

Preheat the oven to 350 degrees and oil an 8 by 8 by 2 inch square pan lightly. Sprinkle about half the chopped nuts over the bottom of the pan, and set aside.

Measure the flour, baking soda, and buttermilk powder into a medium bowl. Stir until well blended. Dice the rhubarb $\frac{1}{4}$ to $\frac{1}{2}$ inch (to your taste, it does not need to be perfectly regular). Toss the rhubarb with the dry ingredients and set aside.

Measure $\frac{1}{3}$ cup honey, and add the oil, egg, and vanilla to it right in the measuring cup. Stir together well, then scrape it out over the rhubarb mixture. Toss and stir until ingredients are thoroughly moistened. The mixture will be stiff.

Spoon the mixture into the pan, being careful to distribute evenly over the nuts without disturbing them. Push down and smooth over the top. Sprinkle the remaining nuts over the top, and bake for 35-40 minutes, or until the cake tests done.

Let rest in the pan 10 minutes to cool, then slice 4 times each direction and remove the pieces to a rack with a spatula. Serve warm, or let cool thoroughly and then store in an

airtight container. This resists becoming soggy, but it is best eaten the first or second day.

Rhubarb roly-poly

This is great for breakfast or a not-too-sweet dessert. The recipe makes a 5 by 9 inch loaf.

Dough:

1 cup warm water
1 Tbsp. yeast
1 tsp. honey
1 egg
 $\frac{1}{2}$ tsp salt
 $\frac{1}{4}$ cup oil
 $\frac{1}{3}$ cup honey
 $\frac{1}{4}$ cup milk powder
2 Tbsp. soy flour
1 Tbsp. gluten flour (opt.)
3-4 cups bread flour

Filling:

$\frac{1}{4}$ cup honey
2 cups diced rhubarb ($\frac{1}{4}$ to $\frac{1}{2}$ inch)

In a large bowl, proof the yeast with the honey in the warm water. When the yeast foams, add the egg, salt, oil, and honey. Mix together the milk powder, soy flour, gluten flour, and first 2 cups of bread flour. Add to the yeast mixture, and beat well until strands of gluten form. Add enough more bread flour to make a stiff dough. Cover and let rise for $\frac{1}{2}$ hour while you dice the rhubarb.

Dice the rhubarb $\frac{1}{4}$ to $\frac{1}{2}$ inch. Don't worry about making it regular. Pour the honey over it and stir. Set aside.

Lightly oil a 5 by 9 inch loaf pan. Set aside. Turn the dough out onto a floured board and knead until smooth and springy, 5-7 minutes. Roll out to an oblong about 9 by 15 inches. Spread the rhubarb openly over the dough oblong, with its juice. Starting with a short edge, roll the dough up into a 9 inches long loaf. Place the loaf in the pan. Let rise until increased in bulk by 50%.

Bake in a preheated 350 degree oven for 40-50 minutes, until the bread tests done. Δ

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Do you have a good recipe for stir-fried rattlesnake?

By Don Fallick

Generally speaking, I don't go looking for rattlesnakes. They keep the rodent population under control, and they seldom attack humans. Rattlers are afraid of people and don't associate with them by choice. I don't believe in disturbing the balance of nature if I can avoid it, but when I see one close to the house, I know something is wrong. Usually it means the pressure of overpopulation has forced it to go where no sane rattlesnake should be. The solution is to reduce the population.

At first it might seem that the best way to do this is to shoot the snake, using a gun loaded with snakeshot. It's quick, it's humane if you hit it in the head, and it keeps you out of striking distance of the snake. But you may not have a gun handy, and it's dangerous to shoot at a snake in close quarters without snakeshot because of the possibility of ric-



ochet. Whatever you do, you must do it fast or the snake will get away, only to threaten you or your family at another time. Luckily, rattlesnakes are rather easy to kill with a shovel or hoe.

The snake can only strike as far as its body length—a maximum of about three feet in most species. Even a short-handled shovel is longer than that. The best way to kill a rattler is to hack off its head with a hoe or shovel as it tries to slither away. Aim for the neck, behind the triangular head, to avoid squirting poison out of the poison sac in the back of the head. Another good strategy is to immobilize the snake's head with a rake or even a long, forked stick. Crush the head with a club of some kind or cut it off with an axe. A dead snake will thrash for quite a while after the spinal cord is severed. Also, the jaws may still bite reflexively, and the fangs may drip venom, so it's best to avoid picking up the head in your bare hand. I usually dig a hole deep enough that the dog won't dig it up, then bury the head under rocks. But I don't bury the body. I don't believe in wanton killing, and rattlesnakes make mighty fine eating.

People will tell you that rattlesnake meat tastes like chicken. Actually, it tastes like rattlesnake. It has a stronger flavor than chicken but a similar texture. While it can be prepared any way that chicken can, there's not as much meat on a snake as there is on a chicken. So it works out best in a dish where the meat is added for flavor, but is not the main ingredient. Stir-frying is the best way I have found to prepare fresh rattler. It's perfectly suited to the many small pieces of meat you'll end up with, and the subtle flavor blends well with the almost-fresh vegetables produced by stir-frying.

Skin the snake by grasping the neck in one hand and pulling the skin inside out. Filet the snake by stripping off the long muscles on either side of the spine, and throw the rest away. It's not worth the effort to get at. Cut the filets up into inch-long sections. They may still be twitching when you do this: reptiles take a long time to die, but never fear, cooking will render them thoroughly dead.

For stir-frying, you will need several cups of vegetables. The exact amount and kind of vegetables will vary, depending on availability, taste, and the number of people present who are willing to eat a snake.

1 rattlesnake, fileted
 1/2 sweet, white onion
 or 1 medium bunch of scallions, sliced thin
 1 or 2 bell peppers, red or green, sliced
 1 cup of mushrooms, sliced
 1 cup of bean sprouts
 1 cup of snap peas, snow peas, or immature green peas, in pods
 1 or 2 cups total of other fresh white, yellow, or green vegetables in season, sliced thin or diced
 1 cup of cooked white or brown rice per person
 1/2 cup of wok oil (see below)
 1 cup of commercial or homemade stir-fry sauce (see below)
 1 roll of paper towels
 or clean, disposable, cotton rags

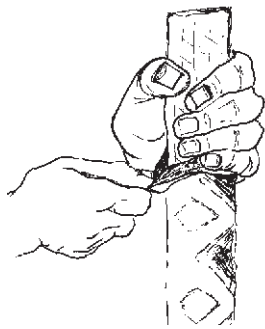
Wok oil

Mix together:
 1/2 cup of olive or canola oil
 1 pressed clove fresh garlic
 or 1/4 teaspoon garlic powder (*Do not use garlic salt.*)

Stir-fry sauce

Mix until thoroughly blended:
1 cup soy sauce
1/4 teaspoon powdered ginger
1/4 teaspoon powdered mustard
1 teaspoon sugar or honey
2 teaspoons catsup
Garlic and/or onion to taste

Slice the meat into thin strips. Slice the onion or scallions, bell peppers, mushrooms, and other large or thick vegetables into pieces thin enough that they will cook almost instantly. Keep each ingredient separate. Leave the pea pods and bean sprouts whole; they will cook quickly enough as is. The idea in stir-frying is to cook each kind of food at a very high temperature, very briefly. This allows the food to cook all the way through without losing its natural, "raw" flavor and texture. Flavors are not mixed until the very last, so the mixture tastes more like a salad than a stew. Begin by preparing the rice in your favorite way. While it is cooking, you'll do the stir-fry.



Nothing works as well for stir-fry as a wok, but if you don't have one, you can substitute a deep cast-iron skillet. Heat the wok very hot, then slide in a tablespoon of room-temperature wok oil and immediately dump in the snake meat. Turn constantly with a metal or wooden turner. Allow some of the meat to rest on the bottom of the wok for a few seconds only, then scrape it to the

side to stay warm while another portion of the meat is cooking. Cook the meat for one to two minutes only, until each piece is about half-cooked. Then set it aside in a covered dish or in a warm oven to keep warm until the vegetables are ready. Wipe the wok dry with a thickly-folded paper towel or clean, disposable cotton rag so the vegetables are not contaminated by the meat flavor while they are cooking. Heat the wok very hot again, and put in another tablespoon of room-temperature wok oil.

Cook each of the vegetables the same way. Add each kind of vegetable to the meat when it is half-cooked, and go on to the next vegetable. Dry the wok, reheat, and add fresh wok oil each time. This allows each kind of food to cook separately, sealing in the flavors so they don't mix. When they are all half-done, stir all the vegetables and the meat in the wok together; add half of the stir-fry sauce, cover, and cook at medium heat for one or two minutes, until the meat is done. Serve over rice. The rest of the stir-fry sauce can be added by each lucky diner, to taste. Δ

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Mom's wash was rainwater clean

By Barbara Kesser

For the longest time after our family moved from Chicago to a Minnesota farm in the early 1940s, my Mom was called the Greenhorn Farmerette by the old-time farmers living down the road from our place. They're probably still talking about her...that strange city lady who lived on the Peterson place and ran around in thunderstorms "gathering water."

It all started one spring day when Mom found a rain barrel of dark brown oak firmly planted into the dirt and rotting leaves behind the spirea bushes.

"Help me get this barrel over to the corner of the house," Mom shouted gleefully. "I've always wanted to wash clothes in rainwater—it's soft water, you know—and now I have the barrel for rain!"

In the dictionary, a barrel is defined as "a bulging cask greater in length than in width," and that did fit the description of the one Mom was trying to drag closer to the door. I pulled at it with her, since a barrel of rainwater near the kitchen door was going to be 60 feet closer than the well house near the barn. Electricity pumped the water up, but aching arms carried all our water into the house. It seemed to me someone was always bringing water home—even old Grandpa, who lived with us.

So, with Dad's help we got the barrel in place and waited for rain.

Mom's excitement was catching, and as electric as the lightning in that first (for us) country thunderstorm. When it finally got too dark to "check the barrel" anymore, Mom told us to bring all our dirty clothes downstairs for the next day's washing "in rainwater."

But in the morning, Mom found no shimmering rainwater reflecting back at her from the dark, dry wood of the "bulging cask." Only a little water had

dripped from the eaves above the barrel, almost like a tease of what could have been.

Mom sputtered and fumed a while, then went about the house collecting pots and washpans, and we heard her mumbling, "Just you all wait until the next storm."

One unbearably hot, humid afternoon, dark clouds rumbled over the sun and set up a mighty roar of thunder. Lightning, zigzagging from sky to ground, lit up all the corners of the house and the chicken coop where Mom had said she was going to put the rain-collecting pots and pans as soon as she could get around to it. And what better time to get around to it than right now in the downpour.

So, with her arms holding the big laundry tub filled with smaller pots and pans, Mom ran out into the yard in her sleeveless house dress and her most comfortable penny loafers. Instantly, rain plastered Mom's hair and dress to her body until she looked like a bald, naked nymph playing tag with the lightening bolts. She really had picked the right spots to gather rain. In a few minutes each pot and pan was full. Back and forth she ran until the rain barrel overflowed. Then, looking like she'd never dry out, Mom leaned over the barrel, softly murmuring, "Rainwater. Soft rainwater."

Leaving her shoes outside, Mom stood at the door in her dripping dress and smiled. "I got it!" she gloated.

When Dad got home from town after the storm, he couldn't believe Mom had been "so dumb" as he said, to be out there in all that rain and lightning.

"You'll know it was worthwhile when you smell your clothes the next time they're washed. Between that rainwater and the sun . . . they'll be fantastic!"

"Nuts!" Dad said and went right to the barn, brought back a ladder, and fixed the gutters above the rain barrel.

For most of the summer, then, our clothes—even the overalls—were soft and wonderful to smell. But one Monday (Mom always washed clothes on Monday) at the end of August, Mom carried a bucket of rainwater into the house and said to me, "Look at the color. Does it look funny to you?"

I stared at the water, tinged slightly yellow, but it didn't seem too extraordinary to me, so I said, "Maybe it's the bucket."

"I don't know," Mom said as she went about heating the rainwater as usual in the big wash boilers set on two of the burners of the big, black iron wood-burning stove.

It rained again and again, and each time Mom washed clothes, she wondered about the "funny looking color" of the rainwater.

"Maybe the barrel needs to be scrubbed out again," Dad offered, and Mom agreed with that. She'd empty the barrel out after the next wash and scour it again. There was still too much rainwater in the barrel to do it now, she said.

Early the following Monday, Mom brought up the long, skinny boiler from the basement and walked out the back door to get the rainwater. She saw Grandpa, carrying his nightbucket, as he came out of the "little house in the alley" as we called our outhouse. She was about to call out "Good morning" when she saw Grandpa veer toward the corner of the house where the bulging cask of rainwater shimmered in the early morning sun.

Down into the glistening water Grandpa put his nightbucket and after swishing the rainwater around and around in it until he was satisfied his bucket was clean, Grandpa poured the slightly tinged water back into the rain barrel.

Mom gasped. Grandpa looked up—and the storm that followed would have filled at least two barrels—if there had been rain. Δ

There's still a lot of life left in dead trees

By Tom R. Kovach

If there's an old tree in your yard or pasture that's either dead or showing signs of decay, don't be too hasty about cutting it down and hauling it away. Old, dead, or dying trees still serve as a home for a wide variety of birds and other wildlife.

According to Bill Vermillion, a biologist with the Natural Heritage Program of the Department of Wild-life and Fisheries for the state of Louisiana, there are at least 85 species of birds in North America which are "cavity nesters" using trees for nesting. (I guess they had the bird-house problem figured out long before humans started building them.) Some of these cavity nesters include owls, woodpeckers, chickadees, bluebirds, and wrens.

Woodpeckers are equipped to build their own cavities. With their sharp, pointed bills they can bore and dig into trees. They have stiff tail feathers that provide leverage as they peck or tap into wood. They have strong clawed feet to grip into tree bark. Most other birds and mammals are not similarly equipped and must take what they can find.

The wood duck, for example, is one of only a few cavity-nesting waterfowl, and there are few cavity dwelling birds less equipped to build their own holes. They have webbed feet and bills like other ducks, so they can't grip vertical surfaces or dig their own nests. A hole in a tree is the preferred nesting site, however, and as long as it is near duck habitat, that's where you'll find nesting wood ducks. This remarkably distinctive waterfowl species has made a tremendous comeback from near-extinction at the turn of the century. A fallen tree near prime habitat (wooded lakes, swamps, and sloughs) will assist in its re-establishment.

Birds are not the only animals you'll find living in a dying tree. Mammals such as red and gray squirrels, flying squirrels, raccoons, and opossums also make use of holes in trees. Squirrels are the acrobats of the rodent family and can provide hours of amusement as you watch from your window or other vantage points. Raccoons and opossums also like to frolic and are fun to observe.

Turtles, lizards, and other reptiles and amphibians also find suitable homes in hollow trees.

These old trees not only provide shelter, they are also a source of nutrients. They supply birds with food in the form of insect larvae. Other animals will feed on plants, fungi, and bugs that thrive in and on rotting wood.

Most cavity excavators need dead or dying trees to work with, and even a tree as small as four inches in diameter and six feet tall can serve the purpose. Trees with broken tops or holes, fallen trees on the forest floor, and even stumps are useful.



Check local ordinances, as there may be regulations for removal of dead or dying trees. If removal is not required, you may want to leave the tree standing. Prune rotted branches to make the area safe for people below, or if the tree is too close to a home or out-building.

If you haven't already, look around your yard or pasture to see if you have any old, dead, or dying trees. And the next time you're walking in the woods or are doing any bird or wildlife watching, observe the cavities in these old trees. See what comes and goes—you may be surprised. Finding an old tree with residents is also a good way to introduce young people to the joys of observing wildlife. Δ

Passing Time

Riding in the front seat
with my head on your shoulder,
there's nothing in the world but sky
and the tops of telephone poles
close to the road.

When I was small and carried
along
in the back seat
of the old brown station wagon,
counting poles and watching sky
made me impatient and weary.
Now it only reminds me of how
quickly they go by,
and how seldom I'm in a position
to count them

Melissa Sullivan
Petersburg, IL

Grow sweet Tetsukabuto squash

By Alice Brantley Yeager

By George, I think we've got it. It's name is Tetsukabuto and it is a hybrid winter squash with a flavor that is tasty enough to rival the pure goodness of a prime sweet potato. To say this is to venture out on a limb as many folks are mighty fond of quality sweet potatoes, especially when they are served in the form of a delectable pie or pone.

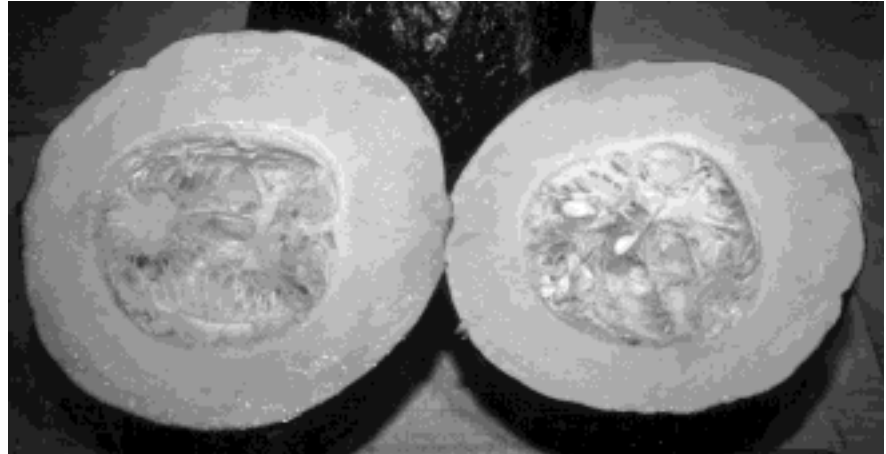
The Tetsukabuto squash (Let's call it "Tet" for short) recognizes no boundaries, but it's easy to grow. A long garden fence will serve nicely as a support for this import from Japan. If your garden area is very small, however, I don't recommend trying to jam Tet into it, as Tet needs space to spread out. Four or five Tet vines should provide plenty of squash for a family of four with enough left over to share or sell. Fringe benefits come in the form of beauty. Large green leaves mottled with white and bright yellow flowers are outstanding.

My first experiment with Tet made me realize that the vine will make an all-out effort to cover everything in the garden if not trained in the way it should go. Nothing was beyond its determined reach forcing me to take bold steps with a pair of strong clippers. That was the summer I had to spend a considerable amount of time



A pie made with the pulp from a Tetsukabuto squash.

away from the garden due to foot surgery and Tet took advantage of my absence to escape and climb a large sweetgum tree nearby. When I discovered what had happened, I gave up and let the vine go its merry way. Go



Freshly cut Tetsukabuto squash ready to be steamed.

it did right up into the tree where it dangled its dark green fruits like comic-strip bombs. Harvesting had to be accomplished with a tall ladder and a long limb lopper, but the situation prompted great conversation.

Cultivation

Like most squash seeds, Tet seeds may be started indoors in 3-inch peat pots, but if one prefers to plant seeds directly in the garden, it is advisable to wait until ground has warmed up before planting. Squash seedlings are like some other warm weather plants—okra, watermelons, etc—that will not do well if planted before spring has lost its chill. Patience with the season will have its reward.

Tet has an ordinary pH requirement of 6.0 to 8.0 and will do well in most fertile garden soils. Ground should be well worked leaving no clods. Well rotted compost dug into the soil is

very helpful and a sunny, well drained spot is an ideal location.

If planting in a row, allow about four seeds to a foot of row and, if planting in hills, put five or six in a hill. Plant seeds 1 inch deep and, when seedlings are about 2 to 3 inches high, thin to stand 2 feet apart in a row. If in hills, leave three of the strongest plants to a hill. I have found these

seeds not to have a high rate of germination, so I always plant a few extra for insurance.

When the vines begin to reach out, I guide them onto a fence by loosely tying them to their support with strips of old nylon panty hose. Once in contact with the fence, they're on their own except for an occasional restriction to keep them from taking over.

The size of Tet's fruit makes it very adaptable to fence culture as the fruits average 7 to 8 inches in diameter and weigh 4 to 5 pounds. Toward the end of the season, fruit will tend to be smaller as the weather cools down. Being hybrid, the vines will continue to put on squash until very late summer.

In southwestern Arkansas (Zone 8) I have encountered no disease or insect problems with Tet, but in another part of the country there may be enemies such as vine borers. County Extension Agents will have advice about local pests.

Living in an area where dry weather often poses big problems in summer, I am a believer in a thick organic mulch (pine needles, leaves, grass clippings, etc.). When rainfall becomes very scarce, it is essential that plants be given the benefit of mulch if they are to survive and produce until fall. Mulch gives gardeners more time to spend on something besides watering and the breaking down of the organic matter adds humus to the soil.

Harvesting

When frost is predicted squash should be gathered ahead of the freeze. Harvesting requires the use of a pair of sharp clippers, as squash stems are tough. At least an inch of stem should be left on the fruit.

Tet is a good keeper and will last for several months if stored properly. A

cool place away from direct sunlight and with good air circulation is recommended. Some folks suggest washing winter squash with a weak solution of bleach and water before storing, but we have not done this and have had no problems with squash in storage.

Now we come to the good part—the part wherein we actually get to savor the results of our labor. In Tet's case, the result is definitely delicious.

Prepare a squash for culinary use by cutting it in half lengthwise and removing seeds and stringy interior. Place halves face down in a pan with a lid (A small roaster is ideal), add 2 cups of water, cover and place in a 350 degree F., oven. Allow squash to steam until tender—about 30 minutes. Remove from oven and let the squash

cool until it can be handled comfortably.

Peel off skin and discard. Cut orange flesh into chunks and mash with a potato masher or puree in blender. (Add a little water if using a blender.) If you have more pulp than needed for a recipe, the excess may be frozen in an airtight container for later use.

This versatile squash may be used as a substitute in recipes calling for sweet potatoes or pumpkin. The amount of sugar required may be lessened due to Tet's natural sweetness. (See pie recipe.) As to health benefits, Tet is particularly high in Vitamin A and potassium.

The coziness of a warm kitchen in winter, the aroma of freshly baked Tetsukabuto squash pie and a slice of that pie to have with a cup of hot coffee—well, we consider that pleasurable living in our part of the piney woods.

A good source of Tetsukabuto squash seeds is Pinetree Garden Seeds, Box 300, New Gloucester, ME 04260.

Tetsukabuto squash pie

1 9-inch unbaked pie shell
2 cups mashed or pureed cooked pulp of Tetsukabuto squash
½ tsp vanilla
10 oz. evaporated milk
¼ cup brown sugar
2 Tbsp unbleached flour
½ tsp nutmeg
½ tsp ginger
⅓ cup chopped pecans

Thoroughly mix pulp, vanilla, and milk. Mix sugar, flour, nutmeg, and ginger together and stir into the wet mixture. Pour into the pie shell and bake in 375 degree oven until the middle of pie is almost firm but still sticky. Remove from the oven and sprinkle with pecans. Continue baking until a straw inserted in the center comes out clean. Entire baking time takes 40 to 45 minutes. Δ

A country moment



Emily Williams, age 4, of Kelley, Iowa, makes friends with a tomato worm.

(If you have a country moment you'd like to share with our readers, please send it to us at Country Moment, *Backwoods Home Magazine*, P.O. Box 712, Gold Beach, OR 97444. Please include a self-addressed, stamped return envelope if you want the photo back.)

Barbecue — it's America's national cuisine

By Richard Blunt

In 1920 Henry Ford and Thomas Edison pooled their collective genius to find a practical solution for using the growing mountain of wood scraps that were a by-product of manufacturing the wooden auto parts that were used in Ford's successful Model T line of automobiles. After fretting over the problem for some time, Ford hit on the idea of turning the scraps into charcoal and grinding them into powder. He then teamed up with Edison who designed a processing plant to mix the charcoal powder with a starch binder to form the mixture into the uniform little pillow shaped things that we now call charcoal briquettes. This set the stage for the advent of barbecue as America's national cuisine. Well, almost.

At the end of the Second World War, the popularity of barbecue increased faster than any other culinary concept. Today nearly 85% of the families in this country own some type of outdoor roasting, grilling, or smoking equipment and more than \$400 million is spent every year on charcoal briquettes to keep this stuff fired up. The popularity of barbecue has almost single-handedly elevated the once humble hamburger to the lofty position of America's favorite food.

And everyone's an expert. Mention barbecue, and even folks who are normally quiet and reserved will begin bragging about their skill with a grill or smoker. Obscure topics like the history of barbecuing or potential health hazards attributed to barbecued foods will also be tossed about.

Barbecue fanatics, myself included, will barbecue anything from hamburgers and hot dogs on a backyard charcoal or gas fired grill to whole animals slowly smoked "barbe-a-que" (which, in French, means from whiskers to tail) over an in-ground pit.

Barbecuing, to me, is like being Alice in Wonderland—a thousand directions to go in with only one to choose. But if you have a handle on your personal taste, a few basic tools that you find useful, and a willingness to mess around with different ingredients and cooking procedures, you will find barbecuing uncomplicated and fun.

Grills — open and covered

All the grills in the marketplace fall into two categories: open and covered. The open grill is by far the most familiar piece of barbecue equipment, and the simplest form of open grill is the familiar hibachi, a grill that is as versatile as it is inexpensive. The hibachi can be used in places that larger grills cannot. I pack my hibachi in the car on all family outings and picnics, and I have even fired it up in the house



Richard Blunt

during nasty weather by opening the flue and placing it in the fireplace.

At the deluxe end of the open grill spectrum is the Grillery, a handmade all stainless steel grill with a crank that precisely raises or lowers the cooking surface 16 inches. The 20-inch deep by 22-inch wide cooking surface is constructed of V-shaped stainless steel bars that channel fat and juice drippings into a collecting pan, away from the fire. The Grillery is designed to be fired with wood instead of charcoal. You can cook while the fire is still flaming by simply moving the cooking surface away from the flames. As the flames settle down, the surface can be lowered to the desired height above the coals. The standard model costs a mere \$895. If you have a real big ego or find yourself entertaining celebrities and heads of state, you should consider their San Antonio model which offers a 20 x 44 inch cooking surface for about \$1500 plus shipping.

The overwhelming favorite grill for backyard barbecue is the covered kettle grill, introduced by Weber Stevens Products in 1951. Both the charcoal and cooking grates are fixed on the kettle grill. This makes the control of heat exchange a critical factor. A common mistake made by many barbecue cooks, including me, is to ignore the instructions that come with the unit and cook without the lid in place. Grilling with the cover on eliminates flare-up, speeds cooking time, and saves on fuel costs.

The Weber is without a doubt one of the best bargains on the market. The cost of the 22-inch model in 1952 was just under \$50, a princely sum then. The latest version is priced under \$100, a bargain in today's dollars, and they last. I paid \$68 dollars for my Weber in 1986, and it's still going strong, even though I use it an average of 175 times a year. I

am one of those barbecue junkies that grills and smokes in snow, rain, and hurricanes.

But what the Grillery is to open grills, the Hasty Bake Gourmet Charcoal Oven is to covered grills. The Hasty Bake is also handmade and the cold-rolled, black-powder coated steel model can be purchased for about \$800, while their stainless steel model runs about twice that. The Hasty Bake can also be used as an oven by placing a heat deflector over the coals; this creates an even heat across the grill. Another much appreciated feature is a full-width fire door that permits refueling without opening the hood.

Other tools

A grill isn't all you should have to have the perfect barbecue. Another piece of equipment that is nice to have is a **meat thermometer**. Most professional cooks would feel naked without one hanging from their pocket when they enter the kitchen. They are easy to use and eliminate the complaints like, "This meat is still raw" or "My meat is overdone." Here is a chart I find helpful when cooking meats, indoors or out.

Meat	Rare	Medium	Well Done
Beef	140 F	160 F	175 F
Pork		160 F	170 F
Lamb	140 F	160 F	170 F
Poultry	All domestic poultry should be cooked to 170 F		

Long handled tongs: I don't feel comfortable poking any food with a fork while it is being grilled. Tongs do a better job and won't do damage to the food and allow valuable juices to spill into the fire.

Basting brush: The expensive long handled brushes made for grilling do not baste food any better than a standard, flat, boar bristle kitchen brush.

Long-handled offset spatula: A nice item for turning delicate items like fish and thin 4-ounce hamburgers. If I ever loose my little 10-inch kitchen spatula with it's flexible metal blade, I'll replace it with one of these long-handled offset types.

Charcoal lighting chimney: This is, in my opinion, the safest and quickest way to light charcoal briquettes, and it eliminates the nasty smell of lighter fluid. Follow the instructions that come with the unit, and you can't go wrong.

Skewers with half-inch wide flat shanks. These are great for solving the problem of food spinning around as you try to turn it over.



Charcoal tips

1. Before throwing anything on the grill, give the charcoal at least 30 minutes, after you light it, to burn to the point where the pieces are all covered with a white ash.

2. Use only high-quality name-brand charcoal. Bargain charcoal causes more problems than cost savings can justify, such as charcoal that will not light, when lit will not burn evenly, or will fall to powder at inopportune moments.

3. Use only the amount of charcoal required for the item being grilled. Excessive amounts cause dangerous flare-ups and charred food

4. Charcoal briquettes and natural lump charcoal burn at different temperatures: Briquettes burn at about 350 degrees F; natural charcoal burns at 600 degrees F.

5. Remember that barbecue cooking must always be a pleasure. If it becomes a chore, stop and use your oven.

Howard's smoke-roasted pork shoulder

"This is working folks' barbecue; you fire it up in the morning, go to work, and when you get home it's ready to eat." Those are the words of an old fishing buddy of mine. He introduced himself to strangers as Amanda B. Recondwith, but his friends called him Howard. Howard made his living selling striped bass and bluefish to high priced Cape Cod restaurants in Massachusetts. His claim to fame was the fact that he had fished every inch of the Atlantic coast from Maine to Texas. He was also one hell of a cook, and barbecue was his specialty. He would tell stories of smoke-roasting whole pigs, goats, and 20-pound stuffed bass barbe-a-quene at beach parties. "And every part was eaten except the squeak," he would say.

Successful smoke roasting requires lots of time and the right kind of meat. A bone-in pork picnic shoulder is perfect for this type of laid back barbecue. Howard would start smoking a five-pound shoulder at 8 or 9 o'clock in the

morning, go fishing for 4 hours, return to camp at noon to add a little more charcoal and smoking wood to the fire, then return to his surf fishing until dinner time. The whole process took about 8 hours. Pork picnic shoulders can weigh up to 15 pounds and require 15 to 24 hours of smoking. This low-temperature process cooks at temperatures which seldom exceed 200 degrees F. Almost any large roast cooked this way is lightly crusted on the outside, fall-off-the-bone tender on the inside, and is permeated with the sweet, smoke-flavored moisture of its own juices. I have also included one of Howard's all purpose barbecue sauce recipes.

After the shoulder is cooked the meat can be pulled from the bone with a fork, placed on a fresh baked sandwich roll, and topped with sauce. Gather up three or four hungry friends, some hot potato salad, a few bottles of pale ale, and have a classic Southern BBQ. Amen!

Equipment:

A standard-size charcoal grill with a cover that has smoke holes, a 10-inch cast iron or aluminum pan, and a metal charcoal lighting chimney.

For smoke roasting: eight golf ball-sized seasoned hardwood chunks, (hickory, mesquite, oak, maple, apple, or other fruit tree wood) and 40 charcoal briquettes.

Ingredients:

1 4 to 5-pound bone-in-pork picnic shoulder
10 juniper berries, toasted in a 350-degree oven for 10 minutes and crushed
½ tsp. ground ginger
½ tsp. fresh ground nutmeg
2 Tbsp. fresh ground black pepper
1 tsp. cayenne pepper
1 tsp. ground coriander

Method:

1. Remove the pork from the refrigerator, combine the spices, then massage them into the surface of the pork. Set the pork aside for one hour.
2. Soak half of the hardwood chunks in water for at least 30 minutes.
3. Light the coals and let them burn until they are covered with a white ash.
4. When the charcoal is ready, shovel the coals to one side of the kettle. Place the soaked hardwood chips on the burning coals. On the other side place the cast iron or aluminum pan half-filled water.
4. Put the cooking grate on the grill and the meat on the grate, fat side up, directly over the pan filled with water.
5. Replace the cover on the kettle making sure the smoke holes on the lid and the air holes on the bottom are opened only half way. Smoke the meat for about four hours without lifting the lid to peek (otherwise, you're letting out the heat and the smoke).

6. In about three hours, start soaking the other half of the hardwood chunks in water.

7. After the meat has smoked about four hours, remove the lid. If your coals are about burned away, add more charcoal and place the soaked hardwood chunks on top of the burning coals.

8. Let the meat cook an additional three hours without any disturbance. At the end of that time remove the cover and give the blade bone a tug. If the roast is done the bone will easily separate from the roast. Another way to check is to insert a meat thermometer into the thickest part of the roast without touching a bone. A reading of 170 degrees F means it's done. If it is not done, it may require an additional hour of cooking.

While your roast is cooking, prepare the barbecue sauce.

Ingredients:

2 Tbsp. olive oil
¼ cup onion, chopped fine
2 cloves fresh garlic, chopped fine
1-inch piece fresh ginger, peeled and chopped fine
½ tsp. orange zest
¼ cup tomato paste
1 Tbsp. cider or herb vinegar
¾ cup apple cider
½ cup your favorite ale or beer (a pale ale with a strong hop taste works best for me)
1 Tbsp. soy sauce
¼ tsp. ground coriander
½ tsp. fresh ground black pepper
2 Tbsp. (or to taste) brown sugar
½ tsp. (or to taste) cayenne pepper

Method:

1. Preheat a heavy-bottom sauce pot over a medium flame; add the olive oil, onion, garlic, and ginger. Sauté the mixture until the onions become translucent.
2. Combine the remaining ingredients, except the brown sugar and cayenne pepper, and add them to the onion mixture. Bring the sauce to a slow simmer, then add the sugar in small amounts until the desired sweetness is reached. Slowly simmer the sauce over low heat for about 10 minutes or until it starts to thicken, then add the cayenne pepper in small amounts until the chilli pepper bite suits your taste. Adjust the consistency of the sauce with a little of the remaining beer or apple cider and simmer five more minutes before removing the sauce from the heat.

Szuechuan tea smoked hens

What follows is a barbecue concept that has its roots in Szuechuan Province, western China's land of plenty. Surrounded by high mountains to the north and the deep Yangtze gorges on the south, the area was isolated from the

rest of China for thousands of years. As a result it has developed a unique culinary style. The most outstanding characteristic of Szuechuan food is that each dish contains a number of different flavors and essences, and this recipe is a classic example of this wonderful cuisine. After cooking, the hens reveal hints of sweet, hot, bitter, salt, and aromatic tastes. This is partly due to the fact that smoke is used solely as a flavor enhancer and not as a cooking medium. I use cornish hens because their small size allows them to be cooked quickly over charcoal without becoming dry.

Before cooking, remove the skins from the cornish hens to minimize scorching and allow the marinade and the smoke to season the meat properly.

The hardware needed is the same as the Howard's smoke-roasted pork shoulder recipe, along with about 25 charcoal briquettes.

Ingredients:

2 fresh cornish hens, about 1 to 1½ pounds each, skinned and split in half

Marinade:

1 Tbsp. kosher salt
2 tsp. whole black peppercorns
4 juniper berries
½ tsp. cayenne pepper
a one-inch piece of fresh ginger, peeled and minced fine
1 Tbsp. hoi-sin sauce

Smoke flavoring and grilling:

½ cup hardwood chips
4 dried bay leaves
½ cup loose tea leaves
⅓ cup brown sugar
1 Tbsp. orange or tangerine zest
1 tsp whole anise seed

Basting sauce:

1 Tbsp extra virgin olive oil
1 Tbsp sesame oil
2 fresh garlic cloves, minced fine
1 Tbsp soy sauce
1 Tbsp balsamic vinegar

Method (the day before the BBQ):

1. Split the hens using poultry shears. If you don't own poultry shears, go to the store and buy a pair before attempting to perform this step with a knife. Remove the two outer wing segments. Peel the hens by gently pulling the skin from the neck cavity down over the leg. Wash the hens in cold water and dry them on paper towels.

2. Place the salt, peppercorns, and juniper berries in a heavy-bottom skillet and toast them over medium heat until the salt starts to brown. This should take only a couple of minutes. Let the mixture cool before proceeding.

3. Process the salt mixture with a mortar and pestle or spice grinder until the peppercorns and juniper berries are crushed. Combine the processed salt mixture with the cayenne pepper, minced ginger, and hoi-sin sauce.

4. Massage the hen halves with the marinade, transfer them to a large zip-lock plastic bag, and place them in the refrigerator for 12 hours or overnight.

The day of the BBQ:

1. Remove the hens from the plastic bag and wash them thoroughly in cold water. Set them aside to dry on paper towels.

2. Soak the hardwood chips and bay leaves in warm water for 30 minutes, then combine them with the tea leaves, brown sugar, orange zest, and anise seed. Set the mixture aside while you prepare the coals.

3. About 20 minutes before you begin cooking, light the charcoal and allow it to burn until white. When the charcoal is ready, shovel the coals to one side of the grill. On the other side place the cast or aluminum pan half-filled with water. Spread the smoke flavoring mixture over the coals, put the grate on the grill, and the hens on the grate directly over the pan.

4. Put the cover on the grill, making sure the smoke holes on the lid—and the air holes on the bottom—are opened only half way. Smoke the hens for ½ hour without lifting the lid to peek.

5. While the hens are smoking, combine all of the basting sauce ingredients.

6. When the smoking period is complete, remove the grill cover, the grate with the hens on it, and the water pan. Spread the burning coals into a single layer, and replace the cooking grate.

7. Place the hens over the coals and brush both sides with the basting sauce. Grill the hens for 15 minutes or until done, or their internal temperature at the joint where the thigh meets the body reaches 170 F.

Grilled lamb or mutton with tamarind curry sauce

There was a time when lamb and mutton were both popular meats in this country. Unfortunately, mutton has become scarce and what we buy in supermarkets today is neither lamb nor mutton. A lamb is defined as a very young sheep taken when it is under six months old. Mutton is a mature sheep that is at least 2 years old. What we get is in between these.

True lamb is sweet tasting, delicate, and tender while mutton has a distinctive flavor and firmer texture. But even the halfway-between meat we get can be made respectable with

a little care, and down right fantastic with good barbecue. In South Africa and other parts of the world, mutton is still a popular meat. The following is a sampling of the quality of mutton cookery and barbecuing technique that is common in South Africa. They call mutton prepared like this “sosatie.” The word is derived from two Malay words: sate—meaning spiced sauce, and sesate—meaning meat on a skewer. A great feature of this recipe is that you save the marinade, cook it a little, and serve it as a sauce. Add a healthy serving of fragrant basmati rice and you experience, first hand, the taste of great international barbecue.

Special note: This recipe calls for a juice (tamarind) prepared from the seed of a tropical tree from India. Tamarind is sold in Asian and Indian food stores. The most versatile form comes in 7 or 8-inch blocks that look just like chopped dates. The unique flavor of tamarind has no substitute, but in a pinch the tamarind water can be substituted with half fresh lemon juice and half water.

Equipment:

Any size charcoal or gas grill, 40 charcoal briquettes, four 13-inch BBQ skewers with ½-inch flat blades

Ingredients:

2 pounds boneless leg of lamb diced into 1-inch cubes
(Do not attempt to use tough, stewing lamb.
Marinating will not tenderize it.)
½ tsp. kosher salt
½ tsp. fresh ground black pepper
½ tsp. cayenne pepper
1 Spanish onion cut into quarters and separated into layers (to be put on skewers with the meat)
Olive oil to coat the lamb before grilling

Marinade:

3 Tbsp. extra virgin olive oil
1 medium onion diced fine
1 one-inch piece of fresh ginger, peeled and minced fine
3 fresh garlic cloves, minced fine
1 cup tamarind water (see recipe below)
1 Tbsp. mint jelly
1 Tbsp. brown sugar
1 tsp. ground coriander
½ tsp. ground turmeric
1 Tbsp. Madras curry powder
½ tsp. fresh ground nutmeg
3 dried bay leaves

Sauce:

1 cup beef, chicken, or vegetable stock
the remaining marinade
1 Tbsp. flour
¼ cup water

Tamarind water:

2 ounces tamarind pulp
1½ cups boiling water

Method (The day before the BBQ):

1. Prepare the tamarind water by putting the tamarind pulp in a small stainless steel or glass bowl along with the boiling water. Soak the pulp for 45 minutes, or until the pulp separates from the broken seed and dissolves into the water. Strain the mixture through a fine sieve. Press the pulp with a heavy spoon to extract as much liquid as possible.

2. Combine the salt, black pepper, and cayenne pepper. Sprinkle this mixture over the lamb, put the lamb in a large stainless steel or glass bowl, and set it in the refrigerator while you prepare the rest of the marinade.

Prepare the marinade:

1. In a heavy-bottom sauce pot heat the olive oil over a medium flame. When the oil is hot, add the onion, ginger, and garlic. Sauté until the onions are soft and translucent. Add the tamarind water, mint jelly, brown sugar, and seasonings to the onion mixture. Bring the marinade to a slow boil; boil for 10 minutes. Stir the marinade occasionally to prevent scorching.

2. Cool the marinade to room temperature and pour it over the diced lamb. Marinate the lamb, covered, in the refrigerator for 12 hours or overnight. Turn the meat over from time to time; this will insure even marinating.

On the day of the BBQ.

1. Remove the lamb from the marinade, and place 4 or 5 pieces on each skewer, alternating each piece of lamb with a couple of pieces of onion. Place the completed skewers in the refrigerator while you light the charcoal and prepare the sauce.

Sauce:

1. Add the stock to the remaining marinade. In a small heavy-bottom sauce pot bring the marinade to a slow simmer over medium heat. Strain the marinade, and bring it to a slow simmer again over medium heat.

2. Combine the flour and the water; stir with wire whisk to remove any lumps.

3. Slowly stir the flour mixture into the simmering marinade. After the mixture thickens, reduce the heat and cook the sauce slowly for five minutes.

The barbecue:

Fire up your grill when the time is right for you. Remember, if you are using charcoal let the briquettes burn until white, then spread them evenly before you start grilling. Brush the sosaties with olive oil and grill them from 10 to 20 minutes depending on how well done you like your lamb. On a standard Weber type charcoal grill, 20 minutes cooking time will result in lamb that is medium well, and not scorched.

Tandoori murghi

This is pronounced TAN-dooree MOORGH-ee. It is an Indian barbecued chicken. In India barbecuing, baking and roasting are all achieved by a process called tandoori khana (clay pot cooking). The clay pot is called a tandoor and it is shaped like a large wine barrel. The tandoor is sunk into a hole in the ground and it is fired by placing burning charcoal in the bottom. This unique and efficient oven was invented and first used during the early part of the nineteenth century in northeastern Persia (Iran today). Whole chickens and large chunks of lamb can be threaded on specially designed long skewers and lowered into a tandoori pit to be cooked.

Any food cooked this way is referred to as tandoori food in India. In clay pot barbecue, meats, seafood, and poultry are first marinated in herbs and yogurt. The herbs contribute a bold flavor to the food, and the yogurt keeps the food moist and tender and is a flavor catalyst for the herbs and spices just as wine is in French cooking. The temperature of a tandoori oven equals the temperature of the average barbecue grill (550 degrees F to 600 degrees F), so tandoori recipes are a natural for American style barbecue. Chicken is a hands down favorite for tandoori cooking all around the world, and no article, book, or treatise on barbecue would be complete without it.

This recipe is designed for a conventional oven as well as a charcoal or gas grill. You can now enjoy good barbecue, even when there is 10 feet of snow in your back yard.

Equipment: A standard size charcoal or gas grill, 30 charcoal briquettes

Ingredients:

6 chicken breast halves (boneless and skinless)
2 Tbsp. fresh squeezed lemon juice
½ tsp. kosher salt
Peanut oil to coat chicken before grilling

Marinade:

A one-inch piece of fresh ginger, peeled and diced
3 fresh garlic cloves, diced
1 Tbsp. water
1 tsp. ground cumin
1 tsp. cayenne pepper
1 Tbsp. paprika
½ tsp. ground cardamom
1 cup plain nonfat yogurt

Method:

1. With a sharp knife, make short slashes in the chicken breasts half-inch deep, and one inch apart. Combine the salt and lemon juice and massage the mixture into the chicken. Place the chicken in a shallow dish, and cover and set in the refrigerator while you prepare the rest of the marinade.

2. Using a blender or mortar and pestle, process the ginger, garlic, and water into a paste. Stir this paste along with the seasonings into the yogurt. Pour the marinade over the chicken; turn the pieces to make sure that they are coated well. Cover the dish with plastic wrap and put the chicken back in the refrigerator to marinate for at least 12 hours.

Special note: Do not attempt to marinate the chicken longer than 12 hours; prolonged marinating will make any meat, especially chicken, mushy and unappetizing.

Oven barbecue for rain and snow days: Preheat the oven to 450 degrees F. Remove the chicken from the marinade and place on an oiled wire rack set inside of a shallow roasting pan. Cook the chicken for approximately 15 to 20 minutes or until they are cooked completely. If you are using a meat thermometer, they are done when the breasts reach an internal temperature of 170 degrees.

Outdoor barbecue: For the rest of the year, light the coals and let them burn until they are white. Thread the chicken onto 13-inch skewers with half-inch wide blades. Spread the coals out evenly and set the cooking grate in place. Set the skewers on the grill with the slashed side of the chicken facing up. Brush the chickens lightly with oil and grill for about 10 minutes or until the breasts reach an internal temperature of 170 degrees F. Δ

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Make your own quality rope

By Rev. J.D. Hooker

I think my own “use it over, use it up” trick is one that I learned from a retired Texas rancher quite a few years back. Thanks to this simple, ingenious, and apparently formerly vastly popular “recycling” idea, it’s been decades since I’ve needed to go out and purchase a piece of rope. For homesteaders, farmers, ranchers, and other backwoods or backcountry sort of folks, this has to be one of the simplest and most valuable ideas that I’ve run across.

It doesn’t seem to matter much what sort of farming or livestock raising endeavors you get involved in. They all seem to call for some quantity of hay, or straw, or both. Which just naturally leaves you with some quantity of “straw strings,” or used bailing twine, left laying around after the bales are used.

Sure, you’ll find quite a bit of this used twine valuable enough any time you might need a piece of string. But unless you either are a very small scale operator or have truly capacious string requirements, you’ll still have plenty of used twine always available. Which is where this nifty idea comes in.

While this does require two people to operate, the work is extremely simple, easy, and fast. You can produce rope of high quality with very minimal practice, and you’ll find it impossible to distinguish it from the hardware store stuff.

You won’t need much to quickly produce such high quality rope either. Just a simple crank, put together as shown; a solidly embedded fence post or similar sturdy upright; and the two people already mentioned.

When putting together my own “rope machine,” I used an 18-inch long piece of rough sawn two by two-inch oak for the body of the crank. A 12-inch long piece of one by three-inch hardwood taken from an old skid was used for the crank, with an old 1-inch diameter bolt for the handle, with a spacer cut from a scrap of 3/4-inch

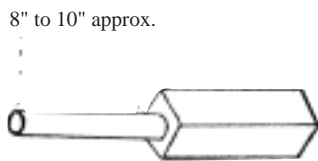


Figure 1. 2" by 2" by 18" oak, one end trimmed to form the body of the crank

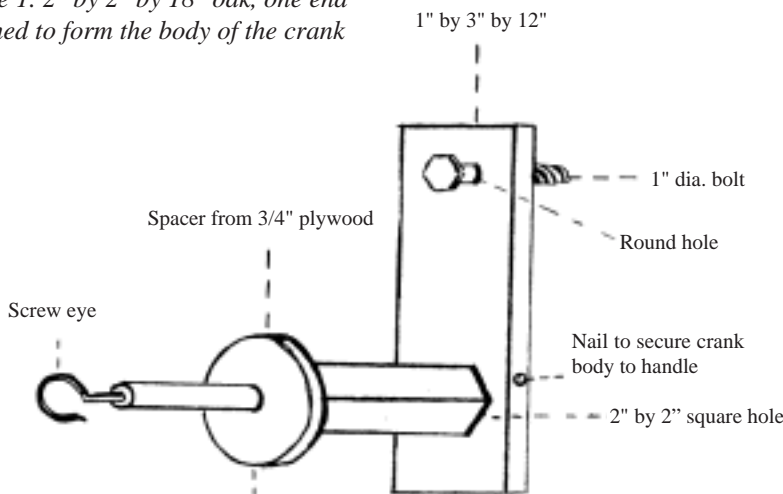


Figure 2. An assembled “rope machine”

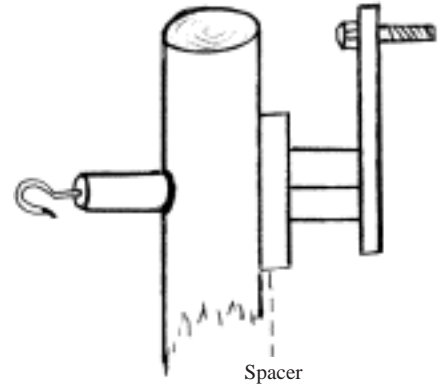


Figure 3. The crank attached to a fence post

plywood. All of which worked out just as well as anything.

Since that time however, I’ve seen similar “rope makers” put together from galvanized water pipe. While these worked with no greater or lesser efficiency, they were obviously much quicker to produce and put into use. Of course many other materials could be utilized, with equally excellent results.

At any rate, once you’ve finished putting together this simple hand

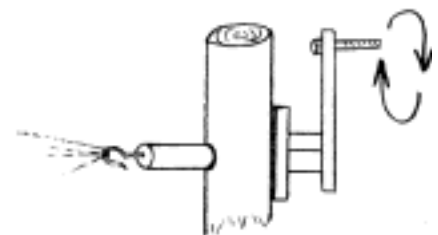


Figure 4. Attach different length pieces of twine then crank the handle

crank, you’ll just need to drill an appropriate sized hole through a fence post or other sturdy upright, and insert the crank. Then you’ll be ready to turn all of those left over straw strings into high quality rope.

One small caution might need to be addressed here however. While I have found that either the regular plant fiber twine, or the newer plastic twine, will both twist into perfectly usable rope when used separately, I’ve also found that I can never achieve even,

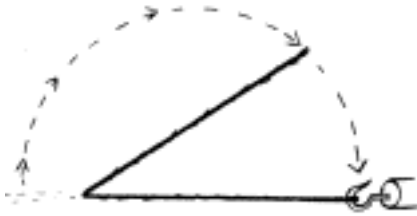


Figure 5. Fold twisted line in half and attach opposite end to crank also...

decent results if I try mixing the two types together in the same rope.

You can use as many strands as you wish when twisting rope with this "machine." I prefer using either three or four strands, but I know of other folks who feel as if they achieve better results with different numbers of strands. So maybe it would be best if you experimented a little until you find your own set of preferences.

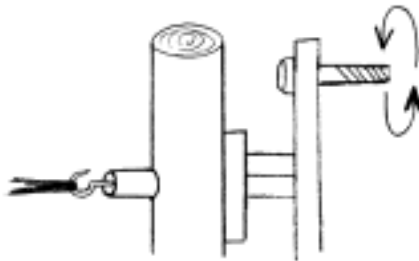


Figure 6. ...then crank the handle in the opposite direction

Simply attach the strands to the protruding end of the crank, as shown, being certain to vary the lengths of the strands. Now, as one person turns the crank handle, the other sort of pinches the strands together, which allows them to twist tightly together. Keep adding new strands as necessary, allowing at least a 6-inch overlap each time a new strand is added, with the person squeezing the strands together continually backing away from the crank as the strands are tightly twisted.



Figure 7. Allow 6 inches overlap when adding twine

Once a length equal to approximately two and a half times the desired length of your rope has been achieved, you'll need to tie, or otherwise attach, your crank handle to the post so that it can't spin freely and allow your "almost rope" to untwist. Next, the person who's been manning the crank needs to walk out to the middle of this length of twisted twine and hold this mid section in place while the one



Figure 8. Whip or tape the end of the rope, about an inch back, then cut it free

who's been twisting the cords walks up and attaches the other end to the crank, folding the rope in progress in half.

Hang on tightly to what is now the end of your rope, as the strands begin twisting themselves together. Once this self twisting process stops, walk back up near to the crank. Again, as one of you squeezes these strands together while backing slowly away, the other keeps rotating the crank handle, winding these strands very tightly together **but** cranking in the opposite direction from the one originally used.

Now just tape, whip, or wire the rope about five or six inches away from the end of the crank. Then cut the newly fashioned rope loose from the crank, and you're finished.

After the first couple of attempts, you'll find that it rarely requires more than 10 minutes to twist together a 100 feet or so of excellent half-inch rope. Considering this very minor investment of time, along with the "left over" nature of your material, it makes for a pretty profitable undertaking. With a strength and appearance roughly equal to mass-produced rope, this seems like a pretty appealing little skill to develop as well. Δ

Random Beauty

*I do not recognize
these flowers,
straight rowed and patterned,
their scents scare me.*

*I like the oaks
aged and twisted,
heavy limbed and creaking,
nesting newborn starlings.*

*I like the persimmons
catching boyish hands,
puckering their mouths,
running them in circles.*

*I like the matted grass
of deer beds,
melting pale green
patches in the field.*

*I like brown eyed susans,
hiding in the grass,
dancing wild in the wind,
peeking when they want.*

*But these flowers
perfect, yellow, pink
stemmed in bare black dirt
worry me.*

**Cheryl Denise
Philippi, WV**

Chinook

when the chinook

*blew in
March*

*in roofs
from cow sheds*

*sailed into the sky
in South Dakota*

twisting and turning

*like kites
with broken tails*

**Sheryl L. Nelms
Forth Worth, TX**

Understanding paint and stain

By Harry G. Nemeč

All house paint consists of pigment, resins and vehicle. The vehicle is the liquid that keeps the pigment and resin from completing the chemical reaction that occurs when paint is applied and exposed to the effects of air. The duty of resin is determined by the purpose of the paint, that is, interior paint does not require the durability demands of exterior paint. The pigment, of course, determines the color.

There are significant differences between latex and oil paint, primarily in the vehicle. Mineral spirits are used in the conventional oil paint while latex paint has water as its main vehicle. Copious amounts of the vehicle permits cleanup while lesser amounts are used for thinning. It should be remembered that thinning from the can will affect the coverage and durability and is not recommended.

The following are some key things to remember: Use paint straight out of the can. Modern paint can be used in this way as opposed to the old days when paint had to be mixed and thinned for the job. Woodwork enamel can be found in both latex and oil and they are just about equal in quality when fully cured. Latex paint must fully cure before it is equal to its oil counterpart. Latex paint acts like a thin coat of rubberized material when partially dried and can be pulled off the surface if not properly cured. It should not be touched by anything, including a paint brush, once it's applied. Oil paint will smear or be marked by whatever touches it until it is cured. Drying and curing time for latex paint depends on the humidity, but oil paint is unaffected by humidity. Its drying characteristics are controlled by the solvent or vehicle evaporation time and the chemical reaction of the ingredients. Generally, latex

paint breathes and reacts to moisture content in the air. Oil paint retains its resiliency and is not affected by air moisture.

For general residence painting, either paint is a good choice, but do not put an oil paint over old latex and do not paint any surface that is not properly prepared. When new paint is coated over old peeling or blistered paint, the new paint is wasted.

Surface preparation is the key to a long-lasting job. This preparation includes wire brushing to remove chalking or flaking paint, and a scraper might also be necessary when dealing with blistering or peeling paint. Blistering paint is a sign of moisture from within the painted surface. Water is trying to escape and has reached the paint which it cannot penetrate, so it collects there until it can breach the seal of the paint. Correcting the moisture problem probably will be necessary before any painting is undertaken.

I have purchased a lot of paint in the past as part of renovating old houses and always try for the best bargain. I never paint an interior to match drapes or for any other decorating reasons. I paint because it is necessary to hide something or to protect something.

I go to the stores that custom mix colors, where paints mixed incorrectly have been rejected by customers. Once, after buying a 10-room house that needed painting, I visited a store that had gallons of mis-mixed paint. I needed four gallons per room, and these four gallons all had to be about the same color to mix together to make one color. The labels also all had to be the same in order to guarantee that they would mix. For instance, I selected peach, beige, and yellow in the same label. I offered a dollar a can for all 30 gallons of rejected paint, and the store manager was happy to get rid of the paint to free up the store space.

I got nearly \$400 worth of paint for \$30 or so.

Paint and stain are similar except there is less resin and more vehicle in stain. The pigment in each is equally fine as emulsion. However, because of the different amounts of resin and vehicle, the pigment in stain will settle sooner than the pigment in paint.

Stain color usually is associated with refinishing an existing surface with the same color or in making one type of wood appear as another. Walnut stain will restore a walnut surface but it will also turn pine to "walnut" color.

I make my oil stain with good oil paint along with thinner and some boiled linseed oil. I mix it until it is ready to be put on a test piece, usually a scrap of wood. I mix latex stain using the material that is found on the inside top of a can of unstirred latex paint, and to that I add a little of the unstirred material. I add water a little at a time until I have the color and consistency I want.

Wood absorbs water so care must be taken when using water-based stain on dry wood. Once the wood absorbs the stain you will not get it out. Oil stain is not absorbed by wood. The oil floating the pigment goes into the pores of the wood, and the excess oil and pigment is wiped off. The oil stain permits more control in maintaining the desired color and won't darken when it dries. Latex stain has the property of darkening in the drying process. Either stain can be applied with a roller, brush or rag.

For oil-based paint, cleanup of the skin, most usually the hands and wrists, I apply a few drops of liquid soap before starting painting, and rub it in until "dry." The oil-based paint does not "cut" the soap. When the painting is done, a long rinse with water, after an initial application of paint thinner, mixes with the latent soap, and a mild washing results in clean hands. Δ

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My view

The militia movement

In a recent issue of *U.S. News and World Report*—a news magazine I had thought was more objective than liberal-leaning magazines like *Time* and *Newsweek*—there appeared a major article titled “Mainstreaming the militia.” Far from being the objective piece I had hoped for, it was yet another distorted mainstream media reporting about the goings on of America’s mushrooming militia movement.

The article painted militia groups and other anti-government groups as being composed of unemployed, low-income, uneducated, paranoid, and easily-led misfits who are seeking to blame someone—the U.S. Government, the United Nations, the New World Order, or whatever—for their troubles. *Backwoods Home Magazine* was mentioned as one of the “magazines that have sprung up to compete for the antiestablishment audience.”

The article has all kinds of references to the Oklahoma City bombing, potential violence by militia groups to revenge the Waco massacre or to mark the anniversary of the Oklahoma City bombing, and the suspicion by federal agents that the militia groups are planning all sorts of violence just as an outlet for their hate and extremism.

The supposed “sources” for the information in the article comes from groups, publications, and Internet sites with explosively ominous names like Klanwatch, Center on Hate and Extremism, the Hate Directory, the Program for the Study of Violence and Conflict, Skinheads USA, the Ku Klux Klan Home Page, Library of a White Tribalist, and Aryan Nations. And, of course, the books and videos these outfits sell have titles like *Hitman*, *How to Kill*, and *Ultimate Sniper* to “help Americans preparing for a race war,” among other dastardly things. And, of course, these dangerous nuts all hang out at the “notorious” Preparedness Shows that are popping up all over the country.

Now let me qualify my annoyance with this distorted and misleading *U.S. News* article by saying that neither I, my staff, nor *Backwoods Home Magazine* have membership in any militia group or other anti-government group. This is not intended as a statement to back away from these people in any way, but as an assertion that we are an independent publication that is interested in the fair treatment of all Americans, be they militia groups from America’s political right or environmental groups from America’s political left.

That said, I can tell you during the eight years of *BHM*’s existence, I have met many militia members at the various Preparedness Shows I have attended and I have met many environmentalists at the various environmental and energy shows I have attended. The most prominent of these people, such as John Trochmann (pictured prominently and omi-

nously in the *U.S. News* article as the head of the “notorious” Montana Militia), and John Schaeffer (always displayed favorably in the media as the environmentally-aware owner of Real Goods Corporation), are exceptionally smart businessmen and exceptionally good family men. As with other prominent people on both the left and the right, they have their hangers-on who are jerks.

What angers me, being libertarian and conservative, is that I have never, in eight years of attending these shows in cities from Boston to Denver to Los Angeles, read anything in the mainstream media that was negative about environmental shows, or that was positive about Preparedness Shows. Even though, in my observations, the environmental shows are full of environmental crackpots, many of whom would be willing to resort to violence to promote their agenda (Remember the Unabomber and tree spikers?), and the Preparedness Shows, though plagued by their own share of crackpots, by and large are attended by well-educated, well-informed, sensible people whose chief sin seems to be demanding the government behave in accordance with the Constitution.

So why the difference in press coverage? In a nutshell: The environmental shows are full of liberals who want to promote government intervention to save the world as they think it should be, and the Preparedness Shows are full of conservatives and libertarians who want to limit government intervention so as to save America the way they think it should be. If you are liberal, you get good press; if not, you get tagged as a racist, extremist, or nutcase. It just makes me so mad I could spit.

Well, at least the *U.S. News* article was partly right when it said the militia movement is becoming more mainstream, but it underestimates the appeal. Instead of the six Preparedness Expos it said are planned for this year, there are at least 19. They are in cities like Orlando, Portland, Indianapolis, Phoenix, Kansas City, San Francisco, Albuquerque, San Antonio, Nashville, Tulsa, Detroit, Philadelphia, Pittsburg, Buffalo, St. Louis, Columbus, San Diego, and Dallas. Some have already taken place.

You see, *U.S. News*, Americans aren’t really influenced by how much you or the rest of the mainstream media distort the meaning of a legitimate American movement. They’ve been down this freedom road before. And what the militia movement is in America is a healthy exercise of freedom—what freedoms we have left—to oppose the excesses of our own government. If it has racists and extremists on its fringes, so does every other movement this country has ever had. You concentrate on the fringes to pull off your distortion, but big government zealots like you have never been able to stamp out the real truth with your high profile distortions.

The *U.S. News* article is right about one thing, and I’ll quote it: “...the mainstreaming of the militia movement has just begun.” Δ

Multi-level marketing — is it the road to riches or disaster?

By Katharine B. Reader

I'm a freelance writer. I also manage properties, organize events, and am good at squeezing weeks of work into days. For me, time is life. I don't like to waste it. This is the story of my three-year involvement with one of the top multi-level marketing companies in the country. Although the names have been changed, the essential information is correct and paints a clear picture of what the vast majority of people who venture into MLM have no way of knowing beforehand but later wish they had.

Back in late summer of 1991, I'd just finished a book I'd been working on for a long time and was having that kind of "what next" feeling some of us get when one thing has ended and the next has not yet begun. One rainy afternoon, the phone rang. It was my friend Stan.

"K.B., you're not going to believe this. I just got involved in something incredible "What's her name, Stan?" I said. "Does your wife know about this?"

"No, no, it's nothing like that! It's a fantastic business opportunity! With your looks, your brains, and your contacts, you'd be perfect! Can you come over Tuesday at 7 p.m.?"

"What is it?" I asked.

"I couldn't possibly do justice to it over the phone. K.B., this is big! You and I are going to make a lot of money! Just be at my place Tuesday night! Trust me!"

Reluctantly, I agreed to go. Stan lives near San Francisco, in Berkeley, and I was living across the Bay in north Marin, but he was a friend and I owed him a favor.

I arrived late. Six other people were there, none of whom I knew. There

was a chalkboard set up in front of the fireplace and Stan was drawing circles on it.

"Hey, K.B.! Great to see you! Alice, could you move over so my friend can fit in there? I was just showing these people the Company's unbelievable marketing plan ..." He continued drawing circles on the chalkboard. There was a big one on top that had "you" in the middle with rows of smaller ones underneath. It looked like a pyramid. "...and you sign up five and they sign up five and they sign up five ... soon hundreds of people are making you money!" I was thinking about my bed. Then Stan



said, "The top 80 distributors averaged almost \$70,000 a month last year and had plenty of free time to enjoy it. And most of them dropped out of high school! Anyone can do this business!"

His wife got up and started passing out samples of this powdered stuff mixed with water, along with some pills, and telling stories about how their neighbor across the hall lost 60 pounds and grew back all his hair and traded his wife in on a younger model, etc.

I'm not sure why I got involved. I knew even \$5,000 a month in passive income would make me financially independent. Stan said I could easily earn that working half-days from home, giving me even more time to write. Stan was well aware that freedom in all its forms, living to my

potential, and helping other people live to theirs were my highest values. He said the business offered the ultimate opportunity for expressing those values by helping friends and loved ones, as well as myself, improve our health and change our lives. It sounded too good to be true!

I've always believed in giving things my best shot, so I took the business seriously and listened to my sponsor. "You won't make peanuts selling products," Stan said. The name of this game is, "Sell the dream!" I invested \$1,000 in the recommended assortment of products and started calling everyone I'd ever known to invite them to meetings or ask for referrals.

I let my writing go. There was no time for it. I was driving 300 miles a week to talk with prospects or cart them to meetings. Stan was ecstatic; my family was suffering.

Stan assured me if I hung in we'd make a fortune in two years, max. He said the ones who failed were lazy quitters. Anyone could make it if they worked hard enough! I was working twelve to fourteen hours a day, seven days a week, looking forward to financial freedom and the gratitude of my friends and loved ones. Unfortunately, the people I most wanted to save were not interested, but I signed up a lot of others. Most of them dropped out but enough stayed in to keep me going. I'd spent most of my savings so I really couldn't afford to stop. I liked the products, took care of my customers, and referred customers to the people in my group. Sometimes I signed new distributors under mine to help them along. I wanted the business to work for everyone.

In December of 1992, Sarah, an old friend and one of my best people, called to say she was quitting. She was out of money and out of contacts. Her friends were avoiding her. I was devastated! I was almost as invested in my group's success as I was in my own, quite literally, since I would buy "sales volumes" from time to time for those who couldn't make their quotas

(a practice unofficially endorsed by the Company). I was pretty far out on a limb.

Sarah wasn't right for multi-level marketing. She was intellectual and shy, not at all a salesperson. She tried to quit three times and three times I talked her out of it. I told myself it was for her good, but it was for mine. I couldn't afford to lose her. Sarah fell into a depression and her boyfriend left her. She stopped returning my calls. I lost more than a business partner; I lost a friend.

"Forget about females!" Stan said. "Recruit men! They're less emotional. This is a numbers game! Just say 'Next!' (the MLM mantra), get your fanny off the floor, and go sign up some more people!" That's what I did.

Larry was an ambitious real estate agent bound for success. He called one day to say, "I just signed up a single mother who lives in a trailer with her four children! Last month she was diagnosed with lymphatic cancer but she's really excited about turning her life around. She sold \$1200 worth of their furniture to get started!" This stopped me cold. I called Stan and told him I did not want to make money in this way. Stan said I couldn't hold myself responsible for the actions of others and, who knows? Maybe it was her only chance to turn her life around. I swallowed my conscience and said a prayer for the single mom as I reinvested the small commission she had made me.

I'd been in the business almost three years and was climbing the ladder of success. In July 1994, Stan's sponsor, Max, organized a gathering of top distributors, the ones making the "big bucks" they dangled like carrots in front of their followers. A few lesser beings, including me, were invited. One of the stars, an ex-football coach, said, "MLM is a legal pyramid. If it were an opportunity for everyone, it wouldn't be an opportunity for anyone. Just put on blinders and go for it! It won't last forever. He led us in some goal-setting exercises to help us

clarify what we want from life and how the business could help us get it. I began to open my eyes. What I saw were a bunch of burnt-out, grumpy egomaniacs, fighting amongst themselves and looking not at all like I'd seen them at the conventions or sounding like I'd heard them on tape. I asked myself if this was where I was going and if these were the people I wanted to go with. The answer was, "No!" I decided to quit. Stan, like so many before him, had run out of money and dropped out, so Max talked me into staying. His success, after all, depended on the efforts of workaholics like me lower down on the pyramid. The "dream" was turning into a nightmare.

The following week there was a message on voice mail about the "Fortune 5000 Club," referring to distributors earning monthly commissions over \$5000. I wondered how many of the 110,000 or so active distributors were in the Club. I called distributor services and was told, "The Company does not release that information!" If this business taught me anything, it taught me how to persist. I called back and got a new person who evidently didn't know the Company's policy on covering up the facts. She told me that it was about 200. I was stunned! When confronted with that figure, the person I first spoke with reluctantly confirmed it. I asked why information like this was withheld from us. His answer was, "If people knew the numbers, no one would sign up!" I think he went on unemployment shortly after that.

I felt like an idiot. Out of curiosity, I called four or five other multi-level companies I hoped would be more forthright. The responses I got were variations on, "That information is not available, but would you like to hear some testimonials, buy some products, or sign up?"

And what about those 80 distributors averaging \$70,000 a month? After travel, trainings, entertainment, phone and mail costs, samples, sales aids,

products, office supplies, volume buyings, and audits by the IRS, the vast majority were a far cry from breaking even. As for the few at the top whose incomes (\$800,000, \$900,000 a month) skew the numbers, their contempt for the thousands behind them picking up the pieces of their dreams makes those slick TV evangelists look like Santa Claus. The meaning of "It's a numbers game!" suddenly became clear. I had unwittingly involved myself in a "win-lose" of unthinkable magnitude.

Max insisted that what distributor services had told me couldn't possibly be correct, but admitted he didn't know himself. After making some inquiries, his spiel was that even if only one person were in the Club, the potential was there for everyone. I said, "Yeah, and you can potentially win the lottery too, but I'm not going to be selling tickets to my friends." I quit without looking back.

Two and a half years later I still haven't cleared that business out of my life. Like fleas, it infested everything: bathrooms, pantry and file cabinets, video shelves, car, and garage. The worst was that it infested my friendships, separated me from my family, and almost made me forget who I am and what I want my life to stand for. What amazes me most is that it took so long to see it. Almost as amazing is that of the dozens of people who have tried to involve me in their MLMs (which, of course, are "completely different" from all the other MLMs!) only three that I know of have asked their companies how many distributors are at the income level to which they aspire. These three were told, "The Company does not release that information."

I guess the rest went "Next!," adjusted their blinders, and continued on down their lists. Do I have any advice on what to do if you're prospected by an MLMer? You bet! It's simple: Just say, "No!" I remember that Max used to say, "Even if you win the rat race, you're still a rat." Δ

For lots of summer fun, make a super squirtgun

By Rev. J.D. Hooker

OK, all of you *BHM* readers who are parents or grandparents . . . I'd like you to take a moment to think back to the hot summertimes when you were a kid. What was the most fun you could have on a really hot summer afternoon? Probably one of the first things that will pop into your mind will be a good old-fashioned water fight. Whether you used squirt guns, garden hoses, buckets, or whatever, there just isn't any way that you could forget that.

I sure can remember some of the water fights we had, and I remember the homemade water guns we used, too. Whenever anyone bought a new carpet in those days, it came rolled up on this magnificent bamboo pole. That pole was the prize that every kid within miles was wishing for. We'd take each separate bamboo node, a piece of sturdy stick, and some scraps of rubber or leather (or even scraps from the carpet itself), and we'd make the finest long-range water guns anyone had ever seen.

Carpet doesn't come rolled on those bamboo rods anymore, but the plastic plumbing pipe that's so common today offers an even better alternative. So for a couple of bucks or so (less if you've got some scrap left from a plumbing project) you can provide your own kids or grandkids with some really terrific summer fun that they'll remember all of their lives.

Putting this water-gun together is so simple that the drawings are self-explanatory, and you really don't need any



Start with a 12 - 14" length of 1 - 1/2" plastic water pipe. Drill a 1/8 - 1/4" hole in an end cap and glue it on the pipe.



Cut several disks from heavy leather or rubber to fit inside the pipe. Tack or screw the disks to the end of a dowel or an old broom handle cut to length.



Fill with water and push on the dowel.

other instructions. So I'm not giving you any. You can get busy right now and make up a couple for your kids.

Just remember to make one for yourself, too, because your kids will be having so much fun that you'll end up needing your own for self-defense. Δ

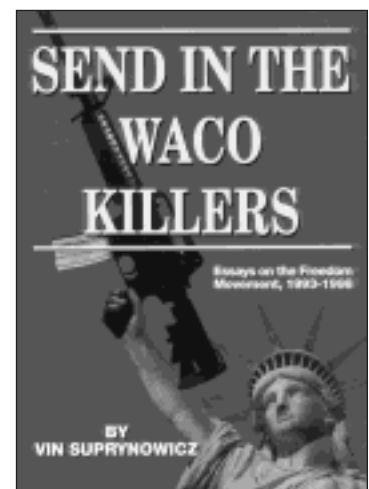
SEND IN THE WACO KILLERS

Three times the International Society of Newspaper Editors has included Vin Suprynowicz in their list of the 12 top weekly editorial writers in North America. For years his shoot-from-the-hip style has opened the eyes of thousands to government abuse of our liberties. In this book, *Send in the Waco Killers*, he blends material taken from his syndicated column with new commentary to give the reader a detailed, reporter's-eye-view of how the rights and freedoms of Americans are being subverted.

He uses factual accounts from the daily news to show how the Feds use the drug war, the public schools, jury rights, property rights, the IRS, gun control, and anti-militia hysteria to increase its power and control over us. He details how agents of the ATF and FBI have routinely lied, how they use paid informants to infiltrate Constitutionally-protected militia groups, then fabricate evidence to get arrests and discredit them.

Had he lived 225 years ago he'd have written a book to detail how King George III and Parliament have tried to enslave us but, sadly, this book is about how our government today is depriving us of our freedoms and ruining the lives of thousands without changing even one word of our Constitution.

If you read no other book this year, read *Send in the Waco Killers*. Just keep your blood pressure medication handy. 506 pages, trade paperback, \$21.95 + \$3 S&H.



1-800-835-2418

Build a seed starter and make a nice part-time garden income

By Alice Brantley Yeager
(Photos by James O. Yeager)

Gardening is an occupation or hobby that has unlimited potential attached to it. We all know about the health and economic advantages, but there's another angle to gardening. It can be downright lucrative if one uses his or her know-how to promote the sale of not only surplus produce but plants as well. A produce stand can be a real source of revenue without any outlay for rent, utilities, etc. if it is located on the owner's property. Weather conditions will determine the feasibility of the time of year to open or close the stand.

The moment there's a hint of spring in the air, folks who have just been through the rigors of winter begin to change from their cold weather habits to wanting to get out and stir around. Many of them are already planning on what to plant in their gardens and yards, and if they know where there's a likelihood of finding a treasure-trove of plants, they'll head for that place. If the seller is wise, he'll have a wide range of varieties on hand rather than just the run-of-the-mill types.

I found out years ago that it was useless to try to buy certain varieties of tomato plants. Only the more popular ones were for sale like Better Boy, Big Boy, Early Girl, etc. The firmness and round shape of these varieties please some folks, but I like a home-garden type of tomato—one that doesn't ship well because of its tenderness and one that has that great tomato flavor not found in the firmer commercial type of tomatoes grown by the acre. Other vegetable plants not usually found for sale are Malabar spinach, New Zealand spinach, French sorrel, and so on. You'll find a few herb plants in the larger plant and

nursery displays, but not usually in the smaller ones.

The same thing goes for flowers. How many Inca marigolds do you find for sale? Not many, if any. There will be a number of marigolds ranging from those that are supposed to drive out nematodes to dwarf, giant-flow-



*Transplanting seedlings from a seedstarter is easy if the *plants are not crowded*

ered plants, but no Incas. Try finding melapodium plants—those native “newcomers” that add a splash of color to the garden all summer long. Forget it. Maybe you like a touch of blue in the garden. Native ageratum, a perennial, start blooming in late summer covering its plants with a mass of azure-colored, fringe-type blossoms. Chances are, you'll find only the dwarf, annual varieties of ageratum for sale unless you are fortunate enough to have access to a native plant nursery.

You can see that there are gaps to be filled in the plant market, and with a little time and patience a person inter-

ested in gardening can make a profitable niche for himself. Most of us do not have large commercial type greenhouses at our disposal, but we can turn out hundreds of seedlings with the use of a simple mini device known as a seed starter. I have used one for years to acquire the special plants I want to try in our garden. Husband James made the present seed starter and it has been in use for several years. Prior to his building the starter, I had been using seed starters offered in catalogs and some of them were really flimsy. The last one ordered was so fragile that it was already cracked when it arrived. I should have known better than to buy a starter made of plastic, but I didn't have much choice. At least the company was nice enough to give me a refund.

Anyone with woodworking skills can make a seed starter. However if you are not strong on woodworking, seek out someone with the ability and present him with the illustration and material list accompanying this article. I'll bet he'll say, “It's a piece of cake—no problem” (Don't forget to ask what his charge will be. If it seems a little steep, shop around.)

For the average gardener the sunny windowsill loaded down with various pots planted with seeds becomes obsolete when a seed starter is acquired. (If the family mouse catcher accidentally knocks off a pot or two, what a mess!) Damping-off of young seedlings is practically non-existent when one uses a seed starter.

To begin using the starter, level about 2½ inches of good grade potting soil in the base. Do not use bargain-brand potting soil, as it is usually of inferior quality and either cakes or has all the water retention properties of a sieve. Ask your garden supplier for the best type soil he has explaining what you are going to do with it. After leveling the potting soil, moisten it with enough fresh water to make it moist but not soggy. Be cautious with water, too, as you do not want to transfer bacteria to the soil by perhaps



The variety Sweet Million, a variety of cherry tomato, gives a heavy yield of sweet tasting, delicious tomatoes.

using rainwater. Rainwater is all right for larger plants, but I do not use it in a seed starter. If the potting soil settles a bit after watering, add a little more soil to maintain the 2½ inch depth. Plug in the starter, let it warm up for a few hours or overnight and you're ready to proceed with seed planting.

Do not use the same potting soil in the starter year after year, as it could lead to a disease organism build-up. Empty the old soil at the end of the season, let the starter dry out during summer and begin anew with fresh potting soil. Old soil could be sterilized by heating it in an oven, but it's a lot less trouble to use it for something else and begin afresh with new soil.

When planting seeds, remember to put the rows far enough apart so as to allow room to handle the seedlings when transplanting them to peat pots, etc. If plants are crowded, it's hard to keep from damaging some of them when removing them from the starter. Some seedlings are so small—i.e., petunias, begonias, celery and others—that it is very hard to deal with

individual plants if seeds have been too thickly sown. For depth of planting, follow directions on seed packets.

Don't forget to insert markers at the beginning of each row showing names of plants and dates planted. Varieties of tomatoes, peppers, etc., look an awful lot alike in the seedling stage. So do various shades of impatiens, zinnias, periwinkles and others. If you want to keep colors separated, labels are imperative.

Dates are important in order to keep up with germination times. Pre-cut markers are available from supply houses, but strips cut from empty plastic bleach bottles (rinsed) work just as well. Wax freezer pencils are ideal to use for labeling the markers.

Young seedlings need plenty of light to keep them from being spindly. Long periods of gloomy days inhibit growth, so artificial light should be provided. This can easily be done by suspending a planter light just above the starter. There are a number of lights available from garden supply houses.

The temperature in the seed starter should be maintained at 70'-75' F.

Heating cable thermostats are Pre-set for 74 degrees F., and current will cut off when temperature rises above that. If the air temperature surrounding the seed starter rises above 80 degrees F., I prop the starter open an inch or two to allow air to circulate and lower the temperature.

Plants will not need much watering once the soil is thoroughly dampened. Moisture collecting at the top of the seed starter will drip slowly back into the base much as it does in a terrarium. Touching the soil or watching for changes in its color will reveal whether or not it is too dry. I keep a moisture meter handy in case I'm uncertain about watering. I like to keep seedlings healthy by watering with a liquid plant food and I continue feeding them after they have been transferred out of the starter.

It is amazing how many plants can be produced by using a seed starter.

By planning ahead and making inquiries of other gardeners, a thrifty owner can have hard-to-find varieties ready for spring sale, as well as fall, and once folks become accustomed to being able to purchase them, customers will come back year after year.

You can have fun with a seed starter, too. Early each spring I plant Sweet Million tomato seeds in my starter and sponsor a contest for a chapter of retired persons. In celebration of National Gardening Week (2nd week in April), I distribute the plants to members who want to enter the contest. All during the tomato season members keep account of tomatoes harvested from one plant only. (No drop-offs or damaged tomatoes may be counted—only edibles.) At our October meeting on Columbus Day, the members having harvested the most tomatoes wins a prize. So far, no one in the group has beaten one member's record of 2,098 edible tomatoes. Whether you want to raise plants for your own use or be known as mogul of the plant industry, it can all be possible by beginning with a single seed starter!

Some Sources for Seeds

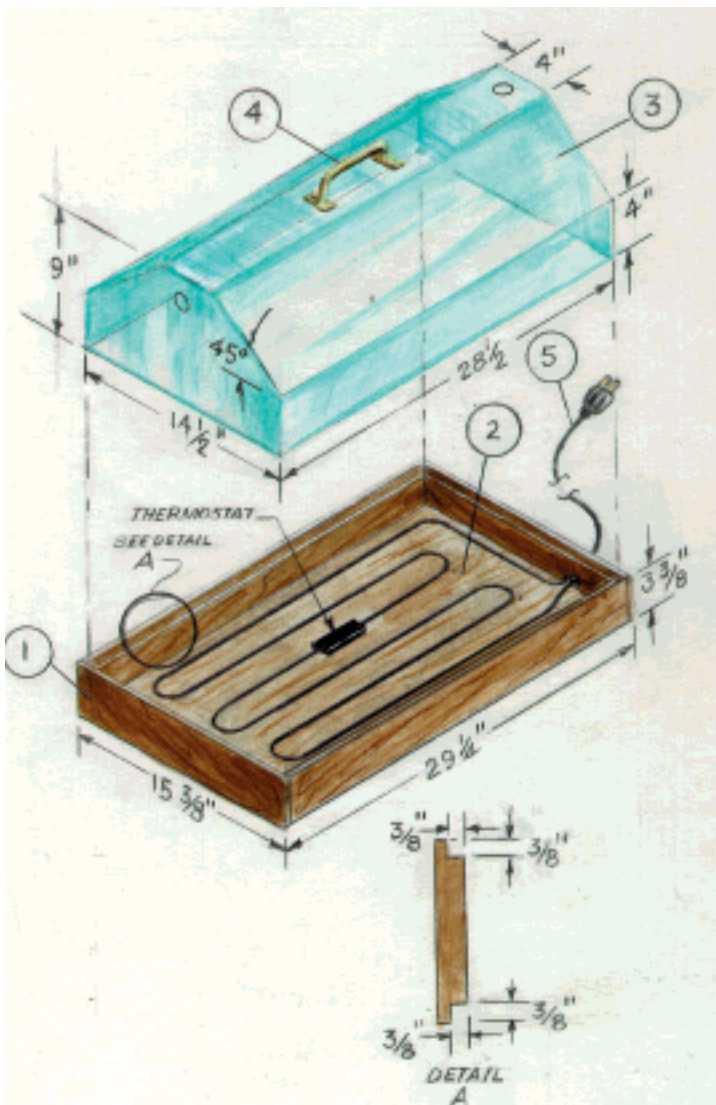
Malabar Spinach
New Zealand Spinach
Pinetree Garden Seeds
Box 300
Gloucester, ME 04260

French Sorrel
Park Seed
1 Parkton Ave..
Greenwood, SC 29647-0001

Inca Marigolds
Melapodium
Park Seed

Sweet Million Tomato
Pinetree Garden Seeds
Park Seed

J. W. Jung Seed Co.
335 S. High St.
Randolph, WI 53957-0001 Δ



- "A" - End view of side for seed starter showing cut out for bottom & cover

Material list to build a seed starter

- 1 - 8-foot long $3\frac{3}{8}$ " - by $\frac{5}{8}$ " board. Redwood or cyprus should be used for durability.
- 1 - 18" by 30" $\frac{3}{8}$ -inch piece of exterior plywood.
- 1 - 30" by 40" $\frac{1}{8}$ -inch thick piece of Plexiglas.
- 1 - Screen door-type handle.
- 1 - 12-foot long, 42 watt, electric soil heating cable with 74 fegree F. thermostat.

Materials listed may be purchased at most building supply companies. Following are some sources for heat cables:

Park Seed, 1 Parkton Ave., Greenwood, SC 29647-0001

J.W. Jung Seed Co., Randolph, WI 53957

A.M. Leonard, Inc, 241 Fox Drive, P.O. Box 816, Piqua, OH 45356

Directions for building seed starter

1. For base of seed starter, cut board to correct lengths for finished overall dimensions as shown on sketch. Rabbet out a $\frac{3}{8}$ - by $\frac{3}{8}$ -inch groove on edges of boards so that a groove will form all the way around the inside edges of the sides when assembled. This will give a snug fit for the Plexiglas top and also the bottom board.
2. Before installing the bottom board, cut a notch in one end board for the heating cable to go through. Curve the cable back and forth and secure to the bottom with electrician's tape. Be sure that thermostat ends up in middle of bottom.

Optional. If desired, a metal liner of aluminum or 28 - 30 gage galvanized steel may be installed in the base as it will add to the life of the starter. If a liner is used, install immediately after assembling the base and tape the cable to the liner. Bend down the edge of the metal where the wire touches it going through the end of the seed starter as this will eliminate damage to the insulation on the wire.

3. The Plexiglas top may be cut with a power saw using a plywood blade, and pieces shown may be assembled with glue from a hobby shop, or you can use metal angle brackets with bolts, washers, and nuts. Cut vent holes 1" diameter on each end at the top.
4. With bolts and nuts, fasten a screen door type handle to the Plexiglas top. This will provide ease for handling top.
5. Before plugging in the heating cable, fill base with $2\frac{1}{2}$ inches of moistened potting soil. Allow a few hours for the soil to warm up before using the starter. Δ

Roadside marketing: the best of two worlds

By Robert L. Williams

Throughout rural America farmers on a large scale and gardeners on a postage-size plot of land grow incredible amounts of food or flowers or decorative plants. Given good weather and a little help with pest control, nearly anyone with a smidgen of know-how can produce the basic vegetables and fruits that fill the plates of many Americans.

But what do you do with the produce once you have grown it? Many gardeners take the simple way out and give away much of what they grow. Some growers endure the frustrations of getting their crops harvested and then the added worry of trying to get some kind of reasonable payment from the supermarket chains.

However, there is a rapidly growing number of growers who have decided to concentrate on the best of two



Fitzhugh McMurry opened a roadside market in a building that had been a service station, and his customers increase—as do his profits—each month.

worlds: they not only grow their produce but they market it directly to customers as well. And along the way they eliminate the middle man and put his share of the income into their own pockets.

When you drive along rural roads in summer and fall months, you often see produce stands—usually innocuous sheds built of scrap lumber and covered with metal roofing salvaged from an old barn. But you may have noticed that there is a new kid on the block: the farmer who has built a neat, sturdy, and roomy market on the edge of his property and in full view of passing motorists who are shopping for bargains in food.

The bargains are there

As part of a survey for this article, I visited several large supermarkets and priced items usually in great demand: apples, grapes, tomatoes, lettuce, and

other common items found on the tables of many Americans.

Here's what I found. At the supermarkets grapes sold for about \$1.89 per pound, as did tomatoes. Vidalia onions were \$.99 per pound. Irish potatoes sold at \$1.49 for a five-pound bag. Cucumbers were three for a dollar.

Then I visited several roadside markets and found that grapes were priced at \$.69 per pound; tomatoes sold for \$.59 per pound; cucumbers were fifteen cents each; Vidalia onions sold for \$.59 per pound. I could buy a 50-pound bag of Irish potatoes for \$4.50. Other products were similarly cheaper.

It does not take a mathematical genius to realize that you can save quite a bundle on your grocery bill by shopping at the roadside markets. And chances are that the food will be fresher and the quality will be greater.

Those who are familiar with gardening realize that the best tomatoes are



Bob Mosteller grows some of his produce and buys the rest from local farmers and from wholesalers. He has found that selling at a low profit and increased volume works.

those that ripen naturally on the vine. The roadside marketer can pick his tomatoes early in the morning and have them on sale by nine o'clock that same morning. The supermarket staff will receive tomatoes that are picked green and are then shipped across country while the tomatoes ripen under unnatural and often damaging circumstances.

The roadside marketer often grows his own produce and knows what types of chemicals were put on it. He sells to his neighbors as often as he sells to strangers, and he knows he must answer to friends if there is a problem. So he is likely to be more careful with the growing processes and with the harvested produce.

But can the little man actually make any money at the small roadside markets? Fitzhugh McMurry opened his produce stand one year ago in a tiny town in North Carolina. He chose not to build his own stand but to rent a vacant service station building for his market.

So he had to pay to renovate the building and then he must pay rent monthly on the property. How, then, can he realize a profit.

He does it in three ways: by volume selling, by offering the best produce he can supply at the best prices, and by growing as much as he can of the produce he sells.

Stock other items that bring customers in

"The trick is to stock the items customers want," McMurry said. "That often means carrying inventory of items that bring little or no profit. I stock milk, bread, and soft drinks only because my customers want these items in addition to the fruits and vegetables they buy from me."

McMurry added, "I make about three cents profit on each loaf of bread I sell. Milk has a three-cent profit per gallon. I get six cents from each soft drink customers buy. If you think about it, you can see I don't realize a

profit at all from these items, not after I pay for refrigeration and other expenses. So why do I carry the items? Because my customers stop by on the way home from work, for example, and they buy vegetables and fruit and other foods, and they don't want to stop again to pick up milk and bread and drinks on the way home."

McMurry is right on target. If he has one hundred customers in a day's time and if every customer buys a soft drink, a gallon of milk, and a loaf of bread, it sounds impressive to say that he had sold a hundred of each item.

But figure it out. That's \$6 from soft drinks, \$3 from milk, and \$3 from bread: a grand total of \$12 from one hundred buyers.

If, on the other hand, these same customers buy tomatoes, a quart of molasses, string beans, a cantaloupe, and other garden items, then the profits start to add up.

Last summer McMurry sold 3,000 cantaloupes. Assume that the typical cost of each cantaloupe was about fifty cents and the retail price of the melons was \$1.49. If this is the case, he paid out \$1,500 for the melons and took in \$4,470. That would be a profit of almost \$3,000 on one item alone.

If he sold 3,000 gallons of milk, his profit before the cost of refrigeration would have been \$90.

McMurry also sold 1,000 bushels of apples, more than 50 bushels of string beans, 1,000 watermelons, and countless amounts of peaches, strawberries, corn, squash, cucumbers, and other popular vegetables.

Keep in mind that McMurry's produce stand is located in a town of about 200 people and that he has been in business for only a year. In a larger community and with a longer history of operation, he would improve his number of customers steadily. At the present time, he averages 50 customers per day. Within a year he will raise that average by more than 50 per cent, because his business is local at the present time. When customers who are on the road much of the time

realize that he is open, they will start to make his market their stopping point on their way home.

McMurry grows much of his produce and buys the remainder from fellow farmers in the area. He makes his own molasses from cane he also grows. Last fall he sold 1,000 quarts of molasses at \$6 per quart—an income of \$6,000 on the single item.

Naturally, it costs to grow the crops, but it would still cost him as much to grow the crops if he sold his produce to the supermarkets, and his income would be much smaller.

Like many of the other roadside marketers, McMurry has found a modest gold mine in bedding plants and decorative plants like ferns. He says that the profit margin on bedding plants is the greatest of any product he offers for sale.

Be just a middle man

Another marketer a few miles away is Bob Mosteller, who, unlike McMurry, does not grow much of his own produce. Instead, he buys from local farmers and drives 150 miles to Columbia, South Carolina, weekly to purchase the items he cannot buy locally. Mosteller's prices, even though he has greater costs to absorb than many roadside markets, remain astonishingly lower than those found in supermarkets.

"It's a simple matter," he said. "I own my market property and pay no rent. My only expenses are heat in winter, cooling in summer, refrigeration for perishable items, vendor's license, and salary to some of the part-time people I hire."

Like McMurry, Mosteller does a volume business. He sells bananas regularly for \$.25 per pound, and his price for apples and oranges is sometimes about half that found in larger markets in the area.

If you should decide to open your own roadside market, you would find that you could buy all of the produce you want from local growers. Most

small farmers and gardeners are looking for a market for their crops, and they will welcome the opportunity to sell you whatever is in season.

Keep your commitments

Many farmers like a commitment, however: if they agree to provide you with squash, string beans, cucumbers, and other fresh vegetables, they will expect you to continue buying from them. As an example, if you suddenly find a farmer who has planted all his available fields in okra and has so much that he is virtually willing to give it away, and you buy twenty bushels from him for \$5 per bushel, and then the man you normally buy from is left with his own okra and no market for it, the second man will not be quite as willing to work with you in the future. Then, when the cheap okra is gone, so is your supplier.

In other words, if a farmer agrees to supply you with his produce at a good price, you should continue to buy from him even if you could save a dollar or two by buying elsewhere. The man who grows the crops will plant each year with a basic market in mind, and if he is left with unsold crops, he will need to modify his planting or marketing strategies, and you may not be among the markets for the next season.

While it is impossible to state an exact profit on each of the various crops that you want to sell, here is a rough idea of profit margin on several items: tomatoes, \$.25 per pound; blackberries, \$1.50 per gallon; watermelons, \$.75 each; apples, \$2.50 per bushel; peaches, \$7 per bushel; scuppernongs, \$1 per quart; Irish potatoes, \$3 per bushel; cucumbers, \$10 per bushel; squash (yellow crookneck), \$8 per bushel; okra, \$10 per bushel; string beans, \$10 per bushel; cabbage, \$5 per 50-pound sack; pumpkins, \$1 each.

These figures are based on what it costs to buy vegetables and fruits in my part of the country and what the

customer is ready and willing to pay. But there are several other important considerations.

For instance, you want the customer to buy all or nearly all of his fresh produce from you, so if you need to drop the price on a certain item because the man down the road is under-selling you, do so. A fifty-cent profit is better than no profit and a lot better than rotted vegetables you must discard.

A second caution is that fresh produce does not have a long shelf life, so when you see the first hints that the produce is at its peak ripeness, drop the price and move it out.

Third, if there is a glutted market, you must adjust your prices downward, just as you may have to raise prices if there is a shortage of a crop.

Fourth, make regular visits to the supermarkets, or have someone make the visits for you. Be certain that you under-sell the big stores significantly. People will not wait until they are at your produce stand to buy their fruits and vegetables if they can save only a few cents.

Fifth, don't quarrel with customers who tell you that they can buy the same merchandise cheaper down the road. The instant temptation is to tell the customer that he should by all means buy from the other man, but you come out better with a gentle answer to the effect that if you are to continue to stock top-level produce, you must buy only the best and therefore sell it for slightly more.

Or try using the old sign: We have no quarrel with our competitors who sell cheaper than we do; after all, they know what their produce is worth.

If a customer wants to buy bulk quantities, by all means drop the price and sell him an entire sack or box or crate. If you have paid \$15 for a bushel of winter squash and someone wants to buy the whole bushel, sell it to him for \$22.50. An instant profit of \$7.50 is not bad, and if the customer thinks he gets a great bargain by bulk buying, let him continue. It's often

better to do volume business than to sell by the pound.

Sixth, keep your place of operation neat and clean. Don't let decaying fruit attract stinging insects and bugs and mice. Keep a screen covering over perishable produce. The customer does not want to buy something that is covered with gnats and flies.

Seventh, if the customer wants to sample a peach, by all means let him. In fact, offer it to him. Don't make him ask.

Eighth, if you have stock that is starting to over-ripen, give it to customers who make large purchases. It's better to donate a small amount of beans or tomatoes than it is to let them rot.

Ninth, offer and maintain a cheerful refund policy. If a customer complains that the melons were no good, replace them or refund his money—until he starts to make it obvious that he is taking advantage of you.

Tenth, Be friendly, courteous, and hospitable, but do not encourage loitering. Many potential customers are turned off by a gang of men sitting around and spitting tobacco juice into their plastic cups.

Finally, three observations: go ahead and buy your privilege or sales license on the basis that it costs very little and it is far better to pay it than to be hauled into court, and don't become discouraged if profits are not great as soon as you open. It takes a while for steady customers to locate your operation. Give them time.

The privilege or sales license in our area is \$100 per year, and while this may sound like a lot, it amounts to little more than a quarter per day.

And use part-time help. It is better to be open longer and therefore sell more than it is to lose customers who stopped by after you had closed. Part-time help will enable you to have time off. But hire people you can trust.

Dedicate yourself. Andrew Carnegie once said, "*Do* put all your eggs in one basket. Then watch that basket!"

△

A canoe livery — an honest, clean business

By Harry Spetla

A canoe and kayak livery business is inexpensive to start and it's easy to operate. The business fits in well with country living since it can be as demanding as you wish it to be. For those of us in the northern climes, it is a seasonal business, so gives you plenty of time to do other things during the off season. The business can be part-time, or it can be full time during the peak season of operation, depending upon your desires and needs.

The canoe livery business is also a great way to meet interesting folks. I have met visitors from foreign lands, and folks from the other side of the country. It's a great time to meet people, because most of your customers are there for recreational reasons, which means they are relaxed, and they are ready to learn new things. Another interesting facet of the business, is that most of the folks whom you meet are interested and active in the outdoors. Every canoe livery operator that I know has a deep and abiding respect for the environment. Many livery operators sponsor river clean ups and perform many other environmentally beneficial activities.

It doesn't take a whole lot to start the business, but there are a few things that you do need to be successful. The first requirement for the business is a close proximity to water. Most liveries have property adjacent to a body of water, though this is not an absolute requirement. In fact, my own business is not located directly on the water. The type of water that your business is located on is important. I would not advise anyone starting out fresh to rent canoes on whitewater. A stream or river with moving water is typically a good rental location, but one should also consider larger bodies of water like lakes that are located in popular tourist areas. A typical livery business will be on a small river with just enough current that the canoes will move along without having to paddle a lot.

The average canoe trip should take about 3-6 hours at a leisurely pace. The boats and customers are then picked up at the end of the trip, and brought back to their starting point. The take out, and put-in locations can be owned by you, but there are other alternatives. Sometimes you can start and end the canoe trip on public lands, owned by a county, state, or federal government.

The requirements for operating on public lands vary. Some governmental agencies require permits, insurance, and they charge a concession fee. Other governmental agencies just accept this as part of normal land usage and they don't have any requirements or charges. It's best to make some inquiries with the appropriate government agencies while your business is still in the planning stages. Another alternative to owning waterfront property is an easement. You can obtain an easement from private landowners in order to get the required access to bodies of water. A private landowner will usually grant you an easement for a nominal fee. I would strongly advise you to contact an attorney in any case where you do not actually own the land that you'll be using.

Canoes and kayaks

The other main ingredient for a successful canoe livery business is a quantity of canoes and/or kayaks. Obtaining canoes and kayaks for your business can be an interesting experience. One way is to simply advertise for used canoes and kayaks in your local newspaper or pennysaver. Using



this method means that you will probably end up with a hodgepodge of boats in your rental fleet. Your customer simply wants a boat that is safe and one that will get him or her where they want to go, so in many cases it doesn't matter what kind of canoe you are renting, as long as it's safe. This is probably the least expensive way to get into the business. Examine your potential purchase carefully. Will the boat be easy to repair if it becomes damaged? Does it currently require repairs? Is it safe?

I try to make sure that all the boats I have in my fleet are inherently stable. Customers are usually not too happy if they go for an unscheduled swim, or if it takes considerable effort to keep the boat upright. Remember you are looking at the watercraft from a livery owners perspective.

The other way to obtain watercraft is to purchase them from manufacturers. Most manufacturers have a purchase program for liveries. These programs usually require you to purchase a certain number of boats, which can add up very quickly. Think carefully before you purchase a lot of boats.

How many boats do you need to start your business? For a part-time business you can easily get by with 3-4 boats, in fact during my first year of operation I started with just 4 boats. I'm currently renting around 40 boats, and I know livery operators who have over 1200 boats to rent. You can grow as necessary. One of the benefits of purchasing a quantity of boats from a manufacturer is that they will probably have the same style, giving your fleet a professional appearance.

What type of canoe should you buy, aluminum, plastic, or fiberglass? I actually own canoes manufactured out of all three types of materials. The aluminum and plastic canoes will last the longest. Yes, canoes do wear out. More and more of the liveries are switching to plastic canoes which are actually constructed out of either polyethylene or royalex. Both materials are very durable. Plastic canoes tends

to be quieter in the water than aluminum canoes, and the material doesn't transmit differences in temperature like aluminum. Another important factor regarding plastic boats, is that they don't tend to hang up on rocks like aluminum boats, this is important if your business will be operating on a rocky stream or river. Choose boats that will take the punishment of frequent use. Look at the seats to ensure that they are well constructed, and that they are also comfortable. At the end of the article there is a list of some companies that offer livery purchase programs. I would strongly suggest that you shop around, as boat prices do vary widely.

When starting small you don't even need a canoe trailer to haul boats. During the first few years of our operation, we used a pickup truck to haul both boats and customers. Later as your business grows you can make or purchase trailers for moving canoes.

The daily operation of a canoe business is relatively easy. Let's look at a typical scenario...A customer stops in to rent a boat. You should first gauge his experience level. Will the trip be too strenuous for him or her? If so, make an alternative recommendation, such as a shorter trip. Next give them a briefing about how to safely paddle, and what to expect on their trip. At this point we distribute their personal flotation devices—or life jackets as they were once called. In the interest of safety we require all renters to wear their personal flotation devices. It makes me sleep better at night.

We also distribute paddles at this time and give the folks a chance to try paddling techniques on land before they get into that moving boat. Customers then complete two important documents, a rental agreement and a waiver of liability. The rental agreement simply outlines what the renter is renting, how much they are paying for the rental equipment, and it also outlines what happens if the renter brings back the equipment in a damaged condition. The liability

waiver is signed by all members of the rental party. This hopefully provides you with some protection in the event that something unfortunate occurs. These forms can be drawn up by your attorney or your insurance company.

Liability insurance

This is a good time to discuss on-water liability insurance. Many canoe liveries do not carry any liability insurance for on-water activities. This is a decision that you need to make. There are many factors to consider such as the type of water you are renting on and how much you have to lose if a lawsuit does occur. It is best, again, to consult with your attorney and your insurance agent. Unfortunately, many of the local agents are not knowledgeable about the paddlesports industry, so I have provided a list at the end of the article of companies that I do know take an active role in the industry. I do not endorse any of them, they are simply there for reference purposes.

Going back to our original rental scenario...our renter has completed the necessary paperwork. At this point we collect the rental fee and security deposit. Now the customer is ready to go. I usually try to provide a map of the trip, just as an additional way of ensuring for the comfort of my guest. The renter is provided with a boat, and arrangements are made to pick the party up within a specific time period. Since my business is not on the water, we provide our customers with foam blocks and ropes that permit them to transport the boats wherever they desire. Please note that we do obtain a security deposit and drivers license information prior to letting them drive off. Actual damage to our equipment has been a pretty rare occurrence.

Later in the day we go to the pick-up area to retrieve the boat and to transport the customers. In some cases the customers bring the boats back themselves using the foam blocks and rope we have provided. We make sure that

the customers have had a good time, because if they have, then more than likely they will be back. After examining the condition of the equipment we refund their security deposit. The equipment is then cleaned and prepared for the next rental customer.

The going rate for canoe rentals varies across the country from around \$15 to \$55 per day. The differences can be attributed to the material that the boat is constructed of. We rent canoes made of cedar strip and carbon fiber. These boats can weigh from 30 pounds up, and they can cost several thousand dollars. It takes quite a while to recoup your investment when the boat is expensive. Aluminum and plastic boats cost much less and they can actually last decades depending upon the use. Many livery operators sell off a portion of their fleet at the end of the season and keep rotating their rental boats by buying a quantity of new boats at the beginning of the season. These culled watercraft are quite serviceable and they can provide you with another means of obtaining boats. Depending upon the size of your operation, you can reasonably expect to make from \$2000 to \$40,000 depending upon your location and the number of boats that you rent.

Advertising

Advertising your canoe livery business can be a challenge, just like any business. We try to advertise in recreational oriented media, such as outdoor magazines, at sports shows, and in tourism booths. Don't overlook your local chamber of commerce. For my business, one of the best non-traditional marketing means has been the internet, and we have been quite successful teaming up with local motels in promoting mini vacation packages. If you're located near a major population center it's best to advertise there. I live in a very remote area, and my average customer is located from 200-500 miles away, and we have had a number of international visitors too.

You will need to try different media to see which works best for you. I know some livery operators who swear by newspaper and radio ads, but neither has worked well in my area. From personal experience and from conversing with other livery operators, national magazine advertising, though expensive, is very effective. Again, it depends upon the market you are trying to reach.

A good resource for anyone starting a canoe livery business is the Professional Paddlesports Association, which is dedicated to supporting paddlesports businesses. They can help you organize your business and make it more professional. Another good resource is the American Canoe Association which can also help you become a better trained paddler if you aren't already active in paddlesports. Membership in both organizations is money well spent. Their addresses are listed at the end of this article.

If you are located near a body of water, and you enjoy meeting new folks and you like the outdoors think about starting your own rewarding canoe livery business. I can honestly say that I don't have any regrets after working in the outdoor business over ten years...try it, I think you'll like it!

Paddlesports organizations

Professional Paddlesports Assn.
P.O. Box 248
Butler, KY. 41006
606-472-2205

American Canoe Association
7432 Alban Station Blvd., B-226
Springfield, VA 22150-2311
703-451-0141

Canoe and kayak manufacturers

Old Town Canoe Company
58 Middle Street
Old Town, ME 04468
207-827-5514

Buffalo Canoes
P.O. Box 60
Jasper, AR 72641
800-477-8509

ClearWater Design
1978 Bur Brook Road
Kingston, Ontario, Canada
K7L4V4 613-546-2444

Great Canadian Canoe Company
64 Worcester Providence Turnpike
Sutton, MA 01590
508-865-0010

Kiwi Kayak
P.O. Box 1140
Windsor, CA 95492
800-545-2925

Mad River Canoes
Box 610
Waitsfield, VT 05673
802-496-3127

Osagian Canoes
27067 Highway 5
Lebanon, MO 65536
417-532-7288

Marathon Canoes
P.O. Box 549
Marathon, N.Y. 13803
607-849-3211

On-water liability insurance companies

Allied Specialty Insurance
10451 Gulf Boulevard
Treasure Island, FL 33706
800-237-3355

BGS&G
P.O. Box 2005
Uniontown, PA 15401
412-437-7503

C&G Midwest Insurance Agency
1 Stephendale Court
Rolla, MO 65401
314-364-0400

K&K Insurance Group
P.O. Box 2338
Fort Wayne, IN 46801
219-459-5000 Δ

Get the taste of India in your kitchen tonight

By Richard Blunt

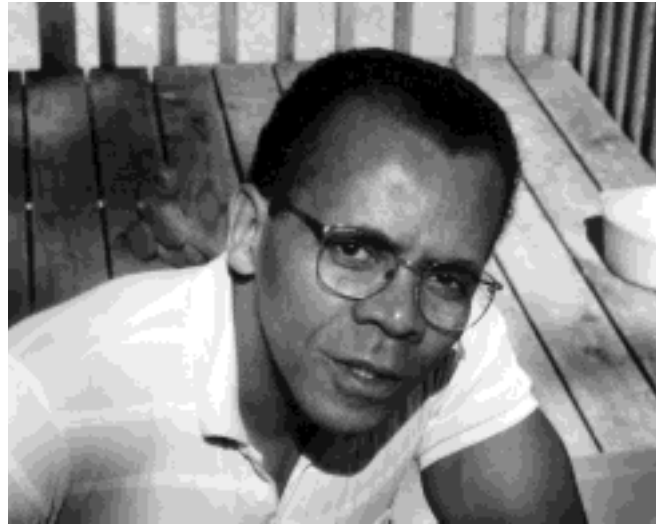
Over the centuries India has been invaded by one foreign culture after another. Each invader brought with it new genetic traits, cultural ideas, religious concepts, and culinary techniques that were added to India's long established but fragmented social structure. Those new influences had profound effects on the lives of India's people, but of particular interest to us are the effects it had on the foods that Indians eat today and the methods used to prepare those foods. It is simply amazing how India's people successfully assimilated the culinary influences of one invader after another and from them developed a classic cuisine they can now call their own.

For many years most of the significant foreign culinary influences were concentrated in the north. In the 16th century Turkish invaders, called Moguls, introduced to northern India highly refined and sophisticated culinary concepts they acquired while traveling through Persia on their way to India. Today this Mogul food, with its delicate flavorings and silky sauces, is the standard fare served in fine Indian restaurants around the world.

However, in the centuries before any of these invaders arrived in India, many distinctive cooking styles had already developed in the country. But because of natural barriers and poor transportation systems, the individual regions rarely influenced each other and as a result cooking styles throughout the country evolved independently, each with its distinctly regional characteristics. Most of these regional styles still flourish today but when all considered together they form the body of classic Indian food—the most subtle, diverse, and flavorful of the Far Eastern cuisines.

Indian cooking is the most straightforward and easiest of all international cuisines to master. It uses many cooking techniques, utensils, herbs, and spices that are familiar and readily available to most American cooks. Although there are a few spices and spice mixtures unique to Far Eastern cooking, even these are available for purchase in the many Indian and Asian grocery stores located throughout the United States and Canada. And most of the Indian and Asian stores accept mail orders and will sell you herbs and spices at a fraction of the average supermarket price.

The skills required to successfully prepare Indian food are basic but extremely important. First, you must have an understanding of your own taste preferences and prejudices. Second, you must have a working knowledge of how to use spices and herbs. I can't help you with the first, but I can contribute important information about some of the special herbs and spices most frequently used in Indian cooking. I



Richard Blunt

feel this information will help you approach Indian cooking with confidence. Once you have that confidence, the whole experience will be like your first trip to Disney World where there is fun and excitement around every corner.

Herbs and spices perform various roles in Indian cooking. Some herbs and spices are used as aromatics, some add a flavor enhancing hotness to foods, while others function as souring, thickening, or coloring agents. It is not uncommon for a spice to perform multiple functions. Hindu scriptures even provide a list of herbs and spices with powers to treat and cure common physical ailments like flatulence, colic, bad breath, and nausea.

In the recipe section I have included recipes that use the most important herbs, spices, and spice mixtures used in everyday Indian cooking. The following is a list of specialty flavorings, along with brief descriptions of how to identify and use them. Due to space limitations, the list is not complete. It does, however, contain enough to give you a basic knowledge of how to identify and work with flavorings most frequently used in Indian cooking. I have not covered more familiar seasonings like paprika, stick cinnamon, cayenne pepper, kosher salt, black pepper, ginger, garlic, clove, and onion because I feel they require little explanation to the majority of cooks. On the other hand, information about unique Indian seasonings, such as asafetida, carom, fennel, mango powder, pomegranate seed and juice, saffron, onion seed, and kari leaves, have no application in the recipes that I have selected, so we will save those for another column.

Herbs and spices

As the popularity of Indian food continues to rise in this country, many of the following Indian herbs and spices are becoming available in supermarkets. I will indicate those that I have only been able to find at Indian and other specialty stores. In this list, I follow the English name with the Indian name and pronunciation in parenthesis.

Bay Leaf (Tej Patta, TAYJ PAH-tah): There are two types of bay leaf available for use in Indian cooking. The one that most of us are familiar with is sweet bay laurel which is the leaf of the bay tree (*laurus nobilis*). The type used in Indian cooking is the leaf of the cassia tree (*cinnamomun cassia*). At a glance both leaves look alike, but a closer examination will reveal some distinct differences. Bay laurel is a thick, shiny, fresh looking, dark green leaf that has a bitter taste and a pungent aroma. Cassia leaf, or Indian bay leaf, is a light dull green and has a mellow sweet taste and a spicy aroma. Indian bay leaves also break very easily, unlike bay laurel which is quite pliable. The characteristics of Indian bay leaf make it more suitable for Indian cooking but bay laurel may be used as a substitute.

Indian bay leaf is usually packed in plastic, zip-lock bags in Indian and Asian markets and sell at a fraction of the cost of bay laurel.

Cardamom (Elaichi, ee-LIE-a-chee): The cardamom plant is native to South India. Its fragrant seeds are one of the essential spices in Indian cooking. It is available in whole pod, loose seed, and powdered form. The whole pods can be purchased in Indian markets in two varieties: green or choti black (small) and black or badi (large). The black variety has a mellow taste and a nutty aroma and is available only in whole pods. The green variety can be purchased in all three forms. It has a powerful aroma but a sweet and delicate taste. Removing the seeds from cardamom pods is a laborious and time consuming exercise. In spite of this, I use the whole pods exclusively because they are usually fresher than the loose seeds and powder. Many recipes call for cardamom in whole pod form and I keep both varieties of the pods in stock. For recipes calling for seeds or powder I wait until my children are in bed, load the boom box with Dick Clark golden oldies, and start cracking pods. Six black pods or twenty-five green pods will yield about a teaspoon seeds. If you need a lot of seeds, rent a Clint Eastwood movie.

Coriander Seed (Sookha Dhania, SOO-kah TAH-nee-yah): Coriander seed is another essential spice in Indian cooking. It has a strong nutty aroma and sweetish taste. In its powdered form it acts as a thickener for sauces and gravies, as well as a flavor enhancer. The seeds have a longer shelf life than the processed powder, as well as a finer flavor when roasted and ground fresh.

Cumin (Jeera, JEE-rah): Cumin is not just important, it is essential to Indian cooking. Few, if any, meals are complete

without its use in one form or another. There are two main varieties of cumin seed used in Indian cooking: white cumin (*cuminum cyminum*) and black cumin (*cuminum nigrum*). White cumin is pale brown in color, about the same size as caraway seed, and has a strong nut like flavor. It is available at most food stores in whole seed and powder. It also requires roasting before it will release its full taste and aroma. Black cumin is darker and smaller than the white variety and has a sweeter aroma and a more delicate taste. It is one of those rare spices that, as far as I know, is only available in whole seed form at Indian markets or other specialty food stores. Black cumin, because of its mellow taste, does not require roasting before it is used. It is a regular ingredient in many classic Northern Mogul dishes.

Black Mustard Seed (Rai, RAH-ee): This pungent smelling spice, with its sharp eye opening taste, is an essential ingredient in southern and southwestern Indian dishes. When roasted and ground it adds a sourish bitter taste to food. When treated with proper respect black mustard seed will add a special flavor to hot and spicy dishes that cannot be achieved with any other ingredient.

Tamarind (Imli, IM-lee): The tamarind tree grows in India's tropical regions and produces a long brown bean pod. The seeds inside the pod are encased in a brown, tart tasting pulp. When the bean matures it is picked, peeled, and partially pitted. The pulp is then compressed into cakes. A sour juice is extracted from this pulp and is used in many Indian recipes. It is also used in Worcestershire sauce to give it its classic flavor. Tamarind is sold in Indian markets in both cake and juice form. In my opinion, only the pulp form is suitable for Indian cooking because the juice is very salty, far too acidic, and very short on flavor.

Turmeric (Haldi, HAL-dee): Turmeric is used primarily as a coloring agent throughout India, except in the Northwestern regions, where saffron is used. The delicate flavor of turmeric gets lost when it is used with cream sauces, but it blends perfectly with onion and tomato based sauces.

White Poppy Seed (Khas-khas, Kas-Kas): The white poppy seed is a close, non-opium producing cousin to the familiar black poppy seed that is often used on bread and rolls. It is off-white in color, flavorless, and odorless in its raw form. After roasting and grinding, it is used in northern meat and seafood dishes as both a thickener and flavor enhancer. They are available whole in Indian grocery stores.

Green Chilli (Hari Mirch, HA-ree MEERCH): Green chilli is the young pod of the well known capsicum pepper plant. Indian, Asian, Spanish, and Mexican markets sell several varieties of fresh, hot, green chilli peppers. They range in size from less than ½ inch to about 3 inches in length. Don't let the green unripe appearance of these peppers fool you, they are all hot. The smaller the pepper, the more ferocious it will be. Indian cooks do not traditionally use fresh chillies when they mature to their yellow and red

stages. In the southern regions, however, they use large quantities of unseeded, dried red chillies in some spice mixtures and recipes designed to be very spicy and hot.

Cooking oils and fats

Until recently two basic fats were used in Indian cooking: ulsi ghee (pure butter fat) and vanaspati ghee (vegetable fat). There are also several different vegetable oils used. The most popular are corn, sunflower, peanut, coconut, sesame, and mustard oil. Ulsi ghee is simply clarified dairy butter. Vanaspati ghee is a vegetable shortening produced from highly saturated oils such as coconut, rapeseed, and palm and is processed to look, smell, and taste like ulsi ghee. The growing awareness of potential health problems caused by the consumption of saturated animal and vegetable fats has given rise to the more frequent use of light unsaturated oils in Indian cooking. There are, however, some recipes that require a specific type of saturated fat as a flavor enhancer as well as a cooking medium. If an unsaturated fat is substituted, the recipe usually loses taste and character. The recipes included here are exceptions and can use the unsaturated fats.

I use peanut or soybean oil as all purpose cooking fats in my kitchen. They both have a mellow taste that does not overwhelm the subtle flavors of herbs and spices, and they're easy to digest. I don't use olive oil in Indian cooking because most of the recipes that I have read do not call for it.

Before we move on to the recipes, a word of advice. With few exceptions, all spices used in Indian cooking must be cooked before becoming part of the finished dish. When preparing Indian food, regard all spices as vegetables to be cooked before being eaten. Doing so will prevent digestion problems, and allow the spices to release their maximum flavor.

Let's move on to the recipes, and have some fun.

Vendaloo — Goanese hot curry

This fiery-hot, mustard-laced dish, accented with a variety of aromatic spices, will satisfy all of those wonderful fantasies that you may have about Indian food. It is hot, without being mouth numbing, and flavorful with a flowery essence enhanced by the fiery taste of chilli pepper. Vendaloo truly demonstrates the versatility of Indian cooking by giving a cook the option to incorporate a wide variety of ingredients without compromising the character of the dish.

Vendaloo is traditionally made with pork, a meat rarely eaten in India, except by the Christian minority in the former Portuguese colony of Goa. The combination of Indian and Christian cultures has given rise to many interesting variations of this recipe. Chicken, lamb, beef, and even

duck have been incorporated with excellent results. If you are fortunate enough to have a couple pounds of prime, tender venison in the freezer, and you're looking for an exciting taste treat, substitute it for the pork. You will find it well worth the effort.

This recipe specifies pure mustard oil as an optional ingredient. Pure mustard oil has the reputation, in America, for being overly pungent and not well suited for cooking. You can substitute any light vegetable oil and achieve good results, but that authentic vendaloo flavor will be noticeably missing. Indian cooks have a simple technique that mellows mustard oil and converts its pungency into a smooth, pleasant flavor that truly enhances the integrity of any recipe calling for its use. The mixture of spices and herbs used in the marinade are a custom blend called vendaloo masala. This blend, like many other specialty spice blends, can be purchased at most Indian food stores in prepackaged form.

The taste of the prepackaged masala blends, however, does not equal that of the homemade versions and they leave you little or no room to add your own "hath ki bat" (personal touch). I strongly recommend you expend the extra effort and roast and grind your own whole spices. The experience will fine tune your palate and allow you to objectively evaluate the quality of any packaged spice blend or ground spice.

Vendaloo is traditionally served with rice, but noodles and fresh baked whole grain breads are also excellent complements.

Ingredients:

2 lbs. boneless pork loin (trimmed of all visible fat and cut into one inch cubes)

Marinade ingredients:

4 green cardamom pods
1½ tsp. cumin seeds
½ tsp. whole black peppercorns
1 tsp. black mustard seeds
1 medium onion, diced
1½ Tbsp. fresh ginger, diced
4 cloves fresh garlic, diced
2 Tbsp. malt vinegar
2 Tbsp peanut oil
½ tsp. ground cinnamon
¼ tsp. ground clove

Marinading procedure:

1. Heat a small, heavy-bottomed skillet over a medium flame, add the cardamom pods, cumin seeds, peppercorns, and black mustard seeds. Roast the spices, stirring constantly, until the mustard seeds turn gray (about four minutes). Transfer the roasted spices to a heat-resistant dish and let

them cool for a few minutes, then grind them to a fine powder in a blender or spice mill.

2. Combine the onion, ginger, garlic, malt vinegar and oil in a blender. Process them into a fine, pasty puree. Combine this puree with the roasted spices, cinnamon, and clove. This marinade should resemble a thick paste.

3. Place the pork in a stainless steel bowl or other non-reactive container (glass or plastic). Add the marinade to the pork. Carefully rub each piece of meat with the marinade. Cover the container and marinate the pork, under refrigeration, for 12 to 24 hours.

Cooking ingredients:

- 1 ounce tamarind pulp
- 1¹/₃ cups chicken stock
- ³/₄ tsp. kosher salt
- ¹/₃ cup pure mustard oil (this oil is optional, peanut oil may be substituted)
- 2 cups onion (thinly sliced)
- 1¹/₂ tsp. turmeric
- ¹/₂ to 1¹/₂ tsp. cayenne pepper, **use caution** when adding this ingredient.
- 1¹/₂ tsp. paprika

Method:

1. Bring the chicken stock to a boil. Place the tamarind pulp into a bowl and add the boiling stock. Let the mixture soak for 15 to 20 minutes. Strain the liquid through a strong metal sieve, then squeeze the pulp to remove as much liquid as possible. Set the liquid aside and discard the remaining pulp.

2. Remove the meat from the refrigerator, and rub as much excess marinade from meat as possible. Add the excess marinade to the tamarind water along with the salt.

3. In a large heavy bottom skillet or Dutch oven, heat the mustard oil until it begins to smoke then remove the pan from the heat and let the mustard oil cool. If you are using peanut omit this step.

4. Heat the conditioned mustard oil (or other oil, if you substituted) over medium heat and add the onions. Fry them until they turn a caramel brown. Stir them frequently to prevent sticking and burning. If onions begin to stick, add a couple of tablespoons of water to the pan.

5. Increase the heat to medium-high and add the turmeric, red pepper, and paprika to the browned onions, stirring constantly for about 15 seconds. Add the meat and fry it until it loses its pink surface color and starts to brown on all sides.

6. Add the tamarind mixture to the meat and bring it to a boil. Lower the heat, loosely fit the cover on the pan, and simmer slowly for about 30 minutes or until the meat is completely cooked and tender.

7. Adjust salt to your taste.

8. Let the vendaloo rest, covered, in a warm oven for one hour before serving.

Basic boiled rice

Rice has been cultivated in India for about six thousand years. It is a staple food for two thirds of the country's population. In the southern and eastern regions, where rice is grown abundantly, it is usually served plain. Indian cooks pamper rice with meticulous care by custom cooking it in one of three ways: steaming, boiling, or baking. When not served plain, their refined cooking techniques produce rice side dishes so elaborate that they often overshadow the main dish. In the recipe section, I will share with you my version of an elegant baked rice pilaf. But first, let's explore the two most important elements of an Indian rice pilaf—the rice and the seasoning.

Basmati, a variety of aromatic long grain rice grown along the foothills of the Himalayas, is considered by food experts to be the best rice in the world. When cooked properly it develops long thin grains that are tender to the touch while exuding a wonderful nutty aroma. The best quality basmati that I have used is called Dehradun basmati; it is clean, contains few broken grains, and is carefully aged for several years to enhance its flavor and aroma.

Basmati rice does not require special skills or equipment to be prepared properly, but some special cooking requirements are recommended. It is also easy to find, because it is available at most super markets in standard retail packages. Make sure the label reads "Basmati Rice"; rices labeled "Texmati" and "Jasmati" are close but not the same. Follow the procedure outlined below and you will never have a problem cooking basmati rice.

Ingredients:

- 1 cup Indian basmati rice
- cold water for cleaning and soaking the rice
- 2 cups cold water for cooking the rice
- ¹/₂ tsp. kosher salt

Method:

1. Spread the rice on a baking sheet or large platter; pick out any pieces of stone, dirt or unhulled grains.

2. Place the rice in a large bowl, fill the bowl with cold water. Any light foreign matter will float to the top, and can be scooped away. Rub the rice between your fingers to remove any surface starch. The water will become slightly milky. Repeat this procedure, with fresh water until the water remains clear. Soak the rice in this clear cold water for at least 20 minutes.

3. Drain the rice in a colander, and let it air dry for 10 minutes.

4. Combine the rice, 2 cups of fresh cold water, and the salt in a heavy-bottom pot. Bring the water to a boil, reduce the heat to a point where the water is at a slow simmer. Partially cover the pot and cook the rice for **exactly** 12 minutes.

5. Remove the pot from the heat, cover the pot completely, and let the rice develop for another twelve minutes. Remove the lid and gently fluff the rice with a fork.

Garam masala

Masalas are artfully constructed blends of aromatic spices. Some of these blends are generously enhanced with hot and pungent spices. The following recipe is a personalized version of the masala blend that has become the hallmark of classic northern Indian cooking. Its captivating aroma and intriguing flavor will speak for itself in the pilaf recipe that follows.

Masala blends were introduced to Northern India by the conquering Turkish Mogul emperors during the 16th century. The traditional garam masala contains only four aromatic spices: cardamom, cinnamon, cloves, and black pepper. Over the centuries various quantities of cumin and coriander have been added changing the subtle character of the original blend to one that is more pronounced and spicy. The traditional blend is now called mughal garam masala, and is used in some of the most elaborate and classic mogul dishes of Northern India.

The spicier blend, simply referred to as “garam masala” or “punjabi garam masala,” is more widely used in the north, and numerous counterparts of this blend are used throughout India. I have discovered that masala blends are not restricted to use in Indian cooking. Many familiar soups, stews, vegetables, meats, and sauces take on a new and exciting character with the addition of a little of this magic blend. Many leftover refrigerated and frozen foods tend to lose a great deal of their original flavor during storage. Adding a little garam masala before reheating is the way to bring them back to life.

This recipe makes about 1/2 cup.

Ingredients:

- | |
|---|
| <p>1 tsp. cardamom seeds (25 green pods or 6-8 black pods)
1 cinnamon stick (about 3 inches long) broken into small pieces
1 tsp. whole cloves
2 Tbsp. black peppercorns
2½ Tbsp. white cumin seeds
2 Tbsp. coriander seeds</p> |
|---|

Method:

1. Heat a heavy-bottom fry pan, preferably cast iron, over a medium heat for about 2 minutes. Roast each spice separately, stirring constantly to prevent burning. For the first couple of minutes nothing will appear to be happening because the spices are losing their moisture. After this brief period they will start to brown very quickly. If you don't watch them carefully, while stirring constantly, they

will burn. Turn down the heat if they seem to be browning too quickly.

2. While the spices are browning, they will give off a little smoke, and release a noticeable fragrance. Roast each spice, except for the black pepper, until they turn a dark brown. Black pepper will show little or no signs of browning, so as soon as it begins to smoke and release a fragrance, consider it done.

3. After roasting, immediately transfer each spice to a dry heat-resistant bowl to cool.

4. Process the roasted spices to a fine powder in a spice grinder, blender, or coffee grinder that has been assigned to the sole task of grinding spices. This is important, because once you grind aromatic spices in a coffee grinder the residue of these spices will add some unpleasant flavors to your coffee.

5. If you seal the masala in an airtight container and store it in a cool, dark place it will stay fresh for up to three months.

Rice and vegetable casserole

The great pilafs of Provence, introduced to the American South by displaced French Huguenots, had their roots in the ancient art of Indian pilaf cookery. Pilafs are prepared throughout India in so many elegant ways that it would take a large book dedicated to this one aspect of Indian cooking to give them proper attention. The recipe that inspired my version of this casserole is one of India's most elegant vegetarian entrees. The original recipe contains a basic Indian cheese used by Buddhist and Hindu Brahmins as a primary source of protein, a slightly different selection of vegetables and a spice selection designed to accent that particular balance of ingredients. Ten years of experimenting with Indian cooking concepts has taught me that Indian cooking is a highly personalized art that easily accommodates the individual tastes of all who practice it. By using proven recipes when you begin preparing Indian food, you will develop a reliable working knowledge of how to use spices and herbs. In a short time you will also acquire a sense of how these herbs and spices behave with other ingredients in a recipe.

This casserole reflects my personal taste. It uses ingredients that my family and I enjoy eating throughout the year. Despite adding my personal stamp on this recipe, I haven't deviated from the classic flavor and texture of this wonderful dish. Please give this recipe a try; I am sure you will agree that the Indian pilaf is as good as rice cookery gets.

I usually serve this casserole as a side dish along with a main entree such as vendaloo. You can turn it into a one dish meal that will feed four adults by simply stir frying 12 to 16 ounces of 1/2-inch diced boneless chicken breast, lamb, or beef, and gently folding it into the casserole after you remove it from the oven. Use only top-quality, tender lamb or beef.

Ingredients:

2 qts. water
1 cup basmati rice, washed, soaked, and air dried as described in the plain rice recipe
1 medium size turnip, about 4 ounces, peeled
2 medium carrots, peeled
1½ cups fresh or frozen butter beans (baby lima beans may be substituted)
3 Tbsp. peanut oil
1½ cups onion, diced fine
2 cloves fresh garlic, chopped fine
1 Tbsp. fresh ginger root, peeled and chopped fine
1 fresh green chilli pepper, seeded and chopped fine (or use ½ tsp. cayenne pepper)
4 green cardamom pods
6 whole cloves
2 tsp. garam masala
3 Tbsp. ground blanched almonds
⅔ cup plain (fat free) yogurt
¾ cup low salt chicken stock (fresh or canned)
4 fresh plum tomatoes (peeled, seeded, and chopped)
1 tsp. Kosher salt

Method:

1. In a suitable size pot bring 2 quarts of water to a boil over medium-high heat. Add the washed and soaked rice, and stir for 30 seconds to prevent the grains from sticking. Boil the rice for exactly two minutes, then drain the rice through a metal colander. Immediately run cold water over the rice to stop the cooking process.

2. Drain the rice and set it aside.

3. Cut the peeled turnip and carrot into uniform 1/4-inch thick 1 inch long pieces; put the pieces in cold water and set them aside. Measure the butter beans, cover them with cold water in a separate bowl and set them aside also.

4. Heat the oil over a medium-high heat in a 5 quart cast iron Dutch oven or other flame-proof pot with a tight fitting lid. Add the onions, reduce the heat to medium, cook the onions, stirring constantly, until they begin to brown. Add the garlic, ginger, fresh green chilli pepper, cardamom pods and whole cloves. If you are using powdered cayenne pepper, do not add it at this time. Continue to cook the mixture for another two minutes.

7. Add the garam masala and ground almonds. If you are using powdered cayenne pepper in place of the chilli, add it now. Continue cooking the mixture for another minute.

8. Add two tablespoons of the yogurt. Cook the mixture until all of the moisture evaporates. Repeat adding yogurt two tablespoons at a time until all the yogurt is incorporated. Stir the mixture constantly during this process to prevent sticking.

9. Drain the turnips, carrots, and butter beans and add them to the mixture along with the chicken stock. Reduce

the heat to medium-low and simmer the vegetables, covered, until they are tender but still firm. Remove the cover and cook the vegetables for another 5 minutes, to reduce the liquid and thicken the sauce.

10. Turn off the heat and gently fold the rice, tomatoes and salt into the vegetables.

11. Cover the Dutch oven with a piece of aluminum foil and put the lid firmly in place

12. Bake in a preheated 300 degree oven for 30 minutes. Turn off the heat and let the casserole rest inside the oven for an additional 10 minutes.

Spiced Red Beans

This is a dish that I often serve with a pilaf, plain rice, or fresh baked bread to add substance to a meatless meal. It is easy to prepare and red beans are an excellent source of protein.

Beans of any kind are a touchy issue in my house, so before I could add this recipe to these pages I was obliged to submit a finished sample to the resident food committee for approval. This collective of discriminating, hard-lined food critics is chaired by my daughter Sarah, with her two brothers, Jason and Michael, holding the other two seats. If a recipe doesn't receive a unanimous thumbs up from the committee, it goes to the oval file. I presented it to the committee for the first time six months ago. Since then it has become a favorite side dish and an often requested between-meal snack. The following recipe serves four as a side dish.

Ingredients:

1 cup dried red kidney beans
5 cups cold water to soak beans
3 cardamom pods
1 cinnamon stick, 2 inches long
2 bay leaves
3 Tbsp. peanut oil
1 large onion, thinly sliced
3 cloves fresh garlic, chopped fine
1 Tbsp. fresh ginger root, peeled and chopped fine
½ tsp. ground turmeric
1 tsp. garam masala
¼ to ½ tsp. powdered cayenne pepper
4 fresh plum tomatoes, peeled, seeded and chopped
1 cup low salt chicken stock, fresh or canned
½ tsp. kosher salt

Method:

1. Pick over the beans to remove any foreign matter, or damaged and discolored beans. Soak the beans in 5 cups of cold water for 12 hours or overnight.

2. Drain the soaked beans, discard the soaking water, then rinse the beans under cold running water. Put the beans and

5 cups of fresh water in a pot that will hold everything with room to spare. Bring the beans to a boil over a medium-high heat, reduce the heat and let the beans cook at slow simmer for one hour or until they become tender. Drain the beans and set them aside.

3. Heat a heavy-bottom skillet over a medium heat for one minute, then add the cardamom, cinnamon stick and bay leaf. Roast the spices for one minute being careful not to let them burn.

4. Add the oil and, when the spices start to sizzle, add the onion and cook until the onion starts to brown. Add the garlic and ginger and continue cooking the mixture until the onions turn a medium brown. Add the turmeric, garam masala, and cayenne pepper, and cook for another minute, stirring constantly to prevent burning.

5. Add the chopped tomatoes, chicken stock, salt, and beans. Adjust the heat to the lowest possible point, cover the skillet, and slowly simmer the mixture for about 10 minutes. Let the beans rest after cooking for 10 minutes before serving.

Masala jheenga (JEEN-gah)

This is a spiced shrimp dish. Sauteed onion, roasted white poppy seeds, and aromatic garam masala seasoning are combined with turmeric-laced shrimp stock to add Mogul grandeur to this classic dish, which has its roots in the coastal state of Bengal.

Do not compromise on the quality of the shrimp you purchase for this recipe. Insist on examining the shrimp before you buy. Trust your own judgement; if they smell funny, feel slimy, or even look funny don't ask why, just find another place to buy your seafood.

Ingredients:

- 1½ tsp. white poppy seeds
- 2 pounds medium-size raw shrimp (about 30 to 35 shrimp per pound)
- ½ tsp. turmeric
- 2½ cups cold water
- ¼ cup regular or low fat milk
- ¼ cup cottage cheese
- 3 Tbsp. peanut oil
- 2 cups onion, chopped fine
- 3 cloves fresh garlic, minced
- 2 tsp. garam masala
- 1 tsp. paprika
- 4 fresh plum tomatoes, peeled, seeded, and chopped
- ¼ to ½ tsp. cayenne pepper
- 1 tsp. Kosher salt
- 2 Tbsp. fresh cilantro leaves, chopped

Method:

1. In a small fry pan, dry roast the poppy seeds over medium heat until they turn brown. Let them cool for a few minutes then grind them to a powder in a spice mill or blender.

2. Peel and devein the shrimp, then wash them in cold running water. Put them in a colander and let them drain for 15 minutes.

3. Put the shrimp, turmeric, and cold water in a suitable size pot to poach over a medium flame. Watch the shrimp carefully because they will cook completely before the water boils. Drain the shrimp and **save** the poaching water.

4. Process the milk and cottage cheese in a blender until they are thoroughly blended together with creamy consistency.

5. Heat the oil in a Dutch oven (or other heavy bottom skillet with a non-stick surface) over medium heat. Fry the onions, stirring constantly, until they turn medium brown (about 10 minutes). Add the garlic and cook for another minute.

6. Reduce the heat to low, and stir the ground poppy seeds, garam masala, and paprika into the onion mixture, and cook about 15 seconds.

7. Add the chopped tomato, cayenne pepper, salt, and 1½ cups of the reserved poaching liquid. Increase the heat to medium high and boil the mixture, uncovered for 15 minutes, or until the sauce becomes thick and pulpy. Be sure to stir the sauce every few minutes to prevent sticking.

8. Reduce the heat and add the cottage cheese and milk puree. Cook the mixture over low heat for another two minutes, stirring constantly. Gently stir in the shrimp, cover, and slowly simmer the mixture until the shrimps are heated through. Turn off the heat and let the mixture rest for one hour before serving.

9. At serving time slowly heat the mixture. Sprinkle the cilantro leaves on top as you bring the dish to the table.

I hope that you enjoy this brief visit to the vast world of Indian cooking. Δ

Thunderstorm

Dark, silent house
-LIGHTNING- CRASHING THUNDER, Rain
“Can I sleep with you?”

Ryan Thornsberry
Cape Girardeau, MO

Get paid to take vacations

By Robert L. Williams

Many years ago my wife and I (our son was not yet born) moved to the backwoods life, and we have never wavered toward going back to the rat race. However, there comes a time when it is either necessary or desirable to rejoin the materialistic and commercial world, if only for a few days.

Even staunch backwoods types occasionally want to see some historical site, natural wonder, or educational exhibition—or even a ball game—but we find very quickly that on the rare occasions when we must go back into the traffic and exhaust fumes that prices are astronomical, particularly in areas quaintly known as resort towns.

So we began to look for a way to enjoy occasional vacations without having to spend a small fortune. What we found startled us for several reasons.

Carolina. We visited all the best historic and educational sites, and we toured colonial mansions, wonderful gardens, and even swamps.

Three weeks later we made a tour of the most beautiful mountain peaks (and surrounding areas) in South Carolina, North Carolina, Georgia, and Tennessee. We stayed in delightful inns and ate elaborate meals.

And how many credit cards did we have to max out in order to enjoy these vacations?

None. The incredible truth is that we actually earned money while we enjoyed ourselves. To give two examples, on the trip to Charleston I earned (so far!) over \$1,500, after expenses. On the mountain trip through four states, I earned more than \$2,000, after we had paid for our necessary costs.

Consider that for a moment: a total of more than \$3,500 paid to us, and in exchange all we had to do was enjoy



One of our working vacations took us to George Washington's Mount Vernon.

A short time ago, for instance, we spent a week in two of the most beautiful cities in this country: Savannah, Georgia, and Charleston, South

fantastic visits to great locations and eat delicious foods in superb restaurants. On a recent trip of three days I earned more money, again after



Seeing coastal scenery on salary lights up anyone's life.

expenses, than I made in a month teaching college classes.

Unbelievable? Not at all. I can tell you how we did it, and at the same time I'll tell you how you may be able to do it.

Did you notice the word "may" in the previous sentence? That word is there because not everyone will want to travel the way we did, and, to be blunt, not everyone can handle the work. But, on the safe side, I'd guess that more than eighty per cent of the people reading this article can follow in our footsteps—or to places of your own choosing.

What I did was write articles about the places we visited for newspapers and magazines. Their travel sections and the people who read them are hungry for such informative columns. Here's how we did it, and how you can also do it.

First, I read travel sections of several local newspapers, studied the format used, and kept a list of the towns or natural attractions already featured.

You should do the same. Do not send the editor a story that he ran only a few days or months earlier. Study how the articles are presented and do likewise. Don't run on and on about how you found the cutest dresses or the best bargains in spark plugs at one



The wife and son of the author enjoy the view from Caesar's Head.

of the local stores. Point out the sights and activities most likely to attract the majority of readers.

The opportunities were not at all hard to find: the truth is that many people are actively looking for people who want to take paid vacations.

But you can't just show up on the doorstep and announce that you are ready to see the bright lights and then ask for loads of money and free tickets to all the places of wonder and delight. No, you must bring something to offer.

The first requisite is that you must take an active interest in travelling to and exploring these places. You can't just visit the resorts and spend the day in front of the television set; you must get out and see what the area has to offer, and you must put forth the effort to see and understand the basic qualities of the attraction. How else will you be able to write a good article about it.

Then you must be able to write about it competently. This does not mean flowing phrases with all sorts of literary quotes and allusions, and it certainly does not mean that you must steep your writing in similes and metaphors and other types of creative and figurative language. You should be able to give crystal clear directions

and provide detailed information about the places you have visited.

You must also have a decent camera that will take photos good enough to reproduce in magazines and newspapers. I don't mean that you must purchase a \$3,000 outfit, and you don't need all sorts of gadgets and attachments to get the photos you need.

Later I'll tell you what kind of camera I use and how much you can expect to pay for one similar to it. Let me say here that my camera has paid for itself at least 50 times already.

But first you need to hear about the job itself.

How I got started

Several years ago I noticed that a large newspaper near us ran a special travel section every Sunday. But what caught my eye primarily was that nearly all of the travel material was canned. That is, it was bought from one of the syndicates that provide feature stories for newspapers.

But most of the trips described were far beyond the reach of the typical wage-earner. After all, not everyone can suddenly drop his tools or briefcase and take off on a Caribbean cruise. Most vacationers that I know travel only two or three hundred miles to their destinations, and many of them camp because they cannot afford hotel and motel rates near the attractions they want to enjoy.



The author and his family earned money while on this trip to Charleston, SC.

A Backwoods Home Anthology

One day after we returned from a short trip to the coast of our state, I decided to write a brief article and tell exactly what the traveler needs to know before he decides to make the same trip.

So I included the following information in this order: the name of the place to visit, the major attraction there, the miles to the location and the time needed to drive there, and the best routes. Finally, and this was the major part of the article, I described not only the major attraction but the nearby historical or scenic or recreational opportunities.

The outline of the story is as follows:

Destination: North Carolina's Outer Banks

What's the Attraction?

The Outer Banks location features the tallest lighthouse in the United States as well as a series of other lighthouses, clean and unspoiled beaches, hiking and camping opportunities, museums, and, in general, fun for the entire family.

Driving time:

From Lawndale, North Carolina, driving time for the 480-mile trip is 10



Imagine receiving money to tour beautiful gardens like these at Magnolia Plantation near Charleston, SC, as my family and I did.

hours, allowing time for a picnic lunch along the way.

Getting there:

From Lawndale drive north on US 18, intersect with I-40 East, and remain on I-40 until you reach Raleigh where you will exit I-40 onto US 64. Remain on US 64 into the towns of Manteo and Nags Head.

To see and do:

(At this point describe in detail, giving exact directions to the various activities and attractions. Keep the article to about 600-700 words. Include one or two sharp photos.)

Details:

(At this juncture you should supply admissions charges, if any, to visitors, hours of operation, days closed, best times to see the attraction in terms of weather, daylight, etc., nearest overnight accommodations, nearest restaurants, and similar data.) The above, in essence, is the core of the simple travel story. You can work into longer stories, perhaps, as you continue to impress the editor with your abilities to supply him what he needs.

Before you invest too much time and money, choose a trip that you can make easily in a day or, better yet, half a day. Borrow a camera if you must, or ask the Department of Travel and Tourism to help you secure photos. Write the article as shown above and mail it to the travel editor.

Don't submit simply to "Travel Editor." Take a few minutes and study the newspaper staff. Learn the editor's name. A story addressed to "Editor" is much like mail you get addressed to "Occupant."



Touring restored houses, which have become landmarks, is a superb way to take a vacation and earn money.

Don't call the editor. He may be tied up in the details of his office work, and he may not wish to be disturbed. Instead, send in the story and photos, and include your name, address, and telephone number. If you are away from the phone much of the day, include the hours you will be at home. Don't ask the man or woman to call you every 15 minutes until you are finally at home.

You may have to try several newspapers before you find the one you need. If the newspaper is 100 miles away, don't worry. The telephone and United States mail service will serve you very adequately.

Keep trying if you are rebuffed at first. Remember that the paper must either use canned material, send the editor himself out on the assignment, buy freelance articles, or stop running travel stories. Think about the ramifications of the four options.

The editor must pay for the canned material, so if he's going to use his budget on travel stories, why wouldn't he want to buy a story about a place near his newspaper rather than one about travel in Tibet? National Geographic does it so much better than he can. Second, the editor edits. He cannot spend his days gadding about the countryside and still get his office work done. Fourth, much of the advertisement income of the paper comes from the travel section where cruise lines and touring companies like to tout their services, so the editor isn't likely to surrender this money.

That leaves third, buying freelance material.

The pay is not great. You may earn \$25 to \$100 for each short story, but you will learn very quickly that you can take a trip and stop at a half-dozen places along the way and do a story about each of them. Suppose you earn \$50 per story and you can do eight stories in a day: that's \$400 for a day's work—except for the writing, which you will do after you return.

Eight stories in one day? Believe me, it's possible. You will be amazed

at how efficient you can become with a little practice, and you don't have to rush frantically from one place to another, as long as they are fairly close geographically.

After the editor starts to trust your work (Don't ever fake a story or become careless with details like mileage. The last thing you want—and the last thing you will get from that paper—is an irate family that took a holiday and found that the trip is 275



There's nothing like getting paid to see the sights of the nation's capital.

miles, not the 75 miles you stated in your article.)

Choose a reliable camera

Now, about cameras. I have used a Canon EOS Rebel for years now, and it has never failed me. Such a camera will cost you about \$400, give or take. Use color film and get one-hour photo service at one of the discount houses. Often at the end of a trip I will drop off my film, then go eat. When I come back the film is ready, and it is processed well.

After a while, ask for large travel assignments, which pay more and are

more work. You can get in a lot of side trips on these vacation trips and earn a great deal more money.

Finally, with the editor's permission, contact other editors of papers outside your reading area and sell the story again. I have sold the same story 36 times. Figure \$50 times 36: That's \$1,800 for about four or five hours of work.

Then try travel magazines. Some of these pay \$1000 or more for a single story. Some pay only five cents a word, so if your story is 1,500 words, you earn \$75. But remember: photos often bring in extra money. I sell photos regularly for \$50 to \$100 extra. And, with permission, you can sell the story to more than one travel magazine.

But be very careful! Re-sell only with permission of the first buyer and with the awareness of the others.

A final point: when you arrive at the attraction, find the person in charge and introduce yourself as a writer on special assignment from the newspaper. You'll not likely be asked to pay for admission to any of the special places.

That, in a large nutshell, is it. We found that writing the travel story is the best way in the world for us to take a family vacation. The old adage is that the best part of a vacation is coming back home.

Wrong! The best part of a vacation is getting paid to take and enjoy it! Δ

A way of life that is odd or even erratic but interferes with no rights or interests of others is not to be condemned because it is different.

Warren E. Burger
Chief Justice, U.S. Supreme Court

If Karl, instead of writing a lot about capital, had made a lot of it it would have been a lot better.

Karl Marx's mother
(from *Ain't Nobody's Business if You Do*
by Peter McWilliams)

Ayoob on firearms

By Massad Ayoob

Mossberg Model 500: the backwoods shotgun

In 1961, the firm of O.F. Mossberg & Sons introduced their first conventional slide-action shotgun, designed in-house by Carl Benson. Until then, Mossberg was best known for inexpensive .22s, remarkably affordable .22 match target rifles, and cheap bolt-action shotguns. The new Model 500 was designed to duplicate the function of the famous, and more expensive, pump shotguns favored by sportsmen: Winchester's historic Model 12, Ithaca's light, fast Model 37, and Remington's popular Model 870.

Success was beyond expectation. Today, with production nearing eight million, the Model 500 in its assorted variations is the best seller in Mossberg's catalog by far, and a staple in gun racks of rural homes everywhere.

Price is half the reason for its success. In 1962, a price check of field-grade 12-gauge pump shotguns would have shown the Winchester at \$109.15 suggested retail, the Ithaca at \$94.95,

and the Remington at \$89.45...by comparison, the Mossberg was \$74.95.

A contemporary price difference remains. The successor of Winchester's Model 12, the less well executed Model 1300 Ranger, starts at \$300...the Ithaca pump, now the Model 87, starts at \$477... Remington's lowest priced 870 Express is just under \$300...and the Mossberg 500 starts around \$266 while the even lower priced version that Mossberg calls the Maverick can be had for as little as \$219.

The other half of the Mossberg 500 success formula has been functionality. Built to be kicked around the bottom of a duck boat for a couple of lifetimes, it stands up remarkably well, yet handles easily due to its lightweight aluminum alloy frame. The heavy-duty "mil-spec" version, the Model 590, beat every other brand in US military service tests and is the standard military police/jungle warfare weapon for our armed services



Massad Ayoob

today. The 590 saw a lot of use during Desert Storm, I'm told.

Legendary small arms instructor Jeff Cooper thought enough of the Mossberg pump guns to co-star with them in his training film on defensive use of the shotgun. Chuck Taylor, another noted combat arms authority, recently did an article praising the Model 500 and 590 as functional, basic, troublefree weapons that he wholeheartedly approved.

At my school, Lethal Force Institute, Mossberg ties with Remington as the brand students are most likely to bring to a shotgun class. The Mossbergs do as well as the Remingtons, and generally outclass the modern Winchester. We maintain several 12 and 20-gauge pump guns in our armory as loaners for these classes—Remingtons and Mossbergs—and the two seem to per-



Mossberg Model 500 Combo, pump shotgun



Mossberg Model 9200 Combo, autoloading shotgun

form equally well with minimum frequency of repair.

There was a period in the early through mid-Eighties when Mossberg quality control slumped badly. I could not recommend a gun of that period. It's a family run company, fortunately, and in the late Eighties CEO Alan Mossberg made the commitment to install expensive CNC machinery that brought QC back up. Today's Mossbergs work well, as evidenced by their winning the military tests.

Frankly, I'm partial to the ergonomics of the gun. I like the 500 because it's light and fast handling...its open bottom allows faster loading and reloading than the Ripping "loading gates" of some of its contemporaries...and, particularly, its top-tang safety is more ergonomic than the crossbolt safety catches on most other pump guns, including their own downmarket Maverick.

I've seen even trained cops fumble at the crossbolt safety catch on the trigger guard of their shotgun. The sliding safety is worked by the thumb, ambidextrously, and is excruciatingly simple: back is "safe," and forward is "fire." I find this both safer, and faster to employ.

Victor and Cheryl Havlin wrote an excellent history of the company called "Mossberg: More Gun for the Money." Victor is head of the National Mossberg Collectors' Association, an excellent source of parts for old, discontinued Mossberg guns that are so prevalent in rural homes. For info on the book or the association, write to Vic Havlin at NMCA, PO Box 487, Festus, MO 63028.

Collecting Mossbergs strikes me as an eminently sensible way to start gun collecting on a budget. A collection of Greener or Winchester Model 21 shotguns is, in one sense, a celebration of the lifestyles of the rich and famous, while collecting guns designed for the average working American is an investment in the kind of work ethic that built this country.

Chat with other self-reliant people at
Backwoods Home Magazine's
popular website:

www.backwoodshome.com

For those who prefer the semiautomatic shotgun, Mossberg's relatively new Model 9200 is worth checking out. It's the only auto shotgun I know of with the desirable top-tang manual safety, and its gas operation system reduces recoil extremely well. This firearm is the core of the military's new "Jungle Gun," for which Mossberg seems to have won the contract: a high performance, low maintenance weapon designed to be used in third world ground conflicts and international drug interdiction that involve thick cover. It's the one autoloading shotgun I haven't been able to make jam even firing light-recoil "tactical" loads from weak, off-balance "emergency positions" where the gun is not firmly mounted to the shoulder. Cost-effectiveness is there with the "automatic" shotgun, too, with the Mossberg 9200 starting at \$443, versus \$625 for the Remington 11-87, \$772.95 for the Browning Automatic Five, \$895 for the Benelli MI Super 90, and \$660 for the cheapest Beretta Model 1201.

Some firearms purists are put off by the plastic trigger guard or the light feel of the aluminum frame of the Mossberg 500. I don't deny that there are other guns whose actions are smoother, justifying their higher price. But there are compelling reasons why this shotgun, often bought at a discount from K-Mart or Wal-Mart, has

been so naturally taken to the bosom of the average citizen, especially the rural American.

It's efficient. It works. It's frugal. And, in all of that, it's an embodiment of values that are prized by the kind of person who can be at home in the backwoods. Δ



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Here's 5 reasons adults should read kids' books

By Kathryn Houser

At a recent library book sale I scoured the shelves for interesting books on science and history for my children. Buoyed by success, I struggled to my van with a hernia-popping load for about \$10. When I arrived home I watched my daughters dive excitedly into the carton. As they scrutinized the volumes I found myself saying, "Wow, I'd like to read that one," and "I'd love to know more about that," and "I always wondered what that guy did." I felt a stab of envy that I had not read books like these when I was their age and had unlimited reading time. Then a startling thought came to me: why not read them now?

If you are like me, your first response is: Why would I want to read children's books when the library is full of material for adults on the same topics? Luckily, I put aside my doubts and I read many of the books. Now I can give you five great reasons to become devoted to the juvenile section of any library or bookstore.

Reason #1: The first reason to read children's books is that the author begins at the beginning. Little or no knowledge is presupposed so you never have a nagging feeling that you missed something early on.

Reason #2: Subject matter is presented in an interesting or entertaining manner to maintain attention. Humor is frequently employed, which is sadly lacking in many adult non-fiction titles.

Reason #3: The "big picture" is presented right away. Children's authors

build a solid framework before they inundate the reader with details. Material is unconcentrated enough to allow the reader to pick it up and put it down without "losing the thread." This is a boon for any grown-up who must do something other than read all day.

Reason #4: Experimentation and thought are welcomed. In the sciences particularly, hands-on investigation is encouraged. Children are not asked to



accept information without testing it for themselves. This provides a solid basis for understanding concepts.

Reason #5: (Probably my favorite reason.) Children's authors express no ego while demonstrating their superior knowledge. Nobody expects a kid to be an expert so "showing off" is pointless. Explanations are clear and thorough. The language is straightforward and enough space is used to treat an idea without glossing over key issues. You soak up great information and no one makes you feel ignorant in the process.

You now are convinced that this is a great idea but you object that there

will not be any kids' books about your particular interests. Think again. Just in the last six months my daughters and I have devoured books about genetics, anatomy, chemistry, pirates, weather, economics, cartooning, the orchestra, ancient Egypt, astronomy, and classic literature. Most of these titles were borrowed for free from the public library. Higher education does not have to be expensive.

The first step in your quest for knowledge is to raid your offspring's bookshelves. Next, grab your library card and haunt the children's services section of your local library. Pretend you are checking the books out for your kids if you feel out of place. Once you get started, though, I bet you will be so enthusiastic about this method that you will talk about it to anyone willing to listen. Let the secret out, learning is too exciting to be left to kids. Please understand that I advocate this as the beginning of your studies, not the end. If you still thirst

for more information after reading several juvenile titles, tackle adult materials about your topic. Begin with the basics and work your way toward whatever level of expertise you desire. You will discover you have constructed a solid foundation of knowledge onto which you can build as high a tower of understanding as you wish.

The most exciting thing about this formula is that the learning you choose to undertake will last forever. Economics author Richard Maybury agrees: "Self-teaching is a form of education that sticks, and it can continue and remain enjoyable for life." Δ

How about them \$mushrooms\$

By Robert Rowe

Little known and little advertised is the growing trade in wild edible mushrooms. With exports exceeding \$40 million yearly it is fast becoming a major cash crop leaving land managers in state and federal forests scratching their heads as to how this happened so fast. Degradation of forest ecosystems in Europe and Japan and the fact that the United States, especially the Northwest, has mass fruitings of correspondingly favorite species has left many folks to making very handsome incomes in this trade. If a commercial harvester of wild edible mushrooms were to tell you that he (or she) averaged \$200 dollars a day season wide it is doubtful that he is exaggerating.

Along with increased commercial harvests of wild edibles and a general curiosity by folks to try some of these culinary delights have come a few poisonings. So it is vital that the novice picker confirm identifications of mushrooms with a knowledgeable

harvester. If none are known to you, contact the North American Mycological Association at 3556 Oakwood, Ann Arbor, MI. 48104. Tel.: (313) 971-2532. They have chapters all over the country with folks willing to help with identification. If you live in the Northwest, where the bulk of the commercial activity occurs, check the local papers for mushroom buyers and have a close look at what they are taking in. Once you have held a particular wild edible and examined it closely, noting texture and smell, it is unlikely that you will confuse it with another species.

The equipment

Common sense is the watchword here. Different terrains require different equipment. Generally speaking a good pair of hiking boots or lighter hiking tennis shoes are a must. As a harvester you will be covering a lot of ground. A stainless steel Swiss knife, some five-gallon buckets (easily obtained from a restaurant), a pack frame



Common morel

as well as a compass and a good USGS or USFS map of the area that you will be in will get you started. As your harvesting talents grow so will your knowledge of what you require on a species by species basis.

Do not shirk on getting the required paperwork such as permits. Since most harvesting occurs on or in national forests and each forest has differing permit schedules, checking the closest ranger station to your area of operations is recommended. If you have discovered a “patch” on private property it would behoove you to get the owners permission—a promise of a couple of pounds of fresh mushrooms for the table will go a long way towards opening gates.

The sale

Top prices for your wild edibles will be paid by the better restaurants in larger cities such as New York, Chicago or San Francisco. This type of direct marketing, while the most lucrative, does have its drawbacks and risks. You will have to arrange shipping (overnight express), you will have weight loss due to dehydration and your money will take a while to reach you. On top of that, some chefs are quite fickle and may reject the entire load. Arranging this type of sale



The author with one day's buying of morels—about 1,000 pounds.

requires calls by you directed to the head chef at the restaurant that you choose. Be sure to be perfectly clear as to what product you have and firm in your price negotiations.

Selling your mushrooms at established buying stations assures you of a cash payout on the spot. You risk nothing and are free to attend to the total details of harvesting more mushrooms, however, the price you receive will not be as much. Buying stations are also an excellent spot to root out information on the ongoing season. A knowledgeable buyer can steer you towards productive areas as well as inform you as to future locations where they will be buying. (Many buyers follow mushrooms fruitings as they occur.) Bear in mind, too, that a commercial buyer will usually buy several species of wild edibles in conjunction to what they are in the area for and this represents an opportunity for the novice to see and identify other species worth picking.

The big four

The following four species are the most extensively harvested for domestic and international sale. They can be found throughout the United States where conditions permit. However, the author is most familiar with the foibles of these wild edibles as they fruit in the Northwest and now offers a few tricks and hints in hunting them.

Fire Morels (*morechella elata*)

(*M. conica*) (var. *nigripes*):

I list this species first not because it is the most valuable of wild edibles but because it is the most predictable to find. In the Pacific Northwest mass fruitings occur the spring after major forest fires in and east of the Cascade Mountains, in the Blue Mountains of southeast Washington and northeast Oregon as well as the western slopes of the Rockies from Northern California up through British Columbia, the Yukon Territory and Alaska. It is because of this predictability that they are subject to



Pine mushroom harvesters with baskets laid out for easy grading by buyer

much commercial exploitation. Larger fires can expect several buyers setting up stations and hundreds of pickers.

The prudent morel harvester begins his or her research during the forest fire season by carefully marking the location of fires on maps for reference the following spring. Preseason scouting is a must in order to determine whether conditions will be correct for a large “flush.” With spring weather cooperating even small wildfire areas can produce many thousands of pounds. Aggressive pickers can average 80+ pounds daily during the height of the season. With an average price of \$4 dollars a pound we can see that handsome sums are indeed earned.

Pine Mushroom or Matsutake

(*Tricholoma magnivelare*):

The pine mushroom is probably the most valuable fungi you will find in the forest and nearly all mushrooms that are harvested are shipped fresh to market within 48 hours to Japan. The 1992 fall season recorded a high for

the price of #1s (there are 5 grades) of \$525 dollars a pound. At commercial buying stations competition is fierce between buyers with price wars often erupting driving the price up for pickers. Commercial activity begins in early fall in northern British Columbia. As the season develops this “flush” moves further south into the southern Puget Sound region of Washington State. In October one can find considerable activity in the Cascades of Central Oregon with a small wide spot on Highway 58 called Crescent Lake being the center of buying. A dozen or more buyers will be set up and some 1000 harvesters will be working these productive areas. In November the harvest moves even further south into southwest Oregon and northwest California and it is here that the Pine mushrooms is associated more with the tanoak tree than the usual conifers of the north.

The pine mushroom is indeed a wily mushroom. While most are found by moving through the forest searching

For those who wish to hunt or know the more esoteric of wild edibles, I offer the following list. A limited market may be found for these species as some commercial buyers will have orders to fill or you may get a specific request from a chef.

Chicken of the Woods	Laetiporus sulphureus
Hedgehog	Hydnum repandum
Horn of Plenty	Craterellus cornucopiodes
Lobster Mushroom	Hypomyces lactiflorum
Oyster Mushroom	Pleurotus ostreatus
Truffle	Picoa carthusiana
Oregon White Truffle	Tuber gibbosum

for mature mushrooms, the more experienced pickers are always carefully examining the detritus of the forest floor searching for newly formed humps or bumps indicating that a young mushroom is pushing itself to the surface. Since mostly grade 1's are found in this way more profit per pound can be expected.

Grade 1 pines are described as a young mushroom with the characteristic veil fully attached from stem to cap. Grade 2 has a least 50% attachment of veil while grade 3 goes from 50% down to slightly attached. Grade 4 will have a fully down-curved cap (fully inrolled margin) and grade 5s are a mature flat capped mushroom.

The Chanterelle (*Cantherellus cibarius*):

The chanterelle is on the “Red List” of Germany meaning that no commercial picking is allowed and very little recreational picking either. Consequently, since the Northwest has amazing fruitings, enormous quantities are purchased here and placed in a salt brine solution for shipment to Germany where they are then canned. The bulk of the harvesting occurs in the coast ranges of Washington and Oregon and on the western slopes of the Cascades. Many, many tons are harvested annually.

The Chanterelle is a fall mushroom that will show itself after the first rains begin in September. A general rule I like to apply to finding this mushroom is termed “triple D.” This refers to conditions in the forest that this mush-

room prefers—deep, dark and dank and is generally allied with heavy timber. Old growth timber is not required for significant fruitings, however conifer forests are a must here in the Northwest. Plan on doing a bit of trekking about the brush as patches can be few and far between. A compass is pretty worthless in this heavy timbered country so I like to carry along a roll of timber cruisers trail



Author's grandmother Wilma with mature kings. A picker for 80 years and still going strong

marking ribbon. Costs about a buck a roll and marking your trail will save a bit of wandering around if you get turned around.

The Chanterelle will handle storage in the cooler for up to two weeks without much weight loss. This mushroom is quite well known to chefs and sales of it should be easy to arrange if there are no buying stations about. Picking this mushroom clean is a must

as a few dirty mushrooms in your bucket may precipitate a long and tedious cleaning session. The preferred method is to cut the stems while the mushroom is still in the ground thereby preserving the underground mycelium at the same time.

The King (*Boletus edulis*):

Upon finding your first mature king you will realize that it is properly named. Specimens a foot high, a foot across and several inches thick are common in our northwestern forests. The king is also a fall mushroom and is a favorite of Europeans where it enjoys more nicknames than there are languages. Examples include *cepe* (France), *penny bun* (United Kingdom), *steinpilz* (Germany) and *porcini* (Italy). It is very popular, very tasty and highly sought after by chefs here in the United States.

Look for Kings under conifers (pine, spruce, firs). Large fruitings occur on the coasts of British Columbia, Oregon and Washington. There is also a variety of King that is found in the spring in the Blue, Rocky, Cascade and Sierra Nevada Mountain Ranges but are not found in such quantities. Mark your picking maps carefully as the King is apt to return to the same location year after year.

Commercially the King has three grades with grade 1 being described as a young “button.” Grade 2s are slightly older mushroom whose pore mass under the cap is still white to a light tan in color and a grade 3 is a fully mature mushroom.

Suggested reading

Mushroom Demystified by David Arora, Ten Speed Press, Berkeley, California, 1989.

Ecology and Social Aspects of Wild Edible Mushrooms by R. Molina, et al., USDA Forest Service. Can be obtained free by writing USDA Forest Service PAO, 333 SW First Ave., Portland, OR 97208. Δ

Think of it this way...

By John Silveira

Science and truth — are they related?

It was an argument about science. Dave and I were on one side, Dave's friends Tom and Bill, though curiously nonallied, were on the other. I say nonallied because Tom is very religious while Bill is an environmentalist somewhat to the left of Hillary. And though they disagreed on other things, in this discussion neither of them had much use for science.

To summarize Tom's position, he said science wasn't any more valid than any other belief and he believed, quite frankly, in creationist theory. Bill agreed science wasn't any more valid than any other belief, but the expression he used was that all beliefs are relative. He also was fond of qualifying everything Dave or I said with the phrase, "That's your opinion." You'll never know how irritated I was getting.

In the meantime, O.E. MacDougal, Dave's poker playing friend, sat in the corner reading. Every once in awhile he'd look over his book at us, but he didn't join in the conversation.

Tom said, "Science is just like religion, it's just a set of beliefs. It's no more valid than any other set of beliefs."

"There are no absolutes," Bill added. "All systems of belief are relative."

It was more than I could take, but I couldn't think of anything to say except, "Mac, what do you think?"

Dave looked to Mac, too.

"Who's that?" Tom asked looking into the corner where Mac sat reading. Bill had met Mac before and I don't know whether Mac realized it, but Bill didn't like him. If he knew, he didn't care.

"It's O.E. MacDougal," Dave said. "Mac, meet Tom—you've met Bill

before." Then he turned to Tom and said, "Tom, meet Mac."

Mac stood, crossed the room and shook Tom's hand. "Glad to meet you, Tom." Then he shook Bill's, said "Nice to see you again," and went back to the corner and started reading again.

"Well?" Dave asked.

Mac looked over his book.

"Have you been following what we've been talking about?"

"Off and on."

"What do you have to say?" I asked.

"Is science any more valid than religion or philosophy?"

Mac got a pained look on his face. I think he just wanted to read.

"Who's this guy?" Tom asked again. He looked at Bill who rolled his eyes.

"A friend," Dave answered. "I'd just like to hear what he has to say."

"You want to join our little discussion group?" Tom asked.

It was obvious Mac wanted to be left alone, but he put his book in his lap and said, "Your comment begs the question of what you mean by the word 'valid.'"

"There's a nonanswer if I've ever heard one," Bill laughed.

Mac smiled.

"What do you mean?" I asked.

"If I said a Cadillac is no better than a Honda, what would you say?"

"I'd agree," I said and Dave and Mac laughed because I own a Honda.

"Then what if I said a Cadillac is better than a Honda?"

"I'd say, it would depend on what you meant by 'better.'"

"Okay, then it depends on what we mean by 'better.' And when Tom said science is no more valid than religion, did you all agree to what the word 'valid' meant in that sentence?"



John Silveira

"I would imagine he meant 'true,'" I said.

"Okay, then what are you measuring truth against?"

"Truth is relative," Bill said.

"Then how are you guys using the word 'relative'?" Mac asked.

"This isn't going anywhere," Bill said. "I think we all know what it means."

"Why don't you tell us how you define it?" Tom asked Mac.

"This is your discussion. I shouldn't be the one defining the terms."

"The word 'true' is relative," Bill said and Tom agreed saying:

"They're words that mean different things to different people."

"It's not enough to just agree that 'valid' or 'true' mean different things to different people at different times. We also have to agree on what we mean by them at this moment in this discussion."

"Tell us what you mean by it?" Tom said to Mac.

"I was hoping I could get you guys to explain how you were using 'true'



When the Greek city of Syracuse was invaded by the Romans, orders were that Archimedes, the greatest scientist of his time, was to be spared. But, engrossed in his work, he failed to acknowledge the demands of a Roman soldier who then killed him.

and ‘valid’ in relation to science. I wanted to hear what you think science is because I don’t think you even agree on that.”

He looked at Tom. “What’s science to you?”

“It’s a secular opinion of how the world works, but just one of many ways of viewing the world.”

“What about you?” Mac asked me.

“I think it’s a collection of facts and data...and theories.”

He looked at Dave.

“It’s a way of proving things...proving theories.”

He looked at Bill.

“I agree with Tom when he says it’s one of many ways of looking at things.”

“See, it’s all relative,” Tom said.

“Well, I suppose there’s an element of truth in what each of you said. And, Bill, Tom, you two probably came the closest.”

“What do you mean?” I asked because I figured I’d come the closest.

“Science certainly depends on facts and theories,” he said. “And, using the scientific method, although we don’t prove theories, we provide evidence for them...”

“What do you mean we don’t prove theories?” I asked.

“Nothing is ‘proved’ in science. Among scientists, ‘proof’ is reserved for mathematical theorems—or at least it should be. All we ever do in science is provide evidence for a theory.”

“That’s not the way I learned it,” I said.

“And that’s another problem,” he said.

“What problem?” Dave asked.

“The way we learn about science in school and the way we’re informed about it in the press.”

“But what about truth?” I asked.

No truth in science

“There is no ‘truth’ in science. Either theories have evidence to support them or evidence supports the idea that a theory is an inaccurate view of reality. But even if the evidence supports a theory today, tomorrow, new evidence may show the theory needs revision. It happens all the time. That’s what happened with Isaac Newton’s theories of mechanics and universal gravitation. For a couple of centuries all the evidence seemed to show his theories explained the universe precisely and were deemed ‘true.’ But in the late 19th century evidence started to accumulate that disturbed scientists. They were discovering phenomena Newton’s theory didn’t account for. It was in explaining how these new pieces of evidence, as well as other ideas, fit into a more comprehensive theory that Albert Einstein made his mark. And

Newton’s theory which had appeared to be ‘true’ for so long was finally shown to be—for lack of a better word—untrue. Now Einstein’s theory is the new ‘truth.’ But even his theories may fall by the wayside, and Einstein himself once said that no amount of experimentation would ever prove his theories were right, but just one experiment could prove him wrong.”

“Then you’re saying science is just a bunch of opinions,” I said.

He shook his head from side to side. “Science is a process...it’s a method.”

“Science is just a western invention,” Bill said.

“That’s right,” Mac said offhandedly.

“What?” I yelped.

“Well, it is,” Mac said.

“How can you say that? That’s not what I was taught...” I was getting pretty loud.

“Calm down, John,” Dave said.

“It’s an invention of western civilization,” Mac said. “It’s a way of looking at the universe. It’s a philosophy with a set of rules just like any other philosophy—or religion. But,” and he hesitated on the word ‘but’ to add emphasis, “it happens to be the most spectacularly successful philosophy ever devised for interpreting reality...”

“That’s your opinion,” Bill interrupted, but Mac continued:

“The reason is, when a scientific theory doesn’t correspond to reality, the scientist assumes the theory is wrong and he attempts to modify it or he goes out to look for a better theory. In contrast, when a religious, political, or philosophical doctrine doesn’t correspond to reality, all too often it’s evidence that is assumed to be wrong.”

“That’s baloney,” Tom said.

“Give us an example,” Dave said to Mac.

“Well, for example, creationists have seen the fossil record and it doesn’t agree with their view of how the world came about. So they’ve

decided to keep their ‘theory’ and pronounced the fossil record—what is otherwise called evidence—wrong. They’ve questioned radioactive dating and said dinosaurs were simply antediluvian animals that weren’t taken on the ark and therefore were drowned. They’ve even suggested fossils aren’t real, that they’re just a test God has put there to see if he can bring on doubt. One even told me they’re one of God’s jokes.”

“Radioactive dating is just statistics,” Tom said.

“Just statistics,” Mac said. “That’s another issue we’ll have to consider...”

“But from the scientific point of view, isn’t evolution accepted as true?” Dave interrupted.

“No. But it is considered fairly accurate. There’s a lot of ‘evidence’ supporting evolutionary theory, but Darwin’s view of it is now being questioned. He proposed evolution was more or less constant with new species gradually emerging through random selection. But the fossil record doesn’t always support this. Some evolutionists are proposing that evolution may reach periods of equilibrium where nature appears to become balanced—with some gradual evolution, as Darwin believed—but that most evolution is due to catastrophic conditions that have punctuated life on earth.

“A good example would be that at the end of the cretaceous period, dinosaurs and other animals were living in a world that had reached a fair amount of equilibrium. There’s evidence that evolution was progressing slowly in response to changing environmental pressures such as the slow shifting of the tectonic plates. Then, some environmental catastrophe—most likely a comet or an asteroid colliding with the earth—changed everything. The dinosaurs abruptly disappeared and with all of these higher niches now empty, the survivors started rapidly evolving to fill them.”

“But you’re not saying evolution is in question with those guys; it’s just a question of whether or not to modify Darwin’s theory based on the fossil record,” Dave said.

There is no ‘truth’ in science. Either theories have evidence to support them or evidence supports the idea that a theory is an inaccurate view of reality.

“That’s right,” Mac said.

“There are plenty of scientists who disagree with evolution,” Tom said.

“I’m not sure what ‘plenty’ means,” Mac replied. “But I think you’re talking about creationists. And the fact is, they may be right. But what creationists are practicing is not science, but religion.”

“I beg to differ with you. Some of them are eminent scientists.”

“I didn’t say they weren’t scientists. I just said they aren’t practicing science when they say those things.”

“Oh, come on,” Tom said.

Bill caught Tom’s eye. He smiled and shrugged.

“Wait a minute, what do you mean by that?” Dave asked Mac.

“That’s why I said we should agree on a definition of what science is.”

“What’s your definition of science?” Dave asked.

“The word science is used to describe a lot of things. Everything from, ‘there’s a real science to making a good apple pie’ to describing how physics is conducted in a laboratory.”

“See, I told you; it’s all relative,” Bill said.

“But I prefer to use the word science when the scientific method is involved,” Mac added.

“And scientists don’t make their assessments based on religion,” I said to Tom and I was a little bit startled when Mac looked at me and shook his head sideways.

“That’s not quite true, John. Einstein, the greatest scientist of our century, rejected quantum mechanics, which is one of the cornerstones of modern science and one of the most spectacularly successful theories in history. He rejected it on religious grounds because it introduced uncertainty into physics. What he said was, ‘I shall never believe that God plays dice with the world.’

“And Isaac Newton, perhaps the greatest scientist who ever lived, rejected a relative universe—one in which motion is relative to the observer, meaning there are no absolute reference points that indicate one’s ‘true’ position in the universe—on religious grounds and thereby missed out on one of the two cornerstone postulates of Einstein’s Restricted Theory of Relativity.”

“What’s relative motion got to do with religion?” Tom asked.

“Newton couldn’t accept that all motion is relative, that there isn’t an absolute reference frame against which all objects in the universe move because the position of God in the universe was absolute and not relative. It was a holdover from the days when heaven was fixed and the earth was thought to be the center of the universe.



Robert Boyle confounded his contemporaries by insisting theories should be verified by experimentation.



Isaac Newton, though a loner throughout his life and a religious eccentric late in life, did more to influence civilization with his invention of calculus, his theory of universal gravitation, and his laws of motion than any other man ever to have lived.

“But neither Einstein nor Newton based their assessment on science. Yet, either or both of their statements could be true because there’s no ‘proof’—to use the p-word again—to say they were wrong, even though there’s a lot of evidence indicating they were.”

“I’m kind of confused,” Dave said. “What’s this scientific method and who came up with it?”

Mac thought a moment.

The origins of science

“In fact,” Dave interrupted, “science seems to be pretty new. Why don’t we hear about scientists from like a thousand or two thousand years ago?”

“That’s a good question. Let’s start with where science and the scientific method came from first, because it’s actually kind of interesting. What do you guys know about the history of science?”

“I suppose he’s going to tell us,” Bill said.

“I’d like to hear it,” Dave said.

“I’m interested,” Tom added.

I just took notes.

“Well, you yourself said modern science is a western invention,” Mac said to Bill. “But the rudiments of that science were shared by all societies and, in particular, all early civilizations. Certainly some sort of rudimentary agricultural science had to be developed to allow men to plant and harvest; and math, the so-called queen of the sciences, had its origins lost in antiquity. And all civilizations seemed to have studied astronomy.

“But it’s worth noting that even though today we think of science, religion, and philosophy as separate issues, back in those times the three were one. For example, no one studied astronomy without considering the religious aspects of it.

“The stone structures that dotted northern Europe, for instance, of which the most famous is Stonehenge, were astronomical observatories with the capability of marking the equinoxes, the solstices, and predicting both solar and lunar eclipses. Building them required a level of mathematical and astronomical sophistication that would not reappear in that part of Europe for centuries. But these were more than just observatories, they apparently also had deep religious significance for their builders.”

“But the sophistication for building those things was lost?” I asked.

“Yes, not to reappear for thousands of years. In fact, it’s ironic that though modern science was invented in the west, throughout history the west usually trailed behind the rest of the world. In particular it lagged behind China.”

“The Chinese were ahead of us scientifically?” I asked.

“In both science and technology they were ahead of us for centuries. For example, today we consider the ancient Chinese such reliable observers of astronomical events that it’s their records we go to when we want to verify the reporting of celestial events—like comets or the sighting of supernovas—by ancient observers in the west.

“Still, with very few exceptions, like the invention of the calendar, science had very little practical use or impact on people’s lives.

Archimedes

“But there was at least one bright spot in the ancient western world and, if someone wanted to say the beginning of modern science started with the man they called Archimedes, I wouldn’t argue.”

“I’ve heard of him,” I said.

“He was one of the most brilliant men who ever lived,” Mac said. “He made contributions not only in pure mathematics and geometry but in mathematical physics. He almost invented integral calculus. His formulations on the laws of the lever, his invention of the compound pulley, his work with hydraulics, optics, the densities of materials...” Mac threw his hands up. “...all kinds of things, though elementary in today’s science, were quantum leaps over his predecessors. The world would have to wait 1900 years, until Newton, to see a comparable genius.

“In his own time, his renown was such that, when the Romans captured the Greek city of Syracuse, where he lived, the soldiers were told that at all costs Archimedes was to be taken alive. He was, quite frankly, one of the most important men in the world. But one soldier coming across an old man demanded his attention. The old man ignored him and kept doodling figures in the sand with a stick. The soldier killed him on the spot.”

“And that was Archimedes?” Dave asked.

“Sure was.”

“Modern science should have started right there with Archimedes. But it didn’t. In fact, it seems the world went downhill. There were brilliant men, lots of theories, and many technological advancements. But very little advancement in science—at least in Europe.

“During the so-called Dark Ages, technology continued to progress in Europe but science itself languished. In the meantime, in the emerging Islamic empire, science and mathematics were not ignored. In particular, the Moslems developed algebra. It’s hard to imagine modern science arising without algebra. Calculus, as invented by Newton and Leibnitz, would have been impossible without algebra having been invented first. And without calculus there is no modern physics, no modern electronics, no modern engineering feats.

“Why did the Moslems share their knowledge with the Europeans?” Dave asked.

“They didn’t. When they were finally forced out of Western Europe, they left behind their libraries. It was when European Christians went through those libraries, with the help of Jewish translators, that Europeans rediscovered the works of the Greeks and early Romans. In particular, they rediscovered Aristotle and Archimedes.

“They also discovered a concept developed in India that the Moslems found useful. It was a concept unknown in the west until then. It was the concept of the number zero. And along with zero came the Hindu numbering system, which we call Arabic numerals—our common 1,2,3,10, 20, 100, etc.—that made calculations easier. Until then, Roman numerals were used. Quick, what’s MCM times DLI? Roman numerals were not easy to calculate with.

“But this all happened at just the right time because a great new period of culture and learning was starting in Europe.”

“The Renaissance,” I guessed.

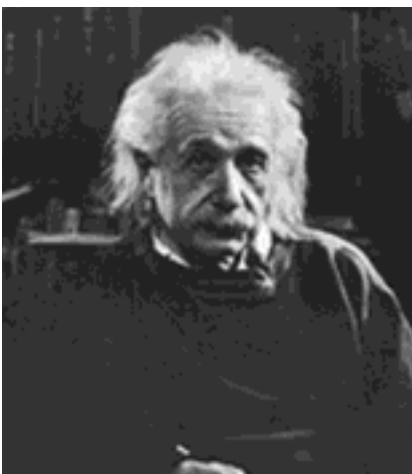
“That’s right. It was a time of tremendous technological, artistic, and cultural advancements. But even then, science was still treated like any philosophy. And the ‘proof’ of a scientific theory was not experimentation; it was still, ‘Does it appeal to reason?’”

“It seems if science and philosophy were still tied into religion, that since

they didn’t test theological theories with experimentation, it wouldn’t occur to them that it might be necessary to test theories about the physical world,” Dave said.

“And that’s part of the reason they didn’t test them.”

“There was more to it?” I asked.



Albert Einstein is the best known scientist of the 20th century and he was the first man to successfully challenge Isaac Newton’s theories.

“Sure. What stood in the way of the early Renaissance men were the same things that stood in the way of men in Archimedes’s time, and it ensured that until the Renaissance men were observers and weren’t inclined to set up experiments to see if a theory was correct. The problems were:

“One: There was a lack of tools and measurements. For example, there was no way of measuring time accurately—no stop watches. Also, there were no microscopes or telescopes. There was just a real shortage of tools.

“Two: There was a lack of sophisticated math. Modern science depends heavily on mathematics for modeling, for calculations, and for analyzing data.

“Three: There was also a lack of previous science to build on. Those we would call the scientists of ancient times—the astrologers, alchemists, mathematicians, and what have you—kept their discoveries secret and often

died without revealing them. So whatever they discovered—processes, chemicals, even mathematical techniques—had to be rediscovered over and over again by later generations.

“But with the Renaissance, new tools were invented. Mathematics advanced, especially after Newton. And men began to publish, so knowledge was shared.

Robert Boyle

“Still, experimentation wasn’t common. Not until the 17th century when an Irish-English chemist named Robert Boyle came along. Others before him—Galileo, Kepler, Newton, and others—sometimes referred to the real world to make observations and show some statement was valid, but Boyle did something that confounded his contemporaries: He assiduously conducted experiments to verify all of his theories. To his contemporaries, Boyle was a little odd because to them reason was still more important than experimentation. But Boyle had tremendous success in science with his methods and is today considered the founder of modern chemistry.

“He designed laboratory equipment including the gas pump, and formulated a theory of gases that now bears his name—Boyle’s law of gases. He was the first to observe that something in the air, namely oxygen, combined with materials as they burned. He also discovered that metals gain weight when they oxidize. He made important discoveries, but more importantly he was one of the first proponents of this new scientific method.”

“And what is that method?” I asked.

“I think you can guess.”

No one said anything.

The scientific method

“But I’ll tell you. This method, more or less, is what propelled western scientists ahead of the rest of the world, and it is the basis of how science is

The scientific method consists of just a few steps but it applies to any field of science. These steps are:

1. *Observe phenomena.*
2. *Formulate a theory to explain the phenomena.*
3. *The theory should encompass something greater than just the observed phenomena.*
4. *The theory should allow previously unsuspected phenomena to be predicted.*
5. *The theory should be testable through experimentation by anyone else possessing the necessary equipment.*

conducted around the world today. You can break it into five parts.

“First: **Observe phenomena.** For example, notice things such as when you crossbreed red and white flowers that a certain number of the offspring are red, a certain number white, and a certain number pink. Or notice how planets seem to cross the sky relative to the fixed stars. Or note how animals seem to change to adapt to their environment.

“Second: **Construct a theory that explains why these things act the way they do.** A really good theory will be reducible to a few easily understood axioms. One of the most famous theories to emerge in the 20th century is Einstein’s restricted Special Theory of Relativity. Relativity rests on just two axioms: (1) the speed of light is constant for all observers, and (2) all motion is relative. Starting from here, Einstein explained a lot of things that puzzled 19th century scientists, including why the speed of light seemed the same to everyone.

“Third: **A really good theory will relate phenomena not previously thought to be related.**”

“In other words,” Dave said, “it will be a more encompassing theory.”

“That’s right. In the 19th century, astronomers noted irregularities in the orbit of Mercury that led them to believe there was an undiscovered planet revolving around the sun inside the orbit of Mercury. But since no planet was detected, it was assumed the planet must lie so close to the sun that it was lost in its glare. Einstein pointed out that such a search would

be fruitless because he could explain Mercury’s orbital shift, called a precession, with his theory. In fact, he showed that all the planets precess in the same way Mercury does, but since the planets further out move slower in their orbits, the precession was less and hadn’t been noticed.

“But the result was that a theory, that is, Einstein’s Special Theory of Relativity, that seemed to be only about light precisely explained the precession in the orbits of planets.

“Fourth: **A great theory will predict the existence of heretofore unobserved or unsuspected phenomena,** and Einstein, in his Special Theory of Relativity, explained there was a connection between matter and energy. That’s the famous $e=mc^2$ equation and from that comes the atom bomb and nuclear energy. These were things no one else had anticipated. Later on, in 1916, when he published his General Theory of Relativity, he predicted that gravity would ‘bend’ light, something that apparently hadn’t occurred to anyone else up to that time, and sure enough, during a solar eclipse of 1919, astronomers measured the apparent bending of light as it passed near the sun, and the bending was exactly what he predicted.”

“So what you’re saying is that a theory should do more than just explain the observations and data at hand; it should reveal new information,” Dave said.

Mac nodded.

“Fifth: The scientist should **suggest experiments that test the theory,** but

more important, the **independent observers should be able to conduct experiments that test the validity of the theory, and the results of the experiment should be reproducible by every experimenter who tries them.** For example, Einstein’s theories can be verified by anyone with suitable equipment, and the outcome of those experiments are not, with all due respect to you, Bill, a matter of opinion.”

“Isn’t that what happened to those guys up in Utah who claimed to have discovered cold fusion?” Dave asked. “They were finally discredited because too many other scientists couldn’t duplicate their results.”

“That’s right. But until the invention of the scientific method, what was the litmus test of a theory?” Mac asked.

No one answered.

“It was whether or not it appealed to reason?” No one said, ‘Let’s do an experiment and see if it works in the real world’. It was simply: If it sounds good, it must be true.

“And although we now live in the days of modern science, an awful lot of stuff goes around whose only validation is that it fits into that person’s political or religious philosophy, and it leads to bad science.

“A case in point comes right from this century. In the old Soviet Union, there was a man named Trofim Lysenko. He claimed biological traits were environmental instead of inherited. This theory fit in with Communist theory because the communists maintained that by changing the political system, the nature of people would change. As a means of demonstration, he claimed that by feeding generations of white mice a steady diet of rice, succeeding generations acquired Oriental traits including the so-called slanty eyes, yellow skin, and even stereotypical Oriental behavior. He also claimed he could change wheat into rye or oats by changing its environment.

“No one in the west could duplicate the results of Lysenko’s experiments.

And, in the Soviet Union, biologists who disagreed with the results of his ‘experiments’ could lose their jobs and many were imprisoned. Some were even shot.

“But in the rest of the world, where science had at least some integrity, because his experiments were not reproducible his theories were ignored.

“And that, my friends, is what science really is. It’s not a set of dogmas or beliefs, or facts, or theories. Facts can be mistaken, scientific theories can be overthrown, but the method reveals how the real world works, and in that way it’s different from religious and philosophical theories. And that’s also my measure of validity and truth.

“The scientific method is no longer just a part of western civilization; it’s been embraced by the world—Protestants, Catholics, Jews, and Buddhists; Africans, Asians, Europeans; men and women; anyone who wants to become part of the modern world. They’ve done this because it works. It’s changed the world more than any other idea ever has.

“The shame is that people get a public school education, leave high school, and don’t have a clue as to what science is. In fact, I think it would be fair to say that most so-called educated people don’t know what it is.

“I think that science teachers in grade school and college should, at the beginning of every semester, write on the board what science is and keep coming back to it as they teach, because even though you may not be able to understand what the Theory of Relativity means, the meaning of the scientific method is within the grasp of everyone, and, at its barest, it’s what science is all about.

No one said anything for a moment, so Mac picked up his book again.

But Dave said, “So ‘true’, from a scientific point of view would be ‘can a theory withstand experiment to see if it concurs with reality?’”

Mac looked over his book again. “That’s right. That’s what experimentation does. And anything that hasn’t been tested is open to scientific question, and anything that can’t be tested experimentally doesn’t fall under the domain of science.”

“What wouldn’t fall under the domain of science?” Dave asked.

“An example of the kinds of things that no one has been able to subject to scientific experimentation are the existence of black holes in outer space. We’re pretty sure they exist, but no one has yet conducted an experiment to show they do—or even could. Another example would be the graviton, which would be the particle that would be responsible for gravity. It probably exists, but no one has shown experimentally that they do.

“On the other hand, an example of something that it may be impossible to demonstrate scientifically is the existence of God. This doesn’t mean that God doesn’t exist; it means his existence is beyond the reach of science—at least today and perhaps forever.”

“The thing that bothers me about science,” Tom said, “is that so much of it is based on statistics.”

“What’s that mean to you?” Mac asked.

“Well, everyone knows statistics are inaccurate and it’s so easy to lie with them.”

“Mark Twain said, ‘There are three kinds of lies: lies, damned lies, and statistics,’” Mac said.

Tom smiled.

“Tom, statistics is one of the best formulated and most studied branches of mathematics, and it’s the only tool that exists for handling large amounts of data from the real world. If there’s a better way, with a better track record than statistics has shown, then everyone in science wants to hear what it is. Because of its very nature it can lead to erroneous results, but scientists are aware of this so it’s one of the reasons tests are conducted again and again. But because it has been phenomenally

successful, it’s one of the most powerful tools available to scientists.

“And the fact that people use statistics to lie isn’t the fault of statistics. Generally they get away with it because people are so ignorant of statistics.”

“So that’s it,” Dave said. “The scientific method.”

“That’s it,” Mac said.

“Do you think there’s intelligent life on other planets?” Dave asked.

“I’m not sure there’s intelligent life on this planet,” he said.

Tom and I laughed and Mac added, “Actually, I think there probably is—intelligent life on other planets, that is.”

“Do you think their science would be far ahead of ours?”

“Some would be more advanced, some wouldn’t. But what would be more advanced is their technology and what they’ve discovered about physics, biology, medicine, and what have you. But I think their method of conducting science would be just like ours. I can’t imagine anyone ever coming up with a modification that improves on it. I’m not saying it’s impossible. I just doubt it.”

“Well, I’ve got to say I feel a little better about science,” Tom said.

“What do you mean?” I asked.

“Well, it doesn’t seem as much at odds with religion the way Mac talks about it.”

“What do you mean?”

“I’m a religious man, John, and most of the time, when I argue with people who are not religious, they use science to try to bash religion. But, as Mac pointed out, science isn’t at war with religion at all. It’s just a method for discovering things about the natural world, and I would guess that things which are outside the realm of science, like God, are okay to have as matters of faith.”

He looked at Mac and Mac said, “That’s the way I’d think of it.”

“But there is now a growing problem with modern science,” Mac said. It’s that what it reveals about the mod-

ern universe is becoming inaccessible to the modern educated man. To understand a lot of it, specifically in physics, you must be a mathematician."

"What do you mean?" Dave asked.

"If you wanted to understand Aristotle's view of the world, all you had to do was read Aristotle. To understand Hume, Kant, Descartes, or the Christian view of reality, you do the same thing. But to understand modern physics, you have to know how to work with calculus, differential equations, abstract algebras, and who knows what else; perhaps even topology and parabolic or hyperbolic geometry."

"You sound as if you're speaking Greek," I said.

"I disagree," Dave said to Mac. "Give me an example of something I can't understand without being a mathematician."

"What happens to time as you approach the speed of light?" Mac asked.

"It slows down."

"Why?"

"What do you mean, 'Why?'"

"What's the mathematics that led Einstein to conclude this?"

Dave didn't respond.

"If you can't answer that, then you have no more than a layman's understanding of why it's so. In fact, it's just an article of faith with you. If another scientist were to announce in tomorrow's news that he's modified or overthrown Einstein's theories, would you be able to follow his reasoning and determine whether or not you agree he's done it?"

"If not, you only have a layman's understanding of the theory."

"So what's your point?" Dave asked.

"Your adherence to Einstein isn't much better than the creationist's view of the universe—except for one thing."

"What's that?"

"I was hoping you could tell me."

Dave thought a moment. "Because," he said, "I know Einstein's theory has, at least until now, passed through that meat grinder we call the scientific method and has not been found wanting."

"That's right. You know some scientist—and probably a whole cadre of them—has experimented with it."

"Okay, I see your point," Dave said.

"The success of science as a way of 'knowing' the universe has been staggering when compared to all the competing methods. Science is going to continue to change the way we understand the universe, and it will continue to change the way we live. Science is not going to go away, and those who want to ignore it are simply going to be left out of the best part of the modern world," Mac said.

He picked up his book and continued reading, and Dave and I went back to work. But Tom and Bill got into another conversation. They talked about religion and pretty soon it was an argument.

Mac kept his nose in his book until Tom turned to him and asked, "What do you think, Mac?"

Mac closed his book and stood up.

"Where are you going?" Dave asked.

"Fishing," he mumbled while shaking his head, and with that he picked up his fishing rod and left. Δ

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Grandma will love this personal “Helping Hands” wall hanging

By Sally Boulding

Here’s a relatively easy gift that you and your child can make together. The instructions here are to make a wall hanging or a lap blanket, but consider the idea also for an apron, throw-pillow, or vest. If it was made by her grandchildren, Grandma will certainly treasure it forever.

Materials:

One yard light colored cotton fabric (We used muslin.)

Fabric paints in squeeze tubes in a variety of colors (We used Tulip brand, which can be purchased at most fabric or craft stores.)

Scissors, pencil, newspaper or paper towels

Method:

Cover work table with paper towels or newspaper to prevent paint from damaging the work surface.

Lay a half yard of fabric out on the table. Save the remainder as backing for wall hanging.

Fabric-paint the title “Grandma’s Helping Hands” on the top portion. Have children place their hands on the fabric and draw around each hand lightly with a pencil. Leave at least a half inch on all edges for finishing.

Use your imagination to color in and outline the hands. Remember to label each hand with the child’s name. If you include birth dates or a special message to Grandma, they should be added at this time.

Finishing:

Simple finish: Fold under 1/4" twice and sew. Add a lace or ribbon trim if desired.

Quilted finish: Lay out remaining half yard of fabric. Cover wrong side with a single layer of quilt batting. Baste. Turn over and pin right side of design to right side of lining fabric



Grandma Kathy Myers shows off her wall hanging with the help of her grandchildren, from left, Robby, Sammy, and Jacob Duffy.

(not the batting side). Sew around three sides, turn. Press edges smooth. Turn in unfinished side and pin. Top-stitch around all four sides. Hand- or machine-quilt around the hands. Add loops for hanging. Δ



Author and son, Joshua, age 10, paint grandma’s wall hanging.

The holier-than-thou activists who blame the population for not spending more money on their personal crusades are worse than aggravating. They encourage the repudiation of personal responsibility by spreading the lie that support of a government program fulfills individual moral duty.
Patrick Cox
USA Today
(from Ain’t Nobody’s Business if You Do
by Peter McWilliams)

We are all tolerant enough of those who do not agree with us, provided only they are sufficiently miserable.
David Grayson
(from Ain’t Nobody’s Business if You Do
by Peter McWilliams)

Yesterday's furniture today—a puncheon bench

By Dana Martin Batory

Searching for another use for those discarded slab boards from a friend's sawmill or your own, other than feeding them to your stove? Then try your hand at making a few of them into puncheon furniture.

What is a puncheon? Nothing fancy, just a split or sawn log or a heavy wooden slab with a smoothed surface. Naturally, puncheons quickly found an important place in pioneer homesteads as the tops of stools, tables, benches, etc. Even as floors. The raw frontier was no place for fancy cabinetry or skilled joiners.

This rustic, rough-and-ready furniture has maintained a widespread popularity, popping up in gardens, weekend cabins, cottages, etc. Those waste slabs, when joined with the wide selection of hand and power tools not available to the frontiersman, make a good after-work or weekend project.

Instructions

Choose a sound slab board 1 to 2 feet long (or longer if preferred), 9 to 12 inches wide, and at least 2 inches thick with an attractive grain—any hardwood will do. I tend towards cherry. Dimensions will vary of course since each slab is different as well as each woodworker's taste.

The bark can be peeled off and the exposed wood sanded with a flap wheel or wire brushed (sand blasting will also work). I prefer to retain the bark since it makes a wonderful contrast. All mud, dirt, stones, loose bark, etc. must be removed with a stiff broom (or power sprayer) to protect tools.

Prepare one straight edge with a hand plane or jointer. The other edge can then be ripped parallel or left as is. Cut to proper length and at a right

angle to the straight edge. Use a belt sander or hand plane to dress the surface as level and smooth as possible. I'm more fortunate than most. I used my restored J. A. Fay & Egan 16-inch jointer for this task, followed by a light hand sanding. Put three coats of varnish on top, sides, and

ends—sanding between coats. Varnish the bark also but do not sand.

A hole must be drilled in each corner at an 80-degree angle for the legs. Because they are drilled from the curved side measuring is difficult. I use a simple template—a 3-inch square of paper. Line up one corner of the paper with the bench corner and curl the paper over. Using an ice pick or an awl, mark a starting hole at the



The author surfaces a cherry slab board on his antique 16-inch jointer.



A finished puncheon bench. The top and legs are walnut.

extreme inside corner. Use a 1-inch spade bit or Forstner bit and drill the holes 1 1/4-inch deep. Tilt the drill press table right 80 degrees and drill the proper two opposite corners. Tilt the table left 80 degrees and drill the remaining two. The holes can also be drilled by hand. Just lay out your angles on the bench ends and sight along these while drilling.

Saw the legs to the correct length and turn to the given diameter—socket end at lathe headstock. Taper the socket end slightly to leave room for the glue. Any hardwood, such as hickory, will work for the legs. They can be turned from commercial stock or from billets cut from the woods. Dowel rods will also work. Test the legs for fit, and correct if necessary.

Varnish the legs (except the top 1" 1/4-inch) three times, sanding between coats. Apply glue to the holes and tap legs into place until they bottom out. Wipe off the excess glue with a damp cloth.

After the glue has set turn the bench upright and check for level. If needed, sand leg bottoms to bring into alignment. Finish off with a coat of paste wax. Δ

Drip irrigation saves a lot of water and weeding

By William Gettys

Drip, drip, drip. That's no leaky faucet. I'm watering the many different plants on my property—and saving water while doing it. Water consumption is 30 to 40% less than with conventional methods of irrigation, and there are fewer weeds, because drip irrigation doesn't water the area between plants. Water is applied at a slow rate, so there is less surface water build-up, and plants experience less stress because the variations in soil moisture are evened out. Flexible tubing is used to distribute water to the emitters, sprayers, and soakers.

One big advantage of a drip setup is its flexibility. When your water requirements change, it is a simple matter to add more line or drippers, or even remove them completely. I have recently added more emitters to the orchard, to accommodate the larger root systems of the growing trees.

With all these advantages, it's hard not to be enthusiastic about drip irrigation, so let's make a shopping list:

1. Tubing

The main tubing used in drip setups is **polyethylene tubing**. It is available in 1/2" or 3/8" diameters. Easy to cut



Mini sprinklers are good for watering low-growing ground cover.

with pruning shears, this tubing is the most convenient to use.

Schedule 40 polyvinyl chloride pipes—**PVC**—may be used with the polyethylene to form less flexible but more permanent hybrid-type setups. In one small eight-tree orchard, I wanted to bury the tubing, but thirsty gophers chewed holes in it. I ran PVC pipe to each tree in a trench, attached standard hose couplers to the ends of the drip tubing J-loop and PVC pipe, connected the two and, voilà, no more gopher problems.

Micro-tubing is small in diameter. This spaghetti-like tubing is used for placing emitters beyond the reach of the main lines.

2. Emitters

Emitters come in a myriad of shapes and types. Some are *pressure compensating*, that is, they even out the output during water pressure changes. I have found little practical difference between compensating and non-compensating types unless there is a difference of 10 to 15 feet in elevation between sections of the setup. Some experts, however, feel the extra cost of pressure compensating emitters is justified by the added ability to obtain uni-



Laser soaker hose in the vegetable garden

form flow rates at varying water pressures.

Water output is expressed as gallons per hour—**GPH**—as opposed to the gallons per minute measure of standard sprinkler and bubbler systems. Emitters are rated for one-half-, one-, two- and four-gallons-per-hour output, and are color coded red, blue or black, and green respectively.

Emitters are also available *in-line*. That is, they are built into the polyethylene tubing. These **soakers**, as they are sometimes called, are useful for vegetable or flower bed gardens where you want a large area to be watered by evenly spaced emitters. Soakers are also available as tubing with laser-drilled holes spaced six or twelve inches apart.

Mini-sprinklers use more water—six to twenty-four gallons per hour—and dispense it over a greater area than emitters, but they still use much less water than standard sprinklers. These are useful for low-growing ground covers such as succulents. Some orchardists place half-diameter sprinkler heads on each side of the tree trunk to cover the entire root zone. To avoid damage to the tree, be sure water does not spray directly on the trunk.



A double J-loop provides even water distribution to larger trees.

7. Pressure regulator

The pressure regulator reduces your high household water pressure to the 15 to 30 psi (pounds per square inch) required by the drip system. Some who try to skimp on this device often find their emitters popping out of the tubing.

3. The hole punch

Don't forget this little device, which is used to make holes in the tubing before inserting emitters.

4. Hose fittings

Hose fittings are used to piece your system together, much like putting together Tinkertoys. You simply push the tubing into the fitting. One type made by Hardie Irrigation secures the polyethylene hose to a raised barb by using a plastic ring.

Attach the tubing to the main faucet with a female hose swivel. Couplers, elbows, and tees are used to piece various sections of hose together. The end of the hose is closed off with an end clamp.

5. Anti-siphon

Even if you feel unfettered by county health codes, it is a good idea to install an anti-siphon device. This will protect your household water supply from accidental back flow when main line water pressure dips.

6. Filter

The first line of defense against the frustration of clogged emitters is the filter. All water systems contain impurities to some degree, and a filter will save both the emitters and your sanity.

Planning your system

Now it's time to plan your system. Decide what the water source will be. The simplest method is to attach the system to a garden hose faucet or an existing sprinkler manifold. Make a sketch of the area to be served and calculate the length of hose you need. If you have areas of plants with very different water needs, put them on separate systems. As a rule of thumb, don't extend the pipe more than 350 feet or so. (I cheated a little on the length on one of my systems, but I had to increase watering time.)

Determine the kinds and numbers of emitters. Another rule of thumb: don't put more than 350 one-gallon emitters on one line. The kind of soil you have will determine the kind of emitter you will use. Clay soil will require half-gallon emitters. Use one-gallon emitters for loam soil, and two-gallon for sand. If you can't decide your soil type, it is probably safe to assume it's normal loam and use one-gallon emitters. I have nine separate drip systems on my five acres, and most of the emitters are the one-gallon variety.

For trees, use a loop of line in the shape of a J placed about half the distance between the trunk and the drip line. I feel there is more even distribution over the entire root zone if a double J-loop system is installed as my

trees get larger. To use this system, place the first J-loop no closer than two feet from the trunk, and the other almost to the drip line of the tree. If the tree is on a slope, place most of the emitters on the uphill side of the tree. Gravity will cause the water to flow evenly around the roots.

Laying the line

For vegetable gardens, the simplest way to water is to use soaker hose. I'm using 1/4" diameter laser tubing. Holes drilled by a laser dispense one GPH each, and are spaced every six or twelve inches. It is a simple matter to lay out the tubing along the vegetable rows. I can't recommend this tubing for permanent flower beds and ground covers, however. Over time the holes will get plugged and will require cleaning, a chore best left for the temporary vegetable beds. Regular emitters are much more resistant to plugging, and should give years of trouble-free use. If one does get plugged up, simply insert another one beside it.

In flower gardens and areas of ground cover where the plants are



A drip system can be connected to a garden faucet.

Watering chart

Courtesy of University of California Agriculture Extension
This is a general guide. Times will vary depending on soil type and season.

<u>Type of plant</u>	<u>Time (hrs)</u>	<u>Interval (days)</u>	<u>Flow (GPH)</u>	<u>No. of emitters</u>	<u>Placement of emitters</u>
Low shrubs (2-3')	3	2	1	1	At plant
Shrubs & trees (3-5')	2	2	1	2	6-12" on either side
Shrubs & trees (6-10')	2	3	2	2-3	2' from tree, equally spaced
Shrubs & trees (11-20')	2.5	3	2	3-4	3' apart, equally spaced
Shrubs & trees (21'+)	3	3	2	6+	At plant
Flower beds	1	2	1	1	At plant
Ground covers	1	2	1	1	At plant
Vegetables (close spacing)	1	2	1	2	Every 16"
Vegetables (wide spacing)	1.5	2	1-2	1	At plant
Potted plants: 1 gal.	1/6	1	1	1 per plant	At plant
5 gal.	1/3	1	1	1 per plant	At plant
25 gal.	1.5	2	1	1 per plant	At plant

spaced closer than two feet, it is best to space emitters every two feet because the roots of the plants will cover the entire garden area, anyway. For all other plantings, place emitters at the plant. You can run micro-tubing to the plants from the main drip line.

After laying out the tubing, flush it for a few minutes to remove bits of plastic and other impurities that might plug emitters. Then plug the end of the line with an end clamp. Leave the water on at low pressure while inserting emitters. Push the hole punch into the tubing while gently squeezing the tubing. Water will spurt out, getting rid of the plastic plug. Then push in the emitter.

The line will be easier to work with if left in the sun for half an hour to soften. If the compression couplers are hard to push onto the tubing, put the end of the tubing into a cup of hot water to soften.

How much water?

There are complicated formulas to determine how much to water each plant. These formulas are available at local agricultural offices. A simpler method is to wait a day after watering,

then poke a long screwdriver, a stiff wire, or a piece of re-bar into the ground. Insert it until you reach resistance—that is the depth of moist soil. If the soil is not moist enough, increase the watering cycle until it reaches the moisture content you want. At different times of the season you will, of course, have to adjust watering times.



You can also control drip lines with an automatic timer system.

Maintenance

Maintenance consists of monitoring your system occasionally to check for broken emitters or cracked tubing. Once a month, clean the filters. Periodically remove the end caps and flush out the lines for a few minutes to remove accumulated sediments. Check on your plants as they grow and make sure they are getting enough water. Remember, over-watering is just as harmful to plants as watering too little.

Over time, you may accumulate several separate drip systems, and automating watering cycles will become more appealing. Be sure to obtain a timer which allows watering periods to be scheduled in hours. Units are available for use at the hose faucet, as well as those that operate the standard control valves used with standard sprinkler systems. Timers operate at 24 volts, and battery-operated units are available.

With all the advantages of drip irrigation, why not get started now? Start with a small area of your landscape. You can always add to the system later—and you probably will. Δ

Build a “solar powered” clock — it’s fun, educational, and even useful

By Carl Bussjaeger

Here’s a good way to have some celestial summer fun, and it doesn’t involve watching the Hale-Bopp comet or southern Californians shedding their earth containers. How about learning to tell time with a solar clock? This article will show you how to build one.

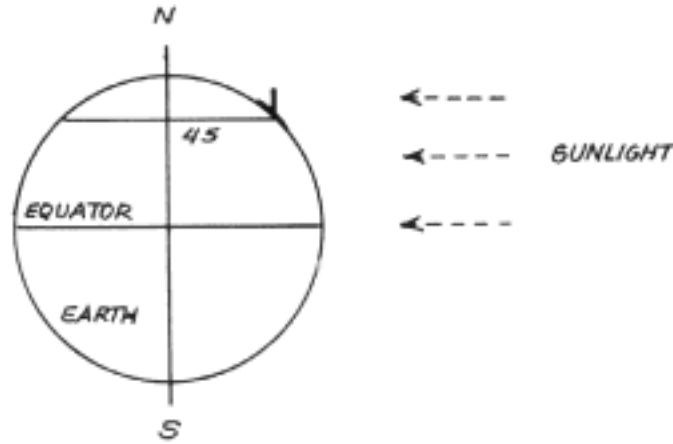
Solar clocks—or sundials—are just plain fun to use, not to mention to build. And if you are homeschooling, turning your child loose with these instructions and some cardboard may be a fun way to teach a few of the basics of longitude and latitude. He’ll also learn a bit about geometry. And, of course, it is a nice introduction to telling time for youngsters.

Let’s start by defining a few terms.

Sundial—A device for determining time of day by observing the changing length or direction of the shadow cast by a fixed object.

Face—The surface of a sundial where the shadow falls. As a minimum, it has some type of graduated

Figure 1. Aligning the style parallel to the earth’s axis (dial at 45 degrees latitude)



markings to indicate time, and often includes ornamentation and mottoes.

Gnomon- The fixed, shadow-casting portion of a sundial.

Style- The edge of the gnomon which casts the part of the shadow that determines time. Often used synonymously with gnomon.

Latitude- Distance from the equator as measured in degrees. On a globe,

latitude is represented by the horizontal lines.

Longitude- Distance from the prime (0) meridian as measured in degrees. On a globe, longitude is represented by the vertical lines running from pole to pole.

General

In the following descriptions, the style on the sundial is always set at a certain angle determined by latitude. The reason for this is so the style will always be parallel with the earth’s axis. Thus, the sun hits it squarely. A quick look at Figure 1 will demonstrate this.

This also shows why the style points north. Therefore, it is very important to know where true north is. This can be determined with a compass; but since magnetic north does not necessarily coincide with true north, you must know the angle of declination (compensation for true north) for your location.

If no compass is available, or if declination baffles you, despair not.

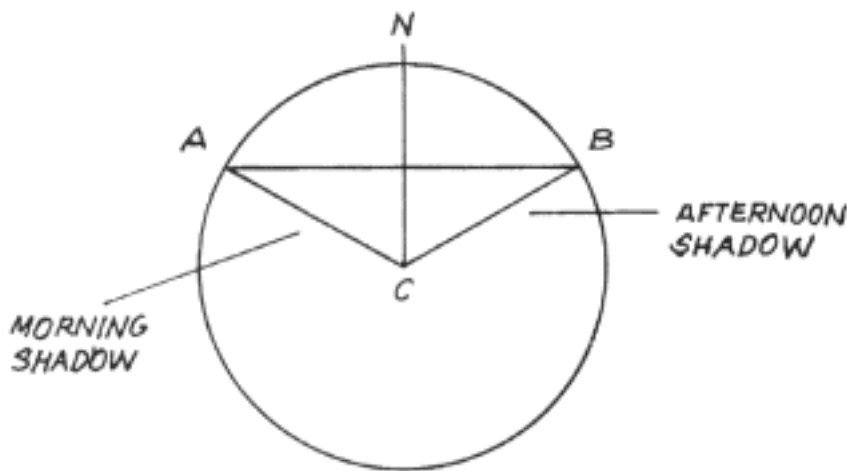


Figure 2. Finding true north

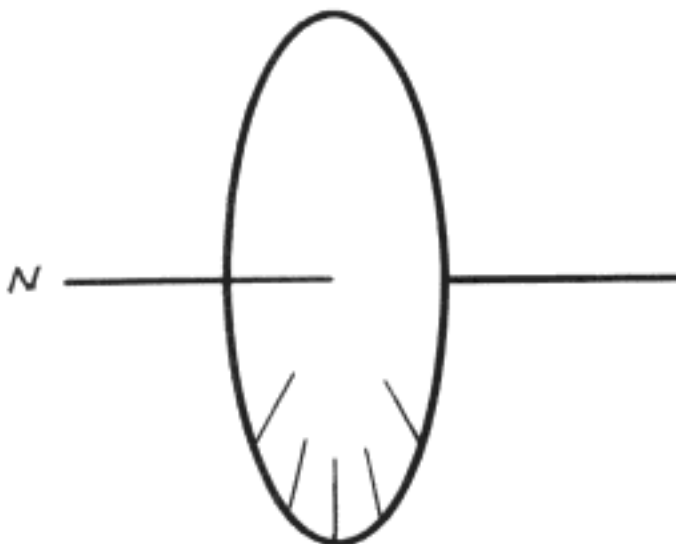


Figure 3. Equatorial sundial

Finding True North. On a level surface, draw a large circle. Set up a vertical rod at the center of the circle. On a sunny morning, watch the rod's shadow until the end of the shadow exactly touches the circle. Mark that point on the circle (A). In the afternoon of the same day, watch for the tip of the shadow to touch the circle again. Mark that point (B). Draw a line between the two points you have marked.

Now divide that line exactly in half with another line drawn from the center of the circle. This last line points to true north as in Figure 2.

Latitude and Longitude

Now, you know where north is. But where are you? You must know your latitude so you can properly orient the style on your sundial. Since relatively few people have the skills or the equipment to read their latitude from the sun (I certainly don't), or can afford LORAN receivers, cheat. Go to the library and look up your latitude on a U.S. Geological Survey map for your area. And while you're at it, scribble down your longitude as well.

That information comes in handy later.

There are several different types of sundials you could build. I'll describe a few and leave it to you to decide which suits you.

The equatorial sundial

The equatorial sundial is one of the simplest of the dials. Take a long straight rod, stick it in the ground

pointing north, and impale a circle on it. Mark the top of the face with evenly spaced hour marks. There you have it. The equatorial dial gets its name from the fact that, when properly aligned, the plane of the dial face is parallel with the equator as in Figure 3. It's done like this.

Face: Draw a circle. Starting with 0 degrees at the desired noon position, make hash marks on the circle at 15 degree intervals. Each 15 degrees indicates one hour. Half hour marks at 7.5 degree intervals, and quarter hour marks at 3.75 degree intervals, may also be added.

Style: The style is a straight rod set at the center of the circle, perpendicular to the face.

Alignment: The equatorial dial must be positioned so that the dial face is parallel with the plane of the equator and the style points north while elevated from the horizontal at an angle equal to your latitude. See Figure 4.

Problems: As the dial plane is parallel to the equator, the sun rises high enough to cast a shadow on top of the dial from only March to September. To make the dial useful for the rest of the year, mark the underside as well as the top. Unfortunately, for easy reading, this means the dial must be rather large. I've seen sundials of this type with faces as large as 8 feet across.

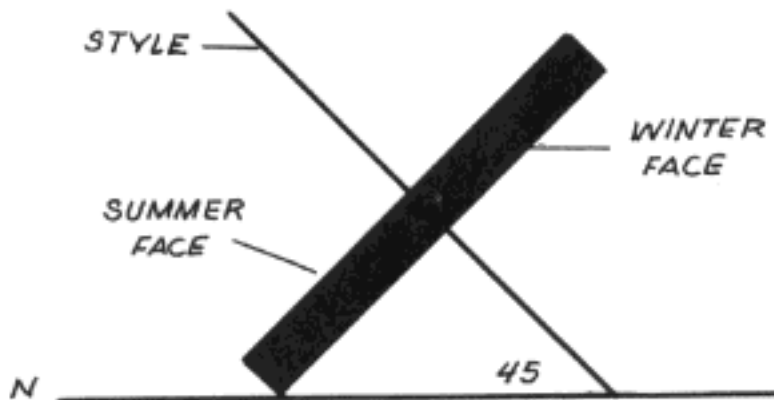


Figure 4. Equatorial dial aligned for 45 degrees latitude

Also, if your dial face is circular, your dial will have a tendency to roll around. You can get around this by making the bottom of the face a straight edge.

The polar plane dial

The polar plane dial is nearly as easy as the equatorial. This dial can be little more than a rectangle tipped to the north, and divided in the middle with a thin wall. See Figure 5.

With this dial, both the dial face and style are parallel to the earth's axis; hence the name.

Face: The dial is a plane aligned from east to west and tilted to the north at an angle equal to your latitude.

Style: The style is a plane rising perpendicularly from the dial face. It should be as long as the dial is wide, as in Figure 6.

Hour Marks: As in the equatorial sundial, the hour marks are made at 15 degree intervals. The marks will not be equidistant, however. The spacing will depend on the height of the style.

Line AB in Figure 7 represents the dial plane (face). Line CD represents the style. It must be the exact length of the actual style you will use. Beginning at point B, lay out a series of lines at 15-degree intervals. Where each line intersects line AB, make a mark. These are the hour marks. Half

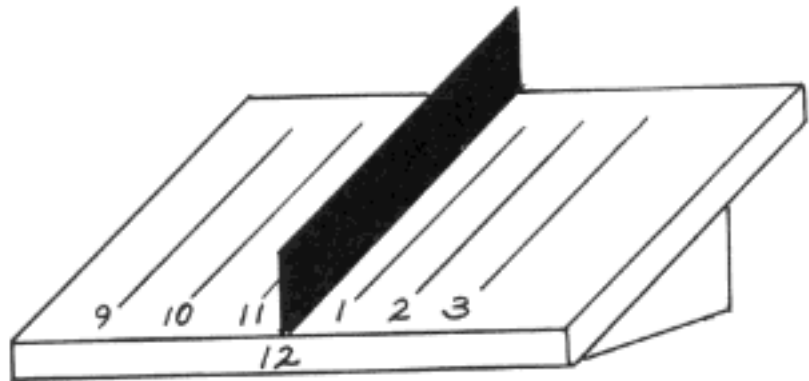


Figure 5. Polar plane sundial

and quarter hour marks may be determined using 7.5 and 3.75 degree intervals, as before.

The horizontal dial

The horizontal sundial shown in Figure 8 is the flat sundial with the angled style that many people imagine when they think of sundials.

Face: Marking the hours on a horizontal dial face is a little more involved than with the equatorial or polar plane dials.

Start with horizontal and vertical lines intersecting at point Y as in Figure 9. On the vertical line, at a convenient distance below Y, mark point Z. Line YZ will be the north-pointing noon line. Create angle YZW, which

will equal your latitude (This angle can be thought of as representing the gnomon). Now create right (90 degree) angle YVZ. Draw a circle with the center (X) on the vertical line. The radius of the circle must equal the length of line YV (That is, the circle is twice as wide in diameter as line YV is long). Divide this circle into 15-degree arcs (I'll bet you knew 15 degrees would come into this eventually) with lines drawn from point X to your horizontal line. Mark these intersection points on the horizontal line A, B, C, and D. Draw lines from these points to point Z. These lines are the morning hour marks for the face of your sundial. The afternoon lines may be created the same way, or you can simply measure the intervals between the morning points and draw a mirror image of the morning lines.

Again, half and quarter hour lines can be determined using 7.5 and 3.75 degrees, respectively.

Style: As can be seen from the above description, the style angle equal to your latitude, and pointing north (Is this starting to sound familiar?). It should be aligned on the north-south noon line on the face.

South facing vertical dial

This sundial, shown in Figure 10, is remarkably similar to the horizontal

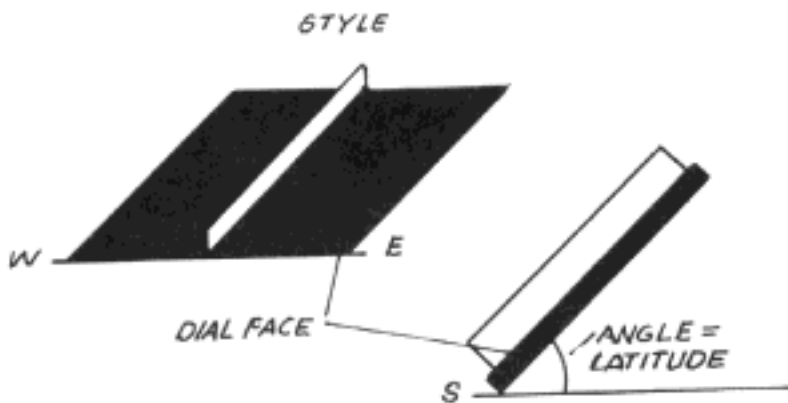


Figure 6. Alignment of a polar plane dial

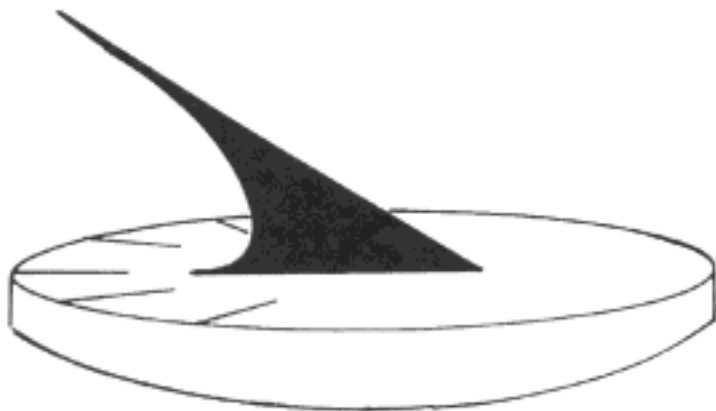


Figure 7. Creating the time marks for a polar plane sundial

dial except that it is mounted vertically on a south facing wall.

Here's how it's made.

Face: Follow the same procedure used for horizontal dials, except that angle YZW is equal to your co-latitude. Co-latitude is found by subtracting latitude from 90 degrees. For example; if your latitude is 30 degrees, then your co-latitude is 60 degrees.

Style: This time the style is at an angle from the vertical equal to your co-latitude, aligned on the noon line, and pointing down.

While vertical dials which face in virtually any direction can be made, their usefulness is limited in that they will be illuminated only at certain times of the day or year. So face it to the south for the best effect.

Construction Tips:

Obviously, for the sake of accuracy, you want to be quite careful when making measurements. When making the hour marks, remember that fine, precise lines are easier to tell time from than thick, precise lines.

If a very thick gnomon is used it can throw off the accuracy of the sundial. Try to keep it thin. If you cannot, remember to base your angle on the closest edge of the gnomon when preparing the hour marks as shown in Figure 11.

What time is it really?

You now know how to build a sundial that tells local time quite well. But local time is based on noon being when the sun is directly overhead.

With modern standard time noon for an entire time zone is based on noon at a particular longitude; not necessarily yours.

Don't panic. You can make a sundial read standard time. First, find out what longitude standard time is based on in your time zone. Heck, let's cheat. I'll tell you.

Zone	Longitude
Atlantic	60 degrees
Eastern	75 degrees
Central	90 degrees
Mountain	105 degrees
Pacific	120 degrees

Notice the 15 degree intervals. Look familiar? Multiply 15 degrees by 24, which just happens to be the number of hours in a day. You get 360 degrees; which is the total arc of a circle—which is all the way around the Earth. Now you can see why we've been using 15 degrees all this time.

Okay, moving right along. Dig out your local longitude (You did scribble it down, didn't you?). Now, find the difference, in degrees, between your longitude and that on which your time zone is based. For example; Macon, Georgia is located at approximately longitude 84 degrees west. Being in the eastern time zone (75 degrees), the difference is 9 degrees west.

If you are putting together an equatorial sundial, you need to shift all your time marks by that many degrees. If you live to the west of the time zone base longitude, shift the marks to the east (or clockwise). If you live to the east of the base longitude, shift your marks to the west (or counterclockwise).

For polar plane, horizontal, and vertical sundials the compensation is not made in the time marks themselves, but in the 15 degree angles the marks were figured from. For instance, in figure 7, when measuring the 15 degree angles from line CD, shift them all by the required number of degrees.

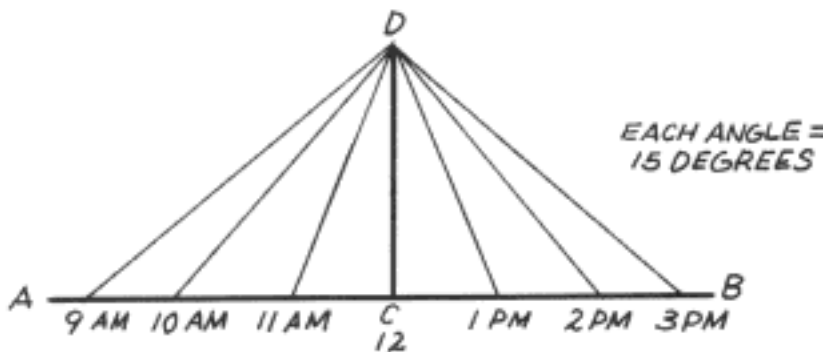


Figure 8. Horizontal sundial

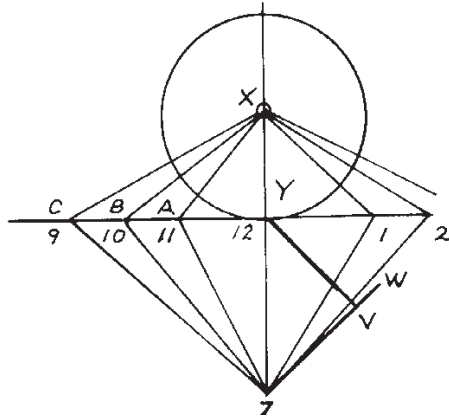


Figure 9. Creating time marks for a horizontal sundial

Simple, eh?

Making adjustments

Finally, your sundial reads standard time. Whaddaya mean we're on daylight saving time, now?

No problem. Make another sundial. Or you might consider some type of movable hour labeling for the fixed time marks. For a circular equatorial sundial this could be a rotatable outer ring with the numbers on it. For polar plane, horizontal, and vertical sundials you will probably have to settle for labeling each hour mark twice. Once each for standard time and daylight saving time.

But I want to take my sundial to events at different places.

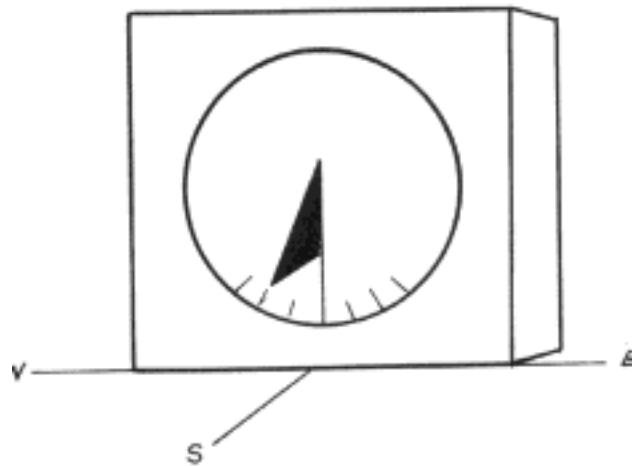


Figure 10. Vertical sundial mounted on a south-facing wall

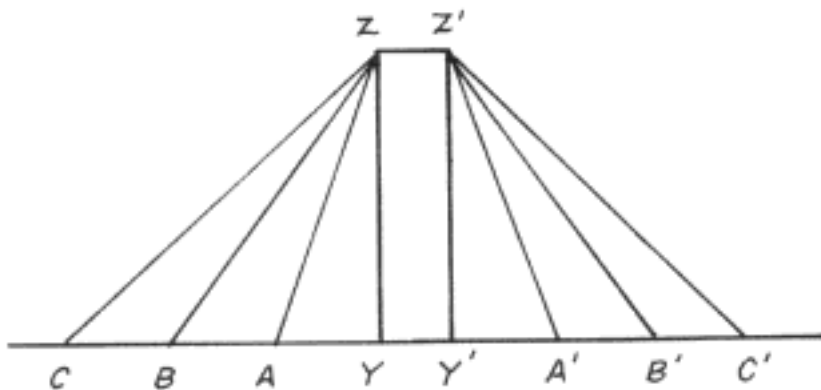


Figure 11. Creating time marks based on a very thick gnomon

We can make it happen. Two things are needed; some way to offset for latitude and longitude shifts. Latitude shifts are easy. For equatorial and polar plane dials all you need is a face mount that will allow you to vary the face's angle from horizontal. For horizontal and vertical dials, the angle of the gnomon must be variable (hmm, could the gnomon be a straight-edge mounted to a base with a thumb screw?).

Changes in longitude are just about as simple. For equatorial, horizontal, and vertical dials make your time marks on a circle that will pivot about its center so that you can offset the marks in the same way that you shift-

ed the marks to make your dial read standard time. On a polar plane dial you will need a sliding bar for the time marks, rather than a rotating circle.

The actual mechanics of construction I leave to your imagination and creativity, along with the question of ornamentation.

Whaddaya mean the sun's down now? I don't know; hmm, maybe candles with incremented bands of color... Δ

Collect (almost) free money by gathering readily available wild plants & botanicals

By Rev. J.D. Hooker

Many of *BHM's* readers have already developed at least a minimal level of interest in herbal medicines. Quite a few probably already know how plantain leaves provide ideal anti-infective bandages for minor cuts, scrapes, and abrasions, how jewelweed helps clear-up poison ivy, and how dried and powdered yarrow provides an excellent infection-preventing "blood stop powder."

Many also know that by filling a canning jar with fresh mullein flowers, adding as much mineral oil as you can fit, then allowing the mixture to sit for a couple of weeks before straining out the flowers and setting aside the liquid, you can produce the finest obtainable pain-relieving children's ear drops.

Even though you may never have tried this for yourself, it's even possible to tan leather using simple plant products, like sumac galls, oak tree bark, and alfalfa leaves.

So it may not come as a surprise to hear that many of these same wild plants that prove so valuable for everything from curing a headache to preventing malaria are eagerly sought after by cash-paying purchasers. In fact, sometimes it's sort of difficult to even believe the tremendous variety of commonly encountered wild plants and rough weeds that people are actually eager to pay for.

One elderly couple I visit pretty frequently brought in \$3,000 of extra income last year, just from collecting sassafras leaves. The U.S demand for the roots and bark of this tree have dropped off lately, but in much of Russia, eastern Europe, and Siberia, the leaves from the sassafras tree are very highly esteemed as a thickening agent for use in stews, gravies, and so

forth. This demand drives up the prices that companies here in America are willing to pay for this unremarkable item.

Still, sassafras is only the tip of the iceberg where this couple's "retirement income" is concerned. While I can personally guarantee that neither of them ever works very hard, and only when they feel like doing so (I guess that's what retirement's supposed to be about), simply by knowing where and when to market so many varieties of wild plant products enables them to reap a higher income than many folks get from full time employment.



While it isn't difficult for someone to learn how to supply themselves with a steady, reliable, and sizable income using these same methods, it's imperative to remember not to get so greedy as to over harvest these wild botanicals. Though many marketable plants are so tremendously abundant that this caution can be disregarded, many others are becoming scarce, even endangered in certain areas because of over-zealous collecting.

Even here in Indiana, the state has placed open and closed seasons on ginseng collecting because of heavy harvesting pressures. Many other areas have enacted similar rules for the same reasons. Use a little common sense and discrimination and you can

supply yourself with a nice part-time income for the rest of your life marketing wild plants. But, if you don't leave some to reproduce, you'll very quickly put yourself completely out of business, and just possibly run afoul of the law as well.

Remember to obtain permission before collecting on private property as well. Though I've found very few land owners who didn't readily permit this sort of activity, these same folks will usually get down right belligerent over unauthorized trespassing. Just be polite and friendly when you ask, remember to keep gates closed, and so forth, and you should have few problems in this regard.

On most state or federally owned lands, asking for permission to harvest such plants isn't usually required. However, it seems as if on ever-increasing portions of our public domain, removing anything at all is no longer permissible. So, it's best to check ahead of time and learn whether such collecting activities are still permitted on the public land you're interested in.

Equipment

There really isn't much of anything you'll need in the way of equipment. The majority of herb and botanical harvesters never use anything more than a strong stick that's been sharpened to a chisel-like point, along with a gunny sack or two. In most cases, anything more would just be in the way.

In my own gathering endeavors, I almost always tote along a firearm and often a small collapsible spin-fishing outfit. Our portion of the map is well dotted with small lakes and ponds, and the spinning tackle frequently accounts for lunch while I'm out.

The firearm, on the other hand, can usually be counted on for some sort of crop raiding varmint or fresh game on every outing. At times I think that it's really only been the superb accuracy of my "bean field" rifle that's gained me such easy access to so many farmlands in our area. It doesn't matter whether you call them woodchucks, groundhogs, chucks, or whatever, these burrowing animals have cost America's farmers so much in lost crops—as well as cattle, horses, and even dogs with broken legs and other injuries—that once the farmers in your area learn that you happen to be a competent and careful shot willing to eliminate even a few of these grief causing pests, you'll usually find a warm reception almost any place you go.

Of course, the fact that the chuck's hide is worth a little extra money (plus the properly prepared meat being mighty toothsome), makes it easy enough to earn such a welcome.

Identifying plants

Should you have an interest in gathering up some of nature's free dollars for yourself, you'll also be needing some ready means of identifying the plants you'd be seeking after. I've found A.R. Harding's Ginseng and other Medicinal Plants and the Peterson's Guides plenty helpful. Still, I think you'd find some of the free or inexpensive identification guides available from the buyers of these plants more valuable, at least to start out with.

Of course, it won't do you much good to gather up even large quantities of the highest dollar roots and herbs until you have a good idea of where you're going to sell them. So I've provided a listing of ready markets at the end of this article. At one time or another I've done business with each of the buyers mentioned and all have proven to be honest, reputable, fair, and even helpful. But you need to realize that each caters to a

somewhat different final market, so you'll very frequently find some major differences in what each is willing to pay for any particular item.

Keep in mind, as well, that as these same final markets change and fluctuate, so their purchasing prices can often jump up or down without much warning. I've found it best to stay in contact with each buyer and to stay up to date on current pricings and "wants lists" to ensure receiving the best price for each different item.

Just as long as we'll each harvest nature's bounty in a responsible and respectable manner, there should always be plenty of "free" money growing in our woods and fields just there for the picking.

Markets

Ohio River Ginseng and Fur Inc.

P.O. Box 2347 (SR 267), East
Liverpool, OH 43920
(216) 385 -1832
BUYS: raw furs, and some botanicals

Turley's Ginseng and Botanical Co.

Rt. 1, Greenville, IL 62246
(618) 664-2871
BUYS: herbs and botanicals

Mallow Fur Company

601 Asbury Rd., Clarksburg, OH
43115, (614) 495-5681
BUYS: raw furs and ginseng

Mepps

626 Center St., Dept. 323, Antigo,
WI 54409-2496
BUYS: squirrel and deer tails, etc.

Potter Fur & Roots Inc.

2883 Cook Rd., Rootstown OH,
44272
BUYS: lots of differing herbs, furs,
botanicals, etc; buys more items
than most others.

Wilcox Natural Products

P.O. Box 391, Boone NC 28607
BUYS: herbs

JLF Raw Researchables

1625 Gladstone Ave., Columbus,
IN 47201
BUYS: weird poisonous stuff;
write for current list

Hershey's International Inc.

8210 Carlisle Pike, York Springs,
PA 17372
(717) 528-4495 or 528-8316
BUYS: herbs and botanicals

Hsu's Ginseng Enterprises

P.O. Box 509, Wausau, WI 54402
BUYS: herbs and botanicals

Tac-A-Wah Herb Co.

4252 TR 628, Millersburg OH
44654
BUYS: herbs and botanicals

Star Mountain

1431 South 4th St., Allentown, PA
18013
(610) 797-9036
BUYS: herbs and botanicals

White Crane Trading

447 Tenth Ave., New York, NY
10001 (212) 736-1467
BUYS: herbs, furs, feathers, etc.

American Botanicals

1610 W. Allen, Bloomington IN
47403
(812) 336-7590
BUYS: herbs and botanicals

Roots "O" Gold

Box 92, LeCenter MN 56057
(612) 665-6310
BUYS: usually only ginseng and
goldenseal

Madisons

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Heat your household from the outside

By Jacqueline Tresl

In our rugged days, when we were young and tireless, we kept warm with a big wood stove plunked down in the center of the house. For baths and dishwashing, we heated our hot water outside with wood. Every evening after supper, one of us filled the old hot water tank with a garden hose and built a fire under it. An hour later we had hot water, which we gravity fed into the bathtub or washing machine through a second garden hose.

For 11 years we lived that way. In the winter, we hauled in wet, snow-covered wood twice a week, stacking it beside the stove, watching as the mud and muck dribbled off the firewood on the floor. Every morning (and sometimes every evening) I dusted off the soot and wood stove dust that accumulated on the furniture tops. Returning home after a lengthy trip to town, the house temperature hovered near 40 degrees. Then we waited for an hour and shivered while the house ever so gradually warmed up. Our method of heating was a labor of love.

Heating hot water outside was nifty in the summertime (except when it was rainy or I had five loads of laundry to do and three dozen quarts of beans to can and the hot water tank needed to be refilled and refueled six times in one afternoon). But making hot water outside in the winter was trying. The hoses that filled and emptied the tank began to freeze overnight as early as December. They had to be drained and lugged inside every night. When afternoon temperatures never got above 20 degrees, the fire to heat the water had to be huge. The fires we built on the really cold days were so big it looked like we were trying to launch the tank into outer space.

Sometimes it was pretty tough. But we refused to be slaves to the utility

companies. We have always restricted ourselves to using no more than 250 kilowatts of electricity per month. We didn't have natural gas readily accessible. We didn't want the hassle of propane tanks. Solar power gives out



The stove sets on a concrete pad in a small shed. The trench connects it to the barn. The shed make it nicer when filling the stove in bad weather.

here by November. We stuck with our labor-intensive heating method, hoping eventually to find an economical and effective alternative.

My husband Mark grew up in Europe and, for years, talked about the outside wood stoves the Nordic people used when he was a little boy. The concept seemed silly to me. Why make all that heat outside when it's needed inside? How is the heat brought into the house? Isn't having to load a stove outside a pain in the neck?

Mark refused to be swayed by my concerns and was always on the lookout for an outside heating system that used a European design and was affordable. Most systems he looked at cost a fortune. All were made from cast iron and would eventually rust out. Some systems offered ways of heating domestic hot water, but their design was overly complicated.

One day, out of the blue, Mark found the stove for us. It is a wood-stove that sits outside, positioned 10 to 100 feet from the building it will be heating. It can provide heat to one or two buildings, depending on the size and the square footage of the buildings. Once installed, it would supply an unlimited amount of 180 degree water for household use. During average winter months, it uses less than 50 kilowatts of electricity to operate.

Our stove came with a copper coil installed. The coil is what heats the water intended for household use. Our stove can provide 120,000 BTU of heat. We chose a model larger than we needed so that it would not need to work as hard, thereby cutting down our electricity consumption.

The stove heats the house by circulating back to the house the 100 gallons of hot water that surround its fire-box. This hot water is fed through a pipe that connects to a preexisting furnace.

If the home owner does not have a furnace, as was true in our case, the other options are a fan coil unit or baseboards. The coil unit consists of a

fan which forces air through a hot water coil. The hot air is then blown into the room to heat it.

We did not want the noise of the fan coil unit. We opted instead to hook the stove up to baseboards. Baseboards have the reputation of bathing a room in heat, the warmth gently radiating up along the walls. Baseboards keep the heat near the floor, where cold toes sit resting on winter nights. Because baseboards operate passively, they do not raise electricity consumption.

To provide for domestic hot water, a cold water line is fitted to the copper coil that rests in the walls of water that surround the stove. The cold water is then heated to 180 degrees while circulating through the copper coil. Once

hot, it feeds back to the house to a pre-existing hot water tank.

We did not have an indoor hot water tank. We hooked our hot water directly to our faucets. When we turn on our tap, the water that comes out is scalding. Water that hot can be dangerous to children, however, so it's best to connect to a hot water tank.

When our stove was delivered, the manufacturer's instructions recommended it be set on a concrete slab at least 10 feet, but no more than 100 feet, from the house. If two buildings were to be heated, the stove was to be spaced equidistant between them. Ours is 80 feet from our house and 70 feet from our barn.

To bring the hot water for heat and domestic hot water to the house and to



Our original plumbing system.

return the cold water back to the stove, two complete and separate loops of pipe are laid. The pipe needs to be made of polybutylene so that it won't corrode, leak at joints or deteriorate from the sustained 180 degree water. All fittings must be made of copper or brass, never steel (cast iron or galvanized). No rust must ever enter the system.

To lay the loops of polybutylene pipe, a trench from the stove to the house is dug. The trench must be dug deep enough that the pipe will lay below the frost line. The trench will contain the two loops of pipe, an electric line and a thermostat wire.

We set up our loops differently than recommended by the manufacturer (see diagram #1). The manufacturer recommends laying three of the four polybutylene pipes into a schedule 35 pipe to provide additional insulation. They say that the cold water line that feeds the loop for domestic hot water, along with the electric power line and thermostat control wire, can lay directly on the ground in the trench. Instead, we chose to put the cold water line, electric and thermostat line into a separate schedule 20 pipe to provide extra protection.

Hooking up the polybutylene pipe to the back of the stove is straightforward (see diagram #2). The manufacturer provided easy-to-follow directions. If two buildings will be heated from one outdoor wood burner, a sec-

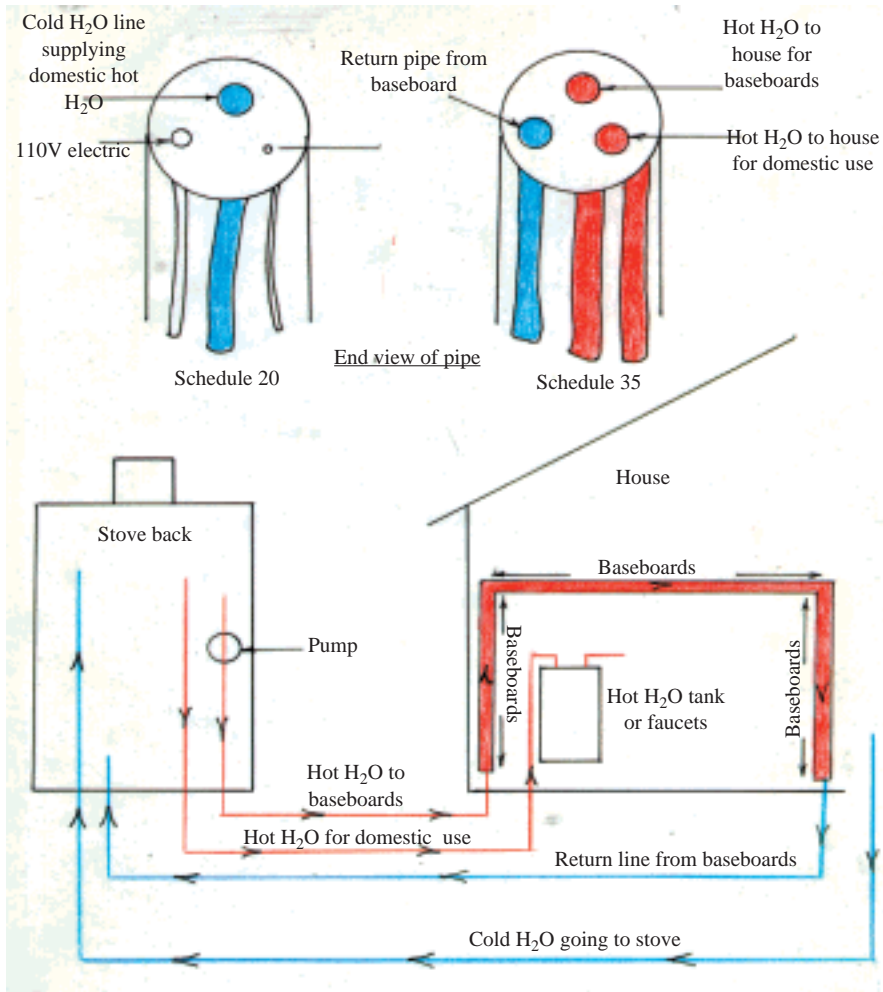


Diagram 1. Setup of our loops from the stove to the house

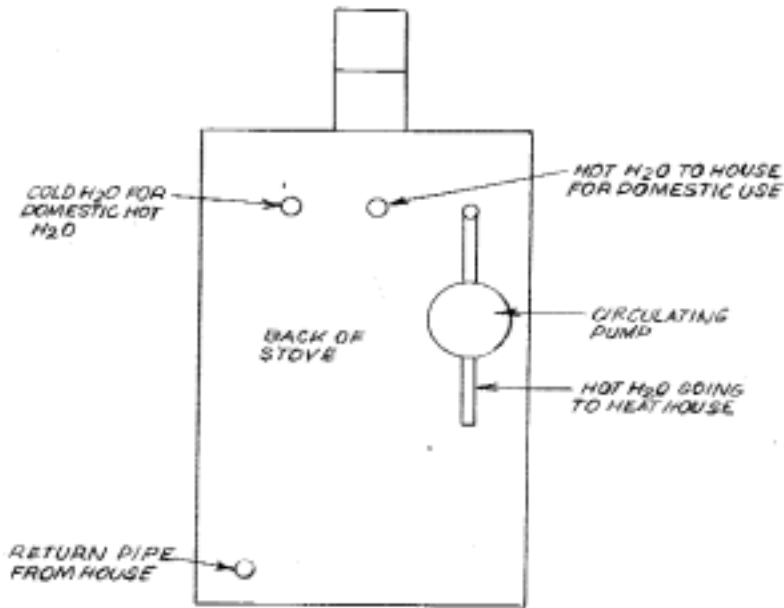


Diagram 2. Hook up the polybutylene pipe to the back of the stove

ond pump and additional ball valves will be needed.

Our wood burner takes firewood pieces as long as 30". During most of the winter, Mark loads the stove once a day, mixing in medium and large pieces of hardwood. When the temperatures are below zero, he fills the stove twice a day. In the spring and fall, when the baseboards come on only at night, Mark fills the stove every 36-48 hours. In the summer, when the stove is providing only hot water for household use, he fills it every three days. We use much less

wood than we did with our indoor stove and outside wood hot water tank.

A conventional wall thermostat is wired back to the stove. As soon as the temperature in the house dips below where the thermostat is set, the pump kicks on at the stove and the hot water is circulated through the underground loop to the house and back. When the temperature of the water in the stove falls below 180 degrees, the fan kicks on and the firebox is filled with air. The fire begins blazing and the water is reheated to 180 degrees.

Heating our 1400 square foot log barn (with its 28 foot expanse from floor to ceiling) was a challenge. After digging a second trench and laying two more loops of polybutylene pipe, our budget was shot. There was no money left for baseboards or fan coil units.

Mark invented his own heating unit (see diagram 3) using car radiators. He removed two radiators from Cadillacs. Any radiator from any large car will suffice. Because his were not new or recored, he worried that there might be rust lodged inside the fins and tanks. Before using his radiators, he flushed them clean with "Iron-Out". The first flushing Mark mixed one quart of "Iron-Out" in one gallon of water and poured that mixture into the radiators. The radiators need to be full to the top with the mixture. He let that sit overnight. Next morning he flushed it out with a high pressure garden hose. He repeated the process four more times until the radiators flushed out rust free.

Once the radiators were spotless, Mark soldered on the connectors that would join them to the polybutylene pipes. One radiator is connected to the incoming polybutylene pipe. The second radiator is connected to the outgoing polybutylene pipe. A short length of copper pipe between them connects the two radiators together.

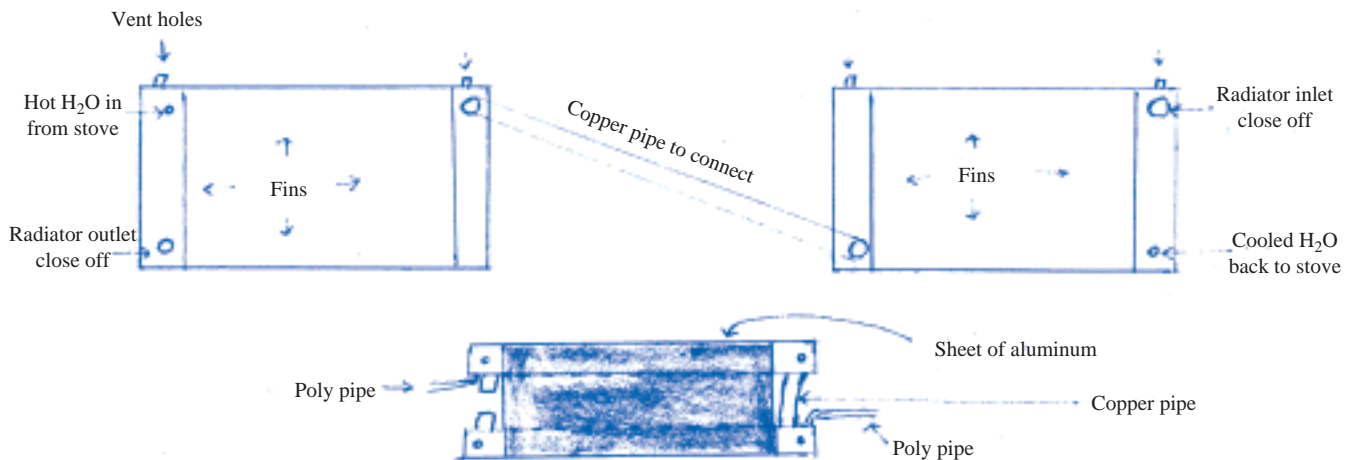


Diagram 3. A heating unit using car radiators

The radiators are joined by two sheets of aluminum. The aluminum acts both as brackets and providing a tunneling effect for the air flow. The 180 degree water is now ready to flow between the radiators. A squirrel cage fan from an old furnace placed behind the radiators lets the hot air blow through and heat the barn.

Mark only heats the barn when he is inside the barn working. All other times, the heat is off. When the weather is cold and the barn is not being used, the radiators must be protected from freezing. They can be drained of their water or, as in our case, stored below ground in the root cellar. If water is allowed to freeze in the radiators, they will burst.

For the past three years, we have used the outside woodburner. We have hot water running to both the house and barn. Mark can now degrease and clean his engines and tractor parts. I can shower off the horse with warm water after a strenuous summer ride. We can wash our greasy hands. A heated barn with hot and cold plumbing is a real luxury.

An outside wood burner solved all our heating problems. We use less firewood. Our electric consumption is unchanged. We have gained hours of extra free time because we aren't building hot water tanks and hauling in firewood. Our house is much cleaner and it stays consistently warm in the wintertime, even if we're away from home all day. Best of all, the outdoor stove lets us grow old and be lazy and still have a good quality of life. Δ

Make lemonade without lemons

By John C. Fisher

One of the joys of living close to the land is the appreciation that a person develops for all plants in nature. One such plant is the sumac, also spelled sumach and pronounced either SHOO-mack, or SOO-mack. This is a group of small trees or shrubs belonging to the cashew family and to the genus *Rhus*. There are several species of sumac and they vary in size and area of the United States in which they grow. All have alternate compound leaves. Among the more common types are the staghorn sumac growing in the eastern U. S. from Canada into the south. The staghorn may grow into a tree of 30 to 35 feet. The dwarf sumach, which is usually a shrub, grows throughout the U. S. east of the Rocky Mountains. The smooth-leaved sumac, which also usually grows as a shrub, is found over much of the U. S. on both sides of the Rocky Mountains. These all have red berries in summer which grow in erect clusters. The poisonous sumac has white berries growing in drooping clusters and should be avoided. The foliage of the sumac turns a beautiful scarlet in fall adding much color to the autumn landscape.

The use of sumac berries was learned from Native Americans. They often dried them for use throughout the winter. The red berries can be used to make an attractive and good tasting drink. The berries should be harvested in mid to late summer, but before many heavy rains. The easiest way to harvest is to simply snip off the whole berry cluster or head. The berries are covered with many fine hairs which contain malic acid. This is what gives the drink its flavor. To make this drink, mash some of the berries in water, then stir them for several minutes. Strain the liquid through cheese cloth several times to remove the hairs. Now you have pink "lemonade" without using lemons. Sweeten the drink and serve as you would lemonade.

The juice from the berries can also be used to make a jelly. This is done by covering entire heads with water and steaming for 10 minutes. Pour off the liquid and strain. Add the same amount of sugar as juice and 1 box of pectin for 4 cups of juice. Cook until it begins to thicken. Remove from the stove and skim off the white foam on top. Pour into sterilized jars and seal or cover with paraffin. Δ

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Build a bat house to control insect pests

By Robert L. Williams

If you want to attract bats to your property—and many people do, for a wide range of reasons—the simple way is to let the boards on your house warp a little and the bats will find their way into your attic. This holds true even if you hate bats and don't want them within a hundred miles of you.

What this tells us is that in many parts of the United States there is a large bat population, and these flying mammals will find a place to live. That place may be in your barn, attic, outhouse, or in a hollow tree. Given that choice, your best bet may well be that of building a cheap, easy, and effective bat house.

Before you haul out saw and hammer—or choose to disregard this article completely—spend a little time learning more about these strange, interesting, and often highly helpful creatures. You may decide that you would actually like to share your space with them. Even if you don't, odds are great that you will have bats around you no matter how hard you try to get rid of them. So it may be better to give them a place to live rather than have them invade and take up residence where you don't want them.

First, bats are not birds in any sense; they are mammals, and they have fur, not feathers. Unlike birds, they have teeth much like those of a mouse. Also unlike birds—and insects and most other creatures on earth—all bats fly, while some birds and many insects are flightless.

The bat reproduces like other mammals—much as human beings do—and generally, although this is not always the case, most female bats give birth to one offspring at a time. The mother bats have mammary glands

which, as such glands do, produce milk for the baby bats' nursing grounds. Mother bats will often permit bats of other mothers to nurse, a sort of communal feeding trough.

Among the most common misconceptions about bats are the five following ones: they will fly down at people, women especially, and become entangled in their hair; they carry rabies and infect dozens or even hundreds of people each year; they



haunt church graveyards and tombs; and they are guilty of carrying parasites galore that will infest and infect human beings.

The final evaluation is that bats are vampire-like animals that are universal symbols of bad luck.

The facts do not tend to support the accusations. Yes, there have been instances in which bats have become entangled in the hair of women and men. Yes, bats can and sometimes do carry and spread rabies. Indeed, bats live in belfries and tombs. And doubtless there are instances in which bats spread parasites and pests to human beings.

But take a closer look, and then you may be ready to haul out the hammer, saw, and blueprints. Bats are, like most people, warm-blooded animals. When fully awake and active, body temperatures of bats may soar as high

as 100 degrees up to 105 degrees. When the weather is extremely cold, the bats' body temperatures may drop to as low as 35 or 40 degrees. They cannot fly well when their body heat has dropped significantly, and they cannot fly at all when their temperatures drop too low.

So when the bats are not warm enough, they are clumsy and torpid, and they may in fact entangle themselves in people's hair, or tree limbs, poison ivy, or whatever else is there to get in their way. But they do not do it on purpose except in rare and very unusual cases.

Bats carry rabies, yes, but so do foxes, dogs, cats, raccoons, skunks, and even people. The difference is that bats' teeth are so short and small that they have great difficulty in penetrating the skin of most animals. It is nearly impossible for the common brown bat to bite through clothing or even unprotected skin. I speak as one who has been bitten too often by bats, and I have never had one break the skin.

The size of the common bat is surprising to most people, particularly those who have seen too many Bela Lugosi movies. The common brown bat weighs one-eighth to one-fourth ounce. To put this into perspective, the average North American bat weighs about the same as a nickel. They can squeeze into openings that are only one-fourth inch wide. A three-eighths inch opening is plenty of room for bats to enter an area.

As for haunting tombs and churchyards, remember that the bat must find a dark place to spend the daylight hours, and in many areas the old crypts and church steeples are good places for them. Odds are great that if they had a nice house, they'd live there instead. If you are worried about pests and parasites, remember that

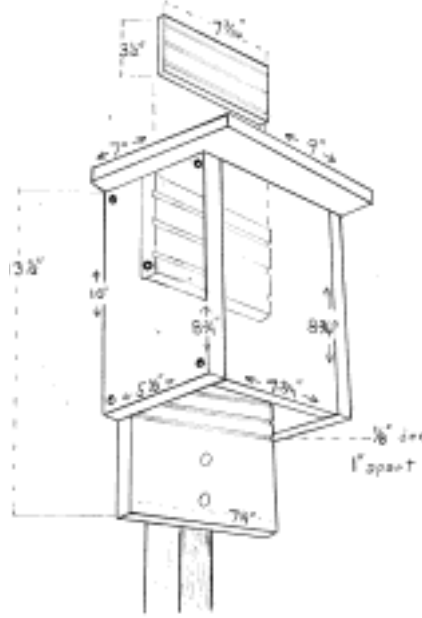
your dog and cat and other animals carry fleas, lice, and countless other parasites. The parasites carried by bats as a rule do not transmit readily to human beings.

The bad luck reputation attached to bats is unique to our part of the world. In many cultures, the bat symbolizes good fortune, great happiness, and longevity. In fact, while it is generally true that the smaller the animal, the shorter its life span, bats, which are among the smallest vertebrates encountered by man, often live up to 19 or 20 years, compared to the one-year life expectancy of the typical mouse or shrew.

The good luck charms associated with bats (and in the Orient a gift is often accompanied by a drawing of two bats to further emphasize the good wishes and fortune of the recipient) are wide-spread, and with good reason: bats kill not just hundreds or thousands but billions of insects each night. One single bat can make about 1,500 dives per hour, and the bat is amazingly gifted at killing its prey.

If we multiply the dives times the hours of activity, we can see that each bat probably kills 6,000 to 10,000 insects daily. You often hear that each bat kills about 10,000 mosquitoes daily, but this figure may be difficult to support, because of the 1,500-plus dives made each day, often the victim is not a mosquito but some other form of pest.

But regardless of the prey killed, the bats perform a useful service to people, particularly gardeners. But many people still cannot shake their fears of bats, which leaves only one basic solution: unless you live in a sealed environment, you will likely have bats in your attic, chimney, or other parts of the house. If you want to be bat-free, you can either poison the creatures, which is only slightly effective because even though some bats are killed others will quickly replace them. The best solution may be to build and install a series of bat houses that will serve to attract the bats away



A view showing the measurements of the bat house and the interior grooves that give the bats places to hook their claws so they hang while sleeping.

from your house and to the outside environment. These bat houses can be put up far from your house (Keep in mind, however, that bats, like homing pigeons, return to their roosts from as far away as 100 miles or more!) so that you are relatively free of worry and your garden is helped greatly.

To build a bat house, use soft pine boards one-half inch thick and about 8 1/2 inches wide. Shelving boards slightly thicker work equally well.

Start with the back piece, which should be cut about 13 1/2 inches long and 7 1/4 inches wide. After cutting it, lay it on a work surface and with a circular saw or table saw cut a series of grooves 1/8 inch deep across it. Space the grooves about one inch apart.

Next cut the two sides, each of which should be 10 inches long on the tall side, 8 3/4 inches on the short side, and 5 1/2 inches wide. The sides can be grooved too.

Mount the sides to the back unit by using small nails or screws. The sides should be installed so that the back edges are lapped by the back piece.

Next cut the center piece which is about 3 1/2 inches wide and 7 3/16 inches long. Groove this piece on both sides. Install it vertically so that the ends touch the inside edges of the sides. When it is positioned properly, use nails or screws to attach the center piece to the sides.

These grooves, as you have guessed, are for the claws of the bats, which prefer hanging upside down to any other resting position. The "thumb" claw can hook over a slight edge or rough place in a surface and the bat can sleep soundly while hanging there. In fact, bats that die in their sleep will continue to hang until some force dislodges them.

For the front, cut a piece that is about 8 3/4 inches long and 7 3/4 inches wide. After the center section is installed, attach the front. It should lap the side pieces.

Finally, install the top, which is seven inches wide and nine inches long. Again, use screws or small nails. When this is done, the bat house is completed except for hanging or erecting it.

For best results attach the house to the eaves area of a barn or other out-building that is at least 10-15 feet high. The house should be protected from cats. You can also mount the house on a long pole and place it so that the front faces the south or south-east.

Leave the bottom open so that the bat droppings will fall to the ground. Be aware that it takes several weeks or even longer for bats to accept the house and begin to sleep in it. Bats are very wary concerning their resting locations, and they prefer not to have many human visits. And don't be surprised if millionaire playboy Bruce Wayne stops by for a visit. Just don't look for Dick Grayson. Bats have little in common with robins except certain parts of their diets and the power of flight. Δ

Cool your home with this simple device while you also meet your hot water needs

By Rev. J.D. Hooker

My first encounters with the possibilities of solar cooling came in the early 1970s shortly after my wife and I first married. For a few years we lived on Florida's swampy Gulf Coast. The winters there were great with temperatures that were never actually cold, and it rarely got hot. But the summers were a different animal—hot and humid, both with a capital H.

At least out-of-doors, you might catch a cooling breeze coming in off the Gulf. But once the ever-present mosquitoes (Florida's Gulf Coast is often referred to as the "Mosquito Coast") and other biting insects chased you back inside, if you didn't have air-conditioning, or at least a whole-house fan system, you just sweltered and suffered.

Several of the men I worked with, pouring concrete on construction sites, were outright "swamp rats." More than a few didn't have addresses or even any sort of roads leading back to their swamp-land homes. Their daily "commutes" to and from work included at least a couple of miles of travel by air-boat or out-board equipped canoe.

Though generally a pretty rugged and tough bunch, most of these men were pretty outgoing and friendly. Several invited us over to meet their families and to let me see how they'd adapted their own homes to temper Florida's intense summer heat.

All of their ingenious cooling systems were based on one very simple principal: that hotter air always rises, so heated air going out through the top of a flue must, therefore, draw cooler air in at its base.

Though I ran into several variations on this general theme, that same basic

concept remained a constant with each individual cooling system they designed for their own homes.

The heart of these systems wasn't anything more elaborate than a large hollow chimney-like structure fashioned of wood, masonry, HVAC (heating, ventilating, and air-conditioning) leftovers, stuccoed palm blocks (a sort of cordwood masonry that consists of pieces of palm logs), or whatever was easily available. Near the top of the structure would be a large glazed window, often using Plexiglas or clear plastic sheeting rather than more expensive window glass. Opposite the window, the inside of this "chimney" was painted flat black and often this side of the structure's interior was lined with corrugated metal roofing to provide a little more heat absorbing surface area.

A large opening (or openings in some cases) near the bottom of the chimney-like structure formed an air inlet. As the black interior of this structure absorbed heat from the sun's rays, the temperature of the air inside increased. Once this heated air started rising upwards, exhausting through the chimney's top, air from inside of the dwelling would be drawn into the chimney through the bottom air inlet—which of course, would suck outdoor air into the house through the many doors and windows.

I should also mention that, in addition to having some sort of rain-cap atop the structure, each of these system also had every opening covered with fine mesh to prevent the ever-present insects from finding an easy way into the house.

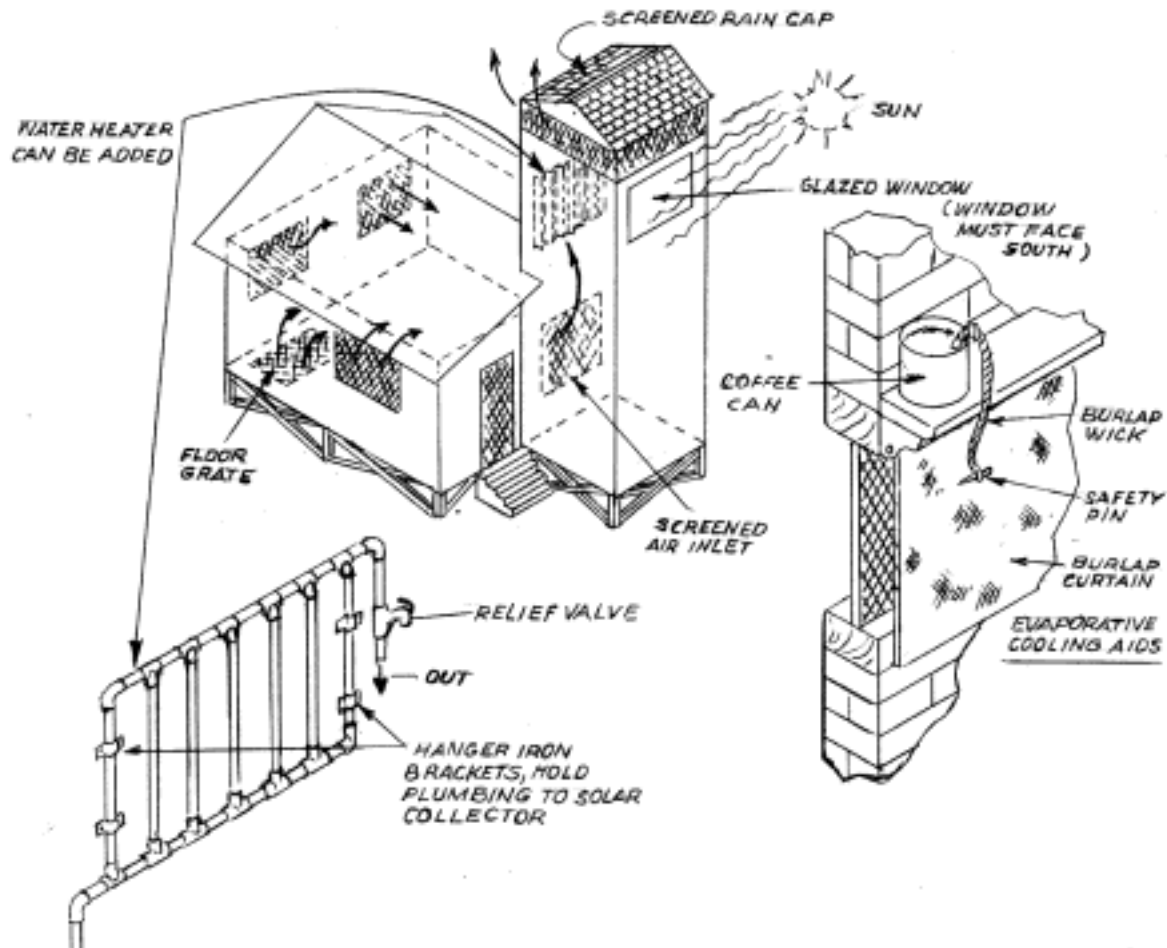
All of the different parts of this system worked together to create a nice, sort of breezy, cooling effect which was remarkably similar to that of any electrically-powered whole-house fan

system. Additionally many of these "backswamp homes," had been built up on stilts, off of the swampy ground. These usually had grate-like openings in their floors, allowing cooler air from the shaded area underneath the dwelling to be drawn into the cycle as well.

While several further improvements are readily adapted into this sort of system, the very first and most useful option I'd recommend would be installing the flat black "solar collector" to provide for your hot-water needs as well, especially since adding the heat-storing capacity of the water in such a system will increase the efficiency of the whole system anyway. The solar heat stored in the heated water is sufficient to keep the cooling draft and chimney effect working right on through the sunless nighttime hours.

Shown in the illustrations is one easy method for putting together a simple solar powered water heater for inclusion in this system. Using flat black painted plastic water pipe, in addition to the already black interior of the chimney, will increase even the daytime efficiency of the whole system a little while heating your water. By providing a somewhat faster air-exchange rate, a stronger, more cooling breeze will develop. However, black painted copper or galvanized water piping, or even dark colored garden hose, will work just about as well as the plastic pipe. So it should be easy to adapt your own ideas and available materials for use here.

I probably need to include a couple of short words of caution here. Even though many folks wouldn't think so, this or any solar water heating system can be just as prone to building up enough heat to cause an excessive build up of pressure, as can any other



water heating system, no matter how it's fueled. So, not including a relatively inexpensive pressure relief valve would just be like begging for trouble here. Also, while possibly unneeded in many tropical areas, in more temperate climates you'll need a means of draining and bypassing this system during the winter months.

Another valuable addition to the basic design is much simpler, and it's quickly put into practice. I first encountered this ingenious adaptation at the remote home of a long time friend who was a Vietnam War "tunnel rat" now turned Arizona desert rat. Along with his unofficial, immigrant "wife," he has raised a mess of unofficial kids (five boys, two girls, with no birth certificates, no hospital, immunization, dental, educational, police, or other records). All of them are as well adapted to their parched surroundings as any of the wild creatures sharing their desert domain. What

they did was drape burlap feed sacks over all of the windows and doorways (covering the floor grates where applicable would also help) of his desert, dirt-hued, self-built rock and adobe dwelling. They set an old water-filled coffee can, pitcher, or other container on a shelf over each opening. They then attached a sort of burlap tail strip from the inside of the can to the burlap window covering where it was pinned. These tail strips act like wicks to keep the burlap curtains always damp, adding a constant evaporative cooling effect to the air drawn in through the doors and windows, and it kept the inside of his remote "owl-hoot" much more comfortable than I would ever have expected.

It also seems well worth pointing out that the more centrally you can locate such a system, the greater its effectiveness seems to be. But, while in many cases it might be pretty diffi-

cult to retrofit such a system right in the middle of your existing home, it's normally not very complex at all to center such a structure on one of the longer exterior walls.

Anyone considering including some sort of cooling system in their plans for any sort of a building should take a serious look at this type of solar cooling system. While this really can't approach the cooling effects of a standard electrically-powered central air-conditioning system, it can very readily equal the comfort level of any electrically-run whole-house fan system, without any monetary outlay for manufactured energy, and without any moving parts to break down or wear out. In fact, with only a little minor and occasional routine maintenance (repainting, recaulking, etc.) this type of system is capable of reliably providing free cooling and free hot water for at least a couple of lifetimes. Not a bad investment in my opinion. Δ

Substitute teaching — the pay is good, but it ain't always easy

By Don Fallick

I have a regular job that's not as regular as I would like, so I fill in by working part time as a substitute teacher. I work only the days I want, six hours a day. The work is not strenuous and pays \$50 per day, even here in low paying Utah. If you like kids, easy work and a flexible schedule too, read on.

Requirements

Requirements for substitute teachers are easy to meet, but vary from state to state. Most states require at least some college, often a year or less. In Utah you must be 21 years old and have at least one year of college to be employed by a school district as a substitute teacher. But there are ways to get around this requirement. If you are employed by an individual school, all you need here is a high school diploma. To find out if you meet minimum requirements, call your local school or school district. Laws vary so much that there is no other way to tell.

Most districts require you to be 18 years old (21 in some states), and to have a clean police record, especially concerning child abuse. Every district I've ever applied to has required a fingerprint check by the FBI. I don't consider this too intrusive. I wouldn't want my kids supervised by a known child molester, either. If you can't pass such a check, please don't apply.

Surprisingly, your education need not relate to the subjects you want to teach. I studied English in college, but have successfully taught many other subjects. Nearly always, the teacher provides something for the students to do that doesn't require your expertise. Your main job is to take roll and enforce discipline. Glorified babysitting, really, but it pays much better than "real" babysitting.

You'll need to apply for the job a few weeks before the regular school term begins. You may have to attend a "training" session, but don't expect to learn anything about substitute teaching. Training covers pay schedules, parking regulations, and other employment practices. You'll receive an employee handbook and a map of the district. The "nuts and bolts" of substitute teaching you learn on your own or from other subs. Take heart! After a day or two you'll feel like an old pro.

Elementary/Secondary

Schools are divided into two categories—elementary and secondary. Elementary includes Kindergarten through sixth grade. Some Kindergarten teachers only have one session and only get half a day's wages. Grades one through six are usually six-hour "full day" jobs. You will generally teach the same class all day long, but the day will be broken up into "subject" periods: math, reading, etc. You will sometimes have recess duty on the playground. Discipline can be a problem in elementary schools, especially with fourth through sixth graders, and especially in bad weather. But it's usually not as bad as junior high school. Many subs love teaching elementary school, but admit it's harder work than teaching secondary.

Most secondary school teachers have to teach several different subjects. This goes double for substitutes! While the sub office will try to offer you classes you know something about, the real reason they ask for your preferred fields is to find out if you have any unique qualifications. For example, I happen to speak French fairly well. Since I'm the only sub in the district who does, any time there's a call for a French teacher, I get called. My experience writing for *Backwoods Home Magazine* has also helped me get jour-

nalism classes. So be sure to list your qualifications for any class you want even if they are not "official".

In general, you'll find that required classes are the least fun to teach, while "electives" are the most fun. The difference is in the students' attitude. Required classes have lots of discipline problems; electives, few. Beware, though: some classes that are called electives really are not. For example, most junior high students are required to take either Choir, Band, or Art. They have a choice, but are not really free. These classes have some of the worst discipline problems you'll experience. I find them harder to teach than Resource and Behavioral Disorder (bad kids) classes, because the classes are MUCH larger, and the potential for vandalism is greater.

A typical day

Let's say you have filled out all the required forms and are eagerly awaiting your first call. What will your day be like? My day starts at 5:30 a.m. with a call from Nadine at the substitute office. This morning, she offers me a choice: Resource at Brockbank Junior High, or English at Cyprus High School.

Resource is supposed to be a small class for students who need academic help, but in most schools it ends up being a catch-all for the students nobody wants, usually because of discipline problems. So I choose English at Cyprus. Nadine tells me the teacher's name, and I'm ready to start my day. I bring with me a brief case containing some puzzles and games I've collected over the years, for students who finish early. I also bring a red pencil or pen, a couple of regular pens, and two or three #2 lead pencils. I try to time my arrival for 30 minutes before class starts.

At school, I report to the office. The secretary tells me where to find the classroom, the faculty lounge, and the roll sheets, and gives me a folder containing a map of the school, the bell schedule, and other things a substitute

is expected to know. For example, if the school has printed discipline referral forms, a few will be in the folder. These days, most schools use “bubble” sheets to take the roll. These are similar to the answer sheets used in standardized tests, and are equally easy to use. That’s what the pencils are for.

Taking roll is probably the most important activity of a sub’s day, since school budgets are based on enrollment. Never lend pencils or other “office supplies” to students without security. They break them into bits and fling them at each other. They also make remarkable booby-traps out of staples.

The teacher’s lesson plan is usually in her mailbox with the roll sheets, or on her desk. A really efficient teacher will tell you exactly what to do all day long. Elementary school teachers are generally better about this than secondary school teachers. A less efficient one may just say something like, “Show the Shake-speare video in my desk drawer.” A really inconsiderate teacher may leave no instructions at all. One reason I like to get to school early is to allow time to contact the teacher (the office will call her for you) if I need more information than she gave me.

The information you receive will also tell you the teacher’s daily schedule. It’s best to go along with this, even if it would be more convenient to make a few small changes. Children are creatures of habit. It makes them much easier to handle if they know what to expect. Secondary schools divide the day into class periods, and you will have several different classes to teach each day.

Surprise! One or more of those classes may not be what you were expecting. Nadine said this teacher teaches English, and so she does. But she didn’t tell Nadine that she also coaches the girls’ volleyball team! Rather than risk trying to supervise twenty pubescent girls playing volleyball without blushing, I ask the secretary to arrange a trade with another substitute or even

a regular teacher for that hour. Luckily, it doesn’t happen until fifth period, so she has time to ask around. Early morning is a school secretary’s busiest time of the day. She runs the school, so don’t antagonize her with early morning demands.

Another item on your schedule will likely be a “Prep” or “Conference” period. Since you have no preparation to do for your classes, this amounts to a rest period for you—another benefit of teaching secondary school. Elementary teachers don’t get prep periods. Instead, the whole school may have a weekly “short day”, usually on Friday. The students go home after lunch, while the teachers stay and prepare for the next week. If you are called to sub on a “short day”, you will go home early, but you won’t be paid for a full day.

Some high schools are now going to “block” schedules, where each class is two periods long. The students attend only odd numbered class periods one day, even the next. This makes your classes about 90 minutes long, instead of the traditional 45. If you are lucky and the teacher’s prep period falls on the day you are subbing you will only work four hours, but will be paid for the full day. Otherwise, you’ll have to work the full six hours without a prep period.

Most secondary schools have two or three lunch periods each day, called “A”, “B”, or “C” lunch. It would be nice if your assigned lunch period were on your schedule, but it probably won’t be. If the secretary doesn’t tell you—ASK! The only other way to tell is to wait until nobody shows up for class. This can easily cost you five or ten minutes of your 25 minute lunch break. If you buy the school lunch (\$1.50 or so), go directly to the head of the cafeteria line. Rank has its privileges. You may be required to buy your ticket before school starts in the morning. Again, asking is the only way to know. If you bring your own lunch, there’s a refrigerator in the fac-

ulty lounge, as well as snack and pop machines and microwave ovens.

Playing the game

First period of the day is always a bit confused. Often the students are unaware that they will have a substitute until they see you. This is the time to get the drop on them in the age-old game of “Get the Sub”. For you, winning means actually teaching somebody something. For the students, it means taking over the class. In a tie, you keep control, but they don’t learn much. You get paid regardless—tie goes to the sub!

Pay close attention to the first couple of kids who walk into the classroom. A kid who walks in, greets you politely, and sits down is likely the teacher’s pet. You can almost always believe what she tells you.

If a kid walks in, yells, “We got a substitute!” and runs out of the room, you’ve just identified the ringleader of the class, your chief opponent in the game. His strategy is always the same—be friendly but show increasing disrespect until he reaches the point of open rudeness. Before then, however, his buddies will begin to copy him, and the class will be completely out of your control. You can tell if this is happening by your own voice. If you have to shout, you are losing. If you are losing, call for help from a nearby teacher. Better to lose face than to lose control of the class.

The students never realize they are following a well-known pattern, so it’s easy to circumvent their tactics. First, NEVER let the ringleader or his followers get away with the least bit of disrespect, profanity, etc. Don’t be afraid of appearing mean or prudish. A reputation for meanness is one of the best weapons in your arsenal. You will almost certainly teach one of these kids again someday, and his wail of horror at seeing you will guarantee an easy class!

Second, never, ever lose your temper. If you do, you have lost the game.

The best subs don't even raise their voices. Some carry a little bell to ring, or some other attention getting device. I carry a gavel and a block of wood in my briefcase. But even flicking the lights off and on works, as long as the students know they have something to lose. I count the seconds it takes them to get quiet, then add them on to the class time at the end of the period. If it adds up to two minutes or more, I let them "work it off" by an equal amount of absolute silence just before the end of class. But I don't tell them this in advance. Dedicating the last five minutes of class for clean-up and quiet-down will reduce your stress a lot.

For individual infractions, the regular teacher usually writes the student's name on the board, with checks after the name for repeat offenses. Somewhere in the room will be a schedule of escalating punishments, based on the number of checks. I have found this doesn't work well for me, as I forget the students' names. Teachers are supposed to keep a current seating chart available for you, but they seldom do. In elementary schools, it's best to make a name tag for each child's desk at the beginning of class. In secondary schools, the classes are so large and the periods so brief, you can use up half the period this way. Junior high students should NEVER be asked to write their names on anything except graded assignments. Anything else they will take as an opportunity to write fake and/or obscene names. If you start seeing "Ben Dover" and "Anna Rexick", watch out! You are losing control of the class.

I prefer individual punishments that don't require me to know the student's name, such as making a litterbug "play janitor" by picking up all the paper on the floor, or taking him to a nearby teacher for the rest of the hour. (Clear this with the other teacher first!) Regardless of the official discipline policy, I give each kid three "strikes", then send him to the office. Of course, his buddies volunteer to "escort" him

there, and you can bet they'll never arrive. I send him alone, but write his departure time on the referral slip and in my notes. I warn him that I'm going to check his arrival time, and I always do. I have NEVER had a student fail to arrive within three minutes. The troublemakers all know the way there! If you send your first period ringleader to the office right away, your reputation for meanness will get around, and you'll have an easy day. Some of the kids won't like you, but the good students will.

Tricks of the trade

The regular teacher knows her subject and classes intimately, and nearly always takes longer to cover a lesson than it will take you. So you'll often have time left over. You can allow the kids to study, talk quietly, etc. if you wish. They will be amazed that you turned out nice after all. Better yet, you can bring something for them to do that they will find interesting. I bring my guitar to school. French classes especially like learning "Head, Shoulders, Knees, and Toes" in French, or Christmas carols in season. Sometimes we serenade another class, with advance permission. All classes love to get substitutes talking about themselves, and sometimes I indulge them, but only after the lesson is done. Teens appreciate candor in adults, and enjoy the opportunity to find out what things are really like from someone who's been there. I may decline to answer their questions, but I never, ever lie to them.

As long as they're well-behaved, and are not taking a test, I let students work in groups of three or four. Much of the conversation has little to do with the assignment, but as long as there's actual learning taking place, who cares? I go over the answers at the end of class, anyway. Groups that are rowdy or loud get one warning, then I separate them.

Often, the teacher leaves a video for the kids to watch. They hate them, and

so do I. Watching video's requires you to turn the lights off or down, giving the kids a wonderful opportunity to bedevil each other and you without being caught. Some teachers require students to take notes on videos.

In my experience, this seldom helps. The students fill up half a page (or whatever the requirement is) in the first ten minutes, then it's back to playing "Beat the Sub". If you must show a video, write questions about it on the board or pass out a worksheet, and warn them when each answer is coming up. Of course, you can't do this until you've seen it yourself.

If you have special knowledge of the subject, contact the teacher and ask permission to depart from the lesson plan. I've never been turned down. I tell geography students about my travels. I tell science classes about my alternative energy house. I tell English classes what it's like to be a part-time freelance writer. The possibilities are endless. Teachers will love you for bringing to their classes something special they cannot do themselves.

It's polite to leave the teacher a note, telling her how each class went, what material you covered, which students were especially helpful, and which need discipline. If you love a class, leave the teacher your phone number. If a whole class just can't seem to get with the program, I take a notebook around and start writing down the names of students who are on task, without saying why. Eventually, some will ask why they are being "written up", since they aren't doing anything wrong. I just quietly tell them that I'm making a "good list" for their teacher. Word spreads like wildfire!

It's fun playing these kinds of games with the kids, but it's even more fun when you manage to teach someone something they were having trouble with. And even if you "lose" once in a while and a class gets away from you, you'll still get paid just for trying. It sure beats working for a living! Δ

Wild garlic—independent and delicious

By Alice Brantley Yeager
(Photos by James O. Yeager)

Early food gardening is often begun for us by Nature herself when some very useful perennial plants appear known as wild garlic (*Allium canadense*). These plants come up year after year no matter how miserable weather conditions may be and they demand no special attention. They are like old friends—dependable and there when you need them.

Wild garlic has had a place in our garden ever since my Uncle Ed gave us some bulblets many years ago. The parent plants had grown in his Greenville, Texas, garden and he thought they would do well in our southwestern Arkansas plot. His reasoning was that anything that would survive in his area would surely flourish in ours.

Uncle Ed was right. We have had more wild garlic than you can shake a stick at ever since the first bulblets started multiplying, as this savory herb is among the easiest and hardest of perennial food plants to grow. In Zone 8 wild garlic comes up very early in the year—usually in January—providing us with delicious fresh seasoning until warm weather drives it into maturity and then dormancy.

We have gradually moved the wild garlic into an untilled area of the garden where it remains undisturbed as far as cultivation goes. Plants in the oldest clumps are about the size of a lead pencil at the base, and first-year plants are much smaller.

This plant is a North American native inhabiting a wide range of territory from Canada to Florida and west to Texas. It grows about 10-18 inches high and has a fresh, onion-like flavor. Unlike some domestic garlics, it does not haunt its user for two or three days after eating it. Wild garlic is easily distinguished from wild onions, as the



Wild garlic will grow in full sun or semi-shade and has a unique appearance when producing its bulblets. This is a valuable culinary plant.

garlic has a flat, grass-like leaf, whereas wild onions have a quill-like leaf and are not as tall as the garlic plants. Color varies, too. Garlic has blue-green leaves, whereas wild onion plants are lighter in color—almost yellow-green. The onions, being smaller, are more tedious to clean than the garlic.

Cultivating wild garlic

Wild garlic is somewhat of a curiosity as it does not perform like its domesticated cousins. One difference is that it multiplies from bulblets that appear on top of a central stalk toward the end of the spring season. In this respect it resembles the growth habit of the Egyptian or tree onion. The stalk comes up from the middle of each plant bearing a thinly encased group of bulblets. As the tiny cargo enlarges, the paper-thin covering splits and a cluster of small bulbs is revealed.

Soon, scattered white or pale pink, star-shaped flowers are seen above the cluster and it is not unusual to see new shoots develop from the bulblets

themselves if cool, moist weather continues. As the bunch of tiny bulbs grows heavier with maturity, the stalk will gently bend under the weight depositing the bulbs on the ground to await the coming of the next cool growing season. In time, bits of ground debris (dried grass, leaves, twigs, etc.) gradually cover the new bulbs giving protection from the sun.

The small bulbs may be allowed to mature on the stalks and harvested to be kept in a cool, dry place until fall planting time. When planted in rows, they would be spaced about two inches apart and covered with a thin layer of dirt. If winters are severe where you live, it might be advisable to plant your first bulbs after ground thaws in early spring and then let nature take its course. Until young plants are established, it would be well to keep rows free of weeds and grass. An organic mulch is very helpful.

There is no doubt that wild garlic is invasive. As new plants gradually take root beyond the parent plants, it may become necessary to weed them out of other rows. Discarded plants need not



Clusters of bulblets have just emerged from their thin protective jacket. It is through so many tiny bulbs being produced that wild garlic can “take over.”

go to waste, however, as they may be cleaned, chopped and frozen in airtight freezer containers or bags for later use.

Wild garlic is not fussy about soil so long as it is not overly rich and contains an ample supply of humus. I have seen the plants growing in both acid and alkaline soils. It will grow in full sun or semi-shade and is disease and insect free. I have often found this valuable herb growing in abandoned yards and out-of-the-way places emphasizing its survival skills.

Using wild garlic

An herb with more health benefits than wild garlic would be hard to find. Not only is it high in vitamins and minerals, but it has a history of being used for both food and medicine by Indians and early settlers alike. However wild garlic is not welcome in pastures belonging to dairy farmers, as there's no demand for garlic flavored milk or butter.

Wild garlic may be used in all dishes calling for garlic or onions. It peeps up potato salad, tossed green salad, vegetable dips, omelets and so on. Combined with butter or sour cream it makes a delicious spread. (See recipe)

When aphids make an appearance in our garden, I have found a spray made of wild garlic most effective. Take a cupful of packed, coarsely chopped leaves (or 1/2 cup bulblets) and place them in a blender with about 3 cups of water. Blend into fine puree and strain through loosely woven cloth to remove particles. Pour strained liquid into a clean, sprayer-type bottle and spray on infested plants during a time of day that will allow them to dry off before nightfall. You may have to spray a second time, but you won't have to worry about killing off “the good guys”, harming a child, or doing in the neighbor's cat.

Once wild garlic is established, it's independent and capable of taking care of itself. Unlike many plants, it relieves the gardener of any further task except for monitoring its desire to rule the garden.

Native food plants that give so much for so little attention deserve a place in our gardens.

Sources of supply

Meadows, abandoned homesteads, pastures, railroad right of ways, semi-wooded areas. (In other words, hunt for it. The outing will do you good.)

Wild garlic spread

Ingredients:

1 pound butter or oleo or sour cream
1 green wild garlic plant, cleaned and finely chopped
½ tsp. white pepper or freshly ground black pepper
½ tsp. salt (optional)

Method:

Soften the butter or oleo by letting it come to room temperature. Combine with the other ingredients until thoroughly mixed. Pack into a butter mold or bowl and refrigerate until firm. Just before serving apply a hot, wet towel to the outside of the mold to loosen the mixture and unmold it onto a serving plate.

This spread is delicious used on hot breads, baked potatoes, baked fish, and many other hot foods. Δ

A country moment



Sarah Reed cuddles a bunny.

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CHILDERS

Be prepared for “after the accident happens”

By Diana W. Morgan

One out of every three Americans is the victim of some type of accidental injury each year. For friends and family members of the patient, waiting for the ambulance to arrive can be a harrowing experience. Those of us who live in non-urban areas are often far from any emergency medical help. You don't have to sit helplessly by and work yourself into a panic, however.

As a firefighter/Emergency Medical Technician (EMT) for a rural fire and rescue department, I'm often met at the door by a frantic family member. There are several simple things an untrained person can do that may mean all the difference to a patient's well-being. Having something to do in a medical crisis can be very therapeutic for the bystander as well.

Don't panic

First of all, don't panic. Your fear will quickly transmit to the patient. In some circumstances this can have catastrophic results. Asthma, heart attack, and impending shock can be escalated into lethal situations very rapidly, and the patient needs to be kept calm. Speak in a soft soothing voice. It's very easy to run around the house yelling, but don't let yourself do it. Take deep breaths, count to 10, curl your toes, whatever works for you. Remember the patient needs you. By the way, acting calm has the beneficial effect of causing you to actually become calm.

If you're not alone with the patient, have someone else call for help. It's been harped on time and again, but *do* have the emergency number by the

phone and make sure everyone in the family knows where to find it. Don't rely on 911 because not all areas have the service yet; you may get a 911 operator in another state. She can usually connect you to your local emergency service, but it will cost you valuable time.

If you are alone with the patient, reassure them first, then tell them you are phoning for help. They may try to



argue you out of calling the rescue squad. If the injury is truly only a scratch, then listen to them. Otherwise, tell them you don't feel you can handle the situation on your own. If the emergency medical services people aren't really needed, they'll just go away. Few emergency services resent being called out for something that turns out to be less serious than you originally thought. A situation can always go the other way too, and it's good to know help is coming if that happens.

When you call the rescue squad try to describe just what happened, what and where the injury is, the age of the patient, any pertinent medical history,

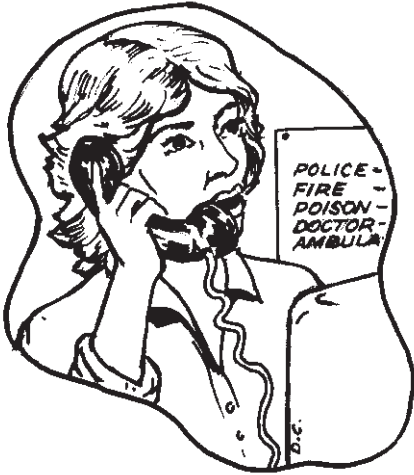
and exactly where the patient is and how to get there. This helps the responding medical personnel to find you and be prepared to treat the problem efficiently.

Here is a typical call to a dispatch center: “Help! My husband fell out of the tree. Come quick.” Then the caller hangs up. This is of little help to the responding crew.

The caller should have told the dispatcher something like this: “My husband has fallen off a ladder while pruning a tree. He's 59 years old and has a history of diabetes. He fell from a height of about 10 feet, landing on the grass. He must have hit his head on the way down because he blacked out for a few moments. He's conscious now and complaining of pain in his upper back and left shoulder. He's still lying in the orchard. We're the last house on Nosuch Road. It's a white farm house and the drive to the orchard is on the left side of the house. Have your people come back there. Do you need any other

information at this time? Good. I'm going back to stay with my husband. Thank you.” This tells the responding personnel all they need to know initially. Your information will be relayed to them as they are responding to the call. It may seem like you've said way too much, but it will really help save time once the rescue squad gets there. They will know exactly what the problem is and be prepared to treat it as soon as they arrive.

Once you've called in the problem and given as much information as you can, go back to the patient and continue to keep him as calm as possible. If the person is on any medications, collect them all together ready to show



the rescue people when they get there. Obtain more details of what happened if you did not actually witness the accident. Find out how the patient is feeling, how the pain is now and if it's moved around anywhere. If possible, send someone out to the street to meet the medical personnel and guide them to the patient. This is a perfect job for children, who are also frightened, concerned, and want to help.

Keep the patient talking. This accomplishes three very important things: It helps keep them calm, alert, and in the case of a severe injury, conscious. It also aids you in keeping your cool. If you're asking questions, it's harder to panic.

Do's and don'ts

So far we've talked about general considerations that apply to all medical rescue situations, but there are some specific do's and don'ts that relate to particular injuries. Thanks to TV shows like "Rescue 911" people are more familiar with emergency procedures, but these shows often skip important basic care for the more flashy practices like defibrillation and CPR. Let's face it—they make for better drama, but the basics still count.

When severe trauma occurs our bodies go into a protect mode. Chemicals in the brain and adrenalin are rapidly pumped through the system. The out-

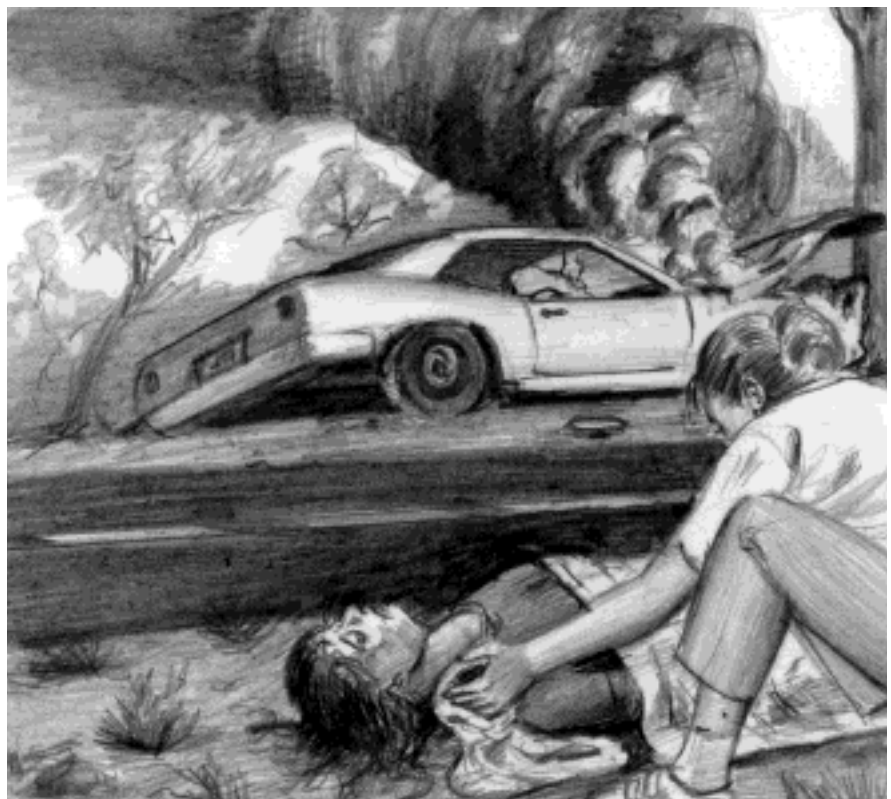
ward effect of these substances is to mask pain. A person may be more seriously injured than they believe or feel. The bystander needs to take into consideration the type of injury and how it happened, and be prepared to make critical judgments for the patient. The injured person may vehemently protest that they are fine, but an hour later when nature's drugs have worn off that person may begin to feel much worse. Precious time has been lost. Don't waste time arguing; call for help. They'll get over being mad, especially if they find out later they were seriously hurt.

Any trauma to the head, neck, or back should be treated as potentially crippling or fatal. No patient who has sustained an injury to any of these body parts should be moved or allowed to move. If the patient is upright, watch for signs of what EMT's call "guarding." The person who moves his whole upper body when he turns to talk to you is probably guarding a neck injury. Try not to

Any trauma to the head, neck, or back should be treated as potentially crippling or fatal. No patient who has sustained an injury to any of these body parts should be moved or allowed to move.

ask yes or no questions of people with neck, head, or back injuries. We just can't help nodding or shaking our heads in response. Bad move for someone with a neck injury.

Not everyone with a broken neck feels pain. Movement of the head can snap the spinal cord and death will be immediate. I'll never forget a story my old EMT instructor told about a driver in an automobile accident. She was out of the car and walking around claiming to be unhurt. Since the passenger had multiple injuries, everyone ignored the driver. A few minutes later she started to feel faint. A police officer on the scene told her to sit down and put her head between her



knees. The woman had a broken neck and bending her head snapped her spinal cord. She died instantly. She had been guarding her neck injury, but no one recognized the symptom until too late.

Finally, never give fluids to anyone with a possible head, neck, or back injury. The patient may aspirate the fluid into the lungs and cause further problems. They've got enough troubles without choking to death.

Lacerations

Another frightening injury is a severe laceration. Most venous bleeding will stop within 10 minutes whether you provide treatment or not. Arterial bleeding on the other hand is life-threatening and needs immediate attention. The way to tell the difference is easy and graphic. Arterial bleeding spurts out of the wound to the rhythm of the person's heartbeat. It can be terrifying, even for the experienced rescuer. You need to stop the bleeding by applying pressure using whatever comes readily to hand, even if that happens to be your own shirt. Wad up the material and press it firmly against the wound. Elevate the wound above the heart, if possible. Applying pressure to a venous bleed should bring it under control in a matter of minutes, if not seconds. Tourniquets are no longer advised; they can do too much damage to surrounding tissue. If the pressure bandage fails to stop the bleeding, add more material to the bandage and apply more pressure. If an accidental amputation has occurred, find and save the severed part. In most cases, excepting a decapitation, of course, surgeons can successfully re-attach the amputated member.

Broken bones

In the case of fractures and dislocations, try to make the patient as comfortable as possible, but do not attempt

to straighten the injured limb. Allow them to cradle the affected area; they probably will want to anyway. Apply ice to the area and keep the patient reassured. Severe sprains should be treated with ice packs and elevated to reduce swelling. It is always advisable to have them x-rayed to rule out a fracture.

Burns

Serious burns over a large portion of the body need urgent treatment by a medical facility. The danger here is dehydration and infection. Cover the patient with a clean sheet and try to keep them still. The pain of severe burns is unimaginable. Minor burns can be treated by running the affected area under cold water or applying ice. The aim is to stop the burning process by removing the heat. Never treat a burn with grease. All this does is trap the heat inside the burn and make it worse.

Regardless of the type of injury a person has sustained, it is important to keep the patient warm. Even on a sweltering summer day the severely injured person should be covered to keep shock at bay.

Injuries to children

Lastly, a word of caution about injuries in children. They can sustain life-threatening trauma and appear totally unfazed. There have been incidents of youngsters being hit by cars and walking home, claiming to be unhurt. Children often do not present any outward signs of trauma until almost too late. Then their conditions deteriorate rapidly. You need to find out as best you can just what happened. Anything that could cause a serious injury should be treated as though it actually has, until proven otherwise. Injured children often become very quiet, so any atypical behavior by the child is a good indicator that something is wrong.

First aid kits

It will help make the time surrounding the occurrence of an accident less hectic if you keep a few supplies on hand. Everyone in the family should know where these items are kept. Forget commercial first aid kits; they don't carry enough of what you will need and do carry some items you'll never use. You're better off making up your own. It's cheaper too. Get a good supply of four-inch by four-inch gauze bandages. These are what EMTs use. Also get a roll of what's called "cling." It's rolled gauze that clings to itself. This can hold pressure bandages in place without needing tape or pins. Put a small pair of sharp but blunt-edged scissors in with the cling so you've got something to cut it with. These can also be used to cut away clothing to get at a wound. Keep some commercial ice packs handy. There are two different types. One is reusable and filled with a gel that can be put in the freezer. The other type is disposable and contains water and an interior bag of chemical. You have to break the inside bag by squeezing it and then mix the contents for the bag to become cold. I recommend the former type; it's cheaper. Keep a warm blanket with your kit. This will remind you to cover the patient. Make up as many kits as you think you'll need. One for the car, house, or barn. Keep them stocked as items get used.

The majority of accidents occur in and around the home. Being prepared for the eventuality of one can take much of the panic out of the situation. It's a frightening experience to see a loved-one hurt and in pain, but it helps to know that we are not powerless. We can do something to help turn the situation around. Firefighters are taught to choose a course of action that will expedite a favorable outcome. That's what everyone wants in an emergency, and you can be part of it. Δ

Acorns are not just squirrel food

By Christopher Nyerges

For countless generations of American Indians, acorns were the staff of life. Some families gathered up to 500 pounds of acorns every September through November as they ripened. Today, most people regard acorns as food only for squirrels, and literally tons of this good food go to waste every autumn in the forest and on city streets worldwide. What a shame. Let's learn how we can rediscover this authentic American food.

There are more than 200 species of oak including deciduous and evergreen trees and shrubs. All oaks are easily identified by their acorns, which are nuts set in scaly caps.

Making acorns edible

All acorns, regardless of species, can be consumed once they are processed. Acorns are not eaten raw because the presence of tannin makes them too bitter, and so a number of methods have been devised to rid the acorns of their tannic acid. One of the Indian practices was to bury the acorns in a swamp and return the following year. This removed the tannin and blackened the acorns. However, there are quicker methods which can put food on the table tonight.

Sometimes shelled acorns were wrapped in a cloth container (like a burlap bag) and submerged in a river overnight. The flowing water would

leach the water-soluble tannin from the acorns by morning.

Some Indians would shell and grind the raw acorns into meal. Then this meal was put into a shallow depres-



The jar on the left holds acorns which have been peeled and are soaking in water to leach out the tannic acid. The traditional mano metate, used for grinding nuts and grains, holds live oak acorns.

sion tamped into a river's shady edge. Hot and cold water were poured over the meal for most of the day, washing the tannin out into the sand. The resultant acorn mush would then be carefully scooped from the sand and either dried or eaten as-is.

If dried, the final product would be boiled into a cooked mush, and it was usually eaten cold. The acorn flour was usually baked into bread in crude ovens or used as a base for soup. Corn meal often was mixed into the acorn meal.

But unless you're out camping, or have a strong desire to practice "the old ways," most folks today process their acorns in their kitchen. Boiling is the quickest method to render acorns edible. The shelled acorns are boiled, continually changing the water each time it becomes brown. You know

they're done when you taste them and the bitterness is gone. Unfortunately, boiling results in a loss of oils and flavor.

Another leaching method involves nearly bringing the water to boil in a pot of shelled acorns. You don't actually boil the water, however. You then turn off the water and let the acorns sit for 24 hours. Then you pour off the water, add fresh water, nearly bring it to a boil, but then again turn off the water and let the acorns sit 24 hours. You repeat this process for a third day, and by then the acorns are usually free of tannic acid. This "cold" leaching results in a more flavorful, more nutritious acorn that is softer and easier to grind.

Once leached, the acorns must be thoroughly dried so as to ensure a long storage life. The dried acorns can then be ground with a hand mill, stone grinder, or heavy duty blender. The resulting flour can be used in bread, muffins, pancakes, grits, soup, etc., either alone or mixed with wheat or corn flour.

Acorn bread

A favorite acorn bread recipe is as follows:

- 1 cup acorn flour
- 3/4 cup whole wheat flour
- 1/4 cup carob flour
- 3 tsp. baking powder
- 1 tsp. sea salt
- 3 Tbsp. honey
- one egg
- one cup raw milk
- 3 Tbsp. oil



Christopher Nyerges grinds acorns that have soaked for five days to leach out the tannic acid. After it is ground, the meal is dried and stored for future use.

such things as raisins, sliced fruit, honey, butter, and cream.

Analysis of the acorn meal has shown it to be 65 percent carbohydrates, 18 percent fat, and 6 percent protein.

In the wild, acorns are eaten by mallards, pintails and other water fowl, deer, elk, peccaries, and mountain sheep. Quail eat little acorns, and squirrels and chipmunks traditionally store them for winter.

Are acorns poisonous?

Livestock that have eaten large amounts of the young foliage and buds have become ill and, in some cases, died within a few days.

Eating large amounts of the raw acorns can lead to toxicity due to the tannic acid. Humans never eat toxic amounts of raw acorns because of the extreme bitterness. Those who have persisted in eating raw acorns have nearly always been stopped far short of death because of the onset of frequent urination and constipation, abdominal pains, and extreme thirst. However, anyone with a normal sense of taste would find it nearly impossible to consume raw acorns in large amounts, unless they were either coerced into doing so, or needed to do so to prevent starvation.

Kingsbury, author of Poisonous Plants in the US and Canada, included raw acorns on his list of poisonous plants. He stated that if large quantities were eaten over a long period of time, bloody stools and other symptoms would result. Euell Gibbons, author of several books about natural foods, responded to Kingsbury's reference to acorns as follows:

"If you ate raw acorns in large quantities maybe a bushel every day for 10 years — you'd probably get something like that." Δ

Mix well and bake in greased pan for about 45 minutes (or longer) at 250 degrees.

I use the above recipe for making pancakes simply by adding more milk or water until the consistency is correct for pancake batter.

Soup or mush

Southern California Indians commonly used the leached and ground acorns as a base for soup or mush. To use as a soup base, mix approximately two cups of the meal with 8 cups of water. Add diced onions, potatoes, carrots, wild greens, and seasonings to suit your taste.

To use as a breakfast mush, add milk and/or water to the acorn meal to your desired thickness. Serve with whatever you would add to oatmeal,

A country moment



Bethany Simons, 7, Israel Simons, 3, and Alexis Simons, 5, of St. Marys, West Virginia, cuddle their four-legged fuzz balls.

Ayoob on firearms

By Massad Ayoob

Kids, values, and “junior shooting”

By Massad Ayoob

*“To ride, shoot straight, and speak
the truth;
This was the ancient Law of Youth.
Old times are past, old days are
done,
But the Law runs true, O little
Son!”*

I grew up reading that classic poem. As an adult and a parent, I’ve tried to live up to its values. Think about it: if you can’t be a role model for kids, what the hell good is the creature you turned out to be?

I rode, shot straight, and spoke the truth. I was involved in my share of Code Three pursuits in almost a quarter century “behind the badge,” and the only two fugitive vehicles that got away each had one helluva head start.

I shot straight, winning the state championship of police combat shooting more than once with the handgun I wore to work, instead of a target pistol. And, because I never lied, I whipped in court lawyers who had forgotten more courtroom weasel tricks than I had ever learned, but had never mastered the near-impossible dark art of impeaching an honest cop who could articulate the truth to the Triers of the Facts.

Three days back now in the city from a refreshing sojourn with family at the log cabin by the lake, I reflect on these values. I have daughters, not sons, and they need all the more training in how to level the playing field from now to adulthood to the end of their days, in a society whose current President stands accused of sexual harassment and once told the press how he’d like to date the mummy of a

pubescent South American girl who had been murdered in ritual sacrifice. (Don’t take my word for it—check the archives of UPI and AP.)

Longtime readers of *Backwoods Home Magazine* remember me talking about Richard Davis, the self-made millionaire who established his entire factory in the rural community of Central Lake, Michigan once he made it big. Richard’s factory produces *Second Chance* brand concealable police body armor. Richard, the inventor of the product, is “the man who bullet-proofed America’s police.” Never a cop himself, Richard was a pizza shop proprietor who won a shootout with a trio of armed robbers and, hit twice himself in the course of that gunfight, decided that there had to be something better to stop bullets with than one’s own body. The rest is history: over 2,000 lives saved thanks to the armor Richard developed, some 700 saved by his brand alone.

Davis, a strong advocate of private citizens’ Second Amendment Rights to no one’s great surprise, began in 1975 the *Second Chance Shoot*, a prize-rich tournament in which cops and lawfully armed citizens alike take backyard plinking to its apotheosis, shooting bowling pins off wide tables instead of “tin cans off the back fence.” Four hundred to six hundred shooters attend each year, from backwoods farmers to national champions like Jerry Barnhart and Jerry Miculek.

Old guys can win, like Ken Tapp, the record-holder who is 66 years old. Women can win, like Alice O’Hara of Canada and *Backwoods Home* subscriber Connie Gabrielska, who both finished in the top 4 out of some 500 competitors, mostly male, using 12-



Massad Ayoob

gauge shotguns loaded with brutally kicking buckshot in the shotgun event this year.

And now, kids can win!

At the 1996 shoot, John Maxwell and I finished first and second out of some 500 competitors in the snubnose revolver event, John blowing 18 pins off a table with 18 rounds from a short barrel Smith & Wesson revolver tuned by master gunsmith Al Greco in 14.3 seconds, and me doing the same in 14.5. We both made a point of standing in the winner’s circle with our kids, Cody Maxwell, then 14, and Justine Ayoob, then 11, as we accepted our prize guns. And we said to each other, “Hey, why isn’t there something like this for our kids?”

We made it happen. John Maxwell was the one who ran with the ball and

convinced Davis to put together a Junior Championships if John and I could get the prizes squared away. Hey...*no* problem! In two or three days on the phone, which is tough from Central Lake, Michigan, whose phone system is worse than I've worked with in Third World countries, we had two dozen guns committed, most of them from *Second Chance* shooters who understand the importance of teaching responsibility to the next generation.

Suffice to say, the *Second Chance Junior Championships of 1998* will be the biggest tournament for young shooters in the history of handgunning. Almost 30 major value prizes are already committed. *Second Chance* veteran Tom Sheppardson volunteered to consult with us, bringing in his life experience as a middle school professional educator. Additional volunteers with experience teaching guns to kids are always welcome. John and I know the importance of this: he brought his son Cody up to where the kid is being scouted for full scholarships for college for his marksmanship ability, and I watched my firstborn daughter, Cat, win the open *Women's Championship* at the *National Tactical Invitational* a couple of weeks after she turned 19.

The *Second Chance Juniors' Championship of 1998* will see those 13 and younger shooting light-kicking guns that won't give them carpal tunnel problems from recoil later, and the 14 to 17-year-old class shooting the same powerful guns their parents need to blow heavy bowling pins three feet back off a table. They'll all learn the rules kids need to absorb early: that if you level the playing field, you can beat those you thought unbeatable... that in this country, you can come down off the porch and "run with the big dogs"...and that in shooting, unlike almost any of the politically correct sports, you can go head-to-head with the world champions, taking all the money if you beat them at their own game...and at worst vying against your

own kind in fair competition, junior to junior.

Anyone interested in bringing (or sending) a kid to the historic first annual *Second Chance Junior Handgun Championships of 1998* can call toll-free 1-800-253-7090 for full information. Anyone interested in donating a prize to the Juniors (age 14-17) or the Sub-Juniors (age 13 and down) should contact John Maxwell, 1138 Ponderosa Way, Woodland Park, CO 80863.

Maybe the old times are past and the old days are done, but the law of the little sons (and daughters) still runs true: any discipline in which a child can beat an adult if he or she does their best, is a discipline that teaches the values of life. Shooting is such a discipline, and in June of 1998, the *Second Chance Junior Championship* will validate that truth. Δ

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Résumé

*I tried hard to belong.
I did my job,
Honed my skills,
Attended the meetings,
And bought into the retirement plan.
But I found myself drinking—
A little more each night.
And the years were like birds
Migrating to some sunnier clime
From which they would never return
While I stayed on to bear the deepening winter of my life.
And, even if those around me didn't notice,
I paid less attention to what I did
And got fewer and fewer of my tasks done
As I jumped from job to job
Barely keeping ahead of my mounting incompetence.
Each company was like an empty bottle rolling under the bed
Until one day
I realized the bottles, real and metaphoric,
Were piled too high
And I quit the last company just hours before I was to be fired.
It was like
I'd just taken my finger
Off the trigger of a
Gun.*

John Silveira
Ojai, CA

Let your imagination guide you to making money in the country

By Richard Brock

Making a living in the country can be a lot easier than one might think. The way the world is nowadays, people are too busy to do a lot of their own little chores and that's where a lot of your opportunities come in. Several of the following ideas I have tried myself, some come from others. I hope you find something in them that you can use.

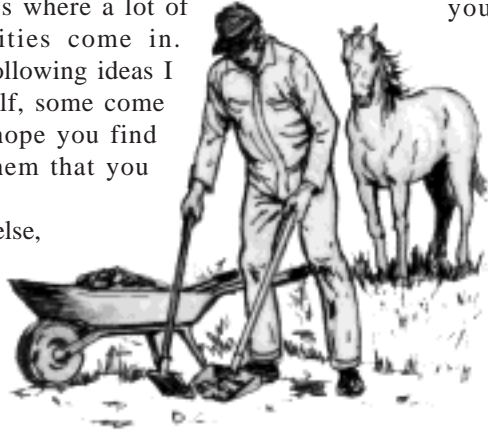
Like anything else, the hardest part is getting started. What worked for me right from the start—and still does—is to hire myself out as a laborer on day-to-day jobs or short-term projects. You may not want to work eight hours a day, five days a week, so keep that in mind when committing yourself. After a few weeks of this kind of work you will have a good idea of what's needed in your area. Then you can decide if you want to start your own business or continue doing what you are doing.

I have three companies I work for on a work-as-needed basis; two are roofers and one is a real estate company. I found that if I charge \$5 to \$7 per hour I can stay as busy as I want—and I often get paid more than what I ask for. What is important is to show people you are willing to work at almost anything for a reasonable wage.

When working for myself, I try to find things to do that will cost me very little to get started or will return my investment fast. I don't like taking chances. Here are a few ideas that you might do around the house.

Garden products, crafts

If you start some of your own plants to put in the garden, start a few extra to sell. Taking cuttings off of some house plants to start others will also help you a little. Some of your extra garden



products may also be sold. You can sell milk, eggs, and some extra animals also.

There are many home-made crafts that sell well, too. But rather than me suggesting some,

you should go to some of the stores in your area that sell such things. This trip will give you a good idea of what your area wants. Then you can add some things to be different.

You don't have to have a store from which to sell your items. If you ask around, you will probably find a few local flea markets or craft fairs where you can sell. But don't leave out the possibility of selling some of your crafts to local stores.

By the way, while there are many ways to make money at home, learn from me; I tried many mail order work-at-home schemes, and the only people who made money at these were the people I sent mine to.

Your own business

The next thing would be to start your own little full-scale business. There are a lot of things you can get started in that have a low start up cost. Many of them have a pretty good demand also. Some of these would be

lawn care; gardening; trash hauling; cutting and/or hauling firewood; putting up, repairing, or cleaning rain gutters; window cleaning; painting; putting up or fixing fence; and what I do most—the handyman business. I have found that as long as I do what I say I'm going to do and do the job for the price I quote, I have no need to advertise. Word of mouth will keep me busier than I really want to be. Remember, keep it simple and reasonable.

This next one is not my idea but it gives you an idea of the opportunities out there, and I hope you at least get a chuckle out of it: a pooper-scooper business. That's right. Making money going to people's yards picking up Fido's little gifts. Sounds crazy, right? Well, I've heard of a lot of towns where these little businesses are doing well. It goes back to what I've been saying: as long as your are willing to work and keep your prices reasonable, you are limited only by your imagination.

Right now I clean carpets, move furniture, do a little painting, some roofing, and whatever else I can find to make a little money. I have simple goals: to have my land paid for, pay a few other bills I have, and add a few improvements to my place. I want to spend as much time on my land as possible.

I hope I have given you a few ideas. If nothing else, you should know that you can make it, but it takes determination and willpower. Take a careful look around you. The money is there as well as the work. All you have to do is figure out how to get it. Life is simple; people make it complex.

It is wise to check with your local city or county government to make sure you do things the legal way. It is always wiser to be on their good side than bad. Remember to keep it simple and reasonably priced. Making money in the country is limited only by your imagination. Δ

You can cut your costs in half by installing a chain link fence yourself

By Tom Bartoli

Chain link fencing is a very common sight both in and outside the city—and with good reason. It is fairly inexpensive, easy to install, less intrusive than a solid fence and yet, it is an effective barrier to small to medium-sized animals and to people. Chain link fencing is nearly always installed by commercial fence companies. However, anyone of average mechanical ability can install their own chain link fencing.

There are at least three major advantages to installing chain link fencing yourself. First, it saves money—most installers charge in the range of \$2 to \$3 per foot for installation (not including materials), which is about one half the total cost of the fence. Second, you can shop around for materials and buy specific components from the dealer offering the best price on those components. You might buy your fabric from a nearby manufacturer, the posts from a home center, and get used, miscellaneous connectors from a commercial installer. Third, you can install in stages as you can afford it. You might, for example, buy and install the terminal posts this month. Then, a few weeks later, after you accumulate enough money, buy and install the line posts. Next you could buy and install the fabric. Then, finally, you could add the gates.

Basics

Chain link fencing is appropriate for many applications but it does have limitations. It is most easily installed on flat terrain, but it is adaptable to mildly uneven ground. By its very nature it is installed in straight sections but it can easily be stepped around a curve. As mentioned above, it is good for containing or excluding

small to medium sized animals, but large livestock, such as cows, can push it over. Since it is metal, extremely wet locations are not desirable, although good quality materials will stand up to the weather for years.

Materials & terminology

When buying materials be aware that chain link fencing comes in more than one grade, the two most common being residential and commercial.

Residential grade materials are, of course, less expensive than commercial grade materials, but are adequate for most uses.

As you might expect, chain link fencing has its own set of terminology associated with it. Understanding this terminology is the first step toward planning and then installing your fence. To help orient yourself, you may want to refer to Figures 1 and 2 as you read the following.

Terminal posts. These are the large posts that form corners, serve as gate posts, and terminate runs. Terminal posts are under the strain of stretched fence fabric or the weight of a gate, or both. As such they must be set securely and accurately. Terminal posts are typically 2 3/8 inches in diameter. You will need one terminal post per corner, one per end, and two per gate.

Line posts. These are the posts that stand between terminal posts. Since they are under very little stress they are smaller in diameter than terminal posts.

Line posts are typically 1 5/8 inches in diameter. The number of line posts you will need will be the number required for equal spacing, not to exceed 10 feet, between pairs of terminal posts minus gate openings.

Top rail. The top rail serves as both the upper limit of the fence and as a wedge between pairs of terminal posts that keeps them from leaning or bending under the strain of stretched fabric. Top rails are either swaged, in which case you simply slip them together to join sections, or plain, in which case sections are joined by means of a sleeve. Top rails are typically 1 3/8 inches in diameter and come in 10-foot lengths. Your top rail will equal the linear length of the fence minus gate openings.

Tension bars. These are flat metal bars that serve as the anchor point for attaching the fabric to the terminal posts. You will need one tension bar per tension band set (see below), plus one for stretching fabric (also see below).

Tension bands. These are metal bands that attach the tension bars to

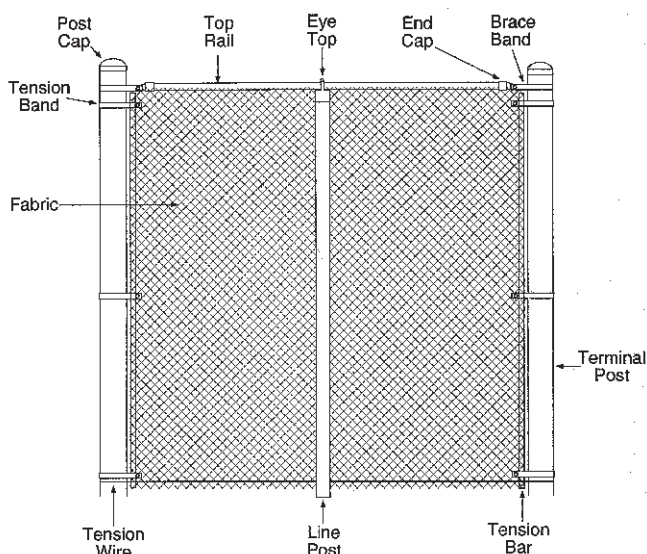


Figure 1. Chain link fence with top rail

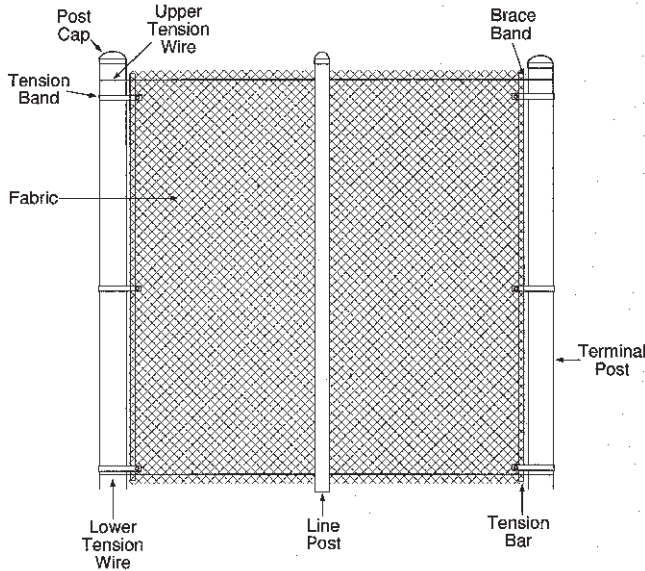


Figure 2. Chain link fence without top rail

the terminal posts. To determine the total number of tension bands you will need to first determine a set based upon fabric width: three per set for 36-inch to 48-inch, four per set for 60-inch, and five per set for 72-inch fabric. You will need one set per end post, one set per gate post, and two sets per corner post.

End caps. These are small cups that provide an anchor point for attaching the top rail to a terminal post. You'll need one end cap per tension band set if you choose to install a top rail.

Brace bands. These are metal bands used for attaching end caps to terminal posts. You'll need one brace band per cap if you choose to install a top rail.

Eye Top. These are dual purpose pieces that cover the top of each line post and provide a means for attaching the top rail to the line posts. One eye top per line post will be needed if you choose to install a top rail.

Post caps. Cover the terminal posts to prevent water and pests from entering through the otherwise open top. If you do not install a top rail post, caps should also be used for line posts. You will need one terminal post cap per terminal post and, if needed, one line post cap per line post.

Tension wire. Heavy gauge wire that forms the lower limit of the fence

and provides an anchor point for the bottom of the fence fabric. The total length of tension wire needed will be the linear length of the fence plus 2 feet per terminal post, minus gate openings. If you choose to use an upper tension wire, rather than a top rail, you will need twice as much tension wire.

Fabric. This is the actual chain link. It is available in widths (heights) of 36 inches, 48 inches, 60

inches, and 72 inches and typically comes in rolls 50 feet in length. The amount of fabric you will need will be the linear length of fence minus gate openings.

Wire ties. Wire ties are short, pre-cut, aluminum wires used securing fabric to top rails, line posts, and tension wires. You will need approximately one wire tie per linear foot of fencing.

Planning

Since chain link fencing requires a variety of materials it is essential that you plan your fence carefully. Begin by deciding whether or not you will be installing a top rail, for this will affect your materials list substantially.

Installing a top rail offers two main advantages and several disadvantages. When installed properly a fence with a top rail is somewhat sturdier than a fence without one and most people find it to be more attractive since it gives the fence a more "finished" look. The main disadvantages to installing a top rail are the cost (\$0.50 to \$0.75 per foot), the fact that it takes more time to install, and, if it is a consideration for your application, a fence with a top rail is easier to climb than one without a top rail. Omitting the

top rail is, in terms of advantages and disadvantages, the opposite of installing one—it is less expensive (\$0.05 to \$0.07 per foot), a little faster to install, and harder to climb. But the fence will be a little less sturdy and may not be as aesthetically pleasing.

After deciding about the top rail, measure, then draw a sketch of the area you plan to enclose. Then draw in the fence in the proper location. Next mark the location of all gates. It is important to note that gates are sold by their installed width. Thus a 39-inch gate requires a 39-inch opening to accommodate the gate and its mounting hardware (hinges and latch).

Once the basic fence is laid out, mark the location of each terminal post and each line post. Then determine how many or how much of each of the other components you will need using the guidelines provided.

Installation

When installing chain link fence the critical part is setting the posts properly—so take your time, double check your work, and do it right (it is no fun digging up a terminal post set in 100 pounds of concrete; I know).

Begin with the corner, end, and gate posts. These will be under strain once the fabric is installed so they must be set accurately and securely. These posts must be set in concrete, must be plumb (straight up and down), and must be set to the correct height. Set terminal posts so that their height above ground is 2 inches more than the fabric width. For 72-inch fabric the terminal posts will be set to a height of 74 inches. These posts are typically set with 24 to 36 inches of their length underground.

Next set the line posts. Line posts are under far less stress than terminal posts. They too are typically set in concrete but they can be set dry in stable soil. If you are installing a top rail, the line posts are set to a height of 2 inches less than the fabric width. For 72-inch fabric, the line posts are set to

a height of 70 inches. If you are not installing a top rail, the line posts are set to a height that is equal to the fabric width. Line posts should be spaced evenly between terminal posts but no more than 10 feet apart. However, if you are not installing a top rail, the line posts nearest each terminal post can be no more than 8 feet from the terminal post.

The easiest way to set line posts to the proper height is to mark that height on each of a pair of terminal posts, then stretch a string between the terminal posts attached at the height mark. Make sure the string is pulled tight enough to prevent any sagging. The line posts are then set so that their tops are even with the string. Line posts are typically set with 18 to 30 inches of their length underground.

After your posts are set and the concrete has had time to cure, the next step is to either install the top rail or, if you are not using a top rail, to brace the terminal posts.

To install a top rail, begin by setting an eye top on each line post, then attach an end cap to each of a pair of terminal posts using brace bands. The top rail is installed by feeding a top rail section through the eye top of the line post nearest one of the terminal posts and into the end cap. Top rail sections are then added by feeding them through the eye top on the next line post and joining them via either their swaged ends or a top rail sleeve as appropriate. The last top rail section is cut to length, joined with the previously installed sections and placed into the end cap.

The top rail must fit tightly between the terminal posts. The brace bands can be adjusted as needed to keep the top rail level between each terminal post and its nearest line post. Note too that end caps have an offset attachment point. This allows you to attach two end caps to the same terminal post (at a corner, usually) at the same height by turning one up and one down.

If you are not installing a top rail, the terminal posts must be braced. Each brace is a section of top rail placed diagonally from the top of each terminal post to the bottom of the nearest line post connected via an end cap and a brace band at each post (be sure to get brace bands sized to fit the line post). The reason the terminal post and the first line post cannot be more than 8 feet apart is that the distance from the top of one to the bottom of the other is 10 feet when they are 8 feet apart (for 6-foot tall posts).

Once the top rail is installed, or the terminal posts are braced, you can begin hanging the fabric. It is easiest to roll the fabric out on the ground next to the posts. Since fabric typically comes on 50-foot rolls, you will have to join two or more rolls for all runs longer than 50 feet. The fabric is essentially sewn together using the strand of wire included with each roll. This sewing operation is very simple. You wind the single strand into the two sections of fabric being joined by twisting it much like a corkscrew. This single wire is then connected to its mated pair by twisting and bending at the top and bottom.

To shorten the fabric, the procedure is reversed. A strand is untwisted and straightened at the top and bottom then unwound, again like a corkscrew, until it is completely removed.

Once the fabric has been made the proper length it can be hung. Start by attaching it to one of the terminal posts. Do this by sliding a tension bar into the end of the fabric from top to bottom. Next stand the fabric up next to the terminal post and attach it to the terminal post using the proper number of tension bands. When this is done correctly, the tension bar will be between the bolts through the tension bands and the terminal post. Once the fabric is attached at one end, walk along the fabric and stand it up against the posts. Hold it in place with temporary wire ties located as needed to prevent sagging and to remove as much slack along the length as possible.

Stretching

After the fabric has been loosely attached it must be stretched and attached to the other terminal post. You can stretch it by using a hand winch, or come-along, and a 10-foot length of chain with a hook on each end. You will also need something to grip the fabric. There are three options: Commercial stretchers are available and work well. These consist of a length of pipe with several small hooks on one side and one or two large hooks or eyes on the other. The second option is to make a stretcher using two pieces of wood (2 by 4s work well), several 3 1/2-inch bolts, and two eye bolts. The third, and least expensive approach, is to use a tension bar alone. This is how I did it.

When using a commercial stretcher, insert a tension bar into the fabric about 6 feet from the terminal post. Attach the stretcher to the tension bar and the fabric by hooking the tension bar with the small hooks on the stretcher. Attach the chain to the stretcher at the top and bottom. Attach the chain to the winch. Attach the winch to the terminal post.

When using a wood stretcher place one piece of wood on each side of the fabric, again, about 6 feet from the terminal post. Clamp the stretcher to the fabric using the bolts. Attach the chain to the stretcher connecting it at the eye bolts. Attach the chain to the winch and the winch to the terminal post.

To use a tension bar alone, simply insert the tension bar into the fabric and attach the chain to the tension bar near the top and bottom. Again, attach the chain to the winch and the winch to the terminal post.

Once everything is connected, draw the clamped fabric toward the terminal post using the winch. As the fabric begins to tighten, stop pulling and walk along the fabric starting from the other terminal post and pull out any slack by hand. Also, make sure that the fabric is not caught anywhere—temporary wire ties can bind and the

fabric may get caught on an eye top or two. After you are satisfied that the fabric is being stretched evenly you can resume operating the winch.

Continue this stretching and checking operation until the fabric is tight enough to be squeezed only slightly by hand. After the fabric has been stretched, it must be attached to the terminal post. Do this by making the fabric the correct length, allowing for some stretch by hand, then attaching it in the same manner as above using tension bands and a tension bar. After the fabric has been attached to the terminal post the winch can be loosened and the stretcher removed.

After the fabric has been attached a tension wire must be stretched along the bottom between the terminal posts. If you are not installing a top rail, a tension wire must also be stretched along the top of the fabric between the terminal posts.

Tension wire may be attached directly to terminal posts by wrapping it around the post then twisting the wire, which is quite stiff, around itself several times to secure it. Alternately, tension wire may be attached by wrapping around the post, then securing it with a cable or wire clamp.

In either case, attach the tension wire to one terminal post, then stretch it by hand to the other terminal post so that it runs on the inside of the fence between the fence fabric and the line posts. The tension wire must then be stretched in a manner similar to the fence fabric.

To stretch the tension wire you will need a means to grip the wire so that the hand winch can be used to pull it tight. There are commercial cable/wire pullers available that do the job nicely. These tools grip the wire tightly and have an eye for attaching a cable hook. For safety's sake I would recommend using a storable, commercial wire/cable puller (they cost around \$10). You can make your own clamp, if you are so inclined, but if you do, make certain that it grips the tension wire very securely.

As with the fence fabric, attach one end of the hand winch to the tension wire clamp and attach the other end to the terminal post. Be sure to attach the hand winch to the terminal post several inches above or below the point at which you plan to attach the tension wire to give yourself room to work.

Verify that everything is attached securely, then stretch the tension wire using the hand winch. Here too, it is best to stretch moderately, then check the wire to ensure that it is not binding or out of position. The tension wire should be stretched very tightly, tight enough to flex only slightly when you push hard on it. Once you are satisfied with the stretch, securely attach the tension wire to the terminal post stretching the wire as tightly as you can between the post and the clamp.

At this point the fence fabric must be secured to the line posts, the tension wire(s), and the top rail (if used). Do this using the wire ties. The fabric should be attached to the top rail and to the tension wire every 18 to 24 inches and to the line posts every 12 to 18 inches.

The next task is to install the gates. Gate hinges are attached to terminal posts using bolts of the appropriate length. The male section of each hinge is typically attached to the post, while the female section is attached to the gate. To prevent removal of the gate, turn one male section up and one down. Tighten the bolts securing the hinges only enough to hold the gate in place without slipping. Then, adjust the gate height so that it swings freely by moving the male hinge sections up or down as appropriate. Next, adjust the hinge sections as needed to make the gate straight up and down. Finally, tighten the hinge bolts.

So there you have it—chain link fencing at about half the cost of a commercially installed version and it is virtually maintenance free—no painting, no rotted-out posts, no loose boards, or fence nails that work themselves out of place. Δ



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You could furnish an entire homestead at Lehman's "non-electric" hardware store

By Don Fallick

Let me state my bias right at the beginning: Lehman's Hardware has been advertising in *Backwoods Home Magazine* for a long time, but I made my first purchase from Lehman's years before the magazine began publishing. I like their products, and I like the way they do business. For years I lived without electricity of any sort, and for even longer without 120 volt AC electricity. The products in Lehman's Non-Electric "Good Neighbor" Heritage Catalog were a Godsend to me and my family. (However, I have not evaluated them systematically, and this is not a review.)

Lehman's is an interesting store, serving the needs of people all over the world who choose (or need) to live independent of powerline electricity. They sell to customers who demand high quality merchandise, and are not afraid of a little work. Their customers include Amish and Mennonites, as well as self-sufficient folks from all over who appreciate old time technol-

ogy. They also carry quite modern tools and appliances that run on alternative power sources, including propane, kerosene, Coleman® fuel, and DC electricity, as well as wood and "elbow grease." Hidden among their non-electric cousins are high-quality replicas of old-time stoves, lights, etc., adapted to modern energy sources.

Lehman's also sells parts for all kinds of old-time tools and appliances that are impossible to find elsewhere. When possible, they offer American-made versions. When there are none, and they have to sell imports, they apologize. If there's a need for an item, and no other source can be located, Lehman's is not above manufacturing it themselves. Many of their goods are made locally by Amish craftsmen.

A varied clientele

In 1955, J.E. Lehman opened a one-room hardware store in Kidron, Ohio, a town that never incorporated and therefore (despite having its own post

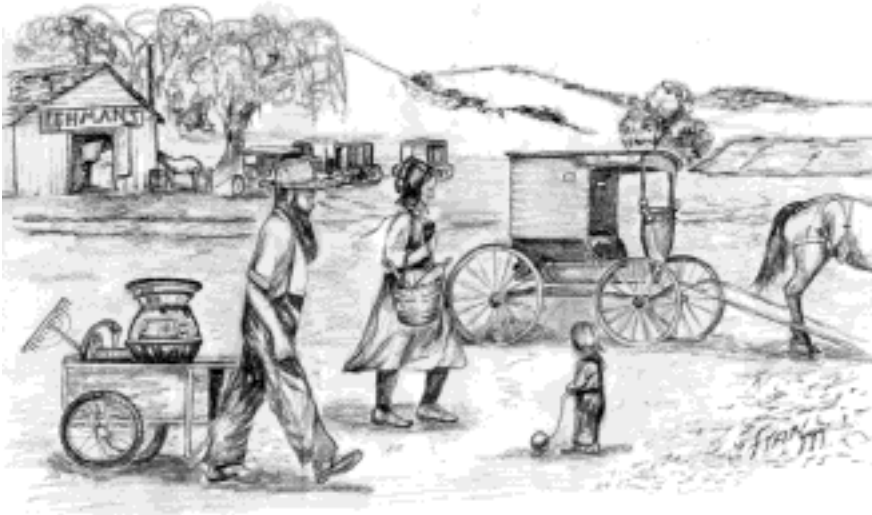
office) does not legally exist. Little more than a crossroads, this tiny hamlet serves as marketplace for the world's largest Amish community. The residents stubbornly refuse to change their customs with the times. Like the town name and the 155-foot-long hitching rail on the square, the Amish and Mennonites reflect a more traditional time, and Lehman's caters to their needs.

The trouble is, customs differ radically from clan to clan, and Lehman's must serve them all. They stock cast iron "sad irons" for one group and more efficient gas-heated irons for another, hand-cranked as well as gasoline-powered washing machines, and composting toilets that run on 115 volt AC electricity, 12 volt DC electricity, propane, and neither electricity nor propane. And for the plainest of the "plain folk," there are straight razors with plain red handles instead of the more common imitation pearl. But Lehman takes it in stride. He carries more than 2500 items, displayed in a showroom that began as a one-room store and now covers more than an acre. But most of Lehman's customers are not local: catalog sales are the backbone of his business.

I first got acquainted with Lehman's Hardware when I needed a non-electric washing machine for my home in the backwoods of Washington State. Unlike the Amish, I have no religious objection to hooking up to the grid—I was simply unable to do it. My wife and I finally settled for what the catalog describes as "Our Good Handwasher." (Everything in Lehman's catalog is "Our Good..., Our Better..., Our Best..., or "Lehman's Own....") The "Good" Handwasher slightly resembles an outsized, heavily tin-plated toilet plunger with internal baffles. But the thing really works! It cut



Lehman's Hardware as it is today



The Lehman's store as it may have appeared a century ago

our laundry time in half, and cost less than \$10. I was so impressed, I spent \$80 on “Our Best Hand Wringer”—the same one they sell with the James hand-operated washing machine. That was about 15 years ago. Prices have risen, but the washer and wringer still work.

I was also impressed by the service. Shipping charges are included in all prices over \$25, yet they cost no more than similar goods from other catalog stores. The only exceptions are orders with destinations in 90001+ zip code areas. Even there, the shipping charge is never more than \$10. Lehman's ships 65% of their orders the same day they are received. That is incredible, considering the rare and hard-to-find nature of many of their products. And all products carry a 30-day, money-back guarantee.

Nobody's perfect

I do have a few complaints about The Non-Electric Catalog. “Our Best...” and “Our Better...” are charming labels, and they do help the neophyte compare items within the catalog, but more sophisticated buyers might like to know exactly what it is they are buying. Nowhere does the catalog say that “Our Best Hand-washer” is the James Washing

Machine. I've heard of the James, and I might even know someone who has one. But how can I decide to buy it if I don't know that's what they're selling? They do mention name brands of some items: Servel gas refrigerators, Aladdin kerosene lamps, even Speed Queen Washer clones made in Saudi Arabia. I would like to see brand names mentioned for all items that advertise nationally. Then I could compare prices more easily. I'd also like to see all the gift items collected into the “Gift and toy” section of the catalog, instead of scattered throughout the pages.

Perhaps my biggest gripe will not be shared by others. I'd like to see a good deal less “hype” in the catalog, especially the unsolicited testimonials found on nearly every page. I've bought and used Lehman's stuff, and I know it's as good as they say it is. I don't need to read testimonials to convince me. Maybe others like the “down home” flavor of the letters, but I wonder how many feel, as I do, that the quality of the goods is advertisement enough?

On a more positive note, it would be nice to see all the spare parts for reconditioning antique tools, lights, and appliances listed in one place. A more complete index would be very helpful, too. In short, Lehman's Non-

Electric “Good Neighbor” Heritage Catalog doesn't need to be as hard to use as last century's Sears & Roebuck catalog, just because it contains some of the same merchandise, does it?

The comparison with the Sears “wish book” is apt. Lehman's lists 27 categories of goods, including tools for kitchen, barn, shop, farm, and garden. There are also toys, books and videos, laundry and water supply, appliances, and much, much more. A body could buy everything needed to furnish an entire homestead from this one catalog. That is perhaps its greatest charm.

The catalog costs \$3 (\$4 in Canada). Write to Lehman's Hardware and Appliances, P.O. Box 41, Kidron, OH 44636, Phone: (330) 857-5757. Or visit their virtual catalog on the Web at <http://lehmans.com/>. Lehman's is a sponsor of the *Country Life and Simplicity Village*, a virtual town on the World Wide Web at <http://countrylife.net/>. Δ

Coondog Kids

*Chasing four rundown youngsters
into a sweltering car, pleading
“Don't fight”
is akin to screaming “TREE!”
to a pack of blood-lusting
coondogs
intent on their quarry.
They bay and scramble,
raking hunks of skin-bark from
unfortunate appendages
caught in the hellbent thrill
of the hunt.*

*Success is won when hunter mom
fires
“I've HAD it!” into miserable
child-prey,
crouched on the limb of the back-
seat,
tattling fruitlessly and wishing
she'd been one of the pack
instead of the kill.*

**Melissa Sullivan
St. Petersburg, IL**

From honey apple crisp to French tarts, tasty apple treats are just right for fall

By Jennifer Stein Barker

As fall nights begin to turn chilly, your apples should be ripening. There is nothing like a crisp, juicy, sweet-tart apple eaten fresh. However, cooking with apples is also one of the delights of the season. If you have access to apples off the tree, or by the box, you can make apple delights you will never grow tired of. Apples are available in over 1000 different varieties.

There are apples which mature in midsummer, varieties which ripen throughout the autumn, and others which are not ready until late in frosty fall. Some apples are sweet, many are tart, some are firm and crunchy, and some are tender and juicy. Most of the early ones are transient delights. Some of the later ones will keep, with skilled management, almost until the next early ripeners are ready.

Apples store best at 33 degrees F. with high humidity (80-90%). They should not be piled too deep or they will bruise and spoil. The depth of a standard 26-pound fruit box is about perfect. I go to the grocery store in the late summer and get cardboard fruit boxes that are made to stack without putting the weight on the contents. The store is just recycling them, so they are glad to give them away.

Why store apples? They are usually less expensive in the fall and also, even if they are not, you can often get varieties direct from the orchard which may be unavailable in winter from a grocery store. Controlled-atmosphere storage, where they keep the apples that appear in the store midwinter, is expensive. Growers and packers only risk the expense for a few standard varieties which are proven popular sellers. This means mostly red and golden Delicious and Granny Smith.

If you must cook with one of these apples, golden Delicious is the best bet. Buy it as green as you can get it, and it cooks up tender, flavorful, and sweet-tart. If you have a choice of apples in the fall, try such delights as Jonagold, Empire, or Criterion. Sample any varieties locally available until you find ones that have the storage and cooking characteristics you want.

Here are some ways, from the simplest to the most elegant, to serve up your apples.

Apple brown betty

A classic dessert from New England, its simplicity is deceptive. You could grow addicted to this one.

Ingredients (serves 4-6):

2 cups wholegrain bread crumbs
 ¼ cup butter or 3 Tbsp. oil
 6 cups sliced apples
 ¼ cup honey
 ¼ tsp. grated nutmeg
 2½ Tbsp. fresh lemon juice
 ½ cup hot water

Preheat oven to 350 degrees and lightly oil a two-liter casserole. In a saucepan, melt the butter or warm the oil. Mix crumbs and butter or oil lightly with fork. Cover bottom of casserole with ⅓ of the crumbs. Spread ½ the apples over the crumbs. In a small cup, mix together the honey, nutmeg, and lemon juice. Drizzle ½ the honey mixture over the apples.

Repeat the layers with another ⅓ of the crumbs, the rest of the apples, and honey mixture. Top with the remaining crumbs and drizzle the hot water over all.

Bake, covered, for 25 minutes. Remove the cover and bake for another 20-25 minutes, until the apples are tender and the crumbs turn golden.

Serve warm with whipped cream or ice cream.

Honey apple crisp

A classic; moist, sweet apples with a crunchy oat topping.

Ingredients (serves 6-8):

6-8 medium apples
 2 Tbsp. quick-cooking tapioca
 ⅓ cup honey
 1 Tbsp. lemon juice

Topping ingredients:

¼ cup honey
 2 Tbsp. oil
 ½ tsp. vanilla
 1 cup regular rolled oats
 ¼ cup whole wheat flour
 ½ cup chopped walnuts

Preheat the oven to 325 degrees. Get out a casserole of approximately two-liter size. Wash, quarter and core the apples, then slice them finely. You should have 6-7 cups of apple (exact amount is not critical).

Sprinkle 1 tablespoon of the tapioca over the bottom of the casserole, add half the apples, and repeat, using the rest of the tapioca and apples. Blend the $\frac{1}{3}$ cup honey and the lemon juice together, and drizzle it over the apples. Cover the casserole with a lid or foil, and bake 35-40 minutes or until the liquid in the apples begins to bubble.

For the topping, warm the honey, oil, and vanilla in a small bowl just enough to blend easily. Beat together, then stir in the oats. Let sit 5 minutes. Add the flour and walnuts, and mix well. When the apples boil, remove the casserole from the oven and crumble the topping over the apples. Bake, uncovered, for an additional 20-25 minutes or until the topping is golden and the juice bubbles all around it. Apple crisp is best served warm.

Apple pandowdy

A classic New England dessert, rich with molasses and spices. Makes one 9" x13" pan.

Sauce ingredients:

6 or 7 large apples
 $\frac{1}{4}$ cup dark molasses
 $\frac{1}{4}$ cup honey
1 tsp. dried orange peel
 $\frac{1}{2}$ tsp. cinnamon

Cake ingredients:

2 cups whole wheat pastry flour
1 teaspoon baking powder
1 teaspoon soda
1 Tablespoon buttermilk powder
 $\frac{1}{2}$ teaspoon cinnamon
 $\frac{1}{4}$ cup oil
 $\frac{1}{4}$ cup honey
1 teaspoon vanilla
2 eggs
1 cup milk

Preheat the oven to 375 degrees F. Get out a 9"x13" non-reactive pan (I like glass). Wash, core, and slice all but two of the apples. Leaving the skins on adds flavor and texture, but you may remove them if you like. You should have about eight cups of sliced apple. In a medium saucepan, combine the molasses, honey, orange peel, and cinnamon. Add the sliced apples and cook over low heat until the apples are very tender and the mixture is the consistency of applesauce.

While the apples are cooking, prepare the cake batter. Sift together the pastry flour, baking powder, soda, buttermilk powder, and cinnamon. In a separate medium bowl, combine the oil, honey, vanilla, eggs, and milk. Set the two mixtures aside while you dice the last two apples and add them

to the cooked apples. Pour the apples into the pan, and smooth over the top.

Now beat the flour mixture into the milk mixture until well blended. Add the dry mixture in 4 portions, beating each time until well blended. Pour quickly over the apples in the pans, spreading as evenly as possible. It is important to work quickly because the cake batter will thicken and puff up as it stands.

Slide the pan into the oven and bake for 30 minutes, or until the cake is golden and the sauce bubbles up around it. Serve warm. This is very good with ice cream or frozen yogurt.

Hazelnut apple-tart

This is very elegant, but really quite easy to prepare. The recipe makes one 10-inch tart:

Ingredients:

3-4 apples (about $1\frac{1}{2}$ lbs.)
 $\frac{1}{4}$ cup oil
 $\frac{1}{4}$ cup honey
2 eggs
1 tsp. vanilla
 $\frac{1}{2}$ cup ground hazelnuts
 $\frac{1}{2}$ cup pastry flour
1 tsp. baking powder

Prepare the tart pastry, and line a 10" tart pan with it. Preheat the oven to 375 degrees.

Peel, core, and slice the apples $\frac{1}{2}$ " thick. Arrange them in an attractive pattern on the pastry. The slices should fill your tart pan level with the top, but not higher.

In a medium bowl, beat together the oil, honey, eggs, and vanilla. Beat in the ground hazelnuts, flour, and baking powder. Drizzle the batter over the apples in the pan, being careful to fill the crevices between the slices. Do not worry about covering the apples completely. The tart is very attractive with apples poking up through the batter.

Bake at 375 degrees for 40-45 minutes, until the apple slices are tender and the batter is golden. Cool 10 minutes before removing the ring from the tart pan. Serve warm or cool.

Note: Use the same measure of whole nuts that you wish to have as ground nuts. You may grind nuts with or without the skins, as you prefer. To remove the skins, toast the nuts 8-10 minutes in your preheated oven, until the skins crack and split. Remove the nuts from the oven and let cool a little before rubbing the skins off. To grind the hazelnuts, place them in a blender or food processor bowl and pulse until they are the texture of meal. Do not worry about a few chunks that may be left. Simply remove them, if they are large. Be careful of going too far or you will have nut butter. Measure your nuts again after grinding. Δ

Make a sidewalk garden bench

By Dana Martin Batory

Last summer I decided my backyard cried out for a garden bench. But not just any bench. A truly unique bench. I never throw anything away and I always haunt the unofficial landfill down the road. So I figured I would incorporate a little bit of this with a little bit of that and come up with something different. As you can see, I believe I succeeded.

Everything used in this project, except the concrete, was salvaged. The treated 4 by 4s and 2 by 4s were leftovers from someone's deck project tossed out at the landfill. Likewise, the bolts, nuts, and washers came from a discarded workbench laying nearby.

And several years ago when so-called urban renewal took the house next door, I removed a number of sandstone sidewalks two-feet wide, four-feet long, and two-inches thick, of which I still had a small stack left.

Of course, this bench can be duplicated using new materials. Any kind of cut stone—or even a concrete slab—could be used as a top. And one is not limited to a symmetrical top. An irregular slab pulled from a marble or granite quarry's waste pile would work as well. Let your imagination go wild.



The completed garden bench

Cutting And Materials List

Two treated 4 by 4s, 46" long.
Two treated 2 by 4s, 20" long
Four 4½" long ¾ by 16 carriage bolts
Four ¾ x 16 nuts
Eight ¾" inside diameter washers
60 pounds fast-setting concrete
One stone slab 48" by 24" by 2"

Construction

I discovered the ideal height for my bench was 18 inches. Subtracting the slab's 2-inch thickness and allowing for 30 inches below ground, my posts needed to be 46" long. Before cutting your posts to length, determine your ideal height and factor in the slab's thickness and your local frost line. I also allowed for a 2-inch overhang on the front and back and 1-inch on each side.

Because the slab protects the nuts and bolts I went with standard plated hardware. Stainless steel hardware could be substituted or even pegs cut from treated lumber.

Cut parts to given dimensions. Lay out and cut joints. The slots in the 4 by 4s were made on a table saw using a tenon cutter and dado blade. The slots in the 2 by 4s were made on a radial arm saw using a dado blade. Lay out and cut 40-degree angles on the 2 by 4s.

Though machinery is quicker and more accurate, all the cuts can be made using hand tools. Assemble dry to check fit, adjusting where necessary. I drilled the slightly offset ¾-inch holes on a drill press as deep as possible and finished them with a brace and bit. Back up the 4 by 4s with a piece of scrap to help prevent splintering. Bolt the parts together.

To make things easier, set one post first. Make sure it is level and plumb. I found a few shovelfuls of dirt tossed into the hole's bottom will hold it in place. Fill the hole about ⅔ full of concrete (about 30 pounds will be needed).

When the cement has hardened, set the other post plumb as a reference point and level using the first as a reference point. Measure from the out-



Bench posts set into place awaiting the seat

side corner to the opposite outside corner to square up. The distances should be the same. After the cement has set fill in the rest of the holes with dirt and tamp it down with a scrap 2 by 4. Center and set the slab in place, the smoothest side down. The slab was lifted and set into place by first resting it on a makeshift litter of two long 2 by 4s. With a person on each end, four of us had no problem moving it around.

The sheer weight of the slab will keep it in place. However, a bead of silicon sealer will help hold it in place and level off any irregularities. It's also a good idea to periodically waterproof the slab and posts. Δ

Enjoy America's sugarplum — the persimmon

By Charles A. Sanders

Persimmons are one of the most common and abundant wild tree fruits in the eastern half of the country. The common persimmon *Diospyros virginiana* is a native American tree common to the lower Midwest and south-eastern United States. A lesser known and less common variety, the Texas or black persimmon (*D. texana*), can be found in the southern half to two-thirds of that state. These two types of persimmons are the only ones native to the United States. However, in warmer parts of the world 160 to 200 kinds have been identified.

On ideal sites of rich moist soil, the persimmon tree may reach a height of up to 60 feet and 18 inches in diameter. More commonly, however, the persimmon occupies old-field types of plant succession, growing to 20 feet or so in height. It is generally considered a weed tree (by timber producers, anyway) since it so rarely reaches commercial quality. The persimmon wood

is very hard and shock resistant and can produce beautifully grained lumber. When used for its wood, it often finds use as golf club heads, rifle stocks, spindles, shuttles, and some furniture. Due to its hardness, it is somewhat difficult to work with tools.

Persimmons are an important food source for many animal species. Critters from crows to coons and cattle to coyotes all relish the pulpy fruit of the persimmon tree. If you have a pasture with a persimmon tree in it, you have probably noticed your livestock snuffling around under the tree like four-footed vacuum cleaners, sucking up every persimmon to be found on the ground. Deer feed hard on the fruit as well. In fact, the fat spike buck which I put in the freezer last fall was taken as it foraged beneath a persimmon tree.

Furbearers count heavily on persimmons for much of their fall and early winter diet. Raccoons, foxes, opossums, skunks, coyotes, and other furbearers all feed on persimmons whenever they are available. Many a country boy has followed his hound on a crisp fall night to a stand of persimmon trees where they had an old 'possum or raccoon treed among the fruit laden branches. In fact, these two ani-

mals' love for persimmons has been noted in a verse of the old folk song "Boil 'dat Cabbage Down":

"'Possum up a 'simmon tree,
And a raccoon on the ground.
Raccoon said, 'You son of a gun,
'Shake me some 'simmons down'."

Many species of birds feed on persimmons and will peck away at the fruit, either as it ripens on the tree, after it has fallen to the ground, or during the late winter when the last

frozen lumps of sweetness still cling to the branches. Turkeys scratch among the fallen leaves to find them. Cedar waxwings, catbirds, and mockingbirds bounce about in the branches, tugging and pecking at the ripened fruits.

Humans also find the persimmon a valuable and useful source of food. Everything from breads to puddings and even wine can be prepared from the fleshy fruit. The gathering of persimmons in the fall has long been a tradition in many parts of the coun-

try where the tree grows. In fact, each fall, the small southern Indiana town of Mitchell boasts its annual Persimmon Festival. Held each year during the last full week of September, the festival is complete with persimmon cookery and treats, a huge arts and crafts fair, Persimmon Parade, and Persimmon Festival Queen.

Some of you who remember your first taste of persimmons may remember them as terribly astringent and puckery fruits given to you by an older brother, sister, or other loving relative ("Here, try one. You'll love them!"). Biting into an unripe persimmon gives the sensation of having your mouth lined with heavy flannel, but it's a lesson usually needed only once. The reaction comes from the high levels of tannin which are present in unripe persimmons, and results from the precipitation of proteins which are present on the tongue by the tannin.

Many of us in the areas where persimmons commonly grow will harvest, process, and freeze or can persimmon pulp in sufficient quantities to ensure an occasional persimmon pudding or bread throughout the year.

When gathering persimmons for human use, I pick up all the ones which have fallen to the ground and often give the



Wild persimmons

tree a good shake as well. You might want to consider laying down a sheet of plastic to catch any fruit shaken down. Anything that falls is generally ripe enough to use. One sure rule of ripeness is that if the fruit is squishy and gooey, then it is at the peak of ripeness.

To process your persimmons, you must first sort through them and remove any small twigs and any leafy residue from the fruit. Also remove the dried leaflet-like calyx from the base of each fruit if present. Old-timers, and many not-so-old-timers, usually just mash the pulpy fruits through a colander, discard the seeds and use or process the remaining pulp. Some folks use a Foley food mill with good results. For those of you with the crank-type tomato squeezers, the use of the pumpkin screen and standard spiral should work with persimmons as well. All of the above methods serve the same purpose, to separate the sweet pulp from the seeds.

By far, the most widely accepted use of persimmons (and, in my opinion, far and away the best use of the fruit) is for producing pans of freshly baked, sweet and luscious persimmon pudding. I can absolutely think of no other sweet treat which evokes the memories or stimulates the taste buds as does a gooey, dark persimmon pudding, served with a big dollop of whipped cream on top. My grandmother could make a persimmon pudding which was second to none. As a boy I relished the trips to Grandma's house during persimmon season. I could nearly always count on a serving of her persimmon pudding being set down in front of me. I would like to share her recipe for the dessert.

Grandma's persimmon pudding

2 cups persimmon pulp
1 cup sugar
2 eggs
2 cups sweet milk
1/2 cup margarine
2 cups flour
2 tsp. baking powder
1/2 tsp. soda
1 tsp. salt
1 tsp. cinnamon
1/2 tsp. nutmeg
2 tsp. vanilla

Mix the sugar, pulp and eggs. Add the remaining ingredients and mix well. Bake in slow oven (350 degrees F.) until done. Simple directions for an exquisite treat.

Persimmon bread is another traditional use of these sweet fruits. Persimmon bread is delightful to serve to guests, especially during the holidays, and also makes a memorable gift. We sometimes bake the bread in a coffee can to give the finished loaf a unique appearance.

Persimmon bread

1 cup persimmon pulp
2 cups flour
1/2 tsp. baking soda
1/2 tsp. salt
2 tsp. baking powder
1 tsp. cinnamon
1/2 tsp. nutmeg
1/2 cup milk
1 cup sugar
2 eggs
1/4 cup butter or margarine
1 cup chopped walnuts, if you wish

Sift together the dry ingredients. Mix together the persimmon pulp, milk, eggs, and sugar. Add the flour mixture and the margarine. Mix until well blended. Stir in the chopped nuts. Pour the batter into a well-greased 9"x5"x3" loaf pan and bake at 350 degrees for 45 minutes.

Another delightful treat which can be made from persimmons is persimmon cookies. These tasty and chewy drop cookies are a real treat and are easily made.

Persimmon cookies

1 cup persimmon pulp
3/4 cup shortening
1 cup sugar
1 egg
1 tsp. baking soda
2 cups flour
1 tsp. baking powder
dash of salt
1 Tbsp. vanilla
1 tsp. cinnamon
3/4 cup chopped nuts
3/4 cup coconut
3/4 cup raisins (optional)

Simply mix all the ingredients together well and drop onto a cookie sheet by the spoonful. Bake in a 350 degree oven for 15 to 20 minutes. These are even better on the second day... if there are any left.

For a special treat, try a batch of persimmon candy. This creamy treat is sure to be enjoyed by all who try it.

Persimmon candy

2 1/2 Tbsp. persimmon pulp
2 cups sugar
1 cup half-and-half milk

1 Tbsp. dark corn syrup
1/8 tsp. salt
1 tsp. butter

Mix the sugar, syrup, half-and-half, and salt and allow to set for about 20 minutes to allow all the sugar to dissolve. Bring the mixture quickly to a boil over high heat. Heat to 230 degrees F on a candy thermometer or to the soft ball stage. Remove from the heat and add the butter and persimmon pulp. Return to the heat and boil, stirring constantly until reaching the soft ball stage, again. Remove again from the heat and set it aside until partially set. Beat the mixture until it begins to harden and pour into a buttered pan.

If, after indulging in pudding, bread, candy, and cookies, you still have a surplus of sugarplums, you may wish to try your hand at making a tasty homemade wine. To do so, follow the following simple recipe:

Persimmon wine

5 qts. persimmon pulp
5 qts. water
1 1/2 lb. sugar
1 pkg. yeast

Mix the persimmon pulp and water. Cover and allow to set for 48 hours. Strain the liquid and heat to boiling, stirring occasionally, then shut off heat. Add the sugar and stir in until it is dissolved. Allow it to cool then add the yeast. Put into the fermenting vessel and attach an air lock to allow the gas to escape but prevent air from entering. Allow to ferment for 2 to 3 weeks or until fermentation stops. Siphon off into clean jugs or bottles.

For those not fortunate enough to live where persimmons grow, I am including a source of canned persimmon pulp who can ship quantities of this unique treat anywhere in the United States. If you would like to try some real Hoosier persimmon, try ordering some canned persimmon pulp from Dymple's Delight Canned Persimmons, Rt. 4, Box 53, Mitchell, IN 47446, 812-849-3487. Dymple Green has been filling orders for the gourmet treat for over 25 years.

The minimum order of two cans costs \$9.50. Each additional can shipped to the same address is \$4.25. A 12 can case of pulp is available for \$48.50. All orders include UPS shipping (please add \$1.50 for orders west of the Mississippi River). No orders can be shipped to Canada. Each can contains 2 cups of pulp and 2 cups of sugar. No additional sugar is necessary for the persimmon pudding recipe contained on the label.

However you may choose to enjoy these native sugarplums, I know that once you have tried persimmons, the 'possums and 'coons will be in for some competition come harvest time. Δ

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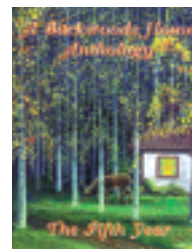
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Save your harvest leftovers with a vegetable stew mix

By Anita Evangelista

I've just come in with a basket-load of end-of-the-garden vegetables—a couple ears of corn, 6 tomatoes that had hidden in the vines, 22 potatoes, a handful of celery stalks, a few aging green beans, some oversized onions and undersized turnips—you get the idea. There's hardly enough of any one thing to bother getting out the dryer or the canner for a batch, but I can't stand letting this hard work go to waste.

The answer to this typical harvest-end dilemma is that ole standby: vegetable stew mix. The basic idea is to preserve all of these wonderful home-grown goodies with the greatest efficiency and for the best flavor and utility. This particular harvest-end blend can be varied to suit your own garden and tastes, and can be served when you need a hot, nutritious meal that can be fixed (literally) in five minutes on those cold winter evenings which lie ahead.

You can either pressure can, freeze, or dry your tasty soup-to-be, but the basic idea is to mix together whatever you have. There are several ways to do it.

Canning

Prepare your canning jars, either quarts or pints, by cleaning and checking for nicks on the rim. Have your jar lids handy and place them in very hot water until ready for use. This mix must be pressure canned—not done in a water-bath canner—so prepare your canner according to manufacturer's directions.

Now go ahead and peel your peelables (potatoes, turnips, carrots, onions, tomatoes, etc.) and cut them into chunks of about the same size so

they cook evenly. Now chop up all the extras (celery, beans, peppers, cabbage, etc.) aiming for roughly the same sizes. Cut corn kernels off of cobs. For a typical canner-load, you'll need seven quarts of chopped vegetables, or half as much if you're using pint jars. Mix all the goodies together.

Load the veggies into hot clean jars within one inch of the top, add a pinch of thyme, 1/4 tsp. of salt per quart, and a couple of whole peppercorns or dash



of pepper, if you wish. Now, fill each jar with boiling water to an inch from the top. Wipe the rims and apply lids. Tighten down bands by hand.

Ready your pressure canner according to manufacturer's directions, or put two inches of warm water in the bottom of the canner. Put the jars carefully into the canner, attach the lid, and turn on the heat. When the canner has expelled steam for two minutes, finish sealing and begin to watch the pressure. Time the canning process from the point the canner reaches 10 pounds pressure or 240 degrees F.

How long should you pressure can your personal veggie stew? The rule of thumb is this: can for the longest length of time recommended for individual ingredients. For instance, if you have potatoes, corn, and carrots as your mix, Table 1 indicates that the corn requires the longest time at 85 minutes. The whole process, then, should take 85 minutes. (Keep in mind

Table 1
Recommended Canning Times
at 10-Pounds (240 degrees)

<u>Vegetable</u>	<u>Minutes</u>
Asparagus	30
Green beans	25
Lima or butter beans	50
Beets	35
Broccoli/cauliflower (flavor gets stronger)	40
Carrots	30
Corn kernel	85
Greens (boil for 3 min first)	90
Okra	40
Field peas	40
Green peas	40
Green peppers	45
Potatoes	95
Sweet potatoes	90
Rutabagas	35
Spinach (boil for 3 min first)	90
Summer squash	40
Tomatoes	25
Turnips	35

that some of the other ingredients will be pretty soft after all that time under pressure.)

Note: You can also add up to four pounds of chunked, cooked, or seared meat to this mix (for a total of seven quarts of ingredients), if you'd prefer a more hearty stew. If you do, pressure can for a total of 95 minutes, no matter what veggies are included.

When canning time is up, turn off the heat and let the canner cool until it can be touched. Open the petcock and let it cool a short time longer. Remove the lid and carefully take the very hot jars out and set on a wood surface or on folded towels (cold tiles will crack the jars). When cool, check the lid seals and mark the date on the jar tops. Remove ring bands and store.

Freezing

The key to successfully freezing garden-end vegetables is to carefully blanch individual kinds of vegetables for the appropriate length of time. Blanching, the act of boiling for a spe-

cific period, deactivates the enzymes in the vegetables that promote “aging” and spoilage, so they keep better in the freezer. Not all vegetables need to be blanched, though.

Just as with pressure canning, peel all the peelables and chop everything into equal-sized pieces. Prepare a large pot, preferably a gallon-sized one, by filling it with water and bringing to a boil. Blanching vegetables can be placed in a wire basket and lowered into the water or put in and removed using a slotted spoon. After removing veggies from the blanching water, they should be immediately placed into very cold water (ice water is best) to stop the cooking process.

Blanching

Vegetables which don’t need to be blanched are those usually considered “seasoning,” such as green onions, chopped hot peppers, and herbs. Tomatoes don’t freeze very well; they tend to become mushy. They can be frozen whole, though. When you wish to use them, plunge frozen tomatoes briefly into hot water and slip the skins off. Chop or add whole to your stew. For the rest, refer to the guidelines in Table 2.

After blanching, mix all your garden-ends together, pack in freezer containers (jars, plastic boxes, plastic freezer bags, etc.), and put into the deep freeze. Separate all the packages by about an inch so that cooling takes place quickly. The following day, you can stack everything together to conserve space.

To use this “almost-instant stew,” empty the still-frozen veggie mix into a pan. Add enough water, broth, tomato sauce, or water-plus-bouillon-cubes to completely cover the vegetables. Bring to a boil and heat for three to five minutes. It’s ready!

If you like, you can add chopped cooked meats, cooked rice or pasta, or cooked barley to your final mix—an excellent use for small amounts of leftovers.

<u>Vegetable</u>	<u>Minutes</u>
Asparagus	3
Lima beans	3
Green beans	3
Soy beans (in pods)	5
Beets	
(until tender)	7-25
Broccoli/cauliflower	3
Brussels sprouts, large	5
Cabbage, shredded	1½
Cabbage, wedges	3
Corn kernels	6
Eggplant	4
Greens	2-3
Kohlrabi	3
Mushrooms	
(they will darken)	3-4
Okra	3-5
Onions	3-7
Parsnips	3
Peas, field	2
Peas, green	2
Peas, snow	
or sugar snap	2
Potatoes	3-5
Winter squash until soft, may be pureed	
Summer squash	3
Turnips	3

Drying

Dried garden-end stew has the advantage of requiring much less storage space than either canned or frozen goods. It has the disadvantage of taking longer to prepare for storage and longer to prepare for the table. However, there are some indications that dried vegetables retain more nutrition than canned or frozen goods.

Vegetables being prepared for the drier may need to be blanched—see Table 2 for frozen foods. Tomatoes don’t need to be blanched, but they should be peeled and thin-sliced. Green onions, chives, herbs, and hot peppers don’t need blanching. Everything peelable should be peeled, and the best drying takes place when

you keep your veggies in very uniform sizes and shapes.

You can use an electric dryer, a solar version, or even your regular oven (set on it’s lowest temperature, around 150 degrees). Follow manufacturer’s directions or dry your vegetables until they are crisp or brittle. Test by removing a few pieces from the drier and cooling for 15 minutes, then feel for crispness or brittleness. Individual types of vegetables may take longer than others, so it’s best to dry different vegetables separately or on separate shelves. Most will take from 3 to 12 hours to fully dehydrate. You have to keep a close eye on this process, too.

When everything is dry, you can either package separately or mix it all together. If you are mixing your vegetables, you may wish to add two tablespoons of bouillon powder to each quart of dried vegetables, or some “quick” rice or barley, or a handful of dry pasta to each jar. This gives a more rounded stew mix when you use it. If you’d like, you can also add a cup of textured vegetable protein (TVP) to each quart jar—this adds a meaty-quality to your finished stew. TVP is made from soybeans and can be found in health-food stores. It even comes in varieties of chicken or beef flavors.

For the longest storage time, place your vegetable mix into jars with tight-fitting lids and keep in a dark, cool place (a cupboard is fine).

To prepare dried stew, place your mix into a pan and cover with an equal amount of boiling water. Let sit covered until the vegetables have rehydrated—this may take 15 minutes to 3 hours, though typically 30 minutes is an average time. Add again the same amount of boiling liquid (milk or broth are nice), heat through, and it’s done.

What better ways could there be to make sure all those garden-ends don’t go to waste than to warm and nourish you and your family during the cold winter months? Δ

Where I live

By Annie Duffy

Following in the footsteps of the Mormon pioneers

Not often do I go on camping trips, so when some of my Mormon friends asked me to come with them on a three-day trip to reenact a bit of Mormon history, I accepted eagerly. The trip was sponsored by the Mormon Church, and, although I'm not a mem-



ber of the Church, I am invited to many of their activities. We were going to participate in the sesquicentennial Mormon trail reenactment. We would bus to central Wyoming and visit one of the most sacred Mormon landmarks—Martin's cove. Along the way, we would walk about 14 miles, and push and pull handcarts in the footsteps of Mormon Pioneers 150 years before us. We were formed into handcart "families,"

consisting of adults and kids. All of the families made up our handcart party, which is similar to a wagon train, except that the handcarts are pulled by people rather than oxen.

We would also visit sites such as Independence Rock and Devil's Gate.

We were required to wear traditional clothing (excluding shoes).

Girls wore long dresses and bonnets, while guys wore long sleeved button-front shirts, long pants, and hats (not baseball caps).

Most Mormon pioneers used handcarts similar to the one above because Brigham Young, the second president of the Mormon Church, determined that they would be less expensive and reach the Salt Lake Valley quicker than wagons. Normally each pioneer party would have at least one wagon, but it was usually used to haul sup-



Tired trekkers dip their feet in the cool Sweetwater River. Behind is Devil's Gate.

plies. Only very young children, the sick, and the injured were allowed to ride in the wagons or handcarts. Everyone else had to walk the entire way—a trip, for some, that was more than a thousand miles.

Day one

We met at the church at five o'clock on a Monday morning, but didn't leave until after six. It took about eight hours to get to our destination—the Sun Ranch Visitor Center, about 60 miles from Casper, Wyoming. The visitor center is an old ranch that was bought by the Mormon Church and dedicated to pioneers of the ill fated Martin and Willie handcart parties.

In 1856 these two parties left too late in the year to reach the Salt Lake Valley before winter, and they were both caught in an early blizzard near



This picture, taken from near the top of Independence Rock, looks down on the girls' camp. More than 300 people took part in the reenactment.



In the lower left corner is our “family,” trekking toward Sun Ranch, a historic site dedicated to the Martin and Willie handcart companies. As many as 145 of the 576 people in the Martin handcart company and 67 of the 404 Willie people froze or starved to death while trying to reach Zion.

the Sun Ranch. More than 200 of them froze or starved to death.

As we walked through the Visitor Center, we saw pictures and read plaques about the Martin and Willie parties and others who made the journey to Zion (the Salt Lake Valley). A display of the personal items each individual of the party was allowed to bring with them showed it was hardly enough to fill a paper grocery sack. Included were clothes, a journal, the Bible, the Book of Mormon, a small wooden box for valuables, and a few other small things.

After the Visitor Center, we loaded our gear onto our handcart and pushed it to East Gate, about 1½ miles away. Along the way we sang old pioneer songs, changing the words and adding our own verses, such as:

*For some must pull and some must-
push,
All us girls will kick your tush,
Cause all you boys are really slow,
So we haven't reached the valley-o.*

We unloaded our carts at East Gate and were picked up by a bus that took us to Independence Rock, 55 miles southwest of Casper, Wyoming. When pioneers reached the rock, their perceived midpoint, they celebrated Independence day, no matter the date.

We set up camp on the northeast side of the rock and started to climb it, searching for a cave that was somewhere near the base. When we found

it, we crawled into it and read the names and dates of the pioneers who had sheltered there 150 years before.

After a particularly well done Dutch oven supper, we gathered around the only campfire. Music from a guitar, fiddle, and harmonica started after dark, close to 10 o'clock, and some of us began to dance. We listened, sang, and danced. One of the songs we danced to was the timeless Virginia Reel, doing our best to remember all of the steps and choreographing some of our own steps. An “a capella” group of local high school students called the Monotones also preformed a few songs for us. It was after midnight by the time we went to bed. Before we fell asleep, Taps was played.

Day two

Since there had been rumors that Reveille would be played in the morning, we were disappointed when we never heard it. We packed up our tent and loaded our stuff.

First there was a devotional, consisting of prayer, spiritual devotion, and song, at the top of Independence Rock, then we were bused back to East Gate, where we reloaded our handcart.

After we parked our handcart in a meadow near the Visitor Center, we



Posing at the top of Independence Rock, Wyoming, are, from left, Annie Duffy, Lindi Brown, Janice Jensen, Julie Suisse, Shalise Adams, and Katie Jensen.

walked to Devil’s Gate. Devil’s Gate (shown on page 35) is a cleft in the east end of the Sweetwater Rocks, six miles southwest of Independence Rock where Sweetwater River runs through. While we were at Devil’s Gate, several of us stripped off our shoes and socks and dipped our feet. The water was cold, but it felt good after the walk.

Once we returned to our handcart, we ate lunch and waited out a short hailstorm. We started towards the most important and sacred stop along our trail—Martin’s Cove, where some of the 145 people of the Martin handcart party who either froze or starved to death met their fate. Located two miles west of Devil’s Gate, Martin’s Cove is a small inlet in the Sweetwater Rocks that sheltered many of the 576 pioneers of the Martin handcart party from the killer blizzard. Led by Captain Edward Martin, it was the last handcart expedition to leave Nauvoo, Illinois, in 1856.

We pushed into camp as the wind started to blow, and we had to wait close to an hour before we could start



Our “family” pulls a handcart, re-created in the likeness of those used in the mid to late 1800s. They were used by Mormon pioneers to move their possessions from Nauvoo, Illinois to the Salt Lake Valley. Only the young, sick, and injured were allowed to ride in the handcarts. Everyone else walked the entire way. From the left is Annie Duffy, Roger Isaacson, Lindi Brown, Justin Wheeler, Julie Suisse, Roxanne Jackman, Richard Finwall, Janice Jensen, and Mike Isaacson.

supper while another hailstorm pelted our tent.

It was exciting, both for the adventure and for the sense of history we were reliving. I read part of the *Nauvoo Neighbor*, an Illinois paper

from those old days, which suggested the list below for each wagon that accompanied the handcart parties.

What a trip!

(Photos for this article were taken by Roxanne and Gordon Jackman of Hyde Park, UT.) Δ

Bill of Particulars For the Emigrants Leaving this Government Next Spring

<p><i>Each family consisting of five persons, to be provided with:</i></p> <ul style="list-style-type: none"> <i>1 good strong wagon, well covered with a light box</i> <i>2 or 3 good yoke of oxen between the age of 4 and 10 years.</i> <i>2 or more milk cows</i> <i>1 or more good beeves</i> <i>3 sheep if they can be obtained</i> <i>1000 lbs. of flour or other bread or bread stuffs in good sacks</i> <i>1 good musket or rifle to each male over the age of 12 years</i> <i>1 lb. powder</i> <i>4 lbs. lead</i> 	<ul style="list-style-type: none"> <i>1 lb. tea</i> <i>5 lbs. coffee</i> <i>100 lbs. sugar</i> <i>1 lb. cayenne pepper</i> <i>2 lbs. black pepper</i> <i>½ lb. mustard</i> <i>10 lbs. rice for each family</i> <i>1 lb. cinnamon</i> <i>½ lb. cloves</i> <i>Cooking utensils to consist of a bake kettle, frying pan, coffee pot, and tea kettle</i> <i>Tin cups, plates, knives, forks, spoons, and pans as few as will do</i> <i>A good tent and furniture to each 2 families</i> <i>1 doz. nutmegs</i> <i>25 lbs. salt</i> 	<ul style="list-style-type: none"> <i>5 lbs. saleratus</i> <i>10 lbs. dried apples</i> <i>½ bushel of beans</i> <i>A few lbs. of dried beef or bacon</i> <i>5 lbs. dried peaches</i> <i>20 lbs. dried pumpkin</i> <i>25 lb. seed grain</i> <i>1 gal. alcohol</i> <i>20 lbs. of soap each family</i> <i>4 or 5 fish hooks and line</i> <i>15 lbs. iron and steel</i> <i>A few lbs. of wrought nails</i> <i>One or more sets of saw or grist mill irons to company of 100 families</i> <i>2 sets of pulley blocks and ropes to each company for crossing rivers</i> 	<ul style="list-style-type: none"> <i>1 good seine and hook for each company</i> <i>From 25 to 100 lbs. of farming and mechanical tools</i> <i>Clothing and bedding to each family not to exceed 500 pounds</i> <i>Ten extra teams for each company of 100 families</i> <i>N.B. In addition to the above list, horse and mule teams, can be used as well as oxen. Many items of comfort and convenience will suggest themselves to a wise and provident people, and can be laid in in season; but none should start without filling the original bill.</i>
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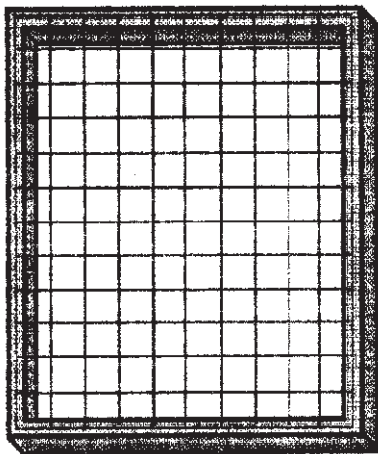
Making paper at home is a fascinating process

By Carl Bussjaeger

Why would anyone want to bother with making their own paper at home? Well, for me it was more a matter of “Why not?” I am convinced that anything someone else can do, I can do. And I almost immediately ran into a problem.

On the face of it, making paper should be easy enough . . . people have been doing it for centuries. All you really need is a source of tiny cellulose fibers that you can press into a mat—rather like felting. Most commercial paper production is based upon the use of wood pulp, which being cellulose, is a great source of tiny cellulose fibers.

However, wood also contains a great deal of *lignin*. This is the material in wood that gives it its hardness.



The mold (mesh not to scale)

Unfortunately, it prevents the individual cellulose fibers in the wood from separating and matting properly, so it has to be eliminated. Anyone who has had the olfactory misfortune to live near a paper mill has an idea of how the professionals deal with lignin: the

wood pulp is cooked at high temperatures in a caustic solution.

This does make for good paper at a good price, but it was a far cry from what I wanted to mess with at home. So I put off my leap into a new endeavor until I could give it a bit more thought. I went out to mow the grass. And it hit me immediately. Hmm. Grass? Well, I had to cut it regularly anyway. It *is* cellulose. And lignin certainly isn't an issue. So I went for it.

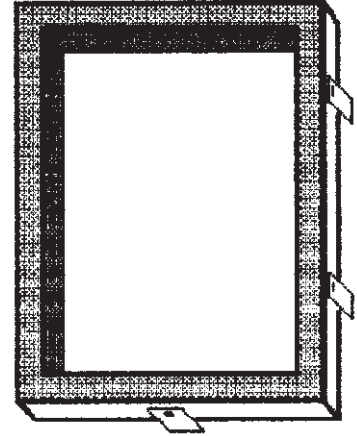
Materials

Darn near anything can work, if it is fibrous. I have managed some surprisingly nice paper using general lawn clippings. This was mostly Bermuda, with the odd bit of crab and rye grass. (I don't worry about keeping a manicured, competition lawn.) I have even had a bit of luck with kudzu leaves. (I'm a Southern boy; I had to find *something* to do with the stuff). And recently I started experimenting with the seed puffs from cottonwood trees.

And naturally enough, you can also recycle paper this way. It is definitely quick: processed paper breaks down into its component fibers much faster than even grass clippings. Old rags are another good fiber source. Cotton and linen are best; I avoid the man-made polymer fibers such as nylon and polyester. An exception to this is another source: clothes dryer lint. Yep, I've used that, too. It works. So with a little creativity, material is not a problem.

Now you need to gather your tools. This is likely going to be a little easier than you thought, as well. Most of what you need, you have. Here's a basic starter list:

- Scissors
- Pot
- Jars



The deckle

- Colander
- Blender or hammer and bowl
- Mold and deckle
- Pulp vat
- Cloths
- Press
- Press boards
- Iron
- Drying rack

The scissors are used to cut up your material into manageable bits. The pot is used to cook the clippings to break down the fibers; eight quarts should be fine for most projects. The jars hold the processed pulp. The colander is used to drain and wash the cooked material.

After you have cooked the grass down to mush, you still have to dissociate it into free fibers. There are two ways to do this. The old traditional way was to place the mush in a sturdy bowl of some sort (a hollowed tree stump might be used) and pound it with a large wooden mallet. This is as messy as it sounds.

The easier (and neater) way is to use a blender. Set to “liquefy,” a blender does a wonderful job of processing paper pulp.

Theoretically, you could also simply keep cutting up the material with the scissors. Don't. It takes just short of forever, and yields low quality paper.

The mold and deckle are the heart of the paper making operation. And you probably won't have them lying around the house. Fortunately, they are pretty simple to put together.

The mold

The mold is a screened frame which you dip into the pulp and lift up to form a sheet of matted pulp, with the water draining off through the screen. Dried and pressed, the pulp becomes the paper.

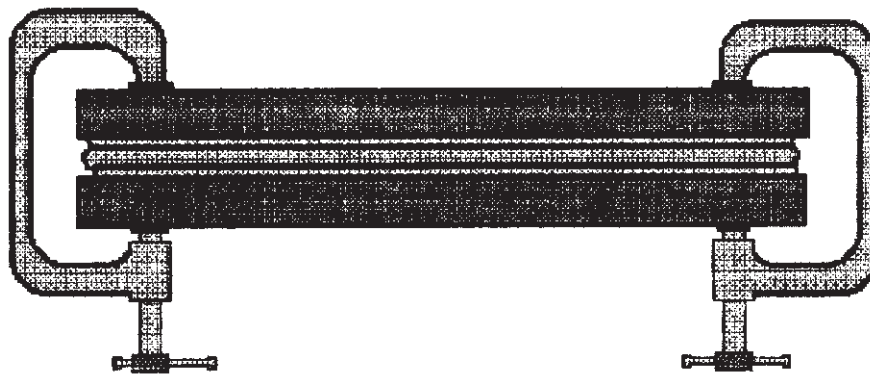
The mold that I use is a 16½ inch by 12½ inch frame made of 1 x 1 inch pine. The size of your mold is relatively unimportant. The factors that you base your mold on are the maximum paper size you want to make, and ease of handling.

The mold is fastened together at the corners with four wood screws. I have a doubled layer of ordinary fiberglass mesh (the same stuff you use in the windows) stretched *tight* over the frame and stapled down all around. The mesh must be tight so that it will not sag under the weight of the wet pulp. If it does, the pulp will pool in the middle and make an uneven sheet of paper.

The deckle

"Deckle" is an odd word, and I have no idea where it originated. The deckle is a second frame that is placed atop the mold to form a dam around the edge of the mold. The advantage of this is that as you raise your mold out of the pulp, the water does not run off the sides, and the pulp is trapped on the screen. The mold can be used without a deckle, but it's easier to make consistent, even paper with it.

My deckle has the same basic dimensions as the mold, so that it fits flush on top. But I used one-inch by half-inch pine instead. This gives me a



C-clamp press

half-inch "wall" around my mold. Again, it is assembled with four wood screws at the corners.

Also, there are six wooden tabs attached to the outside of the frame; one at either short end, and two on each long side. These tabs fit against the mold frame and prevent the deckle from sliding around during handling.

Probably I should seal the mold and deckle wood with a waterproof varnish, but I've been using these for a couple of years now with no problems, so I've never gotten around to it.

The pulp vat

The next tool you will need is a pulp vat. This holds your pulp solution, into which you dip the mold and deckle. It should be at least six inches deep, and large enough to dip your mold into. For my mold, I found that Rubbermaid makes a plastic storage box that is almost the perfect size. It is also rather handy for storing my paper-making gear when I have finished.

The press

Once you have a mold full of wet pulp, you need to turn it into paper. You simply transfer the wet pulp (called *waterleaf*) onto a cloth, place another cloth over it, and sandwich the cloth and waterleaf between two sturdy boards. This sandwich is referred to as a *post*. (I would just call it a sandwich, but someone else got to

name it first.) Then you press it to compress the fibers together, and squeeze out the water.

It does not really matter how you press it, but there are two things to remember: First, the greater the pressure you apply, the thinner yet stronger the sheet will be. Second, leaving the sheet under pressure for a while seems to help. The ideal solution for this would be a screw-type press, either a bookbinder's press or a cider press. I have neither, so I improvise.

I have pressed my waterleaves on an arbor press, which gives lots of pressure, but I had no good way to maintain it other than to keep holding down the lever. A counter-weight to hang on the end of the handle would have been handy.

I have also stacked bricks and a small 55-pound anvil on top of the post. This was less than satisfactory. I just did not have enough bricks to give the pounds per square inch that I needed.

Once, I parked the front wheel of my truck on the post. It worked, but it confirmed my neighbors' fears that I was nuts.

What I finally ended up with was an improvised screw press. Very simply, I used four large C-clamps to press the boards. It gives me all the pressure I need, I can leave it there forever, and my press fits into my storage box. Good enough.

So let's make some paper.

The process

Step 1: Chopping

Here is where you start with the scissors. Cut your material up into small pieces, no larger than an inch in any dimension. Smaller is better. Dump the chopped material into your cooking pot. As you chop the material, sort through it and discard any detritus—bits of bark, pine needles, anything you won't want in your sheet of paper.

Step 2: Boiling

Now you cook your material into a mush. The heat and water cause the fibers in the material to dissociate and separate from each other. The end result is an "overcooked" mass, similar to what some folks refer to as "Southern-style" vegetables.

The boiling time can be reduced by cooking with a caustic solution. Two or three tablespoons of lye can be placed in the pot before the vegetable matter and water are added. Frankly, I have never needed lye. *Note: If you do use a caustic solution, do not use an aluminum pot. Use a well enameled pot, or preferably stainless steel.*

Your pot should be about two-thirds full of fiber material when it is pressed down. Add water to cover the material and bring it to a boil. Let it simmer for two to three hours, or until it is reduced to mush. Add water periodically to prevent it from boiling dry.

Step 3: Washing

The extended cooking should have turned the water into a nice dark tea. Dump the pot into your colander and let it drain. Then wash the mush by pouring cool water over it until the runoff is clear.

Step 4: Second boiling

This isn't absolutely necessary, but it does break down the mass a little more and helps cook out the undesired color. This is a short simmer of 30 to 45 minutes, with no caustic solution.

Step 5: Second washing

Proceed in the same fashion as before.

Step 6: Bleaching

This is another optional step. If you are making a writing paper, you may want it as white as possible. If so, dump the mush into the pot again, cover with water and add a tablespoon or two of common bleach. Stir well, and let it sit for an hour. When the mush has lightened, dump it into the colander again and wash it once more.

Step 7: Pulping

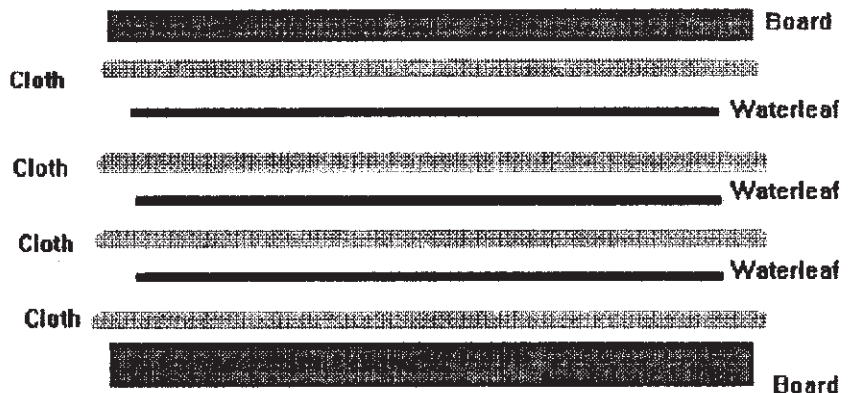
If you are truly brave, it's now time for the mallet and bowl. If you are more like me, it is time for the blender. To reduce the mush to a pulp suitable for paper, the mass has to be ground into tiny independent fibers. Set up your blender with the carafe about half full of water and add a *small* handful of mush. Don't start with too much at first, or you may overload the blender's motor. Work your way up to the blender's highest setting. The mush should be reduced to a smooth, creamy, even texture. Stop and add more mush occasionally. When you have a carafe full of finished pulp, transfer it to a jar. Continue reducing the mush to pulp in this fashion. Starting with the pot full of material, you should end up with four or five quart jars full of pulp.

Sizing (optional)

Virtually all the paper you use from day to day has been *sized*. That is, some additional substance has been added to the pulp to improve the adherence between fibers, to prevent ink "bleeding" through the paper, or to generally strengthen the sheet. In commercial "slick" paper, kaolin clay is used to size the paper.

For myself, I have found that two common kitchen items do the sizing I need. Corn starch is my preferred size. It works as an internal glue for the paper; when pressed out, the sheets stay compressed and smooth. The easiest time to size the pulp with corn starch is during blending. Just add it to the carafe when the mush has become a good pulp and blend it in for a minute.

How much should be used? That varies a lot. For pulp based solely on grass clippings, one tablespoon per quart seems to be adequate. In my experiments with cottonwood puffs, I've needed quite a bit more to get the pressed sheets to mat properly. Your best bet is to try different amounts. The first time around, use no sizing. Make a test sheet and see how close it is to what you want. If necessary, try again with corn starch. Don't worry about wasting the pulp. Your home-made paper can be recycled just as easily as any other paper. Just keep



An assembled "post"

increasing the starch content until it suits you.

The second sizing agent I use is unflavored gelatin. Since it is applied to a finished sheet of paper, I will discuss it later.

The pulping stage is also the point at which you can add colors to your paper. Fabric dyes and water-based paints work well.

Now on with the papermaking process.

Step 8: Forming

Pour two quarts of your pulp into the vat. Add enough additional water that your mold and deckle can be completely submerged. Stir the water well, to distribute the pulp evenly. Some folks use an egg beater or hand mixer for this.

Before the pulp particles can settle to the bottom of the vat, slide your assembled mold and deckle into the water with a scooping motion, and raise the mold just to the surface. The pulp on the mold should still be just awash. Very gently swish the pulp around on the mold. (I'm told the pros call this "throwing off the wave.") This spreads the pulp evenly, and helps the fibers interlock. If the pulp seems too thin, mix more of your concentrated pulp into the vat. Keep an eye on this as you form additional sheets.

Next, lift the mold straight up out of the vat. Tip the mold at an angle and let the water drain off until it drips. Carefully remove the deckle. Turn the mold upside down onto a waiting spread cloth. Gently press down on the screen to push the waterleaf against the cloth. Run your hand over the entire area. Gently, now. Pressure is not needed yet.

Lift one end of the mold carefully. The waterleaf should peel off the mesh and remain on the cloth. (The fancy word for this process is *couching*.) Cover the waterleaf with a second cloth. At this point you may either sandwich your waterleaf between the pressing boards, or dip a second

waterleaf from the vat and couch that on top of the first. How many waterleaves you may assemble in a post depends on how good your press is. Unless you are lucky enough to own a nice screw press, five leaves is probably going to be your limit.

Step 9: Pressing

Pressing is pretty basic. Place your post in the press, and apply pressure. Water will start running out the sides of the post. When the water stops running, let the post sit for a minute. Then apply more pressure; a little more water should trickle out. At that point, I let the press maintain pressure for about fifteen minutes (or more time if the pressure is lower; if you only have a few bricks piled on the post, let it sit for an hour).

Step 10: Drying

When you have finished pressing the post, remove it from the press and disassemble the stack. Lift the top board and set it to the side. Carefully peel back the top cloth to expose the sheet of paper beneath. Grasp the cloth *beneath* that sheet and peel it free from the sheet below. Turn the cloth and sheet upside down on a clean, flat surface and peel the cloth away, leaving the paper. (A slotted drying rack is an option here; I generally use cake cooling racks.) Repeat this with any other sheets of paper. Leave the wet sheets to dry. You speed the drying by placing the sheets near a source of low heat. Placing them in an oven set to Warm works well.

Sizing the sheet (optional)

When the sheet is completely dry, you may wish to size it with unflavored gelatin. This will keep inks from "bleeding" through your paper. If you do want to try this, here's how:

Boil a pint of water and dissolve one quarter-ounce packet of unflavored gelatin into it. Pour the mix into a shallow pan large enough to hold a sheet of paper. Hold your dry sheet of paper by one end and quickly run it

through the gelatin solution. Hold it up to let the damp paper cool, then grasp the sheet by the other end and run the dry end through the sizing solution. Set the damp sheet on a rack to dry.

I have been told that the proper way to size paper is to set the sheet into the solution and allow it to soak, rather than using the quick dip. Every time I have tried that technique, my paper has started to come apart. I'll stick to what works for me.

Ironing (if needed)

Unless you're a lot luckier than I am, your paper has crinkled or curled slightly as it dried. Some folks like that appearance: they think it is "rustic." But if you are planning to write on this stuff, you will more than likely want it a bit smoother. Easily done: iron the sheet. I run over it quickly on a steam setting, then a second time dry. It seems to work reasonably well.

Congratulations. You have made paper. Now what do you do with it?

Now what?

While making the paper is fun in itself, it does have uses. I have used it as a rather distinctive stationery, almost guaranteed to catch someone's eye. And it makes a nice gift. I was surprised at how many people asked for a sheet when they saw it. One young lady felt that the unique texture would complement her line drawings. And if you don't want to purchase parchment or vellum, handmade paper makes a fine base for awards certificates and scrolls.

You may find a market for your paper at craft shops or school and office supply stores. Even florists could be interested in a little something to add a special touch to a bouquet of roses.

Personally, I rather like the idea of a hobby that can pay for itself, especially one as inexpensive to start with as papermaking. Δ

You can become a hardcore forager

By Larry Cywin

Most homesteaders and country dwellers forage a little. It might be hunting for morels in the spring, berries in the summer, or boletes in the fall. Some forage salads, some go looking for a supply of autumn nuts for their holiday baking. The hardcore forager does all this and more.

When a visitor to your garden compliments you on your chenopodium as well as your tomatoes, you know he's a hardcore forager. Where you see a blaze of summer beauty in a stand of day lilies, the hardcore forager sees fritters and cooked buds and a salad made with the tubers. A lake fringed with cattails is liable to bring paroxysms of joy in the hardcore forager. There are flour, vegetables, and even something for the pickle crock there, not to mention a meat course of fish or frog legs. Experienced foragers see food, medicine, and other useful things in every forest and field.

A reliable guide book

Becoming a hardcore forager is not difficult. It takes a fair amount of time to learn the basics of foraging, then a lifetime of honing those basic skills. The first thing to do is to find a reliable guide book to learn which plants are good for what. The classic in the field is Stalking The Wild Asparagus, by the late Euell Gibbons. He originally published it in 1962, and Gibbons' love of the wilds (and wild foods) still shines forth 34 years later. The line drawings are very clear and make recognition easy. The recipes will get the novice wild-foods cook off to a good start. Stalking The Wild Asparagus is available from Storey Com-

munications, Schoolhouse Rd., Pownal, VT 05261.

Another basic manual of identification and use of wild plants is The Wild Food Trail Guide by Alan Hall. Sadly, this book is out of print. It might be found in used bookstores, or your library may be able to get you a copy via inter-library loan. This is a more compact book than Gibbons, but it has excellent indices, listing plants by use and season of availability. The section of potentially harmful look-alikes is also very handy. Oddly enough, the little Golden Nature Guides are useful for identification as well. While there isn't one on edible plants specifically, the one on flowers and the one on weeds both have excellent pictures for identifying your targets. The various guide books with photographs don't seem to be as useful. Sometimes it's hard to see the plant in question in the photograph. A clear line drawing is your best bet.

Now you have your book and you're ready to go. Almost. Book in hand, take a stroll in the backyard. Try to identify the edible wild plants right outside your back door. Odds are you'll have no trouble finding half a dozen or so. The most likely are dandelion, chicory, amaranth, rumex, chenopodium, and milkweed. These, along with cattails, are the most common edible plants in America.

When gathering wild plants, try to take only what you need. For example, if you're gathering chenopodium leaves for supper, just clip off the leaves, not the whole plant. While it may be more convenient to take the plant and separate the leaves at home, by only taking some of the leaves from each plant, you ensure that you (and other foragers) will have a new crop in a few weeks. There are some



Day lily

plants that you end up destroying while gathering, though. These include spring beauties, day lilies (when digging the tubers), and Jerusalem artichokes. Some patches can be heavily harvested, some should be left alone. Always be sure to leave enough for the next generation of plants to grow.

Tools

The question, once you've found your plants, is what to do with them. For gathering plant foods, you'll need some basic tools.

A good quality **trowel** is necessary for digging out roots and tubers. Avoid the cheap ones stamped out of sheet metal. They soon bend and break under steady use. A trowel with a solid shaft and a wooden or metal handle is well worth the investment.

A pair of **kitchen shears** is good for cutting leaves, etc., from the main plant. These can be had for relatively little at any kitchen store.

A **pocket knife** is handy for a multitude of purposes. Avoid the cheap knives and invest in a good one. It doesn't hurt to check the clearance shelves at the local discount store. A recent visit to Wal-Mart revealed Victorinox Bantam models (single blade, can opener, bottle opener, screw driver, wire stripper, key chain, tweezers, and toothpick) for \$2.50. The original price was \$6.97.

A fistful of quart or gallon size **sealable plastic bags** will help you get your treasures home. This all can go into your pockets or a **fanny pack**. If an extended gathering trip is planned, a **knapsack** or haversack can be used to keep your hands free. On shorter trips, a **net shopping bag** can be stuffed into a corner to help cart home the loot.

Safety

When gathering wild foods, be aware of the area you are working in. It is wise to avoid roadsides. Auto exhaust contains various compounds that can collect in roadside plants. These are not substances that you want to eat. Also, runoff from roads usually includes oil and gasoline. This is not anything you want to eat, either. Be careful of wild plants along cultivated fields. Some farming practices include the use of a variety of herbicides and pesticides that you definitely do not want to bring home.

Once you've identified your plants, and have a safe place to harvest them from, go out and get some. In general, the young leaves are milder in flavor and more tender. Gather those instead of the older leaves. At first, take only enough for a sample. This is a reasonable precaution, since you cannot be sure if you'll like the flavor, or if the plant will agree with your system.

A good example is the Jerusalem artichoke. The root of a sunflower (*Helianthus tuberosus*) contains *inulin*, a chain of fructose molecules. Inulin is the same thing that causes flatulence from beans. But where

beans are 10-15% inulin, Jerusalem artichokes are as much as 50% inulin. Therefore, eating them can cause flatulence, in some cases terribly painful flatulence. So don't eat a large helping of them until you know exactly how they react with your body. Day lily tubers can have the same effect.

The general rule is to **avoid plants that have milky sap**. The exceptions to this are dandelion and milkweed. To be safe to consume, the plant must not irritate the skin. A rough and ready allergy test is to scratch the inside of your elbow and apply a bit of the plant in question. Hold it in place with a bandage for 24 hours. If there is a reaction (swelling, redness, etc.),



Dandelion

then you may be allergic to that plant. **Do not eat it**. If it passes the allergy test, eat a **small** sample. A few leaves will be enough. If there are no ill effects within ten hours, then that plant is safe for you to eat. This is a

bit of a rigmarole, but it is necessary for your safety and well-being.

Preparing wild foods

Once you've determined that the plants you have collected will not cause you any undue difficulty, you need to prepare them. Milkweed, dandelion, and rumex, for example, all contain various bitter components that must be removed before eating. The easiest way to do this is to put the plant material in boiling water, boil it for a few minutes, drain, and repeat. Do this two or three times. The last time, cook until tender.

The various greens all have their own flavors, and can be combined to make interesting dishes. They may be used as one would use spinach. Amaranth greens are used in making a cream soup. Rumex can make an excellent sauce for pork or duck. The young leaves of dandelion, rumex, and chicory are very tasty when cut up into a salad with iceberg lettuce. They tend to be bitter, but this bitterness is much less in young leaves and works well with the bland lettuce. Use your imagination, read your cookbooks, and you'll find many niches in your diet for wild plants. They not only provide greens (these are the most common and easiest to gather), but a variety of cooked vegetables, seeds for flour and porridge, items for the pickle crock, and a number of seasonings and thickeners.

Fish

Once you have gotten used to using wild plants, it's time to consider wild meats. Probably the easiest to use and most readily available are fish. Unless you live in a desert, there is fishing nearby. The most common fish are the sunfish. These include bream, bluegills, pumpkinseeds, warmouth, rock bass, and even the large mouth and small mouth bass. Almost any pond or lake that has fish has sunfish, and they're easy to catch.



Amaranth

The ideal rig is an ultra-light casting rod and reel with four-pound test line and a number 8 or 10 hook. A pencil bobber completes the outfit. Bait can be red worms, leaf worms, meal worms, or wax worms. I like wax worms because their tough skin allows them to be used to catch several fish. Simply bait your hook, set your bobber so that the bait will more or less drop to the bottom, and cast. The hook is weight enough to make the bait sink, but without detracting from a natural appearance. Usually, the fish will take the bait while it's still sinking. If not, let it sit for a few minutes, and then reel it in very slowly. The movement will often provoke a strike.

Try for sunfish around piers and platforms, and in shallow weedy waters. In some ponds, you'll find many short, thick fish. These fish are stunted due to overpopulation, and every one that you catch should be kept. This provides more room for the remaining fish to grow larger. Even the very smallest sunfish are useful. If too small to eat, they can always go into the garden as fertilizer. This same fishing rig, with a slightly larger hook,

can be baited with worms and used to catch bullheads and catfish.

Cleaning a multitude of small fish can be very time-consuming, so fillet them instead. Each little sunfish will give two small fillets, about the size of a silver dollar. They don't look like much, but dipped in a batter of beer and pancake mix, they puff right up. This method of cooking avoids the many bones, and allows a little to feed a lot. Small catfish and bullheads are good fried whole, or they can be smoked. Either way, these fish are good eating.

Frogs

Frogs are another readily available wild meat. Only the legs are eaten. While bullfrogs are the most popular source of frog legs due to their size, any reasonably sized frog can be eaten. Frogs can be taken a number of ways. They are usually hunted at night, when they're most active. Bare minimum equipment for frog hunting is a strong flashlight, assuming that your state allows lights for frogs. By shining this light in the frogs' eyes, you dazzle them. Keeping the light in their eyes, you can just pick them up. Usually. If you want to be a bit more sure about collecting your frogs, you can use a *gig*. This is a four- or five-tined spearhead available at almost any sporting goods or discount store. Fix it to a shaft, and spear the frog through the body. Air guns, .22's (loaded with CB caps), and archery tackle can also be used for hunting frogs.

Of course, the meat on a frog is all on the legs. Simply cut them from the body, slip the skin off, and cut off the feet. The traditional way of cooking frog legs is frying. Any coating can be used, from bread crumbs to cornmeal to commercial mixes. Season your chosen coating to taste, dip the legs in the coating, then into beaten egg, and finally into the coating again. Then fry until nicely brown in a little oil.

Turtles

Local waters may also offer a third meat for your table: turtles. Terrapins and snapping turtles have graced many fine menus around the world, commanding high prices. These esteemed animals are yours for the taking. Snapping turtles are large and rather vicious. Certainly they fear little or nothing in their environment. Therefore, **caution should be used in handling them. The heavy, beak-like jaws can sever a broomstick, or a finger**, quite readily. Snappers must be handled very carefully. Usually, they can be carried by the tail, and neither the head nor the claws can get you. Terrapins are easy to handle, since they tend to pull into their shells. Simply grasp them by the sides.

Catching turtles isn't hard at all. The lazy man's way is to use jug lines. A large fish hook is snapped onto a wire leader, and the leader is attached to a plastic jug by a length of line. Chicken livers make a good bait. These are then dropped into the pond or lake of your choice. They can be left overnight, to be retrieved in the morning, or they can be tended from a boat during the night. If you decide to leave them overnight, make sure that you have some way of retrieving them.

Another way to obtain your turtle is with a trap. There are two basic traps. The first is a barrel or other large container with bait inside and a ramp leading up to the edge. This works best if the barrel is sunk about halfway into the water, with holes punched in the sides to allow the aroma of the bait to disperse. The turtle climbs the ramp, falls into the barrel, and cannot climb out. A variation of this trap uses a frame covered with hardware cloth, having metal sheathing around the top so the turtle can't get out. The other turtle trap is similar to a fish trap. Hardware cloth is secured to a square frame to make a box. On one side, a flattened funnel is made. The turtle enters the trap and cannot get out. Bait



Milkweed

for these traps can be fish or any other dead meat.

Preparing turtles

Preparing turtles is relatively easy. Snapping turtles are best killed by chopping off the head. Since they tend to stick out their heads when held by the tail, one person can hold the turtle up over the chopping block, and another can use an ax or hatchet to cut off the head. The snapper should then be hung up to bleed out. Once bled, the carcass should be washed with plain soap and a stiff brush. After cleaning, the tail can be skinned and the lower shell cut off. The internal organs are all removed, preserving the liver and any eggs that might be present. Be sure to carefully remove the gall bladder, the little green bag on the liver.

To make soup, the carcass, liver, eggs, and lower shell are put into a kettle with a bay leaf, some cloves, thyme, and allspice, covered with water, and simmered until the meat falls off the bones. Then remove the turtle and let it cool. When cool enough to handle, remove all the skin,

bones, claws, and shell. Chop the meat, liver, and eggs and return to the broth. Sauté onions and garlic until translucent, add flour to make a roux, and finally add crushed canned tomatoes or tomato juice. Simmer for a few minutes. Add this mixture to the turtle meat and broth, bring to a boil, and serve.

If you want to use the meat in other ways, the turtle can be cleaned and simmered as described above, and then the meat can be used in salads, omelets, stir fry, or other dishes. Smaller turtles are handled in a manner similar to crab or lobster, in that they are dropped into a pot of boiling water and cooked for 10 minutes or so. The turtles should be scrubbed and rinsed before cooking. Cleaning and use of the meat is the same as for the bigger turtles.

Crayfish

The final aquatic meat is the crayfish. These little crustaceans look like miniature lobsters, and taste similar to shrimp. They range across the country, in various species, and can be taken in several different ways. Water-dwelling crayfish can be picked up by hand (grasping them just behind the pincers to avoid a nip), caught in traps (like fish traps or lobster pots), or hauled in with nets, or even strings baited with bacon rind. Some live in low fields, tunneling down to the water level and leaving “chimneys” of mud. These are most easily gathered at night when they prowl about for food. In the South and in Hawaii, some live on crops and can be gathered as they travel between the fields and their homes.

Preparing crayfish is very easy. Simply drop them into boiling water and let them simmer for about 10 minutes. The water can be seasoned as for crab or shrimp. The cooked crayfish are then removed and cooled under running water. The tails can then be twisted off and the shell peeled away. Slide a fingernail or knife along the

midvein to clean out the muck, and your crayfish is ready to eat. The cooked and cleaned tails can be served in the same manner as a shrimp cocktail, coated with cornmeal and fried, used in salads or stir fry, or however you would use crab or shrimp.

When gathering wild foods, whether plants or animals, always be sure that you are not breaking any laws. Some areas, such as forest preserves and parks, have restrictions on gathering plants. In some places, turtles and frogs are considered game animals and are regulated by law. Check with your local conservation office to avoid violations.

If you are foraging on private land, get the land owner’s permission. Many land owners are happy to let someone come and pick “weeds” if that person acts responsibly. Always forage only where given permission, and for the materials agreed upon. You might find other foods while in the field, but the land owner may be saving them for himself. Never leave a mess, and always leave farm gates as you find them. Like hunters and fishermen, foragers have to make a good impression to keep private land open to use.

This is not the last word on foraging. There probably will never be a last word. People will continue to discover the delights and rewards of foraging for generations to come. It helps us to appreciate what we have in the modern world, and to appreciate the wonder and diversity of nature. Δ

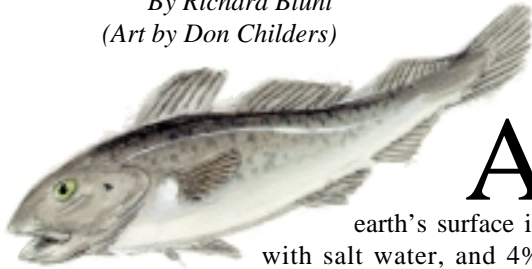
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Fish — this gourmet food is fun to catch, relatively easy to cook, and healthy to eat

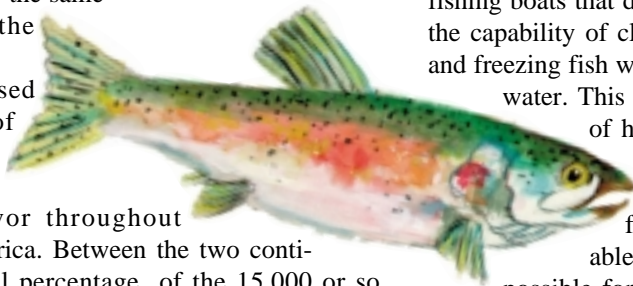
By Richard Blunt
(Art by Don Childers)



About 70% of the earth's surface is covered with salt water, and 4% of land surface (another 1% of the earth's total surface) is covered with fresh water. In these waters there are more than 20,000 recorded species of fish—15,000 of which are edible—and about 35,000 species of shellfish. Fossilized evidence and ancient rock paintings from around the world show that people have been successfully catching and eating a wide variety of seafood for more than 100,000 years. The Romans, following in the steps of the Greeks before them, were fond of fish and were quick to embrace such aquatic treasures as crawfish, red mullet, conger and moray eel, swordfish, electric ray, and sturgeon. The market in Rome featured vast ponds containing live fish brought there from the Mediterranean in tanker ships, and fish from rivers and lakes from all over Italy were sold in sacks of water. The market fish mongers sold live crawfish, sea turtles, lobsters, oysters, mussels, and every imaginable species of salt and freshwater fish. The ponds were constantly fed freshwater by the same aqueducts supplying the city with water.

But as centuries passed many of the species of fish and shellfish enjoyed by the Greeks and Romans lost favor throughout Europe and North America. Between the two continents, now only a small percentage of the 15,000 or so recorded edible fish are harvested for human consumption, along with a few popular varieties of shellfish like crab, shrimp, lobster, clam, oyster, and scallop. This is odd when you consider that in North America salt and freshwater alone, there are more than 500 species of fish, crustaceans, and mollusks for sale on the commercial market, and more than twice that number on the worldwide market.

During the past 30 years, however, fish and shellfish have become more and more popular since consumers have discovered that seafood is a low-fat, high-protein alternative to meat. This revived interest in seafood is also, in part, due to a successful long-term marketing effort conducted by the seafood industry. The main objective of this effort is to



Richard Blunt

introduce unfamiliar species of fish and shellfish to consumers while providing interesting and appetizing new suggestions on how to prepare them. In America this campaign is having a great deal of success. Today tilefish, mullet, squid, rock shrimp, wolfish, goosfish, shark, squid, and octopus, along with many other previously unfamiliar varieties of fish and mollusk that were once considered ethnic in our cuisine, are as common in markets as cod, flounder, and salmon. Worldwide, the fishing industry has developed fishing boats that double as floating processing plants, with the capability of cleaning, dressing, portioning, packaging, and freezing fish within hours after they are pulled from the water. This kind of efficiency brings many varieties of high-quality frozen fish to the market at very affordable prices. Along with this perfection in freezing and packaging, fast cross-country transportation in reliable super-chilled trucks and planes makes it possible for a market in Omaha or Phoenix to sell fish as good as anything found in the fish markets of Boston and Seattle. Popular television food shows and weekly newspaper food columns have given talented chefs a free hand to create and present delicious recipes using a wide variety of fish and shellfish. Restaurants have also discovered that their sales increase proportionately with their ability to feature high quality seafood at affordable prices.



Anglers have an even greater opportunity to enjoy fish as a regular food. They get to catch fish seldom available on the retail market—fresh water sport fish like yellow perch, crappie, black bass, walleye,

pickerel, and pike, along with their salt water and anadromous (live in fresh and salt water) cousins like striped bass, tautog, scup, and chinook salmon. These fish are a gourmet

food, exclusive to the angler. Fishing grounds also offer successful anglers commercial species like crabs, clams, oysters, and lobsters, which often command high prices on the retail market.

I have been a sport fisherman since I was a kid, although I admit that I have fished more for sustenance than sport. When we were young, Dave, the publisher of this magazine, and I spent many spring, summer, and fall weekends fishing for cod, pollack, flounder, and Atlantic porgy (scup to some) in a small bay in Boston Harbor. For about \$10 we would rent a 14-foot row boat, equipped with two sturdy boat rods and two dozen sea worms. The price also included a tow to and from Boston Harbor buoy number 5, which was centrally located to all our hot fishing spots off Hough's Neck. On a good day we would head

home with about 10 pounds of skinless fillets. This is enough fish to feed 15 or 20 hungry people. Even in the inflation ravaged 90s, this type of high-class, low-cost fishing is still available across the country. If you have never tasted fresh flounder or cod deep fried or baked within hours of being caught, or fresh trout, yellow perch, or catfish field dressed and pan fried over an open campfire, you have yet to experience the gastronomic reward of eating genuine gourmet food.

With high-quality fresh or frozen fish, any cook with a little imagination can make use of an easily learned basic set of rules and become a master at gourmet fish cookery. It is important to note that despite the higher prices one encounters today, fish and shellfish are still among the best buys in the market. There is no waste in a pound of fillets, a pint of shucked clams, or a pound of scallops, and all fish contains a high quality, easy to digest protein that is unsurpassed by any animal protein.

The elements of fish cookery

Fish cookery is basically simple, with handling and cooking principals that are quickly learned and easy to follow. Seafood recipes, however, are at best well-informed suggestions, because successful fish cookery depends primarily on the quality of the ingredients and the skill of the cook. In this issue I will discuss the basic talents necessary to ensure

that your seafood dishes are always a success. Then I will share some easy-to-prepare recipes that have been standards in my family for many years.

How do you recognize when fresh fish is fresh? If it is frozen, how do you tell that it has been handled properly by the packer and the retailer? Fresh fish, from the creel or from the market, should have firm and elastic flesh, clear and full eyes, bright red gills, a clean pleasant order, and an absence of reddish discoloration on the ventral side of the backbone, that is, the side of the backbone that's on the inside of the fish. Cloudy, sunken eyes, and gray colored gills are the first recognizable signs of old, decaying fish. When the head, gills, and backbone are gone, rely on your sense of smell and touch. If you come across fresh fish that is prepackaged, as it often is in supermarkets, don't buy it until you are sure that it is fresh.

When buying frozen fish, look for packages that are frozen solid with no air space between the fish and the packaging. The flesh of frozen fish should be glossy and free of all signs of freezer burn, which causes discoloration and dryness.

What is freezer burn?

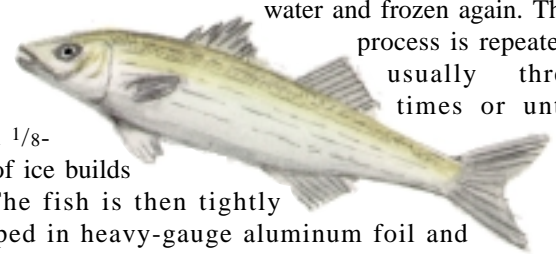
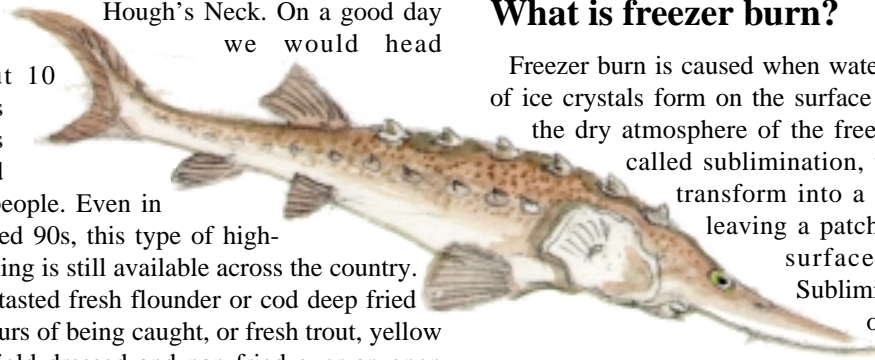
Freezer burn is caused when water molecules in the form of ice crystals form on the surface of food left exposed to the dry atmosphere of the freezer. Through a process called sublimation, these solid ice crystals transform into a gas inside the freezer, leaving a patch of dried tissue on the surface of the food.

Sublimation is the equivalent of high temperature liquid evaporation, but at low temperature.

If you must freeze fresh fish, freeze it immediately unless it is going to be eaten within 24 hours. Since air infiltration and water loss are the culprits of freezer burn, select packaging that is air and water-impermeable. Plastic wrap or bags that indicate on the package that they are manufactured for freezing, as well as heavy gauge aluminum foil, are excellent freezer packaging materials.

Air cannot penetrate ice, so fish frozen in a solid block of ice will be well protected. My favorite method for freezing whole fish is to coat them individually in an ice glaze. The fish are first frozen without wrapping, then dipped in ice water and frozen again. This process is repeated, usually three times or until

about 1/8-inch of ice builds up. The fish is then tightly wrapped in heavy-gauge aluminum foil and



placed in freezer bags for storage. I find that freezing promotes oxidation of the unsaturated fats in some fish, causing a variety of off flavors. For this reason I never freeze striped bass, blue fish, or mackerel, due to their high oil content.

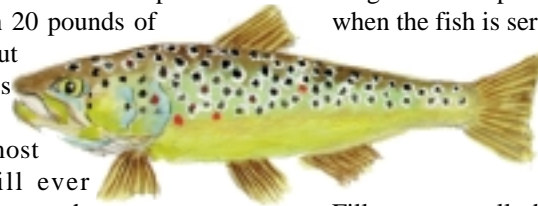
Never thaw frozen fish at room temperature. Bacteria flourishes at room temperature and can cause everything from off flavors to outright spoilage.



Preserving fish

It is important for anglers to understand that the only way to preserve their catch is to keep it alive or cold. If the surface water is cold, a stringer or wire basket will keep some species alive for a few hours. For the best quality and flavor, all fish should be killed, field dressed, and super chilled immediately. Field dressing means simply removing the gills, guts, and bloodline that runs along the ventral side of the backbone. Super chilling means refrigerating the fish in an insulated cooler by laying them on a blanket of crushed ice mixed with a little rock salt. One pound of course ice cream salt mixed with 20 pounds of crushed ice will hold fish at about 28 degrees F., which is 10 degrees colder than most refrigerators.

Seafood recipes can be the most obtuse formulas that you will ever encounter. Old Sully, the chef who taught me a great deal about the science, technology, and artistry of food, made a fish stew that was superb. Whenever I would ask him how much of any ingredient he used to make



this masterpiece, he would give me one of what he called "the relative units measurement:" a little, some, a lot, plenty, and enough. This little anecdote always comes to mind when I read the section of many seafood recipes that is supposed to tell you how much fish to use. Recipes often call for "two whole drawn bass or enough to feed six people" or "four pan-dressed trout." There was a time when measurements like this left me scratching my head, wondering how much fish to buy. The difference between the terms "whole drawn" and "pan dressed" were also a mystery.

A glossary of fish terms

Here are some reliable descriptions of the most common methods for dressing fish, followed by suggestions on how much fish or shellfish to buy or bring back from the stream, when a recipe is not specific on the amounts to use.

Whole fish or "in the round:" This is fish purchased whole just as it comes from the water before it is gutted and scaled.

Drawn: This term applies to fish that have their entrails removed, with the head, fins, and scales left intact. This is a great way to buy fish if you are making fish stock or planning a classic presentation with the head and tail left on when the fish is served.

Dressed or pan-dressed: This is fish that has been eviscerated and scaled, with the head, fins, and tail removed.

Fillet: The sides of the fish taken lengthwise away from the backbone. Fillets are usually boneless, and they are sold with or without the skin attached.

Split fish or halved fish: A whole pan-dressed fish cut open flat like a pancake on the ventral side of the backbone. The bones may or may not be removed. If the bones are removed, the cut is sold as a block fillet.

Steaks: These are cross-cut slices taken from a large drawn or dressed fish cut 1/2- to 1 1/2-inches thick. Halibut, swordfish, salmon, and tuna are most frequently sold in steak form.

Table 1 will help you determine the amount of seafood to buy when the recipe doesn't tell you how much to get.

The "doneness" problem

The most important element of fish cookery is for the cook to understand that fish cooks faster than animal meats. Overcooking is major fault that many cooks fail to solve because they feel that fish comes in so many species, shapes, sizes, cuts, and textures that precise cooking times

are impossible to pin down. This reasoning is also supported by the



Type of seafood	Amount to buy per serving
Littleneck or cherrystone clams, in the shell	6 to 8
Clams, soft shell	12 to 20
Round fish, whole	12 ounces
Flat fish, whole	20 ounces
Fish, pan dressed	8 ounces
Fish steaks, bone in	8 ounces
Fish steaks, no bone	5 to 6 ounces
Fish fillets	4 to 6 ounces (let the size of appetites rule)
Mussels in the shell	2 pounds
Oysters in the shell	6 to 8
Oysters, shucked	1/2 pint
Scallops, shucked	5 ounces
Shrimp, headless	6 to 8 ounces
Shrimp, peeled and deveined	4 to 5 ounces

Table 1. Approximate quantities per serving



fact that not all range tops, ovens, barbecue grills, campfires, and so on, are created equal. It is not possible to account for all of the variables with one suggested cooking time or temperature. On the other hand, all cooks, even the pros, need something to guide them through the preparation of a new seafood recipe, or even a familiar recipe in which an unfamiliar type of fish or shellfish is being used. There is a method to solving this problem, but any method for measuring doneness is useless unless you know what you are looking for. Many recipes suggest that fish is properly done when the flesh flakes. Well, fish will start to flake from the point of being perfectly cooked, and continue to flake until it is absolutely mummified from the heat. When any fish starts to flake, an experienced cook will also look for other important changes in the condition of the flesh. If the fish is ready for eating, the flesh, which is transparent in the raw and partially-cooked state, will then have turned opaque.

A few years ago, calculating the doneness factor of fish by using what is called the "Canadian method" became popular. This method calls for measuring the fish at the thickest point, and cooking it for 10 minutes at 450 degrees F. for each measured inch. The formula works with some types and cuts of fish, but shows serious flaws with many others. Many fish taste best when cooked at lower temperatures, and by cooking methods that cannot reach 450 degrees F., such as poaching and steaming. When cooking large oily fish over charcoal, I often bake the fish in the oven for a period of time at a moderate temperature and finish it on the grill at a high temperature.

Combining a modified version of the Canadian method with the old reliable "test with a fork for doneness method" has worked well for me. This modification also works well with a wide variety of recipes using compound production procedures, such as rolled, layered, or stuffed fillets, and whole stuffed fish. Here is how it works. Measure the fish according to the Canadian method. This will help you approximate how long to cook the fish, regardless of the cooking method. If the fish measures an inch or more, start testing with a fork at the 7 minute point and repeat at 2-minute intervals. Do this by inserting the fork into the thickest part of the flesh and gently turning the fork and pressing inward. If the fish is ready, the still juicy flesh will show a trace of translucence, which will turn opaque as the fish continues to cook after it is removed from the heat. If you are not conditioned to paying this much attention while cooking fish, this will seem to be a little much at first. But I assure you, if you can successfully eyeball a hamburger on

a charcoal grill, you can become an expert at fork-testing fish.

Cooking suggestions and other hints

Be aware that deep frying, sautéing, and pan frying when you're cooking fish are very different cooking methods, each with its own set of rules. Deep frying fish requires a volume of oil large enough to immerse the fish completely. The process is similar to boiling potatoes, except that oil is substituted for the water. Most deep frying is done at 360 to 380 degrees F. The fish should be coated with one of the many coatings designed for deep frying including batters and other compound coatings that are composed with combinations of milk, flour, eggs, and cornmeal applied in separate layers.

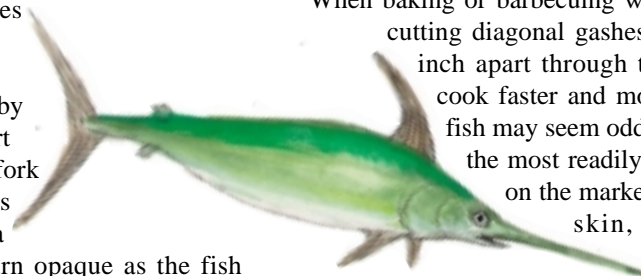


Sautéing works best with small pan-dressed whole fish like crappie, brook trout, and yellow perch. I dredge these fish in seasoned flour, corn meal, or bread crumbs, then cook them over a low flame in melted butter or margarine until browned on both sides and cooked through. Liquid batters and compound coatings, especially those that employ eggs, should be avoided when cooking with this method because they take on a leathery, unappetizing texture when subjected to the low heat.

Pan frying is similar to sautéing, but at a higher temperature using oil instead of butter or margarine. Despite the higher cooking temperature, liquid batters are not recommended here either. Compound coatings that use fast-browning outer coatings like bread crumbs, cracker crumbs, or corn flake crumbs are easier to control when using this method, as opposed to deep frying.

When deep frying fish fillets of any thickness, these coatings often brown before the fish is completely cooked. Pan frying uses less oil than deep frying, which makes it easier to control cooking temperatures. Frying in a 7-inch cast iron skillet, coated with ½ cup of peanut oil over a medium flame, is perfect for pan frying coated fish.

When baking or barbecuing whole fish with the skin on, cutting diagonal gashes about ½-inch deep and 1 inch apart through the skin will help the fish cook faster and more evenly. Cooking whole fish may seem odd in an age when the fillet is the most readily available form of raw fish on the market, but cooking fish with the skin, head, and tail attached retains more flavor. Ask



any trout angler who has been fortunate enough to enjoy a fresh-landed trout sautéed at stream-side over an open fire.

When cooking fish that is wrapped in foil, leaves, or parchment, increase the cooking time a little to compensate for insulation created by the enclosure.

Fresh fish should be taken from the refrigerator and allowed to come to room temperature before cooking. This will shorten the cooking time and retain more of the natural flavor.

Fish cookery, just as with any other culinary art, can be simple or complicated. The range of flavor and texture in seafood parallels that of fine wines, from the understated to the clearly defined. Unlike fine wines though, the gourmet delight of seafood is more available, easier to understand, and the possibility of masterpiece creation is in the hands of all who love to cook. In the recipe section, I have selected simple and easy to prepare formulas. I have left the door open for you to make your own fish choices because each of these formulas works well with a variety of species.

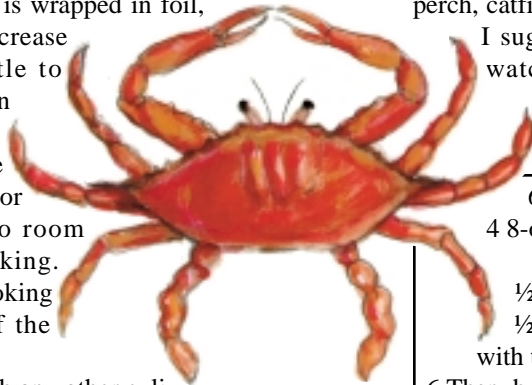
I hope the information and the recipe suggestions that I share with you will start you on your way to becoming one of the world's dedicated ichthyophiles.



Sauté Meunière Amandine

This is a culinary concept that I was taught in Chef Sully's Fish Cookery 101 class—a class that never really existed except in my mind as I got instructions from him on how to cook. The fancy recipe title isn't really the name of a recipe; rather, it describes a very old French classic-cooking process. Loosely translated it means to coat with flour and pan fry at low temperature with almonds. One of Sully's many gifts as a chef was his ability to make very simple, easy to prepare items sound as though he invited a chef from the Ritz Carleton to prepare our Friday seafood luncheon specials during Lent. The reality was: Sully at 1 of the ranges with 6 cast iron skillets, and me at the other range with the same. When this item, in particular, was on the menu, both of us were glued to our sauté stations from the beginning of lunch to the end. I often wondered if any of the other 25 items on the menu was moving.

This formula is a classic example of how a seafood recipe can be little more than a well informed suggestion. The production process, sauté meunière, is the well informed part of this formula; the rest is open to free interpretation. I have prepared this dish with cod, haddock, pollack, trout, yellow



perch, catfish fillets, mussels, and scallops. With this recipe I suggest using almonds and mushrooms, but I've watched others use red sweet peppers, shallots, pecans, and Greek olives.

Ingredients (serves four):

- 6 Tbsp. blanched, slivered almonds
- 4 8-oz. skin-on fish fillets, steaks, or pan-dressed fish
- ½ cup milk
- ½ cup Wondra flour (I like the grainy texture with this process)
- 6 Tbsp. butter or margarine
- ¼ cup fresh lemon juice
- ¼ cup fresh, sliced mushrooms

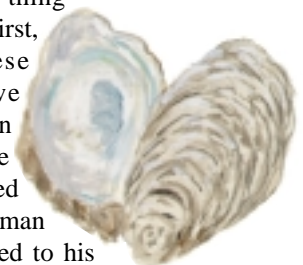
Equipment: 7-inch well seasoned cast iron skillet or an equivalent size skillet with a nonstick surface.

Method:

1. Dry roast the almonds over medium-low heat until they turn a light golden brown, then remove from the pan and set aside.
2. Dip the fish fillets or steaks in milk, then dredge them in flour. Shake off any surplus flour.
3. Melt the butter or margarine over medium-low heat, then sauté the mushrooms lightly. Remove the mushrooms and combine them with the almonds.
4. Place the fish in the pan. If you are using fillets, have the skin side up. Sauté the fish, slowly, over low heat until brown on one side, then flip the fish over to brown on the other side. Remove the fish to a warm platter and set aside.
5. Add the lemon juice, almonds and mushrooms to the butter in the pan, raise the heat to a medium flame. Stir the mushrooms and almonds until they are heated, then pour this sauce over the fish and serve immediately.

Hearty breakfast filets

Here is a fish fry recipe that is perfect for small thin perch and crappie fillets that usually end up in the freezer until you catch enough to feed the family. While on a fall fishing/camping holiday a couple of years ago, I watched two fly fishermen prepare this recipe for breakfast on a chilly morning alongside one of Cape Cod's most popular trout ponds. The trout were hiding that morning, but the yellow perch were grabbing at every thing that we threw in the water. At first, all of us were throwing these lowly fish back as fast as we could unhook them. As the sun finally started to peek over the trees, none of us had yet hooked a trout. Finally, one guy, a big man with red hair, named Phil, called to his



friend. “Hey, Ace, what did you bring for breakfast, I’m getting hungry.”

Ace was a balding man with shoulder length blond hair, wearing shorts and crew socks. You don’t see many fly fisherman comfortably wearing shorts on a cold October morning. “All I have is a box of corn flakes and a carton of skim milk,” he replied.

Phil then turned to me and said, “Hey, guy, you wouldn’t have a couple of eggs would you?” As it turned out, I did. “Great,” he said. “Let’s team up and fillet a bunch of these perch. They won’t win us any trophies, but they make great breakfast food.”

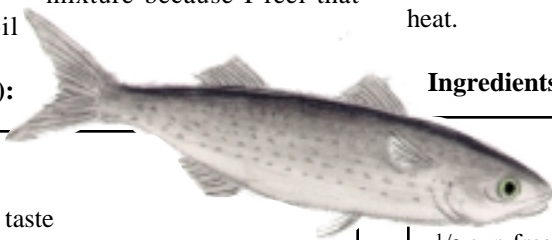
The three of us fished for another half-hour to catch a few keeper perch. After dressing, we had about two pounds of fillets. It took Phil only a few minutes to put this breakfast delight together.

Note: Phil made corn flake crumbs by putting the flakes in a paper bag and crushing them with a small log. If you don’t have a small log in your kitchen, you can use a blender, food processor, or buy corn flake crumbs from your local market. Also, I’ve added flour to Phil’s coating mixture because I feel that

flour helps to prevent oil absorption into the fillet.

Ingredients (serves two):

- ½ cup flour
- Kosher salt and fresh ground black pepper to taste
- 1 egg
- ½ cup milk
- 1 cup corn flake crumbs
- 1 lb. fish fillets (small thin fillets preferred)
- ½ cup peanut oil



Equipment: 7-inch well seasoned cast iron skillet or an equivalent size skillet with a nonstick surface.

Method:

1. Combine and blend the flour with the salt and pepper in a shallow bowl.
2. In a separate bowl, combine and blend the egg with the milk.
3. Place the corn flake crumbs in a third bowl.
4. Coat the fillets with flour, then shake off any excess flour. Dip the fillets in the egg mixture, making sure that the fillets have no dry spots.
5. Coat the fillets with corn flake crumbs. Inspect fillets to ensure that each is completely coated with crumbs. If necessary redip the bare spot in the egg mixture, then back into the crumbs.
6. Heat the oil over a medium flame. Fry each fillet until golden brown on each side. Corn flake crumbs brown quickly, and the thin fillets cook equally as fast, so the whole process will only take a couple of minutes.

Broiled fish fillet with piri piri sauce

Piri piri is a family of Portuguese hot sauces. These sauces are used by many Cape Cod chefs to add zip to broiled and baked fish. I use the term “hot sauce” in a very broad sense because Portuguese piri piri sauces are formulated to complement the taste of a seafood, not obliterate it with chilli pepper burn. I use the sauce when broiling or baking black



bass, striped bass, walleye, and mackerel. Salmon, tuna, halibut, shark, and swordfish steaks also take on a new excitement when enhanced with this sauce. I also make a fiery version of this sauce by adding some chilli pepper flakes and serving it cold as a dipping sauce for shrimp, mussels, and clams.

When broiling fish, the thickness of the fillet will determine the distance to place it from the heat. For fillets that are less than 1 inch thick, place the broiler pan 2 inches from the heat; place 1-inch fillets 4 inches from the heat. Thicker fillets should be placed at least 6 inches from the heat.

Ingredients (serves two):

- 1 lb. fish fillets (black bass, sea bass, haddock, cod, pollack, or bluefish)
- ½ cup white wine
- ⅓ cup fresh lemon juice
- 2 Tbsp. mixed pickling spice, crushed
- ½ tsp. cumin seeds, crushed
- 3 cloves fresh garlic, chopped
- 6 Tbsp. butter or margarine, melted
- ½ tsp. paprika
- Enough piri piri to coat the fish after cooking

Method:

1. Cut the fillets into serving size portions and place them in a single layer in a glass or other nonreactive baking dish.
2. Combine the wine, lemon juice, pickling spice, cumin seeds, and garlic. Pour this mixture over the fish. Marinate the fish in the refrigerator for 20 minutes.
3. Remove the fish from the marinade, brush off the spices and place the fish on a well-greased broiler pan. Blend the paprika with the melted butter or margarine, and brush this mixture generously onto the fish.
4. Preheat the broiler and broil the fish at distance from the heat that will ensure even cooking without burning. Broil the fish until it is cooked on one side. Carefully turn the fillets over, brush again with the butter and paprika mixture, and return the fillets to the broiler to finish cooking.
5. Heat the piri piri sauce, spread a blanket of the sauce on the fish, and serve immediately—if not sooner.



Piri piri sauce

The flavor of this sauce improves with a little aging. I suggest you make it a couple of days before you plan to use it and store it in the refrigerator in an airtight plastic storage container.

Ingredients:

1/3 cup extra virgin olive oil
 1 medium onion, chopped fine
 4 fresh garlic cloves, chopped fine
 1 12-oz. jar pickled hot jalapeno peppers, drained and chopped fine
 1 4-oz. jar pimentos, chopped fine
 1 12-oz. bottle chili sauce

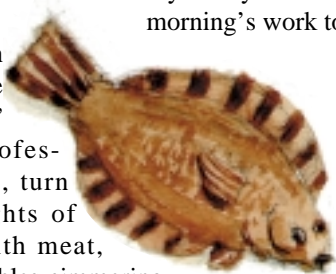
Method:

1. Heat the olive oil in a 7-inch cast iron skillet over medium heat. Add the chopped onions and sauté them until they are translucent.
2. Add the chopped garlic and cook the mixture for two minutes, then add the drained and chopped jalapeno peppers, chopped pimento peppers, and chilli sauce. Reduce the heat to low and slowly simmer the mixture for 5 minutes.
3. Let the sauce cool, then transfer it to an airtight container and place it in the refrigerator. It will keep for up to two weeks under refrigeration.

Using all of the catch

My first formal lesson in fish cookery was how to prepare, cook, cool, and store a 20-gallon batch of fish stock. Chef Sully used all of this stock to make a clam or fish chowder for the weekly soup-and-sandwich Friday special, so we made a fresh batch of stock every week. Some flesh always remains on the fish bones and head after filleting and steaking, and every week Sully had 70 pounds of fresh fish heads and bones delivered with our regular fish order. "Don't waste those bones Blunt; make us a good fish stock." This was Sully's way of assigning that morning's work to me.

Today, when you mention the word "stock," many cooks, professionals included, turn pale with thoughts of pots bursting with meat, bones, and vegetables simmering for hours on top of the stove. To the contrary, fish stocks



require about 5 minutes of preparation and, usually, only 30 minutes of simmering. Three or four pounds of fish bones or heads, a small amount of vegetables, some water, a bit of seasoning, and that's it. A good fish stock is essential to the successful preparation of fish and shellfish stews, chowders, soups, and sauces. The alternatives to a good fish stock are water and bottled clam juice. Water does little to enhance flavor, and bottled clam juice is a salty, heavy tasting product that masks rather than complements the delicate flavor of high quality fresh and frozen fish.

Here is a simple fish stock that can be prepared in less than an hour, reduced in volume to save space, and frozen in small plastic containers in two-cup portions. Mix two cups of this concentrated fish stock with two cups of water and you will have enough full-bodied stock to make a soup, chowder, or stew for six people.

Basic fish stock

This recipe makes about two cups of concentrated stock.

Ingredients:

1 small bouquet garni (1/2 tsp. dried basil, 1/2 tsp. dried thyme, 1 sprig fresh rosemary)
 4 lbs. fresh fish heads, and bones
 1 small onion, chopped
 1 small carrot, chopped
 8 cups water

Method:

1. Make the bouquet garni by tying the basil, thyme, and rosemary in a small piece of cheese cloth.
 2. Remove the gills from the fish heads if they haven't been removed already. Discard the gills and all skin and wash the fish under cold running water.
 3. In a suitable size stock pot combine all of the ingredients except the bouquet garni. Bring the mixture to a boil and reduce the heat. Let the stock simmer, uncovered, at the lowest possible heat for 15 minutes. Add the bouquet garni and continue to simmer the stock for 15 minutes.
 4. Strain the stock through dampened cheese cloth that is 4 layers thick.
 5. Return the stock to the pot and simmer uncovered until it is reduced by half. Do not boil the stock. Boiling will make it muddy.
 6. Cool the stock in the refrigerator. Freeze or refrigerate in plastic containers.
- That's it for this issue. My fishing rod is near the door and I'm out of here.

(See if you can match the drawings of the fish scattered throughout this article with the following: sturgeon, Atlantic cod, swordfish, mullet, sea catfish, striped bass, giant rock scallop, pacific littleneck clam, crayfish, porgy, coho salmon, tautog, eastern oyster, freshwater catfish, pumpkin-seed, flounder, rainbow trout, speckled trout, perch, red crab.) Δ

The saga of the brand name computer and why you should buy a “clone”

By John Silveira

Since our first issue we've told readers: if you want to go back into the woods, bring the best tools you can. If you want to take only a black powder rifle and an axe, go ahead. But our advice has always been to bring a truck/car, laundry machines, chain saws, modern carpentry tools, modern firearms (modern firearms are some of the best-made products in the world), etc. And, if you can, bring a computer.

A computer?

Yes, though, if you're sure that all you're going to do is play games, track recipes, and write your lonely Aunt Ethel, you may be one of the millions who don't really need one. But for those of you who have learned to make use of computers, you already know the benefits to having access to the internet: for gardening, problem solving, homeschooling, income pos-

sibilities, and communications. The list grows larger every day. On top of that there are educational, landscaping, religious, architectural design, law programs (wills, divorce, suits), etc, and even programs targeted at the reloader.

So, if you can afford one, what's the best one for you to get? You can go to a thrift store and find an old XT for under \$50—but I wouldn't. The XTs are among the earliest of the personal computers and will run almost none of the new software and virtually none of the software that's useful nowadays. Following the XTs were the ATs. Once king of the hill, the same objections to picking one up (and they'd be cheap) holds here as it did for the XT.

Following the ATs were the 386s. They were the first of the machines that ran MicroSoft's Windows software and, though once revolutionary, I wouldn't take one now even to use as a doorstop. Following these were the 486s; once the Supermen of the computer world, they now stagger and limp under the latest software as if the programs were written with kryptonite.

Then came the Pentiums. These are the computers on the store shelves today at computer stores, electronics stores, and even the big discount stores.

The first Pentiums ran at 75 megahertz (MHz) but today the computer magazines are evaluating the 233 and 266 MHz machines. This is good news for the buyer on a strained budget because these new, faster chips are driving the slower machines to lower and lower prices and, by this fall, when you're reading this, the prices on the 166 and 200 MHz Central Processing Units (CPUs) may make them too difficult to resist.



John Silveira

My quest for a computer

In January of 1997, when I was about to buy a computer, the 200 MHz machines were the de facto standard (see the sidebar on why megahertz is important in a computer). By passing on a 200 MHz and getting a 166 MHz or 133 MHz, I could have saved \$300-\$500. But I wouldn't then, nor would I now, get a Pentium slower than a 133 MHz unless I got a fantastic deal on it. The reason is, I make my living using computers and the software that runs on them. Friends who bought Pentium 90s (runs at 90 megahertz), once the fastest machine on the block, find their machines drag their butts trying to run the latest software, e.g., *Office 97* from Microsoft. Those who try to run it on their 486s must be going out of their minds.

You probably don't need a 200 MHz machine, and unless you're heavy into production graphics or you play some serious computer games—neither of which describe me—you're not going to miss the 16% loss of speed with the 166 MHz machine or the 33% loss with the 133 MHz. Even at 133 MHz, things seem to happen with lightning speed.

So, in January, when I suddenly had the money available, the problem con-

What is a clone?

Right from the early days there have been major manufacturers hoping to cash in on the personal computer phenomenon. IBM, Compaq, Osborne, Sony, and other large corporations hoped to steal the market. But there were also the small manufacturers, people working out of cellars, garages, and small store fronts. They manufactured personal computers, one at a time, and usually using the best quality parts. Their computers often had no name on them, or perhaps they carried some whimsical name thought up by a mother, daughter, or wife. These independently made machines became known as the clones.

fronting me was, what kind of machine did I want to replace my lumbering 486 with? I needed a good reliable machine at an affordable price. So I went looking for it, and it is that search and the aftermath of my purchase which have become the fodder for this column and the basis for my advice. What you're about to read is part product review and part advice about what kind of computer to buy.

The right machine

When I set out, the chief problem I had was time. I live in southern California and my job with this magazine is 700 miles away on the Oregon border. If I was going to bring a computer north with me for deadline, I had to buy one within two weeks.

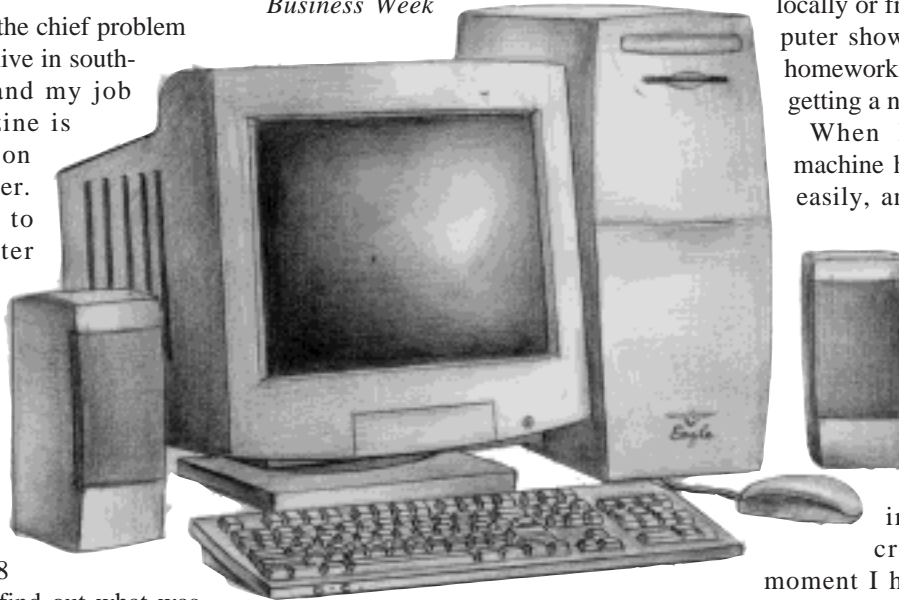
I spent the next 10 days reading computer magazines that went back 18 months. I had to find out what was available and what of that was considered good. I wavered between three different Intel Pentiums, the 133, 166, and 200 MHz, as well as the Cyrix 166 MHz. I window shopped with my computer-savvy friend, Cathy, and I read up on, and made a list of, the quality components I wanted installed in my machine. (See the sidebar on what components I settled on.) But I also considered buying a brand name computer right off the shelf and I looked at the Compaqs, Toshibas, IBMs, Hewlett Packards, and Packard Bells among others. Then I read all the reviews I could find on each of these machines.

With one day to go, I had settled on a clone (see sidebar for what a clone is) assembled locally. But there was one machine I couldn't find reviewed,

and that machine intrigued me because it seemed to be all that I wanted and came from a major manufacturer. It was "refurbished" by the manufacturer but it carried a full warranty. It was the Hewlett Packard 7285 with a 200 MHz Pentium chip inside.

On the last day, as I headed for a local computer store, I stopped off at the main library in Oxnard, California, and there I finally found two reviews of the HP 7285.

Business Week



rated it the best computer buy of 1996. Though not a computer magazine, here was a business magazine rating it as the best buy for both home and office. (Remember this because it becomes important later.) Also, *PC World* rated the machine, saying it was the second best buy of 1996—and they know computers.

After a quick review of HP's service rating in *PC Magazine* in which Hewlett Packard's service was rated the very best, the deal was all but sealed. All that remained was to find out what a refurbished computer was. A salesman at Fry's Electronics, a discount store in the L.A. area, explained it may have been a floor demo, a cancelled order which was returned, or even a computer that had had a bad board and was returned and repaired.

In any case, the machine would have been brought back up to snuff and should be in perfect working order—with a full warranty and at a great price to boot. How could I go wrong?

My plans for a clone were out the window. I would buy the HP based on the reviews, the HP name, their reputation, and their service. That evening I was on my way to L.A. to buy it. My friends, as well as my boss, had decided to buy computers also. But each of them was buying a clone either made locally or from a vendor at a computer show. None had done the homework I had done. None was getting a name-brand.

When I brought my new machine home, it went together easily, and in less than a half hour it stood on my kitchen table whirring and humming as it came to life. I was proud. I beamed before my children. I was too elated to pay attention to the little irregularities that cropped up from the moment I had turned it on. But these problems should have been cause for concern because they were going to haunt me for the next four months, nagging at me like an itch no amount of scratching could cure. It was like I had just caught scabies.

The problems begin

I'm a classical music lover, and the first problem I encountered with the machine was that the CD drive wouldn't play my music right. The only way I can explain it is to say that going from movement to movement of many symphonies, there is sometimes no break in the music, and the only way to know you are in a new movement is either to know the score or to watch the "counter" and see the track change. But, on my new computer, as a track ended there was often an

What's all this business about megahertz, and why's it important to you?

The “megahertz (MHz) determines how fast your Central Processing Unit (CPU) processes information. Relatively speaking, a 100 MHz machine processes at half the speed of a 200 MHz machine. So, a 166 MHz machine is about 16% less “powerful” than 200 because it processes information 16% slower. But watch out, some 166 MHz chips are actually 166 486 class chips, and the 486 is the generation of chips behind the Pentium (which should have been called the 586). So, a 166 MHz 486 is not as good as a 166 MHz Pentium.

But why do we need all this speed and why the tendency toward more and more speed? Here's why: Back in the old days, the computer didn't have much operating memory (or Random Access Memory—RAM) or storage memory (that's your disk storage), so software was written real efficiently, as well as without a lot of features. For example, the original *WordStar* word processing program was a mere 64 kilobyte (KB) program and was fantastic, even though it didn't do a lot of nifty things like multiple column formats, spell checks, graphics imports, etc. But as software developers added improvements, the philosophy was that software packages had to get to market fast or you'd lose market share. The result was that the developers couldn't play around with the software for three months, six months, or a year trying to squeeze every bit of efficiency from it. This meant that, as the software improved, it ran slower as there was more for the computer to do. However, the machines were getting faster and a philosophy developed that said not to worry about how cumbersome the software got, because the machines would get faster and the storage memory (hard drives) huge to hold the bigger programs, and these two factors would mask the inefficiency of the software. And so far they've been right.

The latest word processing packages are about 100-200 times larger than the original *WordStar*. The machines are also about 100-200 times faster. This means that even though you get more goodies with the latest software and it's easier to use, you don't see much of an improvement in the apparent speed with which the computer operates. But it also means that if you try to run the newest software on old machines, you will personally become less and less efficient. So, get speed because the next generation of applications are going to be just that more larger and more unwieldy.

abrupt loss of audio until the track actually changed. The break could last anywhere from a half second to seventeen seconds.

HP Pavilions, which is what my machine was called, have the technical support number right there in the software. I called the number, submitted my support identification number, and was connected with a technician whose job it was to solve my problem. The technician I spoke with ran me through several steps, instructing me how to remove software from my machine that he felt was causing the problem, then leaving me on my own to test the machine again to see if it worked right. When I tested it, however, the problem was still there. But I was persistent. I was going to call HP until the CD player worked right. I would make at least two dozen calls to them over the next four months.

During that time my computer would reveal it was sicker

than I had thought. One technician told me my computer problem was a “quality” problem, not a warranty

problem. I told him that such an explanation was unsatisfactory and demanded to speak to his supervisor.



He wouldn't get the supervisor, but I never heard that excuse again.

It had other problems. For example, icons on the Windows desktop, and in the windows themselves, changed on their own. "View" settings changed for no apparent reason. For example, if I changed from "large icons" to the "list" feature in a particular window, then left that window, the settings changed back to "large icons" when I returned. The technicians told me they'd never heard of these problems before. And when I reported that some software written for Windows 3.1 wouldn't run under Windows 95 on my machine, one even told me I couldn't run a program written for Windows 3.1 under Windows 95. But when I loaded the program on a friend's computer that also ran under

What is the CPU?

The Central Processing Unit (CPU) is one third of the "brain" in a PC. It's the computer chip where the software applications, such as word processing programs, manipulate the data. Even though the CPU would be useless without the other components in a computer, the CPU is what we think of as "the computer" and, when someone says, "I got a 486" or "I got a Pentium," it is the CPU they are referring to.

Ever since the first PC, manufacturers have been trying to make the CPUs run faster and faster. A faster CPU does two things:

- (1) It allows your computer to run your software more quickly—this includes the new software and software upgrades that seem to appear regularly.
- (2) It makes any computer you have right now obsolete. It used to be that the automobile industry was accused of planned obsolescence. But unlike the automobile industry, where the changes were often just style changes, the changes in computers are real performance changes and this, in part, is what sells a lot of new computers.

Windows 95, it performed just fine, and I realized I had a bigger problem

than just malfunctioning hardware—I now no longer knew which of the faceless techs were competent.

At one point, one of the techs asked me what I use the machine for. I told him I'm a magazine editor and writer.

"A business?" he asked.

"Yes."

"Well, this machine isn't really meant to be used in a business. This computer was aimed at the home market."

"Your higher price Vectra models, right?"

"Yes," he said.

"They cost a *lot* more," I said.

"That's right."

"The magazine I work for uses a bunch of clones, as do a bunch of other businesses I know of, including some major corporations. The machines are real work horses with brand name parts. Those machines seem to have minimal problems. Are you telling me that my machine is not the equal of a bunch of clones, and that to get the same performance and reliability from HP I must spend twice as much on another computer that's only claim to fame is that it only works as well as a clone that cost half as much?"

"No."

"Then tell me, what did HP put in their Vectra that made it more expen-

What's RAM and why's it important to you?

Random access memory (RAM) is the second part of the computer's "brain." It is kind of the "short term memory" in your computer. When you run your word processor on your computer, a portion of the software is brought into the RAM. And the CPU will use the software to manipulate the data. The data being manipulated is also held in RAM. You could think of RAM as the work area of your computer. Having more RAM does three things for you:

- (1) It allows you to get more of your application into memory where it will do work for you. If there isn't enough RAM, the computer will have to access the disk frequently to call up other parts of the application, and this slows your work down.
- (2) It allows you to hold more data in memory, which also makes your work run faster. For many large data files, such as graphics, spreadsheets, and databases, if the entire file cannot be brought into RAM, a swap file must be created on your hard disk where data can be temporarily stored and retrieved. For extremely large data files, this causes serious slowdowns.
- (3) It allows for multitasking. Multitasking is when you have more than one software application opened at one time. For example, when working on *Backwoods Home Magazine* during deadline, it is not unusual for me to have *WordPerfect*, *Photoshop*, *Excel*, the character map, the *Merriam-Webster Dictionary*, *QuarkXpress*, and my appointment program all open at the same time. I work more efficiently this way. But all of this is only possible because I have a lot (32 meg) of RAM. But 64 meg of RAM would be even better, especially with such memory-intensive programs as *Photoshop*.

So how much RAM do *you* need? It used to be that 4 megabytes was enough. But it is almost standard now to have a minimum of 16 megabytes of RAM. Your machine will run faster and smoother with a minimum of 32 meg and, if you generate graphics, you will welcome the extra RAM. Not only that, with 32 meg, you should be able to handle the next several generations of software as they come out.

What's disk storage and why's it important to you?

Most computers sold today have a minimum of three disk drives: a hard disk drive, a floppy drive, and a CD ROM. The one you will use most frequently is the hard disk. This is where you will store your application software (programs), your data (work you do), and it is the place where your machine stores the programs that actually boot it up, that is, start your computer. In this respect, it makes up the last third of the computer's "brain" because it is the "long term memory" of your machine. When I bought my first computer, in June of 1984, it didn't even have a hard drive. It had just two floppies. In those days, you could get by with two floppies. Today, you wouldn't even think of operating a computer without a hard drive unless you were insane.

The "size" of a hard drive does not refer to its physical dimensions (which today is almost universally 3½-inches wide). Size refers to how much data the drive will hold. They used to be measured in how many millions of bytes (megabytes) they could hold. Today, they are measured in how many billions of bytes—or gigabytes (GB)—they can store.

How large a hard drive should you get? The software applications are getting larger and larger. Games in particular are getting larger and larger because of the graphics they contain, and my son runs one that is 400 meg. And there is your clue. If you are heavily into computer games, or if you handle a lot of graphics files as we do here at the magazine, two gigabytes is almost too little because graphics files can eat that kind of space up very quickly. This is also true of very large databases used by some businesses. So if you are not going to generate huge graphics or database files, a 1.6 gigabyte drive is probably barely enough—but more is better and I wouldn't get anything less than 3.1 gigabytes so I can take care of future contingencies.

sive? Does the Pavilion model I bought have a cheaper CPU, cheaper memory, cheaper boards, cheaper hard drive...?"

"Actually, they use just about the same stuff in each line," he said.

"Then, tell me, what's wrong with this machine that should make me think I can't use it for a business just as other businesses, including the one

I work for, use the comparably priced clones?"

I think he said, "Nothing."

Later on, one of the techs who came out to look at the machine gave me the same story. I made him wish he hadn't started this line of reasoning, too.

I was at least a dozen calls into trying to get the problem resolved. I'm not sure I ever spoke with the same technician twice.

At the start of each call, the tech made me explain the problem from step 1, which meant, if I accidentally left something out, I was left wondering if I'd left out some key issue that could have been an important fact that would straighten everything out. Later I learned that each tech always had access to the history of the problems with my machine on the computer right in front of them.

One of the problems when dealing with tech support over the telephone is

you never know who you're talking to. If I pointed out that during a call I was previously given erroneous information, the best I would get was, "You didn't hear that from me." On the other hand, my friends, who had bought their computers locally, could talk to their local vendors face-to-face, if need be, and get a precise explanation.

I realize one of the advantages the big companies often tout is that they will come out to your house or business to service your computer. But, at least twice I was asked to go find other computers in the line to see if my CDs worked on them. And I did, going to several other cities to find dealers selling them. I realized I was now running errands for a Fortune 500 company. By the terms of their warranty, they should have been sending a guy to my house with another computer to run it himself.

Why did I do it? I had too much money tied up in my machine not to do as they asked.

In the meantime, some of my friends were having problems with their clones. But, one after another, a quick visit or phone call to the local dealer seemed to straighten everything out. For me, the months dragged on. There was no shop for me to bring my machine to, and HP seemed reluctant to send a technician out.

Three rules when choosing a computer

You have three points of contact with your computer: the monitor, the keyboard, and the mouse. Make sure you like the ones that are going to be on your machine, because you're going to spend too much time with them. Make sure the monitor is easy on your eyes, that you like the way the keys on your keyboard "click" (or don't click), and the way your mouse fits your hand. Don't decide, "Oh, I'll get used to them." Only settle for something you like from the start.

What is cache?

Computers tend to use some instructions more than others. Wouldn't it be great to be able to hold the 1st few instructions in some kind of short-term memory on the chance they'll be used again real soon, thus speeding up your work? This is exactly what cache does, and the more cache you have, the more you can take advantage of this feature.

But finally they did. Several times. But as I was to discover, if the “fix” the technician is assigned to do doesn’t solve the problem, he isn’t prepared to try another. He just leaves.

And, if the technician comes unprepared, as one did, he quietly disappears.

In the meantime, my friends’ clones were all working, the bugs having been ironed out by some local vendor, often in less than a day. No one was having significant downtime but me.

HP was wasting my time, along with my employer’s money and their own. I had guessed that HP had already spent more money on servicing me than the warranty money that was built into the machine’s cost. Still, we were no closer to a solution than we were since the first call.

All this waste was possible because, in spite of all my calls, no one was capable of making an aggressive decision. No one could fix the machine, but no one dared tell me to get lost.

Out of curiosity I began checking the specifications of my friends’ and coworkers’ computers. I discovered that their components were usually the same ones that were on the list of high-quality components I had com-

A question to avoid

When you’re shopping for a computer, the salesman is going to ask you, “What do you want to do with a computer?”

This is an incredibly dumb question. If I bought a computer for exactly what I need it for today, tomorrow, when the new software comes out, I’d already be falling behind.

Try to anticipate unexpected needs. Try to find out what future software changes are being touted in the magazines. Then always buy at least a little more than you think you need today so your machine will not become obsolete tomorrow morning.

A list of components worth considering

In compiling this list I read many magazines, including *PC World*, *PC Magazine*, *Home PC*, and I spoke with numerous friends and computer “geeks,” who have their own lists of parts and components that would make a first class machine at a reasonable price. I plan to have my next machine built from scratch and these are the components I will specify. (Be aware that the computer world is so fluid that this list may be different next week as newer components hit the market. When you’re ready to buy, read the magazines and talk with the “geeks.”)

Main processor: Intel Pentium MMX running at 133, 166, or 200 MHz .

Hard drive: A SCSI (pronounced “scuzzy”) hard drive and card. Don’t get SCSI on the motherboard. The best seem to be either the Quantum “Fire Ball” or Western Digital “Caviar” series. Don’t get less than 2.5 GB.

Motherboard: Intel Marl ATX systems board.

Fax/modem: U.S. Robotics Sportster Voice 33.6.

RAM: Micron or Japanese non parity, 72-pin, tin-plated EDO-DRAM. Get at least 16 MB. If you can afford more, get 32MB. This is not a place to skimp.

Cache memory: You shouldn’t settle for less than 256 kilobyte (KB) and 512 KB is a lot better. The more cache, the faster your machine will operate.

Video card: Matrox Millennium card with 4 MB RAM or Diamond Stealth Video 3D 3000 with 4 MB RAM.

Monitor: ViewSonic (I had bought the OptiQuest, made by ViewSonic, because it was rated high and reasonably inexpensive, but I wouldn’t buy it again because it makes text in *QuarkXpress* look fuzzy.)

CD ROM: Mitsumi, Sony, or Panasonic. Get a cheap one; good inexpensive DVD CD ROMs are coming and they are going to allow you to read and write to CDs. They’ll also make pretty good backup systems.

3½" floppy drive: Get a TEAC or other Japanese manufactured floppy drive.

Computer case: ATX case with an ATX power supply.

Keyboard: Keytronics 104 keyboard, or a standard IBM

Sound card: Creative Labs Sound Blaster AWE 32 PnP.

piled in January. For example, they got “hard MPEG” (Motion Pictures Experts Group) video cards, even though I didn’t; they got more RAM and cache on their video cards; my card was generic (as was my modem, sound card, etc.), but theirs was a brand name. Yet, as far as I could tell, none of these shortfalls saved me any money. Their machines still cost less than mine.

It didn’t seem possible, but it appears that America’s major corporations, buying in large lots, cannot buy the brand name components and get them into a low-cost quality machine

as readily as the little guy. My friends who had bought their machines from the local “mom and pop” dealers or computer shows had none of the problems I had.

HP finally resolved my computer problems by buying the machine back from me, and as I write this, I have gathered my notes from January and started my search again. Things have changed in four months. The 200 MHz Pentium is no longer king because the 233s and 266s have arrived. And I have also changed. I now know I want a machine with known quality parts and I know I want

The best time to buy

If you can afford a computer **right now**, don't let the flush of the money stampede you into buying the first computer that dazzles you—and believe me, it will—because, contrary to the old cliché, money will **not** burn a hole in your pocket.

Then, as soon as you've made up your mind on a system, **wait one more day**. (This advice counts for cars, couches, refrigerators, and a great many other expensive items. You'd be surprised how much this will save you.)

The sole exception to this rule that I can think of is: if you've already looked around and seen a lot, and you're at a computer show on a Sunday afternoon.

There are two good reasons for buying a computer at a computer show on a Sunday afternoon. First, if the display models aren't sold, the guy has to repackage them and take them back to his shop and he may have come from a long distance. He'll sell it for somewhat less of a profit not to have to go through this exercise. But more important is the second reason: the technology is changing so fast it can literally change from this Sunday to next Saturday, when he goes to his next show, and he could find himself losing hundreds of dollars instead of having taken a small profit.

to buy a clone from a local mom and pop shop so I can get problems resolved quickly and effectively.

I will also avoid the brand name computers because all too often they have proprietary components and/or boards which can make it impossible to upgrade the computer as newer and better after-market products come along.

I have gone to the big computer stores and asked questions. Surprisingly, the salesmen at the computer superstores haven't a clue as to what the components in their computers are. On the other hand, in the small stores and at the computer shows, the guys building the clones proudly display a list that specifies each component by brand name and model, and it's all the top name stuff I'm seeing in the magazines.

Am I suggesting you buy a clone? Yes. And here's the strategy for buying one. Read the computer magazines at the library. Find out what the highest rated components are. Find out if those are what the local guy is installing. If not, go to another store or find out why he's not doing it. Use the list I've included in one of the sidebars, if you wish.

Can you get burned buying a clone? Sure. What you're trying to do is give your money the best chance it can to work for you and, from this vantage point, that would be to spend it on a clone, made with the best components, from a local dealer you've heard good things about.

Would I buy anything from HP again? Yes. We use their world famous laser jet printers. HP's printer division makes the world's finest printers, and it is ready to stand behind them. I've bought three of their calculators and feel that anyone looking for a good reliable calculator would be foolish to buy anything but one of theirs. But their computer division may as well be a different company in a different country, and long after this division dries up and blows away, I expect their printers and calculators will still hold a major share of their respective markets.

Would I buy a brand name computer again? Not in the near future. Success is with the little guy who's self reliant, and who stands behind his product, service, and reputation. Δ

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Make a fully functional cold storage pit/mound and enjoy your garden's production all winter

By Armand O. Deblois

Cold stored fruits and vegetables are the next best thing to fresh-picked. Flavor and texture change little and nutritional value remains high. They keep for an amazingly long time. This and the great variety which can be stored make it a technique well worth using. Compared to canning, and even to freezing and drying, little is involved in preparation. This time savings greatly increases the ability to retain valuable produce. By cellaring a large percentage of the harvest, these other more expensive or time consuming methods can be reserved for where each is truly superior for a particular finished product—sweet corn frozen on the cob, canned relish, and spicy beef jerky, for example.

Cold storing also lengthens the time span in which foods can be processed for preservation by the other methods. Fruits and vegetables can be moved at leisure from cellar to dryer or canning kettle and to the freezer as this space is vacated. Even if you don't garden, cold storage can still be used to take advantage of low prices of the autumn cornucopia at local farms. Or better yet, it can provide an opportunity to benefit by participating more extensively in community supported agriculture. And as a bonus, we will see how certain roots (including the noble asparagus) can be tricked into producing delectable sprouts in the dead of winter.

A properly designed and well built root cellar is a marvel of appropriate technology. It soon returns its cost—and will ultimately return it many times over. However, in the beginning, the problem of the initial investment can be the main drawback to

opting for a walk-in unit. Many of us, therefore, have for a time resorted, with varying degrees of success, to the traditional pit/mound storage.

And even after having built a full-size walk-in facility, pits are still often useful in handling the overflow of a bumper crop. When properly done, their contents will not freeze (except in the far north or at great elevation) in even the coldest weather. Over most of the northern United States and southern Canada the temperature inside tends to average between 50 and 55 degrees F., being moderated by the earth below frost line. This, however, is not nearly cold enough to produce the maximum possible storage life for most kinds of produce which do best from just above freezing up to 40 degrees or so. It is also impossible with the old style "squirrel job" to regulate humidity or add warmth to counter extreme cold.

Other disadvantages of the traditional pit are the difficulty of access after a rain and hard freeze or a heavy snowfall, and having to take all of the contents of a particular installation at once due to the near impossibility of safely re-closing the mound under these conditions. All of these limitations are overcome by this new development.

Pit storage

The crux of the system is three fold:

1. A vertical wooden duct (Figures 1 and 2) around which the produce is arranged
2. The produce contained in sacks attached at intervals along a rope (Figure 3)
3. A well box (Figure 4) supporting an access hatch several feet above ground level.

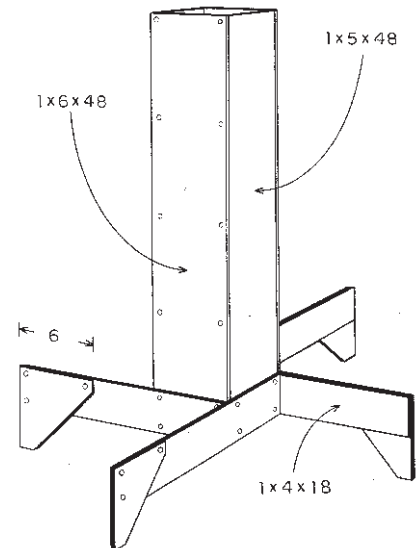


Figure 1. The vertical wooden duct

The central duct provides several key features. It serves variously to:

- (a) introduce cold outside air to the bottom of the pit when the temperature must be lowered
- (b) allow the installation of a hot or cold object when the temperature must be adjusted
- (c) admit a cloth sack containing a moisture absorbing, desiccant material to reduce humidity
- (d) channel water to the interior when humidity must be increased, and
- (e) to permit the temporary placement of a thermometer and hygrometer to monitor these variables.

The sack and rope arrangement allows easy access to a small amount of produce for consumption, or efficient removal and replacement of the entire contents for inspection. Spacing the bags a sufficient distance apart along the rope permits hauling each without having to disturb the one

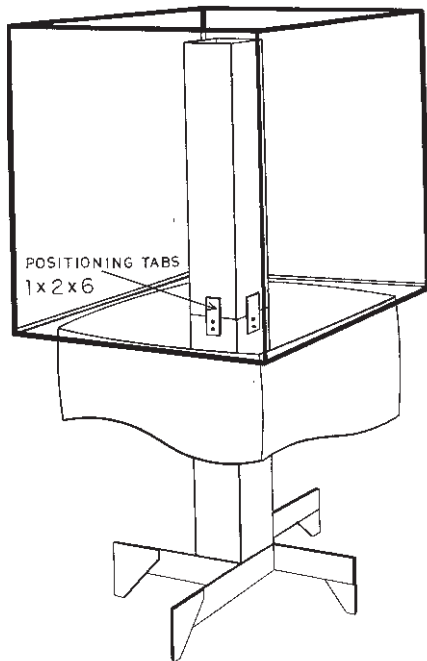


Figure 2. Internal cutaway view of well housing over the central duct

behind it. A combination of two easily tied and released knots readily fastens sacks to the main line.

Construction of such a storage involves digging a square hole encircled at ground level by a shallow, gravel filled, drainage trench, installing the lower stage duct assembly, positioning the well box, and banking it with earth (Figure 5). At storage time the produce is lowered into place, the upper stage is positioned, and the space between the top of the produce and the hatch is filled with sacks of insulation fixed to a separate long line system. Except for occasional inspection and monitoring, that's it.

Perfect control of such an installation—as with any root cellar—is a little bit science and a whole lot of art. But it's really not all that complicated or critical. The great advantages of this decentralized storage are that it permits tailoring conditions to perfectly suit a particular kind of fruit or vegetable and provides a built in safety factor against any errors. If detailed records are kept to help in pushing the

limits from year to year, it becomes a challenging as well as rewarding hobby.

Managing your storage

You must watch the weather like a hawk, taking advantage of cold nights to lower the temperature prior to storing your produce in the fall. Moisture may occasionally have to be added during dry spells or regularly in very dry climates. This applies to all but a few varieties which require dry conditions. When these are stored, the hole should be lined with plastic sheet if there is any appreciable amount of ground moisture. In any case, this will reduce the amount of desiccant which must be used. These sacks can be installed as necessary to remove the moisture inevitably brought in by the small amount of air which must be allowed to circulate. This air is needed to provide oxygen for respiration and remove the waste products of plant metabolism.

Heat may need to be added from time to time to maintain the warmer temperatures preferred by some varieties or to keep the contents from freezing in extreme cold. It's also important to inspect the contents every couple of weeks to remove any "bad apples." Happily this system makes short work of all this.

The cold storage treatment list in Table 1 will give an overview of what can be kept and for about how long under specific conditions. Tips for handling each and the general time for planting and/or harvesting have also been included. This schedule is for areas where the first autumn frost occurs around mid October and will require adjustment north or south. The varying number of days to maturity for specific varieties of a given fruit or vegetable must also be figured in. Planting is timed so each crop is fully mature but not overripe when stored. This challenge is part of what makes this game such fun. Each type of produce is put away as late in the season

as its tolerance for cold will permit. The protracted harvest season extends from the first light frost to just before the ground freezes solid, and even the onset of this condition can be postponed by heavy mulching. In any case, nothing should be stored away until after the weather has turned reli-

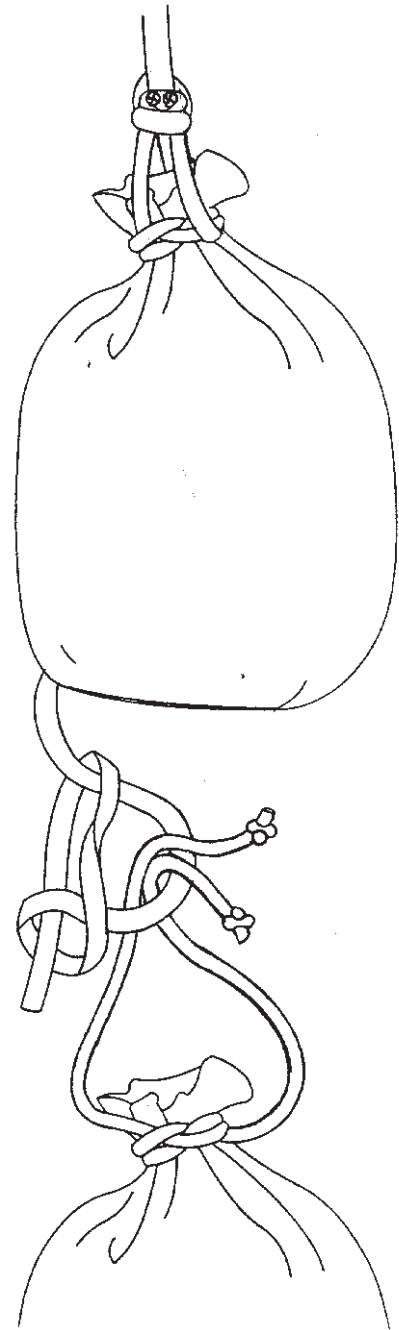


Figure 3. Bags strung together that are used to lower produce into—or remove it from—your cold storage pit

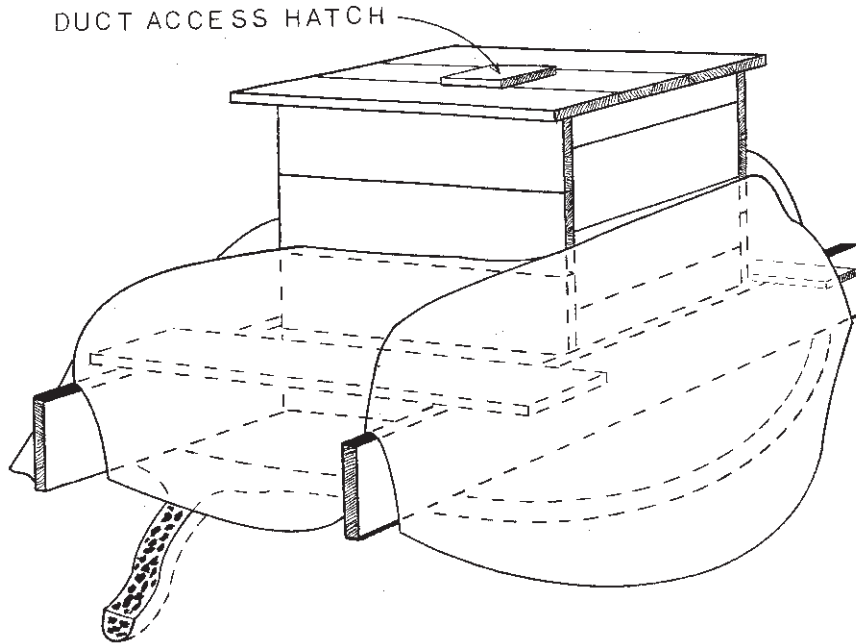


Figure 4. A well box that supports an access hatch above ground level

ably cold. Gardening for cold storage extends your land's potential by making use of space vacated by early and mid summer crops, and the later time of sowing and reaping extends your personal potential for satisfying work at self-provision.

Preparing produce

A garden fork is the most efficient tool for digging. Roots should be dug and fruits picked in the cool morning hours. The ground should be somewhat dry, this way there is less clinging earth, and what there is can be more gently removed without the need for washing. Any remaining light dusting of soil is harmless with final washing being done just prior to cooking. When circumstance necessitates digging from wet ground, clinging soil must be allowed to dry somewhat in the shade before removal.

Sometimes, harvesting must unavoidably be done later in the day. In this case, everything should be kept overnight in a cold sheltered place to remove every possible degree of remaining field heat before storage the following morning. This is important

because warm produce will continue to lose moisture even in a highly humid environment.

As with most ventures, location is important. Installations should be as close as possible to the house for convenience, in well drained high ground, and on the cooler north side of a large sheltering object such as the house,

garage, shed, or barn. The opposite and warmer south side would be a better choice in the far north. Considering location on a larger scale, any place where the average winter temperature is 30 degrees F. is ideal. However, cold storage is still practical as far south as to where the average is around 45 degrees, but a shorter storage life must be expected.

If you are new either to gardening or to your area, statistics of first frost, killing frost, hard freeze, and average winter temperature can all be had from the local weather bureau or agricultural extension service. However, these dates can vary due to micro climates produced by terrain, so your own written records, or those of a dedicated gardening neighbor, will prove more accurate. Another important consideration, the depth of the water table, can be provided by a local well driller. It should be at least ten feet below the bottom of your excavation, and the lower the better.

It is best not to store fruits and vegetables together because gas given off by fruits can cause vegetables to ripen sooner and sprout or blanch, and the strong odor of vegetables can taint the delicate flavor of fruits. Everything

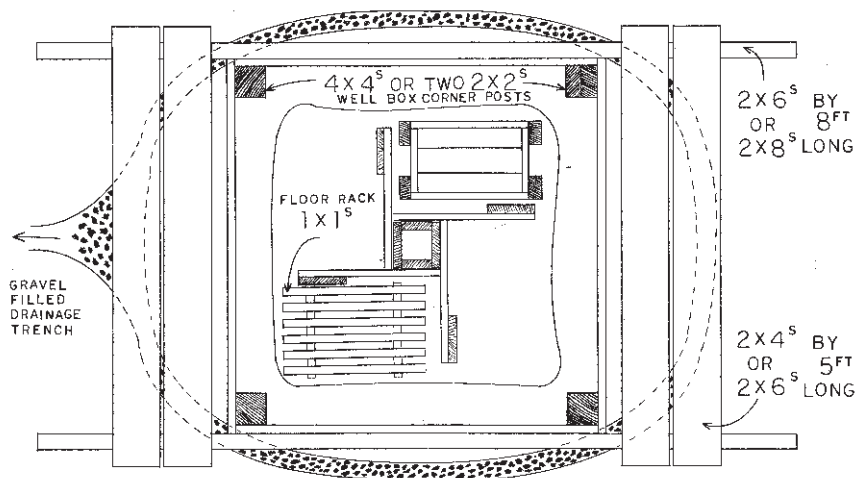
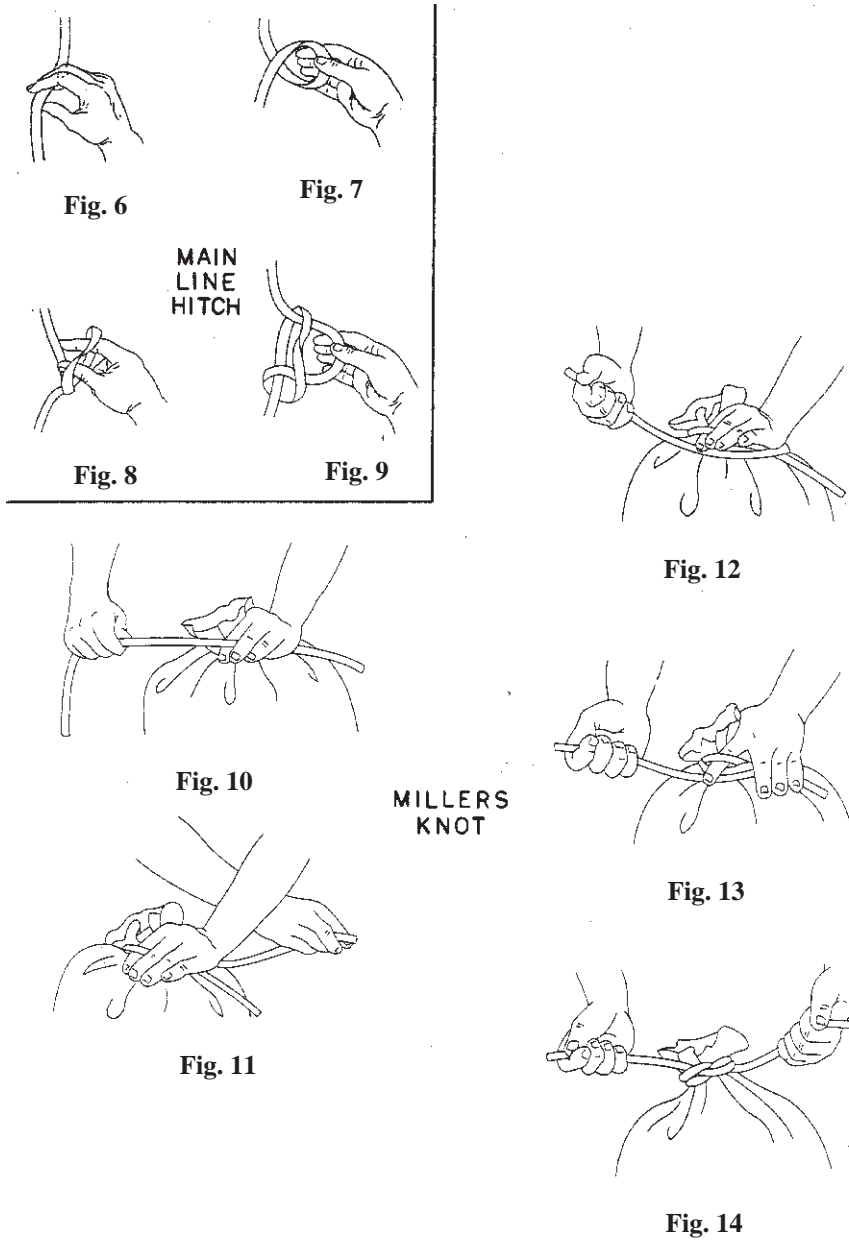


Figure 5. Top view of the storage pit: a square hole encircled at ground level by a shallow, gravel filled, drainage trench. The lower stage duct assembly is installed, the well box positioned and is banked with earth.



Figures 6-14. Tying a main line hitch and making a millers knot.

should be handled gently and as little as possible. Immediately trim tops to prevent their wilting or drawing vitality from the roots. Beware of anything sharp—things like the protruding ends of staples, nails, wire and splinters, as well as your own fingernails—that can damage your produce. And again, put off the harvest as long as possible while yet leaving a margin for the unexpected. This is important mainly

because cold induces the concentration of sugars and starches thus replacing water which would more easily be lost, and so shorten storage life.

The roots of the plants specified in the cellar gardening list will produce crisp, living sprouts for salads to compliment the cooked vegetables of winter meals. This a good way to make use of specimens in some way not fit

for long storage or those going soft by late season. After being packed closely in soil in wooden crates or other suitable containers, the roots are exposed to freezing conditions as they would be in a natural setting. When later introduced to the warmer environment of a cellar or unheated room, this artificial spring will induce them to sprout. Though not quite as vitamin rich as when grown in light, they are a welcome mid-winter treat. Some varieties such as dandelion, usually on the bitter side, are more mildly flavored when sprouted in darkness, and blanched witloof chicory is a real delicacy.

The drawing figures 6 through 9 show how to quickly make a hitch at any point along the main line for attachment of the individual sacks. The neck of each sack will be secured by a short length of rope tied in a millers knot as illustrated in figures 10 through 14. To tie this knot twist and pinch the gathered neck of the sack between the thumb and first finger of your nonprimary hand. Hold about a third of the rope as shown in figure 10, grasping the long end with your other hand. Bring it around, temporarily pinning it between the sack and the heel of your other hand as in figure 11. Now reach back around and bring the end of the line over to form the first complete turn seen in figure 12. In the same way make a second turn as in figure 13. Then hook the rope with the tip of your captured finger, as seen in figure 13, and pull it through this space far enough so that you can bring it all the way out with your free hand. At this point, snug it slightly then release your grasp on the bag neck as you grab the original rope end with this hand. Finally both ends are evenly pulled to complete the tie as seen in figure 14. Each of these free ends is now tied in a simple overhand knot and it is these knobs that will be captured in the hitch in the main line.

The long planks attached to the well box serve to distribute weight over a larger area. One or more shorter

Cold storage treatment list

Very Cold (32-40 degrees F.) and **Very Moist** (90-95 % relative humidity (RH))

Beet: Keeps into March. Plant in late June or early July. Harvest before severe frost. Cut tops one inch from bulb, do not cut tap root.

Carrot: Keeps until late May or early June. Plant in late June or early July. Harvest before the ground freezes hard. Break off tops where they join the root.

Celeriac: Keeps until late March. Plant in late May. Harvest before frost. Remove the long, fine rootlets but don't cut close to the main body. Trim the tops to one inch.

Celery: Keeps into January. Plant in late April or early May. Harvest before severe frost. Keep roots moist.

Chinese cabbage: Keeps until late February. Plant in July. Harvest before severe frost. Remove outer leaves. Keep roots moist.

Horseradish: Keeps until April. Plant in May. Dig large roots just before the ground freezes.

Kohlrabi: Keeps until late January or early February. Plant in July. Harvest before severe frost. Cut off leaves and root. Store only those bulbs three inches or less in diameter.

Leek: Keeps until spring. Plant in April. Harvest before the ground freezes solid. Keep roots moist.

Hamburg-rooted parsley: Plant as soon as the ground can be worked, otherwise treat as carrots. Parsnip: Keeps until June. Plant in May. Harvest after several good frosts for best flavor. Dig carefully to avoid damage and get the full length of the root.

Winter radish: Keeps until February. Plant in late July or early August. Harvest before severe frost. Trim tops to where they join the root.

Rutabaga: Keeps until February. Plant in late June or July. Harvest before severe frost. Wax with beeswax to retard drying.

Salsify: Keeps until March. Plant in May. Harvest after frost for improved flavor.

Scorzonera: Treat the same as Salsify.

Turnip: Keeps until April. Plant in late July or early August. Harvest before a heavy freeze, ideally choosing those no larger than three inches in diameter. Cut off all but one half inch of the tops.

Very Cold (32-40 degrees F.) and **Moist** (80-90 % RH)

Apple: Keeps until spring. Pick mature, firm, unblemished, late ripening fruit.

Cabbage: Keeps until March. Plant in May or early June. Harvest only solid, heavy, unsplit heads for storage. Pull the heads roots and all and remove loose outer leaves.

Citrus: Keeps up to two months.

Cranberry: Keeps up to three months. Keep them cool (36-40 degrees F) and moist.

Grape: Keeps up to two months at 40 degrees F. and 80% RH. Cut vine ripened fruit and spread one bunch deep in trays.

Pear: Keeps until late December. Pick when mature but not fully ripened, when skin first turns from green to yellow-green and fruit separates easily from the tree.

Potato: Keeps four to six months. Plant in late May or early June. Harvest in cool weather up to six weeks after the tops have dried. Cure for two weeks before storing by spreading the tubers in a protected place where the temperature is 60 to 75 degrees.

Quince: Keeps until spring. Let ripen on the tree until they turn yellow.

Cold (35-40 degrees F) and **Dry** (60-70% RH)

Garlic: Keeps until spring. Plant large individual cloves at this time. Harvest right after the tops die back. Cure in the sun for several days to harden their skins. Clip off roots close to the bulb. Snip off the tops.

Onion: Keeps until spring. Plant in April. Harvest after the tops have fallen over. Pull on a dry day and cure in the sun for a week. Cut off the tops to a one inch stub and dry in a shady place for another two or three weeks. Do not store bulbs with a thick neck.

Nut: Cure nuts in a cool dry place for a couple of weeks. Store in the shell to retard oxidation of nut oil.

Cool (50-60 degrees F.) and **Dry** (60-70% RH)

Winter squash: Keeps until spring. Plant in late May. Harvest when the skin is so hard your fingernail can't puncture it. Cure in the sun for a couple of weeks to further harden the rind, bringing them indoors in rain or frost. Leave stems on or paint the scar and any abrasions with beeswax.

Pumpkin: Treat like squash except for a dryer (70-75%) relative humidity.

Sweet potato: Keeps until spring. Plant in early June. Harvest as soon as frost has killed the vines. Lightly brush the clinging soil after it has had a few hours to dry, handle gently. Cure for two weeks in a warm place, covered with a damp but well wrung out towel to retard moisture loss during this process.

Cellar gardening list

Asparagus: Dig large roots two or three years old from beds that need thinning. Maintain at 60 to 65 degrees F. Keep well watered.

Beet: Use those that are misshapen or for some other reason are not good candidates for long term storage and any found to be going soft later in the season.

Cabbage: Dig roots of plants that have previously been harvested. They can still sprout many tasty leaves.

Carrot: Excellent salad material can be grown from deformed specimens.

Celery: Roots of plants that have already been harvested can still produce continuously if only the outer leaves are picked.

Collard: Roots will produce a continuing supply of leaves.

Dandelion: Dig large roots and treat like Endive.

Endive: French or Belgian, also known as witloof chicory. Dig before the ground freezes, taking care not to break the brittle root. Trim the tops leaving only the central inch long, light green leaves. Shorten the roots to eight or nine inches and pack closely in soil to the crowns. Harvest sprouts by cutting close to but without damaging the root crown. A second and possibly a third harvest can then be had. Maintain at 50 to 60 degrees F. They will sprout more readily after experiencing several good freezes.

Kale: Roots that have been producing in summer will continue in winter. Pick only young leaves as older ones become bitter.

Kohlrabi: Use misshapen or oversize roots.

Parsley: Harvest only the outer leaves of this nutritious garnish and continued growth will proceed from the center.

Parsnip: Treat like beet for a crop of edible sprouts.

Rhubarb: Must experience freezing before it will sprout. Dig strong, large two- or three-year old roots that have not been harvested in the spring. Maintain at 50 to 60 degrees F. Tender pink stalks will sprout in about a month. These roots will yield a couple of pounds each. Never eat the leaves, they are toxic. Rutabaga: These will produce salad material all winter long.

Turnip: Has the same potential as rutabaga.

planks on each of two access sides help support the weight of a person to prevent compacting most of the insulating earth. In regions of extreme cold it would be advantageous to mix into the earth used for banking the well box, some natural insulating material such as straw or dead tree bark. A mulch over this earth will prevent erosion and add even more insulation.

At storage time, as the sacks are lowered, they must be manipulated into position. A canoe paddle, used gently, is the best tool for this job. The produce sacks should come up no higher than the top of the lower stage of the duct, which should be at ground

level. Sacks of insulation, similarly attached to a second long line, are then stuffed into any space remaining between the produce and the wall of the excavation. The upper stage of the duct must then be wedged into the support structure created by the four wooden tabs on the lower stage. Generously beveling the inside edge corners of these tabs will help guide the upper stage into place. The remaining insulation sacks are then spiraled around into place until the well is filled. The well box should be constructed as tightly as possible, but any slight gap between it and the lid is desirable in order to permit a small amount of air exchange. If you've

done too good a construction job, a small diameter nail can be placed between box and lid to provide this gap.

A small hatch in the center of the lid is handy for when it is only necessary to have access to the duct for monitoring or adjusting conditions. Monitoring is done by installing a small thermometer and hygrometer attached to an old broom handle. If the inside dimensions of the duct are just greater than the diameter of a plastic two liter soda/pop bottle, one or more of these containing hot water is a convenient way to add warmth. The neck is perfectly shaped for attaching a cord. Tying each end of a double length creates a convenient handle and balances the jug. In mild winters these same containers can be installed frozen to lower the inside temperature. When humidity must be reduced, muslin bags containing ordinary cat box litter (unscented) will do the job. Another desiccating material, silica gel, available at craft shops, although more expensive initially, can be reconditioned again and again by slow oven drying. These sacks can be weighted with a fist size stone to aid installation. Also, for this purpose, the inside surfaces of the duct need to be sanded fairly smooth. When humidity must be increased—a more common condition—simply pour a small amount of water down the shaft and check on the effect the next day or so. An aluminum foil pie tin filled with sand and placed directly below the shaft makes a good receptacle and evaporator of this moisture. Four racks made of wooden lath, of a size to cover most of the pit bottom, will keep the produce sacks raised a couple of inches for good air circulation. One final design detail, small homemade wooden cleats, strategically located, conveniently secure the various rope ends.

As for the size of these installations, a well box four feet square is a convenient size when working with dimension lumber and requires an excava-

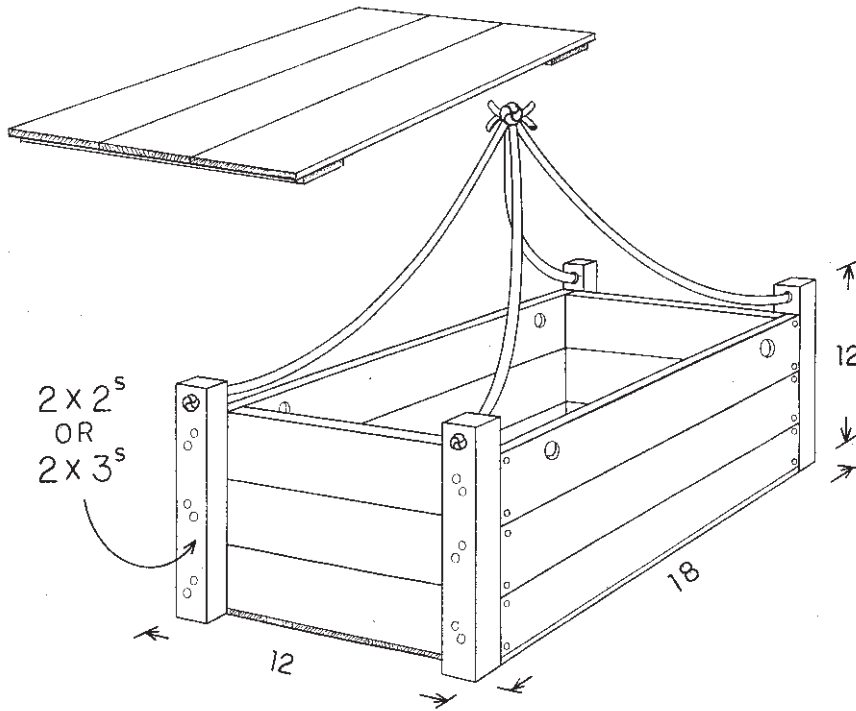


Figure 15. Stackable crate for large items or sprouting

tion three feet on a side. Four feet is a good hole depth and well box height. This depth will reach below frost line in most places and this height will, even after being banked with earth and mulch half way up, remain above snow line in most winters.

Perforated plastic bags are best for holding varieties which require high humidity. The larger bread wrappers can be pressed into service for quantities of a few pounds each and for small containers of insulation. They can efficiently be ventilated to any required degree by folding and re-folding until only two or three inches square and punched a half a dozen times more or less with a leather punch. The cheaper models costing six or eight dollars are plenty good enough for this use and can be bought at many craft or hardware stores. Roots of some varieties (cabbage, leek, and celery), that need to be kept moist, can be bagged in unvented bags and secured with string or rubber bands. Open mesh bags are best when

dry conditions are wanted. Each bagged specimen should ideally be separated by something like moss or sawdust to cushion them. Best of all is cattail down, plentiful and free for the taking in the fall. These materials are also used in the insulation sacks.

To hold roots for sprouting, four wooden crates (Figure 15) can fit between the struts supporting the duct shaft. Like the sacks, they can be stacked several tiers high on a long line. Several holes high on the sides provide ventilation. Braided nylon rope is best for this application. It handles and grips well. Quarter inch is adequate for all but huge sacks of heavy produce and three eighths is a better choice for heavy earth filled crates and much easier on the hands.

For the definitive word on cold storage see the book *Root Cellaring* by Mike and Nancy Bubel. It contains a wealth of information including the fine points of designing and building full size installations. Δ

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Seven secrets of Dutch oven cooking

By Roger L. Beattie

Squatting heavily in dank basements, drafty attics, and dusty, cluttered garages, these three-legged hulks from a bygone era wait impatiently to release their treasures. Until then, they are pitted by time and tarnished by neglect. For those who will uncover the mystery, their gaping caverns can once again be brimming with magic.

From the birth of our nation, Dutch ovens have been an integral and versatile part of Americana. Sadly, today's high-tech hustle-and-bustle lifestyle has all but forgotten the art of "leather-glove cuisine." The coal-black cast iron ovens appear outdated, unfriendly, and forbidding. Interestingly however, with seven simple secrets revealed, the beginning camp cook and the consummate backyard chef can utilize these forgotten friends to produce a marvelous and unforgettable variety of succulent delicacies.

Dutch ovens owned by cooks who understand their subtleties are kept in places of honor, sanctuaries reserved specifically for them. On the other hand, ovens owned by cooks who can't seem to keep the potatoes from burning to the bottom or who can never get the chicken to look anything but a pasty white, are quickly relegated to some obscure location where they will be "out of the way." For the unsuccessful current user, the interested but uninitiated, or anyone who just wants to cook better, the seven secrets outlined below will provide a firm foundation for the creation and consumption of mouth-watering Dutch oven meals fit for even the most discriminating palates.

Secret 1: Choosing wisely

When deciding on a Dutch oven, there are a few important guidelines to keep in mind. A common question is, "Should I buy cast iron or aluminum?" Both have some advantages. Aluminum Dutch ovens weigh about one-third less than their cast iron counterparts. They require no curing, and, like the cast iron pots, can be used over open fires, buried underground, or used with coals or briquettes. However,

aluminum Dutch ovens do not retain heat as well nor distribute it as evenly as cast iron. The flavoring of foods produced will also be different. Aluminum ovens sometimes give a chalky flavor to foods, whereas iron ovens give a smoked flavor to foods. Most Dutch oven aficionados use only cast iron ovens.

When buying a cast iron Dutch oven, whether new or used, look carefully at these five important areas:

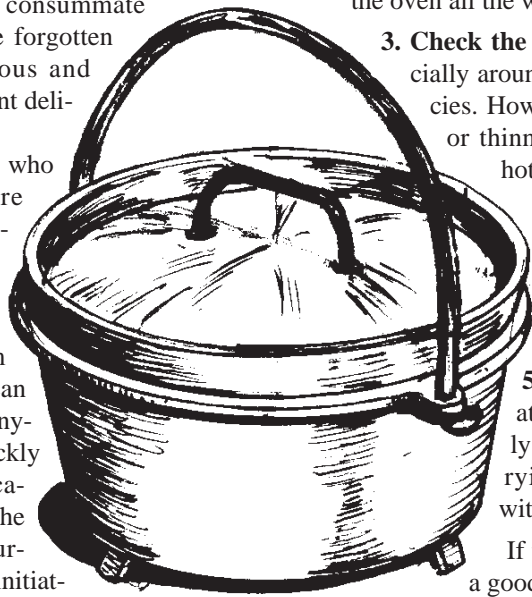
- 1. Only buy Dutch ovens with legs.** Some are manufactured with flat bottoms and are far more difficult to use. The three legs should be cleanly attached to the bottom of the oven, never cracked, bent, or broken off.
- 2. Check the fit of the lid.** It should lie flush with the lip of the oven all the way around, with no significant gaps.
- 3. Check the casting, or thickness, of the metal,** especially around the rim. There will be some inconsistencies. However, areas that are 15% (or more) thicker or thinner than the remaining areas will produce hot or cold spots during cooking and cooling. This variance in thickness will also make the oven much more likely to crack or warp.
- 4. Make sure the lid has a loop handle,** cleanly attached to its center.
- 5. Check the bail (the wire handle)** attached to the oven itself. It should be easily movable and strong enough to use for carrying or hanging a heavy pot full of stew without difficulty.

If these five areas pass inspection, you've got a good Dutch oven.

Another purchase consideration is the size of the oven. Dutch ovens range in size from 8 to 22 inches in diameter. The most commonly used are 10-inch, 12-inch, and 14-inch ovens. The larger ovens hold more if you're cooking for large groups, but they are huge, heavy, and hard to handle. If you only buy one oven to get started, pick a 12-inch. Later you can add a 10-, 14- or additional 12-inch ovens.

Secret 2: The miracle cure

Once you have an oven, it must be *cured*. This process will keep your oven from rusting and produce an interior coating that will prevent food from sticking. The process is



very simple. If you have an old rusty oven, scrub it well and use a fine-grade sandpaper to clean up and expose the entire surface, inside and out. Once the metal is exposed—or if you are curing a new oven—wash the entire oven well with hot soapy water. This will remove the waxy coating from a new oven and the fine metal dust remaining in an old reconditioned one.

Next, heat your Dutch oven, with the lid on, to about 200° in the oven in your home. (You can also do this in a fire, with coals or briquettes.) While the oven is hot, pour or drop in a small amount of oil, shortening, or lard, and while wearing oven mitts or heavy leather gloves, use a clean cotton cloth to wipe the entire surface well, inside and out, to coat it with the shortening, oil, or lard. When the oven is coated, heat it to 350° for an hour. If you do this in your house, expect some smoke. After an hour of heating, let the oven cool slowly. Force-cooling a cast iron oven by putting it in a freezer, snow bank, or outside during a cold rain, can crack or warp it.

Once you have your oven cured, it is ready for cooking. However, after each subsequent use and cleaning, you maintain and strengthen the cure by wiping a very light coat of oil, shortening, or lard over the dry, warm oven.

The proper cleaning of a Dutch oven is a favorite topic of many cast iron cooks. Some say that excess food must be burned off by turning the oven over in a fire, or by putting the lid on and heating the oven until the food residue inside is burned to a black crust or dust (like a self-cleaning household oven). Others claim it is a mortal sin to use any kind of soap when cleaning Dutch ovens. All, however, agree that you never scrape or scour a Dutch oven. Using metal utensils or wire scrubbers or brushes can remove the curing and allow food to stick in the exposed areas unless the oven is re-cured.

Most frequent Dutch oven users have found that wiping out excess food with a paper towel, then washing the pot with hot soapy water and a sponge will produce a clean and sanitary oven. Remember, after cleaning, be sure to dry the oven completely,



then wipe a light coat of your chosen oil over the entire surface of your oven, inside and out, legs included, using a paper towel or cotton cloth. Soon your oven will have a beautiful dark brown or black coat that will be amazingly easy to keep clean.

If you use too much oil while curing or after cleaning your oven, it will become apparent the next time you use it. Each time you take out the oven, remove the lid and smell the inside. If it smells a little rancid, you used too much oil, but don't worry. Just heat up the oven on your stove or over a fire to allow the oil to melt down and puddle in the bottom of the pot. Wipe out the old oil with a paper towel and you're ready to go. There is no need to clean the oven again before using.

Secret 3: Power tools

You will need all the usual utensils required for cooking, such as spoons, forks, spatulas, etc. However, when you pick utensils to use with your Dutch ovens, choose items made of wood, plastic, or Teflon. Metal utensils tend to scrape off the curing when hungry eaters try to dig the last bite of food out of the oven. If areas do get

scraped to the bare metal of the oven, you'll need to re-cure it.

In addition to the utensils you are familiar with, there are other tools unique to Dutch ovens which will make your efforts safer, easier, and more successful.

1. You will need a pair of loose-fitting leather gloves long enough to cover your wrists. When leather gloves get hot, loose ones can be flipped off easily and quickly. Tight hot gloves will stick and burn you. Some people prefer welding gloves (gauntlets), but any good thick leather gloves should do fine. Wear these gloves when working with your ovens. They will prevent numerous painful burns, dropped ovens, and ruined meals.

2. Another tool you will need is a lid lifter. There are a number of lid lifter designs to choose from. The most typical is a wire-handled hook. Many of these hooks have a small bar welded horizontally a short distance up the handle from the curve. This is to keep the lid from tilting from side to side while being lifted. Hook lifters can be very ornate or simple hay-hook-like designs. Probably the surest lid lifter is a more recent design which combines the hook with a three-legged brace. The three legs fit flush against the top of the lid, and the hook goes down the middle of the legs and under the lid handle. With this type of lifter, the hook is pulled up to tighten the lid against the three legs of the brace. This design is steady and excellent for keeping coals and ashes on the lid from accidentally becoming additional garnish for the dish being prepared.

3. Lid holders are also a necessity. This tool may be anything from a clean brick to a three- or four-legged wire rack. It is used to keep hot lids off tables and counter tops or out of the dirt when the cook is adding spices or checking the progress of meals cooking.

4. Long-handled tongs are an invaluable addition to your Dutch oven tools. Even a cheap stainless steel pair will last indefinitely. Tongs are used to place, add, or remove coals as necessary. Attempting to position coals with sticks, pliers, etc., often results in poor placement, burned hands, and generally miserable experiences.

5. A small shovel is also important. This small tool, a garden shovel or fireplace shovel, is used for moving coals from a fire, digging a long-cook pit, or burying excess extinguished charcoal.

6. The last special tool you will want to consider is a whisk broom. The broom is used to brush the dirt, ashes, etc., off the lid and side of your oven in preparation for serving. This makes the possibility of ash-flavored beans remote and cleans up the ovens nicely to prevent carrying dirt or charcoal into your camper, cabin, tent, or kitchen.

Secret 4: A fire in the belly

Here's a secret that even most seasoned outdoor cooks don't know: You can prevent burned bottoms, raw tops, and dried-out foods by using properly sized and spaced coals to control the interior oven temperature. Virtually all baked goods can be baked successfully at 350°, which is the ideal temperature for a Dutch oven. To establish and maintain this temperature, the first thing to remember is to use coals from a fire that are roughly the same size as charcoal briquettes.

Or, for more consistency, use briquettes. Charcoal briquettes will burn longer and more evenly than coals from a fire. Use the best briquettes you can afford. There is a difference in quality, and the more expensive brands are generally worth the additional cost.

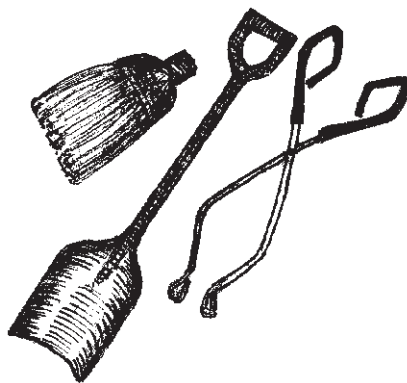
The number and placement of the coals on and under your oven is criti-

cal. The optimal number of coals used for any oven is based on its diameter. For example, if you are using a 12-inch oven, you will need two coals per inch, a total of 24. More coals will likely burn your food and less may necessitate too long a cooking period. To determine how many coals go under and how many go on top, remember the magic number 2:

- 2 coals per inch of oven diameter
- place 2 more coals than the oven size on the lid, and
- place 2 less than the oven size under it.

Example: For a 12-inch oven, $12 \times 2 = 10$ coals under the oven, and $12 + 2 = 14$ coals go on the lid, for a total of 24. The same formula applies to all ovens. A 10-inch oven should have 8 coals underneath and 12 coals on the lid. A 14-inch oven should have 12 coals underneath and 16 coals on the lid.

The placement of the coals is also an important part of proper heat regulation. The proper layout for coals or briquettes under the oven is circular. Coals should be approximately one inch apart in a circle under the oven. Never place coals directly under the center of the oven. If you do, you will create a hot spot and burn whatever you are cooking. By placing the coals in a circle, the natural conductivity of the oven will distribute the heat evenly and effectively.



The coals on the lid of the oven should also be placed evenly in a circle along the flange of the outer lid. However, four of the coals should be placed toward the center of the lid, two on either side of the handle. This coal placement will produce an even, consistent temperature within the oven of approximately 350° and maintain that heat for up to two hours.

In the event that you need to generate a higher temperature inside your oven, “cheat up” the coals. Additional coals placed two at a time, one on the lid and one under the oven, will add another 50°. Two additional coals top and bottom would bring your oven's temperature up to 450°. It is extremely rare to need a temperature of 450°, and you should never need one higher than that.

Secret 5: A cut above

Meats prepared in a Dutch oven are delectable. They have a flavor and aroma you will never duplicate using any other cooking method. While the taste is always exquisite, some Dutch oven users have difficulty producing a visually appealing meat from inside the steamy oven. The secret is simple: regardless of the spice and flavorings you use on any meat or poultry, always brown the meat first.

To brown the meat, place some oil, bacon, or any fatty item in the hot oven to produce a good covering of oil on the bottom, heat the oven, then put the meat you want to cook in the oven and sear or brown it well. This will seal in natural juices and provide the outer texture and color more typical of grilled or fried meats. Once the meat is well browned on all sides, drain off any leftover fat drippings, add whatever seasonings you like, put on the lid, and cook the meat for 30 to 35 minutes per pound of beef, pork, or lamb, or 25 to 30 minutes per pound of poultry.

Secret 6: Garden pride

Garden vegetables are a magnificent addition to any Dutch oven dinner. Most Dutch oven vegetables are prepared in a sauce of some type, but they may be steamed or boiled as you would on a traditional stove. However, if you choose to bake or roast Dutch oven vegetables, they should cook for approximately three minutes per inch of oven diameter. A 10-inch oven full of squash should cook for about 30 minutes, a 12-inch oven full for 36 minutes. Vegetables to be cooked in sauces, such as sour cream potatoes, broccoli in cheese sauce, or new peas and potatoes in white sauce, should be brought to a rapid boil first, the water discarded, the sauces added, then baked for the proper time noted for other vegetables.

Secret 7: If you knead the dough

Good Dutch oven breads seem to be a rarity. However, marvelous corn breads, biscuits, rolls, and sourdough loaves are surprisingly easy to perfect in the old black pot. The larger the oven the better when it comes to cooking breads. A 14-inch oven serves nicely to produce three loaves of bread or up to three dozen rolls or biscuits. To successfully brown breads, however, you must alter the cooking process for the last five to eight minutes of the traditional 25-30 minute, 350° baking time.

First, put a light coat of oil on the interior of a cool oven (including the lid), and let the rolls or bread complete their final rise in the oven prior to applying the coals. Second, place the oven on the coals with the proper number of coals on top as noted earlier. (Remember: no coals directly under the center of the oven.) Third, when there are five to eight minutes left in the cooking time, lift the lid, lightly brush the tops of the breads

with butter, replace the lid, then take all the coals from under the oven and distribute them evenly on the top. With all the heat now on the lid, check the bread every couple of minutes until you think it looks perfect. After brushing the coals and ashes from the lid, remove it, tilt the oven over a bread board, and your perfect bread will gently fall out.

Now that you know the seven secrets, here is a trio of fabulous tried-and-true recipes you can easily make with your old, new, or reincarnated Dutch oven.

Prairie chicken

Using the correct number of coals under the oven, brown both sides of enough clean, uncoated chicken pieces to cover the bottom in a hot Dutch oven with a bubbling 1/4 inch of oil. When the chicken is browned to your liking, remove the excess oil from the oven and discard. Season the chicken generously with the following pre-mixed coating:

2 Tablespoons each, parsley flakes & thyme
1 Tablespoon each, marjoram, oregano, celery salt, & rosemary
1 teaspoon each, garlic salt, onion salt, ginger, ground black pepper, sage, & paprika

Put lid on oven, arrange coals as noted earlier (top and bottom) and cook for 45 minutes to one hour.

Italian zucchini

Coat and marinate zucchini or summer squash (one per person) for 30 minutes in a mixture of 1/2 olive oil and 1/2 lemon juice (A half cup of each will coat enough zucchini for 20 people.) Place one layer of the marinated vegetables in the bottom of the Dutch oven. (A 10-inch oven works great for up to 15 people.) Sprinkle salt, pepper, and a good coating of

grated Romano cheese over the layer, then repeat the process, layer upon layer, until all the zucchini is used or until the oven is almost full. Sprinkle extra Romano cheese on the top layer. Place the lid on the oven and cook as noted earlier with the proper number and placement of coals. Cook for 30 to 35 minutes. This is a marvelous tart and tasty vegetable treat, guaranteed.

Trailside beans

1/2 pound bacon, sliced in small pieces
1/2 pound ground beef
1/2 diced onion
1 diced red bell pepper
1 diced green bell pepper
Two 33-oz. cans of pork and beans
1/2 cup brown sugar
1/4 cup of Worcestershire sauce
2 Tablespoons of white vinegar

Cook bacon and ground beef well in a 12-inch Dutch oven. Use 24 coals all on the bottom to start, then separate and place the coals as noted earlier during the baking stage. Before removing excess oil, sauté diced onion, diced red bell pepper, and diced green bell pepper with the meats until the onions and peppers are soft. Drain off excess oil. Add pork and beans, brown sugar, Worcestershire sauce, and white vinegar. Stir well, place lid on oven, and cook with repositioned coals for 90 to 120 minutes.

Check for moisture content every 15 to 20 minutes. (Some ovens allow too much moisture to escape.) If there is not a soupy layer of liquid covering the beans, add water, a little at a time, and stir to maintain the moisture content.

Eat this with hot biscuits and jam, and you'll understand why cowboys always looked so happy on those long, hard, dusty cattle drives. Δ

www.backwoodshome.com

Comfrey is a powerful healing herb

By Anita Evangelista

Herbs are nature's healing substances, cultivated and collected from the wild since antiquity. The use of healing herbs continues today for only one reason: the stuff has potency, it works, it is 100% hands-on home-made medicine.

The large, hairy leaves and mucilaginous, woody roots of comfrey have acted as a favorite remedy for many ailments since the Roman Empire ruled the known world. The great herbalist of the Middle Ages, Culpeper, believed that comfrey hastened the healing of fractures—indeed, the other names it has been known by include “knit-bone” and “boneset.” During the Dark and Middle Ages, it was considered a superior “vulnerary,” a term used for plants that helped speed healing of battle wounds.

Modern research has established that comfrey is high in calcium, potassium, phosphorus, and trace minerals. The fresh leaves are an excellent source of Vitamins A and C. It also has a unique component for plants—Vitamin B12; it is the only land plant known which contains this component. It is a good source of the amino acid *lysine*, a substance lacking in most vegetarian diets.

Its healing properties come from *allantoin*, a chemical which does, in fact, speed the growth of new tissues.

Comfrey has been under experimental study for nearly a century by the Henry Doubleday Institute in England. This wonderful herb makes one of the finest garden composts known. The Doubleday Institute has produced tomato plants which had to be harvested from ladders, when chopped, composted comfrey leaves were used as the main fertilizing agent. This Institute has also found that a mature stand of comfrey can yield ten tons of hay per acre, when harvested every three weeks during the growing season.

Livestock species differ in their taste for comfrey. In England, it was found that cattle did not prefer comfrey as a hay, or as a green—even though when it was added to dairy

cattle feed, the cows produced more milk. However, it is relished by goats and sheep as a fresh green, and will be eaten as hay when mixed into feed or hay rations. Caged rabbits readily eat comfrey as a snack. Comfrey does not cause bloat or scours in young animals.

One farmer experimented with low-cost production of a pair of feeder pigs, using fresh comfrey leaves along with roots from Jerusalem artichokes as the animals' only foods.

After five months, the 50-pound piglets had grown to 200-pound processing weight. Neither showed any ill effects from their unusual diet. The meat was said to be excellent in flavor.

Growing your own

Comfrey's Latin name is *Symphytum Officinale*. There are hundreds of varieties of *Symphytum* around the world, each variety having slightly different growth habits, some being more leafy, faster growing, better tasting, of increased flowering, or having greater healing properties. Comfrey is not commonly found in seed catalogs, though, and it's impossible to predict how long comfrey will be available legally as seeds or root cuttings. So far, the FDA has not attempted to regulate the plants themselves.

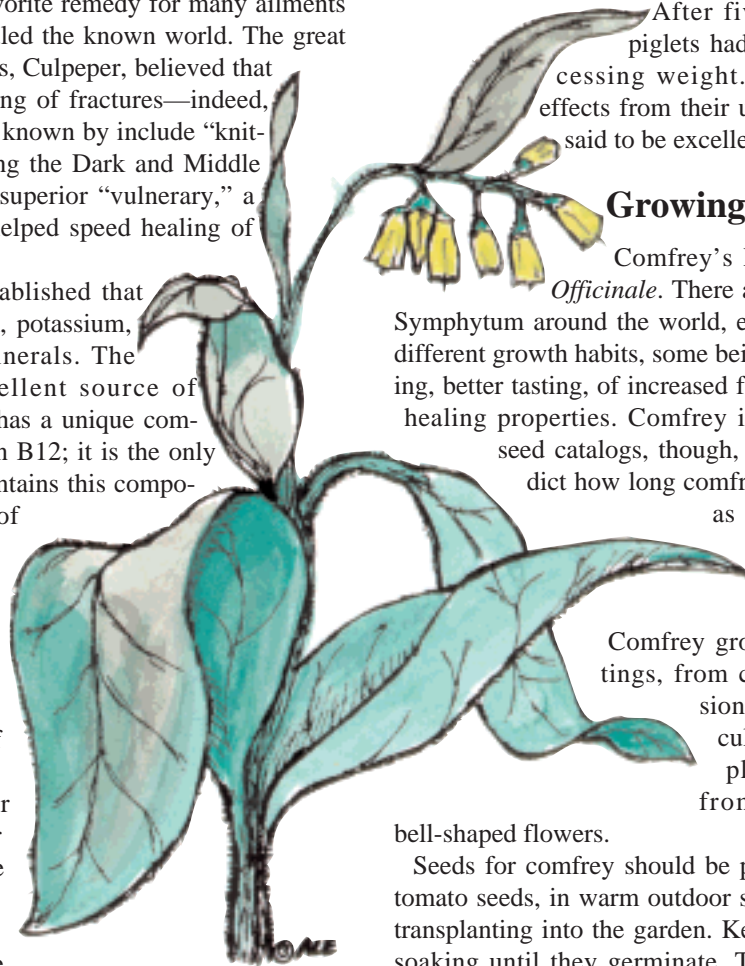
Comfrey grows readily from root cuttings, from crown cuttings, and occasionally from seed. It is difficult to acquire seed, since the plants produce only a few from their many pretty

bell-shaped flowers.

Seeds for comfrey should be planted as you would plant tomato seeds, in warm outdoor soil or in peat pots for later transplanting into the garden. Keep the seeds moist but not soaking until they germinate. Transplant when danger of frost is past.

Cuttings can be planted where you want the plants to grow, under one to two inches of fine soil or compost. Keep moist until the plants show two to four leaves of growth.

Plants benefit from a hay or grass mulch under the leaves and around the root system if you have extended dry spells. Otherwise, the plants provide their own root protection as lower leaves die and self-compost. Plants in full sun may wilt during the hot part of the day. Plants do well in partial sun, because they are protected from excess drying heat.



Comfrey grows wherever it has adequate water, but grows superbly in moist, rich, deep soil. It reaches a height of two feet or more and a spread of three feet. The root enlarges with each passing year, and can easily grow as large as a basketball. Plants will generally take over any garden area in a few years, becoming a nuisance. Daughter plants spring up all around your original plant, and can readily be removed and transplanted. Tilling daughter plants under will compound the problem by distributing healthy root cuttings all over the place. Spreading can be limited by burying pots with their bottoms removed, and planting the comfrey in that.

During the winter, the leaves die back, forming a dark mound over the plant. In mild winter areas, the plant may continue to send up narrow leaf sprouts. The plants remain green year-round in places like southern

Florida and southern California. In areas of severe winter cold, the plants will benefit from heavy mulching; some plants may be winter-killed otherwise.

The best way to acquire comfrey is to get a cutting from a neighbor, or someone in your area—the plants will then be well-adapted to your region.

How comfrey has been used

We tread on slippery ground when discussing the *food* uses of this plant. On one hand, country folks have long eaten the early spring leaves of comfrey—just as they have used the young growth of poke, a known poisonous plant. The Food and Drug Administration recently listed comfrey, chaparral, and sassafras as unsafe for human consumption.

Each type of plant does contain elements which can be harmful to some

people. Comfrey has been implicated in a handful of deaths from liver disease. It is difficult to find information on the unfortunate people who died, though, so we cannot ascertain how significant comfrey was in impairing their health conditions. Did they have pre-existing liver disease? Did they eat huge quantities of comfrey? Were they taking other medications that combined negatively with comfrey?

It's helpful to remember that many commonly-consumed plants have potentially poisonous compounds in them. The familiar potato, for example, contains *solanine*, a systemic toxin; but most people can eat potatoes without ill effects. Sassafras, like comfrey, is an old-time spring tonic annually consumed by thousands of people who survive the experience.

Although consumption of comfrey cannot be recommended, some people continue to use the plant as food and as edible medicine. Comfrey has a

A country moment



Golden Star follows a possum along the porch of Garnet Hunt White in Doniphan, Missouri.

faint taste of cucumber, and for best flavor the leaves are eaten when young and less than six inches in length. It is a favorite early spring vegetable among some country people. Tender young leaves are chopped and eaten raw in salads or cooked like spinach, or sauteed with other vegetables. One California gardener (who has not died of liver disease) reports using comfrey leaves to make a bright green tortellini dough.

Medicinally, comfrey leaf and root can be used fresh in poultices; a decoction (tea) of leaves or root can be made using water, milk, or port wine; or an alcohol-based tincture extract can be made for ready accessibility. My favorite use is in a salve or paste form.

Applying comfrey in any of its forms to an external injury or bruise will instantly stop most pains—as well as preventing excess bleeding. A hammered thumbnail quickly stops throbbing and will not bruise or discolor if a comfrey salve is applied immediately. It must be applied within a few minutes of the injury to stop bruises.

Comfrey salve can be made using a double handful of tightly compressed or chopped leaves to 12 ounces of firm lard. Melt the lard, add the comfrey, and cook at a simmer for an hour, or until the leaves blacken and shrivel. Strain the lard into a clean mason jar or other closeable container. When cool, the salve will be firm and greenish.

If you prefer to use vegetable oil, olive oil is superior as a healing adjunct. Follow the preceding directions using olive oil instead of lard. After straining, add a half ounce of beeswax or paraffin to the hot oil mix and stir until the wax is dissolved. You may have to add more or less wax, depending on how firm the salve is.

Both lard- and vegetable-oil-based salves will leave greasy stains on clothing when used, so it's a good

idea to cover the affected areas with a cloth or bandage you don't plan to keep.

Naturopath Dr. H.C.A. Vogel, author of *The Nature Doctor* (Keats, 1991), recommends comfrey for injuries to the connective tissue covering bones, for festering wounds, for wounds which refuse to heal, and for leg ulcers. He indicates that a comfrey poultice can ease the pain of gouty joints. He also notes that the use of comfrey extract known as Symphosan (prepared from the mucilaginous fresh raw comfrey) helps ease the pain of neuralgia or overly sensitive skin, and even helps eliminate wrinkles in the skin over time.

Using sensible precautions, comfrey wouldn't be used on gaping wounds which need stitches, or on deep or puncture wounds. Although comfrey teas have been used to help heal mouth and stomach ulcers, this use should not be encouraged.

Commercial sources

Park Seed Company,
Cokesbury Road, Greenwood,
SC 29647-0001

A packet of 10 seeds of Russian Comfrey (*Symphytum x Uplandicum*) costs \$1.35, plus \$ shipping. Write for their catalog.

Nichols Garden Seed Company, 1190 North Pacific Hwy, Albany, OR 97321-4598

Six two-inch-long root cuttings are \$4.65, or 12 for \$7.95. Shipping is \$1.50. Available only in spring. Write for their catalog.

For more information

The Herb Book, by John Lust. Published by Bantam Books, 1980.

Herbal Medicine. The Natural Way to Get Well and Stay Well, by Dian Dincin Buchman. Published by Gramercy Publishing Co., New York, 1980.

The Rodale Herb Book: How to Use, Grow, and Buy Nature's Miracle Plants, edited by William H. Hylton. Published by Rodale Press, Emmaus, PA, 1974. Δ

A country moment



Evan Diesman-McDavid, 2½, of Alexandria, Kentucky, contemplates his world.

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GUILDERS

My view

Thanks for not killing them

We're entering the season when traditionally we express our thanks to someone, often the Almighty, for something we feel fortunate in having, such as our fine family, our health, or perhaps just our turkey dinner. I've broadened my thankfulness this year to include the federal government, the Oregon National Guard, the Oregon State Police, the Salem (Oregon) SWAT team, and the Marion County (Oregon) Sheriff's Department.

I'm thankful to them for not killing some friends of mine, namely Paul Revere, founder of Embassy of Heaven Church, located in Marion County, Oregon, his lovely wife, Rachel, and their two charming daughters, Brooke, age 17, and Skye, age 14. The stage was certainly set for these police agencies to do so earlier this year. Just after dawn one January morning, dark-clad members of these agencies, equipped with an armored vehicle and carrying an assortment of automatic weapons, raided the church, breaking down doors, smashing windows, ordering the family and several other members of the church out of bed, and carrying Revere and other church members off to jail. After some desperate pleading from Rachel, they allowed the petrified daughters to stay in her care. At the jail, one of Revere's fingers was broken as he was forcibly fingerprinted.

The Revere family's crime was that they had failed to pay their property taxes, and Marion County officials, backed up by the law (the county had denied the church's request for tax-exempt status) and urged on by county officials who had demonized the church and its members as dangerous extremists, had orchestrated the raid to seize and confiscate the 34-acre church property for nonpayment of \$16,000 in taxes. The property had been valued at \$119,000.

When I read of the raid I was deeply troubled, and reminded of the bungled police raids at Ruby Ridge in Idaho during which the FBI managed to kill Randy Weaver's wife and son, and at Waco, Texas, during which 80 people, many of them children, were incinerated in a fire. I was troubled but grateful that the police had acted with enough restraint not to cause the death of any member of the Revere family or their church.

It struck me as absurd, but a sign of our tragic times, that I had to worry about friends of mine being killed by their own government. And I found it equally tragic that most of the newspaper and media accounts of the raid were sympathetic to the government agencies, not the Revere family. The Revere family and its church were, according to news accounts, extremists—and that modern day buzz word made them eligible for persecution, even death, at the hands of the government. What a disturbing world we live in when the

United States of America, of all countries, could so easily justify such a view.

I had come to know the Revere family at the various Preparedness Expos they had attended to spread their interpretation of the Bible. Revere, with wild beard and hair, certainly looked different from the clean-cut TV evangelist, or the well-groomed priest or minister. But rather than the hand-waving, impassioned preacher, he was a calm, considerate man who talked to whoever came up to his vendor's booth. Put simply, he believed in the Kingdom of Heaven and thought mankind owed allegiance only to that kingdom, and that we had no obligation to abide by the rules of any kingdom or government of this earth. His Embassy of Heaven Church had its own government. Revere refused to pay taxes of any kind, or even to apply to the government for a driver's license. Instead his church issued its own driver's licenses. Many of us at the Preparedness Shows thought Revere's beliefs peculiar, but not dangerous. He did not believe in violence and saw no use for firearms.

His daughters added a touch of refinement and elegance to the shows. Meticulously clad in long, flowing dresses, the beautiful and always smiling young ladies sold pencil-shaped packets of honey for a dollar as part of their effort to help their father's church. My daughter, Annie, whose age falls between that of the two girls, often joined them in tours of the aisles. The other vendors were always glad to see them; they brought gaiety and charm to the sometimes somber political mood of the shows.

When I saw Revere and his family at our most recent Preparedness Show, I greeted them with a much bigger than usual smile, because I knew I was lucky to have had the chance to greet them at all after their encounter with one of today's most dangerous entities—government. During the three-day show they did as they had done at previous shows: shared their homemade stews and cookies with me, tended my booth while I went off to conduct business with other show vendors, and generally made my stay at the show more pleasant. They have never tried to convert me to their beliefs, perhaps realizing I was beyond conversion to anything. And as at previous shows, they never asked for anything in return.

The Revere family has been homeless since that January raid. They have lived in a couple of trailers donated to them, on some land owned by a man they had ministered to while he was in prison. For this show, they were camped out at a friend's property. They are trying to get their former property back, but I am not hopeful for them. Revere still has that calm and composed defiance against worldly governments; if the governments who raided his church and took his property thought they broke Revere's spirit, they are wrong.

But the government has had the last say, in a worldly way, and these "extremists" have been put in their place. But at least, this time, the government didn't kill them. And for that, I guess I should say thanks. Δ

You don't have to be a historian to make money writing your hometown's *Pictorial History*

By Robert L. Williams

Write a history book? I can hear the screams now from all over the country from people who hated, detested, loathed, and abominated history from the time it was inflicted upon them in junior high (nod middle) school, and with the passage of time the hatred has grown worse.

But wait! What is history today was nothing more than the juiciest gossip when it was happening. Think how people must have salivated when they snickered about how George Washington was first in war and first in peace, but he married a widow.

Think of Andrew Jackson and Rachel, who was (or wasn't) his wife because she was (was not) divorced from her husband. Or Ben Franklin who never really married Deborah and who once wrote that men should choose an old mistress because, in



Churches will often provide or lend photos of congregations from many years ago, and the grown-up children or grandchildren will buy books.

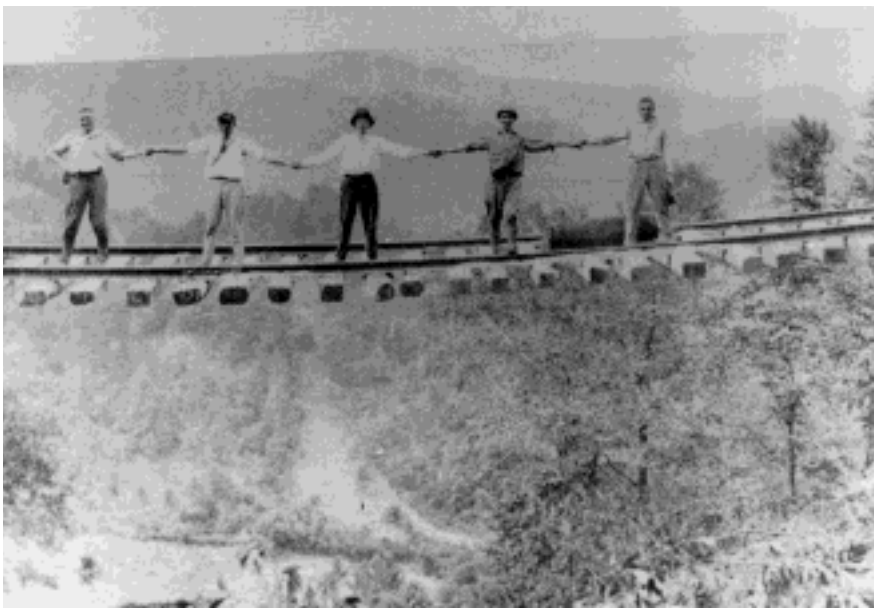
part, they are so grateful. What about Jefferson and his much whispered (but never grounded in fact) affair with a slave woman?

But the type of history discussed in this article is not the saga of great men accomplishing great deeds. The previous is here just to illustrate that history definitely is interesting to most people in one form or another.

The topic of this article is the *Pictorial History*. This is the book about your home town, or your county. Such a book is jammed with the narratives of local men and women who made their home town great or at least better.

But you are not a historian? That doesn't matter in the least. If you can take a story that was told to you by a friend and then tell that same story to another person without losing the vitality and accuracy of it, you can write *The Pictorial History* book.

What, exactly, is a pictorial history? It is a gathering of facts and photos of the earliest churches, the first settlers, the epochal periods of the town, the first and the finest of the town's houses, the arrival of the first automobiles and mills, major personalities, the



A flood washed away the soil beneath the railroad tracks pictured here and these men are seen standing 200 feet in the air. Shots like this have a place in the book, even though the print is poor.



Some ancient photos are so gray that there is no contrast, but editors can work wonders with such shots.

departure of the steam engine, the one-room schoolhouse, and the way of life that existed a century or three centuries earlier.

But since you were not around when these great events and people were the talk of the town, how can you write about them and secure photos? The easy way is to enlist the aid of the local historical society or museums, to gain access into private and personal collections, and to research old histories of the town or county. You will find that most historical societies are delighted by your attention and your plans to write a history of the community.

Finding a market

First, though, you need to find a market and then learn about the strategies of writing—and selling—such a book. The first step is to contact some of the publishing houses that like to market pictorial histories. You can locate these firms best by going to your local library and checking into some of the books in the collection.

Once you have found the books (and most libraries will help you to secure a loan of such a book, if they are not

stocked) you can get the librarian to help you locate the address and proper contact persons at the company.

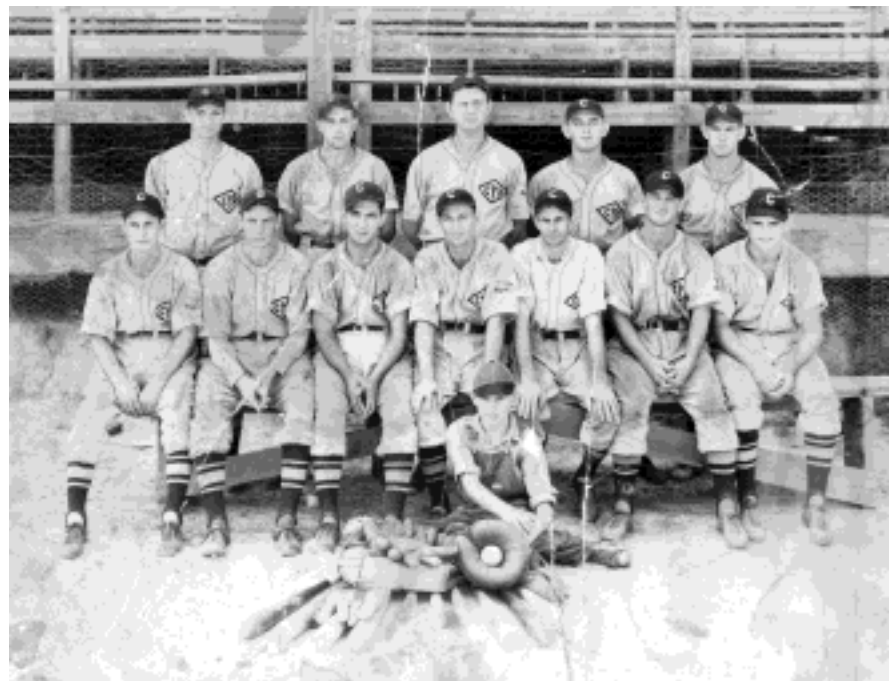
Make a proposal to the editor or publisher of the company and explain that you wish to produce such a book, and then state your qualifications. In many cases it is enough to state that

you are a long-time resident of the town or county and that you are an avid reader of local history. It is helpful to cite the names of prominent persons in town who will endorse you as a potential author.

It really doesn't matter whether you have been published before or not. Editors want you to be published, but they are not adamant on the topic. When I wrote my first pictorial history I had published several books and hundreds of articles and stories, but I never mentioned these to the editor. He asked me to submit a few sample pages and photos, with captions. A few days later he called me and offered me a contract to write the book.

Let's spend a few minutes talking about money before we go any further. Typically, you will receive 10 to 15 per cent of the revenues generated by the book.

Examine the figures. Suppose you get 15 per cent of the retail cost of the book. The book sells for \$35, so your cut from each book will be \$5.25. If the company prints 5,000 of the books



Ancient photos of a town's baseball team when the Field of Dreams was almost a reality add greatly to the book and to the number of people who will buy it.

and sells them all, your final take will be about \$26,000.

But that's not all. You can usually buy the books at half the retail cost and re-sell them. Suppose you buy 50 copies at \$17.50. You will have an investment of \$875. You need not buy them all at one time. You can buy a dozen for \$210 and sell them for \$420. That's a profit of \$210.

Plow the profit back into more books and sell them in the same manner. Keep doing this, and with each order you earn the \$210. If you now wish to order more copies, you will have an investment of only your profits, so you can't possibly lose money and you stand to gain quite a nice amount.

And that's still not all. When I wrote my first book of this sort, I contacted a nearby newspaper that wanted to make inroads into the community. I agreed to supply the paper with a series of human-interest stories about the community, and then I wrote to



This damaged photo shows the first automobile ever in the county. Behind it is the town's first luxury hotel. Such shots are available through historical societies.

the editor of a regional magazine and made the same deal.

and read the book. So books sales boom.

Local civic clubs invite you to speak at their meetings, and you can sell

Aftermarket sales

I sold more than 150 stories to the newspaper and enjoyed an income of \$7,500 in ancillary sales. I then sold the stories to the magazine editor and marketed over 200 stories, for another gain of \$15,000. I then found national publications interested in two dozen of the stories and earned more than \$5,000 there.

That's more than \$27,000 in second-hand sales alone. I later parlayed three of the stories into full-length books and picked up another nice bit of change.

But don't the book publishers scream when the author sells material that the publisher is paying for?

Not at all. Look what happens.

The human interest story appears in the local paper and people read it with interest. The readers get to know your name and the types of stories you write. Later, when they realize that you have combined these stories into a book, they leap at the chance to buy



Be on hand for community celebrations. Here musket-bearing citizens "shoot in" the New Year, a tradition now observed in only a few towns in the nation. Notice the "fractured" air around the edge of the smoke cloud.



Sometimes you can get permission to take a photo of a photo that is in someone else's book and get a printable copy. It's not the ideal way, but when the photo is that of a well above ground, it's worth the effort.

A Backwoods Home Anthology

books after the speech. Much of the time you will speak for only a free meal, but if you sell 20 of the books and realize a \$17.50 profit on each book, you have realized a net gain of \$350 for the meeting. You can buy a lot of anti-acid tablets with that kind of gravy.

Here's how the book publishers—at least some of them—like to work. The advance man comes into the community and meets with businessmen or community leaders and pitches the book as a real fund-raiser. The front man points out that the book will sell well because of the local angles, and all the community needs to do is come up with the cost of buying a set number of books.

The publisher may set his sights on an order of 5,000 books, which comes to a tall order. So the community leaders ask banks, local businesses, and other influential components of the town or city to act as sponsors.

As sponsors, the investors get their names prominently placed in the book, and many of them use the books as public relations tools to entice new businesses to come to town. So everyone wins.

Writing the book

Now, you need to know more about the actual writing of the book. Go into the city or county archives or libraries



Unique citizens and community leaders can be posed for special shots that guarantee the sale of many books.



Mill worker photos from a bygone age are wonderful for use in the book. This photo warranted a full page, and you can multiply the number of people in the photo by 10 (the number of relatives or friends who want their own copy of the book) and add the final figure to your bank account.

and dig out the old histories. Meet with sons and daughters or at least the descendants of the early settlers. Ask to use old photos—the older the better. The publisher can work wonders with the ancient snapshots.

Do not take the photos away from the house. Take your camera along and take a picture of the pictures. Or hire a photographer to copy the photos for you. He will, of course, take a chunk of your money, but you may need to do this. If there are no photos, look for old paintings, drawings, sketches, or art works of any sort that you can photograph easily.

Go to old churches and ask to borrow their histories of their church and old photos. Go to City Hall. There are dozens of excellent sources for the photos and information.

Try to include every stratum of your society into the book. Put everyone's great-grandfather or great-grandmother into the book if possible. You'd be amazed at the number of people who will buy the books simply because there are several mentions of a loved one's name or photos of the loved one in the book.

The books are wonderfully easy to compile and write, and they earn a great deal of money along the way.

After the book is completed and sold, wait a few years—five or so—and ask the publisher about a re-print or a new edition of the book. You'll need to add about a dozen pages to the old text and a few photos of events or sites that have appeared since the first printing of the book.

So you work only a few hours and make several thousand more dollars.

Still don't like history? Then move over, because there are plenty of people who do—people who want to read another highly interesting book every night before going to bed.

Their bank book. Δ

Government is like a baby. An alimentary canal with a big appetite at one end and no sense of responsibility at the other.

Ronald Reagan
President of the United States
1981-1989

For a unique taste treat and a lot of fun, grow Native American corn in your garden

By Jackie Clay

It used to be that when folks spoke of “Indian corn,” they meant those colorful ears of corn, hung up at the holidays, then put away for next year’s decoration. A person never really thought about eating Indian corn—that is, unless you were a Native American lucky enough to have a family which still raised traditional crops.

These people know that there is much more to native corn than “pretty,” as for centuries these corn varieties have provided a staple food for tribes across the continent. Most Native North Americans grew at least one kind of corn.

Many grew several, as each variety has a use that suits it best, such as to grind for corn meal; to eat fresh, boiled or roasted; or to make into hominy.

The tribes each developed their special varieties, grown and improved through the generations, for taste, nutrition, size and beauty. (When compared to “modern” corns, it appears that the white man forgot beauty when developing corn varieties.) Most native corns are very pretty, and with as many differences among them as there are tribes. Even the Cherokee White Flour corn is a

glimmering gossamer white, not just plain white.

And the colors! From solid colors, such as the blue corns, each differing in size, shape and hue; reds, such as Mandan Red, Hopi Kokoma, Tarahumara Maize Rojo, and Copper

all the way north to the Canadian tribes.

So important was corn that many tribes were brought to a state of starvation by invading whites burning and otherwise destroying community cornfields. So personal an attachment did

Native Americans have to corn that it often was important in religious ceremonies and dances, and in many places, it still is today.

Types of corn

Many folks grow corn today in their home gardens, but only use corn fresh, as “sweet corn,” boiled and eaten with butter and a sprinkle of salt. But when used only as sweet corn, people are missing out on many other uses.

Most of us use cornmeal. But store-bought cornmeal is *not* whole cornmeal,

as whole cornmeal will go stale quickly, just as whole wheat flour will. So the industry removes a portion of the corn kernel, which, unfortunately, removes much of the flavor.

There are literally hundreds of Native American flour corn varieties, some closely related and others very different from other flour corns, but each provides great corn for grinding, and all is able to be easily grown in nearly anyone’s garden.

In the past, as well as in some remote traditional areas today, corn was ground by crushing it beneath a



Examples of some of the colorful varieties of Native American corn. From left to right, Santo Domingo blue, Hernandez red mix, Santo Domingo rainbow, and Navajo market unnamed beaked.

Cristalino, as well as copper, burgundy and even pink; the multicolored corns, such as Hopi Chinmark, Mandan Bride, and Tarahumara Serape; and even corn in gold and white.

Grown for subsistence, corn, squash (including pumpkins), and beans make up the “Three Sisters” in native gardens across the continent. Corn was very important to most tribes, not only as food, but as trading material. It was through trading that corn found its way from southern Mexico, where it was domesticated around 2000 B.C.,



The three sisters of Native American culture—squash, beans, and corn, which are staples in most tribes

stone that was rubbed back and forth on the kernels which rested on another flat stone. In southwestern and Mexican areas, this is called the *mano and metate*. In today's kitchens the whole, field-dried kernels can be ground to an excellent corn meal by using a home grain mill. A couple of handfuls of dried corn and five minutes worth of grinding will provide enough fresh cornmeal for a great cornbread complete with wonderful corn taste and full of nutrition. Luckily, with reasonable care, field-dried corn kernels will stay fresh-tasting practically forever. Native Americans in the past depended on it to store well in case of crop failure or hail destroying a year's crop.

Varieties called flour corn are *not* the only "flour corns." Each variety produces its own flour with distinct texture, color, and taste. One must sample many kinds to choose a favorite.

Many flour corns may be boiled "green" (at the sweet corn stage, where there is milk in the kernel when it is pierced by a thumbnail), or eaten roasted at the same stage. Our favorite method of roasting the ears is to dip the fresh unhusked ears briefly in spring water, then quickly shake and

lay on a bed of glowing coals. When the ears are steaming and the husks a bit charred, we turn them and break out the butter. One can scarcely wait for the husks to cool enough to handle. The roasted ears have a distinct smokey barbecue taste. As kids, we used to sneak a few ears out of the cornfield by the house and roast them well out of sight. There was never better eating, anywhere.

Closely related to many of the flour corns are the hominy corns or posole corns. Often folks who "hate" hominy, the soggy, nearly tasteless canned corn product bought at the supermarket, love fresh hominy. Hominy is simply field-dried corn kernels boiled in lime water until the outer layer or "skin" of the corn softens and can be loosened. (This makes the corn softer and more tender to chew, as well as adding nutrients.) The old people boil the kernels with ashes to gain the same effect, rinsing well after boiling.

This cleaned hominy or posole corn may be added to stews, eaten alone, or dried and ground to make *masa harina de maiz*—corn flour. This greatly differs from corn meal. Corn meal is more gritty textured since it contains the hull which is removed in the hominy process. Masa is also more silky and flour-like and is used for corn cakes, tortillas and tamales. Like everything else, homemade masa is far superior to commercial products, and you know what is in it.

Native Americans used two types of parched corn. The one most folks know about is the "corn nuts" type of product which is heated until it puffs up but does not pop. Traditionally the



Hopi chinmark flour corn ready to grind in a traditional metate. In the basket are Cherokee white flour corn, flor de rio, and Santo Domingo blue. In the jar is sweet corn (yuman), boiled and dried

corn was heated in a basket of very hot sand until it puffed up. The same effect can be had by placing a handful of field-dried kernels in a cast iron frying pan over a stove burner without oil and stirring the kernels until they puff. This makes a crunchy, toasted-corn tasting treat.

The parched corn we use is simply boiled or roasted green corn, cut off the cobs, and dried until crunchy. It has a delicate nutty taste, and it is very filling on a trip. A little goes a long way—like jerky. The two, eaten in combination, make a good meal on a journey.

Of course, the most common Native American corn is popcorn. Modern popcorns may pop up bigger, but native popcorns are cornier. Usually chosen for popping abilities, native popcorns are often smaller kernels from smaller plants but very full of taste.

Some native varieties you can try growing

One benefit of growing native corns is that they are well adapted to less than ideal growing conditions. For instance, some northern flour corns, such as Mandan and Iroquois corns, have been bred for colder climates, such as North Dakota and the Northeast, allowing them to mature in a shorter growing season. Others, such as Hopi, Navajo, and Tarahumara corns, tolerate much drought and hot, dry winds, and still produce a good crop.

Remember too that all Native American corn varieties are open pollinated, allowing a gardener to save seed for next year's crop and pass on to friends and family.

Remember that corn cross-pollinates very easily, and that to keep your seed pure and make sure you get the taste and look you are after, isolate each variety by *at least* a quarter mile, or stagger planting dates so that varieties with like dates of pollination are planted at least two weeks apart.

On our ranch, we are a bit creative, planting early varieties next to late ones, then staggering the planting dates as well. This allows us to grow 10 varieties on our 100 acres. But we always hold our breath, as many outside factors can change the time a corn plant produces pollen.

Many types of blue corn are on the market. Unfortunately, some of those found in seed catalogs are not great tasting, being commercial sports of old varieties. Our favorite is Santo Domingo Blue, which produces a huge ear of dark blue flour corn. Luckily, it also gives us great taste as well. The plants are large, stocky, and stand up well to the wind, tolerating drought quite a bit. Black Aztec is also a good "blue" corn, having a nutty taste. It gives the added bonus of being a great sweet corn when picked green in the milk stage. The Black Aztec plants are smaller than those of Santo Domingo Blue but still large and sturdy. Both blues produce two good ears per stalk.

The blue corns are often used to provide corn meal which is used for cornbread, corn cakes, or ground for masa and used for blue corn tortilla chips.

We grow many Cherokee crops, as my husband Bob is of Cherokee ancestry. Our favorite corn is Cherokee White Flour corn, a very tall, husky plant, producing very large ears of fat, glimmering white kernels. In addition to being an excellent producer of sweet field-dried kernels, which we grind and also use as hominy, Cherokee White Flour corn is excellent used as roasting ears and not so bad eaten as boiled sweet corn.

Another of our favorite flour corns is Hopi Chinmark, an absolutely gorgeous native corn. The ears are basically red and orange, speckled with cream kernels and now and then we find a few solid cream colored ears in the field. But the clincher for beauty is the presence of "chinmarks." The corn was given this name because the stripes on each kernel resemble the ceremonial markings of paint,

streaked on the chin with three fingers of a hand before war, a dance, or other important occasion. The chinmarks give the individual kernels great beauty and make the ear breathtaking. This variety is great for corn meal which seems to glow in the jar. It is also eaten roasted and parched.

Our favorite native sweet corn is Yuman, which is a smallish ear of very sweet, tender kernels. The color is whitish with orange kernels as the corn reaches the milk or sweet corn stage, and it turns to yellow and red, with chinmarks, as it field-dries. The plants are about 4½ to 5 feet tall, smallish, but quite hardy. (We had a planting endure 29 degree temperatures and survive uncovered.)

Another favorite of ours is Chemehuevi, which is a very quick maturing sweet and corny tasting variety. The plants are small but tolerate drought and wind quite well. The kernel is white during the milk stage, but as the ear matures, it colors from yellow to pink with a few stripes.

As I've said, Black Aztec is not only a good blue flour corn, but is excellent as a sweet corn, eaten in the milk stage. The ears are basically white, with a few blue kernels sprinkled in. We think it makes an interesting addition to a meal, with the color variation. As the corn matures, the color darkens, until it is a glossy black.

Popcorn

Popcorn is our favorite snack food and treat, so it isn't unusual that we grow at least four medium sized rows for home use. Cochiti is one of our favorites, having medium sized glossy ears of little plump kernels. It does have a short maturity date, for popcorn, of about 89 days, which is a definite plus in many areas.

Saving seeds

Luckily, open pollinated corn is very easy to save seed from. But as I've said, corn is very easy to cross breed,

so you have to not only watch the pollination times of your corn at home, but that of neighbors—up to a mile away, especially upwind from you. While most crossbred corns are good to eat, it does no good to save the seed as you will not be sure of what you will end up with the next year. (You don't want to grow field corn when you were expecting flour corn. While it's edible, it may not be as good as you'd like.)

Let all corn varieties mature and at least partially dry on the stalk. If the weather is not cooperating and damp weather threatens, pick the partially dried ears (the husks are now tan and rustle when the wind blows), open the husks, and allow the ears to thoroughly dry in a protected area, such as a barn loft, attic, or garage. Keep an eye on the ears as mice can do great damage in a short time.

When the kernels are hard and very dry, you can rub two ears together over a container and easily shell the corn off the cob. (If you have the room, and plan on long-term storage, leaving the kernels on the dry cob will give better results.)

After the kernels are shelled, it is a good idea to thoroughly stir the kernels which evenly distributes any moisture, preventing mold from forming. I love to stir a garbage can full of corn kernels with my bare arm. Such a wonderful feel.

Store all corn, shelled or cob, in a dry place, protected from dust, rodents, and insects. It will keep a very long time. Once ground though, corn should be used quickly as it will go rancid if left unused.

There is no reason that native corns can not be planted in rows, as one commonly sees "modern" corn planted. Like all corn, though, a person should plant at least four rows in a block to ensure proper pollination, even if due to space restrictions, it must be a very short block. My mother plants her native sweet corn in a four-foot by four-foot block, and it

produces very well, with the plants only six inches apart. There are many native traditional planting methods with which one may want to experiment. For instance, in the Southwest, the Hopi plant their entire field in a waffle pattern, a series of six-foot square basins which not only conserves any rainfall, but protects the tender young plants from the harsh, dry wind.

Some desert tribes plant their corn in rows, but the rows are 10 feet apart and the little groups of corn plants, four to six feet apart. To some, it looks wasteful, but it is very hard to grow corn on what one might think of as a sand dune and desert tribes have learned what works and what does not.

The Cherokee commonly grew corn in hills, about a pace apart, in which were also planted pole beans, which climbed the corn stalk. In cold, wet climates, corn was also planted in

hills, but the hills tended to be higher and larger, perhaps the beginning of the "raised bed" concept.

We try to use mainly varieties and methods which are used by the old Native American peoples in our area, concluding that the crops have been developed to our weather patterns and the cultivation practices commonly used here. But we also grow other native varieties of corn here and have had great success doing so. So, if you are like us and like to experiment as well as eat great food, give a few of the Native American corns a try. Your family will be glad you did.

(Some sources for Native American corn seed are Seed Dreams, 231 Fair Avenue, Santa Cruz, CA 95060 — free catalog; Native Seeds/SEARCH, 2509 N. Campbell Ave. #325, Tucson, AZ 85719 — catalog \$1; Seed Saver Exchange, RR3 Box 239, Decorah, IA 52101 — free information; Garden City Seeds, 778 Highway 93 North, Hamilton, MT 59840 — free catalog.) Δ

A country moment



Zachary Roberecki, age 2, of Winnipeg, Canada, plays in the snow.

Plant your Irish potatoes this fall or winter

By Robert L. Williams

My family has made a practice of planting Irish potatoes in the fall rather than in the early spring. We tried it both ways for many years and our conclusions are that, season after season, fall planting seems to work better for us.

Here's an illustration: last spring we dutifully planted our potatoes in March, which is about as early as we can work the land successfully. We planted the spuds six inches deep, and then we waited.

And waited. And waited.

In April the first signs of growth appeared, and in the cool spring the plants grew, barely noticeably. When the really warm days of May arrived the potato plants put on a growth spurt that was truly gratifying.

And in June, believe it or not, we had a series of freezes and the plants were killed back by frost. They never made a come-back. The entire potato patch was a total loss of time, energy, and a small amount of money.

Winter or fall planting

Now take a look at winter or fall planting. As soon as all the summer garden crops have been harvested, we till our potato patch and make our winter planting. When the soil is loose and well pulverized, we dig deep rows—eight to ten inches. If you wish, you can use shallow rows and later pile dirt onto the top of the planted taters.

With the deep row open and ready, we fill the bottom of the row with dead leaves (You've been raking leaves from the yard anyhow, and this is a fine way to dispose of them), or we use pine needles. It's good to have at least four or five inches of this dead matter in the bottom of the row.

Then set the potato eyes or cuttings in the row on top of the dead vegetable matter. It works better if you use whole spuds, particularly if you have some small ones that are really too little for good table use. Set the small potatoes a foot apart in the rows.

Now cover the potatoes with another layer of dead leaves, well-rotted sawdust, or other organic mulch material. You can use grass clippings or any other mulch available. Then add the necessary dirt to fill the row and even hill up the row slightly.

Admittedly, this type of gardening is a little harder, takes a little longer, and seems to be a total flop. But wait till spring and see the difference.

During the depths of winter the snows and rains will cause the mulch materials to decay and, as the mulch decays, warmth is generated, just as green hay or green sawdust will generate heat as it decays. The heat is generated for several weeks or even months, depending upon the amount of mulch used, and causes the potato sets to begin their growth cycle so that the roots begin to grow. The second layer of mulch and the dirt on top of it prevents the heat from escaping rapidly, while the soil on top is too cold for the plants to emerge from the soil. Small potatoes start to form very early, and they will grow all winter.

Obviously, the classic manure can be used as well, but this type of material tends to burn the roots of the tender plants. If you use manure, mix it with a generous amount of rotted sawdust or dead leaves.

When the weather is warm enough, the leaves of the plants will shoot forth, and because there is already a great root system the plants will be hardier and will grow faster. We asked a neighbor, a farmer, why the plants grow faster, and he gave us his theory:

The plant when young has a struggle, he says, to provide enough nutrition and growth power for both roots and shoots to grow, and the result is that both are often weak and fragile, more vulnerable to insects and cold snaps.

If the roots are already established, the growth energy can be used by the above-ground plant without robbing the tubers below the soil.

You can add a small amount of commercial fertilizer, if you wish, by sprinkling it along the rows. But the decayed mulch is providing its own fertilizer power by this time. The results are that by very early spring (unless you live in a frigid part of the country) you will have large, sound, beautiful potatoes long before your neighbors have any to harvest.

And this is only part of the beauty of winter potatoes. Because the early growth is done underground in cool weather, the above-ground plants will mature earlier than they would in the usual form of gardening, and you will be ready to harvest before the insects above and below the soil surface appear to devour plants and tubers.

A bonus of this type of planting is that the crop is harvested early enough that you have time to have a second or even a third crop on the same plot of land, especially if you live in an area where the growing seasons are longer.

I confess that I don't know how this system will work where the winters are brutal. What succeeds in the Piedmont of North Carolina may not be successful in Minnesota or Montana or Maine.

Give it a try this winter, but you may wish to try only a small patch of potatoes until you see how the system works. If you are pleased by the results, then next season try it on your larger potato patches. Δ

Protect your chickens from predators by installing this novel electric fence

By Carol Kuehn

Chickens are defenseless critters and need protection, especially at night, if you keep them in rural areas where predators are numerous. Here the main midnight marauders are raccoons, and seeing the destruction they can do to a flock on one night raid makes strong housing a real necessity. One morning after walking to the silent hen house and seeing the chickens brutalized with breast-bites taken from each, I realized the necessity of impenetrable housing.

I had already boarded up all the holes, as raccoons can get through amazingly small openings, and I had spent many years closing the door at dusk, after counting to make sure all the chickens were in, and then opening the door at dawn to let them out. I had also learned that chicken wire was no barrier to raccoons; solid wood construction and welded wire are all they respect.

But the hen house is a long walk from my house, and this routine got old fast, so I thought about an automatic way to protect my friends and found the solution in electrically charged fencing. I considered surrounding the whole acre of chicken yard with hot wire but realized that the door to the house was the place to put protection. Chickens learn to go into their house to roost at night and I took advantage of this habit.

I bought a 12-volt fence charger, a battery, an inexpensive regulator, and a small photovoltaic (PV) panel to mount on the south side of the hen house roof. The battery and regulator are inside the house and the charger is outside so I can turn it off when I want to go in. The door is about 18 inches above ground level, and I cut a small opening in it to allow access for chick-



One end of the wire mesh in front of this chicken house door is connected to a fence charger. A predator standing on the ground, touching the mesh, completes the circuit and gets a shock.

ens. Next I constructed the hot barrier, the grid of charged wires in front of the door. Two wooden stakes in the ground, about two feet out from the door and the same height, were connected at the top with a piece of PVC pipe between them. I nailed insulators to the wood just below the door and ran a wire from one side to the other, extending 10 inches beyond the opening. Then it was easy to construct a grid of wire from the PVC pipe to the wire on the house. I made a loose weave with wires about four inches apart and connected one end to the battery. A low shed attached to the house near the door seemed like a possible jumping place for predators so I ran hot and ground wires up and around the whole door.

My chickens jump up onto the PVC pipe and then jump into their door opening. They can stand on the hot wires and not get shocked as they are not grounded. If raccoons come they can't leap across the grid, and get a good shock when they touch the wires. They can't balance on the PVC pipe and can't walk across the loose

grid. I turn off the power when I go in to feed or collect eggs, just so I won't accidentally touch the wires and shock myself. A low run of chicken wire around the whole grid keeps hens from scooting underneath and getting a shock while grounded.

Ha! I did it! The 'coons are foiled and my chickens are safe at night without the routine of closing and opening their door. It's worked for many years and the only maintenance is keeping water in the battery and weeds from the hot wires. Δ

Historical Notes

(The following was written by Professor Alexander Tyler approximately 200 years ago while our 13 colonies were still a part of Great Britain. He was writing about the fall of the Athenian Republic over 2,000 years earlier):

A democracy cannot exist as a permanent form of government. It can only exist until the voters discover that they can vote themselves largesse from the treasury. From that moment on, the majority always votes for the candidates promising the most benefits from the public treasury, with the result that a democracy always collapses over loose fiscal policy, always followed by a dictatorship. The average age of the world's greatest civilizations has been 200 years. These nations have progressed through this sequence: From bondage to spiritual faith; from spiritual faith to great courage; from courage to liberty; from liberty to abundance; from abundance to selfishness; from selfishness to complacency; from complacency to apathy; from apathy to dependency; and from dependency back again into bondage.

(From the pundit Montesquieu):
"Republics end through luxury; monarchies through poverty."

Herbs make your canned and frozen foods more appealing

By Doris E. Stebbins

Does the prospect of canning again leave you uninspired, with the knowledge that by mid-winter your family will tire of that hum-drum, everyday flavor of canned vegetables? Do you wish there was a way to “pep them up,” to magically change all those jars of your labor of love into “something specials” to spark up your family’s appetite? My solution is easy...I drop in an herb or two before sealing the jars.

Tomatoes will likely fill the majority of your jars. Assure your supply of Vitamin C by quartering large tomatoes (can smaller ones whole or halved) and press each piece down firmly with a wooden spoon, extracting the juice. Add ½ teaspoon salt and ½ teaspoon sugar per pint (1 teaspoon of each for quarts), letting the juice from the tomatoes fill the jar to about ½ inch from the top, instead of filling the jar with hot water. Process as usual. For an herbal tone, add a leaf or two of sweet basil to each jar before sealing (two leaves to a quart gives just the right tang). Add lemon basil to yellow tomatoes for mellow richness. I find this excellent for tomato juice. Lovage, with its rich celery tang, also goes well in canned tomatoes and tomato juice.

Canned peas are always a favorite, but you might try canning some with lemon basil, chervil, or summer savory.

Add a few leaves of chervil to baby carrots, and they’ll look just as pretty as they are delicious. Others might be spiced with thyme, dill, or sweet fennel. Mint-flavored carrots are ready for glazing simply by opening the jar.

Add dill, fennel, or tarragon to baby beets, removing the green sprig before serving.

Eliminate the “canned taste” of green beans by tucking in a sprig of

summer savory. This “bean herb” permeates the beans and preserves the fresh garden flavor that’s so appealing to vegetable lovers. One caution, however: be careful not to overdo it. Too much of any herb can be undesirable. The herb flavor should not overpower the vegetable, only serve to bring out the fresh garden flavor. Work out your own family preferences.

Summer squash is delicious when cut in ¼" to ½" slices, adding ½ teaspoon salt to each pint jar, together with a small sprig of dill. To cook, I dip the drained slices in egg batter, roll in a mixture of cornmeal and flour (or bread crumbs) and fry crispy-brown. A sprinkling of fresh chives or scallion tops, and perhaps a few thin slices of green or sweet red peppers while frying, gives it a gourmet zing.

Fruits can also take on a tasty touch with the addition of sweet herbs. Add a sprig of pineapple sage, spearmint, or lemon balm to pears. Can apple-sauce or sliced apples with mint, anise, or rose geranium; rhubarb with angelica. Add lemon basil or pineapple sage to raspberries, or pineapple sage or lemon balm to citron preserves; sweet basil to rhubarb or rhubarb/apricot preserves, and rose geranium to cherries.

The same combinations can also be applied to enhancing the flavor of frozen foods. Let your family be “taste testers” by putting up just a few containers of herb-flavored varieties the first season. You can also freeze the herbs separately in small cartons and use them with the vegetables as you cook them.

If the herb vinegars from the gourmet shelf at the market are pleasing to you, why not put up a few jars of your own for yourself and for Christmas giving? They are simple to make, being infusions of the herbs in

vinegars for a specific period of time. Everyone has his favorites—but I like them all. Tarragon is a handy vinegar to have on the shelf, and mint vinegar is excellent to spice up fruit salads and sauces for lamb.

To make these vinegars, cut the leafy tips of herbs just before blooming. Wash quickly and shake off water. Bruise between palms or with a potato masher and loosely fill a wide-mouth jar. If seeds are used, bruise them before adding.

Pour vinegar over the herbs in the jar and let stand in a warm place for two or three weeks. Place wax paper over the top before putting on the lid to prevent the vinegar from corroding the metal. (A plastic bowl cover may also be used.) After two weeks, smell and taste the vinegar; if it’s not strong enough, let it stand another few days. When the desired strength is reached, strain it through a piece of muslin and bottle it. Cork tightly. (Syrup and honey bottles are nice for this.)

Mint vinegar: Use for flavoring lamb sauce, by sweetening to taste with powdered sugar or honey. Stir a little into whipped cream or mayonnaise for fruit salads. **Tarragon Vinegar:** Use white wine or distilled vinegar. Use to spice up dressings for hot and cold fish and seafood. **Mixed Herb Vinegar:** Use cider or white wine vinegar and a combination of any desired herbs. Below are some that go especially well together: 1. Two quarts vinegar, five parts basil, one part thyme, one part marjoram, six cloves garlic, sliced. 2. One part sweet basil, one part lemon thyme, one part rosemary, one part crushed celery seed, peel of a lemon with pith removed. 3. Two parts tarragon, one part fennel seed, one part chervil, one part thyme, one part burnet, garlic. (Wonderful with fish!) 4. Burnet with a few cloves garlic for cucumber-flavored vinegar. (Favored by those who cannot eat cucumbers.) Δ

Try these pasta desserts for unusual holiday fare

By Richard Blunt

In my mom's kitchen, any type of pasta, regardless of its size, shape, or color, was called a noodle. She never really had the time nor the patience to make her own fresh noodles. But that wasn't really necessary, anyway. Her incredible talent as a cook was enough to make the dry pasta from the supermarket taste as good as any fresh pasta I have ever eaten, including my own. Besides, experience has taught me that commercially-made dry pasta is, with a few exceptions, a high quality product. It is often better and more nutritious than retail fresh pastas.

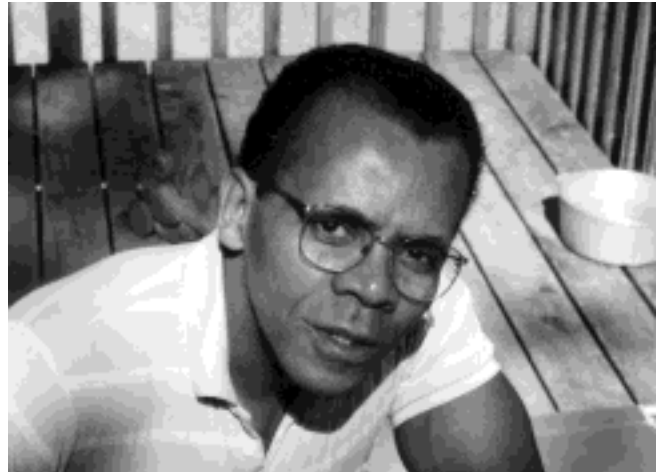
When someone would ask my mom why she made so many noodle dishes, she simply said, "Noodles are cheap, easy to cook, and you don't need a root cellar to keep them on hand." But if you could see the mountain of noodle recipes she kept in a large grey metal box, separate from other recipes, you would understand that there was more to it than that.

She was never at a loss when preparing pasta. Her ability to successfully incorporate almost any food, fresh or left-over, into her recipes made every noodle dish a success. On certain Jewish holidays, she would prepare several noodle kugels, (kugel means pudding in Yiddish) and send them to neighbors she knew would not be able to find the time to prepare a special dessert. On Thanksgiving and Christmas she often prepared a special noodle dessert for friends who were coming to dinner.

Each year, as the holidays approach, I start searching through my mom's noodle recipes looking for a special dessert to make for my family. In this issue, I'll give you some of these special holiday desserts to share with your family and friends during the holidays.

As you read on, please remember that in Nanna V's kitchen; the word is "noodle," not pasta. For those of you wondering what the V stands for, my mother's name was Virginia Lee. My children liked the sound of Nanna V better because it rhymed with her name, and it always brought a smile to her face.

Today, the average American eats about 20 pounds of pasta a year. The great bulk of this consumption is the commercially made long strand and flat ribbon varieties. Many of these dry pastas are represented by Italian names. The long strand varieties are broadly classified as spaghetti and have been dubbed with names like bucatini, capellini, fusilli, perciatelli, and vermicelli. The flat ribbon varieties, commonly called fettuccine, also sport Italian varietal names like lasagna, fettuccine, tacconelli, papardelli and tagliatelli. These very popular varieties are followed closely by the



Richard Blunt

tubular pastas and short ribbon macaroni, the most familiar of which are mostaccioli, penne, rigatoni, and ziti.

Other pasta varieties that have shown increased popularity over the past 20 years, especially among the fresh pasta fans, are the pasta dumplings and other soft dough pastas. Unlike the dried commercial pastas, these versatile dumpling and irregular shaped soft pastas usually sport a name consistent with their gastronomic roots. A few that come to mind are gnocchi (Italy), spätzle (Germany), knöpfli (Switzerland), and nockerl (Hungary). When you combine these popular varieties to the long list of Asian noodles and soup pastas, you will find that there are more than 600 varieties of pasta with more being created all the time. Most of these varieties, in all of their shapes and sizes, can be found somewhere in this country distributed in supermarkets and specialty stores, or ordered from mail order houses.

These are impressive statistics when you consider that pasta has been popular in this country for less than 100 years. When Thomas Jefferson returned in 1789 after completing his ambassadorial assignment in France, he brought with him America's first commercial pasta machine, along with a box of dried macaroni. But it wasn't until after the first wave of immigration from southern Italy in the 1920s that pasta was introduced into this country on a large scale. Pasta continued its rise in popularity as vacationers and soldiers returned from Europe and Asia after the world wars.

For everyday cooking, very few foods equal the versatility of pasta, even in this modern world of multicultural cuisines. As my mom said, noodles are inexpensive, take up little storage space, and can be prepared by simply placing them in a pot of boiling water and cooking them for a short time. Pasta also mates well with almost any other available

food and can be served as an appetizer, first course, main course, or dessert.

Folks in many parts of the world, especially in the United States and Italy, tend to think of pasta as a quintessentially Italian food. This is natural because, of all of the other cultures that use pasta, none have elevated it to the glory as is found in Italy which has a per capita consumption of about 65 pounds of pasta per year. But pasta is not just Italian; it is indigenous to other nations also. Orientals eat almost as much pasta as the Italians do with a per capita consumption of about 40 pounds per year. The cuisines of Central and Eastern Europe, Turkey, Africa, Greece, and Mexico, to name just a few, all contain classic dishes that call for some form of pasta as a primary ingredient. In Mexico the comida (main meal of the day) consists of several courses. The middle course is often a "soupa seca" or dry soup made with either rice or pasta. Despite the fact that it is called a soup, a soupa seca closely resembles a traditional Italian "piatto primo," or first course pasta dish. The distinctive difference is how it is prepared. In soupa seca the pasta is first fried in oil, then slowly stewed in a sauce made with fresh tomatoes, garlic, onions, and chili peppers until tender.

Spätzle is a classic example of a true regional variety of pasta, with its origin in southwestern Germany where the dough is still made by hand and the individual spätzles are cut straight into boiling water.

Central Europe is famous for its wide variety of noodle puddings and stuffed pasta dumplings, and in Africa an entire cuisine has developed around several varieties of couscous, a granular pasta made with water and the finest semolina or other flour.

Some uncertain history

For years there has been a great deal of bluster over who invented and subsequently popularized pasta. The story of Marco Polo discovering noodles during his visit to China, then introducing this new food to Italy when he returned home, is not founded in reliable history. Some theorize that the Venetian never made it to China at all but got hung up in Persia, where he concocted a vivid fantasy about the court of Kublai Khan and the discovery of pasta from information he heard from Persian merchants who knew China well. There is evidence that leads food historians to believe that noodles made from wheat, buckwheat, rice, and soya did exist in China long before the purported arrival of Marco Polo.

There are many theories that place the origins of pasta in other parts of the world, but unfortunately nothing is certain. Along with China and Italy, Japan, Korea, France, and Germany also make claims to inventing and popularizing pasta.

So, if Marco Polo didn't discover pasta in the Orient and bring it back to the West, who really invented it? I have a

theory that makes more sense to me than most of the complicated babble I have read; I call it, "The Spontaneous Innovation of Noodles" theory. Therein I propose that pasta, in all of its glory, arose from the world's general populace in many places, at many times, without help or guidance from experts. And that's all there is to it.

But now, I think it is time to pay a visit to Nanna V's world of holiday noodle desserts, many of which are appropriate for this time of year.

Pasta desserts

When baked in puddings, pasta makes a delicious and festive dessert. Noodle puddings are as popular in European and Middle Eastern countries as bread pudding is in this country.

I grew up in a neighborhood where many of my neighbors were immigrants from Central and Western Europe, and every family had its own special noodle pudding that was reserved for holidays and other special occasions. After searching through my mom's giant, old recipe box for several hours, I found 25 different noodle pudding recipes. For this column I have selected the one that she prepared most often. There were four others that, though similar, were not quite the same, but they are a sign that Mom was constantly reworking this original recipe to suit her ever changing taste preferences, or to match the ingredients she had on hand at the time. But I know this to be her most recent favorite because, when I served it to my children a few weeks ago, Sarah complimented me with, "This tastes almost as good as Nanna V's, Dad." I will prepare this pudding again, very soon. "Almost as good" is not good enough for me.

Apple and noodle pudding

Ingredients for the pudding:

2 2/3 cup whole milk
pinch Kosher salt
4 oz. wide egg noodles (broken into one-inch pieces)
3 large eggs, separated
5 Tbsp. butter or margarine
1/3 cup sugar
1 1/2 tsp. pure vanilla extract
2 1/2 cups freshly sliced pie apples (rome, cortland, northern spey, fugi, or granny smith)

Ingredients for the topping:

2 1/2 Tbsp. all purpose flour
1/4 cup light brown sugar
1/4 cup granulated sugar
1 tsp. cinnamon
4 Tbsp. butter or margarine

Method:

1. Preheat the oven to 350 degrees. Spray the inside of a large baking dish with nonstick cooking spray and set it aside. Substitute butter, margarine, or shortening if you don't use cooking spray.

2. To prepare the topping, combine the flour, sugars, and cinnamon. Cut in the butter with a pastry blender until the mixture becomes crumbly, then set the topping aside. The flour is to keep the topping from collapsing into a puddle on the dessert.

3. To prepare the pudding, combine the milk and the salt in a sauce pan. Bring the mixture to a slow simmer over low heat, add the broken noodles and cook until they are just tender. Set the pan aside to cool without removing the noodles.

4. While the noodles are cooling, separate the egg yolks from the whites. Cream the butter, sugar, and vanilla in a large bowl until well blended. Add the egg yolks and beat until the mixture is well blended and has a light texture.

5. In a separate bowl beat the egg whites until stiff.

6. Gently stir the butter, sugar, vanilla, and egg yolk mixture into the cooled noodles and milk, then gently fold in the beaten egg whites.

7. Pour this custard mixture into the prepared baking dish, and arrange the apples on top. Evenly sprinkle the topping over the apples.

8. Bake the pudding on the middle rack in the oven for about 45 minutes or until the custard is just set. Serve the pudding right from the oven or let it cool for a few minutes and serve it warm.

My mom would eat this pudding cold from the refrigerator, but I think it loses some subtle flavor when it gets cold. Be your own judge.

Fruit and nut lasagna

Sweet lasagnas, with apples, raisins, nuts, and sweet cream butter, layered on pasta sheets, are traditionally served on Christmas Eve in the northeastern provinces of Italy. I have been fascinated with this curious and unique dessert idea for years. So I have developed a couple of sweet lasagna recipes of my own.

During the fall the Blunt family spends nearly every weekend visiting orchards, cranberry bogs, and fruit stands. We pick enough fruit and berries to satisfy my children's insatiable appetites for fresh fruit. We usually have enough left over for my wife and me to process into enough jams, jellies, marmalades, conserves, fruit butters, and stewed fruits to last us until the next fall picking season.

In this recipe I use one of my favorite and most versatile conserves. During the holidays, and at other times as well, I serve this conserve as a relish with poultry and pork, as well as a topping for ice cream. However, if fruit and nut conserves are not to your liking you can substitute a 21-ounce

can of any variety of pie filling with this recipe and still get excellent results. But before you make the decision to prepare this conserve, I must caution you: If you have any children in the house between the ages of 2 and 90, expect to find one or more of them walking around the kitchen some day, eating this stuff straight from the jar.

Fruit and nut conserve ingredients:

8 oz. fresh or frozen cranberries
2 firm, ripe red delicious, macintosh or any other eating apple (peeled, cored and coarsely chopped)
1 orange (unpeeled, seeded, and coarsely chopped)
2½ cups firmly packed light brown sugar
½ tsp. ground cinnamon
½ tsp. fresh ground nutmeg
¼ tsp. ground cardamom
5 oz. pecans, coarsely chopped

Method:

1. Combine all the ingredients, except for the nuts, in a bowl, cover, and let stand for two hours.

2. Transfer the mixture to a heavy-bottom sauce pot and bring to a simmer over low heat. Simmer the mixture, stirring frequently for 30 minutes, then bring the mixture to a slow boil for 15 minutes or until it is very thick.

3. Stir in the nuts and set the finished conserve, covered, in the refrigerator for one hour to allow it to cool and set.

Lasagna ingredients:

6 2-inch wide dry Lasagna noodles

Topping ingredients:

½ cup light brown sugar
⅓ cup quick cooking old fashioned oats
¼ cup all purpose flour
¼ cup pecans (chopped fine)
¼ cup butter or margarine
¼ tsp. fresh ground nutmeg
⅛ tsp. cinnamon

Filling ingredients:

1 lb. cream cheese (low fat or fat free)
¼ cup granulated sugar
2 large eggs
½ cup plain yogurt (low fat or fat free)
1⅓ cups fruit and nut filling

Method:

1. Over high heat bring a pot of water large enough to cook the lasagna noodles to a boil. Cook the noodles until they are ¾ done, then add enough cold water to the pot to stop the cooking process. Carefully remove the noodles

from the cool water and let them to drain for a short time. Lay them side by side on wax paper to prevent them from sticking together and cover them with damp paper towels.

2. Combine all the ingredients for the topping in a bowl and blend them with a pastry blender. The finished mix will have a moist lumpy consistency and the butter will be evenly distributed. Do not overwork the mixture. If you don't have a pastry blender, you can work the ingredients with your fingers until blended. Be careful not to overwork it as it will break down.

3. To prepare the filling, use an electric mixer to blend the cream cheese with the sugar until the sugar is completely incorporated.

4. Combine the eggs with the yogurt and mix lightly with a fork. Add this to the cream cheese and sugar and blend in the mixer at medium speed until the two are completely incorporated. (The fruit and nut filling will be added in the assembly steps.)

Assembly and baking:

1. Preheat the oven to 350 degrees.
2. Butter an 11- by 7- by 1½-inch baking dish (a 2 quart Pyrex casserole) and spread 2/3 cup of the fruit and nut filling evenly on the bottom.
3. Lay three of the partially cooked lasagna noodles on top of the filling.
4. Spread one half of the cream cheese mixture (about 1½ cups) over the noodles.
5. Lay the three remaining partially cooked lasagna noodles on top of the cream cheese mixture.
6. Spread the remaining cream cheese mixture over the noodles. Using a teaspoon, evenly distribute the remaining 2/3 cup of fruit and nut filling over the cream cheese mixture. Do not attempt to spread the fruit filling as you did in the previous step. Just evenly plop little dollops from the teaspoon over the surface.
7. Evenly distribute the topping over the casserole. Place the dish on the middle rack of the oven and bake for about one hour or until dessert has set and puffed up.

Pasta with walnuts and sugar

A few years ago my wife and I were invited to a friend's house for dinner on New Year's Eve. As a first course, a dish similar to the dessert I am about to present was served. With a couple of minor changes, this classic first course dish becomes a wonderful light dessert. It is also easy and fun to make. By eliminating the ice cream or whipped cream, substituting linguini for the bow tie noodles, homemade dry bread crumbs sweetened with two teaspoons of sugar for the crushed biscotti, and virgin olive oil for the unsalted butter, this dish is easily transformed back into a wonderful pasta first course, or a meatless main course.

I make my own biscotti cookies, using one of my mom's recipes, because my kids love them. And if stored in an air

tight container they will keep for up to three weeks. You can buy them fresh if you're lucky enough to have an Italian bakery in your neighborhood or you can buy them prepackaged in many supermarkets.

Main recipe ingredients for 4 to 6 servings:

- 6 oz. (dry weight) bow tie or butterfly noodles
- ¼ cup walnuts (coarsely chopped)
- ½ cup biscotti cookies (crushed to the consistency of bread crumbs)
- freshly grated nutmeg to taste
- 4 Tbsp. unsalted butter (melted)
- vanilla ice cream or whipped cream for topping
- poppy seeds for garnish

Method:

1. Combine the walnuts, crushed biscotti, and nutmeg.
2. Cook the pasta in lightly salted water until just tender. Drain the pasta and return it to the still warm pot.
3. Add the walnut mix and the melted butter to the pasta, and toss gently to blend all ingredients.
4. Serve immediately with a topping of vanilla ice cream or whipped cream on each serving, and sprinkle a few poppy seeds on each plate for garnish.

Basic biscotti cookie

I like these healthful cookies as a dessert because they are light and not too sweet and go good with light wines.

Ingredients for egg wash:

- 1 egg
- 2 Tbsp. milk

Ingredients for cookies:

- ¼ cup unsalted butter
- ½ cup sugar
- 1 tsp. almond extract
- 2 large eggs
- 1½ cups all purpose flour
- ½ tsp. baking powder
- ¼ tsp. Kosher salt
- ½ cup whole blanched almonds (lightly toasted, cooled, and chopped fine)

Method:

1. Preheat the oven to 375 degrees.
2. Prepare the egg wash by combining one egg with 2 Tbsp. of milk and stir the mixture with a fork. If you don't use all of this wash, fry whatever is left and make an egg sandwich for lunch. Or as Nanna V would say, "You had better use all of that egg or eat it. You're not going to waste food in my kitchen."

3. To prepare the cookies, use an electric mixer to combine the butter with ¼ cup of sugar and the almond extract until the mixture is light and fluffy. Beat in the eggs, one at a time, making sure that each one is incorporated before adding another.

4. Sift the flour together with the baking powder and salt.

5. Fold the dry ingredients into the creamed mixture, stir in the nuts, and form the mixture into a round ball. Cover the dough with plastic wrap and place it in the refrigerator for 30 minutes.

6. Divide the dough in half. Sprinkle half of the remaining sugar on a work surface and role one piece of the dough through the sugar to form a 12-inch long log, about 1½ inches in diameter. Transfer the log to a greased baking

sheet. Repeat the process with the remaining half of the dough.

7. Brush the logs with the egg wash and bake them in the oven for 20 minutes or until they are lightly golden. While the logs are baking you can make your sandwich. I like mine with plenty of hot chilli sauce. Cool the logs for 20 minutes. Do not turn the oven off after removing the logs.

8. Transfer the logs to a cutting board and cut them on a diagonal into ½-inch thick slices. Lay the slices, cut side down, on a cookie sheet. Return the cookies to the oven and bake them for an additional 20 minutes, or until they are golden brown.

I hope you enjoy these holiday treats. In a future column I will take you on an adventure making fresh pasta—a truly humbling experience the first time you try it. Δ

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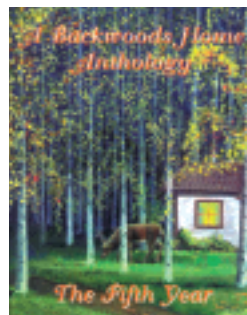
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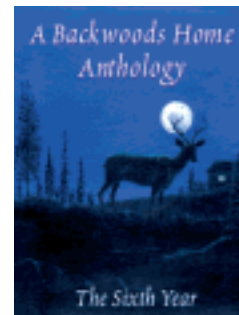
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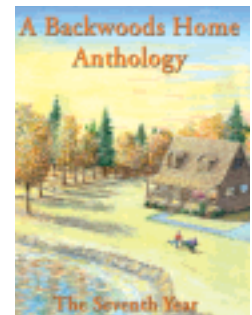
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How to maintain a dirt road

By Marjorie Burris

It is our job to maintain two and one half miles of dirt road if we want to get into our property. We are completely surrounded by forest service land, and we have an agreement with the forest service to maintain one mile of the road. However, when we reminded the forest service the other mile and a half needed maintenance, too, they answered us in a tone that brooked of no appeal: "We don't like you living in the middle of the forest; you are the only family at the end of that road; it costs us too much to maintain that road for one family; therefore, it is up to you to keep that road open. We call it your road anyway."

So, "our road" it has become. And maintaining it has been an adventure. In fact, working the road led our family into a chain of events we could never have foreseen, not even with the help of a crystal ball gazer. (See Issue 30, "David and the D-4").

In our 25 years of maintaining a dirt road, we have found that, whether you use hand tools or heavy machinery, there are three main objectives: control the flow of water around the road, remove obstacles, and fill in the ruts—usually in that order.

Control the flow of water

Water in any of its forms—snow, ice, sleet, or rain—is your number one enemy when you maintain a dirt road.

When it is raining, observe your road closely. Water run-off takes the line of least resistance, and you can tell what you need to do to control the flow and where your efforts will produce the most results if you know the path the water naturally takes around or over your road. You can also tell where water will puddle and stand in the dri-



Hubert Burris on a Ford 2000 tractor with blade attached

ving lanes. If water stands in a low spot, you know snow will collect there too. And standing snow will freeze and thaw, making a bog, one of the worst situations in a dirt road.

The first step to drain water away from a road is to slope the road bed slightly from side to side. Some people "crown" a road, that is, they make the center of the road bed higher than the sides letting the water drain from the middle of the road to either side. We have found making a crown hard to do, especially on the steep grades of our mountainous road. In fact, when we agreed with the forest service to maintain our road, they gave us pages and pages of instructions for minimum

standards for a single lane fair weather road, and they recommended the side to side slope drainage. Their recommendations call for an outslope of one-fourth inch per foot of road width. At this rate a thirty foot wide road would be seven and one half inches higher on the high side than on the low side. This doesn't look or feel like much slope when you drive down the road, but it is enough to force the water to run off the side instead of following the road bed down the grade and cutting ruts. (See Figure 1)

If you can slope the road toward the outside edge of a road bank and let the water run off down the side of the hill, your work is done. But there are times when the contour of the land makes it necessary to contain and direct water away from the road by means of a ditch along the side of the road. The bank of the ditch from the edge of the road to the bottom of the ditch needs to slope

at an angle of no less than three inches in a foot. (See Figure 1)

This prevents the water from flowing back onto the road. An adequate ditch needs to be at least one foot wide and one foot deep. In very heavy run off areas, a ditch might need to be much larger. By watching your road during a rain storm, you can estimate just how large a ditch you need in a given area.

At some point, either the water in the ditch, or water rushing down the side of a hill in a wash, will need to be directed across the road. A culvert is ideal here, but culverts are expensive and usually take a lot of work to install. An easier way to direct the water across the road is with what the

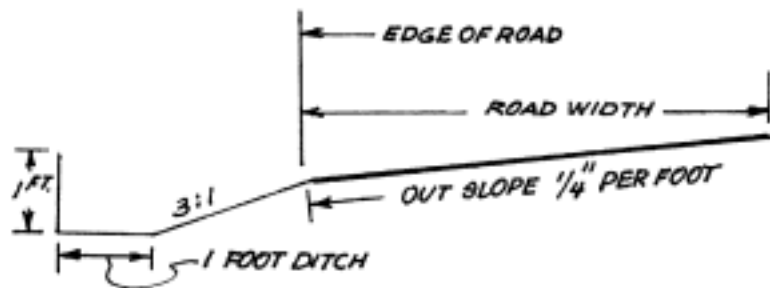


Figure 1. Outslope and ditch

forest service calls a “grade dip.” Our family calls it a speed bump because it feels somewhat like a speed bump in a shopping center parking lot when you drive over it. A grade dip is essentially a shallow ditch dug across the road and lined with rock. The dirt dug out of the ditch is mounded across the road on the downgrade side, making a bump which blocks the water from running down the road and making it flow off the road through the rock-lined ditch.

A good grade dip will be at least 70 feet wide, counting the width of both the ditch and the mound. The ditch part should be about 50 feet wide; the mound should be at least 20 feet wide and have a rise of at least 30 degrees—but 45 degrees is preferable. (See Figure 2) If the uphill grade of the road is steeper than five percent, the grade dip should be widened five feet for each one percent of grade rise. For example, a road having a grade rise of 6 percent should have a grade dip 55 feet wide; a road with a 7 percent grade rise should have a grade dip 60 feet wide. We’ve maintained some grade dips on our road for at least 20 years, and they continue to be very effective.

In low areas where water puddles or snow collects, a simple turnout might be all that is needed to drain the road. A turnout is a shallow notch dug into the outslope edge of the road which encourages the water to flow away.

(See Figure 3) Turnouts sometimes need to be lined with rock so they don’t cause the edge of the road to erode.

Remove obstacles

It seems like there’s always something in the way on a dirt road in the backwoods. After a big rain, snow, or wind storm, our first question is, “Is our road open?” We are prepared with food and emergency supplies to be stranded for several weeks at a time, and most winter seasons there are at least a few days when we are not able to get out of our homestead. We’ve learned to wait until a deep snow melts enough for us to safely clear the road, and for the road to dry some after a downpour before trying to trav-

el it. We scooted our crawler tractor over the edge of a sharp turn once when we were trying to clear a 30-inch snow from the road in order to get out in a hurry. We slid the Ford tractor over the edge three times and our little Toyota truck has gone over once. We’ve been lucky, as none of our vehicles have turned over, and we have been able to haul them back up with lots of hard work. Figuring that some day our luck might run out, we have finally learned to be prudent and just wait awhile before trying to get out of here. It is a lot more comfortable to stay in the house with a cup of hot cocoa and a good book than it is to risk your neck out in the wet and cold, huffing and puffing with pulleys and cables, trying to undo something that needn’t have happened in the first place.

However, there are times when some things just have to be removed from the road. One ongoing nuisance for us is the huge rocks that keep heaving up in our road bed. The first method of attack is to dig them out. We outline the rock with pick and shovel to see just how big it is, dig down a way all around the rock, then try to slip a chain or cable on it and pull it out with a vehicle. I don’t even want to guess how many rocks we’ve gotten rid of this way.

Then there are the boulders that are just too big to dig out. We’ve used

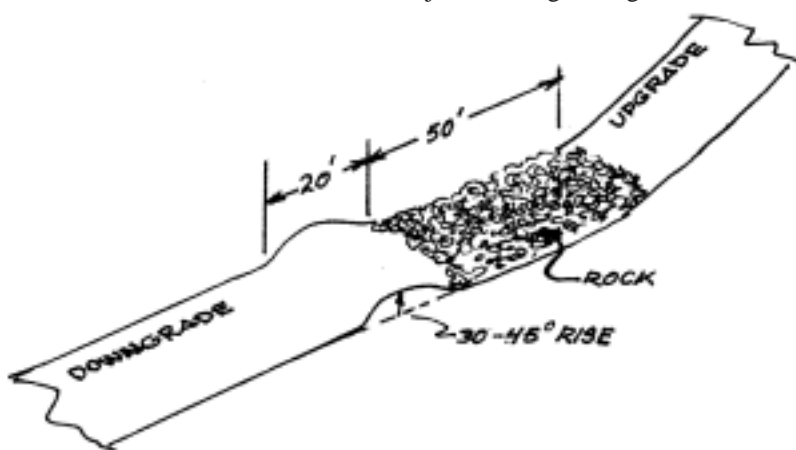


Figure 2. Grade dip

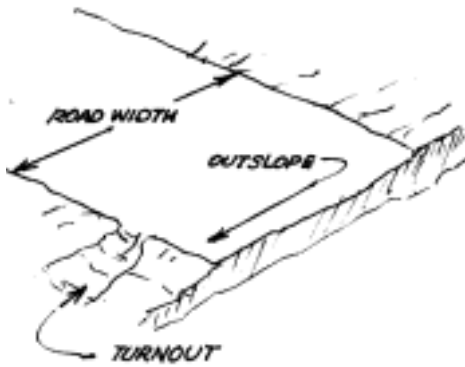


Figure 3. A turnout for draining water off the road

“poor man’s dynamite” many, many times. That’s when you heat a rock as hot as you can get it, then dump cold water on it. The sudden change in temperature causes the rock to split and shatter. If the rock is small enough, we heat it with a blow torch. If it is too large to heat with a torch, we make a trench around the rock, then drag brush and downed trees in from the forest and cover the top of the rock with a bonfire. It takes awhile to heat a rock this way, but it is effective. Of course, we can use this method only when there is no fire danger, and someone has to attend the fire at all times. We carry barrels of water in the back of the truck when we want to douse the fire.

We’ve used real dynamite once and that’s enough for us. It didn’t go off when it was supposed to. That was scary. If we have another job that needs real dynamite, we will hire it done. Placing dynamite is an art that is worthy of its cost. We don’t know much about dynamite, but we do know enough to leave it to a professional.

Branches and trees fallen across the road after a wind storm are always a possibility in our area. For several years we attempted to carry a small chain saw in the truck every time we went down the road. Naturally, when we forgot the saw, or didn’t have room to put it in the truck, that’s when we needed it. For a while we tried car-

rying a two-man cross-cut hand saw, but that was bulky to pack, too, and was hard to use.

Then we read a product review in *Backwoods Home* written by Don Childers about the Short Kutt Pocket Chain Saw (issue 14, page 61). This is a small chain saw blade about 31 inches long with detachable handles, all of which rolls up and fits into a small can not much larger than a shoe polish tin. And the blade is *sharp*. It really works. The Air Force uses it in their Survival School. We immediately ordered the handy little gadget and stuck it in the glove compartment. It has helped us clear a path in our road more than once.

Landslides onto the road after a period of wet weather plague us. Half a century ago when our road was built, there were no regulations about how steep a bank could be when a rural road was cut into the side of a hill. Some of our road is cut straight down into the side of the mountain with the bank above it at an angle of 80 to 85 degrees. Today it is recommended to out an angle of about 55 degrees in common soil, up to 65 degrees in hard pan or soft rock and 70 degrees in hard rock. This helps to prevent landslides.

When the steep bank does slide down, we leave as much of it as possible at the base of the cut instead of shoveling all the dirt away. This is gradually building a more gentle slope from the roadway up to the top of the cut. Several places on the road are too narrow to leave all the debris, however, so we have tried to pull some of the dirt down from the top of the bank to work it back farther away from the road. We weren’t very successful, so decided to let nature keep trimming away at the top and we keep shoveling at the bottom. It is a lot of hard work.

Those branches from overhanging trees and shrubs which slap you in the face as you drive by are annoying in the summer time, but they can be downright dangerous in the winter when they are full of snow and ice and

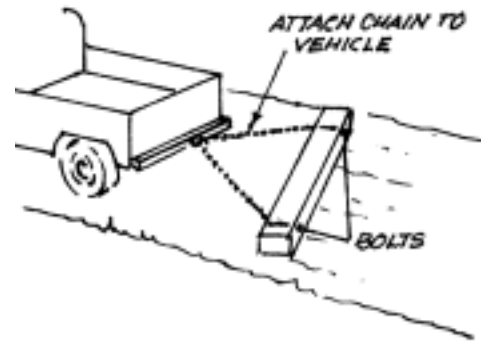


Figure 4. A homemade drag to be used for leveling a road

block your vision. We make a trim-the-branch run down the road in the fall after the leaves have fallen off the deciduous trees and the sap has gone back down the trunks. By standing in the bed of the truck, we can reach most of the offending slappers and saw them off. We stack the branches in the back of the truck, then take them to a gully where we dump them for erosion control. There they can do some good.

Fill in the ruts

One of the most effective ways to fill in ruts is by dragging something heavy over the road behind a vehicle. A good drag can be made from a log, a railroad tie, or a piece of an iron I-beam. The drag should be as long as your vehicle is wide. Drill a hole in each end of the drag about a foot from the end. Thread one end of a chain in each hole and bolt the chain into place so the drag will not slip up and down the chain. (See Figure 4) Fasten the chain to the vehicle, making one side longer than the other so that the drag follows the vehicle at a slight angle. This helps to maintain the slope in the road which forces water to drain off the road.

We have found that the moisture content of the dirt in the road makes a big difference when using a drag.

Too dry, and the drag just moves a little dust around. Too wet, and the

A Backwoods Home Anthology

mud rolls up under the drag. The road is about right to work when a hand full of dirt makes a crumbly ball, which is the same test that shows when the garden is right to plow. One pass over the road when it has the right amount of moisture in it is better than five passes over the road when it is either too dry or too wet.

Some persistent ruts will need to be filled with rock before they heal. We have found that rocks about the size of two fists make a good base in a rut. After these work into the road during a wet spell, they can be covered with either dirt or smaller rocks. We have lots of rocks so we simply crawl across a field and toss the rock into a trailer, then dump it on the road where needed. Over the years we have eliminated many ruts and boggy places in our road with our rocks. Helps to clear our fields of bothersome rocks too. We often laugh and say we are just moving things around where they need to be to do the most good.

In our opinion, without question, the best piece of equipment to own to maintain a road is a small farm tractor with a blade attachment. This is not a small tractor, sometimes called a garden tractor; it is a farm tractor the size of a Ford 2000. This size tractor has enough power to pull a blade, is comparatively easy to maintain, and will work hard for years, not only on the road but just about everywhere else too.

A four-wheel drive is preferable, but a set of tire chains on the big back wheels makes a two-wheel drive tractor work almost as well in mud, ice, and snow as a four-wheel drive.

One other thing we learned the hard way—to avoid making ruts in a wet road, try to drive on it only when it is frozen. That's usually between four and nine a.m. in our area, if the road is frozen at all. The less ruts made, the less you have to fill.

Even if it is extra work, we think living out in the boonies at the end of a dirt road is very much worth the effort. Δ

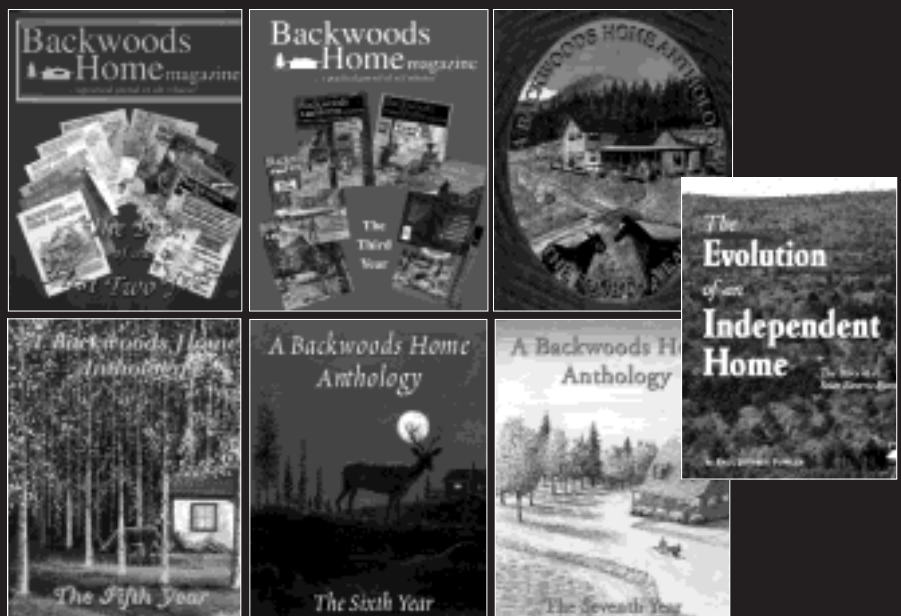
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Ayoob on firearms

By Massad Ayoob

Old guns for the old homestead

On my most recent week with my family at a lakeside log cabin, the guns in the corner of the master bedroom were blasters from the past: a Winchester Model 1892 lever action rifle in caliber .38-40, and a Winchester Model 97 outside-hammer 12 gauge pump shotgun.

The reason was that during the week I would be competing in the Pony Express shoot, a major tournament in the increasingly popular sport of Cowboy Action Shooting. Though my revolver was a modern replica of an old west six-gun, a single action Ruger Vaquero in .45, I had chosen to use original heirloom antiques in the rifle and shotgun stages. The .38-40 is my wife's, inherited from her grandfather, and the '97 pump gun was inherited from my dad.

The 13 rounds in the '92 rifle's tubular magazine can be spat through the 24" octagonal barrel as fast as the lever can be worked and the trigger pulled. If Sarah Brady had lived a century earlier, she'd have dubbed it an assault rifle. Working the lever as you move between targets, you can shoot it with almost the same rate of accurate fire on multiple targets as a semi-automatic rifle. Built to last, these old Winchesters never seem to wear out from the low pressure handgun type ammunition they fire.

With six rounds in its standard magazine, the Winchester '97 will run as fast as any modern pump gun in the same gauge, faster in one respect since if you hold the trigger back it will fire by itself as you complete the pumping cycle, a design idiosyncrasy anyone new to the gun must be scrupulous to work around with careful handling.

This one was loaded with the same ammo I'd want in a modern 12 gauge for home defense: Federal Express Load #1 buckshot, each round containing 16 .30 caliber lead projectiles.

Other caveats for users of old shotguns: If the barrel or barrels are Damascus or "twist steel," **do not fire them at all.** Damascus steel deteriorates over time. Blowups can occur even with low pressure handloads or original black powder loads, and catastrophic explosions **will** occur if they are fired with modern smokeless powder ammo, especially Magnum shells. Don't fire Magnums even in those Model '97s that have modern chrome-molybdenum ordnance steel barrels; while they won't blow up, the older, softer metal of these venerable guns is likely to cause parts breakage with that kind of pounding. Standard ("express") loads are the maximum that should be used in older shotguns, even if the barrels are modern steel.

The .38-40 Winchester (.38 WCF, or Winchester Center Fire, is what will probably be stamped on the barrel of an original gun chambered for this cartridge) has factory ballistics of 1330 feet per second muzzle velocity and 705 foot-pounds of energy at the muzzle when fired from the long barrel of a rifle. For handloaders, Frank Barnes' authoritative textbook "Cartridges of the World" notes that with 22 grains of 2400 powder, the 180-grain projectile can be honked up to 1840 fps and 1360 ft-lb of muzzle energy. **Note that this maximum load should be used only in sturdy rifles in good condition and never in a revolver of the same caliber.**



Massad Ayoob

The .44-40 Winchester caliber (.44 WCF) was always more popular. Factory ammo ballistics show a 200 grain bullet running at 1310 feet per second and generating 760 foot pounds of energy at the rifle's muzzle, while Barnes' maximum recommended 25 grains of 2400 allow the handloader to achieve a greatly increased 1850 fps velocity and a roughly doubled muzzle energy of 1525 ft-lb. **Again, such handloads are maximum and only for modern rifles in good condition, And not for use in any revolver.**

By way of comparison, the same text notes that 1830 feet per second velocity and 1352 ft-lb of energy can be expected from the factory 180 grain .44 Magnum cartridge when fired from a rifle in that caliber. For close range deer hunting, 100 yards and in, these power levels easily suffice. Until the development of the .30/30 a little more than a hundred years ago, the .44/40 carbine was con-



The author returns from “Cowboy Shoot” with Winchester 1897 shotgun, left, and 1892 carbine. The revolver in his belt is a Ruger Vaquero single action .45.

sidered the deer rifle in many parts of this country.

These power levels are also ample for personal defense needs of the anti-personnel kind. Even in low velocity revolver rounds, the .38-40's ballistics are analogous to the .40 S&W cartridge developed in 1990 that has become overwhelmingly popular with today's police. In a rifle, it equals or exceeds the ballistics of the HK MP5SF 10mm semiautomatic carbine now issued to FBI agents.

The old rifle and shotgun seemed quite at home in the rustic cabin. Appropriate decor, as it were. They were still capable of performing adequately in gathering game or protecting the family. The single action revolver, too awkward to manipulate compared to a modern gun in a rapid fire situation, was set aside in favor of a modern Colt .45 automatic. Frankly, the manipulation of the outside hammer on the '97 is more prone to human error than the safety catch on more modern “hammerless” shotguns,

and I returned to a Remington semiautomatic shotgun as primary home defense weapon at vacation's end.

Remember that these old guns – rifle, revolver, and shotgun alike – do not have internal firing pin safeties. They can and will go off if dropped should there be a live round in the firing chamber, irrespective of the gun being cocked or the trigger being pulled. Firing chambers of such guns should always be **empty** until the moment to actually fire has arrived.

Old guns bring old values to old homesteads. For many who appreciate the “backwoods home lifestyle,” they are fitting accoutrements to decor and atmosphere, as well as still-functional tools that perform rural firearms needs as well today as they did a century or more ago, when used wisely and carefully. Δ

Winter Solstice

*These mornings
I am up earlier than the sun
and in the office
before the sky pinkens,
warmed by coffee
instead of light.
By the time the harbor
takes on a golden hue,
I have faxed eight people,
called nine, finished
the bills and letters.
I eat my lunch in my car
parked beachside to absorb
the light I seem to need
while hiding from the wind.
By quitting time,
the sky is black
and I am comforted
only by flickering television light.
I pick up the phone twice.
Hang up. Try again.
Later I look at the clock,
(1:00 again) and promise myself
I'll get to bed earlier tomorrow.*

**Samantha Dunaway
Nome, AK**

Give the old chair a lease on life

By Maryann Tempest

There it sat by the back door of a used furniture store, alone and abandoned, as if it was awaiting a journey to the landfill. It was a tired, dumpy-looking chair with faded, threadbare fabric and a ruffle pleat half ripped from the bottom. It was a sickly yellow green, yet there was something about it that drew my attention, and my eyes kept drifting back to it. Finally, I walked over to it for a closer inspection.

The chair's wooden structure was solid, and all the springs were in good condition. It fit my body as if made for me. For a five dollar bill I took that unattractive chair home with me.

Today that chair is one of my favorite pieces of furniture, and I have less than seven dollars invested in it. Literally, for the cost of a spool of thread, you can re-cover your worn-out sofa or chair. The secret is total recycling. Just as our great grandmothers recycled outgrown clothes into quilts, we can use this idea for furniture. But you need to use sturdy material, not the cotton which was used for quilts. Denim is one of the longest-wearing fabrics known to man; it's perfect for giving your older furniture a facelift.

Go through your clothes and pull out all the old jeans that you don't wear anymore. Size doesn't matter, so you can use any you find, whether they belong to you, your spouse, or your children. A few holes or stains won't matter either, because you simply cut around the bad areas. The color does not matter, from completely faded to dark navy—the more variety you have, the better.

To prepare the fabric, make sure all items are laundered. Once you cut them into fabric blocks, you cannot wash them without the edges fraying.

The chair pictured has blocks 4" x 4" in size. However, the size of the block doesn't matter: it can be smaller if you're working with small children's jeans, or larger. Just make sure all the blocks are cut the same and that each one is a perfect square.

With scissors, cut open the blue jean legs at the seams, so the material will lie flat on the table. A rotary cutter is great for cutting the squares, but if you don't have one, use scissors.

A cutting template can be made from anything, such as a plastic lid cut



The finished chair

to size or a piece of cardboard. Just be careful that you don't cut the template while cutting out the material, or it will change the size of the next square. A small mirror or piece of glass is firmer than cardboard, and you don't have to worry about cutting it. With a piece of glass, it's also easier to get a perfect square in the knee area of the jeans, which might be a little stretched from wear.

As you cut the patches from each leg, stack them together, and then go on to the next pair of jeans. By keeping the colors and different jeans textures together, it will be easier to lay out the final design. Cut as many patches from each as you can, but don't include seams, metal parts, or any top stitching.

You don't have to be concerned with the grain of the material, just continue cutting pieces in any direction your template will fit.

The amount of material needed will be determined by the size of the chair or sofa you're covering. If you need more material than you have on hand, check out yard sales and thrift stores. I've found men's jeans for ten cents at yard sales, and an entire grocery bag for a quarter at a thrift store.

Once you have enough pieces cut, begin to lay out the pattern. A nine-square patch quilt pattern works great. Alternate colors and textures (light, dark, light) until you have nine blocks together forming a larger square (See Figure 1). The next nine-patch piece should start with the opposite pattern of the first (dark, light, dark), so that when you lay them together, the colors will continue to be alternating.

To attach the squares, you may choose any color of thread which matches your decor. I personally like to use red as a top stitch.

Overlap the edges about a quarter of an inch, and sew the 4" blocks together, using a machine zig-zag stitch. Make sure the raw edge is covered evenly with your machine stitches so it doesn't fray. The nine four-inch blocks combine to form a finished patch approximately 11 inches on a side.

Eventually these 11" x 11" patches will be sewn together, but they are easier to work with in this size while you arrange the pattern.

Preparing the chair

There are two ways to do this:

1. Pull the old fabric from the chair.
2. Make your denim cover to slide over the old material like a snug slip cover.

If the chair needs repair, or more padding, it's best to remove the old upholstery material so repairs can be completed. To do that, pull the tacks from the material at the bottom of the wooden frame with a tack puller.

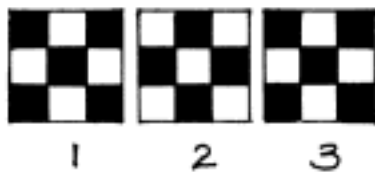


Figure 1 Nine-patch blocks of fabric

Once the fabric is loose at the bottom, use a seam ripper to open the seams. Remove the piping. Save all old fabric for later to use as a pattern.

Once the chair is stripped, remove the padding, or add new to it if necessary. Quilt batting or old blankets make nice padding if the old padding is flattened and worn out.

Look at the springs and make sure they are all securely fastened. If the rope is sagging, tighten it.

Check the wooden frame. Re-nail or re-glue any loose areas, and make sure it's solid. Elmer's wood glue is excellent for strengthening creaky parts or fixing broken sections.

Making a slip cover

There are two ways to do this, depending on whether you stripped the old cover off the chair.

If you *did* remove the old cover, use the pieces of it as your pattern: lay out your 11" squares so they combine to form pieces slightly larger than the old pieces. Give yourself a little extra material to work with; it can always be cut off later, which is easier than adding it. Sew the 11" patches together on the machine.

Once all the pattern pieces have been recreated in denim, lay them on the chair and pin the inside back to the outside back. Pin the inside arms to the outside arms, the bottom lip to the deck, and so on, but keep each section separate (back, arms, etc.) for easy removal and additional sewing. Then use the following directions, starting at step 3.

If you *didn't* remove the old cover, start with steps 1 and 2 as follows:

1. Cut off any piping, pleated ruffle, or other decorative trim which would show as a ridge under the denim. (It's not necessary to use a seam ripper.)

2. Lay your 11" patches side by side on the inside chair back, overlapping the edges $\frac{1}{4}$ inch. Arrange them in an attractive design, then pin them together. Do the same to the outside back. (Don't pin them too tightly, because this has to slip off the chair for the patches to be sewn together. (See Figure 2.)

Do the same thing with the inside arms and outside arms, the seat bottom and the deck, but do not pin the arms to the back or the bottom of the chair: keep each section separate (back, arms, etc.) for easy removal, so you can sew them on the machine.

3. The top stitching makes it easy for each panel to be adjusted: you do not have seams to turn wrong side out, simply sew the zig-zag stitch wherever your pins are located and trim off the excess overlap.

Once all sections are custom-fitted with pins, slip them off the chair. Machine sew each section, using your pins as a sewing guide.

4. If the chair or sofa has cushions, cover the top and bottom of each one with the 11" patches, then sew them together, leaving an opening large enough for the pillow to slide inside.

If you want, attach a zipper so the slip cover can be removed for cleaning. However, long zippers are very expensive, and if the pillow does not have a zipper, I hand sew the opening closed using a whip stitch. If the cushion covering needs to be washed, a seam ripper opens it in seconds.

5. Depending on the style of the chair, you might be able to sew all the sections together on the machine, or you may have to hand stitch the different sections together right on the chair. If you have made the cover completely form-fitting, it's easier to hand sew the arm sections to the back and bottom sections using a whip stitch. (See Figure 1).

6. The final step is to nail the bottom of your denim covering to the wooden frame. Fold the bottom edge of the denim so you're nailing through two layers. Use upholstery tacks. Pull the fabric snug—not tight. The weight of a person's body will cause the fabric to rip if it is too tightly tacked. Remember, if you make it too loose, you can tighten it later by re-tacking the bottom, but if it rips it's harder to fix.

Denim has the ability to blend with almost any decor and any color. It can look Southwestern if combined with earth tones and Indian accessories. Team it with bright flowers and it becomes tropical with an island flavor. Add ocean blues and sea shells, and it has a nautical look. Combine it with lace and dusty gray-blue, and denim blends nicely with country accents.

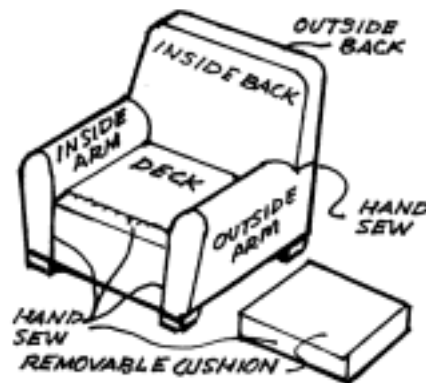


Figure 2

In my family room, I teamed it with strong primary colors—red, navy, and bright yellow. My seven-dollar chair never fails to bring compliments. The best part of this recycling idea is the long-wearing life of denim. It's been around for a hundred years and will probably be here for another hundred.

Denim wears like iron, but if one little square wears out or happens to get stained, it can be fixed easily. You simply cut out the same size patch as you used in the beginning and sew it on top of the stained one, using the same color top stitching. It's almost invisible. As long as manufacturers make blue jeans, you'll have a ready source of fabric awaiting recycling. Δ

Use this system to make “quickie quilts” for the whole family . . . in time for Christmas!

By Tanya Kelley

Nothing beats a fluffy quilt for keeping you toasty warm on cold winter nights. In our family, each of the six kids agreed, and of course they all thought they should be first in line for a new quilt for Christmas. To eliminate any hurt feelings, I decided that they would *each* get a new quilt for Christmas.

Under any circumstances, making six quilts is no small task. Making them all three weeks before Christmas is . . . entirely possible. *If* you use my quickie quilt plan.

The directions below are for a twin-size quilt. However, the design is easily adaptable to different size quilts simply by adding more rows of borders on the sides.

Materials

For a twin-size quilt you will need:

- Fabric scraps (preferably all of one type such as all men’s plaids, all red prints, all small floral prints, all leftovers from a child’s favorite clothes)
- Two and a quarter yards of a contrasting fabric (Indicated by shading in the diagrams. Use a solid color or a distinctly different pattern. Depending on the print, you may need more fabric to match the pattern of the print.)
- Two skeins of knitting yarn (matching or contrasting with the colors in the fabrics)
- One quilt bat, same size as you want the finished quilt (You can use two for an extra fluffy quilt.)
- One flat sheet, same size as you want the finished quilt
- Large crewel needles (sharp point)
- Scissors
- Pliers
- Sewing machine

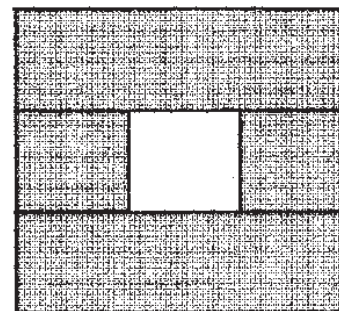
Directions

1. Notch and tear fabric scraps into $8\frac{1}{2}$ " squares. You will need 67 squares, but make a few extra to avoid putting the same pattern fabrics next to each other. Cut or tear strips of the contrasting fabric into $8\frac{1}{2}$ " strips and two $8\frac{1}{2}$ " squares. There may be places where you will need to sew pieces of the strips together to have pieces long enough to go the length of a border.

2. Sew the two contrasting fabric squares on either side of a scrap square with a $\frac{1}{4}$ " seam allowance. This scrap square

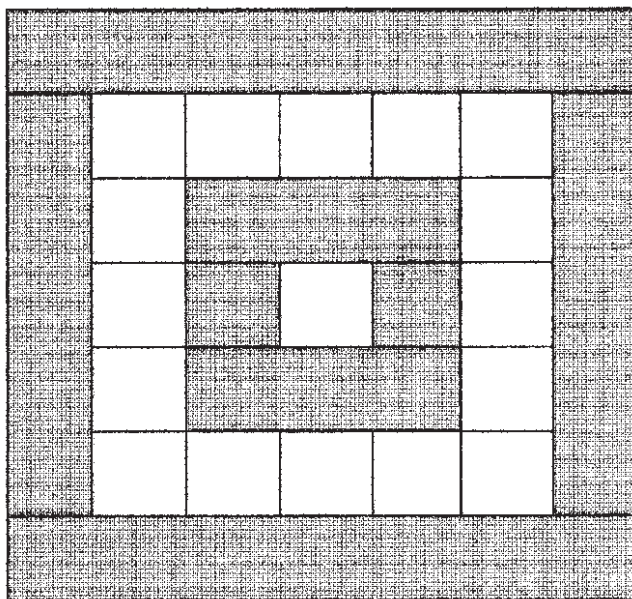


will be the very center of the quilt, so you might want to pick a more interesting or special fabric. Then sew the contrasting fabric strips on top and bottom of the three-square strip. It will look like this:

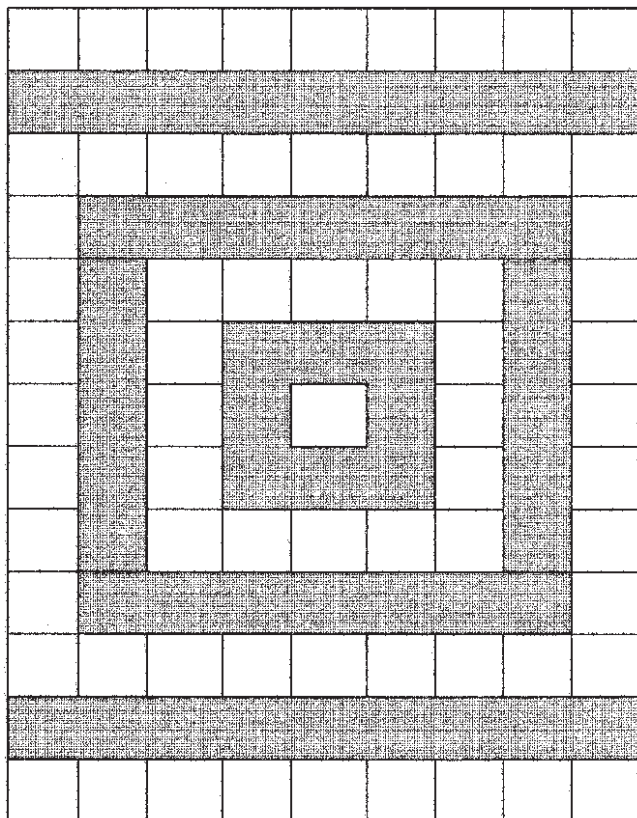


3. Sew two strips of three scrap squares. Sew them to each side of the block. Then sew two strips of five scrap squares. Sew one strip to the top of the block and one to the bottom to form a border around the block. Then sew another border on the block using the contrasting strips. Sew them first to the sides and cut off the excess to keep the block square.

Then sew strips on the top and bottom of the block. It will look like this:



4. Repeat by sewing a border of squares on all four sides, and then a border of the contrasting fabric on only the top and bottom of the quilt top. Then add another top and bottom border of the scrap squares. Completely pieced, the top will look like this:



5. Iron the quilt top, squashing the seams as they fall. On a large, clean surface (such as the floor), spread out the flat sheet. Then spread out the quilt bat on the sheet, taking care that there are no folds and that the bat covers the sheet and is exactly even with the top and one side. Do not trim off any excess on the other sides. Repeat with the quilt top.

6. Depending on your experience and dexterity, you might be able to tie the quilt without fastening it together. However, if you have any fears that the fabrics and the bat will shift and cause bubbles from the unevenness of the layers, take precautions using one of these methods:

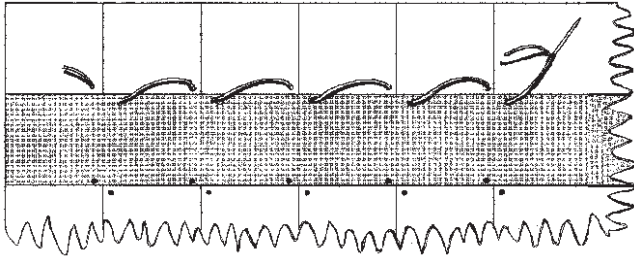
(a) You can pin or baste the layers together using a giant (and messy) running stitch. I would recommend fastening through all the layers at least every two or three squares. This might sound time consuming, but it can be worth it.

(b) Another option is to pin the quilt to your carpet. The disadvantages of this are that you will have a harder time reaching under the quilt to pull your needle through. You also have to be careful to not catch the needle in the carpet and sew the quilt to the floor.

(c) Still another, and probably the best option is to put your quilt on a quilt frame. Since I personally hate working with quilt frames, I usually baste the quilt and I have never had any problems.

7. Thread your needle with two different color strands of yarn, slightly less than twice the distance you can reach with your arm. Do not knot. Only two strands of the yarn will be used to tie, so the yarn should pull through the needle holes as you go, to give you a longer distance you can sew before re-threading. (That is, one end of each strand stays back at the first hole, while the other end pulls through each hole with the needle.)

Begin stitching at the top square of the side that has all the layers aligned. Put the needle in the lower-right corner of the square, where it meets the second block in the row and the strip below it. Push the needle through all the layers and out the back. Bring the needle back up through the layers, angling the stitch so that the finished knot will be about an inch wide, and will cover the spot where the three fabrics meet. Pull the yarn through, leaving a three-inch tail. Don't cut the yarn (think of it as a very long, loose whip stitch), but go on to the next square and repeat all the way across the top. Always go in and out the same corners, so each stitch is at the same angle. Depending on the fabrics and yarns, you may or may not be able to complete the in and out of the stitch in one motion. Use pliers if necessary to pull the needle through. When you get to the end of the row, come back the other way in the same fashion. (If you want your ties closer together, you can make them in the centers of the squares, as well as the corners.)



It will look like this:

Continue for the rest of the quilt, rolling the quilt as needed to move forward. When you roll the quilt, make sure it is rolling evenly and that the edges are staying even. Always smooth any bubbles away from the even side to keep the edges even. When the entire quilt is stitched, clip between

each knot and tie together in a square knot. Trim yarn if desired.

8. Trim the edges evenly, matching all layers to the top. There are several different ways to edge your quilt. You can bind it with a contrasting or matching fabric, but I prefer faster methods. I have turned both edges inside and blind stitched them together or even machine stitched them together. The second option is sturdier and faster, but a little trickier. I have also turned the edges to the back and folded them under and sewn them down by hand or machine. This makes a neat little roll on the edge, but it is harder to sew. The last method I have used is to turn the edge under to the back and blanket stitch around the quilt with the same yarn I used to tie. If you decide to do this, you should cut the corners of the quilt in a slight curve. All of the above methods work well and each gives a different appearance. Δ

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For float-hunting, you'll want to make a Native American style canoe paddle

By Rev. J.D. Hooker

Many people, not only here in the US, but worldwide, enjoy the sport of canoeing, whether they simply paddle around the lake or are into serious whitewater running. It seems the sport is still growing too.

I couldn't even start to count all of the different styles, sizes, or types of canoes presently being manufactured. Yet it seems as if only two types of canoe *paddles* are offered today. There's the regular straight style paddle, which seems to have become pretty well standardized for at least a couple of generations. Then there's a newer sort of paddle that bends where the handle shaft meets the blade. That type has been capturing its own following in recent years. For most canoeing purposes these two mainstream paddle styles actually are close to ideal.

But you see, there is, and always has been, a small but dedicated minority of us who canoe with a somewhat more serious intent. My own hand-laminated fiberglass canoe has seen roughly 20 years of hard use, and it's been more of a working tool than a recreational craft. I've used it not only for fishing and fur trapping, but for float-hunting everything from squirrels and waterfowl to whitetail deer. Float-hunting from a canoe has long been a proven and reliable game collecting technique, which a substantial number of serious hunters still employ.

Every little thing counts in this sort of hunting, however, and many things can spook wary game, such as light reflecting off the brass of a shotgun shell or a polished gun barrel, an ill-timed quick movement, or the sound of water droplets running off

your paddle. So every tiny edge you can get greatly improves your success rate.

Therefore, like other serious hunters, I've adopted a somewhat different paddle type for my own use. Actually it is quite similar to the straight handled style of paddle you'll normally find offered for sale. The major differences are that the blade is just slightly longer and wider than standard, and it tapers to a sharp point. This pointed taper allows water to run off the blade in near absolute silence.

This isn't a new design. Many serious meat hunters have preferred this paddle design for obvious reasons, including the Tlingit, Kwakiutl, Haida, and most other Northwest Coast Indians; many Florida Seminoles; Amazon River native hunter-fishermen; as well as several generations of poachers, market gunners, and others. To the best of my knowledge, however, it has never been offered on a regular, ongoing commercial basis.

Originally designed by Native American hunters, and fashioned with the simplest of hand tools, this style of paddle is very simple and straightforward to produce when using today's power tools.

The easiest method for making one of these paddles, and probably the most common, is simply to cut it from a single piece of 1x8 hardwood. I prefer oak—red or white, pin or black. Any oak makes a nearly indestructible paddle. Most other hunters seem to prefer a somewhat lighter weight hardwood though, like ash or hard maple. To each his own, but select very sound, straight-grained lumber, no matter what species you choose.

I prefer the paddle that's fashioned from a single piece of wood. Its simplicity and utility offer a unique quali-

ty which I find attractive. As I also prefer to finish paddles intended for actual work with nothing more than a

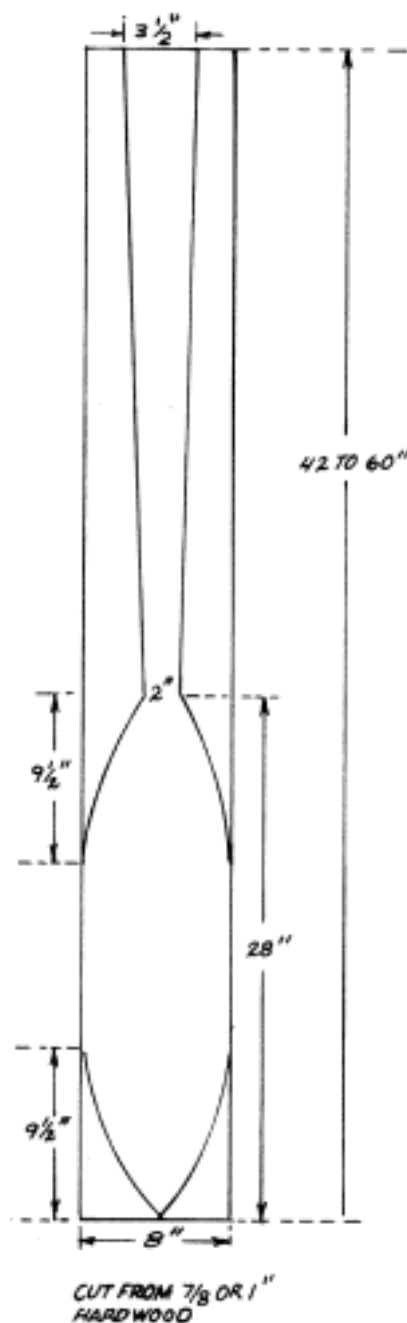


Figure 1. Pattern for one-piece paddle

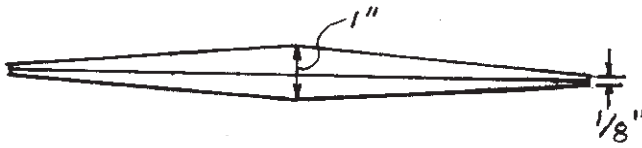


Figure 2. Feathered blade

couple coats of flat paint, this is the style I usually make for my own use.

Paddles of this design can also be built up from different pieces of wood: one for the blade, another for the handle shaft, and a third to form a T- or Y-type handle at the top. Using contrasting woods and a clear finish can make this into a terrific looking project which allow your woodworking skills to be displayed in a really nice manner.

My own favorite multi-section paddle has a bright yellow mulberry blade, nearly white ash handle shaft, and a black walnut insert forming the Y handle. Put together with red oak pegs and black walnut wedges, it looks so great that I just haven't been able to bring myself to use it.

After producing enough of these paddles for my own use, and several more for friends and family members, I found there is a fair market for this type of paddle among other sportsmen (and sportswomen) in our area.

My wife has a somewhat artistic bent and is of Cherokee descent as well, so it wasn't long before she decided to decorate a few paddles with Native American type motifs. These shortly developed into a secondary market, attracting buyers who collect Indian style art, Americana, and just unusual stuff.

So, whether you are interested in just fashioning a couple of paddles for your own use, or considering adding a simple but fairly profitable item to your woodshop's production, you should find this project to your liking.

If you're going to tackle the one-piece type paddle, simply use a band-saw, jigsaw, or sabre-saw to cut out the outline as shown in Figure 1. After that, I use a router with a 1/2-inch round-over bit to shape the edges of

the handle and shaft, then a belt sander with 40-grit paper to feather the blade from full thickness at the center to 1/8 inch or 3/16 inch at the edges (Figure 2). After that I go over the entire paddle, using progressively finer paper in an orbital

type finish sander. I do a final hand sanding using 180-grit paper.

As I've already mentioned, I like to use weather-proof flat paint as a finish. If you simply can't stand to cover up the wood's grain, any good clear, satin exterior grade finish would serve with equal durability.

For the paddle that's built up from separate parts, the parts are cut out as shown in Figure 3. I use dowels and

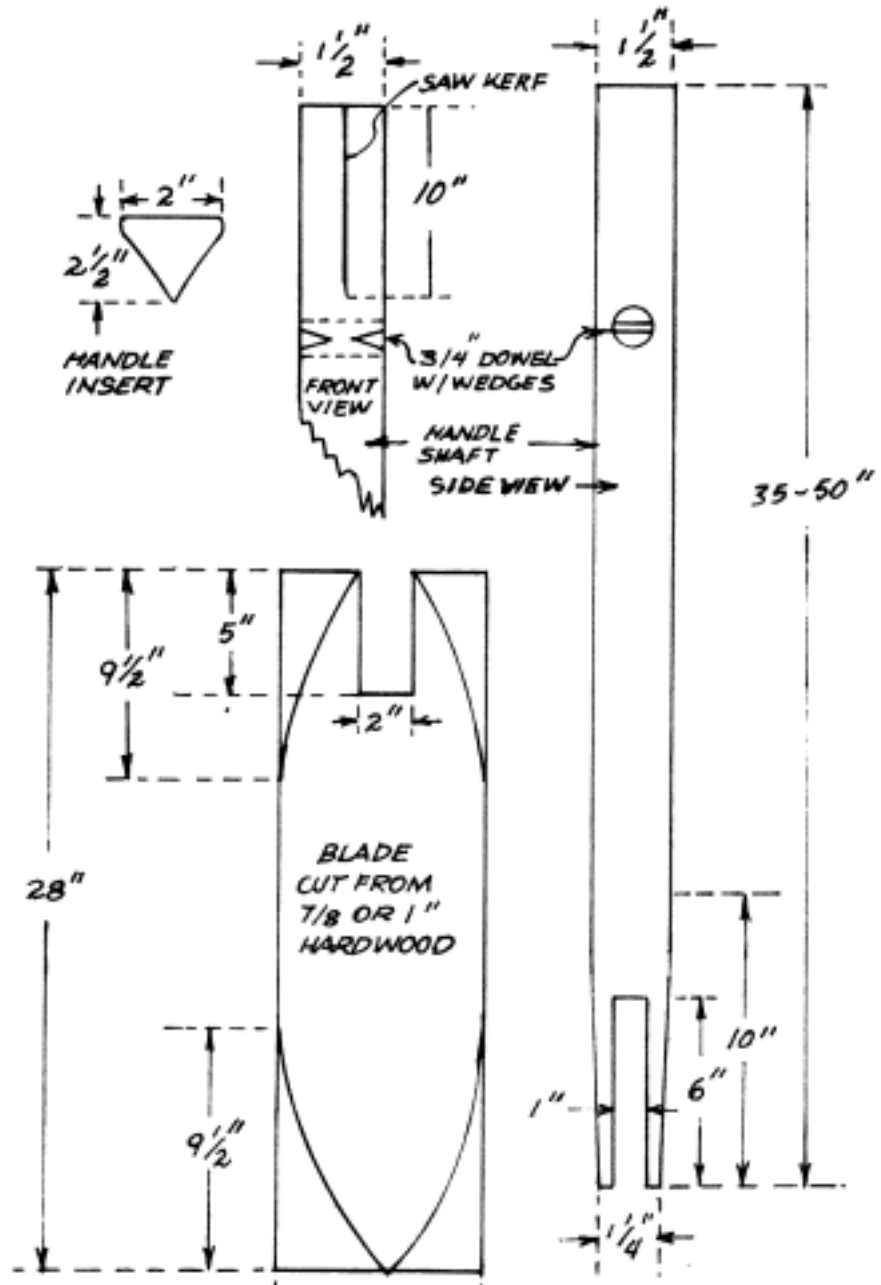


Figure 3. Built up paddle pattern

wedges and epoxy for assembling the pieces to ensure maximum strength in the joints. You may have some other favorite joinery method, but if you intend actually using the paddle, make certain your technique can stand up to plenty of abuse.

Usually I make the handle shaft from a 1½ x 1½ piece of hardwood, and I use a ¾-inch round over bit *after* the paddle is assembled. This produces a more unique look where the shaft overlaps the blade. Using a round piece of 1½-inch thick stock

works just as well, and it gives a slightly different look. Try whichever method you think you'd prefer, or try both and see which you like better.

Used by generations of this hemisphere's finest hunters, this type of Native American style paddle is actually a part of our heritage. Woodworking is an equally important aspect of our historical roots as well. So in a way, fashioning this type of paddle represents an intersection of two very important traditions—kind of a wooden cultural celebration. And

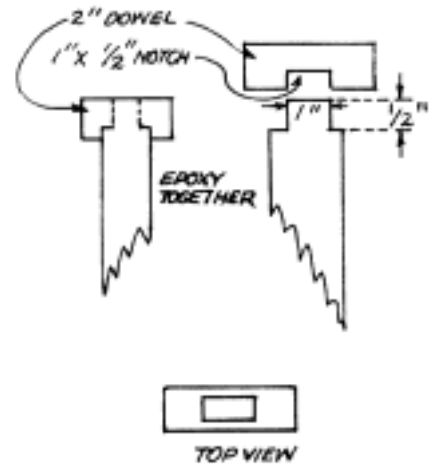


Figure 5. An alternate handle

it results in an end product that is just as eminently suited to its purpose today as when it was originally designed, somewhere in the mists of prehistory. Δ

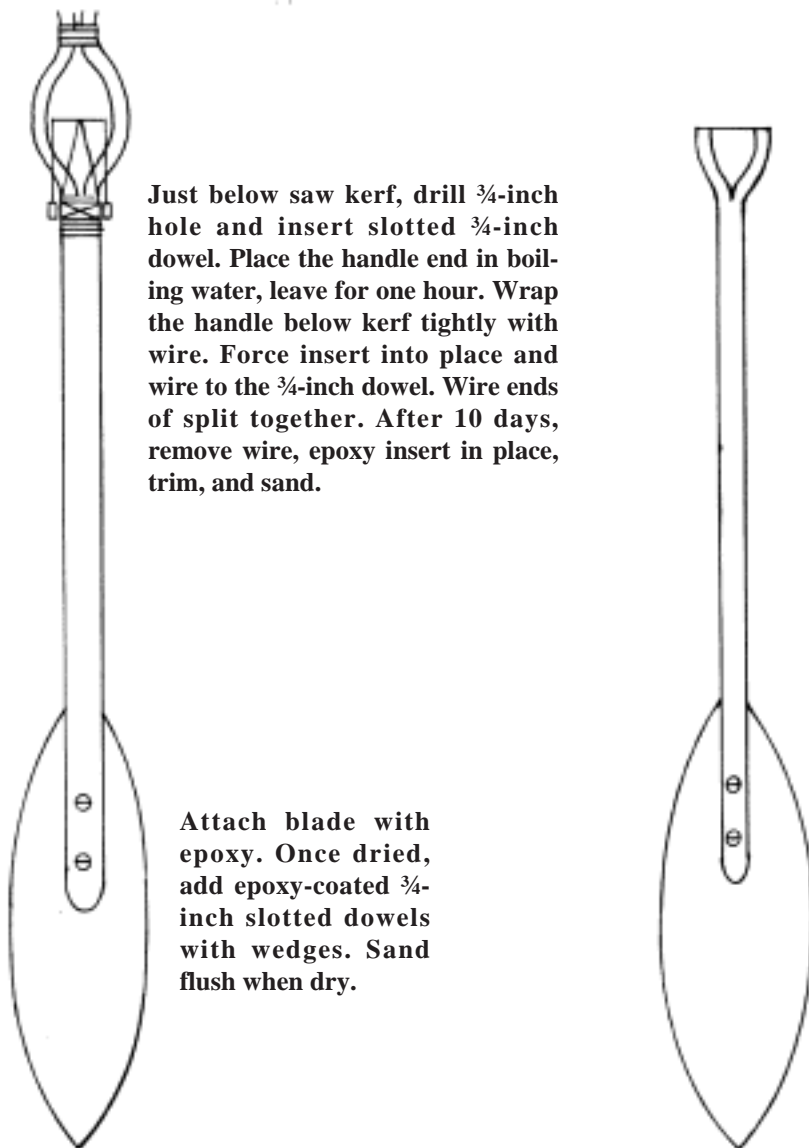


Figure 4. Attaching the handle and the blade to the shaft



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Make a gold or silver wire cross in 10 easy steps

By Robert Kramer

You can readily make a wire cross that can be worn as either an earring or a necklace in just a few steps.

Materials needed

1. Copper, silver, or gold wire
2. Small wire snippers or old finger/toenail clippers
3. Small needlenose pliers
4. Small file or old metal fingernail file
5. Earring hoop or sting/chain for necklace

Instructions

1. Take a piece of wire approximately 3 inches long and bend it in the middle with one end overlapping the other (Figure 1).

2. Twist the wire four or five times (Figure 2).

3. Bend right-hand side wire over so that it meets the base of the middle of the first twist and twist four or five times (Figure 3).

4. Turn the cross so that the left side is on the right and repeat step number 3 (Figure 4).

5. Gather the two side wires and twist eight to ten times (Figure 5).

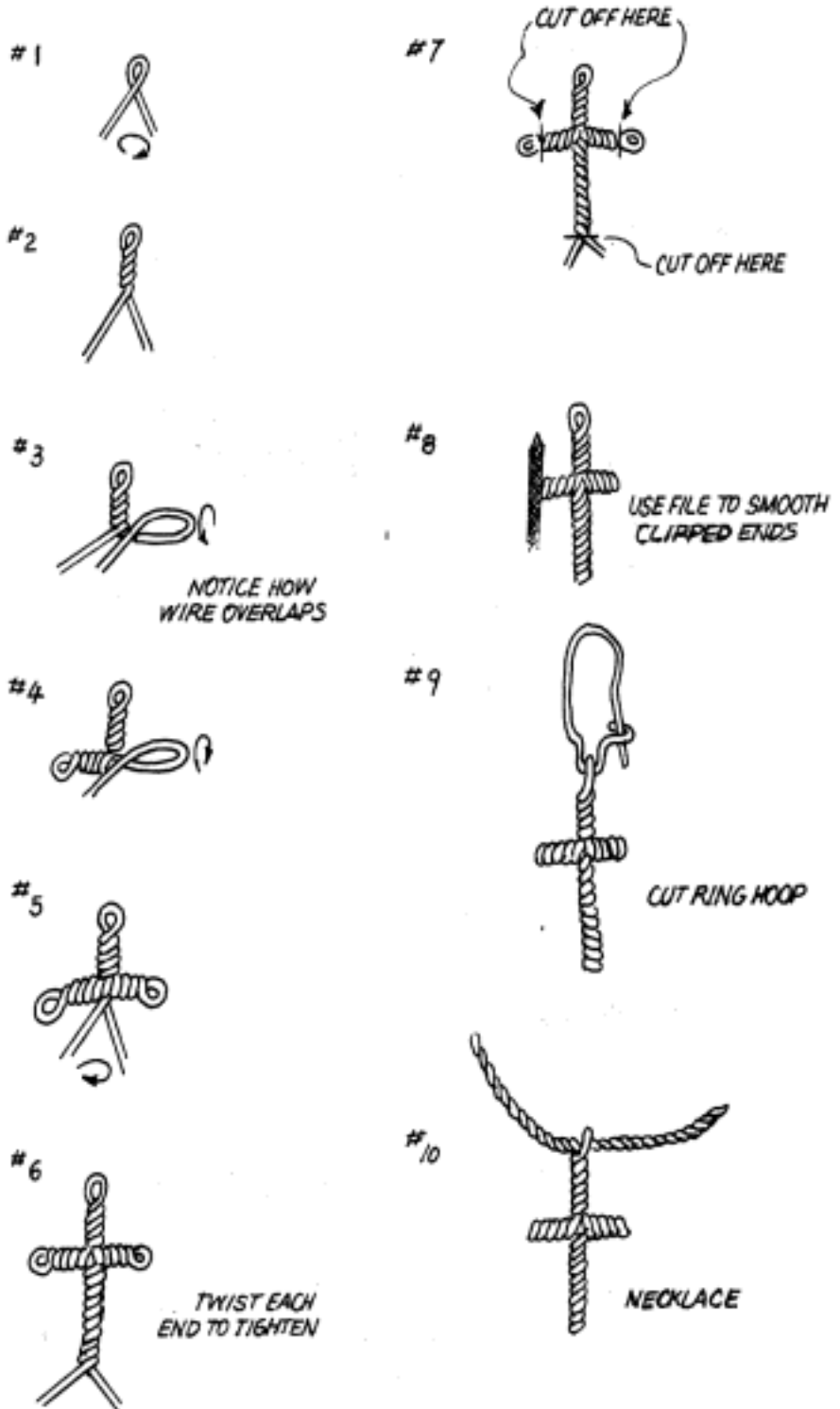
6. Tighten up the cross by twisting each end until the cross is tight and uniform looking (Figure 6).

7. Cut off the sides and bottom of the cross at the ends (Figure 7).

8. Use a metal nail file to smooth the cut ends so that it will not snag something or have a sharp, scratchy end (Figure 8).

9a. Make a half twist of the loop that is left in the top and put it on an earring hoop (Figure 9). Or,

9b. Place a string or necklace chain through the hoop for a necklace (Figure 10). Δ



Commonsense preparedness just makes sense

By Jackie Clay

What if that snowstorm turned to a blizzard or an ice storm lasted for days, knocking out the power and phone lines? Would you be prepared? Or what if you lost your job, or an illness or injury prevented you from working for a lengthy time? Could you survive? Or what if you had a severe economic depression? Could you and your family cope?

Commonsense preparedness is not a new concept based on the fear of an Armageddon. It is an old idea that goes back to biblical times when Joseph advised the pharaoh to store food for the coming famine. In modern times Mormons, Mennonites, Amish,

and even our grandparents lead or have led lives based on being prepared for unexpected hard times.

But though once art of most folks' everyday lives, commonsense preparedness today has fallen by the wayside, and vast numbers of people are totally unprepared for even the smallest emergency.

There is much you can do to remedy this, and it starts with taking stock of just what makes your household tick. Here is how my family has prepared for the unexpected:

Water storage

A human can live much longer without food than without water, so having adequate water available is at the top

of any list. When calculating your family's water needs, include water for sanitation, that is, for flushing the toilet as well as washing one's self and cooking utensils. The toilet doesn't *have* to be flushed after every use, and a person doesn't *need* a 15 minute shower twice a day, but some water is necessary.



A supply of potable water is a must. We keep 30 gallons of drinking water stored in 5-gallon jugs in our house at all times. We keep the same amount stored in old, well-washed and bleach-rinsed plastic milk jugs to use (sparingly) as wash water. Besides this, we are fortunate to have two 1,000-gallon stock tanks in the pasture. They are kept full and are reasonably clean—clean enough for flushing the toilet or washing. We also have two small springs and a good creek which runs year-round, half a mile from the house.

It is a good idea to have a good water filter on hand which reliably filters contaminants out of the water, including giardia, a parasitic protozoa

which causes severe diarrhea and inhabits even the clearest of mountain streams. In some emergency situations, normal community water may become contaminated and require filtration to be safe to drink. Should you not have a filter, which unfortunately are usually pretty costly, boiling the water for fifteen minutes provides safe

drinking water under less than desirable situations. Another option is using water purification tablets, which make the water safe but yucky tasting.

Be sure to have enough water on hand to take care of livestock and pets, as well as your family. And include a jug of water in your auto emergency kit, especially in the summer. Drinking water is a must, but water enough to fill a hot radiator is a close second.

Food

Everyone immediately thinks of food when making up a preparedness list, with MREs (Meals Ready to Eat), the military's replacement to the old C Rations, high in popularity. But few folks really think their way through a preparedness pantry, for it is best not to prepare for a week-long "emergency," but rather have enough stored food on hand to last the entire family for two years. **Two years?** Yes. One never knows what the future will bring, even when you raise most of your own food. For this reason we always can all of our large garden's

produce, even if it seems extravagant, for who knows if next year's crop will be hailed out and the year after that killed by drought or insects. And who knows if someone will lose a job or health, or have a relative or friend in need move in with them, creating a real need for extra food.

We keep wheat, stored as whole grain because it keeps longer, and we grind it with our hand mill. We also keep whole corn, dry milk, margarine powder, powdered eggs, flours, corn meal, honey, and yeast. Also a huge variety of home-canned foods which, if processed right and kept reasonably cool and dry, last nearly forever. Sure, you may lose some nutrients over time, but by using fresh vegetables and fruits to start out, you can counterbalance any loss easily and have a full stomach. These home-canned foods are more than just tomatoes, beans, and peaches. I can year-round making my own chili, taco filling, beef stew, smoked fish, turkey noodle soup, etc.—all of which are easy-to-heat taste treats.

We also dry a lot of our produce and fruit, sealing them in canning jars to preserve freshness. I dry berries, cherries, peaches, apples, pumpkin, squash, onions, peas, carrot chips, banana chips, fresh and cooked corn, peppers, mushrooms, and more, all of which are easily and quickly rehydrated and ready to use.

I always make sure we have plenty of flour, baking powder, sugar, salt, spices, and shortening as well—all bought when sales are on.

Some preparedness foods are bought by mail and shipped to us sealed in #10 cans (about 1 gallon) or white plastic buckets. But these can be pricey.

Many items, such as our dry beans, flours, sugar, baking powder, etc. we store in popcorn tins, glass gallon-jars, etc., all tightly sealed against dampness and insects. Our wheat and whole corn is freezer treated for three days in sealed containers, then dumped into 30-gallon food-grade garbage cans

with tight-fitting lids. A few bay leaves thrown in on top further protects the grain from weevils.

Most foods, such as spices (bought economically at local health food stores by the pound) and baking powder keep very well and long-term in jars that have tight-fitting lids. If the food comes from the grocery store in sealed containers, we leave them in



Every home should have an outhouse for emergency use.

those containers as they will keep much longer than the “freshness date” stamped on the box or bag.

While all this food does keep very well in a dry, cool pantry, away from the light, it is important to keep track of the dates you put it up or purchased it, and to keep rotating your stock through everyday use so that the oldest food is eaten and replaced with fresh food. This way you will never lose any of your stored food.

But what about a freezer full of great food? A freezer may be handy, but it is **not** an option for emergency food storage. First of all, frozen food is only good frozen. If the power goes off, and you don't have a backup electrical system such as a generator or a

photovoltaic system to keep your freezer going during the entire power outage, your stored food will thaw. I know; I lost a third of my very large freezer full of meat, poultry, and vegetables during a week-long power outage—and I would have lost more if I hadn't been able to can the rest. I haven't relied on a freezer, other than Mother Nature's on a temporary basis, since then.

Another reason not to depend on a freezer is that there are instances where your family may have to quickly evacuate your home, and it's very nice to be able to load up the truck with a good load of your pantry food, even if you are only going to spend two weeks at your mother's until the emergency passes.

We always keep some emergency food in our truck, behind the seat. We can't afford MREs, but there's jerky, candy bars, dried fruit, crackers, a few tins of Spam, and dried soup. We also keep a box in the shell that contain a small propane stove, frying pan, pot, sleeping bags, etc. Recently, our fuel pump went out on our truck while we were on the freeway, leaving us stranded for seven hours, and we got hungry. Not a big emergency, but life is full of little emergencies.

First aid/medication

A complete first aid kit containing any prescription medicine needed by family members is a must in any home. I laugh at many first aid kits that consist of just a few bandaids and a tube of ointment. Ours is a field kit contained in a heavy duty shooter's box—similar to a fishing tackle box, but heavier, and with a deep lower section. Both my husband Bob, a certified nurse's assistant, and I, a veterinary field technician, have extensive medical experience so our kit is beefed up. But every kit should include at least the following: a Red Cross first aid manual, heavy and small scissors; tweezers, several 20-gauge hypodermic needles (nothing

removes splinters and thorns better), large fingernail clippers, at least two rolls of 1-inch and 3-inch sterile gauze, a box of sterile 3-inch gauze pads, sterile cotton, a bottle of sterile saline solution, a large tube of topical ointment containing antibiotics or sulfa and a topical anesthetic, a jar of A & D ointment, eye drops such as Visine, a roll of elastic bandage about 3 to 4 inches wide, two small towels, an enamel pan for water (ours fits snugly in the bottom of the case taking up no extra room), a denture repair kit, a temporary filling kit, a box of assorted bandaids and butterfly sutures, a roll of surgical adhesive tape, Calamine lotion, bottle of aspirin (and Tylenol for children), antihistamines, cough medicine, cough drops, antibiotics (if your doctor will write a prescription for your emergency kit for you), and any other medicines you or your family may need unexpectedly. A bar of plain soap and antiseptics, such as alcohol or Betadine, are also necessary. I would also recommend an antifungal, as used for jock itch or athlete's foot, and a treatment for vaginal yeast infection. Such problems often occur making a little emergency a big emergency in terms of comfort.

Our kit also includes an intravenous kit, IV electrolytes, dextrose solution, suturing material and needles, forceps, scalpels and blades, injectable local anesthetic, epinephrine, antibiotics, splinting material, a blood pressure cuff, stethoscope, etc., all used of course in an emergency where no medical help would be available.

Your kit should always be readily available and it should also have your doctor's phone number and emergency numbers, such as the hospital, poison control, police, fire, etc., written in permanent marker under the top. We also keep a mini-kit under the seat of the pickup. It's a scaled down version of the larger kit but it is also quite comprehensive.

No first aid kit is worth a darn, though, unless a person has some medical knowledge. A basic Red



Digging out for the foundation of our new pantry addition to allow for two years of food storage

Cross first aid course including CPR training is necessary, as is a little additional study from books found at your library. A few minutes spent could save a family members' life.

Warmth, cooking, light

Unfortunately, most of our severe weather and most of our family emergencies, such as job loss, occur during the winter when the weather is cold and blustery and the daylight hours are short and depressing. It is very important to consider what would happen if the power was off in your house. Most modern homes heat with gas furnaces, but you get no heat unless the **electric** blower moves the heat to the rooms. So, we'll heat with our kitchen stove, folks say. Also fine, unless your stove is electric or a "modern" gas stove with electric ignition.

Then, there are folks with an all electric home. Lots of luck if the power goes out for any length of time, especially during a blizzard or severe ice storm. Many of *BHM's* readers are fortunate enough to have a photovolta-

ic system and backup generator, but even these systems can go down.

Our family lived without electricity for five years in the mountains of southwestern Montana and we enjoyed our life staying warm and cozy without power using wood stoves both to cook on and to heat the house. Now we live on the high prairie of northern New Mexico where winter northers can blow snow at 40 mph. We still cook with a wood kitchen range, which also helps heat the house, but we have wall propane furnaces, too, the kind without electric blowers.

No home should be without a backup heating system which requires no electricity. There are alternatives to wood should wood heat be unavailable. Today, there are efficient small propane heaters which take up little space and will heat a room or two at small cost during a power failure. Be sure the heater is installed properly and used safely when needed. There are also kerosene room heaters which work well when used with caution. Be sure adequate fuel is safely stored outdoors, be it propane or kerosene.

In many climates, a heater below your home's water lines is necessary to prevent frozen and bursting pipes. And if your water comes from a well, be sure there is a heater safely burning in your well house or, when the electricity comes back on, your water may be frozen and presenting you with a real problem. We have a small, ventless, propane heater in our well house which we light during severe and windy winter weather. It keeps things unfrozen until the weather moderates and does so without electricity and at very little cost.

Never use an unvented heater of any kind, unless it is approved for home use, unvented, as your family may end up dead due to asphyxiation.

Also, in your truck or auto, never depend on the motor and heater to keep you warm. We keep a Coleman lantern and fuel in a box in the back of the truck which can be used for heat as well as light during an emergency.



Bob's broken leg from a snowmobile wreck—handled well at home because there was no doctor available

Always keep a downwind window cracked open, to prevent asphyxiation.

In addition, we keep heavy sleeping bags in a plastic box under the truck's shell along with a change of winter clothes which includes old, but warm, winter boots. Generally, staying with the vehicle is the best course of action during an emergency as a person is protected from the weather and easier to find than if stumbling about in a blizzard. But, if you have to walk, it is best to do so in warm winter clothes, with a sleeping bag wrapped around you, than in mall clothes and tennis shoes.

Back home again, cooking and lighting should also be considered. If your backup heat is wood, you can cook meals on most wood heaters. But many propane heaters do not facilitate cooking. A simple solution is a small, countertop propane stove. A two-burner stove with flexible hose, connected to a 30-pound propane "pup" or portable tank, works great. We also carry a mini backpacking propane stove in our emergency box in the back of the truck. It takes up only 24 square inches, weighs a few ounces, and quickly connects to a disposable propane cartridge, giving instant heat. We once cooked supper on it, just out of Yellowstone park, in the middle of the highway, while waiting for the park service to clear a mud slide off the road. Another option is a Coleman camp stove which fits right on the counter and provides two burners of cooking power instantly.

Of course, when the power is gone, so are the lights in most folks' homes. Candles and flashlights are always a part of a well prepared home. But candles burn out in a short time and are a bit unsafe, while flashlight batteries soon weaken and die. We have four filled kerosene lamps on top of the cupboards at all times, along with two Coleman lamps (including replacement globes, in case of breakage, and extra mantles). The kerosene lamps are nice, but we like to read on stormy nights, and you can about go blind try-

ing to read by kerosene unless it is a pricey Aladdin lamp.

As with the heating fuel, be sure you have adequate fuel stored outside, where it is safe.

Emergency lighting in a vehicle is also necessary. As I said, we have a Coleman lamp in the truck at all times, but we also have a box of 12-inch candles and a good flashlight as well. Having light in the vehicle can provide cheer but more important, it may prevent your rig from being hit by a passing motorist as well as greatly improving your chances of having someone see your problem and stop to help.

Sanitation

About everyone takes flushing the toilet for granted—until it won't flush. For this reason, be sure you have at least 50 gallons of water available for sanitation reasons, alone. You don't need super-clean water to flush a toilet. After all, you know what you're flushing. You can melt snow or go to a nearby ditch, pond or creek and haul water to dump into the toilet, but even this water should be used frugally. Only flush the solid stuff, putting toilet paper in a bag to dispose of later. Don't be so frugal that you plug the toilet. Flush when you must, not just out of habit. For this reason, keep a bucket of water next to the toilet, but don't dump it in the back, as most folks will automatically flush when they're done, without thinking. This way you will save much water.

Keep in mind that there are usually 30 to 50 gallons of clean water in the water heater after the pressure is gone. You can draw this water off through the faucet on the bottom using a short length of garden hose. But be sure the electricity or gas is turned off first, because without water the dry tank may burn out when the power comes on. A water bed is also a source of sanitation water, but it should never be used for drinking water because of the

chemicals and contact with non-food-grade plastic.

If possible, have an outhouse in your yard. Yes, an outhouse. Even a large lot in the city can house an outhouse, carefully built to resemble a garden shed, and only used for emergencies. I know it's against code, but so is a bucket full of poop in the bathroom. Personally, I'd rather use the outhouse, being discrete, i.e., sneaky, if necessary.

Sanitation also includes things such as sanitary napkins, toilet paper, diapers, etc. There should be a good supply of all of these plus soap, deodorant, and bleach in the pantry.

(We've spent so long in the woods, that we **never** leave home without a good supply of toilet paper. The heck with American Express.)

Even when a baby is kept in cloth diapers, it is a great idea to keep a couple of bags of the right size disposable diapers in a closet and one in the vehicle. Washing dirty diapers is never fun, but in an emergency it is **not** what you need to be doing.

A few sanitary napkins crammed in the glove box of the vehicle can save the day—or days. We also keep a small container of baby wipes and a bar of soap there too. In your house, sanitary products should be available to supply the family for two years. The same goes for laundry detergent.

One note here: You can wash clothes in a sink, tub, or bucket, but having an old wringer washing machine around, powered by a portable, inexpensive generator which can also provide electricity for short periods, will make laundry day a snap. In the mountains, we ran the generator once a week while I washed clothes and Bob and David watched a movie on our VCR—a real treat for all of us.

Even in the winter, clothes can be dried on a line outdoors, although it takes a week during very cold weather to get them thoroughly dry.



Two stages of emergency travel—snowmobile and horse. Survival kits and tools are stowed safely onboard.

Transportation

Having reliable transportation is essential in any emergency situation. Keeping a vehicle in the best shape you can afford is necessary. Having a thousand dollar stereo system means nothing if the gas tank is kept empty and the fan belt needs replacing. Good tires, belts, hoses, windshield wipers, a good spare tire, jack, a tire iron that fits the lugs, jumper cables, and a tool box with good, commonly used auto tools including a battery terminal cleaner are needed in any well-prepared vehicle. In snow country we always carry a set of heavy tire chains for at least the front end of our 4x4 pickup, and if we expect severe weather we carry a full set. Every auto or other vehicle should carry tire chains to increase traction on snow and ice. Have the means to keep those chains tight, too, as loose chains break or are thrown.

Preparing a vehicle should also include keeping necessary fluids in the trunk. These are oil, brake fluid, starter fluid, gas line antifreeze, windshield wash, transmission fluid (automatic transmission), and radiator coolant/antifreeze. In an emergency, you may not have access to them when you desperately need them.

A bag of sand for added traction, a shovel, a length of hardware cloth (for traction when stuck), a fire extinguisher, a tow chain, and a pair of old gloves for dirty work are also great additions to the trunk.

It is an excellent idea to have a pair of five-gallon gas cans full of fresh gas at home, stored safely outdoors, but handy. And to keep the gas tank nearly full at all times. You never know when you may have to take an injured or ill person to a hospital in the night or evacuate your home because of a storm, civic disturbance, or even a toxic spill from a passing truck. And at such times you don't want to have to search for a gas station. As with food, rotate your gasoline, as stale gasoline will not be a dependable fuel.

In addition, we always carry an extra upper radiator hose, fan belt, box of fuses, and a roll of duct tape behind the seat of our pickup. The radiator hose and fan belt are easy and quick to change, and duct tape will temporarily repair a host of breaks.

A Chilton's repair manual for your vehicle is also a good idea as it provides the specs for your particular vehicle, and it explains in detail how to repair hundreds of common, and uncommon, problems. Likewise, a road atlas and compass are invaluable in the vehicle.

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Family readiness

There are a few things that the family should sit down and discuss. Everyone in the family should know how to shut off the gas at the meter or propane tank when hurricanes or tornadoes threaten, or in case of earthquake to prevent possible explosion or fire. Every member should also know how to shut off the power to the house from the main box to prevent electrocution accidents. You should also

have a plan as to where to meet should an emergency find the family separated.

In case of fire, there should be a plan for escaping from the house and for handling small fires, and everyone should know how to use the fire extinguishers and know where they are located, both in the house and the vehicle. As explained earlier, all members of the family should also have knowledge of basic first aid.

It is an excellent idea to have cash available at all times at home. Some folks advise having enough in savings to cover the house payment, utilities, etc. for six months to provide a safety net in case one of the wage earners is laid off, fired, or injured and unable to return to work for a few months. But a family should have cash stored in a safe place at home to cover local emergencies or an evacuation. Remember that in power outages credit cards and ATMs will **not** work, and banks are not likely to be open.

Personal preparedness

It is an excellent idea to have a backpack with you wherever you are, i.e., your home, on the road, or workplace, that contains at least enough emergency gear for three full days. This should include basic first aid supplies, a space blanket, MREs, Spam or other filling, a lighter, knife, pocket transistor radio, toilet paper, change of warm socks, compass, water, minimal fishing gear like a length of line and a few small hooks and flies, and a length of snare wire.

Even the kids appreciate some “survival” gear in their own backpacks, provided as per age and experience. The better prepared they are, the safer they will be.

We never leave the ranch, even to go hunting in familiar territory, without a fanny pack containing basic survival gear and a few strips of jerky, trail mix, and candy bars. I also routinely carry two lighters, two pocket knives (one with a screwdriver blade

and can opener), and a film canister in my pocket containing a few feet of fishing line and a couple of small hooks. My husband, Bob, carries a belt knife, pocketknife, and a Leatherman tool—which is many tools in one.

Who knows when an ankle may be severely sprained, and we may have to wait for some time to be “rescued.” Personally, I’d rather be rescued sitting in front of a small fire, munching on jerky and drying my socks than sitting huddled in the cold, looking pathetic.

In our truck, we even carry a telescoping fishing rod and a complete fly vest, full of lightweight tackle, as well as a rifle and box of ammunition. We travel in pretty remote country a lot, and could quite possibly need the rifle to signal for help—three shots in a row—or to bring in some food should we be stranded for some time.

As you can see, preparedness is a personal art, depending on your location, where you could possibly end up in an emergency, your lifestyle, experience, and your perspective on future hard times.

Most families can deal with major emergency situations with relative ease. And you get better with practice. If you get so you deal with preparedness as a sort of game, rather than an emergency in the future, you can get very good at dealing with problems and hard times. When a person or family feels that they are working to be secure, they are less apt to feel helpless or at the mercy of fate and can go happily on about their business, no matter what is going on around them. Preparedness becomes an art, and the whole family can suggest ways to improve, with enthusiasm instead of fear. Δ

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Liferiver

*The river of time that is my life
began small and slow.
Barely moving.
Taking what seemed to be
forever
to reach the bend ahead
that promised to
carry me down to sights and places
I dreamed about
in my youthstreams...
streams so shallow and banks so
close
I almost believed that time would
stand still
as my ambition dried in the sun.*

*But rain came. Storms.
Bringing more water than banks
could
hold, sweeping my thoughts along
so quickly they were but lost
as the current carried them around
the bend
and beyond.*

*Now youthstreams seem sweet as I
am awash in
events and people and things that
bob to the surface
for a moment
only to be pulled under
before I can see
or feel them.
The bank is so far away
I wonder if it exists
or if I’m rolling along
Without Bounds.*

**Melissa Sullivan
Petersburg, IL**

*A way of life that is odd or even
erratic but interferes with no rights
or interests of others is not to be
condemned because it is different.*

**Warren E. Burger
Chief Justice
United States Supreme Court**

Here are four sure catfish baits

By Rev. J.D. Hooker

I guess there is a pretty large share of the fishing fraternity who look down on the “lowly” bottom-feeding catfish. They classify it more as a “trash” fish than as any type of game fish. Probably most of these folks have never wrestled in a really big cat, though, and they’ve surely never enjoyed a platter of catfish fried up by someone who really knows their way around a skillet. Those of us who’ve done both have a tremendously higher opinion of these whiskered fish.

Before you can start enjoying all of those delicious fried catfish however, you’ve got to catch a few. It’s likely that just about every sort of bait the human mind can devise has been tried on cats at one time or another, from red worms to chunks of cheese to some really sickening stink-bait concoctions. At some time or another, I guess I’ve tried most of them. But for the past several years I’ve relied on only four baits for catfish. If the cats won’t bite on at least one of these, they just aren’t going to bite on anything.

As I just finished adding 200 lbs. of catfish meat to our deep-freeze this morning, all taken from one trotline set for one night, I guess I know what I’m talking about. Especially when you consider that there aren’t any big rivers in this area—so all these cats came from a river shallow enough for me to wade across almost its entire length. Anyway, try these baits, and expect results.

1. Ivory soap chunks: Use a fine-toothed saw, like a hacksaw or coping saw, to cut a bar of “Ivory” soap into a dozen chunks, then bore a hole in each chunk to insert a treble hook. Affix one of these baited hooks to the end of your line, and add a fairly heavy sinker about a foot above the bait. Just cast out, tighten your line, and wait for

a cat to take it. It’s been at least 20 years since an elderly catfishing enthusiast showed me this trick. It was the only catfish bait he’d ever used. The reason Ivory bar soap is attractive to cats is because it’s real soap and real soap is made with fat. The other things we call soap are chemical products, and the cats can tell the difference, even if you can’t.

2. Catfish cookies: Go to a drug store and purchase a small bottle of anise oil. Be certain it’s anise *oil*, as anise *extract* isn’t nearly as effective. Mix the oil with a cup of milk, then add enough flour, corn meal, or other thickener to make a thick doughy paste. Work balls of this paste onto bait-holder style treble hooks, then bake in a medium-hot oven, until firm but not hard.

Usually I rig and fish this bait in the same manner as with Ivory soap chunks. Sometimes though, better results seem to happen when you rig it on a 6-inch dropper line, about a foot above the sinker, as a second bait.

3. Worm gobs: Just use a large single hook and thread as many night-crawlers or other worms on the hook as you can fit. While catfish feed primarily by scent, they can see too. So it seems like maybe once they’ve located this bait using their powerful olfactory senses, the sight of this wiggly mass helps to entice them into a good solid hit. Fish this about 6 inches off the bottom.

4. Fresh blood bait: When you’re butchering, whether it be hogs, chickens, or whatever, catch some of the blood and pour it into containers. You can freeze it for later use, or mix up some bait right away. It will stay good for at least a couple of weeks. Mix together enough blood and cornmeal to form a very thick paste. Place it in some type of covered container and refrigerate overnight to “blend.”

To use it, bury a treble hook (a single hook works almost as well) in a gob of this dough. Wait awhile, until the outside of the bait just starts to crust over. Then fish this bait from a few inches to a foot off the bottom.

Trotlining, I use all four baits on the same set-up, running something like this: Ivory, cookies, worms, blood-bait, Ivory, cookies, worms, blood-bait, over and over until I’ve filled all the hooks. Using limb lines, or set lines, I use all four baits together as well. Pole fishing, I try one bait at a time, until I see which gives me the best results at that particular time and place.

Like I’ve already said; if the cats won’t hit on at least one of these baits, they’re simply not going to hit on anything. Try them, and see for yourself; I’m quite sure you’ll come to agree.

Cook 'em right

Just to keep you catfishing, I’m going to include my favorite method for enjoying your catch. My wife got this recipe from her West Virginia grandmother, who got it from hers, who got it who knows where.

Clean and cool the fish (preferably on crushed ice) as soon as possible after catching. Cut extra large catfish into inch-thick steaks; all others just remove the heads and fins, clean and skin. Place cleaned and well rinsed catfish in a large bowl or other container and add milk just to cover. Cover container and chill overnight.

Melt about half an inch of bacon grease in a heavy iron skillet. Dip each piece of catfish in lightly beaten egg, then roll in cornmeal seasoned with salt and pepper. Fry a few pieces at a time in the hot bacon grease until just nicely browned, turning once. Drain on paper towels and serve hot with your favorite side dishes.

After dinner, give the milk the catfish had been soaking in to your cats. They’ll love it, it’s good for them, and it traditionally brings luck on your next catfishing outing. Δ

Homemade wax bullets let you practice shooting on a budget

By Martin Markham

Twenty years ago, as a young man, I read an article dealing with the firing of wax projectiles via the use of primer power. I had no access to firearms then (my parents owned none), so the article was quickly forgotten.

At age 25, while serving in the Marine Corps, I purchased my first handgun—a Smith&Wesson, 6-inch model 629. It was the beginning of my love affair with firearms. And I've owned many revolvers, pistols and rifles over the years. My current love is a Colt 6-inch Kodiak.

But although I love to fire my guns, I hate reaching into my pocket for the funds necessary to do so. And while in the process of purchasing another box of 50 rounds of .44 magnum, I remembered that article I had read 20 years before. I told the proprietor I no longer wished to buy the ammo. Instead I asked him if he had a device for hand priming cartridges. He did—a Lee auto primer. I purchased the auto primer, the proper case holder, and 50 rounds of unprimed brass, along with a supply of large pistol primers. Then I went to a grocery and purchased some household wax—the kind used as sealant in homecanning.

At home I melted the wax in a double boiler and poured it into a shallow pan of stainless steel to the half-inch level. When the wax had cooled to the point of being solidified, yet still soft

enough so that the unprimed cartridges could be easily pressed into it, I pressed all 50 cartridges into it. After they cooled (I placed the pan in the snow outside to hasten the process), a slight rocking motion when extricating each cartridge resulted in a perfect wad-cutter type wax projectile.



I used the Lee auto primer to prime the cartridges, and I fired six rounds at a paper target. The resulting group was about the size of a quarter.

I've been using the wax bullets for several weeks now and only one problem has been noted—after 20 rounds or so it is necessary to run a bore brush, moistened in Hoppe's #9, through the barrel, then make one pass with a dry patch, as the wax fouls the grooves. When this happens, the wax projectiles become elongated when fired, resulting in a loss of accuracy, although the loss of accuracy is not extreme. Also, the failure to take care of this after a practice session may cause a normal round to bulge the barrel, or even split it or explode, so due

care is needed to clean the barrel of residual wax.

I know that rubber and plastic bullets are available for practice sessions, but at \$10 dollars per 50 you don't want to lose any. Being that I enjoy informal plinking at aluminum cans, recovering of expended projectiles would be a chore. With the wax projectiles recovery is unnecessary. And each round costs less than two cents.

When all the wax rounds are expended, I use a nail of the proper diameter and a small hammer to deprime each cartridge case and the process is repeated. I see no reason that the cartridges can not be used indefinitely as the pressures developed by using only a primer for propulsion come nowhere near those developed when lead bullets are propelled by smokeless powder.

I believe that this concept could be used by a great number of people to safely practice the firing of their firearms in their own back yard with minimal noise and cost. I see no reason why this concept could not be adapted to semiautomatic pistols, although manual cycling of the action would, of course, be necessary after each shot. Δ

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Protect your small buildings from wind damage

By Harry G. Nemec

Ever wished your small sheds and outbuildings were anchored down during a particularly violent storm? I sure have. With hurricanes in the East and Southeast, tornadoes in the South and Midwest, and a powerful El Nino taking hold on the Pacific Coast, you may want to do what I've done and anchor down some of your sheds and outbuildings. You'll sleep a little easier during those ferocious storms.

Here's how I anchored my shed:

I measured where I would attach an anchored post to the inside frame of the shed. The intent was to firmly attach a well anchored, pressure-treated post to the inside framing of the shed. I began by using eight-foot treated "landscape" posts which would be fastened from the outside of the building to the inside frame with half-inch galvanized bolts. Had I been building the shed from scratch, I would have put the anchors inside the frame where they could not be seen.

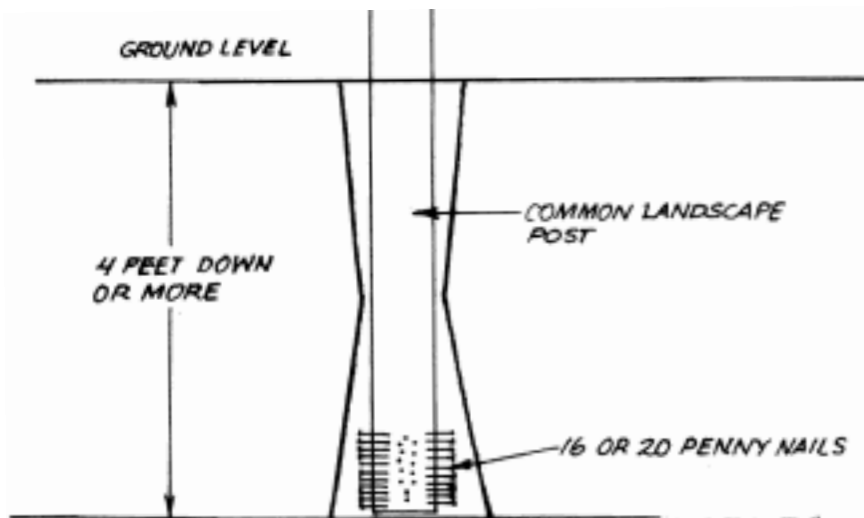


Figure 1. Detail of hole

Using the post hole digger, I dug down as far as I could outside the six studs I was going to attach to, then widened the holes to accommodate the spread of the post hole digger handles.

Once the holes were four-foot deep, which allowed at least three feet of the posts to be buried (don't forget the one foot elevation of the shed above

ground), I drove 16 and 20-penny nails about half way into the lower part of each post. The purpose of the nails is to provide an irregular surface to which the concrete could adhere (see Figure 1).

A mixture of a couple of inches of concrete was then poured into each hole to make a "footer" for each post to rest on.

I then dipped the nailed portion of each post into a five-gallon bucket of water, then lowered them into the holes. I then poured wet concrete into the hole, making sure it was reaching all areas around the nails. The rest of the area around the posts was filled with a mixture of concrete and damp dirt. Because of the dampness of the soil in this area, the balance of the hole was filled alternately with powdered cement and wet soil. I then drilled holes through the shed studs and railroad ties to accept bolts used to attach the anchor posts to the shed (see Figure 2).

My total cost for this project was under \$40, plus two days labor. That is cheaper than rebuilding the shed. Δ

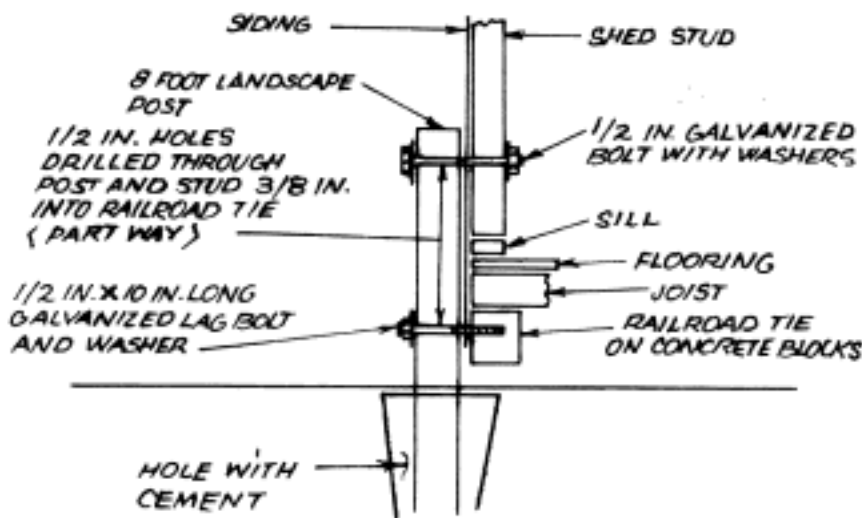
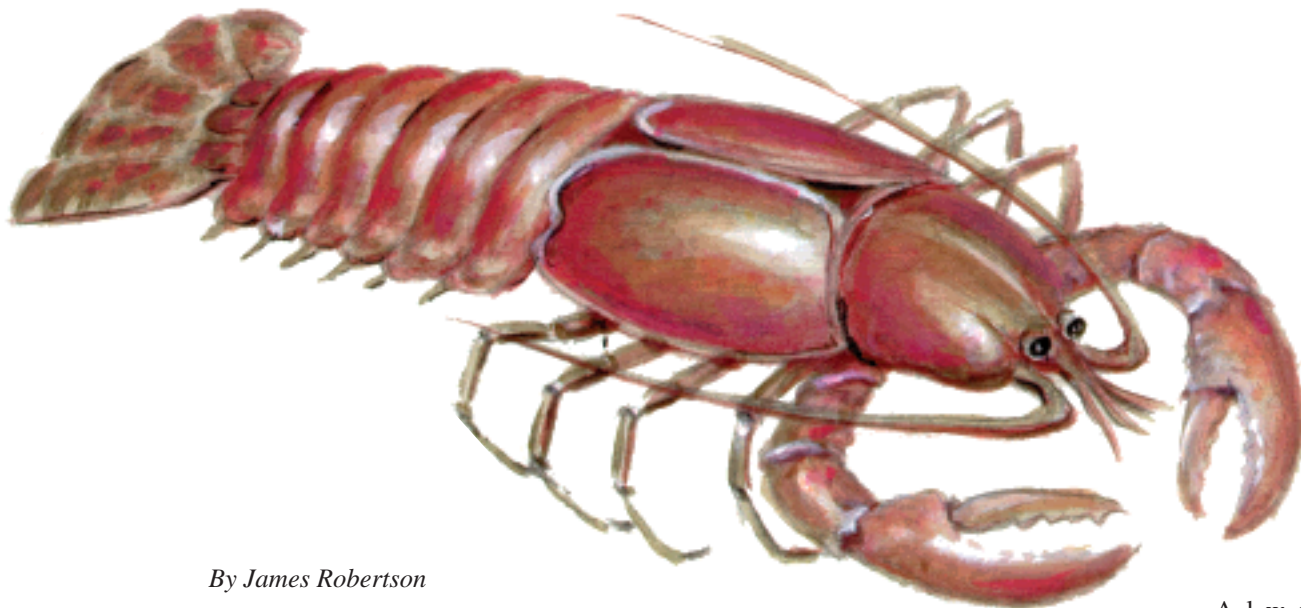


Figure 2. Detail of attachment to shed

“You squeezes de tail an’ sucks de haid”



By James Robertson

Having spent my life growing up in the Atchafalaya flood basin (Morgan City) of Louisiana, I know a little about crawfish.

Earlier articles in *Backwoods Home Magazine* have pretty much covered everything from the different species to catching, farming, and making a living with these prehistoric-looking crustaceans. Some of the articles were “Small-scale crayfish farming is a profitable business” in the *Best of the First Two Years* anthology; “Farming crayfish for a living” in Issue Number 16 and in the *Third Year* anthology; and “How to make a living with wild crayfish” in Issue Number 22. However, in the “how to eat” department, I found there is still room for discussion.

How do you eat a crawfish? Any self-respecting Cajun will tell you, “You squeezes de tail an’ sucks de haid.” It may sound far out, but for generations of Cajuns that’s the etiquette at a crawfish boil or soiree.

Being of the opinion that Cajuns are the experts, I will share with you these traditional crawfish recipes:

Boiled crawfish

1 sack of live crawfish (35 - 40 pounds)
2 (26-ounce) boxes of salt
5 medium onions, halved
1/2 (4-ounce) bottle Cayenne pepper
7 lemons, halved
3 pods garlic, halved
4 ounces liquid crab boil or 2 boxes crab boil mix
10 gallons cold water

Always wash the crawfish and pick out the dead ones before cooking. Place water and seasonings in a 30-gallon pot. Cover and bring to a full boil. Lower heat and add crawfish. Some cooks add potatoes and corn to the pot during boiling. Return to a full boil and continue boiling for five to eight minutes. Turn off heat and soak covered for 10 to 15 minutes. Remove from water promptly to prevent overcooking and heap onto paper-covered table. Peel and enjoy. Serves five to six.

Crawfish fettucine

1/2 cup butter
1 pound crawfish tails
1 teaspoon soy sauce
1 medium onion, chopped
2 cloves garlic, chopped
salt and pepper
6 ounces fettucine noodles, cooked and drained
2 tablespoons butter, melted
1/2 cup Parmesan cheese

Melt butter in a saucepan. Stir in crawfish, soy sauce, onion, garlic, salt, and pepper. Sauté until onions and garlic are wilted. Toss fettucine with two tablespoons butter and Parmesan cheese until nicely coated. To serve, mound warm noodles on a plate and spoon the crawfish mixture over it. Serves four. Δ

Grow windowsill peppers the year-round

By Lance and Jennifer Barker

If you live in a cool climate, hot peppers probably don't do very well in your garden. It doesn't matter if it's wet or dry where you live: the climate and reasons may be different, but the effect is the same. If you live in a cool dry climate, the days are plenty sunny and warm, but the nights are another story. You could lose your pepper plants to frost on July 4th. If you live in a moist, temperate climate, there probably aren't enough warm, sunny days in a row to ripen and develop a pepper's heat before autumn's foggy dew hits.

We live in a high desert area, where frosts can hit any night of the year. Growing peppers outdoors is out of the question for us. However, since hot peppers seem to be one of the basic food groups at our house, we have found a way around the perennial problem of how to grow them. After trying many different varieties, we finally found that "Grandpa's Home Pepper" does very well on a bright window sill, and produces a pepper that will get semi-hot where most won't develop much flavor. Its pretty foliage and red and green peppers brighten up our winter windowsills considerably.

Grow windowsill peppers

This little pepper is a joy to grow. The seed germinates easily at room temperature. Just plant a few in a small pot, water, and cover the pot with plastic wrap to make a mini-greenhouse. Place the pot in a warm, bright spot away from direct sunlight until you see the first sprouts. Then remove the wrap and transfer the pot to the windowsill.

The pepper grows into a compact and aesthetic house plant. It is easily espaliered to a desired shape. Our 4

year old plant fits a 10" pot and is trimmed to a fan-shape to take advantage of window-light and space. And it is tasty and productive, generally



holding at least a dozen peppers ranging from blossoms to red-ripe. Though the plant is small, we have had as many as 50 peppers on our plant at once.

Seed is easily saved by letting a pepper mature completely on the plant until it is very red and begins to shrivel and soften. Then you can remove the seed for drying. You can still use the pepper for eating (whoo-eee! hot!!). Of course, how hot the peppers

will be when ripe still depends somewhat on the intensity of sunlight. Ours are hottest in spring and fall when the strong sun floods through our windows, and somewhat less hot in summer when the high sun angle prevents the plant getting as much direct sun. Peppers are about 1 to 1 1/2 inches long and wedge-shaped.

Use in crafts

You can use these lovely little peppers for Christmas crafts, such as wreaths and swags, by drying them. Just wait until you have red-ripe peppers. Don't neglect to pick and eat the peppers that you don't want to save for crafts, as this will allow the plant to direct more energy into ripening the ones left on it. When it has ripened the peppers you want, clip the individual peppers with their stems from where they attach to the branch. Using florist's wire and green tape, make a "stem" by poking the wire through the thick part of the pepper's own short stem. Bend the wire back straight on both sides of the stem, then wrap the green tape around it tightly, starting at the end closest to the pepper. Now you have a handle with which to hang the pepper to dry, and a stem to bind into your wreaths and swags (even corsages, why not?).

Bill McDorman of High Altitude Gardens found "Grandpa's Home Pepper" in Siberia, where they don't have much of an outdoor growing season. You can get it from him at: Seeds Trust, PO Box 1048, Hailey, ID 83333.

Stir-fried tempeh and vegetables

These peppers have a nice flavor with a real nice afterburn. One finely slivered pepper will generally do for

dinner for two people who like a nice warmth, but not a burning fire. Try these peppers in chili. Saute them up with minced garlic, then toss with steamed new potatoes. Mince a pepper finely and simmer in corn or bean soup.

One good pepper ought to nicely flavor a stir-fry for two.

This is basic fare around our house when the veggies roll out of the garden, or in winter with root-cellar vegetables, and nicely serves two:

Ingredients:

1 cup raw brown rice, cooked according to directions
1 Tbsp. peanut or sesame oil
1 tsp. minced fresh ginger root
2 or 3 cloves garlic, minced
4 oz. (½ cake) tempeh
¼ cup raw cashews
1 small hot pepper, finely minced
a heap of vegetables, however much you think you'll eat
suggestion for the vegetables:
winter—two carrots, a white turnip, and ½ head savoy cabbage
summer—baby carrots, baby zucchini, and a big bunch of greens

Method:

Chop or slice all your vegetables and divide them into long-cooking ones and quick-cooking ones. Dice the tempeh into small diamond-shaped pieces (or however you like). Heat your wok or skillet over medium-high, and add the oil, garlic, and ginger. Stir-fry briefly, then add the tempeh, cashews, and hot pepper. Stir-fry for a minute or two until the tempeh and cashews begin to turn golden.

Add the long-cooking vegetables along with a little water, cover, and allow to steam, covered, for a few minutes. When the vegetables are just beginning to be tender, add the quick-cooking vegetables and steam or stir-fry until done. Serve over the cooked rice, with tamari on the side. Δ

Sunday Mornings

Sunday mornings
Our mother made us get ready--
Me in a tie,
My sister in a dress--
Then she'd hand us each an offering envelope
Containing a quarter, sometimes thirty-five cents;
(We didn't have much to share, even with God)
And admonish us
"Make sure you both go to church,"
And she'd watch us through the window
As we walked down Marshall Street
To Winthrop Street
And took a right--
Me in wingtips, tie, and cufflinks,
My sister in heels, dress, and hat--
Going to the First Methodist Church.
And if we listened we might even hear the organ start up
As we walked by,
But not before I noted the title of the morning's sermon on the church marquee
Which on that particular morning was:
"Separating the Wheat from the Chaff."
And we walked up to Greenleaf Avenue
Down Brookings Street
To George street,
Tearing open the envelopes and taking the money
Just before we got to the Friendly Spa.
Then for the next hour, we walked the streets;
Me in my wingtips, tie, and cufflinks, hair combed, face washed,
My sister in her heels, dress, hat, a Sunday purse, and nylons,
Eating candy bars, drinking soda,
walking, talking, telling jokes,
And, when we got home,

Mother was at the door.
"Did you go to church?"
"Yes," my sister said,
And, "Yes," I mimicked
Never quite understanding why she was so suspicious
And I don't know why
But she always made the mistake of asking me--
Perhaps because I was the younger and thought to be
More ingenuous--
"What was the sermon about?"
And on that particular Sunday I looked her in the eye and said,
"It was something about the wheat and the chaff...
And how the good are separated from the evil
By the wind that is God's breath...
Like he's harvesting our souls,
And there was something about making bread from the wheat
Which was like Resurrection and..."
My sister nodded as I spoke
But I think she was as amazed as our mother would have been
Had she realized I was making it all up
And finally she said, "Okay, okay..."
But I was just getting warmed up
And, if I had to walk the streets on Sunday morning,
She had to listen to my sermon.
And I could keep it up until she walked away.
Then I went to my room and removed my tie and wingtips
And tossed my cufflinks on the bureau,
While my sister changed out of her dress and heels in her own room,
And the rest of Sunday was never as good as that walk.

**John Silveira
Ojai, CA**

Winter in the backwoods is *a lot* more pleasant if you use these tips to stay warm and dry

By Don Fallick

Winters in the backwoods can be beautiful, but they lose some of their charm when you must spend many hours each day working there, in all kinds of weather. Surviving the wet and cold and even enjoying them requires proper equipment, especially a proper wardrobe. This need not be terribly expensive, as long as you pay attention to three basic principles: your clothes must protect you from water, cold, wind, and physical hazards; they must be fit for vigorous work; and they must be layered for easy adaptation to different conditions.

Layers

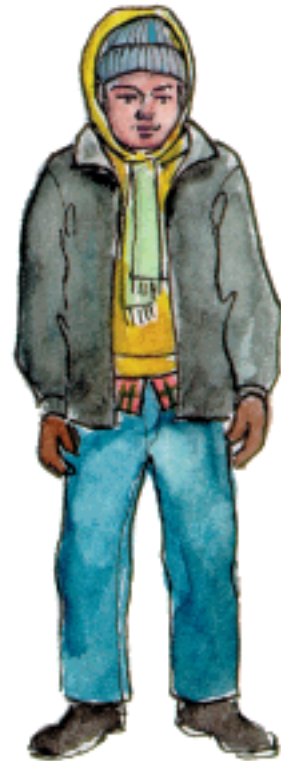
Each of these requirements is very important. A friend once gave me a military surplus “Alaska survival suit.” It weighed about twenty pounds—way too heavy for comfort. It was way too warm for comfort, too. The slightest effort while wearing it caused me to overheat, even in zero degree weather. Zipped up tight, it was water repellent and kept the wind off, but I sweated so much with it on that I had to keep it unzipped. And it was hard to get on and off. Eventually I gave it away, too. It is much more practical to dress in layers. When it’s really cold, I wear thermal underwear, a couple of layers of pants, a wool shirt with quilted lining, one or two hooded sweatshirts or sweaters, a ski mask and wool stocking cap, and a windproof jacket.

Dressed in layers like this, I am quite warm even in blizzard conditions, yet I can easily shed a few layers to work in the barn. If the jacket gets wet, the damp is unlikely to pene-

trate two sweatshirts or sweaters, yet it protects them from rips, snags, and abrasion. Any wind that gets through the outer layers is stopped by the quilted shirt, and a ski mask or wool scarf protects my face from the cold and wind. Sometimes I’ll wear insulated coveralls as part of my winter “uniform,” if I know I’m going to be outdoors a long time. Only you will know your usual routine, so only you can decide exactly what to wear, but here is some general information:

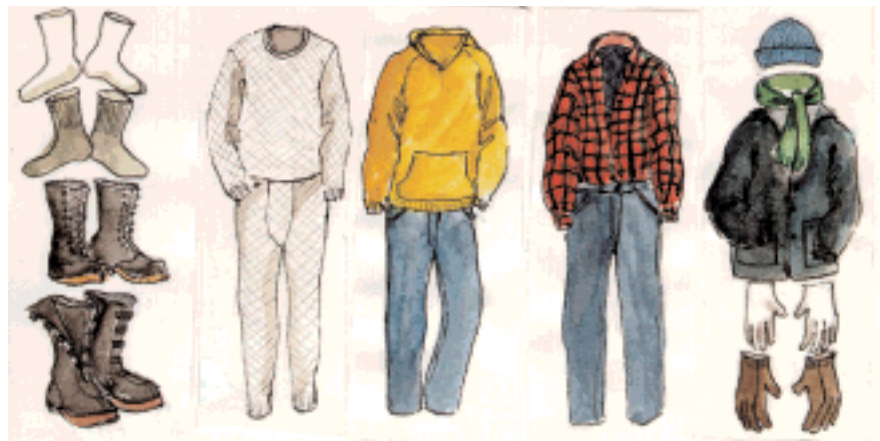
Head

Your head contains more than 10% of the surface area of your body, and virtually none of the insulating fat. It’s one of the best places to lose heat. It’s also one of the hardest to insulate, since your eyes and nose must be at least partly exposed so you can see and breathe. For really windy conditions, I wear a ski mask, plus some type of windproof hood. In bitter cold weather, a wool stocking cap will insulate your head and ears. I wear it right over the ski mask with a thick wool scarf around my neck and throat. Wool is just about twice as warm as



Ready for work on a winter day

polyester. I don’t use cotton: it soaks up moisture from your breath. Densely woven wool retains much of



When it’s really cold, stay warm and dry by wearing layers of garments and shed layers as needed to adapt to changing temperatures and work situations.

its warmth, even when soaking wet. Ear muffs can protect your ears, but they tend to get caught when walking or working in the woods. So do hooded parkas. A hunting cap with ear flaps, or a hooded sweatshirt combined with a cap or hat, can help keep out the wind, while restricting vision less than the hood of a parka.

Torso and legs

A parka hood is either off or on, but backwoods activities are varied, and weather conditions can change quickly. Walking through an open meadow, you may need all the head and face insulation you've got. Splitting firewood on a clear cold day, you may need no head covering at all. But what if you're splitting firewood and it's snowing? With a parka, you have only two choices, but with layers you can adjust to the precise needs of the moment.

The same principle applies to the torso. I begin with "thermal knit" long johns. The knit pattern makes small air pockets when covered with another layer of clothing, and still air is the best insulator. In fact, all insulated clothing works on the principle of trapping small pockets of still air. Cotton "thermals" are lighter, softer, and thinner than wool underwear, and cooler when not covered by outer layers. I know lots of people who habitually dress in thermals alone indoors during the winter months, adding outer clothing only when going outdoors.

What you wear on top of them depends a great deal on what you will be doing. As a land surveyor, I must walk long distances, but do relatively little work with my arms. So I wear several layers of very warm shirts to keep my chest and arms warm, but only a pair of jeans and maybe a non-insulated coverall on my legs. Cutting firewood, the situation is reversed, so I dress lighter above the waist, and warmer below. If I had to stand perfectly still for long periods of time,



insulated, wind-proof coveralls would be handy, but they are very expensive, and I don't have many occasions for their use.

I have owned several down jackets in my life. They are warm, light, and expensive. Like parkas, they do best in a situation where activities are not expected to vary much. Holofil jackets are nearly as warm and light, are much cheaper, and retain more warmth when wet. Down is better for backpackers and campers, who need to economize on bulk and weight. When you live in the backwoods, these considerations are much less important.

Other types of recreational gear suffer from similar problems. Ski clothes and snowmobile suits are not intended for work. Ski clothes are warm and don't restrict motion, but are easily damaged, very expensive, and not conducive to layering. Snowmobile suits are very warm, but heavy and restrictive. They are fine if you use a snowmobile to get around, but if you

do, you probably already own appropriate gear.

Wool shirts are warm and durable, but scratchy, expensive, and heavier than cotton. Cotton flannel shirts with quilted linings can be nearly as warm as wool, at a fraction of the cost and twice the comfort, and they do not shrink. A good wool shirt can last a lifetime, if properly cared for, but not everybody likes wool or can afford it. Excellent lined flannel shirts can be mail-ordered from Sears stores at reasonable prices.

For durability, wind resistance, and general practicality, nothing beats a pair of good jeans. But did you know you can also buy flannel-lined versions? They cost more than regular jeans, but are lots warmer. I survived quite comfortably through two Colorado winters on the farm, wearing only my "thermals," lined jeans, and quilted flannel shirt. I had a down jacket, but wore it only for winter motorcycling. Lined jeans can be mail-ordered too.

In high wind situations, like motorcycling, you need protection from wind and wind-driven moisture more than cold. One winter in Colorado, I commuted 14 miles to my job every night with no problems. I used a nylon rain parka and rain pants over my other clothes, and stayed dry and toasty warm, even at night in a snow-storm at 50 mph.

Feet

No doubt about it—when your feet are cold, your whole body's cold. Even a brief glance through catalogs or the shelves of a shoe store reveals a bewildering variety of outdoor foot-gear. Which is best? By far the most popular is the "hiking boot" popularized in the 1970's. These are very good for hiking in good weather, or on cleared trails. Just about every "back to the lander" tries them initially—and rejects them as impractical. They are impossible to effectively waterproof. They are too short for walking in snow, and too stiff for real work. Their treads clog with mud which is impossible to dislodge, and you can't get them on or off easily.

For really snowy conditions, nothing beats "Canadian style" snowmobile boots with removable felt liners. The rubber bottoms keep water and snow out, the leather uppers allow the feet to breathe, and the felt liners can be changed when they do get wet. Good ones are relatively expensive, and bad ones are really bad. The felt liners must be replaced often, as they wear thin, allowing the foot to slide around in the boot. They are not comfortable for long walks, but will keep your feet toasty warm even standing in snow for long periods of time.

For real work, nothing is as good as real work boots. Look for Vibram® soles and sturdy lacing hooks, not grommets. Grommetted boots cost a bit less, but you'll hate putting them on every morning. These boots are available in many styles, in lined or unlined versions. I wear the lined ones

all year long. They are not too hot in the summer, and are adequately warm in winter, as long as they can be kept dry. I have tried everything, including shoe polish, snow seal with beeswax, even a special preparation for firemen. All will keep the leather dry for a while, but no preparation I have found will protect boots from a day-long workout in the snow.

Overboots will. They come in four- and five-clasp versions, and several weights. The five-clasp overshoes are taller, coming nearly to the knees. Correctly sized, they are just tight enough at the calf to keep water away from your feet, even if the pants above the knee get soaked.

Medium-duty overboots are easy to walk in, light, and wear out quickly. Usually it is the clasps that break first. Heavy- and extra-heavy-duty boots are more difficult to remove and put on, but they last a reasonable length of time. Look for heavy rubber attachments between the boot and clasps. Extra-heavy-duty boots have thicker rubber soles and tops, are very difficult to put on and (in my opinion) are too heavy for serious walking.

If you decide to wear boots with overboots for winter wear, take your boots with you when you shop for overboots. The sizes stamped on them mean little, as work boots vary in dimension with the style. It's a good idea to buy the work boots in the spring, to be sure you're comfortable with the particular brand and style before buying the overboots in the fall. Like most types of clothing, it is frequently impossible to buy winter shoes in the winter time.

In buying winter boots, it's important to allow enough room for bulky or layered winter socks. If you don't wear wool anywhere else, wear it on your feet if you possibly can. Wool socks aren't much more expensive than cotton socks of similar thickness, but are much, much warmer, wear much better, retain less foot odor, absorb sweat better while staying warm, and provide better padding

underfoot. Their one real disadvantage is that many people can't tolerate wool directly against their skin. They chafe, their skin breaks down, or they just itch intolerably.

All these problems can be prevented by wearing thin, white, cotton inner socks with thick, warm, woolen outer socks. Some of the dyes used in cotton can be harmful to the skin in a warm, sweaty environment. Better to take no chances, especially if your feet tend to sweat a lot. Many outdoorsmen warn against ever wearing polyester inner socks. It's an almost surefire way to contract a foot fungus.

If you don't have wool socks, you can still gain many of the advantages of layering by wearing two layers of cotton athletic socks. This works better than a single layer of thicker cotton socks, but not as well as wool. Since cotton readily wears thin at the heels, you'll have to replace your socks frequently if you use only cotton. Wool also lends itself to darning, but that's another article.

If you aren't going to be outdoors for more than an hour or so, you may choose to wear Wellington boots with two or three layers of thick socks. These are the knee-high rubber boots sometimes called "irrigators" or "gum boots." They are completely impervious to water and are thick and tough enough for rugged country. The rubber will conduct cold temperatures to your feet quite readily, so it's neces-



Overboots, worn over work boots

sary to wear several layers of socks. Used with rain pants over warm clothing, it's possible to walk through hip-deep snow for an hour or more dressed this way. Your feet won't stay toasty warm, but they won't suffer from the cold as long as you come in and warm up periodically.

Hands

When I was a new recruit, the Army introduced me to my first pair of real gloves. They were thin leather shells with replaceable woolen liners. I've never found a better pair for general winter work. If you'd like to try them, get the genuine military surplus ones. The imitations found in most "surplus" stores have inferior leatherwork, and won't hold up to rough field conditions. A cheaper alternative is to wear cotton knit or Mylar glove liners under some sort of outer glove. The choice will depend on both the weather conditions and on what you intend to do while wearing them.

Ordinary cotton jersey gloves in a size larger than your normal glove size will give just the right amount of room over cotton "string" liners, while allowing enough dexterity for most normal activities. I can write, hammer nails, and even tie knots in string while wearing them. Glove liners cost about a dollar a pair, and the gloves about twice that. The liners are knit in a "thermal" pattern that keeps your hands very warm with little bulk. Jersey gloves will get wet pretty quickly, but are cheap enough that it's easy to keep a second pair around to change into. That's why I don't use fleece-lined gloves. They are so bulky I can't work in them, and if the lining ever does get wet, you can't throw them in the dryer. And if you lose or rip one glove, you've lost a major investment. String liners won't even begin to get wet until the gloves are soaked. I keep an extra pair of liners and two extra pairs of gloves on the dashboard of the truck. If the gloves get wet, the heater will dry them out in

a hurry, and the extra liners are rarely needed. A lost or torn liner is easily replaced. I may not even need to buy another pair, as the liners fit either hand.

One problem with cotton jersey is that it gives little protection from the wind. If wind is more a problem than cold, I wear light-duty leather work gloves in my normal size over Mylar glove liners from the ladies department. They are sparkly, but thin enough to fit under the leather gloves, while insulating my hands from the cold leather. The leather protects the delicate liners while stopping the wind. When it's really cold, but I still need dexterity, I wear three layers: jersey over string liners over Mylar.

For bitter cold conditions, nothing beats fleece-lined leather mittens. They're too bulky for most hand work, but they'll definitely keep your hands warm between jobs. But unless you live in Alaska, they're too hot and too expensive to wear most of the time.

Industrial gloves of many sorts are available to the public. Some claim to protect from cold, wet environments. However, they do not allow the skin to breathe at all, and must be removed periodically to dry off the sweat. Not good for outdoor work. Worse, they are easily ripped, torn, or abraded. Finally, they are too stiff for projects requiring manual dexterity or grip.

Gadgets

Over the years, I have tried all sorts of gadgets, from electric socks to chemical hand warmers in my jacket pockets. Some worked, some didn't. All had one common failing: they used up energy at a high rate, then were worthless. Most electric socks, gloves, and underwear simply don't work. Those that do are very expensive, but high price is no guarantee that the product is high in quality. The ones that do work go through a set of batteries in a couple of hours. Generating heat is a wasteful use of



Snowmobile boots

electricity, about like using a chisel for a screwdriver.

Chemical hand warmers do work well. Their chief disadvantage is that you can't shut them off or turn them down. In an emergency, they could save your hands, but using them on a regular basis would drive anybody broke in a hurry. And they only help while your hands are in your pockets. Even expensive gloves are cheaper and work lots better.

Sources

Nearly everything listed in this article can be purchased by mail order from Sears, Roebuck & Co. or from J.C. Penney. Check their Fall and Winter catalogs, as well as specialized "Farm & Ranch" catalogs. But they are much cheaper at local farm and ranch suppliers. Mail-order boots can be quite good and reasonably priced, but it's not a good idea to buy them if you're trying to fit both your foot size and your overboot size. String liners and cotton jersey gloves are best purchased in quantity, either from farm stores, hardware stores, or even from local supermarkets. Finally, thrift stores in rural areas often carry good, used winter clothing at surprisingly low prices, especially when purchased "off season." Δ

Make diapers with flair

By Alycema K. Paul

About 45 years ago my aunt, a mother of seven, started making diapers with a flair (and a flare). Before the era of disposable diapers, it was quite common to make one's own cloth diapers. White diaper flannel was readily available, had a nice absorbent quality and measured 27 inches wide. The more common 36 inch width of printed flannel was used for night wear and other clothing. Homemade diapers were usually just hemmed rectangles of material with the advantage that they could be enlarged by a change in the folding as the baby grew. The disadvantage was that they were quite bulky, especially on a small baby.

Store-bought cloth diapers came a variety of ways: the long rectangle type that had to be folded, the kind that were pre-folded and stitched in place, and the fitted hourglass-shaped diapers, which worked well and didn't have as much bulk.

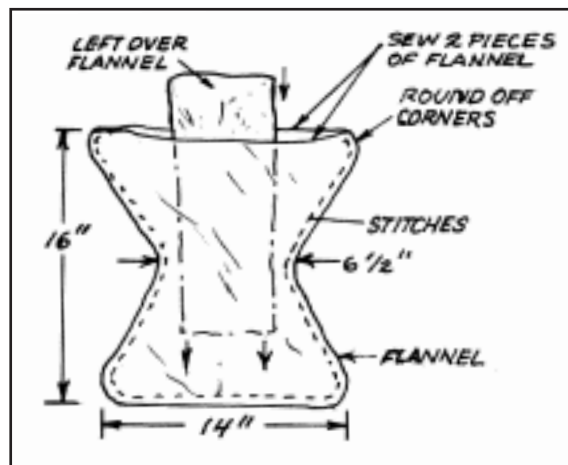
What my creative aunt did was to buy the colored flannel in child prints to make her own hourglass fitted diapers.

As a baby gift, she gave me three dozen diapers with not one duplication in fabric pattern. I was hooked. That was more than 30 years ago, and I'm still into making bright-colored diapers. In the beginning, I made all colors and sizes for my own children (it's easy to up- or down-size the hourglass shape). Now it's for grandchildren, great nieces and nephews, and gifts.

Good companions to make are matching receiving blankets and bibs. These sets make unique baby gifts. The fun part is that the diapers can be a different pattern on each side, and you can have some real wild colors

and/or seasonal designs such as Christmas patterns. Whenever I'm in a fabric store, I look through the remnants for small pieces of flannel, so I always have some on hand to make gifts.

For years, when I made these as baby gifts, young mothers didn't know what to do with them. Some thought they were burping pads or used them as bibs. Cloth diapers were almost a "dirty word," with disposable ones so easy and so readily available.



Now the pendulum is swinging back: money is tighter, environmental consciousness is up, and cloth diapers are back.

So if (like me) you're trying not to be a consumer, keep your eyes on sales and/or the remnant bins at the fabric stores and sew one-of-a-kind baby gifts. If you are lucky enough to live in an Amish area, you can still find the nice 27-inch-wide diaper flannel and birdseye fabric (although it's not flannel, it is a traditional diaper material). I made three dozen diapers with it (it only comes in white) for my daughter-in-law, who prefers this type of material. She says they wear better, and she's right: modern-day printed flannel is quite thin . . . but I am still partial to colored diapers.

Here are the directions for making diapers and blankets:

Diapers

Make a paper pattern that is 14 inches across the wide ends, 6 1/2 inches wide in the middle by 16 1/2 inches long. This is a good size to start, and sizes can vary to suit the baby. Cut out two hourglass shapes of flannel (same or contrasting color or print). Put the right sides together and sew around edges on three sides with a half-inch seam allowance. Turn diapers right-side-out and put padding on the inside in the narrow part of the diaper. For padding, cut out several layers of left-over flannel. These can be rectangles or the oval shapes left over from cutting out the diapers. Often, especially if they are for a baby boy, and the diapers are toddler size, I make the inside padding almost as long as the diaper's length. This is a good place to use old material such as old flannel pajamas, worn diapers, or old towels. After you turn under the raw edge of the open end and sew across the opening, you should secure the padding by sewing across it in several places.

Blankets

Take two one-yard squares of flannel, lay the right sides together, sew on three sides, turn right-side-out, fold under the raw edges of the fourth side and stitch closed. Finish off by sewing a few lines horizontally and vertically across the blanket. Or you can get fancy and trace a large heart or other simple design in the center of the blanket and stitch thru both layers as if quilting. A 36 inch square makes a nice size blanket, especially for a newborn. Today it's hard to find nice thick flannel, and it comes in 45 inch widths. I have made blankets 45 inches square, but they seem a little large to me. Δ

Tofu — healthful, delicious, versatile, and you can make it yourself at home

By Leland Edward Stone

We've never known quite what to call the stuff here in the West. "Soybean cheese" seems like a good name; after all, it's curdled from the "milk" of these legumes. But it's not aged, so perhaps the Asian name is more appropriate. They call it *dou fu*, *tofu*, or simply "bean curd."

Whatever you call it, this creamy white food is just plain good. Low in fat and lacking cholesterol, this high-protein curd lends itself well to any cuisine. Naturally, it's mandatory in Oriental cooking, and it's easy to make at home.

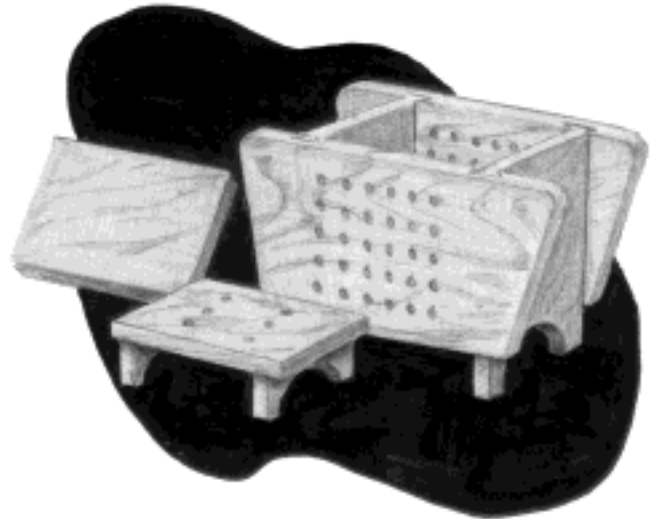
Soybeans are the raw material for making tofu (the standard English word for this food), and most health food stores stock them. But if there's a feed store nearby, buy your supply there. You'll get an excellent price on a 50-pound bag of soybean "meal," which should be opened and checked for freshness. (High oil content means old stock may be rancid.)

While you're shopping, you'll need a few more items. One of them is a *coagulant*, the substance that solidifies soy milk into "cheese." If you live near the ocean, you have a source for the traditional coagulant: *nigari*, or natural sea salt. Favored in Japanese tofu, the high magnesium chloride content is responsible for curdling the new cheese.

For the rest of us, our local drug store is the most likely source. You may ask for magnesium chloride. If the pharmacist looks at you funny, ask for calcium sulfate. If that doesn't work, try asking for calcium carbonate. If that still doesn't work, just grab a box of plaster of Paris or some Epsom salts.

You'll also need a pressing box, which is similar to that which is used for making cheese. (If you have a cheese press, it will work quite well.) While a pressing box is easy to cobble together, you might as well make one that's going to last. There are easy-to-follow-plans for making one at the end of this article, or you can order one from Monterey Woodworks, Box 158, Johannesburg, CA 93528. Finally, you'll need cheesecloth, a colander, and a sturdy sack of coarse muslin or similar material.

That rounds out the list of things needed for *making* tofu. For cooking it, use whatever is fresh from the garden: carrots, onions, cabbage, chilies, broccoli, garlic, or bamboo shoots. You might also want a few things from the market. Pick up some fresh ginger, oyster sauce, soy sauce, and rice wine or sherry. Do they have any baby bok choy? Pick out some nice firm heads of this mild cabbage.



A finished tofu press

Making tofu

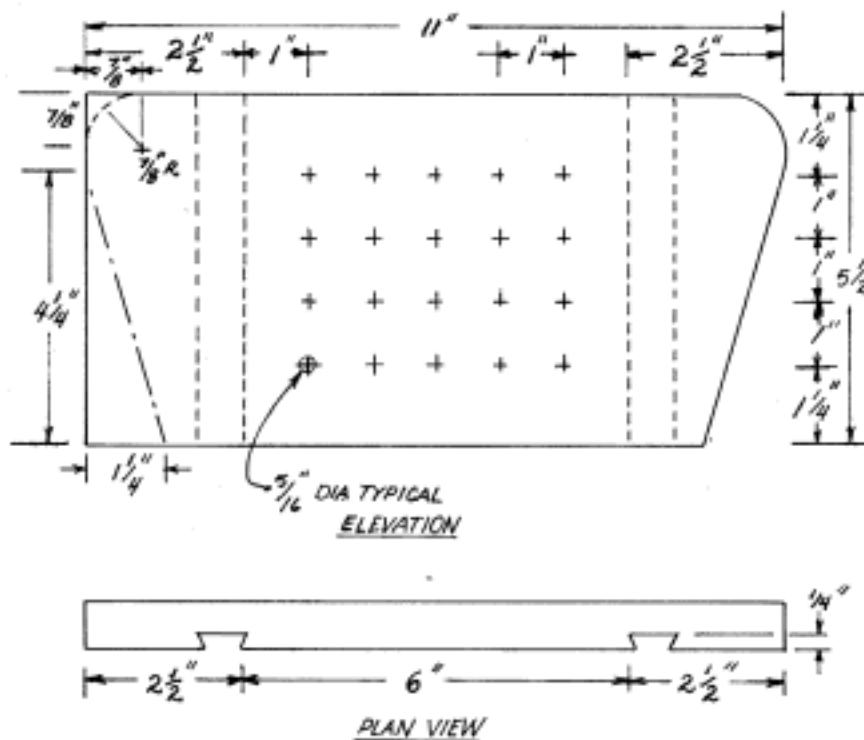
Back at the kitchen, you'll need about an hour for making tofu once you've gotten the basics down pat. Count on investing a bit more time in your first effort.

Cooking in the style of Asia is particularly enjoyable. So little fuss about exacting measurements, so much emphasis on *knack* . . . the intuition derived from experience. So it is with making tofu, and in time you'll develop a "feel" for its proportions. But when starting out, you'll want to follow the recipe closely.

<p>2 cups soybean meal (if using whole beans, soak first, then grind coarsely) 20 cups water 2 Tablespoons coagulant plus 2 cups water <i>or</i> 3 cups <i>fresh, clean</i> seawater</p>
--

Add one cup meal to two cups of water and soak for 10 minutes. (If using ground, soaked beans, omit soaking.) Puree thoroughly, adding an additional cup of water, then scrape the contents into a pan. Process the rest of the meal, then bring the entire batch to a boil. Reduce heat and simmer for about 10 minutes.

Heating is just the first step in extracting the soy "milk," and it's followed by mechanical extraction. This requires the cotton bag (with its opening upward) to be placed in a colander. Set the colander into a pan to catch the fresh soy



Notes:

Cut dovetail dadoes first then drill holes using a drill press with a fence attachment for greatest accuracy.

Do all sanding prior to assembly; waterproof adhesive is required.

All stock is 3/4-inch thick.

If a router table is being used—a recommended procedure—set the dovetail bit to height. Now roughly adjust the fence using a 1 3/4-inch wide block of wood. Since the router is “off,” spin the bit by hand. The fence is properly adjusted when the point of the flute just touches—but not marks—the edge of the block. Repeat the process for subsequent setups; change width of block as required.

Figure 1. Press box side panel

milk, and pour the boiled meal into the bag, scraping the pan thoroughly.

Now close the sack and mash the meal until it’s dry. Use a potato masher if you wish. If you have a jelly-making board, that’s perfect—it’s now a tofu-making board. Squeeze the bag to wring loose every last drop of soy milk. Save the grains inside (it’s called *okra* in Japanese) for adding to breads or muffins.

Return the collected milk to the stove and bring to a boil, stirring occasionally, and cook for about five minutes. Meanwhile, stir the coagulant into a cup of warm tap water (if using *fresh, clean* seawater, use 1 1/2 cups). Remove the simmering milk from the heat, and stir briskly while adding one-third of the liquid coagulant. Stir again, and add another third. Curds should now be forming in the yellow whey. Allow the mixture to stand, adding the final third of coagulant if milky liquid remains after five minutes.

Prepare the tofu form by lining it with cheesecloth and setting it in a pan to catch drippings. Gently pour off the whey, then spoon the curds into the form. Fold the cheesecloth over the curds, put the top of the form in place, and add a weight. A clean brick or rock is traditional, but a heavy can of food works just as well.

Tofu firmness is controlled by the weight and length of its pressing. Japanese tofu is softer, pressed for about 10 minutes under a light (two pound) weight. Chinese-style (my

favorite) is firmer, pressed under four pounds for 20 minutes or more.

Serve immediately after pressing and enjoy its bland and soothing freshness, or use in one of the recipes that follow. For longer storage, float blocks of tofu in a covered pan of water in the fridge. One cup of soy beans will yield about two-thirds cup of tofu.

Well done, Grasshopper. Your tofu making will improve with time. In fact, were you to venture to the East, you might even be considered a tofu master . . . with as little as seven or eight years of practice.

Scrambled eggs with tofu

I generally prefer using tofu in Asian cooking, but in fact it goes well with a wide variety of cuisines. Perhaps the simplest dish is scrambled eggs with tofu.

Scramble eggs in the usual way, but when about half-done, add an equal volume of crumbled tofu. Continue cooking and serve hot, garnished with chopped green onions, and other goodies if you like. A drop of sesame oil and chile sauce are excellent condiments for this dish.

Hamburger enhancer

Tofu is a great way to extend (or replace) meat in anyone’s diet. It goes especially well in ground meat dishes

such as meat loaf, just by blending two parts ground meat with one part crumbled tofu. The result will be more moist, so decrease any other liquid called for in your recipe. Sure, go ahead and dump that okra stuff right into the bowl.

Are we seeing a pattern of simplicity here?

Tofu burgers

Surprisingly ancient in origin, these burgers go well with traditional western style “fixin’s” like mustard and tomatoes.

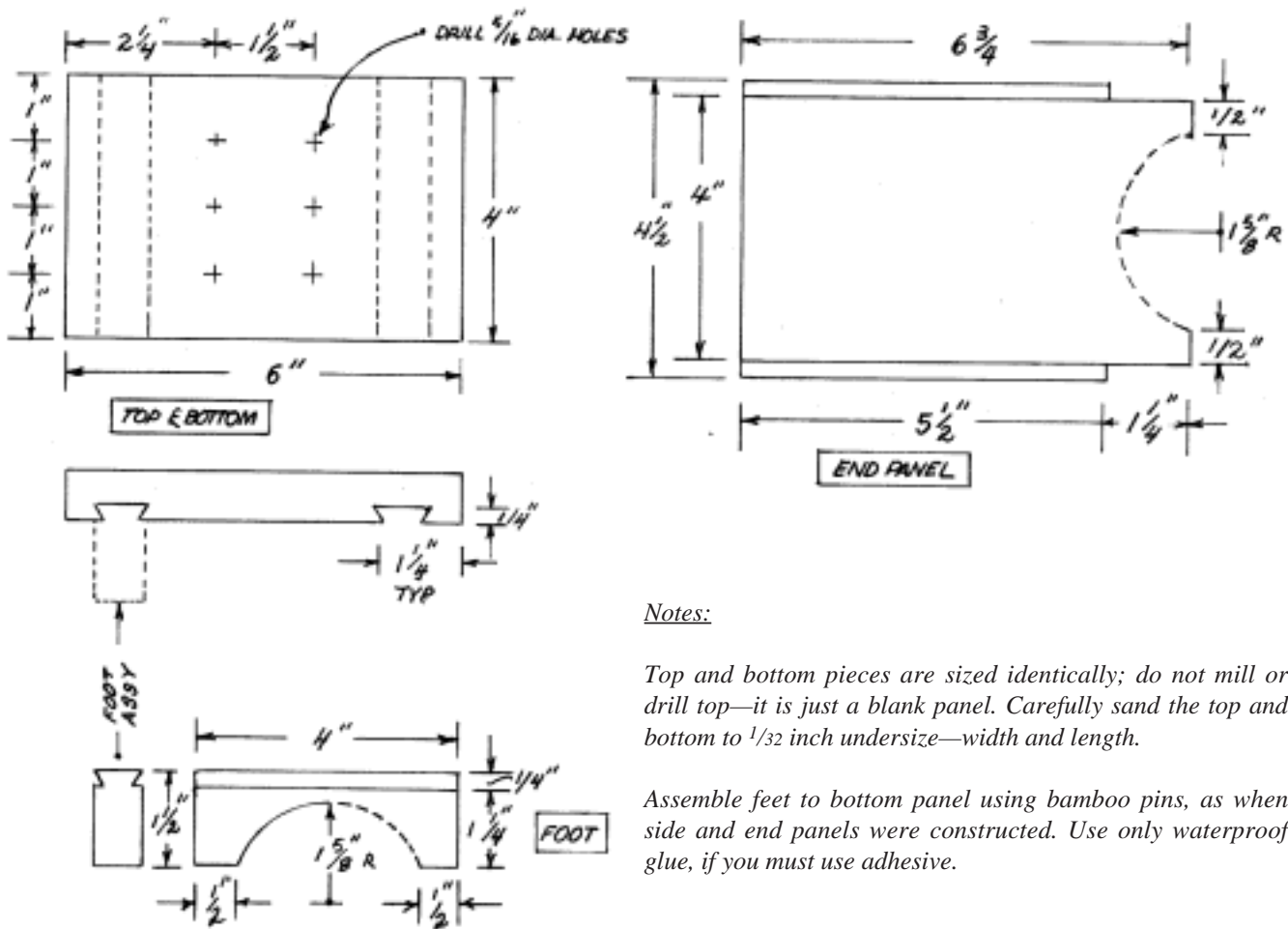
- 1 pound of thawed, frozen tofu
(freezing alters its texture to a “meatier” consistency)
- 1/4 cup finely minced onion
- 1/4 cup finely chopped mushrooms
- 2 Tablespoons whole wheat flour
- 1 Tablespoon crushed garlic
(or adjust to suit your own taste)

- Dash of Worcestershire sauce
- Dash of hot sauce
- 1/2 teaspoon crushed oregano
- Salt and pepper
- 1 egg (optional); yolk may be removed

Mash the thawed tofu, add the dry ingredients, and blend thoroughly. Add the egg and/or the sauces and form into patties. Pan fry in a lightly greased skillet over a medium heat and serve just like ordinary burgers. If you like, the patties may be grilled after they’re fried, but I don’t recommend going directly to the grill.

Meatballs? Sure, that works. Sauté, then add them to your favorite sauce at the end of the cooking process. (Prolonged simmering may cause to tofu to separate.) Delicious, although Uncle Guillermo would not approve of my suggestion.

Ah, but tofu is best served in the foods of its homeland. Try a soup for starters:



Notes:

Top and bottom pieces are sized identically; do not mill or drill top—it is just a blank panel. Carefully sand the top and bottom to 1/32 inch undersize—width and length.

Assemble feet to bottom panel using bamboo pins, as when side and end panels were constructed. Use only waterproof glue, if you must use adhesive.

Figure 2. Top, bottom, and end panels

Miso

Miso, a Japanese condiment typically made from fermented soy, can be tough to find. You may prepare a *very* rough approximation from 1/2 cup of canned, drained garbanzo beans, pureed with a Tablespoon of salt. Add this mixture, or 1/4 cup of real miso, to a quart of simmering fish stock. Bonito stock (look for *dashi-no-moto* in a larger supermarket) is preferred, but any clear, light-colored broth may be substituted. Add a few strips of *nori-yake* (roasted seaweed, sold in plastic packs) or fresh spinach. Now drop in a cup of tofu cut into half-inch cubes, and simmer just until warmed through. Serve immediately, with sesame oil and chopped green onions for garnish.

Bean curd in brown gravy

Inspired by an old Chinese favorite, this little number will perform to rave reviews on your table. There's no substitute for oyster sauce, but if you insist, use bottled beef gravy.

1 pound tofu, cut in strips or cubes
1 pound mushrooms, sliced
1 cup diagonally-sliced carrot pieces, parboiled
3/4 cup oyster sauce
2 Tablespoons soy sauce
2 Tablespoons rice wine or sherry (optional)
2 Tablespoons corn oil or peanut oil
1 Tablespoon garlic
1/4 teaspoon cinnamon powder
1/2 teaspoon salt
1/2 teaspoon sugar
Pepper to taste.
Optional: your choice of dried chile peppers, fresh ginger, julienned

Heat the oil in a wok and sauté the carrots until just done. Add mushrooms, dry seasonings, chilies, and ginger, frying for about a minute. Add the tofu, garlic, and wet ingredients, then simmer until hot. Thicken with a Tablespoon of cornstarch dissolved in 1/4 cup of warm water if desired. Serve with rice.

Baby bok choy with tofu

Substitute any vegetable in season for the bok choy: broccoli, cauliflower, zucchini, turnips.

3 cups baby bok choy, cut in half lengthwise
or veggies of your choice, thinly sliced
1 cup of chicken or vegetable stock
1 pound tofu, sliced or cubed
1/2 cup sliced water chestnuts (canned is OK)

2 Tablespoons cornstarch, stirred into 1/2 cup stock or water
2 Tablespoons soy sauce
2 Tablespoons oil
1 Tablespoon fresh ginger, cut into thin "coins"
1 Tablespoon sugar
1 teaspoon salt
1 teaspoon five-spice powder
1/2 teaspoon pepper
Red chilies (optional)
Crushed garlic (optional)

Heat the oil and sauté the sliced bok choy or other vegetables. Add the chilies and ginger when the veggies just wilt. Stir in the dry seasonings, frying for about another two minutes. Add the stock, garlic, water chestnuts, and tofu. Then reduce heat and simmer until hot. Stir in the cornstarch mix and serve immediately, accompanied by rice or noodles.

Making a tofu press

You can make your own tofu press, with simple materials and in very little time. In an era when technology seems so far beyond our grasp (please don't ask me how my VCR works), something as simple as this is truly a joy to build.

Use your favorite lumber, but it must be close-grained and free of sap or strong odors. Poplar, birch, and maple are excellent choices. Cedar and oak are ill-suited. Pine without pockets of pitch is a traditional choice that would be aired in the sun before use.

Cut the pieces to size as shown in the diagram, then drill the drainage holes. Use a template or fence, placing the holes rather than boring them at random.

After drilling, cut the dovetail dadoes as indicated. Matching dovetails are milled on the box's end pieces. Work carefully, and use a router if you have one; these joints are strong, and they square the box precisely if your cuts are true.

The top and bottom pieces, which are never attached to the box, are built the same way. Note that the bottom piece has "feet" that extend past its sides. When in use, the body of the box will rest on these feet, allowing its contents to drain freely.

Give everything a good sanding prior to assembly, then tap the pieces together. You could use glue, and there are waterproof formulas that would work quite well. However, in this case, I've drilled slanted holes in mating pieces, then driven in a piece of bamboo skewer. See how tightly the pieces are locked together?

Your tofu press is now ready for use, or to offer as a gift to family or friends. They may use it for making dairy cheese, as well as tofu. Be sure to brand your name upon this simple homestead servant, that others may share in your delight in honest craftsmanship. Δ

THE IRREVERENT JOKE PAGE

(Believing it is important for people to be able to laugh at themselves, this is a new feature in *Backwoods Home Magazine*. We invite readers to submit any jokes you'd like to share. There is no payment for jokes used.)

Backwoods Home Magazine Readers' Survey

Last Name: _____

First Name:

- Billy-Bob
- Billy Joe
- Billy-Ray
- Billy-Sue
- Billy-Mae
- Billy-Jack

(Check appropriate box)

Age: _____ (if unsure, guess)

Sex: M F Not sure _____

Shoe Size: Left Right _____

Occupation:

- Farmer
- Mechanic
- Hair Dresser
- Un-employed
- Dirty Politician

Spouse's Name: _____

2nd Spouse's Name: _____

3rd Spouse's Name: _____

Lover's Name: _____

2nd Lover's Name: _____

Relationship with spouse:

- Sister
- Brother
- Aunt
- Uncle
- Cousin
- Mother
- Father
- Son
- Daughter
- Pet

Number of children living in household: _____

Number of children living in shed: _____

Number that are yours: _____

Mother's Name: _____

Father's Name: _____ (If not sure, leave blank)

Education 1 2 3 4 (Circle highest grade completed)

Do you () own or () rent your mobile home? (Check appropriate box) _____

Total number of vehicles you own

- _____ Number of vehicles that still crank
- _____ Number of vehicles in front yard
- _____ Number of vehicles in back yard
- _____ Number of vehicles on cement blocks.

Firearms you own and where you keep them:

- _____ truck
- _____ bedroom
- _____ bathroom
- _____ kitchen
- _____ shed

Model and year of your pickup: _____ 194_____

Do you have a gun rack?

Yes No; If no, please explain: _____

Newspapers/magazines you subscribe to:

- The National Enquirer
- The Globe
- TV Guide
- Soap Opera Digest
- Shotgun News
- Backwoods Home Magazine

_____ Number of times you've seen a UFO

_____ Number of times you've seen Elvis

_____ Number of times you've seen Elvis in a UFO

How often do you bathe:

- Weekly
- Monthly
- Not applicable

Color of teeth:

- Yellow
- Brownish-Yellow
- Brown
- Black
- Not Applicable

Brand of chewing tobacco you prefer:

- Red-Man

How far is your home from a paved road?

- 1 mile
- 2 miles
- don't know

Winterize your animals without going broke

By Jackie Clay

There is much we can do to get our animals ready for the winter, without going broke buying commercial feed and equipment. Two of the heat-producing factors that many don't think about are feed and water. Abundant good-quality feed, as well as readily available unfrozen water, will do much to keep animals warm, satisfied, and healthy.

It's been said many times that "you can buy eggs, meat, and vegetables cheaper than you can raise them on a homestead." Well, yes...and no. Sure, if you run out and buy all your feed, straw, shavings, and the most expensive equipment available, you probably won't save anything in raising your own livestock and vegetables, but you *will* eat better quality food free of chemicals, hormones, and antibiotics. That should save you some on your family's personal health bill.

In past years I have raised dozens of pigs, cattle, and poultry and had to buy very little feed. How?

First, I went to neighboring grain terminals and asked if I could sweep their

bins, railroad tracks, docks, and walks every week in exchange for the spilled grain I removed. At first they were skeptical, as some less honest folks had been sneaking around, stealing grain. But I left my name and address, as well as a few character references, and in a week I received a note telling me I could begin on Wednesday. The beginning was a bit slow. I had to drive 50 miles one way and be finished by eight o'clock. But I began hauling home 500 pounds to a ton of grain—wheat, sunflower seeds and corn—home every week. As my good reputation was noticed, I was "invited" to sweep better locations, netting more grain. Then neighboring terminals let me work their locations. Sometimes the sweeping was very scant. Other times I netted over a ton at a time, requiring a return trip the next day. In addition, I went to the city grocery stores and asked for rejected vegetables for pig food. I ended up picking up a truck load every Monday. The pigs and chickens

loved the produce, especially in the winter. A friend developed a contract with a pizza plant and fed his pigs and cows baked, but rejected, pizza crusts. We both developed contracts with Taystee Bread to pick up "animal food" bread by the hundred pounds. We had to pay a few cents a bag but it was definitely worth the

stop as they became more cheap calories/winter heat.

Another friend planted two acres to turnips. Their family harvested all

they could eat then turned the hogs out onto the field. The hogs first ate the tops then began digging the roots—which they did all winter long—a great saving on feed costs. Planting summer crops such as rape (now called canola), amaranth, or millet will also do much to cut feed costs for poultry as well as hogs.

We have always raised or gleaned crops for our homestead animals, maybe not the total feed, but anything helps.

Always asking first, we have gleaned crops after harvest, or after the thinning of crops such as cabbage, corn, squash, pumpkin, navy beans, cauliflower, carrots, rutabagas and apples. At home we raise extra crops for the animals, such as pumpkins, squash, corn stalks, and even weeds. They may be weeds to us but they are much appreciated by the animals and poultry as tasty, nutritious snack food. And this feed keeps animals warm in the winter, as they chomp away, filling their stomachs with nutrients and calories.

One has to keep an active mind, full of inventiveness, to find these freebie feeds. Depending on where you live, the possibilities are limitless in these days when folks throw out everything that is not "perfect"—and a lot of things that are.

I've fed my poultry and livestock on everything from screenings (the grain bits and bits of chaff, leaf, cob, etc., that do not pass through the screens when grain is cleaned prior to storage) picked up for the asking at local grain elevators, to pumpkins picked up at no charge the day after Halloween at city super markets, to pea vines from a local canning factory.

The point is to think "livestock feed" and develop sources for feed besides the sacks you buy up town. It is necessary to be somewhat scientific in feeding these "found" feeds to be



sure your critters are receiving a balanced diet. One great help is checking out Feeds and Feeding by Morrison, usually found in your local library, or through inter-library loan. This gives the nutrients of practically every feed known.

I haven't found a source of free or very cheap hay. The best we've done, besides raising it ourselves, is offering to help haying in return for a portion of the harvested crop. Many times a farmer can use someone to buck hay bales on the wagon, the stack, or in the barn after those darned kids have grown up and moved to the city. But, after a bargain is struck, be prepared to work long and hard for your hay—sweat equity.

When buying hay, be sure it is free of dust and mold. The hay should be greenish, fresh smelling, and not contain black or bluish mold spots. A ton of good hay is worth four tons of moldy hay, plus your animals won't be susceptible to the respiratory problems they will encounter with moldy hay. Once home, it's up to you to keep it in good shape. Barn-stored hay is best, as the weather cannot reach it. Lacking a barn, pile it tight, square, and on top of a platform of old tires, logs, or whatever, to keep the bottom off the ground. The first layer should be stacked on its side to keep the twines off the ground and help keep the hay from wicking moisture. After stacking, cover the top and weather-sides if possible with tarps, well tied down against blustery winds. A few old tires or logs on top will help keep it in place.

As for winter water, either provide fresh, warm water twice a day or provide insulated waterers which remain ice free. Large watering tanks can be kept ice free by doubling them up—a smaller tank nested inside a larger one with old hay packed around in between and boards laid on top to keep the old hay from being eaten. Likewise, half of the tank can be covered by a sheet of plywood with blue-board insulation, a high density plastic foam, affixed to the bottom side of the

plywood using Liquid Nail. An electric tank heater will keep the water from freezing in extreme climates, as will a propane or kerosene heater meant for this purpose.

Here, with zero temperatures common, but not the norm, we get by by chopping the ice on top of the tank twice a day during cold spells. Smaller animals can benefit from either changing the water twice daily or using an insulated or heated watering container. In the chicken coop, we've used a light bulb hung over the waterer which was insulated in a Styrofoam cooler to keep the water thawed and slightly warm.

Adequate dry, clean bedding will also help keep animals warm, and warm animals will do better on less feed than shivering cold ones. Such beddings as shavings or sawdust, covered with a deep layer of straw, will provide much comfort. Drafts need to be eliminated for the same reason. Building a windbreak out of old fence posts, sheet metal, or a living wind-

A country moment



Brandy Rodenberg, age 3, of Waterloo, IL, holds her baby duck.

break of shrubs and trees will do wonders for keeping animals warm and cut your feed costs as well. Δ

A country moment



Trevor Graves, age 1, of LaFollette, TN, shares his drink with friend.

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A Backwoods Home Anthology



The Ninth Year

***A Backwoods Home* Anthology:**

The Ninth Year

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Introduction

Another anthology? My, how time flies. If you have all our anthologies to date, and you know how to do everything that is in them, you are a well educated individual. I refer back to the anthologies all the time when I can't remember all the details of how to do something. It's knowledge, and application of knowledge, that makes life worth living. I hope this book helps you down that road.

Dave Duffy
Publisher and editor

This anthology is dedicated to

Aunt Jeannette Kaner

who taught everyone who knew her the art of giving.

Contents —

Issue Number 49

- ❑ *My View: That's not what we mean — 14*
- ❑ *Build your wire or electric fence properly the first time — 15*
- ❑ *Build your own solar hot tub — 18*
- ❑ *Think of it this way...Who were the best...and worst U.S. Presidents — 22*
- ❑ *Compost the quickie way — 29*
- ❑ *Figs—the healthy biblical fruit — 30*
- ❑ *Want great charcoal? Make your own — 33*
- ❑ *Make mead the easy way — 35*
- ❑ *The dangers of civilization — 36*
- ❑ *Ayooob on firearms—A cop's advice to those home alone — 37*
- ❑ *Save money by being your own butcher — 39*
- ❑ *Start your own chicken flock — 42*
- ❑ *Use old newspapers to make your starter pots — 46*
- ❑ *Some thoughts on gardener gifts — 47*
- ❑ *Forget the dog, the chicken is man's best friend — 49*
- ❑ *Breastfeeding—a primer — 55*
- ❑ *The irreverent joke page — 57*
- ❑ *Where I live—Crabbing, clamming, and smelting on the coast — 58*
- ❑ *Five building tricks for super-strong framing — 61*
- ❑ *If you could have just one gun in the woods, go for a shotgun — 64*
- ❑ *Build a flying "helicopter" boomerang — 66*
- ❑ *Make beautiful jewelry using porcupine quills — 68*

Issue Number 50

- ❑ *My view: Confessions of a former liberal — 72*
- ❑ *Keep deer out of your garden & keep the crops for yourself — 73*
- ❑ *Get an early jump on weeds this spring and have a great garden — 76*
- ❑ *Dog-gone it, I never sausage a wiener of a recipe — 79*
- ❑ *Make your kids some terrific & inexpensive playground toys — 83*
- ❑ *Mountain lions—attcks are still rare, but just in case... — 87*
- ❑ *Plant fruit trees, pick big bucks — 90*
- ❑ *Newcomers and old-timers — 93*
- ❑ *Make your own coffin nails with this easy-to-use gadget — 94*
- ❑ *Build inexpensive sheds in an afternoon — 95*
- ❑ *Make a Shaker two-drawer case — 96*

- ❑ *Grow unusual plants on your windowsill — 97*
- ❑ *Malabar spinach—great for summer — 98*
- ❑ *Think of it this way...Why bureaucracy will likely destroy America — 100*
- ❑ *From triumph to tragedy to triumph again, Dorothy Ainsworth makes her valiant comeback — 108*
- ❑ *Make a garden in the desert — 115*
- ❑ *Ayoob on firearms—Coping with gun control in paradise — 117*
- ❑ *Home sweet home? — 118*
- ❑ *Make “split pulley” bookends — 121*
- ❑ *Travel cheaply but in style by staying at beautiful hostels — 122*
- ❑ *Tony Reitz—not just a chimney sweep — 123*
- ❑ *The irreverent joke page — 124*
- ❑ *Save big \$\$\$ by installing your own septic system — 125*
- ❑ *Try tempeh as a protein substitute — 128*
- ❑ *Have gourmet fare foraging wild spring greens — 130*
- ❑ *Make use of throwaway fish with “fish salad a la carp” — 132*

Issue Number 51

- ❑ *If you just love those books, here’s how to make \$ with them— 134*
- ❑ *The emu and ostrich craze—Why won’t the big birds fly? — 137*
- ❑ *Spousal support in a small business—it means tolerance, love, and faith — 142*
- ❑ *I grow my homestead fund by stitching “ditty bags” — 144*
- ❑ *Perk up the cash flow by selling farm produce — 145*
- ❑ *Remembering “the good life” — 148*
- ❑ *He combined crab pots with car repair to make his business go — 149*
- ❑ *Try growing the popular potato — 150*
- ❑ *Your honey will love your sweet buns — 153*
- ❑ *The pecan is a nut to love — 156*
- ❑ *Use non-hybrid seeds and save big bucks in this year’s garden — 159*
- ❑ *Solar oven casseroles are good and easy — 163*
- ❑ *Ayoob on firearms—Four X .44—the logical backwoods handgun — 166*
- ❑ *Build a fish pond—just for fun — 168*
- ❑ *The irreverent joke page — 169*
- ❑ *Wild raspberries—summertime’s finest treat — 170*
- ❑ *Build your own portable forge — 172*
- ❑ *Extend the vase life of flowers — 174*
- ❑ *Dixie butterpeas—not just for the South — 175*
- ❑ *Elephant garlic as a cash crop — 178*
- ❑ *Here’s how one man made the transition from city to country — 180*

- ❑ *Make a fun stick whistle — 182*
- ❑ *Self-publishing can be profitable but stay clear of vanity presses — 184*
- ❑ *A determined Rosie Bley escaped the city — 188*
- ❑ *Supplement your income by raising exotic tortoises — 190*

Issue Number 52

- ❑ *My view: Happy birthday Communist Manifesto — 194*
- ❑ *Dehydrated watermelon—for flavor explosions all year round — 195*
- ❑ *The Cochrans boost their sales with humor — 198*
- ❑ *Convert dead space to closet space — 202*
- ❑ *How to make fruit picking easy — 212*
- ❑ *No worrying about fire blight with Orient and Kieffer pears — 214*
- ❑ *Recipes from my mother's kitchen — 217*
- ❑ *Here's a business that's going to the dogs — 221*
- ❑ *Ayoob on firearms—Part 1—Is this the ultimate backwoods home rifle? — 224*
- ❑ *Think of it this way...What's left, what's right? What's liberal, what's conservative? — 226*
- ❑ *Used bookstores can be successful in the hinterlands — 231*
- ❑ *Grow and use hot peppers this year — 234*
- ❑ *Cooking with hot peppers — 236*
- ❑ *The irreverent joke page — 238*
- ❑ *Where I live—Shearing, carding, spinning, weaving, and creating — 240*
- ❑ *Consider these seven factors when selecting good alfalfa hay — 242*
- ❑ *Kerosene lamps—a bright idea — 244*
- ❑ *Make beautiful bandsaw boxes from scrap wood — 247*

Issue Number 53

- ❑ *My view: Do we need a Taxpayers' Bill of Rights? — 250*
- ❑ *Cut your grocery bill in half — 251*
- ❑ *Try this gravel road waterbreak — 253*
- ❑ *How to tell a bad egg — 253*
- ❑ *Canning 101—pickles, fruits, jams, jellies, etc. — 254*
- ❑ *You must understand venison to be able to cook it successfully — 258*
- ❑ *The manure heated hot-bed—an old-tyme Yankee jewel — 260*
- ❑ *For good compost every time, observe these few simple rules — 263*
- ❑ *We built our solid rubble road out of the debris of a carwash — 264*

- ❑ *The irreverent joke page* — **266**
- ❑ *Cash in on those windfalls* — **268**
- ❑ *Whole-grain sourdough recipes* — **271**
- ❑ *Squirrel surprise* — **274**
- ❑ *Think of it this way...If we can't throw out our outmoded Constitution, then let's have the NBA run the U.S. government* — **276**
- ❑ *Here's how to make the hay business pay off* — **284**
- ❑ *Build quick and inexpensive slabwood outbuildings* — **287**
- ❑ *Herb scented candles* — **289**
- ❑ *Ayoob on firearms—National junior handgun championships* — **290**
- ❑ *Quiet your noisy generator with an automobile muffler* — **292**
- ❑ *Make these inexpensive wood surface clamps* — **294**
- ❑ *Have some all natural desserts on a stick* — **295**
- ❑ *Build a simple through-the-wall woodbox* — **297**
- ❑ *Making money is a piece of cake* — **298**
- ❑ *Free pallet wood and birdhouses add up to big country dollars* — **300**
- ❑ *Try this end-of-summer fare* — **303**
- ❑ *Holy mackerel, don't flounder around; make your own lures* — **306**

Issue Number 54

- ❑ *Note from the publisher: First back-to-Oregon edition* — **310**
- ❑ *My view: Do we need more democracy?* — **311**
- ❑ *Get a jump on homesteading with a recreational vehicle* — **312**
- ❑ *Dreaming of a Civil War Christmas dinner* — **314**
- ❑ *Canning your meats and vegetables at home* — **317**
- ❑ *Preserve mushroom harvests* — **322**
- ❑ *Dad's incredible (secret ingredient) holiday ham* — **323**
- ❑ *Use common herbs to treat the common cold* — **325**
- ❑ *Ayoob on firearms—Home defense handguns: simplicity suffices* — **326**
- ❑ *Victory gardens* — **328**
- ❑ *Simplify life in your backwoods home by using these mountain methods* — **330**
- ❑ *Enjoy cheap, delicious lettuce all through the winter months* — **333**
- ❑ *The irreverent joke page* — **335**
- ❑ *Can you boil water?* — **337**
- ❑ *There's money in wild mushrooms* — **341**
- ❑ *Long term food storage* — **345**
- ❑ *Try these tasty solutions to those problem critters around the homestead* — **350**
- ❑ *This year brew your own holiday beer* — **352**

- ❑ *Think of it this way...Would the United States be better off if it was officially a Christian nation? — 355*
- ❑ *Here's how my family makes its diverse country living — 360*
- ❑ *Build a backwoods cat-boat—it's super-simple, inexpensive — 362*
- ❑ *Buy your country place from the government — 364*
- ❑ *Here are a few tips on how to build bridges to neighborliness — 368*
- ❑ *WebTV: For under \$200, this is an economical way to get onto the information Superhighway — 370*

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Backwoods



Home magazine

practical ideas for self reliant living

*The best and worst
U.S. Presidents*

Crabbing, clamming, & smelting

Freeze-branding horses

Start a chicken flock

Be your own butcher

Build a solar hot tub



My view

That's not what we mean

On page 83 of this issue is a letter from reader Donald Eaton of Sturgis, MI, concerning my commentary last issue about various government agencies raiding and confiscating the home, church, and land of Pastor Paul Revere, an Oregon minister who refused to pay his property taxes. The letter is fairly typical of the argument put forward by liberals against libertarians like myself when we speak out against tax abuse by government, namely: you use public services, so you should pay taxes.

I won't bother speaking against the more absurd parts of the letter, except to say that Mr. Revere was not expecting "protection if someone were to come and take his belongings or kidnap his child." That's just what the government did to Revere—they took his belongings and tried to take his children away from him, all in the name of unpaid taxes.

I'll just speak against the argument that we should all pay taxes in exchange for government services. As usual, the simple statement put forth by liberal tax collectors misses the point. First, let me state two facts:

- Most people, including me, don't mind paying taxes, so long as they are reasonable and used for the legitimate functions of government. Note the words *reasonable* and *legitimate*. Those are words tax collectors never use.
- Most people also don't think tax collectors should have the power of Gestapo police, allowed to intimidate and kill citizens. It doesn't matter if the citizens are eccentric or not; if Thomas Jefferson were alive today, he would be considered an eccentric to today's tax collector.

Now let's look at some background: The 16th Amendment to the Constitution, which vastly expanded Congress's power to levy taxes and inaugurated today's federal income tax, was presented to the states as a way to tax the rich, the corporations, and those who inherited unearned wealth. The states, especially the southern states which had mainly poor agrarian populations, bought into this line and ratified the amendment in 1913. Congress immediately passed a modest tax rate of 1% for a person's first \$20,000 in earnings, which is the equivalent of nearly \$300,000 in today's money. The top tax bracket was a modest 7% on someone making over \$500,000, which is the equivalent of nearly \$7.5 million in today's money. So that was the harmless beginning, and by 1939 still only 5% of Americans paid any income tax at all.

Look at the situation we have today. We have come to find out that the government now considers us all rich because, when you take together the combined local, state, federal, sales, and all the hidden taxes on everything from medicine to broccoli, the average American now pays near-

ly 40% percent of his or her income in taxes. Many of us have to have two working adults in the same family to pay for both our family's needs and the tax needs of government. So much for *reasonable* taxes.

And how about the *legitimate* functions for which the government collects these *reasonable* taxes? Fire and police protection, road building and maintenance, libraries, etc., were paid for by local taxes before 1913. Most Americans have no problem with government raising and spending money on these things. That's not what we mean when we, as overburdened tax payers, complain about taxes.

We are complaining about the excess taxes that are collected, the ones that support a huge and inefficient government bureaucracy that can provide itself with a retirement package that dwarfs what the private sector can afford, while at the same time it administers a massive welfare system that has made an entire race of Americans permanent wards of the state. We are complaining about an incredibly expensive educational system that turns out high school students who can't read their diplomas. And we are complaining about the thousands of special interests who have permanent lobbying offices in Washington D.C. so their pet projects can voraciously suckle at the government teat. Government has gone far, far beyond *reasonable* and *legitimate*. That's what we're complaining out.

And what has been government's response when citizens have taken the legal path by going to the ballot box and telling government they were being taxed too heavily? In 1978, when Californians passed Proposition 13, the nation's first successful ballot initiative that rolled back property taxes and limited future ones, government across the board responded by closing libraries and cutting back fire and police services. The government took a "punish the voter" attitude. But no civil servants lost their jobs, and none of the nonessential government programs were cut.

Today when some bloated bureaucracy wants to increase its power it runs a media campaign to warn voters that vital services they need or want will have to be cut unless some newly proposed tax is enacted.

And yes, we tax payers are also complaining about the Gestapo tactics of the tax collecting agencies. You can murder and rape today and some judge or jury may feel sorry for your disadvantaged upbringing and set you free. But try not paying even part of your taxes, and the government may just come after you with guns, just as they did with Revere. By definition the government has decided you are eccentric if you don't want to pay your taxes.

The question isn't should we pay taxes for government services, but should we pay outrageous taxes for excessive government services or services that should be left to the private sector. The question of how much tax we should pay is directly related to how big government should be. I say it should be small, but then again I am just another eccentric.

Somebody shoot me, quick! Δ

Build your wire or electric fence properly the first time, and it will serve you for years

By Charles A. Sanders

“**G**ood fences make good neighbors,” American poet Robert Frost said. And most of us wouldn’t argue with him. Good fences provide a solid reference point from which boundary disputes are kept from erupting, and they keep livestock in—or out. Spend some time up front and build a good fence, and it will save you time in the long run, plus serve you well for years.

This article is about field fencing and electric fencing. When building them there are some tried and true rules that should not be skipped or skimmed on. Some of these have been taught to me, but others I have learned the hard way.

When buying fencing, it is easy to be tempted into buying cheaper brands of wire. However, I have found that fencing is like a lot of other



Properly set corner and brace posts. Note the diagonal brace wire runs from the base of the corner post to the top of the brace post. If a solid diagonal brace is used, run it from high on the corner post to the base of the brace post.

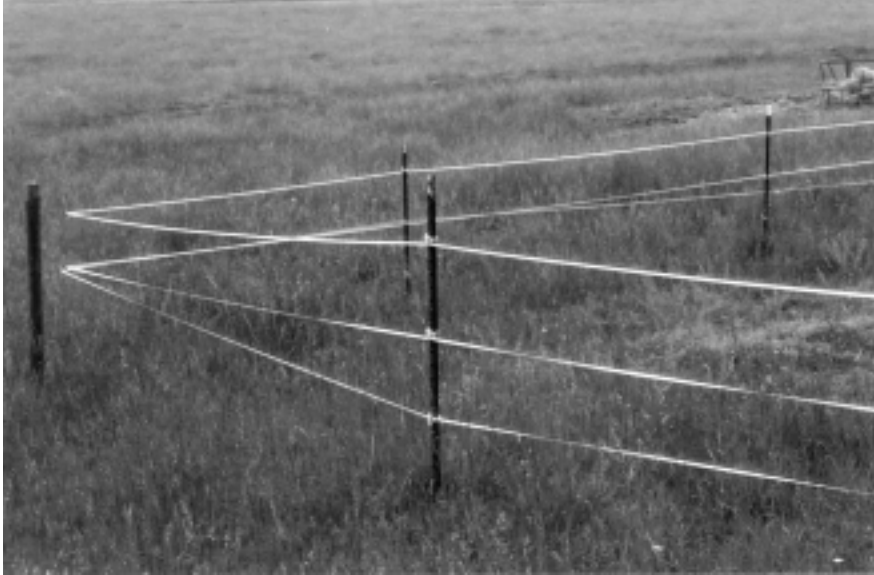
things—you can pay for it now or you can pay for it later.

Barbed wire is one item where the cheaper brands have done all right for us overall. They stay bright and shiny with good galvanizing. Woven wire is sold by the gauge of the wire: the heavier the wire, the pricier the fencing. The type of wire called “field fence” will not have the number of vertical wires as does regular woven wire. Field fence wire usually has the vertical wire or “stays” placed on 12-inch centers. Normal stock fence is six to eight inches between the stays.

When it comes to buying and using woven wire, I have found that the cheaper brands just do not hold up. They are made of lighter gauge wire which is not tough or durable enough, especially if you have children who periodically use the fence for a ladder to the other side. On the rolls which I have used, the galvanized coating seems to have eroded away relatively quickly, and the wire rusts easily. Go for the better brands of woven wire. It



This photo shows how the wooden fence stretchers and “come-along” are used together. Notice how the wooden stretchers clamp tightly to the wire to help stretch the wire evenly.



Electric fence ribbon is well suited for horse paddocks and gardens. Its high visibility helps prevent flighty horses or running deer from tearing it down.

will be worth it. Benefit here from my experience and lapses in judgment.

Woven wire is manufactured with tension-producing crimps spaced along the run of wire. If you overstretch your fence wire as you are installing it, these crimps will be stretched beyond their limits and you will end up with a sagging fence. Similarly, if you do not provide sufficient tension when stretching the run of wire, time, gravity and the weight of the wire itself will cause the fence to sag. Use fence stretchers, not just a tractor or truck to stretch wire. Fence stretchers or come-alongs provide gradual and adjustable tension on the run of wire. This is nearly impossible to do if just using a tractor or truck, when overstretching is the normal result.

Fence corners

Your fence corners can pretty much determine how well your fence is going to bear up. Proper construction of fence corners and terminal points, such as gate posts, is essential. There is a tremendous amount of tension on a given run of fence and it takes some pretty stout posts and anchors to support it.

When constructing your corners, generally you will want to use a larger and longer post. Today, treated corner posts of 6 to 8 inches in diameter are commonly available. These posts are usually about 7 to 8 feet in length and are set a bit deeper in the post holes, usually two and a half to three feet.

A cross piece will add stability to the corner. If you are using a wooden cross piece, you can notch into the corner and brace posts and set the cross piece into the notches. Tension supplied by the brace wire will hold the cross piece in place. You might want to toe-nail the cross piece into each post to be sure. That also helps keep the piece in place while you are constructing the corner. If you are using a pipe cross piece, a nail in each post will give you a point from which to hang the pipe until

you tighten the wires. Cross pieces can be made from wood, pipe, old steel fence posts, or even old bed rails.

The critical part of constructing post corners is the proper positioning of the brace wires. It is essential that the brace wire runs from the bottom of the corner post up to the upper portion of the brace post. This is because the tension is pulling against the wire. The top of the brace post is anchored to the most stable point on the corner post—the base.

If you are using a post as a diagonal brace, place it so that it runs from the top of the corner post towards the bottom of the brace post. That way, the tension would be pushing the most movable part of the corner post—the top—against the most stable part of the brace post—the base.

If you are at the end of a fence run and plan to hang a gate there, you want to construct the fence at that point as you would a corner. That is, use a heavy corner post, a stout brace post, and diagonal wire from the base of the corner towards the top of the brace post. Since there will be the added weight of a heavy gate hanging



Rope and pulley fence stretchers. Pulling the rope outward at the lever seen on the left-hand pulley locks the rope in place. The operator can then secure the tightened wire in place. The set of stretchers on top has two open hooks.

This set is made for use with the long wooden woven wire stretchers. The smaller set of pulleys shows a wire clamp on the left-hand pulley. This set is used to stretch

on the corner post, add another diagonal wire running from the base of the brace post to the top of the gate post. In that way, the weight of the gate will be pulling the top of the corner post against the base of the brace post. This will make the gate less likely to sag.

Electric corners

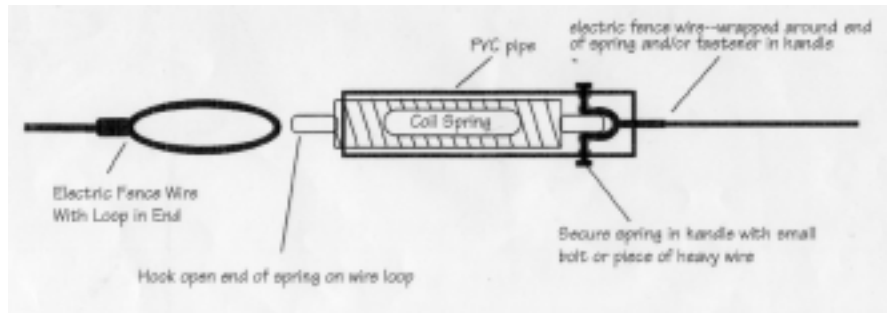
Electric fences are, in many cases, a homesteader's dream. They are adaptable, durable, portable, and easy to put up. I know of several ranchers who have grazed large herds of cattle for the past 40 years using just electric fences. For those cattle, there was nothing more than a single strand of barbed wire and a good fence charger standing between them and bovine freedom. In fact, once used to the unpleasant jolt of an electric fence, even the largest of bulls can be confined with an electric fence.

In erecting an electric fence, you will need posts, insulators for those posts, wire, and a good fence charger.

Some of the most economical posts available commercially are the ones



Electric fence tape is made from strong plastic and has fine wire woven into it to conduct the electric charge.



This homemade gate handle for an electric fence can easily be made from scraps in the workshop. Adapt this drawing to what you have available.

made from 3/8-inch steel rods. They are relatively inexpensive and do a good job of holding the fence wire up off the ground. Steel "T" posts are popular and available in several lengths. For electric fences, the shorter ones do nicely. Of course, wooden posts work just fine. Whichever type of posts you have, be sure to purchase enough of the appropriate insulators to mount your fence to the posts. With the electrical current running through the wire, it must be insulated from the posts or the charge will run to ground, rendering the fence ineffective. Dozens of different insulators are available to meet just about every need. In reality, most electric fencing jobs I have done required a combination of materials. A hefty wooden post for a corner here, some steel rods alternated with some "T" posts and perhaps a ceramic insulator tapped into an odd corner tree there. Use what you have or can come up with. I have found that farm auctions are good places to buy fencing supplies cheaply, perhaps with the exception of wooden posts. At more than one auction, I have purchased a bucketful of electric fence insulators for a couple of dollars and also got the bucket. Gates, often referred to as "gaps," can be created just about anywhere along the run of fence. Plastic springloaded handles are available where you buy the insulators and wire, or you can make one from a scrap of PVC pipe and a bit of heavy wire (see drawing).

I have seen electric fence wire available in either aluminum or steel. I've

opted to use the lighter gauge steel wire. I have found it easy to work with and tougher than the softer, albeit more visible, aluminum wire. I have also erected a more permanent electric fence using alternating wooden posts and steel posts and stringing a single run of barbed wire along them using the appropriate insulators.

Available now are several varieties of electric fencing made from durable plastic woven ribbon with stainless steel wire woven right into it. This material offers the added advantage of being highly visible. As such, it is very useful for fencing horse paddocks, and to fence gardens to repel deer and other varmints.

Fence chargers themselves are pretty much trouble free. They are made to run off regular household electric current, heavy dry cell batteries, or small solar panels. With the solar fence chargers available, it is possible to have charged fences in areas where there is no electrical power, and you don't have to worry about replacing a worn-out battery. The solar units are reasonably priced, and normally they are much cheaper to buy than the cost of running electrical power to a regular fence charger.

Fences are a long term investment on your homestead. They are not cheap to install, but they are relatively inexpensive to maintain if they are erected correctly the first time. Spend some time planning and putting up your fences, and you will save time and worry. Δ

Build your own solar hot tub

By Robert C. Herman

Any homesteader knows that among the many rewards of a self-sufficient lifestyle are a sore back and aching muscles. Recently I realized what I needed to ease the aches and pains after a long day of chopping wood and moving soil: a hot tub.

Not one of those party-size, fancy marble pools with jets and bubbles and surround-sound stereo, but a comfortable place to soak away the knots and contemplate my place in the universe.

Since I haul my water, generate my electricity, and basically live by my wits, the design criteria for my hot tub

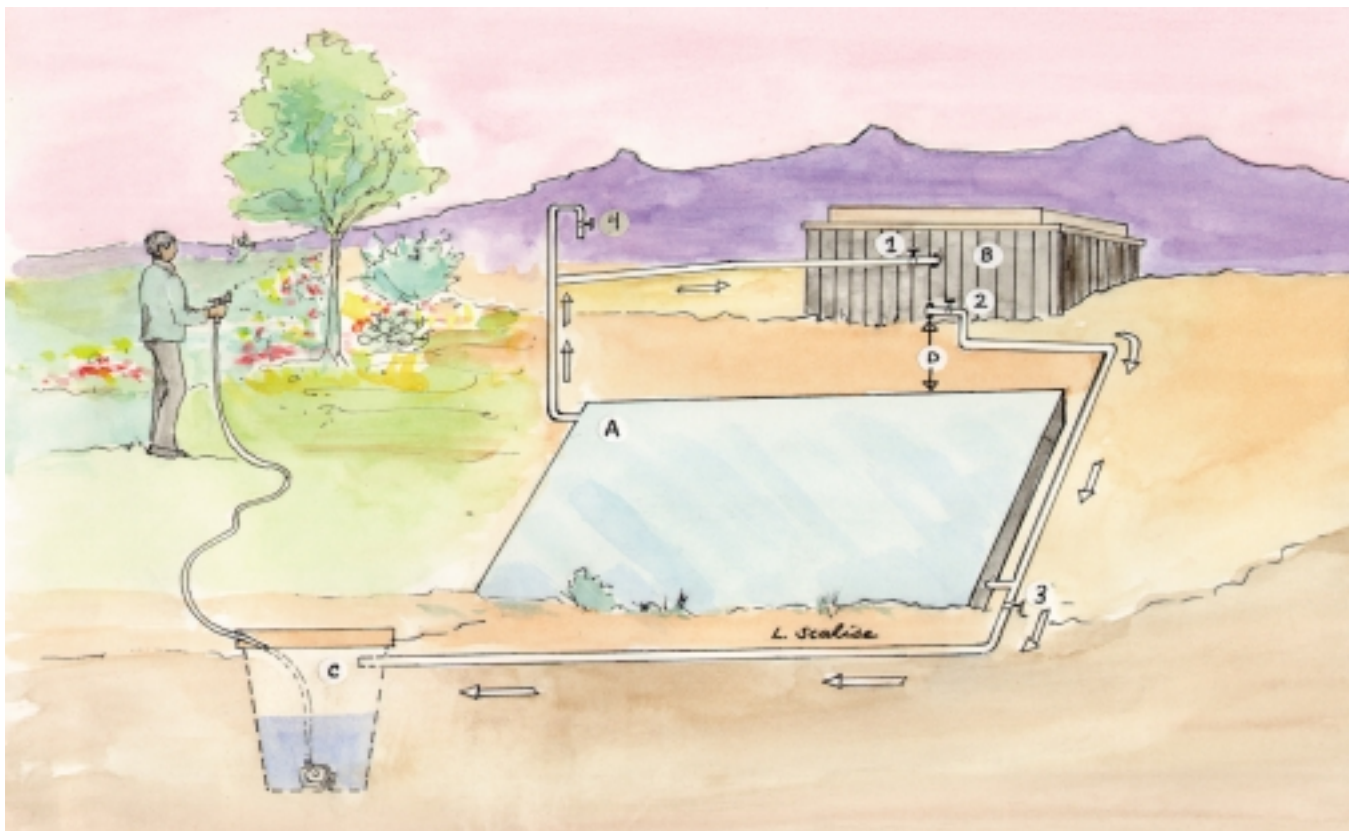
were: cheap to build, free to use, and frugal with water.

With about \$100, some recycled hardware, and a bit of ingenuity, I built a thermosyphoning, solar heated tub that uses no electricity, no fuel, and less than 60 gallons of water, which is subsequently re-used in the garden.

The principles that make this system work are specific but simple. The skills and tools required to build the tub enclosure, and to plumb the system, are rudimentary. The satisfaction of soaking in my tub as the sun drops over the Rockies is priceless.

Your tub can be made of any suitable container that will hold you and enough water to cover your body. I chose a 100-gallon poly stock tank made by Rubbermaid Agricultural Products and available for about \$70 where ranch supplies are sold. This tank is oblong, about 2 1/2 x 4 x 2 feet deep, which is large enough for one person or two very close friends. It is strong and durable, won't rust, and its rounded edges make it comfortable to sit in. Rubbermaid makes these tanks in other sizes. If you are extremely long-legged or plan to share the tub frequently, you might want the 150-gallon size. For my purposes, though, the additional expense and water requirements were not justifiable.

The thermosyphoning water heater is elegantly simple and effective. Basically, it works like this: the solar collector is filled with water and



The thermosyphoning solar hot tub. Water heated in solar collector (A) rises by natural convection and circulates through valve #1 to hot tub (B). Cooler water at bottom of tub circulates through valve #2, back to collector for reheating. Valve #3 allows system to be drained into sunken barrel (C), from which waste water is pumped to irrigate garden. Valve #4 is pressure relief valve. Note: vertical dimension "D" must be at least 12 inches, preferably 24.

pointed at the sun. Sun rays penetrate the glass (or fiberglass) face of the panel, strike the heat-absorbing plate covering the water pipes, and transfer heat to the plate, the pipes, and the water. Since hot water is less dense than cold water, the heated water rises to the top manifold, up into the “hot” pipe and to the tub. At the same time, cooler water from the bottom of the tub drains down via the “cold” pipe and into the collector’s lower manifold to replace the hot water that is rising. As long as the water in the collector is being heated and the water in the bottom of the tub is cooler, hot water will circulate to the tub and cooler water will return to the collector. This system works well, with no moving parts, provided that you take a few simple steps to help gravity do its job (see the drawing).

Back in the mid 70s, after OPEC taught us the fragility of our dependence on foreign oil, the federal government offered tax incentives to encourage the development and use of alternative energy technologies. As a result, thousands of solar heating systems were built and installed on houses across the country. Some of these systems worked better than others and when the tax credit program expired, the solar heating fad went the way of the leisure suit.

Depending on where you live, it is very likely that there are abandoned solar collectors nearby, patiently waiting to be rescued from the scrap heap. Ask around, or advertise in your local newspaper that you are looking for used solar collectors and associated hardware. Prices will be negotiable, but I would not expect to pay more than perhaps \$20-40 for a good 4 x 10-foot collector (you only need one), and for that price would hope to get a truckload of pipe, valves, and fittings thrown in. Some folks will even give away their collectors and all the associated plumbing and hardware, just to get it out of their barn or off the roof. If you really can’t find a free or cheap used collector in



The author enjoys the fruits of his labor.

your area, you can build your own. My own heating source is a 4 x 10-foot flat plate solar collector from the late seventies. It’s what I had around, but a smaller collector would do the job, especially if you insulate the tub well.

One caveat: make sure the solar collector you rescue has not been damaged by water freezing inside its works. The flat plate collector is made up of a series of parallel, small diameter copper pipes with a larger diameter manifold at each end. If water is allowed to sit in these pipes at subfreezing temperatures, the pipes will burst. You can check for damage either by removing the glazing and visually inspecting the pipes, or by running water through the collector and watching for leaks.

Once you have collected the basic components, you need to site your tub and solar collector. As noted in the drawing, the bottom of the tank must be at least one foot, preferably two, higher than the top of the collector. A level spot at the top of a south-facing slope is ideal; the tub sits on the level, with the collector tucked into the hillside below.

Alternatively, you can site the tub on a platform or deck, with the collector located below. Make sure, though, that the deck is strong enough to carry the weight of the full tub (including 500 pounds of water, plus your own weight).

There are several considerations to address when siting your collector. Ideally, it should face south (within 15 degrees of due south) and have full exposure to the sun between 10 a.m. and 2 p.m. The collector can be oriented on its horizontal or vertical axis, and should be inclined at an angle of at least 15 degrees off horizontal. (30 degrees is better; for year-round use, the optimal angle of inclination should equal your local latitude plus 10 degrees). Finally, the collector should be tilted a few degrees so that the lower corner where the return (cold) pipe attaches is the lowest point in the system and the “hot” pipe comes out at the highest corner. This helps with the thermosyphoning and with draining the system down.

Secure the collector in place by attaching it to posts or rods driven into the ground. The exact method will depend on your circumstances, but

need not be fancy. Just make sure the collector is well supported and stable.

Once you have selected your tub site, level the area and set your tub in place. It is a good idea to raise it off the ground in order to reduce heat loss and moisture problems. I used a hardwood pallet about a foot longer and wider than the tub, and covered it with 3/4-inch plywood. This insulated the tub from the ground and provided a base for framing the enclosure.

Plumbing the tub is relatively simple. I used 3/4-inch copper pipe because I already had it around. If I had to buy new pipe, I might have chosen CPVC (PVC won't take the heat) for reasons of economy. In choosing your pipe, remember that smaller diameter pipe is more restrictive and thus will reduce the performance of your thermosyphon system. I would not use pipe smaller than 3/4-inch diameter.

The stock tank I used already had a fitting near the bottom with a 1 1/2-inch drain plug in it. I simply removed the plug, replaced it with a 1 1/2-inch to 3/4-inch reducing bushing and a 3/4-inch male adaptor (MIP) and I was ready to attach pipe.

For the "hot" (inlet) pipe, I had to cut a hole in the wall of the tank. I

located the inlet pipe at a height equal to 2/3 of the minimum water depth of the tub when filled. The inlet must be located low enough to be submerged when the tub is filled, or the thermosyphon will not work. A 1 1/4 to 3/4-inch bushing, silicone caulked and secured on the inside of the tub with a 1 1/4-inch flare nut, formed the hot side inlet.

Actual routing of the pipes connecting the tub with the collector will be specific to your installation. A few general guidelines apply, though:

- Be careful to avoid any high spots in the pipes where air pockets can become trapped.
- Where the "hot" pipe comes out of the collector, route the pipe vertically, then nearly horizontally to the tub, rather than creating a long, steeply diagonal rise to the tub.
- Install a gate or ball valve on both the "hot" and "cold" pipes to control the flow of water.
- Install a safety (pressure relief) valve in the "hot" pipe to avoid dangerous pressure buildup.
- Install a drain valve at the low point in the system.

Keep pipe runs as short as possible. Try to minimize 90-degree turns and

other restrictions, and install threaded unions in both pipes near the tub so that the system can be easily assembled and taken apart.

Before building your tub enclosure, test the integrity of your plumbing. Fill the tub and check for leaking joints and fittings. Any leaks at the tub will be easier to correct before it's boxed in; leaking pipes must be fixed before they are insulated. Once you are satisfied that your plumbing is leakproof, you're ready to close everything up and put the tub into use.

Because the tub was intended as a stand-alone stock tank, it needs no structural support, other than a firm, level base. All you really need is some insulation around the sides and a well-insulated lid to keep the heat in. Beyond that, your tub enclosure can take whatever form you choose, based on materials available, your carpentry skills and aesthetic considerations.

My scrap heap was long on weathered 2x4s from an old deck, so that's what I used for my enclosure. The result was a rustic, handsome box that blends well with the landscape and cost next to nothing to build.

I first framed a box around the tub, then insulated the inside of the box with fiberglass batting and wrapped it with 4 mil poly sheeting. Then I sided the box with vertical battens cut from the 2x4s. With scrap pieces of galvanized steel flashing, I covered the top of the box using silicone caulk wherever the pieces overlapped to form a waterproof layer. Finally, again from old 2x4s, I covered the flashing with a deck surface. Using scrap wood I made a two-piece lid, split laterally and hinged in the middle.

Insulating the top of the tub is important. A very efficient way to keep the heat in the water is to cut a slab of styrofoam to fit inside the tub and float it on the surface of the water. More convenient in use, but not quite as effective, is a layer of foam glued to the underside of the lid.

Once you have enclosed your tub, insulate all exposed pipes. Standard



Tub with collector (lower right). Upper collector is for domestic water heating.

foam pipe insulation works well. Pay special attention to the “hot” side pipes, as heat loss on the hot side will reduce thermosyphoning efficiency. But insulate the “cold” side too to maximize heat retention.

Preparing the hot tub for use couldn't be simpler: you put water in it. Open valves 1 and 2 (see drawing) and fill the tub to within 8 inches or so of the top. If you fill the tub during the hot part of the day (and if the sun is out), the collector should immediately begin to heat the water. Within 15 minutes heated water should begin to flow into the tub through the inlet pipe. If not, you may have an air pocket somewhere. The easiest way to flush out an air pocket is to open the drain valve, let two or three gallons run out, then close the valve. Once the heated water is circulating, the water in the tub will gradually warm up.

How long will it take to heat the water? That depends on a number of factors, including the size of the collector, the efficiency of the tub insulation, the pipe diameter, and other aspects of your plumbing, your location, amount of sunshine, etc. On a sunny, mid-summer day in Colorado, if I fill my tub with tepid water at 10 or 11 a.m., the water temperature rises to 110 degrees within two hours.

After the initial heating, the collector only needs to maintain the water temperature. From the second day on, your biggest concern will be how to keep the temperature cool enough for comfort. With a reasonable amount of sunshine and a well-insulated tub, your water temperature can become much too hot—more like a crock pot than a hot tub—and you'll have to cool it down before you can climb in. You'll need to experiment with this, but I have found three low-tech ways to control the heating process:

- Cover the collector surface. I have used bamboo shades to partially cover the collector, thus reducing its solar input and its water heating capacity.

- Uncover the tub. Open the lid and remove the floating insulation to allow heat to escape from the water.

- Partially close the “cold” side valve to reduce the flow rate of heated water.

Of course, you can stop the circulation, thus the heating, by closing both the “cold” and “hot” valves. This will prevent the water in the tub from getting any hotter, but will increase stratification in the tub, with the hottest water near the top and cooler water at the bottom.

IMPORTANT: Whenever the “hot” side valve is closed, the manual safety (pressure release) valve must be open, or an automatic pressure relief valve must be in place. Water + heat + pressure = steam, and that steam must be released. An automatic safety valve, replacing the human element, is better than a manual valve.

A good thermometer is needed to monitor water temperature in the tub. Avoid the standard pool or spa thermometers, which only read up to 120 degrees (If left “full on,” my tub can heat up to 150 degrees in two days). I recommend a chef's thermometer (about \$5), with a dial that reads from 0 to 200 degrees F. If you use floating insulation in your tub, simply insert the pointed end of the thermometer probe through the styrofoam into the water. Otherwise, make a small raft out of foam, stick the thermometer through it and float it on the water surface.

Ideal water temperature is a matter of individual preference. I find that 102-105 degrees is good for prolonged soaking and meditation, while 110 degrees provides the kind of deep therapeutic heat that turns knotted muscles into putty. Above 110 or so, it's time to throw some carrots and potatoes into the water.

Our household uses untreated spring water, which I haul 300 gallons at a

time from a source several miles away. Since I have to truck in every gallon I use, I like to optimize my water use. At the same time, I am disinclined to add pool chemicals to my tub water, nor will I get involved with pH testing or any other slavish rituals. As a result, though I hate to waste water, I have to change the tub water frequently.

My solution to this dilemma is simple. I dug a hole and sunk a barrel in the ground just downhill from the lowest point in the system. Into the barrel I dropped a small centrifugal pump with a float valve. A length of garden hose runs from the collector's drain valve to the barrel.

About once a week, I drain the water out of the system and into the barrel. The pump sends the water to the various garden areas to irrigate vegetables and flowers. Thus the water is used twice. Nothing is wasted and no chemicals are used.

You can extend the useful life of your tub water by fitting a filter of some sort to the cold water outlet in the bottom of your tub. The neck and top section of an appropriate-sized plastic bottle, press-fit into the outlet, will work. Cut a small piece of aluminum or brass window screen material (steel will rust) and mold it into the bottle neck. Back that up with a wad of filter material and you will catch much of the junk that ends up in the water after a few soaks. Be sure to check the filter frequently, and replace it as needed.

There is nothing like relaxing in your tub at the end of a long day of hard work, or soaking for a half hour at midnight under the milky way. The hot water relaxes your muscles, works out the knots, and soothes the soul. A leisurely soak in the tub allows you to slow down and remember why you chose this self-sufficient lifestyle in the first place. Let other people hand thousands of dollars to the Spa Guy. Do it yourself, for peanuts. Δ

Think of it this way...

By John Silveira

Who were the best...and worst U.S. Presidents?

It was one of those days I love. We were between deadlines and Dave, Bill, Mac, and I had gone fishing on the lake. Dave, of course, is Dave Duffy, the publisher of *Backwoods Home Magazine*; Bill is Dave's friend who drops in occasionally; and Mac is O.E. MacDougal, Dave's poker-playing friend who lives down in Ventura, California, pretty near where I live.

We'd caught a slew of fish, mostly perch, but there were a few crappie in there, too. Dave filleted most of them with some help from Bill and Mac. They—Dave in particular—have the knack for that job. I'm clumsy, and none of them want to be near when I have a sharp object in my hand. They let me watch.

When they finished, three of us sat in the office drinking a little beer while Mac was in the little kitchen that is part of the office. He said he had a recipe he wanted to try and he volunteered to fry some of the fish for us.

Bill leaned back in his seat and out of the blue asked, "If you were to make up the greatest baseball team of all time, who'd you put on it?"

This is the kind of game I like. "Any players, living or dead?" I asked.

"Yeah."

"By position?" Dave asked.

"We'll go position by position," Bill said.

"What position are we going to start with?" Dave asked.

Bill thought a second. "Let's start with pitchers."

"Left handed or right handed?" I asked.

"And what about relievers?" Dave asked.

"Okay, okay," Bill said and thought a second. "We'll do left and right

handed starters, then we'll go to the relievers, then we'll do each of the infield positions..."

"I get it," Dave said.

"Then start with the left handers," Bill said.

"Who goes first?" I asked.

"I will," Dave said. "The left hander has to be Sandy Koufax."

"That one's easy," Bill said, "I'll go with him, too."

"Lefty Grove," I said.

"Who?" Dave asked.

"Lefty Grove. He pitched for the Philadelphia Athletics and the Red Sox."

"Never heard of him," Dave said.

"He pitched back in the '20s and '30s—I think even in the early '40s. According to the baseball analyst Bill James, if you put Grove and Koufax side by side, Grove is clearly better."

"I've never heard of Grove or this Bill James," Dave said.

"Robert 'Lefty' Grove," Bill said thoughtfully. "Hmm. I've heard he was good, but I'll still go with Koufax. What about you, Mac, have you been listening to us?"

Mac was busy mixing up flour, corn meal, grated cheese, and a bunch of herbs and spices. "Babe Ruth," he said without looking up.

"No, we're doing pitchers, now. We'll get to the other positions later."

He looked up. "It's still Ruth."

"But..." I said and Bill cut me off.

"Oh, I see where you're going. Ruth started out as a pitcher."

"He wasn't just a pitcher. He was a great pitcher," Mac said. "While he pitched for the Red Sox, he was one of the most feared and dominating pitchers of his time. He set pitching marks that stood for decades and, though passed in modern times, he's still the



John Silveira

number two man on some of those records lists. He'd have made the Hall of Fame even if he'd never picked up a bat. He was so good that a hitter as great as George Sisler said he was making a mistake giving up pitching to become a hitter. Of course, no one knew that Ruth would turn into what many believe to be the greatest hitter of all time."

"He was really that good of a pitcher?" Dave asked.

"Absolutely. Grove or Koufax may have been the best left hander ever in the conventional sense, but Ruth wasn't that far behind, and imagine a great pitcher who is also the greatest hitter that ever lived. And if I pick Ruth as my left-handed starter, I can have Hank Aaron as my right fielder. Otherwise, Aaron's off my team."

Dave shook his head. "You always have a different way of looking at things. I've seen lists of all-time great teams, but I've never seen any sports writer put Ruth on his list as a pitcher. I'm going to go with your choice."

"Me too," Bill said.

I didn't say anything. I was just wishing I'd thought of it.

"Are we ready to do right handed pitchers?" I asked.

"How do you do it?" Dave asked Mac. "How do you get these new angles on things?"

Mac dipped the fillets into a milk and egg mixture in a bowl. He then dumped part of his dry mixture in a shopping bag and threw in some of the fillets. He shook the bag, but he stopped and thought a second. "Lists like this depend on your criteria. It's like asking who you think the greatest Presidents were; it all depends on what your criteria are." He shook the bag a little more, then looked in and examined the results. He took the fillets out, placed them on a plate, then put in more and shook the bag again.

We watched in silence. The three of us must have been thinking the same thing. Finally, Bill said, "Okay, I'll bite. Who do you think were the greatest Presidents?"

Mac stopped again. "I wasn't trying to bait you when I said that. I just want you to realize that when some so-called expert makes up a list—such as an all time best baseball team or a list of the greatest Presidents, you have to know what his or her criteria are.

"With baseball players we usually think of their batting prowess and fielding skills, though when we get to the mound position we usually just think of how well a player pitches without ever thinking of what else he may contribute to the team. In the case of a list of greatest Presidents, the list a person makes almost invariably depends on his basic political beliefs."

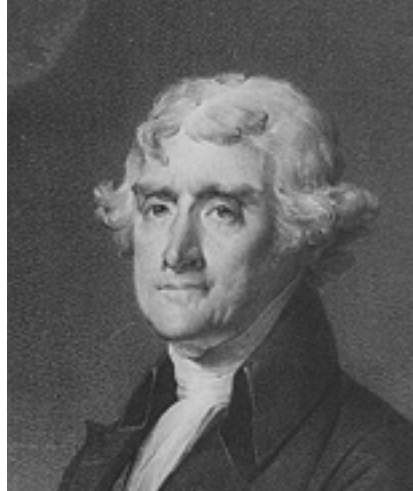
He put the bag aside and dropped some fish in the frying pan. We could hear them sizzle as the smell of lunch filled the office.

"But who would you put on *your* list?" Dave asked.

Mac didn't think but a second and said, "Oh, I guess I'd take most—maybe all—of the first 15 Presidents and put them at or near the top..."

"Who was the 16th President?" I asked.

"Lincoln...and just a few of the post-bellum Presidents from the 19th century like Arthur, Cleveland, McKinley..."



One of the Founding Fathers of the United States, Thomas Jefferson was one of the first Presidents to go beyond the constraints imposed by the Constitution. But rather than increasing the power of the federal government, his intention was to get a European power off the North American continent and to expand the nation itself.

"Postbellum?" I asked.

"Postbellum means after the Civil War—or the War between the States, as it's called in the South. Antebellum means before that war."

"Oh."

"...and I'd add a handful of the Republican Presidents from the 20th century."

"Reagan, Bush...?" Dave asked.

"No, not them. Harding, Coolidge, Hoover...that's it, though I'd put Ford higher on the list than any President since Hoover."

"Ford?" Bill asked. "He was a do-nothing President. He was in the House of Representatives for 22 years and he never even introduced a bill."

"What's wrong with that?"

I think we were all a little startled by Mac's response.

"If you want an activist President, you're probably a Democrat," he said, "although you may also be a modern-day Republican. If you want a President who leaves the people alone, you're probably an old-time Republican, a 19th century Democrat, or—and this is more likely—a modern-day Libertarian."

Bill said, "Most intellectuals think guys like Wilson and F.D.R. belong at the top. In fact, I've seen several lists where F.D.R. is at the very top."

"Why do you think he's there?" Mac asked without looking away from the pan.

"Well, he got us out of Hoover's Depression..."

"I don't know why people call it Hoover's Depression," Mac said. "Hoover was President for only three and a half years of the Great Depression while F.D.R. was President for eight of them, right up until the beginning of World War Two, when the Depression 'officially' ended. In fact, under Roosevelt, and in spite of all his programs, the Depression deepened. Five years into his Presidency, in 1938, it was worse than ever. You can't blame that on Hoover; a Democratic President and Democratic Congress had been in power for five years. In fact, many economists have fielded strong arguments that show that F.D.R.'s meddling may have actually made the Depression worse."

"So you base your criteria on how the country is doing economically," Bill said.

"No, although I'll admit I'm a financial conservative. But most of my criteria is based on the Constitution." He started taking the fried fillets out of the pan.

Dave said, "Then your criteria is..." and he hesitated for a second.

"How closely a President adheres to the Constitution," Mac said finishing Dave's sentence for him.

"But I get the impression Lincoln's not on your list," I said.

He shook his head as he lifted some fish from the frying pan with a spatula.

“Come and get it,” he said as he took more fillets and dropped them into the hot oil.

“Why isn’t he on your list?” I asked.

“Lincoln was the first President to violate the Constitution wholesale. Before him, every President tried to live within its framework.

“What was different about the first 15 Presidents?” Dave asked.

“The first 15 Presidents all operated within the framework of the Constitution—with a few, though noteworthy, exceptions.

“But more importantly, some of those Presidents are unfairly maligned today because they chose to act within the framework of the Constitution.”

“Name one,” Dave said.

“The one who stands out most is James Buchanan, the President who preceded Lincoln.”

“What did he do?”

“It’s what he didn’t do. He refused to act when South Carolina seceded from the Union. That secession was followed by the secession of the 10 other states after Lincoln was elected,



Another of the Founding Fathers of the United States, John Adams’ name will forever be linked with the Alien and Sedition Acts

and they went on to form the Confederacy.”

“Why didn’t he do something?”

“He said there was no constitutional basis for using force to keep them in the Union. And, actually, he was right.”

“So, what did Lincoln do?”

“He threatened military force to stop it.”

Lincoln was the first President to violate the Constitution wholesale. Before him, every President tried to live within its framework.

“But he had to,” Bill said.

“Why?”

“To free the slaves.”

“The Civil War wasn’t about slavery; it was about preserving the Union. It wasn’t about the Constitution and it wasn’t about freedom. And I’m not sure it was worth killing half a million people to keep the country intact just because some wanted to leave. Keep in mind that the South was not a foreign invader.”

“That’s how many died during the Civil War?” I asked.

“That’s the total,” Mac replied. “And after hundreds of thousands died to keep it together, there’s still nothing in the Constitution that says states can’t leave.

“The issue of slavery,” he added, “may have helped bring on secession, but it wasn’t the reason for the war.”

“I think you’re wrong,” I said. “Everything I learned in school said that war was fought to free the slaves.”

He crossed the office and picked up Bartlett’s Familiar Quotations and leafed through it. “Might as well quote Lincoln himself,” he said. “In a letter to Horace Greeley, editor of the New York Tribune, Lincoln wrote:

My paramount object in this struggle is to save the Union, and it is not either to save or destroy slavery. If I could save

the Union without freeing any slave, I would do it; and if I could save it by freeing all the slaves, I would do it; and if I could save it by freeing some and leaving others alone, I would also do that.

“Ending slavery was a noble purpose, but the war was fought over secession. Had the 11 states that made up the Confederacy not seceded, neither Lincoln nor the Congress would have sent troops into the South to end slavery. Slavery would simply have died its natural death as it did in other countries.”

“What about the *Emancipation Proclamation*?” I asked.

“The *Emancipation Proclamation* only freed the slaves in those states under control of the Confederacy. It did not free any of the slaves in the border states where the slaves were owned by Union sympathizers.”

“Really?”

“Yes, read it.”

“You say he violated the Constitution?” Dave asked.

“He tromped all over the very document that makes this country worthwhile and has made it different from any other country that has ever existed in history.”

“Give me some examples,” Dave said.

“In creating the state of West Virginia, he violated Article IV, Section 3 of the Constitution which says the federal government cannot form states from the jurisdiction of any of the states without the consent of the state legislature and the Congress.

“The taxes he levied to support the war, and the draft he imposed on the North were unconstitutional.

“The Writ of Habeas Corpus and the Bill of Rights were suspended. He summarily imprisoned critics and even had an arrest warrant written to jail the Chief Justice of the Supreme Court, Roger Taney, because he not only ruled that many of Lincoln’s

actions were unconstitutional, he was also a vocal Lincoln critic.”

“But these things had to be done; otherwise, the United States wouldn’t be as it is now,” Bill said.

“Then you would have to say taking land from the Indians, breaking our treaties with them, and the kidnapping of Africans to bring them to this continent as forced, unpaid labor was okay because, without them, the United States wouldn’t be what it is today.”

He looked out at us for a response. No one responded.

“All you’re saying, Bill, is that the ends justify the means. I don’t feel that way. Today, most everything unconstitutional the government does, from illegal searches to asset seizures, is based on that concept. Bureaucrats and politicians are pummeling the Constitution, and they excuse themselves by saying they have a noble purpose.”

Bill and Dave thought about that one.

“Did he have him arrested?” I asked.

“Taney, the Supreme Court justice?”

I nodded.

“No. But even though the warrant was never executed, the fact remains that it is one more piece of evidence in the argument that Lincoln was nearly a dictator and the first President to flout the Constitution on a grand scale.”

“You said some of the early Presidents did violate the Constitution,” Dave said.

“Starting with the second President, John Adams. During his administration the Alien and Sedition Acts were passed by a Federalist Congress. Among other things, they made it illegal to criticize the government. The bill was signed by John Adams, a Federalist President, although he signed it reluctantly—and despite the fact that they violated the First Amendment to the Constitution. Historians have vilified him for that, as they should, but it’s interesting that many of those historians who put Adams low on their lists when they

rank Presidents, and mention the Alien and Sedition Acts in their criticism of him, don’t seem to remember that one of their heroes, Woodrow Wilson, had more than 5,000 Americans jailed for speaking out against World War One. And, if you’ll recall, there were efforts to jail critics of the Vietnam War by the Johnson Administration, although that effort was quickly abandoned.

“Neither of those two Presidents is likely to be remembered for those things, at least not by contemporary historians.

“Jefferson was another who violated the constraints placed on the power of the federal government by the Constitution.”

All you’re saying, Bill, is that the ends justify the means. I don’t feel that way. Today, most everything unconstitutional the government does, from illegal searches to asset seizures, is based on that concept. Bureaucrats and politicians are pummeling the Constitution, and they excuse themselves by saying they have a noble purpose.

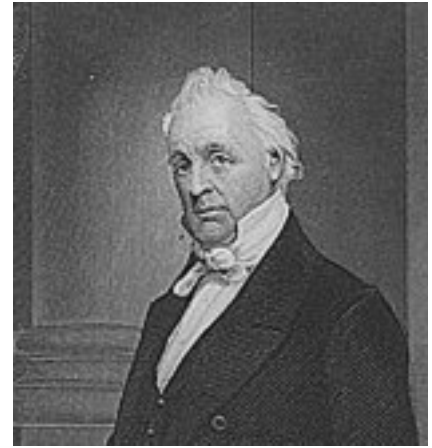
“He helped write it, didn’t he?” Dave asked.

“Actually, he was in France when it was written. But, other than disagreeing with the original version—because it didn’t have a Bill of Rights—he agreed with the constraints it imposed on the federal government. But as President, he violated it, or more accurately, he went beyond it.”

“What did he do?” Bill asked.

“There were no provisions in the Constitution for using public money to buy the Louisiana Purchase, and many people at the time pointed this out.”

“What do you mean?” I asked.



Although considered by many modern historians to have been a weak president, James Buchanan simply operated within the limits of the power granted the President by the Constitution.

“The buying of the Louisiana Purchase from France was unconstitutional.”

“It wasn’t legal?” Dave asked.

“No.

“Then another who violated the Constitution was James Polk, one of the Presidents I otherwise admire, who unconstitutionally created a fifth cabinet office to go along with the Department of War, the Department of the Treasury, the State Department, and the Attorney General’s office.”

“Which one did he create?” Dave asked.

“The Department of the Interior.”

“Why?”

“To deal with all the land acquired during his administration. The United States annexed more territory during his administration than during the administration of any President before or since. But, by maintaining an Interior Department, this has led to federal ownership of almost 30 percent of the land in the United States. But the Constitution states explicitly that the federal government cannot own land other than the land set aside for the capital, Washington, D.C., and for forts, magazines, arsenals, dockyards, and other things which at the time were called ‘needful buildings.’



The last Democratic President to feel obliged to conduct the office of the presidency within constitutional limits, Grover Cleveland annoyed Democratic and Republican Congressmen alike with his insistence that congressional bills be in accordance with the Constitution of the United States.

And all of this land was to be purchased from the states. The federal government has not paid for literally hundreds of millions of acres of land they now lay claim to.

“Now, I’m not saying that this is a good thing or a bad thing. But I am saying it is another example of the federal government ignoring the Constitution when it wants to.”

“For the record,” Bill asked, “how do you feel about the federal government owning all this land?”

“I’m against it. The Founding Fathers had good reasons for not wanting the federal government to ‘own’ the country, and I agree with them.”

“I thought you’d feel that way. But, for my own edification, what were those reasons?” Bill asked.

“They feared a strong central government because they had already seen that historically wherever the government gained power it was always at the expense of the people.”

“What are some of the things early Presidents didn’t do because of

Constitutional restraints that Presidents today would do?” Dave asked.

“One example is that, while he served in Congress, James Madison disapproved a \$15,000 appropriation for French refugees, not because he was being stingy or cruel but because he could find nothing in the Constitution that allowed Congress to spend the public’s money for something charitable, no matter how well-meaning it was.”

“Why would he have to find permission in the Constitution for that?” I asked.

He looked at me surprised. “Anything the federal government does that it is not permitted by the Constitution is unconstitutional because all powers not given explicitly the federal government are reserved to the people or the states, according to the Tenth Amendment.”

“So Madison was just...” Dave hesitated. “...acting within the law.”

“That’s right. And other Presidents did the same. Franklin Pierce vetoed a bill to help the mentally ill on the same basis Monroe had voted against relief funds while in Congress. And Grover Cleveland vetoed several Congressional spending bills for the same reason, annoying both Republicans and Democrats.

“The Constitution isn’t an ironclad document,” Bill said. “It’s open to interpretation.”

“Even though we treat it that way, it’s not,” Mac said.

“Times are a’changing, Mac, and new problems need new solutions.”

“New problems?”

“Yes,” Bill said.

“And that means...?”

“We need to interpret the Constitution differently to meet modern problems. The Constitution is a living document.”

“First off, let me say I don’t think we have new problems, we just have new solutions—and they don’t work. We still have hate, poverty, national defense, violation of constitutional

rights, etc. The same problems we’ve always had.

“Second, a constitution that’s open to interpretation is worse than a bad constitution that we stick to. A constitution with fluid meaning has no meaning at all. No citizen can now pick up our Constitution, which was written for the common man, and know what it means because its meaning keeps changing. And in the meantime any branch of Government can now wring an interpretation to its own benefit.

“It also means that the meaning of the Constitution can be changed by reinterpretation alone, which means that it is being amended without the consent of the people or the states. But if you read the Constitution, and the records of debates and what the Founding Fathers wrote, including the Federalist Papers, you will find that they meant the Constitution to be adhered to as strict guidelines.”

...a constitution that’s open to interpretation is worse than a bad constitution that we stick to. A constitution with fluid meaning has no meaning at all. No citizen can now pick up our Constitution, which was written for the common man, and know what it means because its meaning keeps changing. And in the meantime any branch of Government can now wring an interpretation to its own benefit.

“That sounds good, but I don’t think it’s practical,” Bill persisted.

“Well, look at it this way, Bill. When laws and bureaucratic regulations are enacted, we, the citizens, are expected to obey the letter of the law. We are not allowed to ‘interpret’ the law for our own ends. But when the government or a bureaucracy doesn’t care for the limits on their powers, as

set forth in the Constitution, we no longer hear the phrase, 'in accordance with the letter of the law.' Instead we hear how the Constitution is a living document, and the government, so as to do as it pleases, has only to reinterpret it.

"The early Presidents are no longer respected for acting within the limits set forth in the Constitution, and today Democrats rarely speak of 19th century Democrats as heroes because those Presidents had the embarrassing habits of doing just that.

"Can you imagine if a President today started vetoing all the bills coming out of Congress because they were unconstitutional? Senators and representatives would want to know what the Constitution's got to do with it. Special interests, both liberal and conservative, would be calling for impeachment, and the press and academia would vilify the President.

"However, modern Democrats do pay lip service to admiring Thomas Jefferson and Andrew Jackson, and they often used to call themselves the party of Jefferson and Jackson—but not so much anymore."

"Why not?" I asked.

"Both were proponents of small government. If either could come back today, they would be horrified at what's become of the Democratic Party. And they also would have no kindred feelings toward modern Republicans because the Republicans are going down the same road, albeit with about a 25 year delay.

"Today's Democrats are Democrats in name only; they're actually not what Democrats were, in any sense of the word."

Bill got up and walked around. It was clear he was annoyed with Mac.

"When did it change?" Dave asked.

"At the end of the last century, William Jennings Bryan single-handedly changed the course of the Democratic Party by stepping away from Constitutional law and slipping into a kind of populism that was sweeping the country. Then it changed

again in the 1920s when fascism swept the world."

"How's that?" I asked.

Adopting fascism

"The Democrats—and, since the 1950s, the Republicans—adopted fascist policies."

"Oh, come on," Bill said. "Are you saying the Democrats are Fascists? Fascists are right wingers."

"Despite the fact we identify fascism with Hitler and Mussolini, they were just two people among many who embraced fascist policies."

"What is fascism?" I asked

"If you look at capitalism as the concept of private ownership, and communism as no private ownership with everything owned by the state, fascism recognizes private ownership but the use of private property is directed by the state."

"Can you give us a concrete example?" Dave asked.

"The environmentalists wanting the state to direct the use of industry and private property is a fascist concept," Mac said.

Bill slammed his hand on the table. "You're saying the environmental movement is a fascist movement?"

"If the word fascist bothers you, Bill, and it is now a word that carries a lot of emotional baggage because of the Nazis, then substitute another word, but the philosophy is the same.

"I believe that if it hadn't been for Hitler, today's bureaucrats and politicians would have no problem admitting the use of fascist policies. Before World War Two, men like F.D.R. and Winston Churchill openly admired Benito Mussolini and his fascist government. What they admired was the economics of fascism and its approach to property rights."

Bill just shook his head, but Dave said, "When the Clintons first took office..."

"Only one of them did," Mac said and Dave laughed.

"Okay, when Bill did, they wanted to institute a national health plan and explained it would be managed competition. Is that fascism?"

"That's right."

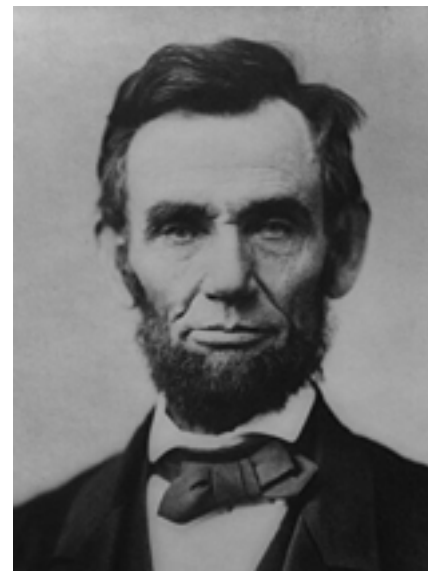
"Fascism is about zero tolerance and persecution," Bill said.

"Fascism is just an economic theory, Bill. It's not about concentration camps any more than communism is about gulags and Siberia. Hitler didn't need fascism any more than Stalin or the Khmer Rouge in Cambodia needed communism to carry out their atrocities."

"Oh, come on," Bill said. "You can't expect me to believe they just changed the definition of the word and nobody noticed."

"That's what's happened. I don't know why you're having trouble with it. It's happening again with another word right here in the 1990s and no one I know of, not in the press, in the colleges, or in Washington has cared to comment on it."

We waited expectantly until Dave asked, "What's the word?"



Whether for good or bad, Abraham Lincoln, the first Republican President, ruled the nation through the bitter years of the Civil War as almost a virtual dictator, and limits imposed by the Constitution were ignored.



Considered by many modern scholars to be the greatest President in American history, FDR's opinion of the Constitution was that it was an archaic document suitable only for the days of horses and buggies.

“The Communists in the old Soviet Union were, for 70 years, thought to be comprised of left wingers. Even after the Soviet Union fell apart, the Communists in Russia were considered on the left. But they suddenly became right wingers, in the eyes of our own liberal press and in the eyes of most Democrats, when they opposed democratic elections, something Communists had done even when they were called left wingers.”

“I remember that,” Dave said. “They were described as right wingers then in just about every major newspaper in this country.”

“That’s right, but they hadn’t changed any of their political beliefs. When I heard it,” Mac went on, “I expected someone to question it. But as the days passed, I began to feel like Winston Smith, the main character in George Orwell’s *1984*, when he is in the square in the city called Airstrip One, which is present day London, listening to a speech by one of the party leaders. There are flags of the allies flying around the square and the speaker even mentions those allies by name and calls them friends. And he berates the enemy by name. But suddenly, in the middle of his speech, he

points to the flags and screams that those are the flags of the enemy, and the enemy he was just berating he screams are our allies and the crowd goes right along with it. Smith screams his outrage along with the crowd, but in his mind he’s wondering how such a charade went over so easily.

“So, when the press suddenly started referring to the Communists as ‘right wingers,’ and no one seemed to notice that just days before they were left wingers, I started to feel as though Orwell wasn’t just a novelist, but a prophet.

“Today politicians, particularly those in Washington, D.C., feel as though constitutional restrictions on federal power no longer apply.

“I just read a column by the economist Walter Williams in which he alluded to a case being heard before the Supreme Court in which Associate Justice Scalia asked the Justice Department’s solicitor general if he could name any activities or programs that Congress would consider to be contrary to the spirit or intent of the Constitution. This guy, a Clinton appointee, a government official, couldn’t think of even one. I don’t know how you feel about something like that, but I find it scary stuff. But it’s typical of the way government officials, both elected and appointed, feel about the Constitution—they simply don’t feel impeded by it in any way.

“So, what if you had to make a list where you rated the Presidents? What would it look like?” Dave asked.

“I’d organize my list in five tiers, with the top tier being the Presidents I thought were the best in maintaining the values we find in the Constitution, and the bottom tier being those who ‘took the law into their own hands.’

“In each tier, I’ll just list the Presidents chronologically:

“On the first tier I would put almost any one of the first 15 Presidents, and a few others. This would include:

George Washington
Thomas Jefferson
James Madison
James Monroe
John Quincy Adams
Andrew Jackson
Martin Van Buren
John Tyler
James Polk
Zachary Taylor
Millard Fillmore
Franklin Pierce
James Buchanan
Rutherford Hayes
James Garfield
Chester Arthur
Grover Cleveland
Benjamin Harrison
William McKinley
Warren Harding
Calvin Coolidge
Herbert Hoover
Howard Taft

“On the second tier I’d put:

John Adams
Andrew Johnson
Ulysses Grant

“On the third I’d put:

Harry Truman
John Kennedy
Gerald Ford

On the fourth:

Theodore Roosevelt
Woodrow Wilson
Dwight Eisenhower
Lyndon Johnson
Richard Nixon
Jimmy Carter
Ronald Reagan
George Bush
Bill Clinton

“And at the bottom I’d put:

Abraham Lincoln
Franklin Roosevelt

“Did you leave anyone out?”

“One. I didn’t bother including William Henry Harrison because he got sick at his inauguration and died a month later.”

“Is that list set in stone?” Dave asked.

“No, I might move one or another of the Presidents up or down a notch as I learn more about them. But I can’t imagine any one of them jumping two notches.”

“I’d just about turn your list upside down,” Bill said.

“That’s fine, as long as you understand the criteria you’re using.”

“Are there any solutions? Anything that would make this a constitutional government again?” I asked.

Mac shrugged. “The real solution would be for the people to demand the Constitution be adhered to, to the letter of the law. And then, if the Constitution proves unworkable, let’s change it according to the rules instead of just ignoring it.

“And,” he continued, “There’s a bill before Congress now...” he looked up at the ceiling, “...HR 2270, that would require Congress to specify the source or authority under the Constitution before they could enact any law.”

“Would that solve the problem?”

He laughed. “I doubt it will be passed into law. And, even if it is, it’ll probably be ignored. The citizens of the United States are getting the government they deserve. The problem is that I’m also getting the government they deserve.”

Dave laughed.

Bill moped.

“Boy, we’ve come a long way from baseball,” I said.

“Not really,” Mac said.

“What do you mean?”

“Well, when told he made more money than President Hoover, Babe Ruth didn’t bat an eye. He said, ‘I had a better year.’”

He dropped more fish into the hot oil. Δ

Compost the “quickie” way

By Lynn Gordon Stetser, Jr.

Some natural or organic gardeners make much to do about their secret formulas for producing compost. Generally, the carefully guarded recipes in question involve special activators and the backbreaking turning and stirring on a regular schedule of tons of decomposing matter.

Beansoup! Compost is nothing but decayed plant and animal matter that is spread on a garden in place of chemical fertilizers and growth stimulators. It’s the simplest and most natural thing in the world and, left to its own devices, makes itself. The best you and I should hope to do is assemble an optimum set of ingredients for a royally rich batch of natural fertilizer, throw ‘em all together, and let Mother Nature do the rest.

The more variety in your compost pile, the better: grass clippings, kitchen trimmings, leftovers (no meat), coffee grounds, wood ashes, weeds, straw, hair clippings, and scraps of old cotton or woolen fabrics all fit into a humus heap just fine. Spent hops from a brewery and seaweed pulled from the ocean add to any natural fertilizer pile, as do rabbit, goat, cow, poultry, pig, sheep, and horse manures. A special tip worth looking into: many big city stables and race tracks gladly give horse manure away free to anyone who will haul it away.

Additional composting candidates include leaves, cornstalks, tomato vines, twigs, branches, and sawdust. But it’s only logical to shred such tough or bulky matter for the best results. You’ll also find your heap of humus decomposes more rapidly if you leave whole bones, grease, animal fat, and meat out entirely. They’ll break down eventually, of course, but the idea here

is to produce finished natural fertilizer in the shortest possible time.

Now, pace off a five-by-five foot square in an out-of-the-way sunny corner of your property, and spade up the soil to expose the bacteria that live there. Then start forking one six-inch layer of organic material on top of another until the stack is about five feet tall. The order and mixing of the ingredients is not important but you should water each tier as you lay it down. A sprinkling of ground limestone, rock phosphate, or potash rock on every layer will improve the quality of the finished fertilizer.

Cover the completed pile with a sheet of black plastic and anchor the tarp around the bottom with bricks or rocks. The plastic will hold the moisture in, protect the nutrients in the heap from rain, and speed the composting process by absorbing the sun’s heat. Now go away and forget your pile for about 10 days. When you come back, the decomposing humus should be registering between 130 and 160 degrees Fahrenheit. That’s great. If it isn’t heating, it needs more nitrogen. Add more limestone if the pile starts to smell foul.

You may want to turn the heap after two or three weeks, just to check its progress. If the center of the stack has not completely broken down by that time, add some nitrogen. Splash more water on the pile if it looks dry. Restack the material “inside out” so that the top and sides become the center, and recover with the black plastic.

Use this “quickie” technique for making compost and you’ll have rich, crumbly mulch three months after setting a stack of humus to work-in any but the coldest weather. Compost started in the dead of winter and covered with plastic will probably freeze solid and not start digesting itself at all until spring. Δ

Figs—the healthy biblical fruit

By Alice Brantley Yeager
(photos by James O. Yeager)

It's fun to introduce someone to a "new" fruit or vegetable and instantly see that they really like it. Not everyone can have the luxury of enjoying freshly picked figs, but those of us who have our own fig trees feel lucky indeed. It's a high point of the day when we hear, "Say, this is good! I didn't know a fresh fig would taste like this." (Used to Fig Newtons, no doubt).

Fig trees are door-yard dwellers in the South wherever winter temperatures do not consistently drop below 15 degrees F. During those infrequent times when several days of 10 degrees F., or less is recorded, trees will suffer severe damage even to the extent of being killed back to ground level. When that occurs trees will recover slowly by sprouting several new trunks when the ground has thoroughly warmed up. These should appear by early summer. Dead parts may then be removed, but precaution should be taken not to be too hasty about pruning. Fig trees need plenty of time to show signs of life after having undergone a rough winter.

New growth should be pruned to leave two or three of the best trunks. Some owners thin back to one, but I

have found that the established root system will easily support more than one trunk. Trees should begin to put on a sizable crop in about three years.

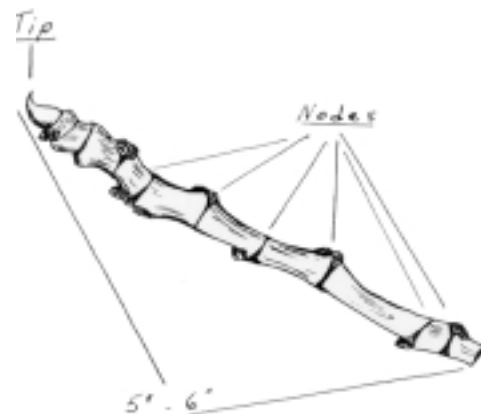
Fig trees are not limited to the South as they may be grown in colder climates if precautions are taken to protect them. Some northern gardeners dig their trees in late fall, keep large balls of earth around the roots and winter them in a cellar. The dirt is not allowed to completely dry out and plants are set outdoors again when weather has settled in spring. Another method is to grow the plant in a large, easily moved container that may be shifted indoors when temperatures begin to plunge.

If a gardener has room for a fig tree in a greenhouse, more than one crop per year may be expected. Branches trained horizontally can save space and the protection afforded by the greenhouse will increase fig production.

Varieties of figs grown in the South are mainly Celeste, Brown Turkey and Texas Everbearing. The first two are heavy producers of sweet-as-sugar fruit and a mature tree will give its owner an abundance of figs.

Texas Everbearing produces figs as large as small pears and they are not quite as sweet as the smaller figs. However the tree has the advantage of

bearing from early summer to autumn thus stretching the season for fig lovers. A curious thing about Texas Everbearing is that it will produce some very large figs at the very beginning of the season while the younger figs are forming. These first figs are

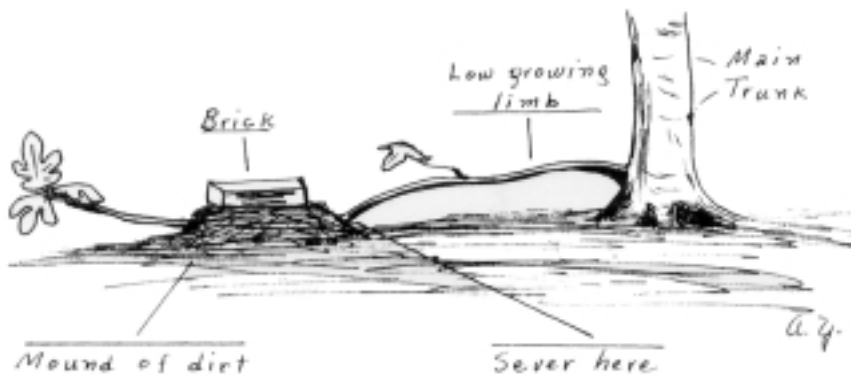


When taking a fig cutting, cut at the nodes.

watched with anticipation as they will give us the first taste of the season. After they are gone, the tree will bear in a normal way.

California is a big producer of figs as the commercial Smyrna fig is grown there. Thousands of pounds of Smyrna figs are dried and marketed annually. By contrast, it is rare to find Southern figs in the marketplace as they ripen fast, bruise easily and, therefore, do not ship well. Southern figs are best eaten fresh from the trees or made into tasty jams and preserves (See recipe). They may also be dried and kept in clean sealed jars in the pantry or freezer.

Propagating fig trees is easy. If you have a friend or neighbor who has a fig tree, ask for a few cuttings before sap rises in spring. Select mature, strong-looking branch tips and cut them 5 or 6 inches long. (It's well to have more than one cutting in case some fail, as you'll have to wait another year to try again.) Cut all the way around the first few nodes of the branch tips with a sharp knife, being careful to split only the thin outer bark. (See illustration.)



You can produce another fig tree by using simple layering.



In the north, fig trees may be grown outside in movable containers during summer and transferred indoors whenever cold weather begins.

Place the cuttings upright in well pulverized soil with only an inch of the tips protruding. Cuttings may be started in deep, ten inch pots or set directly where trees are to remain. If set in their permanent spots, be sure to protect them with noticeable stakes or wire to insure their safety.

Another method of propagation is by simple layering. Trees will often produce limbs low to the ground and it is very easy just to loosen the dirt a bit, bend the limb so that some of the nodes touch the ground, pile some dirt on it and secure it with a heavy object such as a brick. (See illustration.) This should be done after tree has leafed out. By the end of the season, the limb should be rooted. Early in spring, during dormancy, cut the limb loose where it enters the dirt and, presto, you have a new tree! The young tree may also be severed from the parent tree in late fall but should be wintered over in a good size pot, kept moist and protected from hard freezes.

Fig trees don't seem to be very particular as to soil just so that it is not too poor and is moderately moist. Although they will tolerate some shade, fig trees do not need to be over-

shadowed by large trees such as elms or oaks. If there are medium height fruit trees nearby--pears, peaches, etc.-fig trees need to be located 20 - 25 feet away from them as figs do best where they can have full benefit of sun and rain. Southern fig trees are of a spreading nature averaging about 8 - 9 feet tall and spreading out wider than they are tall.

Guidelines for planting a fig tree are very much like those for planting many other trees. Always make the hold larger than root-span and thoroughly pulverize dirt to be used. Set tree a little lower than previous soil line, spread out the roots, fill in halfway with loose dirt and water thoroughly. Finish filling in hole and again water generously. This will get rid of any air pockets and settle soil around roots. If you live in a drought prone area, make a small dam about 18 inches in diameter around the tree to help direct water to its roots when watering becomes necessary. If no complications arise, the tree should bear its first figs in three years.

Fig trees develop a heavy network of roots just under the surface of the ground, so it is best not to do a lot of tilling around them. Just keep the area free of grass and weeds. During early spring an occasional dressing of well rotted barnyard manure or compost is

beneficial. A good organic mulch of leaves, grass clippings, etc., will deter weed growth and conserve moisture.

It is imperative that fig trees have plenty of moisture especially while fruiting. If soil is suspected of drying out during long periods of no rain, soil should be thoroughly soaked under trees at least twice a week. When green figs begin to shrivel and drop off, it is too late to save the crop. About all the owner can do then is to provide the trees with enough moisture to get them through the drought. Forget about the fruit.

Some folks advocate the use of old newspapers and magazines as a mulch and also as a means to having a nice clean area underneath the trees. I have tried this and found that it creates more problems than it is worth. Light showers do not penetrate the papers thus keeping moisture away from the soil and a haven is created for sow bugs, snails and other pests. There is the inevitable clean-up job when papers get blown around during windy periods.

Generally speaking, the fig tree is a boon to the gardener. It is disease-free, requires little care and surplus figs find a ready market when the owner places a sign out front. If "pick-your-own" is the order of the day, be sure that the pickers don't damage the



Sweet-as-sugar Brown Turkey figs almost ready to be picked



This basket of ripe Brown Turkey figs may be enjoyed fresh or put away in a number of ways to be used later. Figs have high nutritional value and should be eaten fresh in season whenever possible. The drying of figs does not inhibit their health value.

tree(s) by bending the limbs down too far or by jerking on them. Also be sure that they know the difference between figs that are ripe and those that need to hang on a day or two longer. If there is a tint of green still lingering, the fruit needs to stay on the tree. Also, if the stem of the fig has not yet begun to droop, it is still in the ripening stage. A ripe fig will come loose from the branch easily and there will be no trace of the milky sap.

An interesting thing about the fruit of the fig tree is that the ripe fig is actually a hollow, fleshy receptacle which, when turned inside out, shows to be lined with tiny, pistillate flowers which have matured into small drupes. The opening pore at the end of the fig opposite the stem end is lined with the staminate flowers. Technically, I suppose this means that one actually eats a bunch of flowers while enjoying a fig!

If you have room for only one fig tree and there is no other in your neighborhood, don't despair as to pollination. With the exception of the Smyrna fig which requires the ser-

vices of the parasitic fig-wasp, fig trees are self-pollinating.

A fig tree is a very good investment healthwise as its fruits are high in minerals and other nutritional benefits. When we have a heavy fig crop, we often dehydrate some of the fruit in our electric dehydrator and store it for use in recipes calling for dried fruit. The process is simple. Wash and drain figs discarding stems. Split each fig in half lengthwise and lay split side up on dehydrator trays. Set temperature at 130 degrees F., and allow to dry 12-15 hours -- maybe more if fruit is very juicy. Figs will be leathery in texture when finished and may be stored in sealed clean jars indefinitely.

Figs have been around a long time giving sustenance to Earth's creatures. The fig tree is mentioned several times in the Bible, one of the familiar quotations being from the Prophet Micah - "but they shall sit every man under his vine and under his fig tree." — a perfect description of a personal state of peace and plenty.

Fig leaves are useful too. Remember Adam and Eve?

Sources for fig trees

Stark Bros., P. O. Box 10, Louisiana, MO 63353; Henry Field's Seed & Nursery Co., 415 North Burnett, Shenandoah, IA 51602; Johnson Nursery, Rt. 5, BX. 29-J, Hwy. 52-E, Ellijay, GA 30540; Park Seed Co., 1 Parkton Avenue, Greenwood, SC 29647; Gurney's Seed & Nursery Co., 110 Capital Street, Yankton, SD 57079

Fig preserves

1 lb. small figs (Brown Turkey, Celeste, etc.)
¾ lb. sugar
Juice of ½ lemon (optional)
½ lemon thinly sliced (optional)

Wash figs. Discard stems and remove any blemishes such as twig damage. (Some recipes state to peel figs, but we only peel large figs such as Texas Everbearing.)

Cut figs in half lengthwise and put in stainless steel or porcelain bowl. (Do not use aluminum.) Mix with sugar, cover and let sit overnight in refrigerator to form juice.

Cook in heavy bottom saucepan over low heat until mixture thickens. If using lemon juice and slices, add them to figs when mixture starts to boil. Be sure to stir frequently with wooden spoon to keep figs from sticking. When mixture thickens and desired consistency is reached, spoon immediately into hot, sterilized jars and seal with clean lids and rings that have been standing in hot water. To avoid drafts on hot jars, cover them with a kitchen towel until cooled. When contents have cooled check to see that all lids have popped down. Jars have not sealed if lids are puffed up and are springy to the touch.

Fig preserves are delicious at any time of year, but I believe we appreciate ours most in winter when we have hot biscuits served with butter and preserves. Δ

Want great charcoal? Make your own

By Robert L. Williams

When it's time to grill a steak or some chops at our house, the plan of action is always the same. We invite the guests, prepare the food for the grill, then discover we are out of charcoal and lighter. So, everything has to be put on hold until we make a dash to the store, plunk down several dollars, and in the process use an hour or two of our time.

This is the type of mini-crisis that prompted me to start making my own charcoal. I, of course, had no idea how to begin, but then it occurred to me that any time you build a campfire and then cover it with dirt to smother it, when you rake through the dirt hours or days later you find the charcoal remains of firewood. You have doubtless noticed that this already-burned wood will ignite instantly and burn without a flame or much smoke and will last for a long time.

Using this basic principle, I realized that really all I needed to do was cut wood into proper sizes, start it to flaming fully, then smother the flame,



Start by selecting a limb or branch or, in the case shown above, a slab of oak left over from a lumber-cutting project, and then cut the wood into two-inch sections. For best charcoal use hickory, oak, or similar hardwoods.

and by doing so I could carbonize the wood—and the result would be almost instant charcoal.

So why not make your own rather than pay the price for the material sold in stores? In a couple of hours you can make all the charcoal you are likely to want or need for the coming year.

Start with the proper wood. All wood emits an odor or aroma of some sort when it is burning, and some of these are pleasant to smell, but they are not aromas you associate with hamburgers or steaks. Pine, for instance, smells great on a campfire, but it adds a pungent taste to food cooked over the fire. The same is true for nearly all evergreens or needle-bearing trees.

Poplar has a pleasant smell, but it does not last long and has a tendency to blaze too high for good charcoal cooking. Oak and hickory are both terrific, and I found that if I mix oak and hickory, almost half-and-half, then add two or three pieces of poplar charcoal, I have a cooking mixture that will last for an hour or two and can be replenished readily if the coals start to burn out.

Once you have settled on your wood, cut it into suitable sizes or blocks. I found that an oak or hickory limb eight or ten inches in circumference works beautifully. If the limb is slightly smaller, it will work equally well.

I try to cut blocks that are roughly the size of a baseball or tennis ball. If the limb is smaller than what I want, I simply cut longer blocks. If a limb is



When you have a good load of charcoal material, either dig a hole and build a fire in it, or use some large metal container such as this dilapidated wheelbarrow shown above. Dump in the lengths of wood and then use charcoal lighter to start the fire. You can also build a fire with kindling and small limbs until you have a roaring fire. Let the fire blaze until every piece of potential charcoal has burned fully on all sides. You may need to turn or move some pieces to get full exposure to the fire.

very large, I cut two-inch slices from the limb and wind up with charcoal the size of a salad plate and two inches thick. This size works incredibly well, because you can lay four or five pieces across the grill and they will cook steaks, chicken, and other quick dishes in a remarkably short time.

Do not try to use green wood. Your charcoal base should be well dried in two ways: it should not be sappy, but it also should not be wet from rainfall.

You can make charcoal in the fireplace inside your house, or you can do it in a variety of ways outside. Start with the outside work area first. The simplest method is to dig a hole in soft dirt (in the garden, for example) about two feet deep and two or three feet wide.



As the charcoal briquettes are fully burned on the outside, use metal tongs to place them in a second container, or drop the pieces into a fire pit where carbonizing action occurs.

Start a fire in the bottom of the pit using pine twigs or scrap wood. Build up the fire until it is roaring. When it is ready, toss in the wood blocks, one at a time, so that you can place them strategically so that you do not put out the fire. Neither do you want the blocks to roll off into a corner where the fire will not reach them successfully.

Don't stack the blocks of wood so deep that the fire cannot ignite the surface. Let the blocks stay in the fire until they are fully burning on all sides, then shovel dirt onto the fire and smother it. You are now carbonizing the wood by cutting off oxygen. Leave the wood under the dirt for an hour or longer. You can go cut firewood or run errands, and when you come back the charcoal will be ready.

Use a shovel to empty the hole. You will find gray or black blocks of wood that are now ready to use. Use tongs or thick gloves to pick up the blocks and drop them into a safe container, such as a metal bucket. Put a lid on the bucket and leave it outside until it cools completely. Your charcoal is now ready to use.

If you don't want to dig a hole in your garden, you can use your charcoal grill, a metal bucket, or anything else that will be fireproof and easily handled. A huge metal barrel works well.

Build your fire in the barrel or bucket, and when it is roaring, drop in the blocks of wood. Again, leave the blocks in the fire until they are burning fully. Then use tongs to lift the blocks from the fire and place them in a metal container. When the bucket is full, close off the air to the charcoal until the container is cool.

If you want to make charcoal in the fireplace, wait until some day or evening when you want a fire anyhow. When you have a good bed of coals, drop the blocks of wood onto the coals and let them blaze fully as before. Use tongs to take out the completed charcoal and drop it into a metal bucket and place the lid on the bucket. Carry the bucket outside when it is filled and set it on a safe surface where heat from the bucket cannot cause a fire.

Now it's time to cook with the charcoal you have made. You will find that you can use commercial charcoal lighter, but if you have let the wood char enough, you will find that you can lay some crumpled newspaper in the fire area of your grill, lay the blocks on the newspaper, and light the paper. When the newspaper has burned, the charcoal will have started to turn gray. Let it turn completely gray before you put the food on to cook.

Grill as you normally would, and when the food is ready use the tongs again, place the charcoal pieces into a metal container, and seal off the air as before. You will find that you can use larger

charcoal chunks again and again. And the more you use the charcoal, the easier it lights and the better it flavors the food.

You may also find that you can light the charcoal with only a match. Stack the charcoal in the shape of a pyramid, then light two or three of the bottom pieces. The heat from these first pieces will ignite the others and soon you will have a great bed of charcoal.

If you find that your charcoal does not burn readily, or if it gives off a sharp-smelling smoke, you did not let it burn long enough before you carbonized it. If, in the grill, it bursts into flame rather than chars, your wood is not dense enough (such as poplar) and you need a heavier wood. Or perhaps you let it burn too long before you carbonized it.

As with all such projects, it is often best to try your hand at charcoal making with a small batch at first. Then, if you like the results, make larger amounts.

Once you have mastered the simple fundamentals of the process, you can make charcoal once or twice a year.

There's only one other part of the process. Call me just as you put on the steaks, and I'll be there by the time mine is medium-rare. Δ



To use the charcoal place it in a grill as you normally would and use either charcoal lighter or crumpled newspaper to light it. You will find that well-prepared charcoal starts much faster than typical commercial charcoal does and burns hotter with less smoke. The charcoal shown above took only two or three minutes to turn gray, and the smoking stopped in about five minutes.

Make mead the easy way

By Carl W. Bussjaeger

When I first seriously considered learning to make my own beer and wine, I was rather isolated from other knowledgeable brewers. As a result, I turned to my usual source of information: books.

Oddly enough, this proved to be a mistake. I had been told that brewing was simple; these books claimed otherwise. I wanted a simple process from which I could learn. Instead, I got a discourse on single and multi-row grains, the chemistry of various malting processes, the acidity of hops, the biology of yeast, and lists of recommended chemical additives. Additives?! Bleah. This was one reason I wanted to make my own.

Basically, the books I happened to stumble upon told me that there was no way I was going to learn the art of fermenting beverages on my own. So I gave up for several years.

Fortunately, I was not completely daunted, and I looked into it again later. I was still on my own; but this time I was equipped with the knowledge that I could at least fake my way through anything. So I tried, and discovered that brewing is not that tough, at least at the entry level.

A typical set of starter instructions for mead follows. This is not a fancy beverage and it does not take long to make.

Carl's quick mead:

Mead can be nothing more than diluted honey, with yeast added. But it is simple enough to enhance its flavor with commonly available items.

Equipment:

1 large pot (should hold 2-3 gallons), preferably stainless steel or enamel.

Siphon tube
2-3 two-liter soda bottles.

Ingredients:

48 ounces of honey
2 lemons
6 teaspoons of ground cinnamon
1 gallon of water
1 oz. yeast—any live brewers yeast will suffice for this. Find a brewers supply house, use the sediment from a homebrew, or borrow some from another brewer.

First, to get your yeast ready, dissolve about half a teaspoon of honey into half a cup of lukewarm water, then add the yeast and cover the container.

Next, skin the yellow outer layer of the washed lemons off, and add it to the water. Squeeze the juice from the lemons into the water. Then toss in the cinnamon. Boil this for 20 minutes. Turn off the heat. When the boil stops, stir in the honey, dissolving well. Let it cool to room temperature, then add the yeast. Keep the pot covered.

In the most basic system, you can let your "must" (the word for unfermented mead or wine) ferment in the same pot you mixed it in. Or you could transfer it to some other container—white food-grade, plastic buckets are popular, as are 2 and 3-liter soda bottles. If you use the pot or a bucket, cover it with plastic wrap to seal out air. If you use bottles, you can stretch small balloons over the bottle mouths. In either case, you may have to make a pin hole in the cover: the fermenting must produces carbon dioxide gas; the pressure buildup can cause the plastic wrap or balloon to pop off if some pressure cannot escape.

It may take a day or two, but the yeast will start converting the sugar in the honey into alcohol—you will see your plastic wrap or balloon start to

inflate. This is when you may have to prick a small pinhole in the cover.

The time needed to ferment the must varies—temperature, type of yeast, and amount of sugar all have an effect. If fermentation seems to stop (the balloon or plastic deflates) after only a few days, slosh or stir the must a bit. This may restart fermentation. Most likely, fermentation will be complete after 10 to 14 days. When the cover deflates and stays deflated, it is time to bottle your mead.

Bottling is easy enough: you just siphon the mead from the fermentation container into bottles, being careful not to disturb or suck up the sediment at the bottom of the pot. This is called racking. Fill the bottles up to about one inch from the bottom of the bottle neck, then cap tightly. Store the bottles in a cool, dark place for about one month. You will then have a nice, light, slightly sweet mead. I find it suitable for just about any occasion that would also suit beer or a white wine.

There is one very important factor to observe throughout the entire brewing process: sanitation. Brewing and vinting is based on near-supersaturated sugar solutions. These solutions are perfect mediums for breeding bacterial cultures. So everything must be kept clean. Wash everything carefully before starting: the pot, fermentation containers, siphon tube, and bottles. After washing, sterilize all the items. A teaspoon of ordinary bleach to a gallon of water works wonders. After sterilization, rinse everything carefully, and store in a clean place till each item is called for. Sterilization should be done just prior to the item's use.

But despite your best efforts, if you stick to brewing and vinting, eventually you will get a contaminated batch. Things to watch for are "mold" at the top of the beverage in the bottle, cloudy 'veils' floating in the bottles, or a rotten smell when opened. If you have doubts, assume contamination and dispose of it. Δ

The dangers of civilization

By T L. Couch

Some might say we spend too much of our time up in the hills. We don't have television. The only radio station we get is uninformative. And the only time we see a newspaper is when we make one of our seldom-as-possible trips to town.

Sometimes even I begin to wonder what's going on in the world at large. I start to think maybe we're missing out on something by being so reclusive and out of touch. I get to thinking that maybe we should be more social and outgoing. Thankfully, before my thinking gets too deranged something happens to set me straight again. Like today.

My mountain missus and I made one of those seldom-as-possible trips to town. There are some things you just can't get by without, and we refuse to destroy a perfectly good book no matter how just the cause. I should point out that the town we go to as seldom as possible boasts a population of only about 5,000 people. Not exactly a raging metropolis. (We did go to Denver once, and we were both very careful not to leave anything there so we wouldn't have to go back.) Still, when you live up in the mountains, just the two of us, and the only reminder of civilization is the occasional hunter knocking on your door just before dark and wanting to know where he is and how to get back to where he was, even a small city can be intimidating.

We had made our usual rounds—the post office, the grocery store, and the bank without much real incident. We had fielded the usual comments from friends and acquaintances such as "Where have you two been? We thought you must have moved away or died up there and nobody had found you yet." We had been in town over

an hour and we were both beginning to feel a little claustrophobic. We were stopped at the intersection. A right turn would head us toward home. A left would take us towards one last stop. Against the urging of my much wiser wife, I turned left, toward Walmart.

We made our way down through the crowded rows of cars and trucks, and as we made the turn in front of the store to start up the next row there was an open parking space. Our big long pickup truck wouldn't make the turn on the first try, so I stopped to back up and get a straight shot at it. When I looked in my side mirror there was a car right behind us. Behind the wheel was a young "lady." She looked to be about 16 years old and probably quite cute when she wasn't snarling and hurling profanities. She eventually backed up and made room for me to continue my efforts to park. It occurred to me of course that she had wanted the parking space that I had taken, and I sat there a moment wondering what sort of emergency situation she might be facing that having to park a few spaces further down might make a difference. I found out later inside the store when I saw her perusing the compact disc selection.

But while I was sitting there contemplating the behavior of this little high school sweetheart, which to me seemed a bit extreme, my ever observant spouse told me a few of the things she had been able to make out on those prettily snarling lips. I assured her that my mother was not a female dog, and that indeed my parents had been married when I was born. Now, wading in over six feet tall and at 200 pounds it had never occurred to me that I might find myself afraid of a petite 16 year old girl half my size, if that, but suddenly

I saw the headlines in tomorrow's paper: "Modern Day Mountain Man Slain by Brutal Tongue Lashing." I wasn't getting out of that truck until the big bully had gone inside.

While I was sitting there waiting until the coast was clear I happened to notice a man in another truck in a parking space in front of us. He was just beginning to back out of the space when another car cruising down the aisle blocked his exit. The car couldn't proceed because of traffic, but that was apparently no excuse. The man in the truck launched into an identical tirade toward the driver of the car as the teenage terror had launched at me. And I would imagine that the driver of the car felt the same way about his parents as I felt about mine. If not for our respect for the sanctity of books my wife and I would have made tracks for the high country like deer on opening day.

We arrived back home in a cloud of dust and with a thankful sigh. As I stood on the deck listening to the gurgle of the creek, the choir of the birds, and the general peacefulness of home it struck me that I could carry a rifle, pistol, knife, or club here in the wilds to protect me from wild animals, but the only time I felt threatened enough to need any of those things was when I had to face the dangers of civilization. Δ

Visit the *Backwoods Home Magazine* website at :

www.backwoodshome.com

Ayoob on firearms

By Massad Ayoob

A cop's advice to those home alone

My police chief Russ Lary and I do our share of TV and radio talk shows discussing public safety and crime prevention. Lightweight Yuppies in the audience are profoundly disturbed when we don't take the usual politically correct route and lie to them about a self defense firearm being 43 times more likely to kill them or someone they love than to protect them.

That oft-quoted figure is a blatant case of lying statistics. The number of times a year that law-abiding private citizens use guns to protect themselves ranges from a high of 2.5 million times annually (a figure extrapolated by criminology professor Gary Kleck) to a *minimum* of 65,000 times a year (a figure conceded to which the most militant gun-banning organization, Handgun Control Incorporated, has publicly conceded). Chief Lary and I and our cops signed on to "protect and serve." Our police department believes that part of that protection and service is teaching them how to protect themselves until we can get there to help them.

This is understood throughout the practice of public emergency services. The fire service in the form of the local fire department sends its trained professionals to schools and civic meetings to teach classes in fire prevention. They stress the importance of smoke alarms, fire extinguishers, and fire drills in keeping people alive in an emergency until the trained professionals can get there to stabilize the situation and get the job done.

The emergency medical service does the same thing. EMTs and paramedics

lecture the public on how to hold the line against life-threatening trauma or medical emergency until the trained and fully equipped professionals can get there to take over. The emphasis is on First Responder training: how to establish an airway, how to do CPR, how to perform the Heimlich Maneuver, etc.

Logically, the police service should do the same thing. Universally, police departments send crime prevention specialists to civic groups and schools for things like the DARE program and advice on locks and alarms and so on, but it has become politically incorrect to teach effective physical force options for surviving lethal assault long enough to call 911.

Russ Lary has been chief of police in the community we serve for a decade. He is widely respected among his peers, and next year will be president of the state association of chiefs of police. He is equally respected in our community, and for the same reasons: uncompromising integrity and honesty. It was with the same integrity and honesty that he included firearms safety and optional deadly force training for those citizens who chose to keep or carry lethal weapons. The training is made available to the public at no charge.

None of the adults who've taken the optional deadly force program has made a mistake with it and become involved in a firearms crime or tragedy. *None* of the kids in public schools that have hosted our firearms safety programs the same way they host the bike safety talks, DARE programs, and Patch the Pony ("Neigh, Neigh, from strangers stay away!")



Massad Ayoob

child safety programs have been involved in any kind of firearms misuse or mishap. It has confirmed for us what common sense told us all along: there is no safety in ignorance. Our program for the armed adults includes advice on how to prevent mistaken identity shootings when they've grabbed a gun before calling police, and our officers arrive immediately thereafter, what has been called "man with a gun syndrome." Many of these citizen graduates have called the police since, and many have accessed their firearms during the crisis, but *none* has even come close to setting the stage for a mistaken identity shooting.

Our community is largely rural, with many backwoods homes. Well over 50% of those homes, we estimate, contain firearms. Our jurisdiction cov-

ers a geographic area larger than many metropolitan cities, but with sparser population and fewer cops. This means that it takes longer for officers to respond to an emergency. We are acutely aware of what can happen between the citizen's first awareness of great danger, and his call to the police, and the responding officers' arrival on the scene. This is why we fulfill our responsibilities as our brothers and sisters do in the fire service, when they teach the use of the fire extinguisher as an emergency safety rescue tool that cuts a lane of safety for yourself and your loved ones until the designated professionals can reach the scene. This is why we fulfill our responsibilities as our brother and sisters in the emergency medical service do, when they teach citizens to do CPR to keep a patient alive until the designated professionals can arrive in the ambulance or rescue vehicle.

Having a fire extinguisher doesn't make you a firefighter, and doesn't mean you don't need firefighters. Having a first aid kit doesn't make you a paramedic, and doesn't mean you don't need emergency medical professionals. Similarly, having a gun

doesn't make you a cop and doesn't mean you no longer need cops.

It's irresponsible to say, "Dial 9-m-m instead of 9-1-1." At the same time, we the police would be irresponsible not to recognize that sometimes, the citizens we serve to protect may need

a 9mm to stay alive long enough to dial 9-1-1.

I was a young patrolman when I responded to a remote riverside home where the husband and wife who lived there were only alive to tell me what had happened because they'd had guns to ward off the crazed intruder. Later, I was more mature, a sergeant, when one of the citizens I had trained through the police department captured a burglar at the point of his shotgun. Today, more than two dozen years since I first pinned on a badge, I don't see it being any different.

The reality is starkly simple. The police can't be everywhere, and the cops know that better than anyone. Our motto is "To Protect and Serve." I can't see that without flashing to an extremely relevant parable: "Give someone a fish, you've fed him for a day; teach him to fish, you've fed him for life."

The police establishment would do well to remember the same: "Protect someone, you've protected him for the moment. Teach him to protect himself, and you've protected him for life." Δ

A country moment



Evan Diesman-McDavid, 3, of Alexandria, KY, rides a Christmas present.

A country moment



Andy Barrett, 3, of Stockton, Missouri, tries out his fishing pole.

Save money by being your own butcher

By Jack Martin

Caring for your meat can be rewarding, fun, and a great way of saving money. For example, I live in southwest Colorado. Prices range from 40 cents a pound for livestock processing to 60 cents a pound for processing wild game. Considering that an average steer will yield 400 pounds of processed meat, and an elk will average 300 to 400 pounds, it is easy to see that there can be a significant expense.

Tools

Tools necessary to process meat are simple and inexpensive. I prefer a good boning knife, a large (12" blade) butcher knife, a sharpening steel, some kind of a meat grinder, and a meat saw. The meat saw may be as simple as a carpenter's saw, a true hand operated meat saw, a hack saw, or even an electric band saw. Myself, I use a band saw that has a 4-inch maximum cut—a very small band saw. Obviously the saws must be clean, and if used also for wood, cleaned before using again. The band saw is the most difficult to

clean, but with a small amount of time, a paint brush, and hot soapy water it isn't too bad.

Preparation after the kill

Few are aware of the benefits of dressing meat properly. Regardless of

removing the hoof section of the legs at the joints. Saw the joints at the foot end of the joint so as to preserve the tendon for hanging the quarter. Place the animal with the head uphill, and tie off the front legs to separate trees. Skin the animal working from the legs

to belly along the hind quarters, working up to where the back rib meets the spine. Use the skin to protect the meat from dirt and debris.

After this section is skinned, remove the tenderloin or "backstrap" (the meat along the spine between the point where the hindquarter meets the backbone and the point where the ribs first meet the backbone) then, using a small hand saw, cut the hind half off. (I prefer a saw made by Stanley, marketed as

a toolbox saw. It is about 14 inches long and cuts like crazy. I have a friend who has a meat saw and prefers this for quartering over his meat saw.) Then, working on meat bags, start at the backbone and work from rear to front to cut this in half and get the hindquarters then hang the meat from a tree, or lay it across a log. Remove the skin on the remainder of the carcass in the same manner, except when splitting in the middle start from the rear and work toward the head. This section will be easier as you already have half the skin to keep a clean work area.

The removal of the skin and quartering also assists in the quick cooling of the meat. Wipe down the body cavity side with clean cold water to get the left over blood off the meat and prevent tainting the flavor. If your climate is such that you can let the quar-



Figure 1. The carcass with shoulder still attached to rib cage. The rope lying on the carcass shows where the cuts occur.

whether it is livestock or wild game the importance of a few minor details will make tremendous differences in the taste of the processed meat. Even gutshot game will not be tainted if the animal is properly cared for. Of utmost importance is to get the skin off the animal as soon as physically possible. For larger game in the field such as an elk, it is often not possible to hang the animal until it is quartered. Yet, the animal can be skinned on the ground even on a steep hillside among heavy dead fall.

After completing the gutting process (and rolling the unwanted portions downhill from the work area) begin by



Figure 2. The leg and shoulder (center) separated from the rib cage (right) and shank (left). The rope shows approximately where cuts for chuck steaks should be made.



Figure 3. Location of cut along top of the rib cage

ters hang for awhile, by all means do so as it makes the meat more tender but be careful to keep flies off the meat. If you are not going to hang it, butchering can commence as soon as the quarters are at your “butcher shop.”

Butchering

I am not a butcher, and my cuts may be uneven, but I save a lot of money by processing my own meat. I get plenty of steaks, stew meat, roasts, and ground meat. I waste nothing, not



Figure 4. Cuts to process the backbone and neck

even the bones, which are cut into pieces for the dogs. I suggest using a work area that is 30 inches wide by at least 4 feet long, of a substance that is easy to clean frequently. For years I used a leftover piece of Formica counter top with a back splash. Have a wet towel, and a dry one handy at all times. Keep your hands (especially the knife hand) clean and dry. Several large bowls also simplify the process

of setting aside stew meat and the meat I will grind.

I prefer to cut meat that is at 32 degrees, it is easier to cut, and has much less tendency to roll and cause cut fingers. Knives must be sharp and kept sharp. Butcher blocks tend to keep a knife sharper longer, but are expensive.

Also, use a good quality freezer paper

designed for meat. To wrap properly, place the meat in one corner of the paper then bring that corner over the meat in the general direction of the corner diagonal to it. Then roll the meat once toward the diagonal corner. Take the left side of the paper and fold in on the meat, then roll again. If necessary repeat with excess paper on the right, and roll the entire package, using freezer tape to fasten. I mark each kind of animal with a different color so I write less and can identify the type of meat easily in the freezer.

Front quarters

Begin by removing the first section of leg at the joint. Debone this section, and place in

the pile of meat which is to be ground. Remove the front shoulder, boning close to the rib cage (Figures 1 and 2). This can now be cut with either a band saw, or meat saw into chuck steaks, or deboned for stew meat.

Then cut with a saw along the top of the rib cage. Visualize that the backbone

is part of a T-bone steak, and leave about that much rib for an elk sized animal, or visualize a pork chop for a pig or deer sized animal. Cut all along the length up to the neck (Figure 3). Set the backbone portion aside. Next the ribs can be sawn into appropriate sizes for short ribs, or deboned for burger. If you wish you may remove the brisket, or just include it in the processing of stew or ground meat. It has a different striation in the muscle

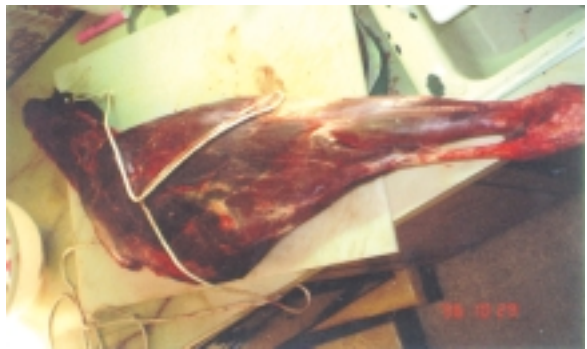


Figure 5. The hindquarter with pelvis attached

and separates from the rib cage almost without boning.

The strip of backbone and neck can now be processed. Using a saw starting at the rear, cut into steak sized portions until reaching the neck (Figure 4). I use the band saw here, and even though small, sort of roll the meat through the saw to make the cuts. If you must back out, turn off the saw first and allow the blade to stop or else it will cause the blade to come off the wheels. This can also be done with

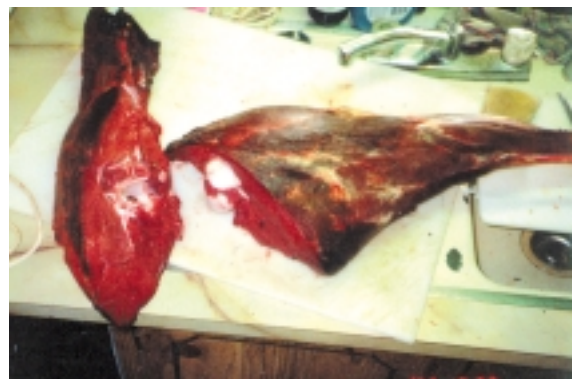


Figure 6. The hindquarter and pelvis separated

a hand saw, but if you do I suggest you cut the meat with a knife and then the bone with the saw.

The neck can be either deboned, or cut into “chops” for stewing. Boning is a difficult process in the neck, so I usually just cut into chops about 1½” thick for stewing, and save myself a lot of time and effort.

Be sure and remove and discard any bloodshot meat. If not this will taint the meat over time in the freezer.

Rear quarters

Locate the joint at the pelvis and separate the entire hindquarter from the backbone/pelvis section (Figures 5 and 6). Find the pelvic joint at approximately where the top and upright of the “T” join in Figure 5. Cut in the



Figure 8. Where to cut the pelvis into steaks

direction shown parallel to the backbone. Once the whole leg is removed then the meat can be removed. Just beyond the point where the large tendon enters the meat cut into the meat right straight down to the bone. Then follow the bone up toward the cut made to remove from the pelvis.

Next, remove the bone from the other section of meat (Figure 7). These pieces can be cut into roasts, round steaks, or tender stew meat. Generally I just make round steaks after deboning as one piece from the leg bone. You are now left with the pelvis/backbone. Saw this at 90

degrees to the backbone into steaks (Figure 8) in the same manner as for the front backbone section, or debone and cut out the steaks, and use the balance for stew meat. Most of this meat is very tender. Due to the size of the pelvis this can be the most difficult part to saw. Since you are the butcher it is your choice.

Freeze immediately after wrapping and marking. Be aware for a large animal, if you use a small chest freezer it may take a day or two for the meat to fully freeze. Again a reason for having the meat very cool at the time of butchering. I happen to have an extra refrigerator and remove all the shelving to cool the meat prior to butchering. I can get a whole elk into one refrigerator this way by strategically locating the quarters.

Grinding the meat is the most time consuming, and work intensive for me. My grinder is hand operated. For chili, grind the meat through only one time. For normal ground meat, have the meat make two passes through the grinder before packaging. Generally I put all the meat to grind into containers, and keep refrigerated until I have the rest of the meat processed. Some prefer that some pork fat or beef fat is included in the ground meat. If you do, use no more than 25% of fat by weight. I never include the fat as it can make meat rancid, and I don’t need the extra weight. If the meat needs oil to cook that is fine, because I can control how much I need, and the type.

Butchering your own meat can be rewarding, can be a family process, and saves money. I can process an entire elk, cow, or buffalo in one day

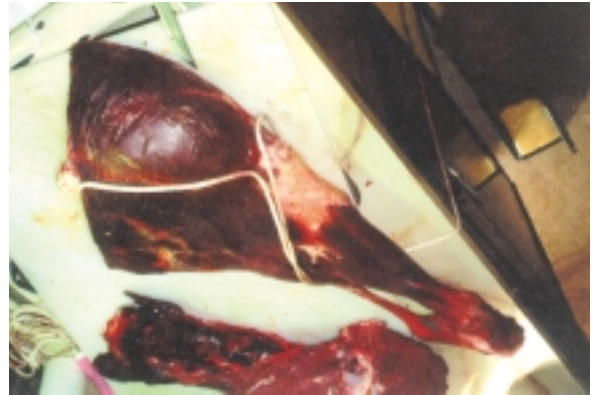


Figure 7. Where to cut the hindquarter

by myself. With family assistance this can be a half day project. Children can run the grinder, or wrap, and your spouse can assist with the deboning, sharpening of knives, and moving of the heavy quarters. Have a great time, and don’t include any fingers in your processed meat. Δ

A country moment



While Hannah Margaret Wright of Hayden Lake, ID, catches a nap in a bucket, Uncle Jerry and retriever Cody garden.

Start your own chicken flock

By Charles A. Sanders

One of the first types of livestock which many homesteaders undertake raising is the chicken. There is certainly no other species of animal more suited nor more beneficial to the homestead than the chicken. Meat, eggs, fertilizer, waste disposal, and pest control are among the qualities of the home flock.

Chickens are generally grouped into three types: meat birds, layers, and dual purpose breeds. When we started out in the poultry business, so to speak, we knew that we wanted dual purpose breeds—ones that would be good eating birds and good layers of brown eggs. We began by looking through the catalogs available from a couple of the reputable hatcheries. Selecting the types of chickens you are going to order is not as easy as it sounds. Out of all the feathered makes and models available, we settled on a dozen each of Silver-laced Wyandottes, Rhode Island Reds, and Buff Orpingtons. We knew that we wanted birds of the heavy breeds, for we were planning to butcher about two-thirds of them, then keep the rest as a small laying flock. We ordered straight run birds. That means that the birds are not sexed, but boxed and shipped just as they come from the incubators. Since we would be butchering most of the birds, anyway, we felt that there should be plenty of layers to pick from for the laying flock. They're cheaper when ordered this way, too,

You have a few other choices in acquiring your birds. In the spring, many feed mills or farmer's co-ops offer low priced chicks when you buy 50 or 100 pounds of chick starter feed. The selection of breeds is generally somewhat limited with these offers,

but they can be a good way to get your starter flock. Be sure, however, that before you take advantage of these deals to find out whether you are getting meat birds or laying breeds. For the record, meat birds put on weight much more quickly than laying type chickens. Be sure that if you are wanting layers, that the chick offer is not for males, or cockerels, only. Some of the large laying bird hatcheries use these chick offers to get rid of the



male chicks which, obviously, they cannot use. Folks at the store should be able to give you the information you need.

The sale barn or auction house is another source of your starter flock. Be aware, though, that many folks come to these sales to get rid of their old hens and burnt-out roosters. Many chicken 'collectors' also frequent these sales and will often run the price up on the more colorful and unusual types of birds. There will, however, probably be several boxes of young pullets and chicks of the more common breeds. Those more common varieties of homestead-type chickens should go at a more reasonable price.

You may also be able to work out a deal with neighbors or friends to provide some starter birds for your flock,

either as mature birds, usually older broody hens and randy roosters, or as newly hatched chicks.

The source I would recommend is the mail-order poultry house. Probably every one of us has seen in our favorite homesteading magazines the advertisements of the large hatcheries. These mail-order hatcheries provide a catalog with a much larger selection of chicken breeds than you will probably find available otherwise. The large hatcheries offer the added benefit of not only providing lively chicks, but can vaccinate them, clip their beaks and generally provide better service. It's their business.

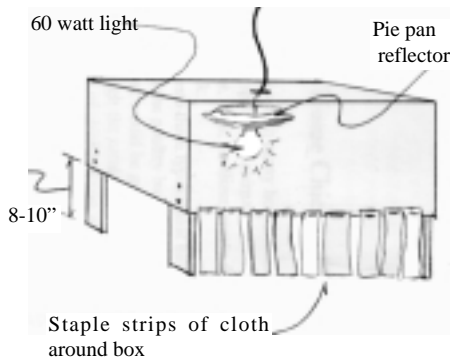
And, as surprising as it may seem, the mail never runs slowly with an order of day-old chicks. Almost without exception, mail-order chicks arrive thriving and peeping away. With chick orders, you will be notified of the shipment date by the hatchery. Then, expect to receive a first-thing-in-the-morning call from the folks at the post office when the birds arrive. You will probably be able to hear the chicks just as soon as you enter the building.

Assuming you are starting with newly hatched mail order chicks, let's look at getting them off to a good start.

Preparing for your birds

Before your order of chicks arrives, be sure that you have all the equipment for brooding them in place and working. When the post office calls for you to come and pick up your box of chicks, there will be little time to hustle around getting things set up.

Have a circular brooding area set up. This can be made from pieces of cardboard, metal, or most any other material as long as it provides a draft-free environment and is tall enough to prevent the lively youngsters from hopping out over the sides. (Think about a few weeks down the road, when the little buggers really begin hopping and



A homemade box brooder

flopping about.). Although many a bunch of chicks has been brooded in a box behind the old kitchen stove, most folks agree that it is important to use a circular area to prevent the chicks from piling up in a corner and suffocating their siblings. We used a large plastic wading pool about 5-6 feet in diameter for our initial brooder area. As recommended by the hatchery, we suspended a 250 watt red heat lamp about 18 inches above the bedding. It worked well until the birds were old enough to turn into the chicken house. The important thing is to introduce your chicks to an environment which is about 90-95 degrees. The heat bulb should be raised about one inch per week (thus lowering the temperature) until the birds are old enough to do without it altogether. A cheap thermometer is needed to help you monitor the temperature in the brooding area. We plan to experiment with lower wattage bulbs and a brooder with our next batch of birds. The important thing is to maintain the 90-95 degree brooding temperature.

A suitably sized brooder box can be placed within your larger circular enclosure and also allow you to use a lower wattage bulb (60 watts or so). This can do the job and save you some money. Use what you have that will get the job done. [see illustration]

Two waterers which screwed onto quart fruit jars provided fresh water for the new chicks. I read once that one of the two waterers should be

filled with milk to help prevent coccidiosis, a bacterial disease. Of course, the nutritional value of the milk should also make the chicks grow much faster, too.

Fresh feed was placed in a small feeder away from the light. A loose top bar on the feeder prevented any chick from roosting atop it and soiling the feed. You can purchase one of these or make one quickly and easily in your workshop.

We fretted, searched, and pored over books and articles to come up with a suitable bedding material for our delicate new charges. We didn't have any of the recommended materials available to us. We finally took the advise of an old Amish farmer at the feed mill and just used ordinary clean straw. It worked very well. Beneath the straw we placed a layer of newspapers and every couple of days the bedding was changed to help keep the chicks thriving and healthy. Other recommended materials include ground corn cobs, wood shavings, rice hulls, or any commercial litter. Do not use sawdust for litter. The chicks will eat it.

When your birds arrive

Immediately upon receiving your shipment of chicks, take each one and dip its beak into the waterer and allow it to drink if it wants. They will most likely be quite thirsty after their journey and this procedure serves not only to give them that needed water, but also to acquaint them with their source of water.

We experienced a bit of a problem with cannibalism among our batch of chicks. Overcrowding or excessive heat is said to contribute or cause this problem. I don't think that either of those were factors in our case. It seems to have occurred with one of the initially weaker birds as the victim. Eventually, even after applications of pine tar to the victim, we ended losing two chicks to cannibalism. To remedy the problem, we used regular toenail clippers to slightly nip

off a bit of the top beak of the survivors and applied a touch or two with a styptic pencil to stem the flow of blood. I do not know if the styptic pencil (alum) was somehow a cause, but we ended up losing a total of four more chicks after the "operation."

Once the young birds had begun getting their primary wing feathers, we were able to move them to the new chicken house. The timing was not so much determined on any particular point in the bird's development but rather the stage of construction of the chicken house. There, the young birds had more room to scratch and run and adjusted quickly. Fresh feed and water were supplied and the same heat bulb was suspended from the rafters.

Upon completing the fenced chicken run, the small sliding door was raised and the chickens were allowed to come and go at will. They soon had removed every piece of greenery from the area and welcomed all grass clippings and kitchen scraps. The first night or two, some of them failed to grasp the concept of going back inside before dark and I checked them to find them huddled in a corner of the pen. I gently tossed them back into the chicken house and after a couple of days, all of them would gravitate back inside as darkness neared.

Chicken house features

One feature which I added to our chicken house, and heartily recommend to anyone building a similar building is a clean-out door. Ours is designed a bit differently due to our site and circumstances, but works well. In one corner of the building, I built in a small door (about 2 ft. by 2 ft.) hinged at the top. Turn buttons keep it closed from the outside. The door, being on the end of the building which is highest off the ground, allows us to move the wheelbarrow directly beneath the opening and shovel the old bedding and manure right into the 'barrow. With the chicken house being directly adjacent to our

garden, it is easy to get the material right onto the ground where it will do the most good.

When I built the roosts, I reverted to some old-time advice. Long ago, I'd been told that sassafras poles used as roosts will help repel mites. Apparently the wood contains oils which help to repel the little critters. If so, fine. If not, they still make great roost poles, for they grow abundantly in thickets and become straight and tall as they stretch and compete for sunlight. The larger ones (2 inches or so at the butt) make the best roost poles. Incidentally, the smaller ones (1-1½ inches) make terrific bean poles. Speaking of mites, we occasionally perform routine maintenance to help prevent or control the little critters. Whenever I scoop out the old litter to be used on the garden, I give the chicken house floor a good sweeping. Once it is good and clean, I go around the perimeter of the whole chicken house floor at the base of the walls and pour a band of ordinary motor oil. I pour more oil on the length of each roost pole. I also sprinkle a foot-wide band of rotenone around the floor perimeter and add a sprinkle or two into the nest boxes when the nest straw is changed.

Nest boxes

Another thing I had given some thought to was how I would make the nest boxes. The answer came when I read somewhere that ordinary 5-gallon plastic buckets could be used for the nests. I cut a couple of support boards to cradle three of the containers in one corner of the chicken house. After tracing the shape needed, I cut three crescents from scrap 1 x 4 stock and nailed them into the opening of the bucket to provide a short banner to keep straw...and eggs ... inside the nest where they belong. A friend I visited later had merely cut the original plastic bucket lid into the same shape and did the same job. Neat. The finished nests were anchored with a cou-



Nests made from 5-gallon buckets with a roost pole in front

ple of nails to the supports. One additional thing I added was a roost pole in front of the boxes, not so much for the birds to rest on as to provide a surface to come and go from.

Good feeding of your flock is an important concern. After the birds are mature, you will need to switch from a growing mash to a laying mash if egg production is your goal. The high-bred hybrid meat birds will be ready to butcher in about 10-12 weeks. Layers should begin production in about 20 weeks or so. This gives you an idea on the time table for switching feeds.

We like to keep our flock confined to the run as much as possible, however, on very hot days, we let them run loose and find shade and scratch where they will. At first we were concerned about the birds raiding the garden, but some improvised fencing took care of the problem before it occurred. Another alternative is to let the chickens out just an hour or so before dark. They will have plenty of time to roam about and scratch and feed, then will mosey back to the chicken house on their own as darkness approaches. That has worked very well for us.

Our intentions from the beginning of the chicken raising project was to get

about three dozen birds, raise them to butchering size, butcher about two dozen and keep the rest of the flock as egg producers for the family. We have ended up with birds in the freezer, and more eggs than we can use. By posting a sign out on the mailbox, we can sell every extra egg that we get. In fact the demand is greater than the supply. We intend to correct this problem next spring when we order some more birds.

Hints and tips

Locate your chicken house as close as practical to your house and barn. If you locate it just an extra 25 feet away than need be, then you will end up putting in about 25 extra miles of walking over a year's time. That equals about eight hours of extra effort.

Pay attention to the shape of the eggs you get. Old-timers say you can predict the sex of the chickens which will hatch from them. Reportedly, the longer eggs will produce rooster chicks and the more rounded ones, hens.

If you have birds which tend to fly out over the top of the chicken yard fence, you can easily remedy the prob-

lem without tying a brick to their leg. Slip in after dark while the birds are on the roost and take up the winged escapee. With a pair of scissors, clip a couple of inches off of the primary wing feathers on one or both wings. The resulting loss of lift should keep the offender grounded.

Chickens need about 14 hours of daylight each day to maintain egg production. We extended egg laying through most of the winter by adding a cheap timer to a 60-75 watt lamp in the chicken house. The timer was set to add a few hours of light each evening to reach the needed 14 hours.

Be absolutely certain to have a good supply of fresh water available for your birds at all times. Failing to do so will squelch your egg production quickly.

Consider putting a capful or two of apple cider vinegar in your chickens' water. It will provide minerals which they need.

If you want to sell eggs, consider getting breeds which produce brown eggs. For some reason, many folks prefer the brown shelled eggs over the white ones. As I tell people when they ask about the difference, I do not know of any difference in the eggs other than the package they come in. But brown eggs do sell well.

Back in 1944, E.B. White gave the following advice for keeping chickens:

1. Be tidy.
2. Be brave.
3. Walk, don't run.
4. Never carry any strange object.
5. Keep Rocks if you are a nervous man.
6. Keep Reds if you are a quiet one.
7. Do all your thinking and planning backwards.
8. Always count your chickens before they are hatched.
9. Tie your shoelaces in a double knot. Δ

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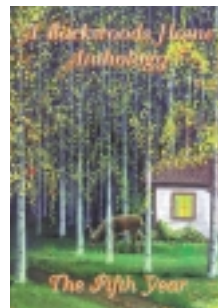
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Use old newspapers to make your starter pots

By Darlene Polachic

Why spend money buying plant starter packs when you can make all you need from old newspapers? The added benefit of these newspaper pots is that they can be set right into the ground where the paper will eventually decompose and, in the process, the seedling's delicate root system won't be disturbed by transplanting. Paper pots can be placed side-by-side in a cardboard box tray with the sides cut down to about three inches. Amazingly, the newspaper boxes will hold water and remain intact when wet.

Materials Needed:

Double sheets of 17" x 48" (when spread out) newsprint. Use smaller sized publications; most daily newspapers are too big in size to make a nice compact pot. Choose pages without color since the ink may be harmful to both the plant and the soil.

Stapler

Method:

Step 1: Begin with a double sheet of newspaper. Fold in half, making a sharp crease line. (Figure 1)

Step 2: Aligning bottom and top edges, fold in half again. (Figure 2)

Step 3: Bring left side edge to top edge in a diagonal fold. There will be a selvage edge left at right. (Figure 3)

Step 4: Fold selvage edge to back. (Figure 4)

Step 5: Bring right side edge to top edge in a diagonal crease. (Figure 5)

Step 6: Flip over with selvage edge to front. Fold sides forward lengthwise in equal thirds. (Figure 6)

Step 7: Open out and fold bottom and top forward in equal thirds. (Figure 7)

Step 8: Open out (Figure 8) and pleat bottom left corner (1) inward along diagonal crease line and fold

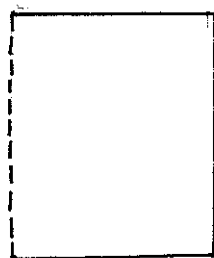


Figure 1

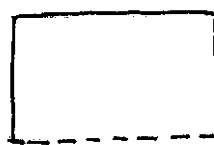


Figure 2

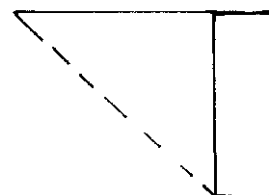


Figure 3

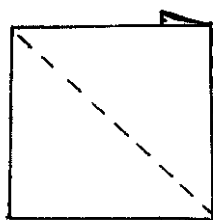


Figure 4

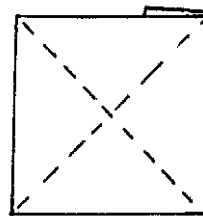


Figure 5

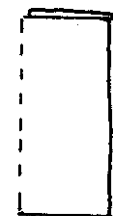


Figure 6

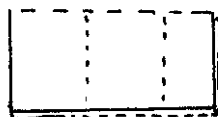


Figure 7

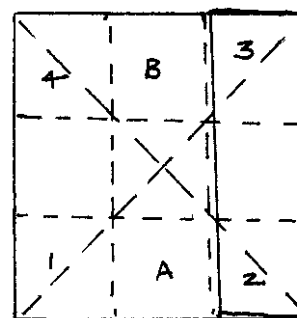


Figure 8

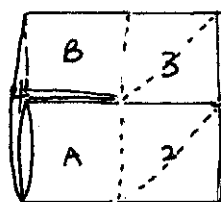


Figure 9

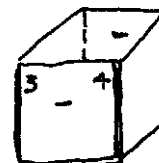


Figure 10

behind front center panel A. Repeat with bottom right corner (2). Staple through all thicknesses at center of A. (Figure 9)

Step 9: Repeat step 8 with top corners and staple to complete pot. (Figure 10)

Step 10: Fill with soil and plant. Δ

Some thoughts on gardener gifts

By Alice Brantley Yeager

The time has come when someone needs to lay diplomacy aside and speak up about the type of gifts (birthday, Mother's Day, Father's Day, Christmas, retirement, etc.) we gardeners would like to receive from well-meaning non-gardening friends and relatives. Not that we green thumb people aren't grateful for the kind thoughts behind every present, but there are times when it would be better if the gift-givers just took us out to lunch. We all know how to savor a good meal. This kind gesture would also spare the giver the agony of perusing superstore gardening departments looking at gadgets and tools he/she knows nothing about. (Most clerks know even less.)

Some folks just follow the line of least resistance when selecting a present for Friend Gardener. They go to **housewares** where there are coffee mugs to fit every occasion from birth to over-the-hill. For gardeners there are all sorts of mugs with birds, posies, and veggies on them and some even have cute sayings—"Gardeners know the latest dirt!" "Come watch my garden grow!" "If you ain't tried gardenin', don't knock it!" Here's where the gift mission can be accomplished in record time. Non-gardeners, pleased as punch with their selection, don't realize they are forcing gardeners to become mug collectors.

Somehow I get the impression that we gardening enthusiasts are thought to be whiling away our time sitting around in the garden drinking an

awful lot of coffee as we watch our plants grow. Like everyone else, gardeners can only consume so much coffee before becoming hyper. Nearby neighbors would be the first to suspect we were growing something besides tomatoes and, chances are, they'd drop subtle suggestions to the local



Gardeners are happiest when digging, planning, and daydreaming about their spectacular successes.

sheriff like, "You'd better get over there before this thing gets out of hand!"

Well-intentioned givers apparently don't take time to notice what gardeners actually do besides dig. A good example of this concerns a friend of mine who spends much of his spare time re-landscaping his one-acre Garden of Eden. He never seems completely happy with his results and he is constantly moving something he has put in the wrong place, or he obliterates it entirely and plants something else. I believe he has had contact with every type of shrub and tree known to man. He is what I call a "re-arranger."

My friend actually wears out shovels that are meant to last a lifetime. Here's someone who could use solid forged digging tools, but what were

the gardening items found under his Christmas tree last year? A hand type seed sower from his two-year-old niece and a house plant tool set from his neighbor. The child could be forgiven as her mother probably influenced her choice. However, the mother assured him, "Uncle Bob, Chrissy picked this out for you all by herself." Uncle Bob was at a loss for words.

At least Bob doesn't have to worry about the neighbor being too observant, as dainty house plant tools were proof enough that the neighbor doesn't have the foggiest idea about what the re-arranger is doing. She just knows that Bob likes plants. (No need for growing a 20-foot high bamboo fence to guard against a nosy neighbor in this case!).

The practical gift was from Bob's son and was tied to a limb of the Christmas tree. It was a check for \$100 with a note cautioning Bob not to spend it all in one

place. The first two gifts ended up in a volunteer fire department's garage sale, but the check gave wintertime pleasure as the payee spent part of his days perusing catalogs picking out just the right digging tools and comparing prices and quality with tools at the local hardware store.

There are those of us who don't specialize in growing any particular thing. We're into everything from flower boxes to fruit trees to you-name-it. We're happiest when we're digging and planning and daydreaming about our spectacular successes. This lifestyle cries out for all sorts of nifty gifts—fancy flower pots and hanging baskets, pruning shears, moisture meters, slug traps, loppers, T-shirts with garden slogans, and on and on.

A plastic caddy is an inexpensive and very useful gift. Some folks use a caddy to carry household cleaners around as they tidy up. I use the same type caddy to carry trowels, clippers, etc. When the caddy gets dirty, I merely empty it and rinse it out. Good as new! Once I did receive another type of caddy—a cute thing—made of heavy fabric with pockets for gloves, trowels, etc. I call this type of carrier “made to sell.” It’s nice for a non-gardener.

I haul tools such as limb loppers, rakes and shovels in a two-wheel garden cart. The cart makes it possible to take large items with me instead of making several trips to the tool shed. My cart has bicycle type wheels and is a lot easier to handle than a heavy wheelbarrow. I wish I had a dollar for every load of compost, mulch, and clippings I have hauled in it. Now the tires need replacing. The right one has to be aired up frequently, although the tire has been wrapped several times with electrician’s tape. A hole is beginning to wear through the plywood bottom, but my ancient cart is still in use. I have been very diligent about parking the cart in plain view of any visitors who might be generously inclined where gifts are concerned. So far, no one seems to take the not-so-subtle hint.

I doubt that I’ll receive a new cart for my birthday or any other auspicious occasion. It’ll probably be mugs again and I’ll have to think of something appropriate to say. “How clever. Where did you find these?” ... “The Italians sure know how to use their primary colors, don’t they?” (Hope there’s no lead in the paint.) ... “What a big mug! This ought to hold a lot of coffee!” Thanks --- Oh, it’s for soup?” (I have a collection of those too.)

One of the best gifts from me to me has been a kneeler/seat. I not only use this in the garden when transplanting or weeding, but it’s a handy seat to use in the greenhouse. Bless the inventor of this useful item.

We green thumb people have a habit of making-do with odd containers cast off from the kitchen—battered sauce pans, kettles with tops missing, old coffee pots, etc. No one seems to think that a watering can makes a great gift, but it does. If it seems too Plain Jane, it can be made festive by tying a bright bow on the handle when presented as a gift. (The giver could go the extra mile and attach a container of soluble plant food, but I guess this would be like asking for a miracle.)

Watering cans come in all sizes. Some are for weight lifters and are made of heavy galvanized metal. When they are filled with water and toted here and there, plenty of muscle-building takes place. My favorite watering can has a long, straight spout and is made of heavy outdoor plastic. It won’t last as long as the galvanized cans, but I don’t risk back problems when I use it.

Another gift concerning water is a good quality, flexible water hose. Gardeners have lost their religion over stiff, kinked hoses. How many of us have started out to water plants only to discover there’s no water coming from the nozzle? We trace back through grass and around shrubs, and sure enough, there’s a kink!

Hoses should be practical lengths. A 25-foot hose may work fine in a postage-stamp size yard, but it’s far too short for most vegetable gardens. Trying to stretch an extra inch or two from a short hose can lead to slapstick comedy when it breaks loose somewhere and directs a stream of water toward the already half-mad gardener. He who denies ever having had his spirits dampened by a water hose has had his memory dimmed by too much coffee.

Most people should never select seeds or plants for a gardener unless so directed. This can lead to breakups in friendships. Most of us have distinct likes and dislikes and we usually know what will succeed for us and what will not. Maybe we already have plenty of dogwoods, roses, herb seeds or whatever and, boy are we tired of re-potting Norfolk Island pines.

There’s nothing like a well placed gift certificate—right in the palm of the green thumb person’s hand. This shows respect and allows freedom of choice. The certificate can be spent on anything the issuing company carries, and please let it be a diversified company with lots to offer. The recipient can enjoy a break while drinking coffee from a collector’s item and green thumbing through a wish book. Δ

A country moment



BHM publisher Dave Duffy, right, and Paul Boos wrestle a log onto a sawmill.

Forget the dog, the chicken is man's best friend

By Richard Blunt

The domestic chicken, or *Gallus domesticus* as the Romans called it, has lived with humans for centuries. It is probably the descendent of a wild asian bird, and historians have found references to its domestic descendant in the art and literature of India, China, and southeast Asia as early as 3000 BC. Egyptians were managing large flocks of chickens by the Second Dynasty (2890 to 2680 BC), but for some reason did not record much about their accomplishments in the breeding and keeping of chickens. Greek writings, however, describe how Egyptians designed and built clay incubators with the capacity to incubate and brood 10,000 to 15,000 chicks at a time. Incubators with greater capacity have only existed in this country and western Europe for about 80 years.

It was sometime before the sixth century BC that the Egyptians and the Persians introduced the wonders of domesticated chickens to the Greeks. The Persians shared their talent for breeding Malayan and Indian jungle fowl, which were used primarily for cock fighting, while the Egyptians taught the Greeks how to successfully develop and maintain breeds for the production of eggs and meat. For the next 200 years, chickens became an indispensable element in Greek life. At first they were used primarily in religious ceremonies, folk medicine, and the popular sport of cock fighting. But by the third century BC, breeding chickens for egg laying and meat production had become a priority in Greek civilization.

The Greeks passed their knowledge of the chicken on to the Romans. It was in Rome that the chicken truly reached its apotheosis. There, it became a sacred bird, often used as the central figure of various methods of divination, apothecary, and as a serious subject for philosophical inquiry. In Rome, fighting cocks were trained like gladiators. They were fed garlic before they fought in the belief that it would increase their courage and ferocity. The Romans also believed that garlic had the same effect on men. The writings of Roman naturalists and philosophers elevated the chicken to an exalted position in urban civilization. They skillfully molded it into a genuine object of scientific scrutiny and philosophical inquiry. No longer would the chicken be a taken-for-granted resident of the barnyard or cockpit.

The chicken has always meant much more to people than a cheap meal. The cock, or rooster as we now call it, has long been respected, especially for its ferocity as a fighter. In ancient Syria, Borneo, and Sumatra the fighting cock was worshiped as a god—an exalted status that usually saved it from becoming Sunday dinner. There was even a time in



Richard Blunt

ancient Greece when cock fighting was considered a national sport. The Romans viewed the cock as a noble gladiator, and the cock fight was a solemn ceremony that reinforced their belief that men should be brave—imitators of the cock.

Cockfighting came to its greatest secular popularity and refinement in late medieval England. The Church made vigorous efforts to repress it but only succeeded in driving it underground. As a compromise with the people, the Church did finally sanction organized cockfighting events on special days, such as Shrove Tuesday. One very popular Shrove Tuesday event was held in English grammar schools. The schoolmasters were paid a “cock fee” for allowing the children to bring their cocks to school, and all learning was suspended for the day as the desks and chairs were pushed aside to make room for the daylong contests. The student who owned the champion cock was excused from corporal punishment during Lent, along with one other student of his choice. At the end of the day the school master was presented with all of the cocks that were killed.

During the reign of Henry VIII, cock fighting flourished in England, exceeding even horse racing in popularity. James I, Charles II, and William the III were among other monarchs who were avid cockers. By the end of the 18th century, however, reformist doctrine started to take hold with the English majority. By 1835, cock fighting was reduced to the rank of a cruel and capricious sport and was, once again, driven underground.

In spite of being prohibited in England, after 1835 cockfighting found a new home in America. Ships that carried English settlers to America also carried chickens and fighting cocks. Cock fighting was frowned upon by the Puritans but it still flourished from New York to Georgia. Before and

after the Revolution, New York was the center of cockfighting in the East. Here the sport was dominated by freed slaves and Irish immigrants.

Before long, the sport spread west and became most popular in areas settled by Southerners and the Irish. As in England, reformers moved quickly to force legislation to outlaw cock fighting but it soon became obvious that there was little sentiment for this type legislation on the national level, so the individual states were left to pass their own laws. But even on the state level, very little anticocking legislation was passed until early in the 20th century. While visiting friends in Florida, in 1971, I was surprised to find that cockfighting was still legal in that state.

Outlawing cockfighting in this country has had the same effect as Prohibition. As you read these words somewhere in this country, loyal members of a tight fraternity of cockers is gathering around a pit, anxiously waiting to place their bets on the outcome of the main event.

Cultural influence

The chicken has influenced our languages and cultures. From ancient times to the present, if two people look or act the same, they are said to be “hatched from the same egg.” The ancient Greeks compared poor writing to “chicken scratches.” Using the word chicken to describe a coward has been popular since Shakespeare’s time and the proverb, “I would not have him count his chickens so soon before they hatched,” was found in a collection of proverbs published in 1579.

Superstitions surrounding chickens are also alive and well in both urban and rural areas. One superstition declares that there will be sickness in the house if a hen crows. Another claims that a farmer’s chickens will be like the first person who comes to his house on New Year’s morning—a stout and prosperous person meant plump chickens while a poor meager person meant scrawny chickens.

Make a wish

Two people tugging on the magic clavicle, or wish bone, until it breaks, dates back almost 2,500 years to the ancient Etruscans. Chickens were kept in Etruscan temples to answer questions by pecking at corn kernels in a circle marked with letters of the alphabet. When the bird was through eating, a priest would enter the circle and interpret the results. When one of these sacred birds died, its collar bone was dried and believers were allowed to stroke it and make a wish. When the custom was passed to the Romans, people started tugging on the bone until it broke. The wish of the person holding the half containing the “head” would be granted. I’ve heard it suggested that the phrase, “to get a lucky break,” came from this ancient custom.

Before trained physicians came on the world scene in 18th century, chickens provided a living drug store of remedies for everyone—rich and poor. In the practice of folk medicine, people were inclined to reach for a chicken to cure almost any malady of the body or the spirit. In ancient Greece, as well as other parts of the world, fever, arthritis, colic, dysentery, epilepsy, headache, constipation, and cough were all treated with various parts of the chicken. The remedies are endless and most are far too complicated and absurd to mention here. But some made sense and are still used today: a bowl of homemade chicken soup has always been, and probably always will be, prescribed as a comfort and cure for many maladies, real and imagined.

Mass production

The modern world, with its fast-paced industrial technology, has nearly turned the chicken into a man-made living machine, existing solely to lay eggs and be eaten.

The end of the chicken’s role as a sideline element of farm economy started to change near the end of the 19th century. Industrial technology was advancing at a rapid rate and the chicken, which was being increasingly marketed as a commodity, became the object of technological innovation. Today commercial poultry farms in the United States produce over six billion broiler chickens annually. The larger farms operate 10 or more chicken houses, each of which can hold more than 40,000 chicks. This fast paced production has made chicken inexpensive and easy to buy. As a result, the consumption of chicken in America has increased nearly 300 percent since 1900. Some complain that new hybridized chickens have little or no taste. I



have noticed that the leg and thigh meat is not as dark as it was just a few years ago and not as strong tasting. But in some ways this is a plus because the mild flavored flesh can be seasoned and prepared just like veal, with excellent results at a fraction of the cost.

In the recipe section of this column I have selected recipes that demonstrate that chicken is still a flavorful protein and does not need a lot of seasoning to taste good. When flavor enhancers are used, they are meant to complement the subtle flavor of the chicken, not mask it.

The first two recipes are old time standards which, when prepared properly, will show you that chicken has not lost all of its flavor. The last recipe will demonstrate how chick-

en can support flavor enhancing, without losing its own subtle taste.

Basic chicken broth

Fresh chicken broth is one of the foundation ingredients in my kitchen. Without it, many of my favorite foods would be impossible to prepare. Most of the soups, stews, and casseroles I prepare are made using fresh chicken broth as a basic ingredient. Its mild flavor and delicate aftertaste also make it a perfect enhancer for adding flavor and body to vegetable, pasta, and bean dishes.

I seldom let my supply of fresh chicken broth run out, but it does happen. There is nothing difficult about making fresh chicken broth. Broths are simply the end product of slowly simmering meat, fresh vegetables, and herbs in lightly salted water. It takes about three hours to properly prepare a good chicken broth. But once you get the broth started, it requires little attention.

I rarely go through the bother of buying whole chickens and butchering them at home. When my supply of fresh broth runs low, I simply process a whole bird to replenish it. I don't live in an area where dressed stewing hens are easy to find, so I use a five to six-pound roasting chicken, or capon instead. Both of these will produce five to six quarts of excellent chicken broth, and the leftover meat is used in a variety of recipes.

Once a month my mother would spend an entire Sunday afternoon making a two-gallon batch of fresh chicken broth to share with our elderly neighbors. She would then make something special for dinner using her fresh-made broth. I suggest we do the same, that is, set aside two quarts of this broth, when completed which we will use to prepare one of my mom's best Sunday chicken specials.

Cool the rest of the broth in the refrigerator overnight. The fat will congeal on the surface of the broth, making it easy to remove. You can then pack the clear, fat-free broth in suitable size containers and store them in the freezer for future use.

Ingredients:

1 5 to 6 pound stewing hen or roasting chicken
6 quarts cold water
2 medium onions, peeled and cut into quarters
1 celery rib with leaves attached
1 whole carrot
2 bay leaves
8 whole black peppercorns
3 whole cloves
1 piece peeled fresh ginger about one inch long, chopped
1 tsp. Kosher salt

Method:

1. Place the chicken and the water in a 10- or 12-quart stockpot. Place the pot on the stove over a low flame and let the water come to a gentle boil. A froth will appear on top. This will take from 45 minutes to one hour. Carefully skim off the froth as it rises to the surface. Do not, for any reason, stir the pot after the froth first begins to appear.

2. The froth will continue to form on top of the broth for about an hour. When it stops foaming, let the broth simmer for about 30 minutes, then add the onions, celery, and carrot.

3. Let the pot return to a simmer while carefully skimming off any more sediment that rises to the surface. Add the bay leaves, peppercorns, whole clove, ginger, and salt.

4. Reduce the heat to a point where the broth is barely simmering. Continue to simmer, uncovered, for 1½ hours. If you are using a roasting chicken or capon, remove it at this



point and let the stock simmer for another hour. If you are using an old stewing hen (fowl), leave it in the pot until the end.

5. Turn off the heat, remove the stewing hen, if necessary, and let the broth settle and cool.

6. Strain the broth into another pot through several layers of cheese cloth and place the pot in the refrigerator. This is the fastest and safest way to cool a perishable hot food like chicken broth. You can safely let the stock cool, unrefrigerated, for up to 90 minutes before placing it in the refrigerator. If you live in a northern climate, during the winter you can take a pot of hot stock on a cake rack and place it on your back porch for super-fast cooling.

Chicken and dumpling stew

On her recipe card my mom called this dish "North Carolina chicken and dumpling stew." Since I have never come across a southern recipe that even remotely resembles this dish, I have removed North Carolina from the title. Regardless of its origin, this recipe truly demonstrates how the subtle richness of a homemade chicken broth, combined with the moist tender flesh of a properly cooked chicken, can elevate a simple dish to an epicure's delight.

Raised Dumplings:

Dumplings hold a special place in almost every cuisine. Italian cooks make small dumplings, called gnocchi, with a variety of starches including common all purpose flour, potatoes, semolina flour, pumpkin, and cornmeal. They even make a dumpling using ricotta cheese. In Germany

they make serviettenknödel, a tiny light dumpling that usually accompanies pot roasts. In western Austria they make kasnocken, a dumpling made with dry bread and flavored with aged local cheeses. Dumplings are also a large part of Chinese cuisine. On restaurant menus they are usually listed as dim sum and are served in a wide variety of steamed, boiled, and fried versions. Some special Chinese restaurants open just for lunch serve only dumplings and tea.

The dumplings used in this recipe develop a light, fluffy, texture when cooked, but they hold together when mixed with the other ingredients in the stew. If you are new to homemade dumpling recipes, I suggest you make the dumpling dough before you start the stew. It will hold well in the refrigerator until it is time for you to use it. Do not hold the dough for more than an hour. If you do, the baking powder will dissipate and the gluten in the flour will overdevelop. This will turn your dumplings into slippery, tough hunks of boiled dough. If you are a fresh-dumpling pro, pick your own time during the preparation to make your dumplings. The closer to when you are going to incorporate them, the better.

Dumpling Ingredients:

1 cup all purpose flour
1½ tsp. double acting baking powder
¼ tsp. baking soda
½ tsp. Kosher salt
2 Tbsp. unsalted butter
2 medium eggs, slightly beaten
⅛ cup buttermilk or low fat plain yogurt

Method:

1. Combine the flour, baking powder, baking soda, and salt in a bowl and stir until well blended.
2. Cut in the unsalted butter with a pastry blender until the flour resembles course corn meal.
3. Combine the slightly beaten eggs with the buttermilk or yogurt. Using a wooden spoon, quickly stir the egg mixture into the flour, using as few strokes as possible.
4. Lightly flour your work surface, and turn the dough onto it. Sprinkle a little flour on the dough to prevent it from sticking to your fingers.
5. Gently flatten the dough with the heel of your hand, sprinkling a little more flour if it sticks to your hands or the work surface. Fold the dough in half, and gently press it flat again. Repeat this gentle flattening and folding process until the dough is just smooth. Do not try to knead the dough as you would bread dough. Overworked dumpling dough becomes tough and will not rise properly.
6. Roll the dough on a well-floured board to a ¼-inch thickness. Cut into strips that are one-inch wide and two-inches long. Set dumplings aside until needed.

Stew Ingredients:

1 cooked, skinned, and boned 5 to 6 pound chicken. (cut the meat cut into ½-inch pieces)
8 cups fresh chicken broth
1 bay leaf (dried or fresh)
2 ribs celery, diced medium
½ tsp. dried sage leaves
½ tsp. dried thyme leaves
3 Tbsp. margarine or butter
1 large or 2 medium yellow onions, diced medium
1 pound fresh carrots, peeled and cut into medium size chunks
¼ cup cold chicken broth
4 Tbsp all purpose flour
Kosher salt to taste
fresh ground black pepper to taste
1 recipe of dumpling dough (see previous recipe)
1 cup frozen peas, thawed

Method:

1. Skin and bone the chicken, then dice the meat. Hold the diced chicken in the refrigerator until you are ready to use it.
2. Put the eight cups of fresh broth in a Dutch oven—or other heavy-bottom pot large enough to comfortably hold all of the ingredients—along with the bay leaf, celery, sage, and thyme. Place the pot on a medium flame, bring it to a boil and simmer until the broth is reduced to about 6 cups. This will take about 20 minutes.
3. While the broth is reducing, melt the margarine in a cast iron skillet, or other heavy-bottom skillet. Sauté the onions until they turn a medium brown. Stir the onions frequently to prevent them from burning. If the oil in the pan evaporates before the onions are done, add a tablespoon of the simmering broth to the pan.
4. Deglaze the skillet by adding a cup of simmering broth to the browned onions. Simmer the onions until the pan is completely deglazed and the broth has turned a light brown color. What we have done here is create a flavor enhancer by subjecting the onions to a controlled high heat. Food scientists call this a Maillard reaction or browning reaction. The process creates a rich flavor and color similar to the crust of fresh baked bread, coffee beans, and the roasted malt used in dark beers and ales.
5. Add flavored onion mixture and the fresh carrots to the broth.
6. When the broth returns to a simmer, combine the cold chicken broth with the flour and mix until there are no lumps. Slowly stir this paste into the simmering broth. Continue stirring until the mixture shows signs of thickening, which will only be slight. Continue simmering until the

carrots are tender. This is a good time to make your dumplings if you didn't before you started the stew.

7. Add your dumplings to the simmering broth mixture. Simmer the dumplings until they are raised, and cooked through.

8. Gently stir in the chicken meat, thawed peas, salt, and pepper. Simmer the stew until the chicken and peas are heated through. Serve immediately.

Chicken, vegetable, and pasta medley

This is my newest chicken recipe. It has been a regular item in my house for the past three months. The recipe blends mild tasting chicken breast meat with the more flavorful thigh meat and I enhance this mixture by marinating it in a light Oriental style marinade. I use a preparation and assembly method that resembles stir frying. I like it because it helps maintain integrity of the different textures and flavors present in the dish, particularly the flavor and texture of the light and dark chicken meat. One of the real benefits of industrialized chicken, though many will disagree, is its extremely mild tasting flesh that will readily take on the flavor of other ingredients without losing its own. Chinese chefs are masters at infusing chicken meat with the natural flavor of various ingredients, then cooking the chicken

quickly to prevent the introduced flavors from masking that of the chicken. Many contemporary Italian chefs have mastered this concept also. They have developed chicken and pasta recipes that are easy to prepare, low in fat, and taste as if they required a major effort in the kitchen. This recipe is my own contribution to this great concept.



The preparation for this dish resembles that of many Chinese stir recipes. All of the ingredients are

prepared ahead of time and set aside in the order that they will be incorporated into the recipe. I suggest you have a suitable size pot of boiling salted water for the pasta on the stove before you start cooking. Timing the cooking of the pasta with the completion of the sauce is not difficult, but it is absolutely essential. Immediately after the cooked pasta is drained, it must be blended with the other ingredients. This is the only way to maintain the taste, texture, nutritional integrity, and visual presentation of the dish. The biggest mistake that folks make with this type of recipe is to cook the pasta then place it under cold running water to stop the cooking process. When you do this, you wash away the surface starch and this lowers the nutritional value of the pasta. You also reduce the ability of the cooked pasta to absorb the flavor of the sauce. It also creates an uncomplimentary tex-

ture in the finished dish that no amount of culinary wizardry will totally eradicate.

Special Equipment:

- 1 14-inch cast iron skillet, 15-inch wok, or other large heavy bottom skillet.
- 1 12- or 16-quart pot with a cover

Ingredients:

- 12 oz. boneless, skinless chicken breast
- 12 oz. boneless, skinless chicken thighs

Marinade:

- 2 tsp. light soy sauce
- 2 tsp. dry sherry, rice wine, or other dry white wine
- 1 tsp. sesame oil
- 1 tsp. five spice powder
- ¼ tsp. fresh ground black pepper
- ½ tsp. granulated sugar

Vegetables:

- 1 medium yellow onion, diced medium
- 1 medium red bell pepper cut into ½-inch wide by 2-inch long strips
- 1 medium yellow bell pepper cut into ½-inch wide by 2-inch long strips
- 4 oz. fresh mushrooms, sliced ¼-inch thick
- 2 cloves fresh garlic, minced
- 2 cups fresh chicken broth
- ¼ cup fresh chicken broth
- 3 Tbsp. all purpose flour
- 1 cup diced canned tomatoes
- 6 oz. frozen sugar snap peas, thawed
- ½ tsp. dried chilli pepper flakes (optional)
- 8 quarts cold water
- 1 Tbsp. Kosher salt
- 2 Tbsp. any light oil (to saute the chicken)
- 1 Tbsp. any light oil (to saute the vegetables)
- Kosher salt to taste
- fresh ground black pepper to taste
- 1 pound dried penne or other tubular pasta

Preparation:

(About 20 minutes)

1. Cut the chicken into strips ½-inch wide by approximately 2 inches long. Uniform length is not critical.
2. Combine all of the marinade ingredients in a bowl that is large enough to hold the chicken comfortably. Add the

chicken strips and rub with the marinade, using your hands. Marinate the chicken in the refrigerator for one hour.

3. While the chicken is marinating, prepare the onion, red and yellow bell peppers, mushrooms, and garlic. Place each vegetable in a separate bowl (that's four bowls) after being prepared and set it aside.

4. Measure the two cups of chicken broth and set aside.

5. Combine the remaining $\frac{1}{4}$ -cup of chicken broth with the flour and set aside.

6. Combine the diced tomatoes with the thawed sugar snap peas and set aside.

7. Measure the eight quarts of cold water into a suitable size pot, cover the pot and place over a medium heat. When the water comes to a boil add the salt and replace the lid.

Assembly:

1. In the skillet, heat the 2 Tbsp. of oil over a medium high heat. Add the chicken strips, and cook until the chicken is lightly browned. Reduce the heat to medium, quickly remove the chicken from the pan and set it aside.

2. Remove the browned chicken bits from the bottom of the pan by adding the 2 cups of chicken broth and scraping the bottom with a wooden spoon as the mixture comes to a simmer.

3. While stirring constantly, add the $\frac{1}{4}$ cup of chicken broth, mixed with the 3 Tbsp. of flour to the simmering chicken broth. Cook the mixture for five minutes, adjusting

the taste with the Kosher salt and fresh ground black pepper. This will create a rich light brown sauce, similar to the one in the previous recipe. Remove the sauce from the pan, rinse and dry the pan, then return it to the stove over a medium heat.

3. Heat the remaining one tablespoon of oil. Sauté the onions until they just begin to brown. Add the minced garlic to the onions and cook for one minute. Now add the bell pepper strips and the mushrooms, and continue cooking until the peppers are tender, but still firm.

4. Reduce the heat to low, and gently stir in the tomatoes, sugar snap peas, and chicken. Cook the mixture for another minute or until the chicken is heated to serving temperature. Turn off the heat, but do not cover the pan.

5. Remove the lid from the pasta pot, adjust the heat to high to bring the water to an active boil. While stirring constantly, to prevent sticking, add the dried pasta to the rapidly boiling water. Cook the pasta until it is just tender, and drain.

6. While the pasta is still hot, return it to the pot. Gently stir in the chicken mixture. Serve immediately with plenty of fresh grated Italian hard cheese.

The next time you go to the market for chicken, remember that you are buying more than an inexpensive and delicious meal. You are buying an important piece of history. Δ

A country moment



Paul Boos, of Montague, CA, operates a sawmill, while his wife, Margaret, shields her ears.

Breastfeeding — a primer

By Kathy Parkes

When access to clean water or electricity is limited, one of the most important and essential skills to keep babies healthy is breastfeeding. Breast milk is safe, clean, and always at the correct temperature. Breastfeeding a healthy, full-term infant requires no supplemental bottles, pacifiers, breast pumps, or gadgets of any kind. In fact no other food is necessary until approximately the middle of the first year of life. Although breastfeeding an infant should be natural and easy, mothering through breastfeeding has become a lost art and those that succeed in our negative social climate are truly pioneers.

The benefits of breastfeeding have been well-documented and it is politically correct in the medical establishment to push breastfeeding. (Breastfed babies have fewer and less severe ear infections, less chance of childhood cancer, diabetes, allergies, heart disease in later life, and in mothers breastfeeding helps protect against postpartum hemorrhage and breast cancer among other things.)

Unfortunately hospital practices that negatively affect breastfeeding are often the cultural norm. Our society pays only lip service to breastfeeding and then makes women feel guilty if their efforts are not successful. For example, while the baby is learning to breastfeed in the early weeks it is important not to confuse the baby by giving him bottles or pacifiers and yet this is often done in the hospital. A confused baby may latch on and then break off, turn his head from side to side, and cry in frustration. After several hours a mother may be exhausted from trying to get her baby to nurse, feel rejected by him and out of desperation give the baby a bottle. Over

several days her milk supply may diminish if the baby is not nursing effectively and more bottles need to be given. It is a downward spiral, one



that usually ends with the baby weaned and the mother feeling like a failure because she was told that nursing was “easy” and “natural.”

One way to increase your chances for success is to become informed. Read as many books on breastfeeding as you can and attend La Leche League meetings. La Leche League is a non-profit, non-sectarian organization dedicated to “empowering women to breastfeed their babies.” You can watch happy babies nursing and network with other mothers at League meetings. The women in the group help take the place of grandmothers, aunts, sisters, and our own mothers who may no longer be nearby or who may have bottle-fed their own children.

Throw away the clock

Bottle feeding is so different from breastfeeding that sometimes well-intentioned advice is actually harmful to the breastfeeding relationship. An example of this is feeding on a four-hour schedule as was popularly taught to mothers in the sixties and seventies. When a baby cries before four hours is up, a mother may be told that her baby is “spoiled” and that he should be “taught” to wait, but the baby may really be hungry because breastmilk is digested much faster than formula. Feeding only every four hours may also cause a decrease in the mother’s milk supply as breastfeeding works on a supply and demand basis—the more a baby nurses, the more milk a mother makes. Most successful breastfeeding mothers find it helpful to “throw away the clock” and nurse their babies whenever they seem hungry. It is also a relief to hear from an experienced mother that a baby is not capable of mental manipulation.

Here are a few tips to set you and your baby on the road to feeling self-reliant:

- Nurse early and often. Listen to babies’ cues and nurse on demand.
- Try to avoid artificial nipples, bottles, pacifiers, or nipple shields in the first six weeks. Both of you are learning and babies get confused easily.
- Pay close attention to proper positioning. This is where watching babies nurse can be extremely valuable. It has been found that improper positioning is the major cause of sore nipples, so positioning of the baby at the breast is crucial!
- Arrange for help with meals, housework, or other children in the early weeks. You are doing extremely important work bonding with and breastfeeding your new baby and it can be physically and emotionally demanding.

- Read everything you can get your hands on and develop a network of support. Attend La Leche League meetings while you are pregnant, if possible. Be aware that a lot of so-called breastfeeding advice is put out by formula manufacturers who do not necessarily want you to succeed. (Along the same vein, if you are going to use a breast pump avoid one made by a formula manufacturer.)
- Throw away the clock. Contrary to popular belief, limiting feedings to five or ten minutes per side will not prevent sore nipples. Nurse on one side until baby shows signs of slowing down, then switch and nurse as long as baby wants. This, along with nursing as often as baby needs to, will help ensure a good milk supply and a full baby. One

way to tell if baby is getting enough is by counting wet diapers - 6-8 wet cloth diapers a day (5-6 disposables), and 2-5 bowel movements in a 24 hour period (after the meconium is passed in the first couple of days.)

Breastfeeding your baby is an important skill that enables your family to be more self-reliant. There is no need to rely on clean water or power sources or gadgets of any kind, and breastmilk is free. To succeed with breastfeeding a woman may have to arm herself with information so she can weed out the poor or contrary advice and have a back-up support system for times when she may need it. Breastfeeding is an important step towards taking the responsibility for the health of your family away from the so-called "experts" and placing it back where it belongs—with you.

Sources of Information:

"The Womanly Art of Breastfeeding" - La Leche League International. This book has all the basics of breastfeeding and also serves as a survivor's manual for the baby's first year.

"Breastfeeding Pure & Simple" - Gwen Totsch. Getting breastfeeding off to a good start - covers the early weeks.

"Bestfeeding: Getting Breastfeeding Right for You" - Mary Renfew, Chloe Fisher and Suzanne Arms - the basics of breastfeeding - positioning and latch-on emphasized.

La Leche League International - P. O. Box 1209, Franklin Park, IL, 60131-8209 USA. Call 1-800-LA LECHE for information on groups or leaders nearest you.

"The Fussy Baby" - William Sears - breastfeeding friendly tips on soothing fussy babies. Δ

A country moment



Hummingbird (Frank Tickle Photo)

THE IRREVERENT JOKE PAGE

(Believing it is important for people to be able to laugh at themselves, this is a new feature in *Backwoods Home Magazine*. We invite readers to submit any jokes you'd like to share to *BHM* P.O. Box 40, Montague, CA 96064. There is no payment for jokes used.)

If a man speaks in the forest, and there are no women present to hear him,....is he STILL wrong???
(Submitted by Walter Hughes, Seattle WA)

An 85-year-old widow went on a blind date with a 90-year-old man. When she returned to her daughter's house later that night, she seemed upset. "What happened, Mother?" the daughter asked.
"I had to slap his face three times!"
"You mean he got fresh?"
"No," she answered. "I thought he was dead!"

What's black and tan and looks good on a lawyer? A Doberman

Why are men like blenders? You need one, but you're not quite sure why.

How to make a blonde's eyes light up? Shine a light in her ear.

This Jewish man and a Polish woman are in love and want to get married. She tells her mom about her plans, but her mom forbids the marriage because he is not Polish.

The man remembers hearing about an operation that can make you Polish, so he goes to the doctor and asks about this operation. The doctor warns him about how drastic this operation is and how he will have to remove half of his brain. The man says "I don't care! Whatever has to be done!" So the doctor proceeds with the operation. As the man wakes up in the recovery room, he sees the doctor standing in front of him with a worried look. The doctor says "We made a slight mistake and accidentally removed 3/4 of your brain." The man yells out "Mama mia!!!"

What's black and crisp and hangs from the ceiling?....an Irish electrician.

How is a man like the weather? Nothing can be done to change either one of them.

Letter from Tennessee Mom to Tennessee Son
(Submitted by Judy & Ken Darko, Kingsport, TN)

Dear son:

I'm writing this slow cause I know you can't read fast. We don't live where we did when you left. Your dad read in the paper where most accidents happened within twenty miles of home, so we moved. I won't be able to send you the address as the last Kentucky family that lived here took the numbers with them for their next house so they wouldn't have to change their address.

This place has a washing machine. The first day I put four shirts in it, pulled the chain and haven't seen em since. It only rained twice this week, three days the first time and four days the second time.

The coat you wanted me to send you, your aunt Hazel said it would be a little too heavy to send in the mail with them heavy buttons, so we cut them off and put them in the pockets.

We got a bill from the funeral home, said if we didn't make the last payment on Grandma's funeral bill, up she comes.

About your father...he has a lovely new job. He has over 500 men under him. He is cutting grass at the cemetery.

About your sister...she had a baby this morning. I haven't found out whether it is a boy or a girl, so I don't know if you are an aunt or an uncle.

Your uncle Jessee fell in the whiskey vat. Some men tried to pull him out, but he fought them off valiantly so he drowned. We cremated him, he burned for three days.

Three of your friends went off the bridge in a pickup. One was driving, the other two were in the back. The driver got out, he rolled down the window and swam to safety. The other two drowned. They couldn't get the tailgate down.

Not much more news this time, nothing much has happened. Write more often.

Love mom.

DO RE MI Drinking Song (by Homer J. Simpson)

DO.....the stuff--that buys me beer.....
RAY.....the guy that sells me beer.....
ME.....the guy--who drinks the beer....
FA.....a long way to get beer.....
SO.....I'll have another beer....
LA.....I'll have another beer.....
TI.....no thanks, I'm drinking beer....
That will bring us back to...

Where I live

By Annie Duffy

Crabbing, clamming, and smelting on the coast

Since I used to live on the southern California coast, I was expecting warm, sunny days. What I got on a recent trip to the northern California coast was fog, wind, and rain. But that didn't stop me from having fun.



We traveled by boat about two miles into the bay from the Samoa Launch Ramp, then beached on a remote portion of the mud flat.

My dad, my two little brothers, Jake and Robby, and I had loaded our boat with crab traps, salt water rods, and shovels, and we drove several hours to meet our neighbors, Rich and Yvette Perrigo, and their friends, Jerry and Marlene Henschler, for some clamming and crabbing. We met them at the Samoa Launch Ramp, a small park on Humbolt Bay across from Eureka.

Crabbing in the bay

As soon as we got there we put our boat in the water and went crabbing with Rich and Jerry. Since Dad and I were both novices, Rich showed us how to rig our crab traps properly.

Dad and I had been catching perch for about a week prior to our trip to use as bait for the crab traps, and Rich showed us how to thread the perch onto wire hooks that were attached to the traps.

We threw about 6 traps in, at different spots, about 25 yards from the beach. About 10 minutes later we went back to the first trap and pulled it up. I was amazed. I was expecting just a couple of crabs, but there were about 20. Most were red crabs, but a few were Dungeness, a slightly larger crab that is more purple than red.

We continued making our rounds with the traps for about an hour, cutting the time between checking each trap to about five minutes. Any longer and the crabs would eat all the bait and take off.

When we got back to camp, we feasted, cooking the crabs in a large pot Rich had brought. We all loved it.



Me digging for clams in Humbolt Bay at a negative .6 tide. The black mud was easy to get stuck in.

Marlene showed us how to break the shell with a nut-cracker and get at the meat. I was constantly cracking shells for the boys, and trying to feed myself at the same time.

After we ate, Jake helped me set up our tent. I decided to sleep in the boat since I didn't want to sleep in a tent with little boys. We have the kind of



From left, Robby, Jerry Henschler, me, and Jake hold clams and two Dungeness crabs. We dug three types of clams—steamers, horseneck, and Washington. The limit for assorted clams was 20 per person.

seats in our boat that fold into a bed, and it has a canvas canopy that can completely enclose the boat. I slept there both nights. It was fairly warm and it kept out the wind and rain.

Clamming in the mud

The next morning we got up at 7 to do some clamming. We followed Rich's boat a couple of miles into the



Yvette Perrigo and Robby hold clams. Robby helped by rinsing the clam meat in a bucket of water.

bay with our boat, then beached at a remote portion of the mud flat.

Even though the clams are usually two or more feet under the surface of the mud, they have what looks like an air hole in the sand. The holes are big enough to stick a pencil into. To test if a clam is really living there, you have to stick your finger into the hole. If water squirts out, then a clam is down there. Rich told us not to dig a hole unless several of these "air holes" were close together. It's kind of a waste of time to dig for every single hole you find, because it takes 10 minutes just to dig the hole to the depth of the clams.

We dug only a few holes, but they were goldmines. Rich showed us the difference between the clams we found. Horsenecks have a large shell with a long wrinkled foot. Washingtons also have a large shell,

but theirs is slightly darker than the horsenecks and their foot is smooth and light pink. Steamer clams are about half the size of the other two, and have a small ridged shell.

The limit for clams was 50 clams per day, per person. You can have up to 25 horseneck clams and 25 of anything else in combination.

By the time we left, the water was level with the mud flats, and the boats were 10 feet farther from the mud than they had been when we first got there. All of us were covered with mud. I had mud up and down both of my legs, and my face and hair were caked with it. My brothers looked worse than me.

When we got back to camp, Yvette showed us how to clean the clams. First, you poke them with a knife so they open up a little, then scrape the body away from the shell. Then you cut out the fat and the guts, and slice open the foot so you can get rid of any sand in it. Jake and Robby helped me peel the skin off of the horsenecks. Since the skin of the Washingtons is so smooth, we left it on. We left the steamers whole and steamed them for lunch. For something that looks so grotesque, they tasted awfully good—especially dipped in melted



The clams were easy to clean. Here, Yvette Perrigo and I clean Washington clams.

butter. Rich said the clams were brain food.

After lunch, Dad and I took the boys out to the middle of the bay and went fishing. Some people were catching halibut, but all we caught were a few crabs. They would cling to our bait when we pulled up our lines.

That night we celebrated Rich's 59th birthday. Yvette only put six can-



Rich Perrigo stands ready for the next wave of smelt with his six-foot wide homemade smelt net. The commercial nets are eight feet wide.



Jake and Robby help Rich Perrigo unload smelt into a five-gallon bucket. We only smelted for an hour, but brought back close to 30 gallons of fish.

dles on the cake—one for each decade (almost). Yvette had brought some “Happy Birthday” confetti, and by the end of the night it was everywhere.

Smelting in Orick

The next morning we packed up our stuff, said so long to Jerry and Marlene, then headed north for a couple of hours, to Orick.

We rented a motel and took showers, then went back to the beach to find Rich and Yvette.

Smelt are small, silvery fish that come up onto the beach to spawn.



Dad enjoys a beer and shows off a cleaned clam.

When the smelt are running, they come in by the millions.

Smelt nets are large “A” shaped nets (like the one above). Most commercial nets are eight feet wide, but Rich’s homemade net was only six feet wide.

Dad also had a net, but it was a sorry excuse for one. It was the kind of net you use to help bring really large fish into a boat. It was only about a foot and a half in diameter.

We waited around until word came that the smelt were running, then we hurried to the beach with the nets and buckets.

At some times, Rich was in water up to his knees catching the smelt. As soon as his net was full, he would come back to where the boys and I were and dump the smelt on the sand so the boys could put them in the buckets. Dad’s net caught a total of eight fish, but Rich let him use his smelt net and he caught a bunch.

We brought several buckets of fish back to Yvette, then we brought more buckets with us when we returned to the beach. Altogether, we brought about 30 gallons of fish back to Yvette, until she told us that she would go insane if we brought any more back. Dad and Rich were soaked

clear up to their chests before they were finished.

We washed them all and put them in plastic zip-locks so we could freeze them. Yvette made us take most of them home with us, since both the freezer and the refrigerator in their camper were full.

The next morning we said goodbye to Rich and Yvette and headed back home. We wanted to keep the fish from spoiling, so as soon as we got home we started beheading and gutting them, then we re-sealed them in plastic bags and froze them. We ended up with about 30 zip-lock-baggies of fish, and we still have about 10 bags left.

John Silveira, *BHM*’s senior editor, is the cook around the office, and he’s been frying the smelt with various



The beach where we went smelting is just south of Orick, CA. When the smelt run they come in by the millions.

recipes. Some of the recipes he got from *BHM*’s food editor, Richard Blunt.

We all eat the smelt differently. John eats them whole, bones and all, because the bones are so soft, but Dad likes to pull the backbone out. I’m not picky—I’ll eat them either way. In fact, I think smelt is on the menu tonight. Δ

Five building tricks for super-strong framing

By Don Fallick

I was standing on the edge of the roof overhang, holding two bundles of asphalt shingles, when my boss's son drove up. He looked at me, then took a long look at the empty space under the unsupported roof extension. I noticed his discomfort, so

lem. Applying one or more of the following five principles can add considerably to the strength and rigidity of frame construction.

Trusses

Wood is not a homogeneous material. It is much stronger in one direction

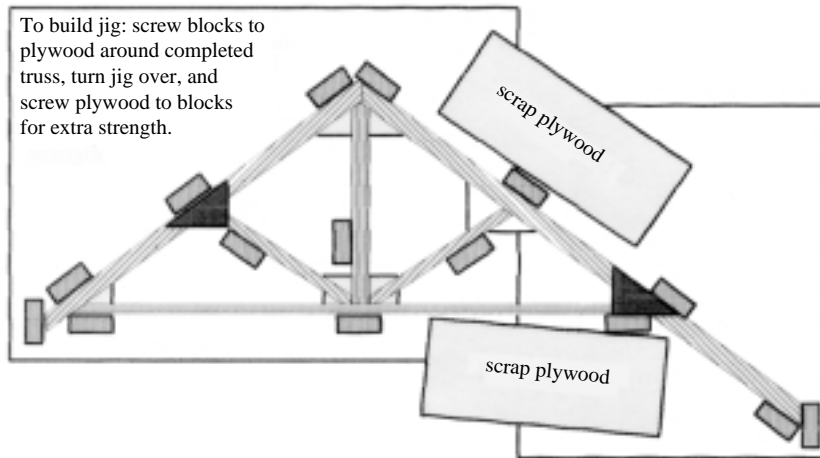
must be made of two-by-sixes, two-by-eights, or even bigger stock. Such lumber is expensive. Long ago, engineers learned they could add greatly to the strength of a roof by inserting compression members within the frames.

Such trusses are not hard to make. The only difficult part is cutting precise angles on the ends of the members so they will fit together tightly. A miter saw or motorized "chop saw" will come in real handy here.

The rule of thumb for designing a truss is to keep the area contained within each of the triangles equal. For all but the very largest buildings, use two-by-sixes for the rafters and center post, and two-by-fours for the cross-tie and the other compression members. Fasten them with plywood gussets, glued and screwed on.

Do not use sheet metal mending plates, even though they look like the kind of plates that hold commercial trusses together. They will not hold. Commercial truss plates are pressed into place with a 30,000 psi press. They cannot be hammered into place. The ones you buy in the hardware store are weak enough to be hammered in, and they won't hold against the compressive strain on a roof.

Gussets work well and can be easily cut from ordinary exterior grade plywood. Make gussets big enough to



Cantilever truss in a jig made from two sheets of plywood and scrap blocks. Some plywood gussets are not shown, to reveal joint details. Cut and set all truss members. Shim tight, then glue and screw gussets from top side. Pull shims and remove truss from jig. Turn truss over on a flat surface, and glue and screw gussets on the other side.

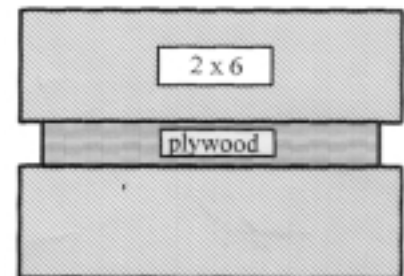
I sort of bounced up and down, right on the corner, four feet out from the nearest support. The roof didn't flex.

"Want to build a shed for me?" he asked.

Not every building needs to be built like the Rock of Gibraltar, but there are times and places when rigidity really counts. That shed I built needed a built-in roof overhang to cover an occasional woodpile overflow. Permanent roof supports would get in the way when the woodpile wasn't there, and it would look tacky. I built the shed right in front of my boss's house and I wanted it to look nice. The rigid roof cost only a few dollars more than traditional construction, and it solved an otherwise difficult prob-

lem than in others. Wood's greatest strength is in resisting compression along its length. Wood is also quite good at resisting pulling tension, but it is weakest at resisting bending (flexion) and twisting (torsion). One way to make a wooden building as strong and rigid as possible is to arrange the wood so it is being used in its strongest dimensions.

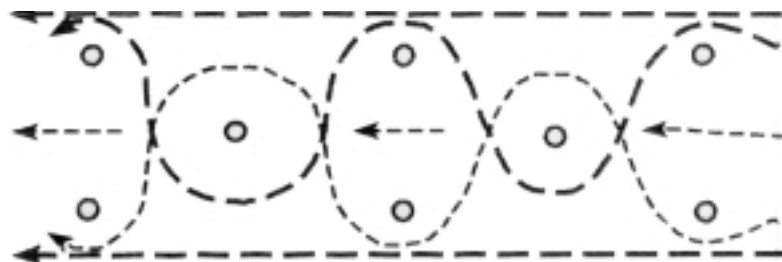
Here's an example. A typical peaked roof frame consists of two rafters with a cross-tie to keep the tops of the walls from spreading. The cross-tie exerts its strength in tension, so it can be made of smaller size lumber, such as a two-by-four. But the rafters must resist bending (flexion), where they are relatively weaker. So the rafters



Laminated header

cover at least eight inches of each frame member at each joint. Glue them in place with Liquid Nails® or some other construction adhesive, and fasten in place with 3d or 4d box nails, two inches apart, in wiggly lines down both edges of each truss member.

Nail the opposing gusset in an opposite pattern, to keep nails from opposite sides separated. Box nails are thin enough to keep from splitting the wood. If you must use common nails, set them three inches apart, and enlarge the gusset to accept the same number of nails. Do not use drywall screws. They have no give, and they will snap if the glue does not hold.



Laminated beam gluing pattern

Allow the glue to dry overnight before mounting the truss. Make one truss, then make a jig out of plywood so all your trusses will be identical. The jig can be made of plywood that you plan to use for roof sheathing, so it will actually cost nothing.

I-beams

Sometimes you need to make a flat, level surface, such as a floor, very stiff and strong. One way is to make “I-beams.” They got this name because the cross section of a steel I-beam looks like a printed capital I. The vertical part of the beam resists bending vertically, but can bend and buckle horizontally, ruining its strength. The top and bottom flanges resist buckling, allowing the beam to exert its full strength.

I-beams do not have to be made of steel. Commercial wooden beams are made of plywood, with top and bot-

tom caps of milled lumber. You can make your own if you have a table saw and a rabbet cutting blade, but there is a way to achieve the same effect with low technology. The strength of an I-beam is proportional to the height of the vertical member, but also to the width of the flanges. By gluing and screwing plywood subflooring across the top and bottom of ordinary floor joists, you transform each joist into an I-beam with very wide flanges. Plywood subflooring does cost a bit more than regular subflooring, and is not as stiff, but it is much stronger.

If you need stiffness more than strength, you can save a lot of time

and money by leaving off the bottom plywood and using chip board subflooring on the top. This makes your floor joists into T-beams, which are almost as strong as I-beams. Particle board is even stiffer, and costs less, but dissolves when it gets wet. If there’s any chance the floor might get

wet, use exterior grade chip board. It does cost more, but it won’t dissolve.

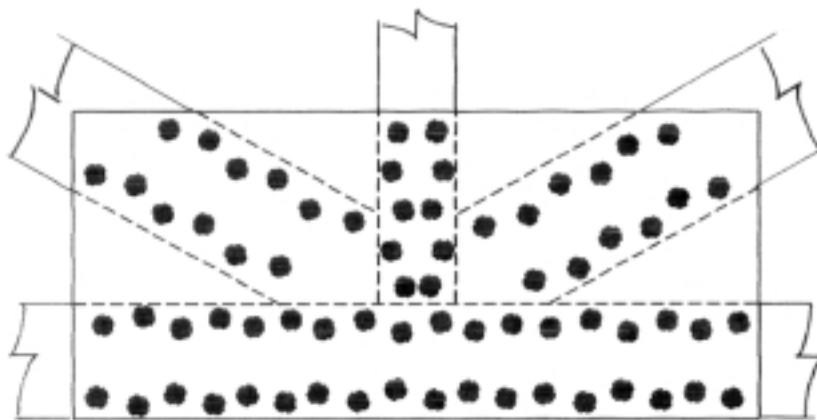
Laminated beams

One way to add strength to a framed wall is to make up laminated beams and headers. On load-bearing walls, headers are required over all window and door openings. Non-load-bearing walls generally require no headers, but just a top plate connecting the wall sections on opposite sides of the opening.

In a wall framed of two-by-fours, a typical 32-inch wide rough opening for a door or window requires a header made from a couple of two-by-sixes, with a piece of 1/2-inch plywood sandwiched in between. The plywood provides the strength and stiffness, while the two-by-sixes keep the plywood from bending.

Laminate the beam by gluing the parts together with construction adhesive, then screwing together with deck screws six inches apart in a diamond pattern, from both sides of the beam. This laminated header is not only much stronger than one composed of just two-by-sixes, but it also is the right thickness to match the rest of the wall.

Larger windows may require headers made of two-by eights or two-by-tens. But what if you want to install a beam in place of a load-bearing wall?



Nailing pattern for a plywood gusset. Use 3d or 4d box nails two inches apart. Alternate pattern on other side of truss to keep nails separate.

So-called “glue-lam” beams are sold commercially by the linear foot, and they’re not cheap. But a plywood laminated beam just isn’t strong enough. One solution is to sandwich a piece of steel (not aluminum) flashing in the center of your plywood laminated beam. The steel is incredibly strong as long as the lumber keeps it from buckling. Where even greater strength is required use two sheets of steel, one on either side of the central plywood lamination. Lay beads of construction adhesive an inch from each edge of each beam member, then zig-zag in the center. Glue all the parts of the beam at the same time and bolt them together in a diamond pattern, one foot apart. Bolts cost more, but screws can pull out, and even a little buckling destroys all the advantage of the sheet metal laminations.

Panelized construction

A common factor in all these strategies is construction adhesive. Don’t leave it out. Its purpose is to bind all the parts of a wall, roof, or floor into one solid piece. Modern cars all use this principle of unitized construction, instead of the heavy frames of olden days. Yet the cars of today are actually stronger, even though much more lightly built. Where car bodies are spot welded together, house framing can be glued together, producing a lighter yet stronger roof or wall panel. Floors and stairs built this way will never squeak. The trick is to create unitized panels that form complete walls, roofs, floors, and so on.

In Canada and some northern states, homes are built of panels of foam insulation with chipboard cladding. The cladding extends a bit beyond the foam, forming flanges for nailing or screwing two-by-sixes or two-by-eights along all four edges. This dimension lumber aids greatly in attaching the panels, but most of their strength comes from the cladding. The foam core keeps it from buckling. You can make your framed walls just as

strong by sheathing them inside and out. Glue and screw chipboard to the inside edges of all the studs and plates, and you nearly double the strength of the wall.

You can install the wiring and plumbing before you sheathe the interior, an advantage over clad foam panels. Just make sure the inspectors get a good look before you insulate and close up the walls.

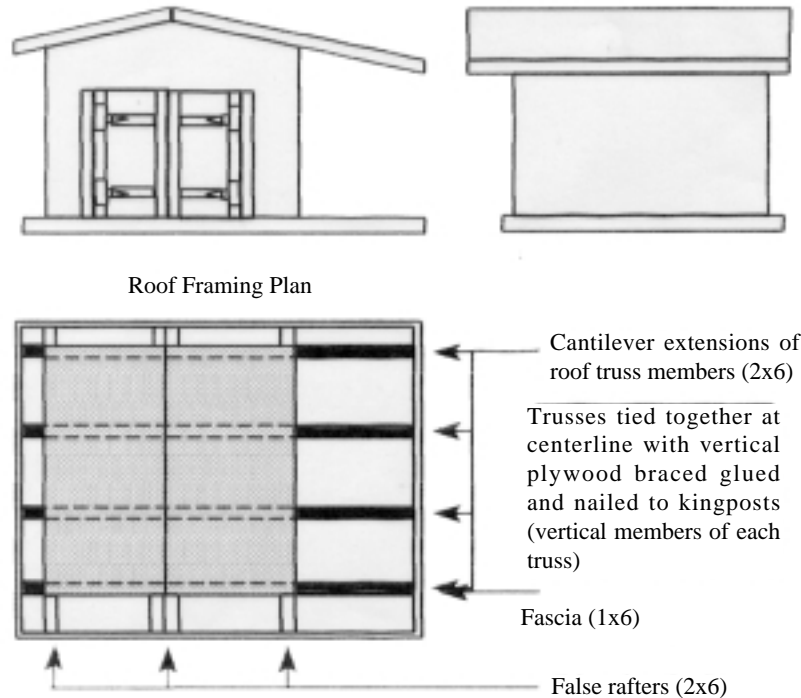
Cantilevers

If your roof is strong enough it can extend beyond the support walls without external bracing. A cantilever is any structure, such as a roof or floor overhang, that is braced internally. If you are building trusses, it is easy to make part of the roof into a cantilevered extension. Just make one of the rafter members extend beyond the cross-tie. With the whole roof glued and screwed into one unitized panel, the cantilevered extension becomes extremely strong. It actually turns the whole roof into a lever, with the fulcrum at the support wall. Any con-

ceivable load at the edge is more than balanced by the weight of the entire roof on the other end of the lever. It is only necessary to adequately stiffen the roof edge.

This is easily done with one-by-four trim or two-by-whatever false rafters. Leave enough sheathing extending beyond the rafter ends to cover the edge trim. Apply glue to the trim, nail it to the real rafter ends, then screw the sheathing to it. Glue and screw false ridge beams and false purlins—horizontal stiffeners—under the gable ends of the roof. They add a little bit of stiffness to the roof, but their real job is to give you some place to nail the false rafters or gable end trim.

So how did I make that shed’s roof so strong? I used cantilevered trusses of two-by-fours, two feet on center. I glued and screwed the plywood roof sheathing to the trusses. Finally, I supported the edges of the plywood with trim, glued and screwed on, to prevent the plywood from flexing. I could have used bottom sheathing, but it wasn’t necessary. Δ



Three-view drawing of shed

If you could have just one gun in the woods, go for a shotgun

By Rev. J. D. Hooker

Suppose, for whatever reason, you could only own one gun. But with just this single firearm, you would need to reliably bring in small game, such as squirrels, waterfowl, and upland game birds, while also taking large game from whitetail deer on up to moose, elk, and maybe even grizzly bear—out to 200 yards. Plus you'd use it to eliminate barn rats and other pests. And this same firearm would have to be an utterly dependable defensive gun if the need ever arose. Could you come up with an acceptable selection?

For more than just a few folks who are actually out here living a rural lifestyle, the decision to purchase a firearm often does require just this sort of deliberation. Most of us don't really see firearms as "collectibles," or worthwhile value-holding investments. We view them more as somewhat expensive, but necessary, working tools, looking at guns in much the same manner as we'd examine a used tractor or other pieces of equipment. At the same time, even a rather smallish collection of firearms, say a .22 rimfire rifle for potting small game, a lower grade double barrel shotgun for game birds, a centerfire rifle for large game, along with a revolver or auto-loading pistol for self defense, can be a tremendous budget buster for almost anyone.

Yet, many of us need them. Should the truth be told, I really can look back on quite a few times when our family actually would have been going hungry were it not for wild game meat brought to the table through the use of firearms. While roasted goose or pheasant, venison chops, squirrel chowders, and similar dishes are terrific table fare to begin with, believe

me, when your deep-freeze is empty and the pantry's looking mighty spare, the aroma of game cooking warms your entire spirit.

There have also been, regrettably, times when I was forced to gain a little experience using firearms for defensive type purposes.

If for any reason I were forced to choose only one firearm, useful for these various purposes, no matter where I might happen to be, it would always be the same selection—a 12 gauge shotgun.



Whether for use on rocky New England's upland birds, Hudson Bay's high flying Canadians, Texas' white-tails, Yukon moose, or our own fat Indiana fox squirrels, with only a few extra accessories any American-made pump action 12 gauge would fill the bill admirably. My own pump gun is a Mossburg 500, chosen only because at the time of purchase it was the least expensive model of pump gun available. Similar shotguns, manufactured by Remington, USRA (Winchester), and other U.S. gun makers are just as well suited.

I would strongly recommend selecting about a 28-inch barrel, which is long enough for solid pointing on high passing waterfowl, yet not too long for quick handling on pheasant and quail. And I'd definitely pick out a gun with

an adjustable choke device on the muzzle, like a "Polychoke" or Mossburg's "C-Lect Choke," which allows for near instant selection of a wide range of choke constrictions, from wide open skeet patterns to smaller dense, "superfull" turkey chokes, without fumbling around with wrenches and replaceable choke tubes.

Should you envision a lot of hunting for squirrel and similar small game, or see a need for more than very occasional pest control shooting, obtaining a set of 12 ga/.410 adapter shells would be a terrific investment. Offered by several different makers and usually readily available through most sporting goods stores, gun shows, and mail order suppliers, these adapters allow the use of tiny 2½-inch

.410 shells in the big 12-bore's chamber. Not only will these offer greatly reduced noise and recoil, but should you decide to handload your own ammunition, the tiny shot and powder needs of the .410 can yield some solid savings as well.

When you start considering using your 12 gauge for hunting larger game animals, you'll need to start thinking about firing slug and/or buckshot loads. If you're going after game in the whitetail size class at fairly close yardages, especially in broken and brushy areas, I have yet to find anything more suitable than the pump 12 bore. With the choke set wide open, and 2-¾" or even 3" magnum loads of either 00 or #4 buck (depending on preference), this represents a for-sure meat taker. For anything larger, or for

longer range, then slugs are the only viable option.

Back when I first purchased my own Mossburg, rifled shotgun barrels weren't yet available. So at that time I added an optional 24" smoothbore slug barrel, complete with rifle type sights, for slug hunting. Switching barrels, even in the field, is very simple and easy, requiring less than two minutes and no tools. With any brand of store purchased slug loads, this smooth bore barrel could keep all of its shots inside of a paper plate sized target at 75 yards. This is sufficient accuracy for deer or larger sized game at that range. Once I switched to shooting .69 caliber round balls, cast with a Lyman mold, and patched with cloth to fill the bore, I found the gun capable of keeping similar sized groups out to 125 yards, a 50 yard increase in range.

Today, though, real rifled shotgun barrels have become a readily available and affordable option, providing some real rifle-like accuracy. Just this year I finally obtained one of these rifled barrels for my own gun. However, when I tried firing conventional slugs through this new barrel, I was badly disappointed. The accuracy seemed hardly improved at all, though I've since learned that this is pretty normal with conventional slugs through any barrel. It was when I put a few rounds of the newer sabot type slugs through the gun, (now put out by many ammo makers), that I started being impressed.

At 100 yards, these newfangled slugs will print 3 and 4-inch groupings from this rifled barrel. I've seen an awful lot of folks bring home venison year after year with rifles that shot no better, and most deer rifles punch something like a 5/16 inch or 3/8 inch hole, compared with the 12 bore's 3/4 inch tunnel. Now, using one ounce slugs cast from one of Lee's nice aluminum molds, I'm easily keeping every shot in groups well under 6 inches at 200 yards with a shotgun. These rifled barrels really do bring the

slug hunter up to a whole different class, mating rifle accuracy with 12 gauge punch.

For some serious trophy hunter, out on that once in a lifetime hunt after a record book elk, antelope, caribou, or other real long range game, this really isn't the gun you'd want to take along. But for any sort of real, fill-the-freezer-with-meat hunting, which is what most of us are really interested in, this "go everywhere, do anything" gun really has no peers.

When any of us do have to start thinking in real terms of self-defense type firearms, there are a few things that have to be kept in mind. The first is that no long gun, including the 12 gauge pump we're talking about, will ever be as handy to tote around as a holstered handgun. Riding holstered at your hip, a revolver is just there. You have to think about carrying a shotgun. But the second issue is that any repeating long gun, especially your pump 12 bore, can do a whole lot more than any pistol. In the event you'd ever be facing armed human antagonists, the shotgun gives you a tremendous psychological advantage. Seen from the wrong end, the hole in a .44 or .45 barrel looks *big*. But the muzzle end of a 12 gauge looks like the mouth of Mt. St. Helens fixing to erupt.

It doesn't hurt any, either, to remember there are very good reasons why, since the Spanish American War, through two world wars, Korea, Viet Nam, Desert Storm, etc., our military has been issuing Winchester, Remington, and Mossburg pump 12 bores (some even equipped with bayonet lugs), for close quarter fighting. Or that when really faced with for-certain dangers, almost every law enforcement officer in America reaches for his (or her) pump 12 gauge.

In actuality, for just about any conceivable real life up close and deadly self-defense situation where a firearm is needed, a 12 gauge shotgun in pump action persuasion is very probably the very finest weapon obtainable.

Personally, in most of these instances, I'd steer wide of the magnum loads for defense purposes. At close quarters, a standard field type load is still awesomely powerful, yet carries a lower recoil level allowing quicker follow up shots, if needed, while in a few specific instances, #4 buckshot (with 27, 1/4-inch pellets in a 23/4-inch shell) might prove a better choice. In nearly all real life close-up self-defense or combat type shooting, a 11/4-ounce load of either #2 or BB size birdshot is normally the best possible selection.

I can tell you, with absolute certainty, that when used against attacks by hunger-crazed feral dogs at extremely hazardous close ranges, these large birdshot loads are utterly reliable stopping loads.

With everything looked at under the clear daylight of backwoods reality, and after all has been said, weighed, and considered, no matter whether your limit were placed by financial or mobility constraints, lack of enthusiasm for firearms, or other matters, should you find yourself facing a need to acquire a gun but feel yourself limited to a single selection, if you'll chose any American made 12 gauge pump action shotgun along with the few options discussed in this article, I really don't believe that you'll ever feel as if you hadn't made the best possible selection.

Of course, unless you are willing to learn a little about shooting, no firearm will do you much good. But that's a different discussion, isn't it? Δ

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Build a flying “helicopter” boomerang

By Don Fallick

This boomerang can't be used for hunting, like an Australian boomerang, but it is much easier to throw. A few minutes practice in a large, open field is all it takes to become an expert with a helicopter boomerang. It nearly always comes back, and is easily made of readily available materials.

Select two pieces of wooden lath, about 1/2-inch thick, two-inches wide, and up to four feet long. The exact dimensions aren't critical, as long as both pieces are the same. They should be straight-grained, unwarped, and free from knots. Lay the laths out in a cross shape, forming four rotor blades of equal length. Mark the center where they cross. Leave these center portions as is.

Whittle the rest of the blades into an airfoil shape. Here's how: mark an arrow on each blade, pointing counter-clockwise if you are right-handed, clockwise if left-handed. Each arrow points to the leading edge of its blade. Separate the laths and scribe a line along the leading edge of each blade, 1/16-inch above the bottom surface. At

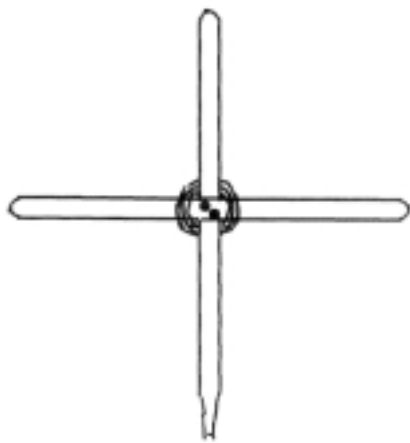


Figure 2. A view of a “helicopter” boomerang, from above, complete with a handle by which to throw it.

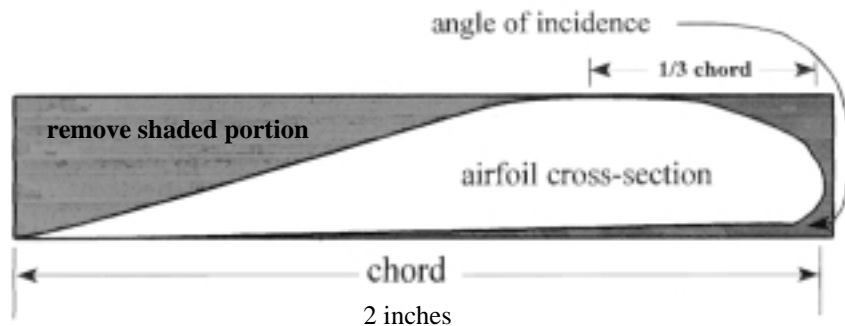


Figure 1. A cross-sectional view of a piece of lath, two inches wide and one inch thick, that shows the wood that is whittled or sanded off (shaded portion) to create an airfoil of the wood that is left. Reverse the drawing for left-handed boomerang.

the tip of each blade, connect the end of this line to the bottom corner of the trailing edge. This shows the angle the blade will make with the airstream (the angle of incidence). Sand away all the wood below the angle of incidence, leaving a new bottom surface for the blade. Or, you can whittle most of the excess wood off with a sharp knife. If you do, you will still need to sand this surface with a sanding block and sandpaper to make it flat. Improvise a sanding block by wrapping sandpaper around a flat piece of scrap lumber.

Round the leading edge of each blade, either by whittling or by sanding. The distance from the leading edge of a rotor blade to its trailing edge is called the chord. Measure on the top surface of each blade a distance equal to 1/3 of the chord behind the leading edge and draw a line the length of the blade. Starting at this line, taper the trailing edge down to its bottom corner. See Figure 1. This shape is called an airfoil. Form identical airfoils on each blade. Close to the centers, where the laths will cross, try for a smooth transition from the airfoil shape to the rectangular lath shape.

On three of the blades, round the tips like the ends of a propeller. The

other blade gets its last three or four-inches whittled into a handle. See Figure 2. Sand everything. Use medium grit sandpaper to smooth out lumps and bumps, and fine grit sandpaper afterwards to make a very smooth surface. Glue the blades together and fasten with a couple of brads or small finish nails, so they can't slip while the glue is drying. Allow to dry overnight. For best performance, varnish or shellac the whole boomerang to a really smooth finish. Strengthen the glue joint by wrapping it tightly with three or four turns of string, twine, or wire.

Throwing

Stand in the middle of a very large, clear area, at least 150 feet square. Warn any bystanders. A thrown boomerang can cause serious injury. Hold the boomerang in your right hand (if it was made right-handed) and throw it overhand, with the boomerang vertical, like a TV Indian throwing a tomahawk.

Throw hard, directly into the wind, and aim a little above the horizon (about 10° above horizontal). A right-handed boomerang will circle to the left (opposite for a left-handed one), gradually changing to a nearly hori-

TWO GREAT DEALS!

zontal glide. If the wind is too strong or you didn't throw it hard enough, it may not come all the way back to you. If you threw too hard for the wind, the boomerang will complete its circle in front of you.

With practice, you can make it return and land at your feet, or catch it like a frisbee before it lands.

How it works

A thrown boomerang moves along the direction of flight, or flight path, but it is also spinning. At any moment, two of the blades are moving across the flight path, generating equal amounts of lift, but the other two have quite different airspeeds.

The forward-spinning blade adds its spin to the forward airspeed along the flight path, producing *lots* of lift. The "backward-turning" blade subtracts its rotation from the speed along the flight path, producing little or no lift. This uneven lift acts like a force trying to tip the spinning boomerang over onto its back.

The weight of the boomerang's blades spinning in flight makes it act like a bicycle wheel in motion. Just as a bicycle wheel turns when you lean the bicycle, a boomerang turns when uneven lift tries to tip it over. All boomerangs work on these combined principles, but the four-bladed "helicopter" boomerang works best and is easiest to make.

Tools and materials

Tools: hammer, knife, paint brush, pencil or pen, ruler or tape measure, a sanding block or flat scrap wood.

Materials: two wooden laths of the same length, two - four feet long, brads or small finish nails, some string, twine, or wire, medium and fine grit sandpaper, wood glue, and varnish or shellac.

That's it! Δ

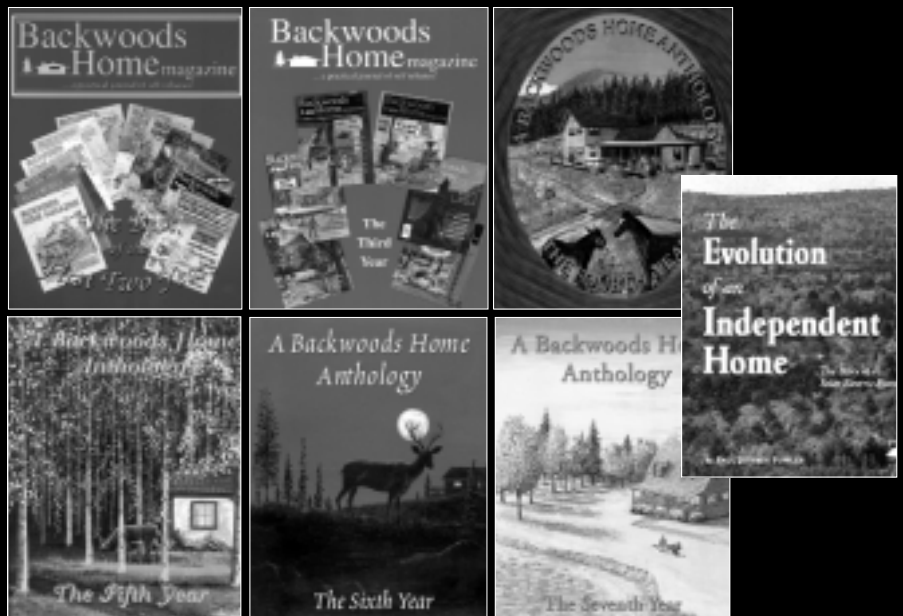
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Make beautiful jewelry using porcupine quills

By Christina VanGinkel

Porcupine quills can be used along with seed beads and other materials to make some of the most exquisite jewelry and decorations you've ever seen.

Where would you find quills? There are two options: purchase them or harvest them. I am going to focus on the more natural, and cheaper, way—harvesting them.

The porcupine is found in many areas throughout the United States and Canada. In northern Wisconsin, where I live and porcupines are abundant, they are often the byproducts of road kills. You can easily spot one chewing on just about any unoccupied cabin or eating leaves and bark in a tree. They also eat the shed antlers from deer and elk.

The typical porcupine has over 30,000 quills. While many of these may not be suitable for working with, most of them are. Removing quills is actually quite easy, as long as a few easily remembered rules are followed.

Materials needed to remove quills:

- Newspaper
- Two to three large containers with lids (large coffee cans work fine)
- Heavy gloves
- Pliers (not necessary, but handy)

You will need an area where you can work that is inaccessible to any animals you own. Even after the quills no longer have barbs on them, keep them away from your family cat. Cats will eat the quills as if they are a delicacy. Also, remember that while the quills may come effortlessly out of the porcupine, until you debarb them, they will not come out of you as easily.

It is best to put newspaper under the porky and around the area. You will thank yourself if you remember to do

this simple step. With the gloves on, carefully start pulling the quills out, placing them directly into the containers. Quills are loosely set in the skin, so removal is usually simple. If some become embedded in your gloves, use the pliers to pull them out. Working from the sides, up the back is best. Completely clean one section of hide at a time. Thorough cleaning of one porcupine will take several hours.



Necklaces, earring drops, and eagles tail are made of porcupine quills.

When you are done removing quills, take care in discarding the leftovers. Carefully wrap any broken or unusable quills in the newspaper for disposal. If you have a safe place to throw the porky while it decomposes, the ribs can later be retrieved. I use them, four at a time, for dream catchers. The teeth and claws can also be put to use in a necklace or wall hanging. One catalog that I have sells claws for \$.85 each.

To clean & store quills:

- Dish soap (grease fighting)
- Old dish pan
- Fine mesh colander
- Long-handled spoon
- Newspaper or towels
- Hot water
- Containers with lids

Fill an old dish pan, half full with real *hot* water. Add two or three squirts of dish soap. Place quills inside colander, and immerse into the solution. While the colander is not an absolute necessity, it will save you both time and possibly stabs from the quills. Swish and agitate the quills around with the spoon. I let them soak for 10 minutes, wash, and repeat the steps three or four times. Change the water (refilling with hot) between washes. Rinse free of soap and lay out in single layers on newspaper or towel to dry.

This is a good time to pick out any that are clearly unusable. Some may be no thicker than hair. A few may have blemishes on them that make them undesirable. Thicker ones sometimes have creases right down the middle, but don't throw them away. While nothing will take the creases out, they can be flattened and used in embroidery.

When the quills are completely dry, store them in sealed containers such as plastic, glass, or even old coffee cans, as long as the containers have tight lids. Once quills have been debarbed, they can also be stored in clear zip style bags.

To dye quills:

- Scissors
- Old pans
- Newspaper
- Purchased dye or organic dye solution

Recipe for organic dye solution:

- One cup blackberries
- Two cups water to start (add more as needed)
- One teaspoon lemon
- Two teaspoons vinegar

Combine ingredients, bring to a boil, add quills to solution, and boil for approximately a half hour over low heat. Do not let boil dry, add water as



Quills boiling in dye

needed. Rinse quills well in cold water. Dry. Store as before. This makes a beautiful light rose-colored quill.

Quills are easy to dye, and they are fun to work with when in a rainbow of colors. Commercial dyes work fine, coming in a wide range of colors. I have included one organic dye that I use. If you go this route, experimentation works best. Just remember to add the lemon juice, as it works as a natural softener, and the vinegar, as it sets the color. Some other ingredients to try are wild plum bark, blueberries, and even dandelions. When dyeing the quills, it is not necessary to remove the barbs, but I have found that when working with the organic dyes, they take the color much faster.

Debarbing the quills:

Carefully snip the top and bottom end of each quill. A small pair of scissors works best for this. Snip between 1/8 inch or 1/4 inch off each end. Discard end tips immediately. Working over a refuse container is the easiest way I have found to do this.

Using the quills:

Now that you have all these quills, what do you do with them? Turn them into money, of course. They have been a number one seller for me for the past 10 years. I sell them at craft fairs, festivals, and at consignment shops. Surprisingly though, the stores that I sell most of them through are gift shops. Because of their unusual nature, they overstep the typical constraints of many crafts.

Because the supplies to get started beading are minimal, and added with gifts from nature that are free, such as porcupine quills, profit can be quite high. Your biggest investment is time.

How much money can you make? An example cost breakdown on a simple pair of earrings would be: quills free, \$.15 on earwires, \$.10 on thread, \$.25 on beads, and add in \$.25 for your supplies you use each time, such as needle, beeswax, etc., and you have a grand total of 75 cents. This same pair will sell for \$5 to \$10, depending on the area you are in. A similar breakdown on an elaborate piece of beading with large quill drops, such as a necklace with bone, would be: quills free, \$3 for the hairpipe bone, \$2 for the crow (larger) beads, \$.25 for the

sinew, \$1 for the seed beads, and again, \$.25 for supplies used on a regular basis. This comes to a grand total of \$6.50, and it would sell for about \$30. How about a choker made with some larger quills in place of the bone, and using size 8 beads instead of the larger crow beads? This could be made for \$1 total, and sell for \$10 to \$15. How is that for profit?

Basic materials for beading:

- Size #13 beading needle
- Mono nylon beading thread size 00
- Beeswax
- Scissors
- Seed beads in assorted colors, size 10 or 11
- Assorted clean, dry, snipped quills
- Also needed for earrings—1 pair earwires

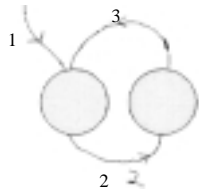
Beginning beading:

The stitch that I use most often, and have used in the following pattern is referred to as the Brick or Cheyenne stitch. While it appears to be complex in appearance, it is rather simple to learn. Patience is required but a few things that will make any beading project, with or without quills, easier to do are to remember a few basic steps.



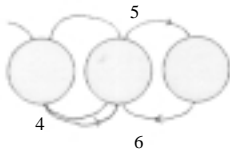
Porcupine quill necklace

Instructions

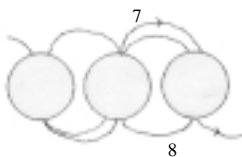


Start of Base Row

Pick up one bead, go through bead twice, leaving yourself at least three inches of a tail. Start as follows, always going in direction of arrows. Pick up next bead, go back through first bead, and then back up through bottom of second bead, continue to add beads in this manner, always working back through previous bead.



After each bead, check your thread tension. Threads should be snug, but not so tight as to create stress on the threads.

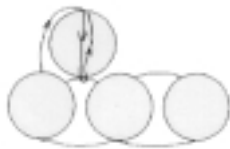


Turn work before going on to next step.



Second Row

Pick up the next bead, go behind thread.



come back up through same bead.



Repeat steps 4 & 5

Cut quills to desired length. In a small project, such as these earrings try to keep the width of the quills consistent throughout the design.

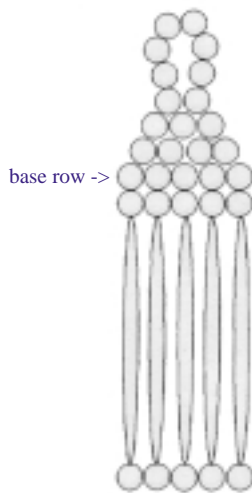
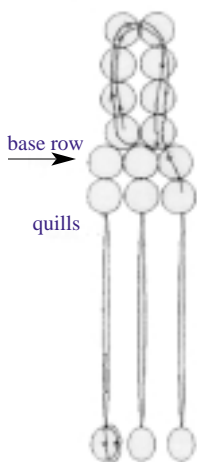
Top

To finish top, pick up six beads, go through last bead in step six, go back through all beads in loop again, and then come back down to first bead in first row.

To attach quills, pick up one seed bead, slide needle carefully through center of debarbed quill, pick up another seed bead, and go back up center of quill, back through seed bead, and first bead of row one, come back down through bead two.

When you have completed the third quill drop, run your thread backup to the top, weave the thread in and out a few times for extra strength. Fasten off.

If you prefer, you may singe off any excess threads that may be showing, be careful if you do this, that you do not burn the thread so close that it all comes apart. Attach ear wires. Enjoy!



Centerdrops on kokopellis are quills

Always run your thread that you will be using through a piece of beeswax. It prevents the thread from fraying and tangling, and it adds extra strength to the finest of threads. Also, never use a cotton thread. Even when used with beeswax, it will fray and tear much too easily when used in conjunction with the glass beads. There can be nothing worse than to be quite a ways into a large piece of beading and realize that your threads are fraying or even tearing. Read the directions for the project all the way through before starting.

Purchasing quills:

If you decide that you would like to work with porcupine quills, but would like to skip the actual harvesting of them, there are many sources for purchasing them. I have picked two companies that I have purchased items from for several years: Noc Bay Trading Company, P. O. Box 295, 1133 Washington Ave., Escanaba, MI, 49829. Tel.: 1-906-789-0505; Fire Mountain Gems, 28195 Redwood Highway, Cave Junction, OR, 97523-9304, Tel.: 1-888-347-3436. Δ

Backwoods

March/April 1998

No 50

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My view

Confessions of a former liberal

There is an old adage that goes something like: “If you’re not a liberal when you’re in your 20s you haven’t got a heart; if you’re not a conservative by the time you’re 40 you haven’t got a brain.” It’s a reasonable summation of youth’s innocence and its desire to save the undertrodden from the seeming unfairness of the world, and of adults’ experience and its learned realization that utopia on earth is not an option.

I fit that old adage rather nicely, as do millions of others of my generation who were formerly young 1960s liberals bent on saving the world, but who are now middle-aged conservatives and libertarians bent on saving American institutions from the reckless attacks of today’s new generation of liberal youth.

I am reading a book by one of my peers, a prominent Sixties radical named David Horowitz, who was one of the founders of the New Left and an editor of *Ramparts*, the magazine that set the intellectual and revolutionary tone of the Sixties leftist movement. Horowitz’s cohorts included Black Panther leader Huey Newton and Tom Hayden, a radical who promoted guerrilla warfare in America’s cities in the Sixties but who went on to become a California state senator. The book is called Radical Son: A Generational Odyssey, and it chronicles Horowitz’s transformation from prominent left wing radical to prominent conservative publisher, revealing along the way the lies, communist front groups, and other subterfuges many Sixties radical groups used to hide their real agenda, which was to subvert America and replace it with a communist utopia.

Youth and zealotry

Much of the emphasis of Radical Son is on the involvement of youth as the soldiers who form the rank and file of the radical left. “This is the perennial challenge,” the book states, “to teach our young the conditions of being human, of managing life’s tasks in a world that is (and must remain) forever imperfect. The refusal to come to terms with this reality is at the heart of the radical impulse and accounts for its destructiveness, and thus for much of the bloody history of our age.”

Ominously, Horowitz also states in the book: “My only regret comes from thinking of all those young radicals just entering the arena who, if they were to consider this story, would benefit most from its lessons, but who unfortunately will not read it all.”

And that is the sad truth. Just as Horowitz and I did not realize our errors until we had done our damage to America,

so too most of this new generation of young radicals will not realize their error until they have done their damage. That fact is at the heart of the recruiting strategy of the left—recruit the young to do the dirty work of dismantling America, then discard them when they get older, and realize that the left is largely a fraud, nothing but a front for socialist and communist ideas.

It’s a strategy that has worked well for the left. Horowitz says that many of the publishing avenues that were open to him as a young leftist radical writer were abruptly closed to him when he became a conservative, and much of the favorable publicity he could count on from the mass media suddenly disappeared when he went conservative.

That’s why he got involved in several small political magazines, so that like the rest of us conservatives his voice would not be totally muffled by the leftist-controlled mass media. Some of his magazines are *Heterodoxy*, whose articles shed light on the fraud of many left wing government programs, *Report Card*, which exposes the fraud of government and union-controlled education in America, and the *Defender*, which is the mouthpiece of the Individual Rights Foundation. All are excellent and well researched.

Pawns and fools of the left

Horowitz also mentions the pawns and fools who do the left’s radical bidding:

Politicians, who respond to the hysterical squeals of the young, as do many of the rest of us, pass laws that further damage America’s institutions.

Feminists, who are far more concerned with leftist ideology than with the rights of women, support an Anita Hill against a conservative justice like Chief Justice Clarence Thomas, but then distance themselves from Paul Jones, because she is accusing a liberal President like Bill Clinton.

Environmentalism, he says, is just another horse for the left to ride on because all the previous ones, called collectivism, communism, and progressivism, have been shot out from under them.

Rebirth of individualism

In spite of the somber tone of the book, Horowitz sees hope for America and her institutions. His turnabout, and mine, is part of that hope. We who have been formerly liberal and influential have a lot to atone for. And who doubts that there is a reawakening of individualism in America today, even among some of our youth. Our job, as lovers of freedom and individual rights, is to keep the momentum going. Horowitz’s book and his other publications are food for thought for those of us who have travelled from left to right. The book costs \$27.50 and his magazines are by subscription. Just contact the Center for the Study of Popular Culture, of which Horowitz is president, at (310) 843-3699. Web address: www.cspc.org Δ

Keep deer out of your garden & keep the crops for yourself

By Diana W. Morgan

Last summer I returned home from vacation to find my vegetable garden devoured by Bambi. My first instinct was to run for the shotgun, but since that wasn't a legal option in July, alternatives had to be found. I did some reading on the subject of deer deterrents and found that, like the old saying about opinions, everyone had one.

In many areas of the United States deer populations are on the rise. According to Kristine Bontaites, wildlife biologist with the New Hampshire Fish & Game Department, mild winters and decreased hunting pressure are the major factors for this population boom.

"The deer herd is increasing because we (Fish & Game) let it," Bontaites says. Lobbying by anti-hunting groups produces shortened seasons. That and fewer hunters in the woods results in escalating numbers of deer. An increased development of wild land habitat has brought man in close proximity to deer.

This spells trouble for farmers, gardeners, and orchardists. Apples are a big cash crop here in the northeast, and the growers are hopping mad, demanding answers from Fish & Game biologists. Unfortunately, the one sure-fire method of keeping deer out of your crops—an electric fence—is also the most expensive.

The rise in deer predation of home and commercial gardens has triggered a booming market featuring dozens of products all touted by their manufacturers as fool-proof deterrents. What really works? Well, it depends.

I know, that's not an informative answer, but that's the problem. Nothing except a fence works all the

time. How well and how long a product works depends upon a couple of factors.

First, how hungry are the deer? With increased populations the competition for available food becomes fierce. A starving deer in early spring will eat anything. There are a few plant materi-



Small net-like bags of human hair hung in the garden effectively repel foraging deer.

als they have a problem with, and this can be to your advantage. Deer have a hard time swallowing something with fuzzy leaves. They also dislike a plant that smells spicy. This is one reason deer usually leave the strong smelling herbs alone.

However, a ravenous deer is like Charlie Chaplin in "The Gold Rush" eating his old boot. Any plant can be fair game, and in a particularly hard

year they'll try anything. The trick is to shoo them away from what you want to eat yourself.

The second factor is how finicky are the deer in your particular area? Nearly all deer repellents work at one time or another on some deer. I've had good success with several methods, some of which didn't work at all for my gardening friends. You have to keep trying and see what works for you.

A final factor is you. Most repellents work for about 4-6 weeks, but a heavy rain can ruin the efficacy of many. Deterrents require frequent application and constant monitoring to be truly useful. If you're the plant-it-and-forget-it type of gardener, you need a fence. If you've got the time and patience to mess about with repellents, they should work well for you.

Fencing

Even I have finally resorted to fencing. A fence is the one sure method of keeping deer out of a garden or orchard, but there are a few requirements. A deer can jump anything lower than six-to eight-feet high, depending on the size of the deer. No matter what material you plan on using, be sure the fence is at least seven-feet high for white tails, taller for mulies, and the bottom needs to be flush with the ground. Deer would rather go under than over, if possible.

An electric fence can be shorter. About four feet is adequate. A three-wire fence will keep the deer from stepping through it, and the bottom wire should be about 18 inches off the ground. If you want to keep smaller garden raiders out, string a fourth wire closer to the ground. The juice has to be on. This seems obvious, but Kris says she's had irate orchardists complain that the thousand dollar fence she recommended doesn't work worth a darn, only to find they've never hooked it up to any current.

Some of the cheapest and most effective fencing I've found is the

nylon mesh that is sold as bird netting. Many companies now market the same thing in larger sizes labeled as deer net. It lasts for several years if taken inside each fall, and a big advantage of the netting is that it's almost invisible. This is partly why it works. Deer don't like getting their faces tangled in it, and even though it's flimsy, so far they haven't tried to crash through ours. Deer won't jump what they can't see, so don't top this with anything either. Low shrubbery around the base will keep the deer from being able to get a running start for any fence.

Fencing with net is a much cheaper proposition than electricity. We spent about \$100 to enclose a 3000 sq. ft. garden. Shop around. Usually the bigger bolts are cheaper by the square foot than narrower ones. We got 15-foot wide stock and cut it in half. Lengths of old rebar we had lying around served as fence posts, and we attached the mesh to them with fine wire. Next year we'll replace the rebar with something more attractive, like poles cut from the woodlot, but for now it makes a good utilitarian fence that isn't too much of an eyesore.

Fencing isn't always practical for some areas. They are either too small to bother with, too large for your budget to cope with, or too irregular a



With a small bar of soap tied to the stake, the small bag of hair attached above it, and a dog, this small salad garden is well protected.

shape to make sense of. For these areas you have to resort to repellents.

During the first summer of our deer wars, we tested several repellent methods. We felt we couldn't afford fencing and tried a few alternatives before purchasing enough fencing to protect two sides of the big vegetable garden. Our best deterrent performers protected the other two sides. We will use these methods in the orchard, the rose garden, and the smaller salad garden.

Coyote urine

One of the first repellents we tried was coyote urine. Don't ask me how it's collected; I don't want to know. But it was effective for nearly all the growing season. We put rebar every six feet along the back of the garden and drizzled the urine down the entire length of each pole. Six weeks later we repeated the application. There is some scientific evidence that herbivores are nervous about feeding in areas where predators are common. Though this may not work in all parts of the country, deer here seem to be shy of the smell of critters.

Blood meal

Another inexpensive repellent is blood meal. Deer won't eat a plant if it doesn't smell like a plant. Sprinkle the blood meal over the target vegetable. This works well on plants that head up like broccoli and cauliflower. The major drawbacks to this method are a good rain can wash it off, and too much will over-fertilize the plants, since blood meal is a good source of nitrogen.

Soap

One of the very best deterrents used by many orchardists in our area is also one of the cheapest—bars of soap. Hang the bars, still in the packaging, from the limbs of the orchard fruits and deer will steer clear. I like to use



Blood meal makes plants smell like animals while the bird mesh behind it is nearly invisible when strung around the garden is nearly invisible but deters deer.

sample-sized bars filched from motels I've stayed in.

Many orchardists claim one brand to be better than another; but recent studies at the University of New Hampshire suggest that varying the brands is more effective. This doesn't give the deer a chance to get accustomed to any one smell. I leave the soaps on all winter and renew them in early spring when the feeding pressure cranks up.

One word of caution with soap: I attached several bars to stakes using rubber bands and scattered them among my roses, but eventually they all disappeared, paper and all. It was a long time before I found out where they went. For some reason, crows love soap. Tie the bars securely to whatever you want to protect. I use knitting yarn and tie the bars up like a Christmas gift, wrapped on all four sides.

Hair

My husband's aunt tipped me off to the one repellent that works the best for me. Though she lives in a suburb of Utica, NY, she was plagued with deer eating everything in sight in her yard. There's an added bonus to this method. It's free, and if you have the

right connections you can get plenty of it. You need to know a barber or hairdresser who's willing to collect the clippings for you. Human hair, or rather the oil on it, makes an excellent deer deterrent. Fill mesh bags like those that oranges and onions come in with several hands-full of hair and hang them from poles near the plants you want to protect. I even throw in shed dog hair. Two bags, one on either end of a 15-foot row of raspberries, kept the deer out of the canes all winter. The only problem I have with this method is the birds like to thief the hair to line their nests in early spring. I've used the same batch of hair for two seasons now without renewing it, and it still seems to work.

There are several commercial deterrents on the market. If you choose to employ any of them, check to make sure they can be used on crops before applying them to fruits or vegetables. Many aren't recommended for human

consumption and most are costly. I've not used any of them because the cheaper methods work just fine.

Repellents should be placed about every six feet. However, you need to shorten the gap if this isn't effective. Once again, it depends upon the deer and how voracious or finicky they are. Make sure the smell is at nose height for a deer, around three or four feet off the ground.

Whatever methods you use, be vigilant. As soon as you see any new damage from deer, either renew the repellent or change it to something else. This is the real secret of successfully keeping these cute but aggravating animals out of your garden.

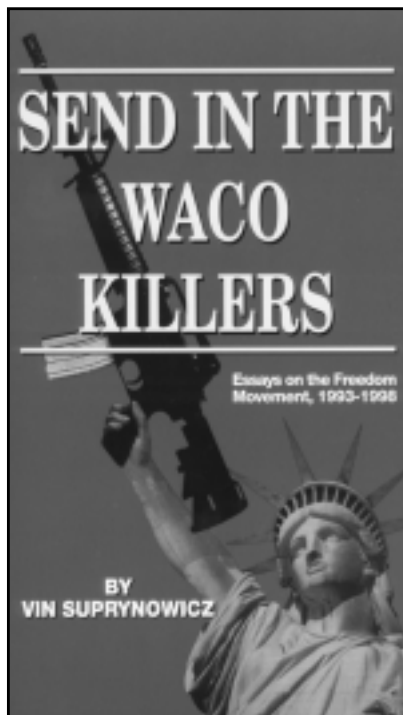
If the neighbors laugh at gift-wrapped soaps in the fruit trees and bags of hair in the beans, let them. When Bambi pays them a visit and leaves your place alone, they'll want to know what's in those funny little packages. The bottom line in the deer wars

is saving your crops for yourself. Try different methods and choose the ones that work best for you. Everything else is just a deer's dinner. Δ

Chat with other self-reliant people at *Backwoods Home Magazine's* popular website at:

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SEND IN THE WACO KILLERS



Three times the International Society of Newspaper Editors has included Vin Suprynowicz in their list of the 12 top weekly editorial writers in North America. For years his shoot-from-the-hip style has opened the eyes of thousands to government abuse of our liberties. In this book, *Send in the Waco Killers*, he blends material taken from his syndicated column with new commentary to give the reader a detailed, reporter's-eye-view of how the rights and freedoms of Americans are being subverted.

He uses factual accounts from the daily news to show how the Feds use the drug war, the public schools, jury rights, property rights, the IRS, gun control, and anti-militia hysteria to increase its power and control over us. He details how agents of the ATF and FBI have routinely lied, how they use paid informants to infiltrate Constitutionally-protected militia groups, then fabricate evidence to get arrests and discredit them.

Had he lived 225 years ago he'd have written a book to detail how King George III and Parliament have tried to enslave us but, sadly, this book is about how our government today is depriving us of our freedoms and ruining the lives of thousands without changing even one word of our Constitution.

If you read no other book this year, read *Send in the Waco Killers*. Just keep your blood pressure medication handy. 506 pages, trade paperback, \$21.95 + \$3 S&H.

Only \$24.95 (includes P&H)

1-800-835-2418

Get an early jump on weeds this spring and have a great garden all year long

By Alice Brantley Yeager

Weeds! This is an obnoxious word to gardeners, but show me a garden without weeds coming up among the good plants and I'll show you a place where nothing will grow. No matter how careful we have been the year before to eradicate every weed in sight, Mother Nature has seen fit to strew a new supply of seeds all over the place. And so it has gone ever since people have tried to cultivate gardens.

Every part of the country has its own varieties of weeds and they are fought with everything from determination and hoes to herbicides. The bad part about weeds is that they have all the persistence of buffalo gnats. The annuals produce thousands of seeds to perpetuate their kind and many of them have more than one life cycle each summer. The perennials not only produce seeds, but they sink their roots down to China and defy anyone to do them in. Biennials are thrown in for good measure just in case one of

the others fails to come through. And what about the scourge known as nut-grass or nutsedge? It's sneaky. It spreads underground by nut-like tubers and is one of the worst of the grasses to eliminate once it gets a root-hold. Chop off the grassy tops and you haven't accomplished a thing.

Here in southwest Arkansas (Zone 8) we have an abundance of weeds and, because of our long growing season, they have plenty of time to produce their seeds. Chickweed, purslane, dock, wild morning-glory, quack grass, bindweed—you name it, we've got it.

So, what's a poor gardener to do? First of all, try taking some preventative measures. Fortunately, this may begin at any season, but one of the most effective times is in early spring when cool-weather weeds are making rapid growth and can smother young plants such as lettuce, radishes, spinach, etc. Even with good soil preparation before seeds are planted, one can still expect hidden weeds to germinate right along with the desired seedlings.

One method of control in the early garden is to lightly cultivate soil around young vegetable plants to inhibit the



Indian Strawberry is a creeper that grows all year long in the South and can take over a garden. It is easily distinguished from cultivated strawberry plants by its yellow blossoms which are followed by tasteless, almost round-shaped "strawberries."

growth of weeds. If you start soon enough, chances are many of the weed seedlings will die from having their roots disturbed and exposed to air. If you're into raised bed gardening, a small hand trowel and fork will probably suffice as gardening tools. A dandelion weeder is perfect for cutting deep rooted perennials - thistles, plaintains, dock, etc. This weeder can also be used to harvest asparagus.

If you are planting in long rows, however, a good sharp hoe or potato digger will give quicker results than small hand tools. Be careful not to cultivate too deeply or too close to vegetable plants in your desire to kill out the weeds, as you may disturb the roots of the crop plants too. If weeds are crowding vegetables, better play it safe and gently hand-pull the weeds.

Some folks say that one of the best times to get rid of weeds is just after a heavy rain as they can be pulled up easily. This is bad advice. Never attempt weeding when soil is wet as you'll probably do more harm than good. Weeding in wet soil is akin to



Weeds are on their way to smothering onions. Here they are coming up through an organic mulch of leaves and pine needles, so they are easy to uproot.



The Jerusalem Artichoke's flowers are long-lasting in bouquets, but the plant's growth habit is invasive and it has a tendency, because of its height, to shade out desired plants. It does have a redeeming feature—its tubers are edible and may be enjoyed raw or cooked.

trying to cultivate when dirt is wet and will create cloddy conditions. Also, there are a number of diseases (for instance, bean canker) that can be spread by working among plants while they are wet from rain or dew.

Don't be fooled if your freshly tilled soil looks pliable enough to allow you to proceed with planting. If there were any perennial weeds or grasses growing there the year before, don't overlook the possibility that some roots may lie hidden ready to send up shoots as soon as you turn your back. Thoroughly rake the plot and discard any lingering plant parts or roots. Perennials, once they get a root-hold, are hard to discourage. The infamous nutgrass can ruin a garden spot within a few seasons if not eradicated quickly. Years ago we inadvertently brought in a few nutlets along with some young grape vines and it took a diligent pig (confined by an electric fence) and a lot of patience to finally rid the garden of the persistent nutgrass. Even today we occasionally find sprigs of the menace. These are carefully dug out and cast into the

incinerator. Nutgrass is not compost material.

If at all possible, get rid of weeds before they produce their crops of seeds. If you wait until they reseed themselves, you're in big trouble when next planting season rolls around. Weeds do have a useful purpose if gathered before seeding, as they may be added to the compost heap where they will increase the humus content. The same idea applies when weeds are turned under or dug into the

soil.

Not all weeds are bad

In all fairness I must point out that not all weeds are bad guys. Some of them have culinary value and some are useful in flower bouquets. If you have a sizeable quantity of lamb's quarters show up, don't throw all of it into a compost bin. Try cooking some of the young plants (6-8 inches high). Simply wash them in cool water, discard any tough stems and cook them a few minutes in just enough water to cover. Drain, season with a bit of oleo or butter, and serve for a delicious side dish that is rich in Vitamins A and C. The flavor resembles a combination of spinach and asparagus. Mature plants will tower above everything else in the

garden and produce thousands of tiny seeds.

Goldenrod, the scapegoat of the hay fever season, is undesirable in a vegetable garden, but its flowers are a boon to beekeepers in late summer. Wild onions are a taste treat chopped into sour cream to spread on baked potatoes. Wild garlic flavors an Irish stew to perfection. Regardless of their good points, all of these plants are aggressive and will take over if not held in check.

A good gardening rule is to be intolerant of any weeds in and around the area where vegetables are to be grown. Not only do weeds vie for soil nutrients and moisture, thus cutting down on vegetable yields, but they can be hosts for plant diseases as well as hiding places for insects that multiply and attack the garden. A good example of insect pests is the flea beetle that thrive and multiplies in patches of weeds and moves in on the garden in early summer. Flea beetles love eggplants and almost every other vegetable plant. An infestation of flea beetles chewing tiny holes in leaves can not only lead to inferior produce from weakened plants, but it can also promote the spread of bacterial and viral diseases among plants.



Wild Ageratum's sky-blue flowers are beautiful additions to bouquets, but watch out for its take-over tactics in the garden.

Preventing recurrences

Once a garden is under control as far as weeds are concerned, one of the most effective ways to prevent recurrence of a weedy situation is to adopt a mulch method that works for your own garden. Remember that weeds, like other plants, need sunlight and their seedlings thrive when there's plenty of light. Many gardeners resort to black plastic in order to shut off the light supply. However, plastic may end up being a moisture barrier and it is not biodegradable. In many parts of the country, plastic is likely to make the soil too warm. Frankly, who wants to look at black plastic?



Ragweed, sometimes called Hayfever Weed, is not limited to a single type of weed. It has lots of cousins and they produce myriads of seeds.

Fortunately, many birds love the oil-rich seeds so we gardeners don't inherit all of them.

I much prefer a thick organic mulch of leaves, straw, pine needles, etc. This not only cuts off the light supply to weed seedlings, but the mulch breaks down to put nutrients into the

soil and make it loose and workable. Rain runs through an organic mulch without washing soil away from the roots of the crop plants. If any weeds come up through the mulch, they are easy to extract as their roots are in loose soil.

There are many other materials that can be used as mulch—newspapers, bark chips, seaweed, corn-cobs, and so on. Some are more available as local products making them expensive in other areas. All have their good and bad points. Before using anything with which you are not familiar, check about for advice. Some materials may withhold water from the soil. Some may attract ants or termites. Others, like paper, may be unattractive and have a tendency to scatter during windy days.

Tools

Easy-to-use tools are a must where weeding is concerned. Garden supply stores and catalogs have all kinds to offer. Avoid the very cheaply priced tools, as they are not likely to last more than a season or two. Most tools are versatile and have more than one use. The important thing to learn is what works best for you. For instance, some tools are heavy to handle and, while they may last for generations, they tire the gardener. A lighter weight tool will often suffice. The old muscle-building grub hoe is a good example of a heavy tool seldom seen in use today.

When hand-weeding, don't do the job in a stooping position that makes you think you have something in common with Methuselah when you stand up. If knee guards are comfortable for you, wear them. If a low stool or bucket provides comfort as a seat, use it. One of the nicest inventions on the market is the combination kneeler and



When the sweet scent of Japanese Honeysuckle floats upon the air, it's a treat for the olfactory sense. But, when it invades the garden, it is a real headache.

seat. It can be quickly converted from a sitting height to a kneeling position just by inverting it. Get one with a steel frame, as you will enjoy this item for years to come.

Weed control took a big leap forward with the introduction of the string-trimmers. These power tools come in several sizes and weights and should be considered with an emphasis on ease of handling. Women can use the lighter weight ones without difficulty and they come in electric or gasoline powered models. We have a Weed Eater that is invaluable in keeping down weeds between our raised beds in the garden, and we have recently purchased a Troy-Bilt Trimmer-Mower to use in other areas where we have trouble with tough vines such as honeysuckle, poison-ivy, wisteria, etc. These advances in weed control are worth their weight in gold to gardeners and landscapers.

One last piece of advice—don't overestimate your ability when it comes to planning the size of your garden. Taking care of a manageable area is one thing, but trying to keep one end of a garden weeded and in good shape while the other end is producing a crop of next year's gremlins is another. Have fun with your garden. Don't make it a place of drudgery. Δ

Dog-gone it, I never sausage a wiener of a recipe

By Richard Blunt

Gastronomically, the United States is one of the most fortunate countries in the world. A full spectrum of climate conditions allows every possible kind of food to be produced. Taking full advantage of this wealth of plenty, countless recipes for preparing these foods have been provided by Native Americans and immigrants from all over the world. It is interesting to note that the descendants of these native people and immigrants have developed a talent for breaking tradition. They have adapted and modified many of these traditional culinary formulas into foods that are uniquely American. The hot dog, a form of sausage, is a classic example of this culinary creativity.

The sausage is not strictly a European invention. The early colonists arrived in the New World and found Native Americans making pemmican, a smoked dried sausage patty made from a mixture of game meat and fat that often had berries added. Over the years immigrants from all over the world have brought other sausage recipes from their native land to America. Today, there are over 2000 meat processors in America producing approximately 5 billion pounds of 200 varieties of sausage.

The hot dog is the most popular of these sausages. It sports many names, depending on what part of the country you're in: tube steak, Coney Island turkey, white hot, red hot, and frankfurter are a just few of the most popular names that come to mind. By whatever name it is called, the hot dog has had a glorious career in this country for over 135 years. And before the sudden rise in popularity of the hamburger, fried chicken, and other fast foods, it was probably the most popular food item in the world.

Unfortunately, over the years, the packaged food industry has removed much of the original texture, snap, and juiciness from the hot dog. Commercial processors are stuffing them into synthetic casings or removing the skins before packaging. Sinful! For a real good hot dog, one that has a real crunch when you bite into it, a natural skin or casing is absolutely necessary. Also, some contemporary hot dog varieties are being made with everything from chicken to seaweed, ingredients that have indescribable textures when made into sausage. Despite all this, Americans still eat over 20 billion hot dogs a year.

There is no clear path to the origin of the American hot dog, but an open debate still rages over whether the American hot dog was adapted from the German frankfurter, the Austrian wiener, or a variety of other sausages that share a common heritage. A few years ago, *Yankee Magazine* published an article on the best hot dogs in New



Richard Blunt

England. The deluge of angry letters from incensed readers, each of whom complained how a particular "best hot dog" in the world was unjustifiably ignored, revealed how deep the passion for this unique food runs in this country.

I was 12-years old before I tasted my first commercial hot dog, because my mother was not a great fan of the commercial product. "They don't taste like a real sausage," was her usual complaint. When she made her homemade baked beans on selected Saturdays, she would go to Mr. Cibley's butcher shop and buy his custom made kosher-style all-beef franks. These delicious hot dogs bore little resemblance to their highly preserved commercial counterparts, the most significant differences being that they were grey instead of pink and had a dense rather than a spongy gelatinous texture. Mr. Cibley was one of our neighbors and a good friend of my mother's. He knew my mom had a passion for the taste of pork and the bite of hot chilli pepper, so he taught her how to make an all-beef kosher frank as well as a kosher-style frank that contained a little pork, pork fat, milk, and chilli pepper flakes, none of which, save for the chilli pepper, have a place in a kosher kitchen.

Today I live in an area where small neighborhood butchers are rare, but not impossible to find. Unfortunately, none of them make a custom kosher-style hot dog, and Nathan's Coney Island beef hot dogs, considered by many to be the best commercial kosher-style hot dog in the East, are sold only in supermarket deli cases, at prices rivaling that of prime beef.

But I am a very lucky soul. This past summer, while attempting to sort the hundreds of recipes that my mother left me, I came across Mr. Cibley's kosher-style hot dog recipe. My first impulse was to share this old fashioned homemade sausage recipe with my family. So I planned a



special cookout at which I served homemade hot dogs on fresh baked rolls, smothered with homemade mustard, pepper relish, and sautéed onions. The resident food committee—Sarah, Jason, and Michael (my three children)—gave this effort a unanimous thumbs up. That is all the motivation I needed to share these formulas with you.

After a short review of some basic sausage-making procedures, I will present you with three recipes that will make your next cookout an experience you will want to repeat often.

Hot dog making 101

Hot dogs are simply raw ground or chopped meat mixtures that are seasoned and stuffed into casings. It doesn't require a lot of specialized equipment or knowledge to make a first rate hot dog. After making your first batch, using the formula that I am sharing with you in this column, you will be able to develop your own formula to suit your personal taste and texture preferences.

Casings

The best hot dog mixtures are stuffed into natural casings, which are simply hog or beef intestines cleaned and packed in salt or brine. Most butcher shops and a growing number of supermarkets make their own sausages and will sell you hog or beef casings, packed in brine, at a very reasonable price. These casings are sold in lengths of 30 to 100 feet, but can be kept under refrigeration for several months. I prefer pork casings, because when stuffed they yield a hot dog of 1- to 1½-inches wide, which requires less cooking time than the 3-inch dogs that you get when using beef casings.

To prepare the casing for use, first cut off the amount that you are going to need. I estimate about 10 to 12 inches for each 6-inch stuffed hot dog. This allows room for accidents, such as a weak section of the casing that may tear while stuffing. I cut about a 5-foot length of casing for every 6 hot

dogs. You may be more dexterous than I and able to make the same number of sausages with less casing. If so, go for it.

Soak the casing in cold water for 30 minutes, then rinse in cold water by gently slipping the end of the casing over the faucet. This rinsing will also reveal any holes in the casing. Gently drag the casing between your fingers to remove any excess water.

To stuff the casings, I use an inexpensive wide-mouth funnel. I set the funnel on my work surface with the narrow end facing up. I gently open one end of the casing and slide it over the upward-facing end of the funnel. Holding the casing with the thumb and first finger of one hand, so that it stands straight out from the tip of the funnel for about five inches, I gently slide the casing onto the funnel tube with the other hand, until only two inches of the casing is left extended from the funnel neck.

Stuffing

The important rule to remember while stuffing any sausage is to avoid air pockets. To get started, I pack my funnel as tightly as possible with hot dog filling. As I am stuffing the hot dogs, I keep the end of the funnel poked into the filling that is in the casing. If air still gets into the casing, and it starts to balloon, poke the casing with a pin and gently let the air out. Stuff the casing with about one inch of filling, then twist the casing in the middle of that filling. Tie a string, using a double knot at that twisted point. Remove the half inch of filling at the end and reuse it. Continue filling the casing, tying each hot dog off at the end when it reaches six inches.

The filling

There are important tools and ingredients to consider. First: although I have both a handcrank meat grinder and a commercial grade electric mixer with a meat grinding attachment, I have discovered that my food processor does the best job when I am making most sausage mixtures. To control the texture of the filling, I simply use the "pulse" feature that is standard on all food processors. This method has no equal when making the smooth mixture that is required for hot dogs.

Second: when making any sausage, use only good quality meat. That is, boneless cuts, free of sinew and cartilage. For hot dogs I use 80% beef to 20% fat ground chuck and boneless pork loin. The butcher at the supermarket of your local butcher shop will be happy to sell, or even give, you good quality pork fat or beef suet.

Using the simple principles outlined here, along with a little practice gained by working with my mom's recipe, you will open the door to an endless variety of hot dog flavors and textures. Let's get started.

Cibley's kosher-style hot dog

As I mentioned earlier, this is not a kosher hot dog because it contains a small portion of pork, pork fat, and milk for additional flavor. You can simply substitute veal for the pork, beef suet for the pork fat, and a light beef stock for the milk and you will have a true all-beef, kosher-style hot dog.

Ingredients:

½ cup onion, diced medium
¼ pound beef suet
¼ pound pork fat
1½ pounds 80%-20% ground chuck or other quality ground beef
3 cloves fresh garlic, minced
2 tsp. dry mustard
2½ tsp. ground coriander
1 tsp. mace
1 Tbsp. kosher salt
¼ tsp. black pepper
1 tsp. light corn syrup
¼ tsp. dried chilli pepper flakes
¼ tsp. sweet paprika
½ cup whole milk or light beef stock

Method:

1. Process the onion, pork fat, and beef suet with the steel blade of the processor until smooth. Add the ground chuck and continue to process until smooth again.
 2. In a separate mixing bowl, blend together the remaining ingredients then pour the mixture into a measuring cup.
 3. Pour this mixture into the processor while it is running and process until the mixture is well blended.
 4. Stuff the mixture into prepared casings. Tie off the dogs at 6-inch lengths.
 5. Prick each hot dog with a pin 5 to 6 times, especially where you've discovered air pockets. Roll them between your palms and a smooth work surface to remove all trapped air.
 6. Poach them for 15 minutes, as you would eggs, in a suitable size pan, weighing them down with something to prevent them from floating. Five minutes into the poaching, prick them again with a needle. This will prevent them from splitting.
 7. Place the poached dogs in a colander and rinse them with cold water, then pat them dry and let them cool.
- These dogs will keep up to a week under refrigeration, and at least two weeks when packaged properly and frozen. They can be reheated using the same methods that you would for any commercial hot dog. Remember, these dogs do not contain any preservatives, so unlike their commercial counterparts they are grey instead of chemical pink.

The hot dog bun

As a sandwich, the hot dog must be viewed in its totality. It is the sum of four parts: the meat, the bun, the mustard, and the relish. And for many of us, there is a fifth part—onions. Over the years, experience has taught me that it is far easier to find a good hot dog than it is to buy good hot dog rolls. But it is possible to bake good rolls yourself.

A good hot dog roll is similar to a good peasant bread, having few ingredients and served fresh from the oven. If you, like me, have been turned off by the doughy, overly sweet sponges that commercial bakeries call hot dog rolls, try these. You will not be disappointed.

Ingredients:

5 cups all purpose flour
1 Tbsp. kosher salt
2 packages active dry yeast
2 cups warm water, 110 to 115 degrees F.
1 Tbsp. light corn syrup
2 Tbsp. peanut oil
1 egg, beaten with 1 tsp. of milk

Method:

1. Combine four cups of the flour with the salt in a suitable size bowl and set the mixture aside.
2. Combine the yeast with the warm water, corn syrup, and the peanut oil. Set the mixture aside for 10 to 15 minutes while the yeast proofs.
3. In a large bowl or mixer, stir the yeast mixture into 2½ cups of the flour mixture until a smooth batter is formed. Add the remaining 1½ cups of flour mixture ½-cup at a time, continuing to stir until the resulting dough pulls away from the side of the bowl and forms a sticky ball in the center. If necessary add some of the remaining cup of flour.
4. Turn the dough onto a work surface coated with flour from the remaining measured cup of flour. Knead the dough, adding flour as necessary, until it becomes smooth and elastic with no lumps. This will take about 15 minutes.
5. Place the dough into a lightly oiled bowl with straight sides. Cover it with a damp towel or plastic wrap, and let it rise until double in bulk, about 40 to 45 minutes.
6. Punch down the dough and cut it into 18 pieces. While keeping the others covered, roll each piece into a 1½-inch rope. Pat each rope into a 3- by 6-inch rectangle. Evenly space 6 rectangles on three 11- by 16-inch nonstick cookie sheets. Let them rise, covered with damp paper towels, for 45 minutes.
7. Pre-heat your oven to 375 degrees, and place pan half filled with boiling water on the bottom of the oven.
8. Brush the rolls with the egg-milk wash and bake them for 15 minutes. Immediately remove the pan of water from the oven and continue baking the rolls for another 2 minutes. The finished rolls should be a medium golden brown.

Immediately remove the rolls from the pan and place them on wire racks to cool.

Old fashioned hot dog pepper relish

The third component of a great hot dog is the relish it is served with. A good relish can raise the acceptability of even a second rate commercial hot dog and make it edible. Not great, but edible. Here is a relish similar to those created hundreds of years ago to preserve vegetables over the long winter in many parts of the world. American culinary wizardry has transformed this relish into a perfect complement to its two favorite foods—hot dogs and hamburgers. I also use it to add zip to one of my favorite picnic foods, cold Southern Fried Chicken.

Ingredients:

3 cups seeded and coarsely chopped bell peppers (use a mixture of yellow, green, and red)
4 cups coarsely chopped white onions (about 5 medium onions)
1 cup finely chopped green cabbage
Boiling water to cover
½ cup 5-percent white vinegar
½ cup water
1½ cups 5-percent cider vinegar
1 tsp. peeled, minced fresh ginger
4 cloves minced fresh garlic
4 seeded jalapaño peppers, minced (the hottest you can find)
1½ cups sugar
1 Tbsp. kosher salt
2 Tbsp. mustard seeds
2 Tbsp. celery seeds
1 tsp. whole allspice
1 tsp. dried chilli pepper flakes

Method:

1. Place the chopped bell peppers, onions, and cabbage in a large stainless steel or heat-resistant glass bowl and add enough hot water to cover. Let the mixture stand for 15 minutes then drain and return to the bowl.

2. Combine the ½ cup of white vinegar with the ½ cup of water. Heat the mixture to boiling and pour over the drained vegetables. Let the mixture stand for 15 minutes and drain again.

3. Place the drained vegetables in a stainless steel pot, large enough to hold all of the ingredients, then add the remaining ingredients and bring the mixture to a boil over medium-high heat. Cook for 30 seconds, then remove the mixture from the heat.

4. Pour the mixture into clean, hot, 1-pint canning jars and process in a boiling water bath for 5 minutes to seal the jars.

Let the relish mellow for one month in a cool dark place before serving.

Once opened, store the tightly closed jar in the refrigerator.

Ball park mustard

Another key component of a good hot dog is the mustard. I like to mix my mustard with the relish before slathering it on the hot dog. The mixture resembles an Indian Moghul condiment called achar that is usually served with curries. In this country, we call this kind of mix Chow Chow. I make several types of mustard, all based on a very simple formula. By re-configuring the basic ingredients, I can create mustards with very different flavors. I think that this mustard, when used with a good pepper relish, is a crowning glory for hot dogs. Give it a try, and let me know what you think.

Ingredients:

¾ cup yellow mustard seeds
¼ cup brown mustard seeds
4 Tbsp. water
½ cup honey
⅔ cup cider vinegar
⅔ cup flat, dark ale or beer
¼ tsp. chilli pepper flakes
1 Tbsp. horseradish
1 Tbsp. fresh ground nutmeg
1 Tbsp. kosher salt

Method:

1. Grind the mustard seeds to a desired consistency in a blender.

2. Mix the processed seeds with the water in a glass or stainless steel bowl and let the mixture stand covered for one hour.

3. Combine the mustard mixture, honey, vinegar, flat ale, chilli pepper flakes, horseradish, nutmeg, and salt in the blender or food processor. Process until the mixture forms a consistency you like. Add more honey if the mixture looks dry.

4. Transfer the mixture to a glass or stainless steel bowl, cover and let stand for 24 hours.

5. Pour into sterilized 4-ounce jelly jars and process in a boiling water bath for 10 minutes. Store in a cool dark place for 3 weeks. Refrigerate after opening.

This will yield about 2½ cups.

Well, that's all for now. I am sure that once you experience what a real hot dog tastes like, you'll find that those gelatinous pink things that the meat companies call hot dogs are best left in the supermarket meat case. Δ

Make your kids some terrific & inexpensive playground toys

By Rev. Dr. J. D. Hooker

My wife and I have sent two daughters out into the world and still have two more at home, and by the time you read this, our third grandchild will have been

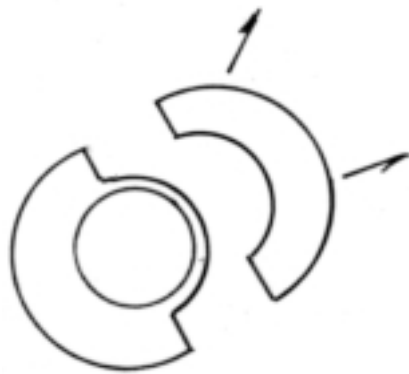


Figure 1. Cut and remove waste.

born. Through all of this (including my own recollections of when I was just a little guy myself) the single biggest thing I've learned about kids in my whole life is that no matter what other requirements a kid might have—food, shelter, doctor and dentist visits,



Figure 2. Turn tire inside out and hang in place.

shoes and clothes, to learn about responsibility, to get an education, or whatever—every kid needs good healthy exercise that's plenty of fun.

It really doesn't make any difference whether you might be raising city kids or country kids; whether those kids are white, black, Hispanic, or whatever; their number one need is simply having fun in a safe environment.

Childhood is when everything is fresh and new each and every time the sun comes back up. Frogs can live in pants pockets, dogs and cats can reason just as well as humans (and some can talk), bits of a skyblue shell from

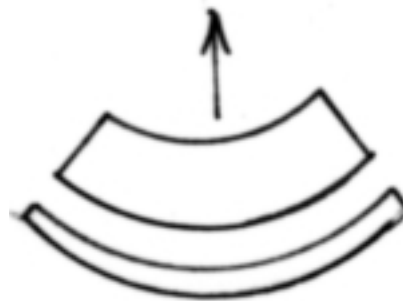


Figure 3. Cut off and remove sidewalls from waste piece of tire.

a newly hatched robins' egg are worth many times more than diamonds, Mom and Dad are still the smartest people on earth, and just playing is life's highest priority.

But childhood's also a very short time. All too soon, those tiny little loveable and laughing tykes will be marching off to universities, dying on battlefields, sweating in factories and on construction crews, and running off to mortgages, bills, and adulthood. We can't control their destinies, nor can we protect them from all of life's pains and tragedies, but we sure can build them some memories, that

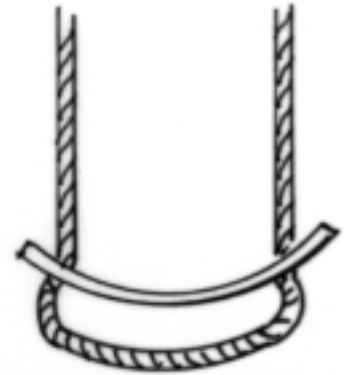


Figure 4. Drill two large holes, add rope as shown, and hang in place.

they'll always look back on with big childlike smiles.

You really don't need to spend a tall stack of green paper. If you're handy at all, there are so very many varieties of really fun and safe play equipment, which are so easily put together, that there isn't really any reason why every kid shouldn't have some swing, see-saw, sand box, or something that they love playing with.

If you've got no more than a piece of rope, a sharp knife, and an old bald junk tire—and make sure it's really bald because the tread can give kids nasty oinches—then you've found a couple of really nice swings already. Most smaller children especially love the larger swing illustrated here because the built-in hand-holds let them feel more secure (Figures 1 and

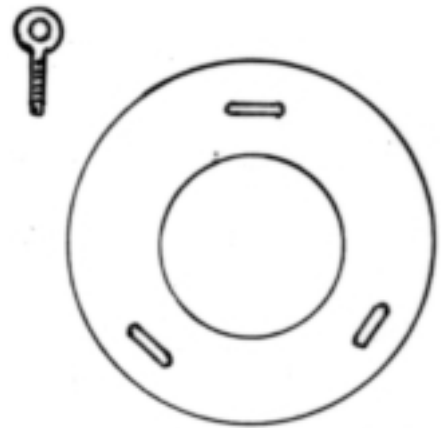


Figure 5. Install three equally spaced eyebolts.

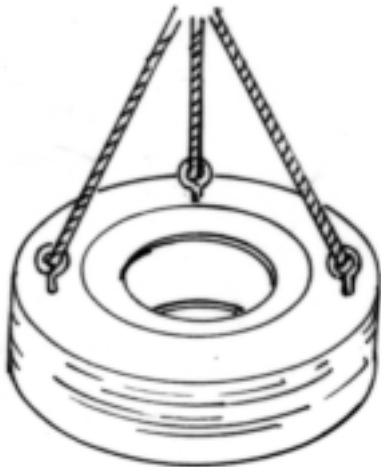


Figure 6. Hang in place.

2). While kids who are just a little older usually prefer the smaller swing formed from the “scrap” piece (Figures 3 and 4).

With three or four eyebolts and an equal number of large flat washers, a whole uncut junk tire can readily be hung up as shown (Figures 5 and 6),

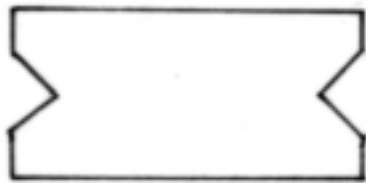


Figure 7. Cut notches in board.

quickly providing a swing that’s plenty of fun when a couple of kids decide on sharing the ride. While only a handsaw, a scrap of 2x8 or 2x10 about

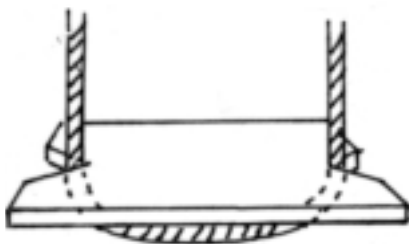


Figure 8. Hang in place.

a foot long, and a length of rope can be used to make a simple, but sturdy swing in well under five minutes, that will provide years of childhood pleasure (Figures 7, 8, and 9).

Probably the most uniquely ingenious sort of swing that I’ve ever seen though has to be the sapling type swing, which was widely popular in colonial America, and is still common in some remoter parts of West

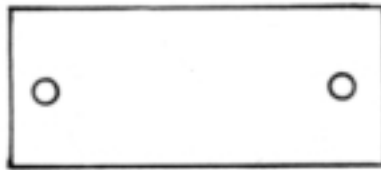


Figure 9. Alternately, holes can be bored, rather than cutting notches. Hang in the same manner.

Virginia, Tennessee, and a few of our other eastern mountain areas.

Not at all difficult to fashion (the hardest part being boiling and bending the hoops at the top), it requires no purchased parts. The only thing I’ve ever found wrong with this design has

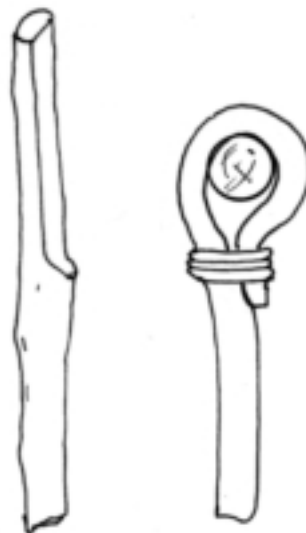


Figure 10. Trim the upper end of a sapling pole and boil until easily bent. Wrap around the hanger and bind in place.



Figure 11. Lash poles in place for seat, back, and braces.

been that it’s not more widely known (Figures 10 and 11).

Not everyone, though, has a “just right” tree, with a stout and sturdy horizontal limb, at just the right alti-

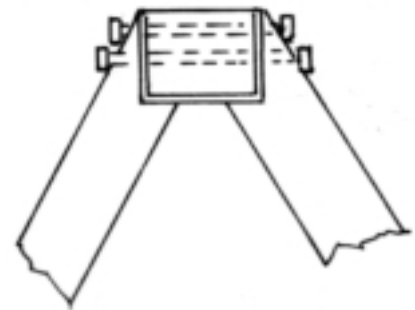


Figure 12. Trim 4x4s, or similarly-sized wood, and bolt solidly in place.

tude, available for hanging a swing from. But that isn’t much of a problem either, if you’ll use a little of your “backwoods” ingenuity. I used landscape timbers for legs, and a 4x4 for the crosspiece, with some 2x4s for bracing to build our kids’ swing-set because that’s what I had available. But I’ve seen a variety of other materials used with equally excellent results: used power poles—often available free or at least cheap from utility companies; smaller diameter (4- 8-inch) logs straight from the woodlot; all different sizes and grades of standard lumber; and so forth (Figures 12, 13, 14, and 15).

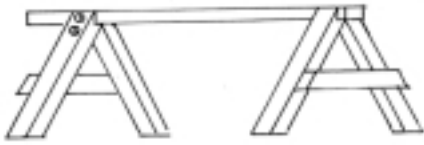


Figure 13. Add bracing and prepare to hang swings.

Monkey bars, and a wide range of other climbing and swinging along types of play equipment, are well loved by most kids of all differing



Figure 14. When hanging swings from metal eyebolts, using eyes designed for splices in cable allows rope to hold up much longer.

ages. Most of these are readily put together using the same sorts of lumber. Just use an electric drill, or a brace and bit, for the holes, and heavy weight metal conduit, iron gas pipe, or

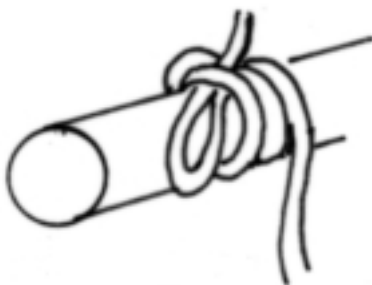


Figure 15. Alternately, wrapping rope two or three times around a wooden pole will also help the rope to last.

pieces of heavy duty chain link style top rail for the bars (Figures 16 and 17).

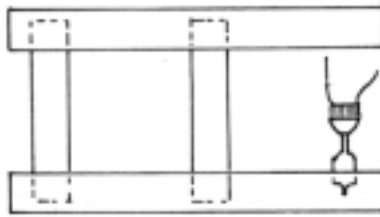


Figure 16. Drilling the holes that will receive the bars

Sandboxes can be made from most anything—railroad ties are terrific, as are old tractor tires, logs, and pieces of phone poles. If you happened to have any sort of lumber around that hasn't

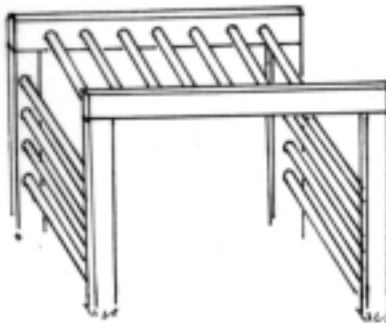


Figure 17. The finished monkey bars

already been assigned to some specific project, I'm sure you could find it easy enough to design and knock together some simple sides to contain a small pile of coarse mason's sand (Figure 18).

With any sandbox though, if you or any neighbors have any cats, the big thing is to provide some sort of cover for it when the kids aren't

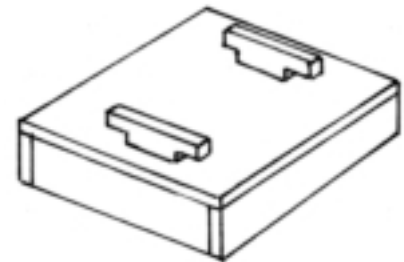


Figure 18. Make a cover for the box.

playing in it. Otherwise, what you've built is a giant litter box.

Our daughters' very favorite piece of play equipment has always been their teeter-totter. I don't think I put more than a couple of hours into building it, and hardly any money at all. Now, some 20 years later (I told you childhood flies by fast), our eldest daughter's own kids are getting just as much fun out of it as she did.

All I used to build it were 10-foot long 2x10 scaffold planks, two 18-inch pieces of 2x10 lumber, an empty wooden whiskey barrel, and twelve lag bolts with washers. That sure isn't much material to use when putting something together you'll be able to watch your children's children play on (Figure 19).

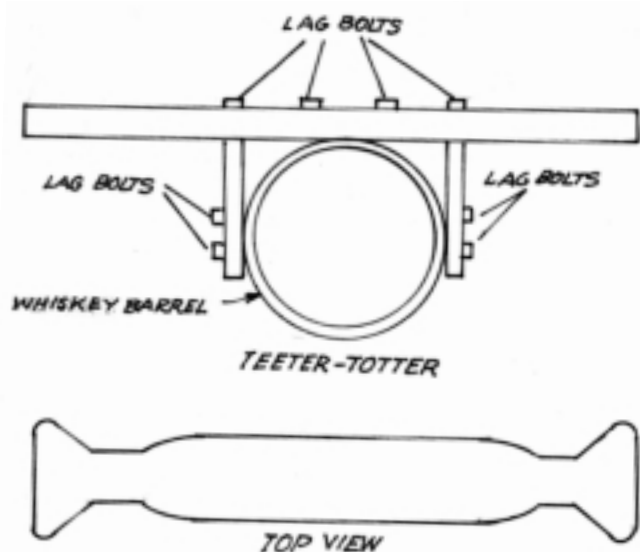


Figure 19. Putting the teeter-totter together



Figure 20. Line a hole with cloth, apply heavy coats of paint, fill with water, then add a bunch of kids.

I'm sure we've all seen those cheap (cheap-made, not cheap-to-purchase!) plastic wading pools for kids. While



Figure 21. A wooden box may be lined with heavily painted cloth and used as a wading pool. Allow the cloth to overlap over the edges. Tack or staple in place before painting.

almost all children will get a whole summer's worth of enjoyment from one of these, that's just about all I've ever seen one of these plastic pools hold up to. Try keeping one over winter, and it's almost invariably cracked and leaking some place come spring-time.

But if you've already read my article on canvas roofing in issue Issue No. 39 (May/June 1996) of *Backwoods Home Magazine*, you'll know that simple painted cloth can be just as waterproof as anything. It's really not much trouble at all to shovel out a saucer-like depression (Figure 20), or nail together a pool-sized wooden frame-work if there's any reason for not digging in your yard (Figure 21). Lined with canvas, old bed sheets, or similar large pieces of cloth, and given a few heavy coats of outdoor paint or varnish, such an easily parent-built wading pool can provide one kid or a whole passel of children with plenty

of summer fun for years at next to no cost.

So why not take some of these ideas and add in a few of your own, along with a small investment of your time. I know most people are pretty busy and there are plenty of "important" things that we all should be busy doing. But before any of us realize what's happened, those college enrollment forms, draft board notices, job applications, and all of those other "entering adulthood" notices will be arriving. So let's put in the effort to nail together some memories our kids can always smile back on, while we still have time. All of the less important work really can wait until tomorrow. Δ

Baiting the Hook

*I pop the point
of the tiny trout hook
through the neck
of a ten cent Montana nightcrawler*

it curves through the worm

*I jab the tip
out
just below the
dark red neck band*

*I double the stretched worm
into a half-bow
hook him again
gather another loop
and hook*

bow pushed against bow

*until the worm begins
to tie himself
onto the gold hook*

*threading in and out of his own
kinks*

**Sheryl L. Nelms
Ft. Worth, TX**

Pep Talk

Rise and shine, coleus! What do you say?
Good morning, geranium. Have a nice day!
Hi there, aspidistra, your soil could be wetter.
You have a dead leaf right...there. Isn't that better?
Gloxinia, baby, you seem to be dying.
Could it be that deep down in your roots you're not trying?
Hello, little prayer plant. Say one for me.
Care for some bonemeal? How about tea?
I talk and I cultivate, chatter and nourish.
My plants seem to love it; they flower and flourish.
They know if they don't that I'll do something drastic:
Replace them with sturdy, unwilttable plastic!

**Jean Adair
Melrose, MN**

Mountain lions — attacks are still rare, but just in case . . .

By Gene Sheley

Near the top of North America's wildlife food chain is the mountain lion, a close second to bears in various forms in ferocity, strength, and killing ability. In recent years, the wild felines, also known variously as panthers, pumas, cougars, cat-mounts (cat of the mountains), and big cat, increasingly have become entangled with every animal's worst enemy—man.

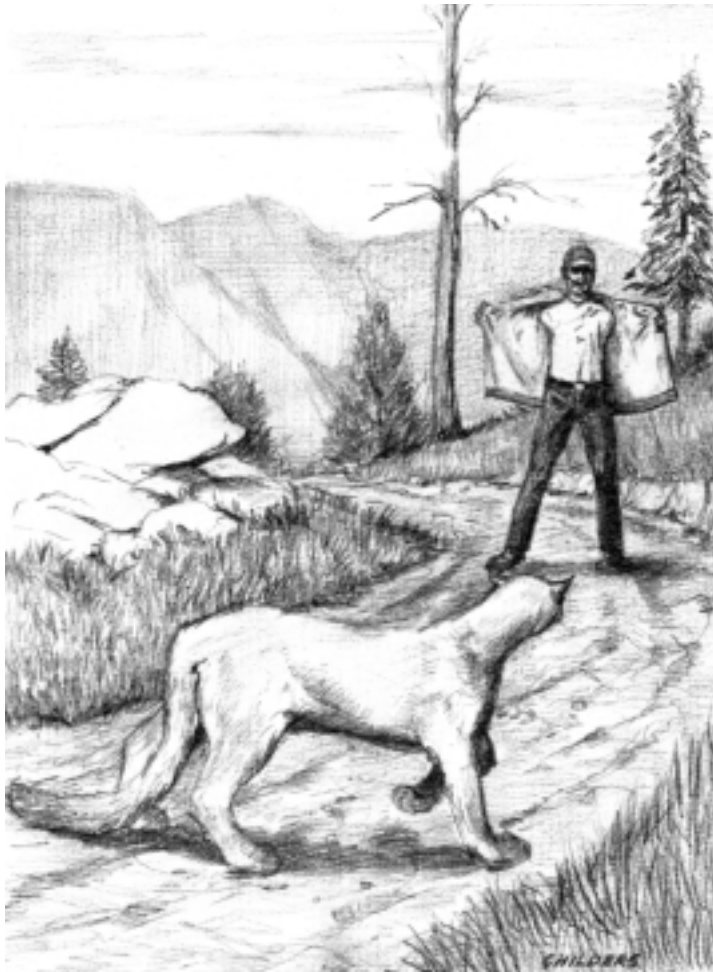
Human populations relentlessly encroach on the lions' domains while laws protecting them or regulating their depredation have increased the lion population as well.

Fortunately, tragic lion/human encounters still are rare but of the 50 recorded attacks in the past 100 years, most of the attacks have occurred in the most recent 20 years.

The rare events hardly are sufficient to generate any sort of public panic but the statistics do reflect an exponential rise in such encounters that, with current laws and human sprawl, has no chance of abating.

The cats are widespread throughout the United States, and in some cases the populations are calculated at all-time highs. Montana, as a typical mountain lion habitat state, is about half mountains (hence the corrupted Spanish name for "Mountain") and the remainder hilly uneven plains.

The western third of the state, the entire southern tier, and isolated mountain ranges in the central part of the state, are all considered mountain lion habitat. The huge Fort Peck reservoir periphery in the northeast quad-



Anything that makes you look bigger, including opening your jacket up wide, may confuse a lion enough to deter an attack.

rant of the state also is major cat territory.

The big felines traditionally have restricted their areas to the good cover such forests provide, but as the human and cat populations vie for similar traditional habitat, the cougars are likely

to be found in less traditional locations. Their presence in plains and valleys may be only transient but also may be the result of human-provided food such as livestock and pets. The chance of meeting, or worse, tangling, with a mountain lion is unlikely, being slimmest in a state like Montana, which is nearly the size of California but with only a fraction of the people California supports. However, lion/human encounters aren't limited to the sparsely populated areas.

Certainly an individual living in the cat's natural habitat runs a stronger risk of puma problems than one in a big city. However, a recent scare in a Los Angeles suburb indicates that the animals are either desperate for sustenance or may be losing some of their fear of humans.

Both California and the Big Sky Country, as well as other states, have issued informational brochures on living with the cats.

California long has been blessed or cursed with a growing human population. The growth is the result of the state's voters' preference for a full protection and preservation policy that assures not only the cat's survival but that its continued numbers increase.

Montana's recent growth is a microcosm of California, as the big border state undergoes some rapid development and population increases. Both states' wildlife agencies are concerned about the potential for more reported lion-man clashes.

While California treats the mountain lion as an endangered species, subject to control only in the most unusual and threatening situations, Montana treats the lions as a game animal sub-

ject to hunting in a regulated season. But this is a far less open policy than the bounty system once in place in Montana—and in California as well.

Both policies tend to enhance the big cat's population figures. A female may first breed from eighteen months to two years of age, bearing from one to five kits. These youngsters stay with the mother until another litter is produced about two years later.

As lions live in the wild an average of 12 years, the statistical production of one female may range from six to thirty additions to the lion population during the course of her life.

Naturally, there is a loss to bears and accidents, while automobiles take a toll of lion life on the highways. In spite of some contrary information, lions are not characteristically subject to disease and do not spread disease.

Captive lions can live as long as 25 years, according to the California Department of Fish & Game, and they estimate that California's lion population grew from 2,400 in 1972 to more than 6,000 in 1989, the last cat census year, and the state admits the lion population probably has grown since then.

With the knowledge that the big cats probably will continue to thrive and increase in numbers, those who run the risk of encounters should be aware of some life-saving or at least risk-reducing facts about the cats.

Information about lion attack survival has been compiled and developed into a group of lion encounter hints. It should be noted that no agency is attempting to discourage visits or permanent residency in lion territory. Most undeveloped areas, particularly the mountains, are inherently dangerous to humans. Without proper caution that danger can manifest itself.

Snakes, insects, falling rock, disorientation, rushing water, and all the other natural characteristics of the wild and semi-wild can be hazardous for those who venture into them. Even such organized activities as skiing can

be fatal, as a couple of recent celebrity deaths show.

Coupled with the restricted access to help and medical aid, the wilds regularly take a human toll. Mountain lions, while part of the perils, probably are among the last things about which a backwoods denizen must be concerned. More people have died on the slopes of northern California's Mt. Shasta in hiking and other activities in the past two years than have been

Hiking wisdom

Two hikers, crossing a mountain pasture, were suddenly confronted by a mountain lion.

"That mountain lion looks hungry," the first hiker said. "I think he's going to attack."

The second hiker immediately removed his backpack and took out a pair of track shoes, which he started to put on.

"What are you doing?" the first asked. "Those aren't going to help you outrun a mountain lion."

"I don't have to outrun the lion," the second hiker said. "I just have to outrun you."

killed by cats throughout the entire state in its recorded history.

The operating word in a lion encounter is "unpredictability." The animal may intimidate, run, or attack but no particular cat action should be assumed.

The paramount protective element in an unavoidable lion encounter is man's characteristic upright stance. Cats consider almost anything on four legs as fair game, but the vision of an unnaturally erect animal results in some confusion on the part of the beast.

A child, however, with a small stature may appear as a small animal to a lion. During the last 20 years, 70 percent of the cat attacks were pepe-

trated on children and in recent years, that figure has climbed to 90 percent.

If a child is present in a lion encounter, the child should be picked up by an adult, although the adult should bend at the knees in the lifting effort to maintain the erect position. The lion may associate a crouching or squatting human as natural prey.

It's also important to enhance the upright position by appearing as large as possible. Spreading the arms and standing on tip-toe are protective maneuvers which can be exaggerated by a spread coat.

A calm, soothing voice directed at the cat may create more confusion or even fear in the lion.

If conflict is unavoidable, the primary recommendation is the strong admonition to "Fight Back! Never run!"

In the absence of more positive protection, such as a firearm, a number of natural tools such as a large stick or rocks may add a measure of protection. However, obtaining these "weapons" from the ground should be accomplished without bending over and as quickly as possible.

Both states report instances in which rocks and sticks, even fishing rods and fists, have prevented serious injury or death in lion conflicts.

Only a bear or a larger lion will intimidate a puma. A dog is of no protective value, in the traditional sense, against a big cat.

The dog's presence may be a problem or an advantage, depending on the fickle cat's aggressive decision, in that the dog could attract a lion to human habitat as potential, and ultimately real, food. At the same time, the dog also could be a sacrificial diversion away from the human.

The wildlife agencies emphasize avoiding any effort to run from a lion. That can trigger an instinct to chase prey, regardless of the number of panicky legs that prey uses, and this is an animal that can run down a deer or elk. Escape by running is impossible.

In all cases, one should constantly face the animal. Retreating, without turning one's back, will not necessarily indicate an element of human fear and will give the lion reassurance that it isn't going to be cornered. A lack of escape access for a lion almost assuredly will precipitate an attack.

A covered carcass of a deer, elk, or obvious lion prey means the lion intends to return later to eat on a kill. It's the lion's nature to protect its food source, and approaching or staying in the area of this food stands a good chance of a headlong clash with a lion.

Females are likely to be with cubs and the youngsters may stay with the mother as long as two years. Another litter may be on the way soon after the juveniles are weaned. As any other mother, they will protect the cubs with aggressive behavior of the most serious level.

Avoiding the cats is the primary safety measure. While it remains the best option, it is a declining one as the habitat line between cats and man increasingly narrows.

The mountain lion's ideal habitat is abundant cover and adequate food, notably deer and related animals. That also describes the habitat of many who read this magazine, but those self-sufficient individuals don't have a corner on the lion encounter market.

Even those in all but the inner city are increasingly encountering the animals.

It should be remembered that the animals are solitary, with the exception of juvenile or subadult litter mates and their mother.

Each lion tends to claim from 50 to 150 square miles of personal territory. Consequently, if one adult cat is seen or encountered, it isn't likely a second adult or subadult will be anywhere near.

The presence of deer almost without exception means lion territory. It is unlikely one will run across a special lion territory marker, consisting of piled up dirt and forest litter spiked

with urine or dung. These are called "scrapes" and all lions respect these territorial claim markers. To a human, it is positive indication that a lion is somewhere in the area and the human likewise should respect the territory and at least be aware of a potential encounter.

The most likely lion encounter will involve one, and infrequently two, juveniles or subadults who have been weaned from the mother. These young lions have no personal territory initially and are seeking unclaimed ground. They are the most hungry for food and are more likely to take a chance in checking out human habitat.

Nearly all the recent semi-urban sightings have involved young weaners. The litter mates will not stay together long as the lion adults unite only for breeding. These young animals, although smaller than the adults, should be avoided the same as large adults.

A veterinarian once told this writer, "A determined house cat can rip you to shreds and there's no way you can retaliate in time to prevent serious injury."

It's safe to assume that if a 10-pound tabby can do major damage, a 50-pound "cub" mathematically can do five times the harm.

A full-grown 100-pound female lion can take down a 400-pound elk, said Montana officials. For deer, the usual killing method is biting just below the skull at the back of the neck. But the lion often may kill an elk by pulling back the head and breaking the neck, which demonstrates the physical power of the lion.

"The mountain lion is inseparably tied to deer and elk as prey species," said the Montana Department of Fish, Wildlife and Parks. But even in the absence of deer family members, there is no assurance that cougars are equally absent. The Montana agency points out that the cats also prey on small rodents and birds, and even the well-protected porcupine is fair game for a lion.

It must be emphasized again that the chance of sighting a lion is remote and a real confrontation is even less likely to occur.

Lion encounters are probably as rare as jet liner crashes, but, they rate major news coverage. However, unlike the high-flying tragedies which one would hope diminishes, lion/human encounters are almost certain to increase.

Under California's lion preservation agreement, the state was supposed to encumber \$30 million a year for 30 years as lion habitat land purchase. The idea was to reestablished state-owned habitat to prevent any human development in the prescribed areas. So far only a fraction of the funding has been spent for lion land and what has been purchased is less land than one lion naturally requires.

No one should be afraid of the woods, whether traveling or living in that environment, for any reason, and least of all because of cougars.

Avoiding cougars is simply a matter of reasonable caution and common sense while following the guidelines provided by the wildlife agencies. The flip side of the lion issue is seeing one from a safe distance or position. Some people have spent much of their lives in the wilds without ever seeing a mountain lion. From a safe vantage point, the viewer is blessed with one of the most beautiful sights the animal kingdom can offer. Δ

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Plant fruit trees, pick big bucks

By Robert L. Williams

Among the items you never wondered about are how many apples are grown and consumed in the world today. The answer is about 500 million bushels. That, folks, is half a billion bushels.

The United States and France combine to produce 100 million bushels. In this country, which is the leading apple-growing area you are likely ever to see, there are more than 7,000 varieties that have appeared.

Today, the most popular varieties are Red and Yellow Delicious, Stayman, Rome, Fuji, Braeburn, Jonagold, Jonathans, Limbertwig, McIntosh, Winesap, Virginia Beauty, Gala, Blushing Gold, Crispin, Granny Smiths, and others.

Ask a dozen people to name their favorite variety and you are likely to get a dozen answers.

Ask a grower what his favorites are, and he'll tell you in an instant: whatever is selling best at the time.

The same is true of peaches. Everybody has his own favorite and all are delicious and, sooner or later in the season, in great demand.

Fruit, in case you have not noticed, is Big Business.

And you can get in on it by starting your own orchard at home and growing and selling your own fruit.

Look at the economics of it all: a bushel of peaches may sell for \$12 per bushel (and, depending on the weather, you can expect the prices to rise somewhat or significantly). Apples sell for, let's say \$8 per bushel. Prices are impossible to predict because of the immense number of variables, and the figures given here are to be considered only as guidelines. If prices rise or drop, other prices will follow, generally, so the buying power of the dollar remains about the same.

Making money

The number one question connected with growing and selling fruit is bound to be this: Can I make money if I become a small grower, and if so, how much money can I make?

It's a simple matter of multiplication.

Start with peaches. If you have good weather and if your trees are healthy, you can pick about four bushels of peaches from each tree. If you can sell peaches for \$12 per bushel, then you can realize an income of \$48 from each full-grown healthy tree. If you have a half-acre plot of land, you can plant about 80 to 85 trees on the space.

Ready for the early math? With 80 trees yielding four bushels each, and with peaches selling for \$12 per bushel, you can expect an income of \$3,840 from half an acre of trees. If you have a full acre orchard, you can double the amount. In fact, the rule of thumb is 165 trees per acre.

That amounts to almost \$8,000 per acre.

Apples do even better. You can pick 10 bushels of apples from a healthy and mature tree, and at \$12 per bushel you can realize an income of \$120 per tree. If you have 165 trees on an acre of land, you can pick, in a good season, 1,650 bushels of apples and sell them at \$12 per bushel for a total yield of almost \$20,000 an acre.

This isn't all profit, naturally. You must pay for the root stock or the young trees, and then you must fertilize, spray, protect the trees from rabbits and deer, and then pick apples. If you have a larger number of trees, you will need to hire someone to help with the picking, which cuts into the profits.

But after all is said and done, you can enjoy a healthy income from several acres of peaches and apples. To make an ever nicer arrangement, add a few cherry trees, some nectarines, maybe a few apricots, and pears. All of these fruits are relatively easy to grow and are in demand on the market.

Look at some particulars on apples.

If you plant Galas, you can start to harvest them during the first week in



Figure 1. When apples or other fruit trees are young, wrap protection around the slender trunks. In this photo, Robert Williams III is using regular aluminum foil as rabbit deterrent.

August, and other varieties will ripen during the remainder of the summer and fall. By planting several varieties, you will not have all of your apples ripening at the same time each year. If this does happen, you must harvest the apples all at the same time, which means grueling work for several days, and when these are marketed, you may find that there is a glut and you lose part of your crop.

But if you have a range of varieties, you will have apples ripening at various stages, which means that you can sell fresh apples right through Thanksgiving and Christmas.

You can buy your own small trees and set them out, or you can, with many varieties, buy root stock and graft your own apple trees. If you set out the thin, limber trees commonly called whips, you will have apples, at least a few of them, in the second full year of growth.



Figure 2. Use stakes to stabilize the tender trees. Tie the tree trunk to the stake to prevent or lessen wind damage.

Some experts strongly suggest that you pull off the apples so the tree can use all its energy for growing a stronger trunk and better root system. We have always been too soft-hearted to destroy the young apples, and our trees seem to have endured the rigors without problems.

When the trees are young and fragile, you need to wrap the slender trunks up to a height of 18 inches or so. We use plain old aluminum foil. This prevents rabbits from gnawing the trees and often killing them.

For planting, I recommend digging a hole deep enough that when you set the tree roots inside the ground level comes to within two inches of the graft mark near the roots. Do not set the trees deep enough that the graft is underground.

I like to pour at least a gallon of water into the hole and then mix loose soil into a thick soupy consistency.

Then spread the roots of the tree and sink them. Then cover the wet soil and roots and pack the earth firmly. It is also good to use a stake to keep the trees from being blown over while they are still young and weak. I use a stake four or five feet high and I tied the trunk of the trees to the stake by using thick or heavy cord.

Until fairly recently, peaches came and went all at once. Now, thanks to new varieties, you can start picking peaches in June and continue until late August or even into September. The Fair Time peaches do not ripen until early autumn, which means a much longer growing season for peaches gen-

erally, and this also means a longer income season as well.

If you want to grow cherries, you will find that there are really few problems. Birds love the bright red fruit, and you will have to compete with them. But the trees are hardy, they grow fast, and they are resistant to many pests and diseases.

I should not admit this, but we found a cherry tree growing in a vacant field in the country. We dug up the tree, which was only three feet high, and set it out on our property. The tree grew quickly and produced cherries in the second year.

Then we noticed sprouts growing all around the first tree, and we dug up the sprouts and set them out. They grew well and flourished and were bearing cherries quickly.

More and more sprouts appeared, and we soon had a small cherry orchard from that one tree. The quality of the cherries is superb, and we could sell or give away cherry trees every spring and still have plenty to spare.

But growing fruit is one thing and selling it is quite another. If you want to realize the maximum income from your fruit, the easiest and best method of marketing is to set up your roadside stand and sell directly to the customers. If you do not own property on the roadside near a good traffic flow, ask the owners if you can rent a corner of land where you can put up a wood frame market from which to sell your fruit.

If you succeed in this direction, a small and neat fruit stand can be built for a small amount of money and effort. Your major need is for shade from the summer sun and protection against storms, so you do not need to be elaborate in your choice of structures.

If worst comes to worst, you can always sell from the back of your pickup truck. We know one man who owns a truck with a camper top, and each day, six days a week, he parks in a vacant lot beside a busy road. For advertising he sets two or three boxes

of fruit out where they are clearly visible. Everyone who sees the truck knows that the fruit is for sale: he isn't just letting it have fresh air.

Motorists stop and buy dozens of boxes of apples. In a given day he can easily sell two dozen boxes, and on good days he sells far more. And he doesn't spend the entire day there. He wants to catch the going-home traffic

When selling apples, your best bet is to sell small amounts if possible. That is, sell apples and peaches and pears by the bag rather than by the bushel. A peck bag of apples sells for as high as \$4 to \$5, which means that a bushel will sell for \$16 to \$20. A peck of peaches sells for \$7 to \$8, which means that for each bushel you sell in peck form you receive \$28 to \$32. In both cases your income is far greater when you sell by the peck rather than by the bushel.

You can also sell to roadside markets, to supermarkets, and to small grocery stores. Run an ad in the paper

to see what kind of response is generated.

Try the pick-your-own approach. Sell a bushel of apples for \$9 if the customer brings his own container and picks his own fruit. The major problem here is that sometimes there is waste as customers break limbs in order to reach high fruit or climb trees and damage the limbs. Some customers shake the trees, and any fruit that hits the ground is likely to be bruised and ruined.

Another source of income is through cider. If your budget will permit, buy a cider press and squeeze your own



Figure 3. When the trees are larger, inspect buds for insect or weather damage. Use a dormant spray before the buds open to keep worm infestation down and another spray before mature apples are formed.

A country moment



*Springtime pollinating
(Frank Tickle photo)*

juice from fruit that is of not high enough quality to sell at the market outlets. This is a superb way to use bruised and insect-damaged fruit, but be sure to cut out all bad spots in the fruit before you press it into cider.

You also have the expense of buying plastic jugs, but you can buy the jugs and press the fruit and still make money by selling the cider at \$3 per gallon.

Whatever your choices, there is money to be made, and you will find that most customers appreciate the bargains they receive. Occasionally one will complain about your charging twenty-five cents for a single apple (which is a wonderful way to make even more money—one-at-a-time selling—but the income is slow. But whenever someone complains, remind him that a candy bar costs two or three times as much as the apple, and the apple is a heck of a lot better for him than the candy is. Δ

Newcomers and old-timers

By T. L. Couch

I happened to be in town the other day, having failed once again to talk my wife into cutting my hair for me. As I pretty much always wear a hat anyway, I figure there can't be much harm done. But my wife reasons that just as sure as she gives me a haircut, something will come up that I will have to attend to where my hat just isn't appropriate. I can't imagine such a situation. But as I haven't yet worked myself up to cutting it myself, I went on into town to have it cut professionally. Course there's a lot to be said for a professional haircut, besides the truth that you don't have to hide it under a hat if you don't want to. The thing that I like the most though is that you get to listen, while other folks talk.

My wife dropped me off at the barber shop and, being the gem that she is, she went on to run all the errands that had to be run while we were in town. The haircut went well and I was pleased with the results, as always. It was a busy morning at the barber shop, so I paid up and stepped out onto the sidewalk to await my wife's return. It was one of those late spring mornings with just a touch of cool still in the air; when all of nature is alive and glad of it; when the long cold winter is just a fading memory, and the heat of summer not yet arrived.

I stood for a moment taking in the morning; stretching my back as is proper custom after a haircut, and noticed a couple of elderly gentlemen sitting on the bench outside the barber shop. They had apparently stopped talking when I came out, and were now both looking at me. We nodded our greetings, and I ambled over to park myself on the remaining portion

of the bench. We sat in silence watching the world turn around us.

The barber shop sits about three doors back from the intersection that boasts the only stop light in town, and while we sat there contemplating our navels the light turned red. Cars and pick-up trucks began to line up before the light, and finally one of the old gents could contain himself no more.



With an upward nod of his head toward the street he spat the word out as if it had the taste of castor oil and might have the same effect, "Newcomers."

"Yee-ah" said the other reaching up to scratch his whiskery chin, "More and more of 'em all the time."

"You mark my words," growled the first, "This whole place is goin' ta hell in a han basket." And with that he raised the paper cup he was holding and spit into it for punctuation.

The second old gent gravely nodded his head as if already mourning the loss.

The first old timer, a small man now shrunken with age but still carrying the remnants of the spunk and vitality of his youth, straightened himself up on the bench and glanced my way before looking toward his friend, "I was born here, ya know. Lived here all my life. Never wanted to live anywhere else."

The second gent now straightened himself and his voice rose slightly as if he had been challenged, "I know that Charlie", he said. "I was born here too. Hell, we've known each other for more 'n seventy years."

The first old gent glanced my way again as he settled back against the bench, and I understood that this last exchange had been for my benefit. Not having been born here myself, and being just a youngster, I also understood that anything I might have to say would be about as welcome as a puppy's fart.

Silence fell again as the first old timer, Charlie, raised his cup once more. He spat, and then nestled the cup between his legs. He cleared his throat and spoke softly, "Ya know, my Pa used to say that the best thing that could happen to this valley would be for all the ore to play out, and all the 'rushers' to go on to the next strike, and then close the gates after 'em and not let anybody else in. And he was right too.

That's what we shoulda' done 'bout fifty years ago when the ore was all played out."

Nodding his agreement, and once again in mourning, the second old gent said, "Hell, even twenty years ago woulda' saved it."

"Yep," agreed Charlie.

The second old timer, catching the mood now, began, "My Pa used to say the only trouble with living in the prettiest place in the world was that everybody else wanted to live there too."

"Yee-ah," said Charlie, "when my Great Grandma and Grandpa first

came here from back East this whole valley weren't nothin' but wild Indians and wild game. There weren't but a handful of white folks, but when they saw this valley they knew that this was as far West as they needed to go." He raised his cup, spit, and put it back in its place.

"Yep," said the second old timer, "I remember the stories my Grandpa used to tell me 'bout when he first came to this valley," he said.

"What do you mean when your Grandpa first came?" demanded Charlie.

"Well, just what I said. When my Grandpa first came here!" retorted the second old gent, sounding a bit defensive.

"I thought your family came here the same time mine did!" exclaimed Charlie.

"Well, they did, pretty close!" proclaimed the second old timer. "Your Great Grandparents came here an' not long after that your Grandpa was born. My Grandpa was about the same age as yours, and he came here on his own when he was just a boy. You know all that," he said with a wave of his hand.

"If I did know it I forgot it!" exclaimed Charlie, "More likely you never told that 'cause you ain't nothin' but a dern newcomer yourself. Bartholomew." And with that, Charlie got up from the bench and stalked away.

The second old gent, clearly upset, watched his friend walk away. As Charlie turned the corner and disappeared Bart turned to me. He looked at me for a second as if lost, and then he pushed himself up off of the bench, pulled himself up straight, squared his shoulders, looked me right in the eye and announced, "Well, at least I was born here!" Then he turned on his heel and marched off.

I watched Bart walk to the corner, turn and disappear just as Charlie had done. I couldn't help but grin, and wonder what my Indian ancestors would think of these two newcomers.

Δ

Make your own coffin nails with this easy-to-use gadget

By Gene Sheley

Backwoods Home Magazine doesn't necessarily advocate the use of tobacco products but the reality is that millions of folks, including some readers of the magazine, are smokers hit by the current high prices of cigarettes.

Central Tobacco Manufacturing of Quebec, Canada and its U.S. subsidiary has introduced its "Premier Supermatic" cigarette making system for those who want to replace the \$2-plus per pack "ready-mades" with homemade cigarettes at a fraction of the commercial price.

The core of the system is the supermatic, a technically advanced and sophisticated device that packs tobacco into pre-formed filter tip and plain end cigarette tubes.

Some 30 mechanical parts are essential to making the supermatic work, and individual parts are available in the event of materials and workmanship problems. The "roll your own" gadget, however, is covered under a guarantee.

In spite of its mechanical nature, the supermatic is simple to use. Once a cigarette tube has been placed in the "nozzle," and the tobacco of one's choice is placed in a receiving tray,

the user simply pulls a level and a "perfect" cigarette is the result.

The tobacco can be packed to any reasonable density, but the manufacturer recommends a loose pack technique until the user becomes familiar with the nature of the device.

Fresh tobacco can gum up the maker so drying the product first is important. A factory-applied Teflon coating on the cutter and nozzle will prevent this gum-up potential, but ultimately this wears off. After enough use to wear off the coating, the user should be familiar with the appropriate use of the system.

Nearly a dozen users of the device live in the area in which this magazine is produced, and they report that bulk tobacco of various types and grades may be obtained for as little as \$7 per pound, which reportedly is enough to make six to seven cartons of cigarettes.

The cigarette tubes are available from the supermatic manufacturer. Cost of the machine is about \$40. A carton of 200 tubes costs \$2.75.

In the U.S., the device and the tubes may be purchased from C.T.C., P.O. Box 1111, Plattsburgh NY, 12901. The Canadian source's address is 10220 Armand Lavergne St., Montreal, Quebec H1H 3N5. Δ



Build inexpensive sheds in an afternoon

By Jan Palmer

Looking for a small shelter for sheep, goats or feeder pigs? A place for the dogs to lie out of the wind and snow (or sun)? Maybe a place to store lawn mowers, tillers and such out of the rain? Or even better, something that could be used for all of the above in one easy highly adaptable design?

Adaptable because the basic frame is four by eight feet and yet can be made out of a variety of materials. I used 2x4 lumber, pallets and "seconds" of sheet metal. Other options are plywood or logs and there are any number of other items. The shed I built is semi-portable, sitting on the ground rather than being secured. It has withstood rainstorms, 60+ mile per hour windstorms, and freezing weather. But it could have been made with corner posts sunk into the ground for permanence.

I started by making the back wall, using an eight-foot long 2x4 on the bottom, three 3½-foot uprights (set the center one exactly on center) and a 10-foot long top piece. The front part of the frame is the same except for using four foot uprights. These should look like the photograph in Figure 1.

For structural bracing I connected the frames with four-foot 2x4 pieces placed at the top and bottom of both



Figure 1. The basic frame for the front and back of the shed is in the foreground. The back is three and a half feet tall, while the front is four feet. This allows for water runoff.

ends and the center. For the roof, take one additional 2x4 and nail for the center of the roof.

Next, nail two pieces of 10-foot scrap or second sheet metal (the extra length allows for an overhang). I attached this to the center and end pallets which fit right into the space. An end pallet is shown in the photograph in Figure 2.

The other end, which faces the wind, and the back are covered with metal sheets which are nailed into place. In cold areas metal can be used on both ends, while in warmer climates pallets



Figure 2. A pallet is used for the end of the shed and there is another in the middle which divides the shed into two individual stalls. Metal sheeting is used for the roof, the back, and the end of the shed that faces the wind.

can be used on all the sides for air circulation with a metal or plywood roof for shade or protection from rain.

The front, too, is adaptable. To secure an individual animal in for kidding or lambing, use a piece of hog panel or another pallet, both of which are shown in Figure 3. Or for several animals, or for more room, arrange individual runs in front of each pen or a community pen for all animals to enter whichever 'stall' she chooses.

These can also be built on concrete, compacted gravel or any number of other floored surfaces, as well as on



Figure 3. Goats situated in their individual stalls

bare ground. Whatever the floor, be sure it is well drained.

These sheds have been used to shelter not only sheep, goats, dogs and equipment, but also pullets, bottle calves and other small livestock.

This is a project that can be done quickly and can be a family project. It is also easily adapted to other lengths and widths.

Versatility, ease of construction, and reasonable cost with a flexible materials list make this a good first backwoods project. Δ

The Flood

Just before my divorce was final
I dreamt of rain:
It filled the backyard
Then started coming into the
house—
Under the sliding backdoor,
Under the wall behind the TV set,
Swirling around,
Submerging the carpet and
Floating anything on the floor
shoes papers books,
Getting deeper
Until it lifted the furniture
I was terrified and helpless to
stop it.
But I knew it was not a danger to
our lives.
It was just destroying the house.

John Silveira
Ojai, CA

Make a Shaker two-drawer case

By Dana Martin Batory

This small two drawer case is derived from a Shaker piece built in circa 1850 and on display at the Fruitlands Museum, Harvard, Massachusetts. The original cabinet would have held anything from sewing supplies to silverware. My sturdy cabinet not only houses a selection of my favorite video tapes but supports the TV and VCR as well.

My case was built from salvaged rock maple flooring which came from a United States Post Office re-modeling. The tongues and grooves were carefully preserved and used as glue joints.

Cutting List:

- 1 top 30-inches long, 12-inches wide, ½-inch thick
- 1 bottom 30-inches long, 12-inches wide, ½-inch thick
- 2 sides 6-inches long, 12-inches wide, ½-inch thick
- 1 divider 5½-inches high, 12-inches wide, ½-inches thick
- 2 drawer fronts 14¼-inches long, 5-inches wide, ½-thick
- 2 drawer backs 14¼-inches long, 5-inches wide, ½-inches thick
- 4 drawer sides 11½-inches long, 5-inches wide, ½-inch thick
- 2 drawer bottoms 13⁵/₈-inch long, 11³/₈-inch wide, ³/₁₆-inch thick
- 2 1½-inch diameter white porcelain knobs

Construction

Cut top, bottom, and sides of case to length and width. Layout location of joints.

The cabinet top, bottom, and sides are joined using the common box joint. The ½-inch deep, ½-inch wide joints could be cut using a router and a template or the well know homemade



Figure 1. Cutting subsequent box joints in top panel

jig which fastens onto a table saw's miter gauge. I used the latter.

First, securely attach an auxiliary wooden fence to the miter gauge about 25-inches long and 4-inches high. Position it so that about 6 inches projects past the miter gauge on the right. Use a dado head exactly ½-inch wide (the width of the fingers and grooves) and set for a ½-inch depth of cut. Then cut a dado in the fence. Unfasten the fence, shift it to the left, secure again, and cut another dado making sure there is ½-inch of wood between them. Fasten a wooden block ½-inch wide, ½-inch thick, and about 1½-inches long in the slot on the far right. Return the fence to its original position. The small block acts like a guide pin.

Take the top and one side piece and hold them against the miter gauge. One piece should be offset ½-inch. Cutting both at once in this position



Figure 2. Parts making up the two-drawer chest

will yield a perfect joint. After each cut simply shift both to the right so they fit over the guide pin. The pieces can also be cut one at a time. Note: adjust the dado blade to correct depth by making several test cuts in some ½-inch thick scrap lumber, then cut joints.

Layout location of ¼-inch deep ½-inch wide dado for divider. This could also be cut using a router. I found it easier to cut it using the dado blade and the table saw's rip fence. To make



Figure 3. Parts making up drawer

sure the divider was on center I adjusted the dado blade to cut slightly less than ½-inch wide. I then made two passes changing the top and bottom end for end.

Assemble case to test fit. While temporarily clamped together custom fit the divider.

Because glue will not adhere to varnished surfaces nor varnish to glued surfaces, I always apply one coat of varnish to all parts before gluing, taking care to leave glue surfaces bare. Apply one coat to hidden surfaces.

Glue and clamp case together. After glue has set, sand joints flush where required. Apply two more coats of varnish.



Figure 4. The completed rock maple two-drawer chest

Drawer construction

Drawer dimensions are relative. Check openings before cutting.

Saw fronts, backs, and sides to length and width. Layout and cut 1/2-inch wide 1/4-inch deep dadoes in fronts and backs. Layout and cut 3/16-inch deep, 3/16-inch wide rabbets 1/4-inch up from bottoms of fronts, backs, and sides for the drawer bottom. Cut bottoms to fit.

Prepare drawer pieces as above before gluing. Do not glue bottoms in place, they must be free to float. After applying final coat of varnish center and attach knobs. Such knobs are historically accurate. The Shakers themselves used such store bought hardware. Δ

Country Moment



*Swallows court in spring.
(Frank Tickle photo)*

Grow unusual plants on your windowsill

By L. Gordon Stetser, Jr.

Between groceries and garbage, there's a fabulous indoor garden—for free. By saving seeds, roots, stems and pits you'd otherwise throw away, you can grow lush trees, exotic vines, and ornamental plants to brighten bare corners and window sills all through the house. Almost anything that lands on your kitchen counter has potential, as long as it's fresh—not processed, canned or packaged.

Here are some tips for those that are the easiest to cultivate, but it's hard to go wrong if you choose plants that are native to warm climates. And, if it doesn't grow—what have you lost?

Avocado: Use toothpicks to suspend pit flat side down over a glass. Add water until the base of the pit is immersed. Keep in a warm, dimly lit spot. Have patience—the pit will crack eventually and a root will emerge, followed by a stem shooting upward. To encourage branching, cut the stem halfway down when it's about eight inches high. When the stem is about a foot high, plant the pit, root, stem, and pit, in earth and set it in bright sunlight.

Ginger: With toothpicks, suspend a two-inch piece of ginger root horizontally across the top of a glass. Fill with water until bottom third of root is submerged. When the roots are one-inch long, plant it in soil just below the surface. Place the pot in north light. Slender stems and leaves will appear.

Mango: Pry open the pit of a ripe mango with a knife, being careful not to pierce the seed. Plant seed on its side, 1/2-inch below the soil's surface. Place it in full sun and cover with glass or plastic until it sends up a leafy shoot.

Citrus fruits: Plant the seeds as soon as you remove them from the fruit—don't let them dry out—about 1/2-inch down in soil. Water well, cover with plastic and place in bright sunlight. In three to four weeks, the seeds will germinate and glossy, fragrant plants will begin to develop. Leave the plastic on until the plants are a few inches high. They thrive in cool, sunny spots.

Papaya: Remove the slippery coating from the brown seeds and plant 1/2-inch down in soil. A plastic bag will keep the seeds warm and moist while the green stem, topped with finely cut leaves, emerges. As it grows (in bright sunlight), it resembles a small palm tree.

Pineapple: Before you eat it, cut off the leaves together with 1 inch of the fruit. Scrape out the flesh and set aside to dry several days. Then plant it, with the leaves up, with half of fruit portion under the surface of the soil. Water it well and often and keep it in bright sun. Soon it will root. Someday it may even produce a tiny pineapple.

Sweet potato: A favorite with kids—it's easy and fast. Use toothpicks to suspend potato over glass with tip—the end that looks as if it's been cut—in water. Keep it in a warm sunny spot. Soon vines with morning-glory shaped leaves will appear and climb up your window, if you train them on a string. Keep water level consistent and don't plant in soil.

Pomegranate: Let the seeds dry out for a few days, then place them in potting soil and keep them warm and moist. This is most easily done when kept under plastic. If placed in a sunny window, the seeds will germinate into small leafy plants and grow into attractive, compact shrubs, which may eventually produce edible fruit.

Δ

Malabar spinach—great for summer

By Alice Brantley Yeager

When the cool weather of spring gives way to summertime heat, we spinach lovers reluctantly say goodbye to quality spinach from our gardens. Fortunately, there is a summer spinach known as Malabar Spinach and it revels in hot weather. It's unusual, delicious and many of us contend it's even better than regular spinach. If given some TLC and plenty of water, Malabar will produce until fall.

Malabar Spinach is an import from Southeast Asia with an entirely different growth habit than regular spinach. This plant puts out runners that sometimes extend to ten feet and require support in order to keep leaves off the ground and in first class condition. Malabar does not produce tendrils like English peas or cucumbers and runners should be tied loosely to a support or woven back and forth through some type of wire fencing such as hog wire. Old nylon pantihose may be cut into crosswise strips and used for tying as nylon is soft and will stretch to accommodate the growth of stems—not like wire twisters that often interfere with a stem's conduction process. Once Malabar gets started with a support system, it will generally weave its own way leaving the gardener to only occasionally tuck in a straying runner.

Malabar comes in two varieties—*Basella alba*, the all-green one and *Basella rubra*, the one with green leaves and red stems. The latter is a very attractive vine because of its color variation, but the red disappears during cooking. Malabar is a member of the Goosefoot family which also includes beets. If you want a unique and useful conversation plant, train the red-stemmed variety on a porch

trellis or garden shelter where shade is desired in summer.

Planting tips

Through trial and error, I have found that the best way to ensure a good crop of Malabar spinach is to plant the seeds indoors in peat pots about six weeks before spring weather is expected to level off. Transplant out-

grass and weed free and mulched well when dry weather becomes a problem. Mulch also keeps rain from splashing dirt up on lower leaves. Fifteen plants should provide plenty of spinach for an average size family.

I usually wait until plants are about three feet high and climbing before picking any of the leaves as I want plants to have a good start. A fringe benefit of Malabar is that it is virtually



doors about the same time as you would plant okra, watermelons or squash.

The ground should be well worked with no clods and have a pH factor of about 6.0 - 8.0, the same as for many garden vegetables. Malabar likes an open area with plenty of sunshine but will tolerate some semi-shade. It does best planted in loamy, moderately rich, well drained soil but does need sufficient moisture to produce its thick, succulent leaves. Plants should be spaced 12 to 15 inches apart, kept

insect free making washing leaves a snap.

Cooking

When ready to cook Malabar, have enough water in a fairly large pot to make it about a third full. Put in leaves, bring to a boil and let simmer about 5-7 minutes or until leaves are tender but still retain some crispness. (Malabar may become gummy if overcooked.) Stir occasionally to prevent leaves from wilting into a mass. Drain

Malabar spinach salad

Ingredients:

- 12 medium-size malabar leaves
- 4 romaine lettuce leaves
- 3 French sorrel leaves
- 1 small red onion, sliced and separated into rings
- 2 eggs, hardboiled and shells removed and sliced lengthwise into quarters
- mushrooms
- black olives
- crountons
- cherry tomatoes
- your favorite salad dressing
- freshly ground pepper

Tear malabar, romaine, and sorrel leaves into bite-size pieces and mix together. Top with onion rings and egg slices. The rest of the ingredients and their amounts are optional and depend on your preferneces. Personally, I prefer an Italian salad dressing with this rather than a creamy one.

As a side salad, this should serve four people.

well and season as you would regular spinach.

A substitute for asparagus may be enjoyed by using the tip ends of the tender runners. Just clip off about 4-6 inches of the tips and cook in a small amount of water. When tender-crisp, season with butter or a light cheese sauce. Cutting off the tips does not harm the plants and will cause more runners to develop.

Malabar is also delicious mixed with other greens and served raw in salads.

I have never seen Malabar in a supermarket. Pity! The nutritional benefits are many as Malabar's leaves are high in Vitamin A, iron and potassium. Like other spinach, Malabar is one of the food plants containing choline and inositol, the substances that assist in preventing hardening of the arteries. And, Malabar is low in calories.

Saving seeds

Near the end of summer, seed savers should watch for very small, odd-looking, erect stems of fleshy pinkish flowers here and there on the twining runners. They will be followed by round, green seeds that turn shiny black when mature. These mature seeds should be picked and spread out to dry on a cookie sheet in a cool shady place. When seeds are thoroughly dry and resemble okra seeds they may be stored in small containers until needed for planting.

So, all is not lost for spinach lovers when summer sun puts an end to the spring spinach crop. That is, if a gardener will devote some space to the versatile Malabar.

Source of supply:

Pinetree Garden Seeds
Box 300
New Gloucester, ME 04260 Δ

Need more info?

Chat with thousands of other self-reliant people on our website at:

www.backwoodshome.com

A country moment



*A great horned owl blends into an oak tree.
(Frank Tickle photo)*

Think of it this way...

By John Silveira

Why bureaucracy will likely destroy America

“Civilizations rise and fall,” Dave said and I turned around to see if he was talking to me, but he was still staring at his monitor. I looked over at Mac who was sitting at one of the other computers. He was playing a game. He didn’t seem to hear what Dave had said.

Dave is Dave Duffy, the fellow who publishes this magazine, and Mac is O.E. MacDougal, Dave’s poker playing buddy who lives down in southern California. I guess it’s fair now to say Mac’s my friend, too. He’d come up to the lake for another visit.

“The civilizations of ancient Egypt, Athens, Rome...gone. What happens?” Dave asked.

I looked at Mac. He was still playing the game. I was going to give him some pointers—strategies I had worked out over the last few months—but he seemed to be picking it up rapidly and was doing quite well.

“Ever think about why Athens and Rome fell?” Dave asked.

“No,” I said.

“Sure,” Mac said without interrupting his game.

“Will the United States ever fall like Athens, Rome, and those other countries?” Dave asked.

“Of course it will,” Mac said.

I was surprised to hear him say that and I stopped what I was doing. Dave turned around, too.

“You’re a real ray of sunshine,” I said.

“Do you really think so?” Dave asked Mac.

“Sure. And it’s interesting that you mention the Greeks and Romans. Not only because they’re the ones we’re

most familiar with, but because they have had such a powerful influence on western civilization: our customs, governments, languages, and the way we think. And the failures of both Athens and Rome influenced the Founding Fathers of this country when they formed our government.”

“Well, what happened. I mean, what was it that brought down Athens and Rome?” Dave asked.

“To a large degree, both fell as a direct result of defects in their political systems.”

“What were the defects?”

“With the Athenians it was the excesses of democracy.”

“That sounds dumb,” I said. “How can you have too much democracy?”

Mac looked up at the ceiling for a second. “What do you guys know about the Athenians?”

“Not much,” Dave said.

I shrugged when Mac looked at me.

The Athenian democracy

“First you should know that the Athenian democracy was different from modern democracies. It was a direct democracy.”

“Meaning...?” Dave asked.

“What that meant was that all the enfranchised voters were entitled to meet in the town square and voted on nearly every issue. There was no congress, no parliament, and the citizens had a direct voice in almost all matters. Of course, women, slaves, and people of foreign birth, no matter what their contributions to society, could not participate in the Greek democratic process. So, in that respect, it was a limited democracy. That left only



John Silveira

about 10% of the adult citizens of Athens who could vote. This meant a mere 5% of the adult population could determine policy for everyone else. And almost everything was determined by a simple majority vote—even trials.”

“Just seven out of twelve people could convict you of something?” I asked.

“Seven out of twelve?” he asked. “Oh, no, decisions in trials were determined the same way in which other public matters were resolved, with the crowd. Often hundreds of people came to hear the trials and if you were one of the enfranchised citizens who had come to hear a trial, you were also a juror. Socrates was tried in just such a manner. His exact crime was misleading the youths of Athens by encouraging them to question the

state, its laws, and its religion. His jury, as I recall, was about 800 citizens and he was condemned to death by a vote that ran something like 500 to 300.”

“What about the right to free speech?” Dave asked.

“Individuals had no rights as we know them today. Any rights you had were subject to the whims of the crowd. There was no freedom of speech, religion, or freedom from government intrusion into your life unless the crowd decided you were entitled to those rights—and tomorrow they might change their minds.”

“So, ancient Athens had a democracy without any rights,” Dave said.

“Except the right to vote—and that, only if you were enfranchised, and very few people were.”

“It’s hard to think of a democracy and the lack of freedom coexisting,” I said. “It sounds contradictory.”

“Ever read Claire Wolfe’s book, [101 Things to Do til the Revolution](#),” Mac asked.

“We ran a review of it,” I said.

“She pointed out that most dictatorships today are democracies. And she’s right. Today’s dictatorships are very often countries in which democracy exists but the people are without freedom and without a basic bill of rights. All of the former Communist Bloc countries and almost every third-world dictatorship hold elections, but no one would call them free countries.”

“I never thought of it that way,” I said.

“Did the Athenians see the flaws in their democracy?” Dave asked.

“Sure they did. Plato was among those who pointed out that democracy leads to tyranny—and it did so in Athens. But the proposed solutions for the problem, including his own solution, were usually to junk the democracy and replace it with some kind of benign tyranny. For Plato, the rule of

the people should be replaced with the rule of ‘philosopher kings.’

“Other philosophers also had their own solutions. But, in reality, those who really succeed in becoming tyrants are anything but philosophers.

The Roman Republic

“Later, the Romans, saw the problems of the Greek democracy—the most salient of which were that there was no stability, because the crowds that showed up to vote could be inflamed or impassioned temporarily, and that the voters couldn’t always be available to vote on every issue at hand. So the Romans created a representative form of government to put a buffer between the electorate and the decision making process and to ensure that there was a permanent body in place on a daily basis to conduct the business of the state. This way state policy didn’t vary from one day to next on the whim of public opinion. The crowd still voted, but they voted to elect those who were to represent them, just as we do today.”

“That was the origin of the Roman Senate, right?” Dave asked.

Mac nodded. “It was one of the world’s first legislative bodies. It’s also the reason we called early Rome the Roman Republic—republics are essentially representative forms of government.”

We nodded knowingly. I don’t know why I did because I was feeling like an idiot.

“But the trouble was,” Mac continued, “those elected were self-aggrandizing and, as history would show, the republican form of government itself all too often turned into tyranny, too.”

“And did Rome become a tyranny?” Dave asked.

“By the time of Julius Caesar the Republic was falling apart as men clambered for power. Caesar had himself made emperor, but there was still enough resistance so that, when he went to the Senate, men who didn’t

want an autocrat running the country assassinated him. But that didn’t stop other men from wanting to be tyrants and, eventually, Rome was permanently led by an emperor—an absolute tyrant—the first of whom was Augustus, Caesar’s nephew. From then on, the Roman Republic didn’t exist and we speak of the Roman Empire.”

“So a representative form of government wasn’t enough to prevent tyranny,” Dave said.

“That’s right. And that’s why centuries later our own Founding Fathers, seeing the major defects of both the Athenian and Roman systems—that the individual was still at the mercy of the state, whether it was the crowd or the emperor—created the Constitution. Our Constitution lists the powers of the state. Any powers not specifically given to the state—in this case, the federal government—are reserved to the people and the separate states that make up these United States. And very soon after the Constitution was adopted, they added 10 amendments which guaranteed that we, as individuals, had certain rights upon which the government could not infringe.

“Our Bill of Rights was the first and only time this kind of bill of rights has been adopted in history. It makes the United States a quirk among nations. Never before, nor since, and perhaps never again will people have the rights Americans have.”

“Don’t people in other countries have rights in their constitutions?” Dave asked.

“Of course they do. The British do, the Canadians do...any number of other countries do. But, in every other country with a constitution or a bill of rights, the rights of the citizenry—that is, the individuals—is at the discretion of the government.”

“But not here?” Dave asked.

“I wish you guys would read our Constitution. It’s a recipe for how the

federal government is allowed to govern. It's a document that limits the power of both the central government and the crowd. Then read the first ten amendments, what we call The Bill of Rights, and you'll discover that it's not a bill of rights at all, but a set of restrictions against the government. It never says the people can do something like have free speech or bear arms; it says the government cannot prohibit them."

"What's the difference?" I asked.

"If the source of our rights is the government, then the government can take them away. But, the way the Constitution and, in particular, the Bill of Rights is written, the Founding Fathers assumed our rights exist apart from the state because they exist within us—they're inherent. The state cannot take them away because the state did not grant them."

"So, let me see, what you're saying is, as incongruous as it sounds, democracy confers neither rights nor freedom," Dave said.

"That's right."

"Hmm."

"You don't sound as though you think freedom is going to last in this country," I interrupted.

"No, I don't. In the first place, the Constitution is in shambles. There are all kinds of laws, passed by those who govern us, that contain exceptions to the Constitution—and we put up with it. In the second place, there is a power our Founding Fathers did not anticipate."

"What's that?" Dave asked.

"Bureaucrats."

"Bureaucrats?" Dave asked.

"Yes."

Dave and I didn't say anything for a moment. I was just trying to think of what this all meant and I guess Dave was too.

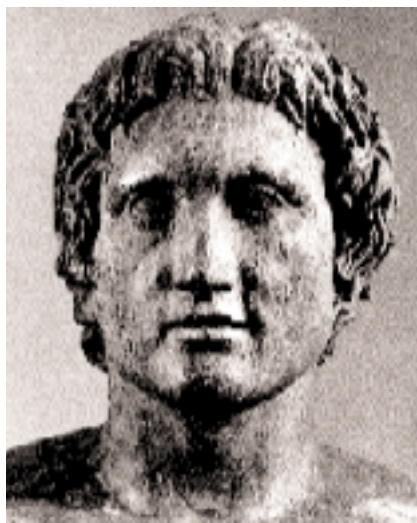
Finally, Dave asked, "Do you really think bureaucracies can bring a country down?"

Bureaucratic power

"Bureaucracies have been the reason for the stagnation or collapse of several civilizations," Mac said.

"How?" Dave asked.

"First of all, throughout all of history bureaucracies have had more power than most people realize. In every civilization of consequence they've reigned supreme. In ancient Egypt the pharaohs were just figureheads. Egypt



Alexander the Great would conquer most of the world as it was then known to the Greeks. But, as an able administrator, he recognized the importance of preserving the bureaucracies in the lands he conquered.

itself was ruled by one of the first great bureaucracies.

"It was the same with the kings and queens of Europe; they were, with just a few notable exceptions, figureheads while the nations themselves were run by the bureaucrats. These figurehead rulers—the pharaohs, the kings, the emperors—lent an air of legitimacy to the government, but the actual machinery almost always lay in the hands of the bureaucrats. And no one who has ever wanted power has successfully ignored the bureaucracy for very long. If they were unaware it

existed before taking power, they soon learned of its existence and importance. And, if they wanted to retain power, they had to leave it in place.

"Alexander the Great understood the importance of making friends with the bureaucracies and he kept them intact in every city and country he conquered."

"I thought they just slaughtered everyone during their conquests during those days," I said.

Mac shook his head. "Alexander understood the importance of political organizations and made sure, after each conquest, that he preserved the bureaucracy that had been in place. They were the ones who had managed it before he appeared and he knew they were the ones who could keep it running smoothly after he went on to conquer the next city or country. And this was how conquerors would behave throughout most of history.

"Centuries later Niccolo Machiavelli in his book, *The Prince*, warned that when you conquer a country you should keep the bureaucrats in place and not make the mistake of trying to stick your own cronies in there. And he explained why."

"What were his reasons?" Dave asked.

"Like Alexander, he knew that in the bureaucracies the real power lay but that, historically, bureaucrats have always been willing to switch their allegiance from an old regime to a new one—as long as you paid them and let them retain their power."

"You know, that actually makes sense," Dave said.

"Of course it does. History is full of examples where conquerors came and went, but the bureaucrats never changed.

"Very often nations have been shaped, for better or worse, by what the bureaucrats desired, even if it was counter to the welfare of the state."

"Can you give an example?" Dave asked.

China's bureaucracy

"The best one I can think of was in China. Today, China should be the preeminent power in the world, but because of its bureaucracy it didn't happen."

"What did they do?" Dave asked.

"Six hundred years ago, China was much further along technologically, militarily, and culturally than any European country. With their wealth, the size of their navy, the seaworthiness of their ships, and their command of navigation, both North and South America should have been discovered by the Chinese and become Chinese domains.

"During the reign of a Chinese emperor named Yongle, the years between 1405 and 1431 were filled with Chinese exploration. His chief admiral, a eunuch named Zheng He, sailed with more than 300 ships and almost 28,000 men all the way to India, the Persian Gulf, and even Africa. Some of his ships were 30 times the size of any of Columbus' three ships. The Chinese were on the verge of dominating all of the world. Europe should have had Chinese ships entering their ports to trade rather than the other way around. But it didn't happen. And it was clearly not because the Chinese were incapable of it. They could have gone on and on and ruled the entire globe."

"So, what happened?" I asked.

"The Chinese bureaucracy is what happened. It was one of the most powerful that ever existed and wouldn't let it happen."

"Why?"

"Bureaucracies are, by their very nature, extremely power hungry while at the same time very conservative. I don't mean conservative in the political sense we mean today, but in maintaining the status quo. And with the growth of their trading fleet and the rise of a merchant class in China, the bureaucracy saw the first real threat to their power in centuries.

"Even though we, today, can see how the rise of a merchant class and a trading fleet would have benefited China as a whole, the bureaucrats saw them only as threats to themselves. And, since they wielded considerable influence with the Chinese emperor, they induced him to forbid further exploration. They put a limit on how far and to what ports the trade merchants and explorers were allowed to go. They also had almost all of the records of their astounding feats of navigation and exploration destroyed so it would not happen again. They wanted to forever squash any threat to their place in Chinese society and, for all the effect the feats of the Chinese explorers have had on how China developed since then, it may as well never have happened.

"As a result, the Europeans became the world explorers and traders and their power expanded far beyond what one would have thought possible in the years before Columbus sailed. And now the Chinese are playing catch-up.

Other bureaucracies

"There are other examples of bureaucratic power that involve religion, corporations, and military power."

"Religion?" I asked.

"Historically, when the churches held great sway in the political world, they were an ideal place for ambitious individuals to rise to power through the bureaucracy. Let's face it, a young man from a poor family had no chance of becoming a prince and being in line for the throne of England or some other country. But poor young men of ability and ambition often rose through the ranks of the Church to positions of power. And though many who went into the church were sincerely religious, many others seemed mesmerized by the political power they wielded. It was because of such

political power that the Inquisition was possible."

"Are there any positive contributions of bureaucracies?" Dave asked.

"Absolutely. Writing was invented by bureaucrats. Not for the writing of novels or the enlightenment of the masses, but to take inventories and the census, to keep track of taxes, record laws, notate maps, etc.

"And no one—not in China, Europe, or even this country—formed a bureaucracy to tie civilization down. They were meant to make civilization run more efficiently. They were intended to serve as a tool, a means for getting work done and achieving society's objectives. But, historically, they have become an end in themselves and, instead of the servant, they have become the master. This is what happened in the communist countries and, though not to such a degree, it's what's happening in the west."

"Is that what you think is happening here?" I asked.

"Yes. Wherever they are they have gained power, it has been at the expense of the individual. This is how they've operated throughout all of history, so there is very little reason for me to think they will operate any differently in the United States—and the evidence is that they are not.

American bureaucracy

"In fact, how a bureaucracy arises, expands, and aggrandizes power can be seen right here in the United States. We started out with virtually no bureaucracy. When the capital was moved from Philadelphia to Washington, D.C., in the year 1800, all that had to be moved were exactly 12 boxes of paperwork.

"But, after that, the bureaucracy began to grow and assume more power, and more branches of government were formed and each needed its own bureaucracy to support it.

"How did it grow?" Dave asked.

“Originally, there were only four cabinets to support the Executive Branch...”

“What’s the Executive Branch?” I asked.

“That’s the Presidency.”

“Oh,” I said.

“...they were the Treasury Department, the Attorneys General—now called the Department of Justice, the Department of Foreign Affairs—now called the State Department, and the Department of War—now called the Department of Defense. A little later, the Navy Department was created, but it was eventually incorporated into the Department of Defense.

“For almost a half a century, no new cabinet departments were added, and we still had a relatively small government. But eventually, new ones were added and they changed the way we are governed.

“In 1849, James Polk, one of the Presidents I admire, formed the Department of the Interior.”

“For what reason?” Dave asked.

“Under his administration, the United States gained more territory than under any administration before or since. It was an amazing amount of land, over a million square miles, more land than has made up most countries that have ever existed. So, to manage it, he formed the Interior Department.

“It was never intended that this department was to last forever, nor was it intended that the federal government permanently own almost 30% of the United States. The Founding Fathers didn’t want the central government to hold that much land and forbade it in the Constitution. But once the Interior Department was formed, it was foreordained that the federal government would never relinquish its power. I’d like to say, in Polk’s defense, I don’t think it occurred to him the federal government would decide to hold onto the western lands in perpetuity. But they have. It was a blunder on his part.

“After that, the federal bureaucracy continued to grow. Today, there are 14 cabinet level bureaucracies, and they will never go away. And they, along with all the bureaucratic



Although vilified by historians as an advocate of corrupt government—and the word machiavellian has come to mean unprincipled—Niccolò Machiavelli was an Italian patriot who drew his lessons from history, and he understood how men maintained power. He also recognized the power of bureaucracies and instructed those who would rule how to use them.

machinery in this country, have become the unelected and invisible government, and each year they assume more power.”

“I never thought about it like this,” Dave said.

“You’re not alone. I find it funny that so many people in the press, in Congress, and in the electorate, think of reasons why we should limit the terms of office of those who govern us. We limit our presidents to two terms and we’re talking about constitutional amendments that would limit the time a senator or representative can spend in Congress. But no one is saying anything about the permanent government—the bureaucracy. The personnel in this permanent govern-

ment have no term limits, yet they pass regulations that have a profound effect on how our lives are conducted, and they are by default largely unaccountable for their actions.”

“What about the department heads appointed by the President?” I asked.

“Each time a new President is elected, there are appointed positions to be filled. And these positions very often go to political cronies and large campaign contributors. But the appointees are often ignorant of what their departments do. The result is that the bureaucrats have to train their bosses how to do their jobs. And, when they do, they train them to do it ‘the way it’s always been done,’ so the new appointees rarely if ever bring any meaningful innovation. Then two, four, six, or eight years later a new regime is elected and a new set of appointees replaces the old ones and they have to be trained. In the meantime, the bureaucracy goes on doing what bureaucracies do.”

“Don’t you think that they mean well?” I asked.

“No. If they were presented with evidence that what they were doing was harmful or wrong, do you think they’d say, ‘Well, let’s close up shop and go down to the employment office and file claims.’ Of course not. They have mouths to feed, mortgages to pay, credit card bills that come due. They have their jobs and they want to keep them.

“If you promise a week’s pay, an annual vacation, and a retirement and health plan, you can get very ordinary people to justify their jobs even when their jobs are inherently harmful; even when the job kills, maims, and ruins lives. The Soviet gulags were run by bureaucrats; the Nazi death camps were run by bureaucrats; and in this country, we’ve taken what is at very worst a critical health problem—drug abuse—and criminalized it. And to handle that, we have a bureaucratic system that runs our prisons very effectively.”

“You make it sound as if drug crimes are bureaucratic crimes.”

“They are. And because of it, the War on Drugs is a problem that will never go away. The huge bureaucracy that supports law enforcement wants it, the courts want it, and the prison system, as I said, wants it. And because of that, we imprison a larger proportion of our population than any other country in the world—more than China, more than Russia, more than any two-bit African or South American dictatorship.

“And the only reason we can imprison as many people as we do is because we’re a rich enough country to support these immense bureaucracies. As we get richer, I predict we will find more crimes to imprison people for...unless the American people call for a halt to it.”

“Do you think they will?” Dave asked.

“I’m very pessimistic.”

“How do these things get out of control?” Dave asked.

Why have bureaucracies?

“We create bureaucracies to solve problems. But that’s not why people become bureaucrats. What motivates the bureaucrat is the promise of a career, not public service. And once created, bureaucracies have a need to expand their power, and that has nothing to do with the political system of the country. The need to expand power is simply its nature. The folks who staff a bureaucratic institution may be capitalists, socialists, royalists, or whatever when they go home. But while they are at their jobs, they are bureaucrats, and expanding their power is their goal.

“Then, the larger a bureaucracy becomes and the more it has to manage, the less those who are subject to the bureaucracy can control it. Given the natural apathy of the majority, the bureaucrats become entrenched by default.”

“As they apparently did very well in China,” Dave said.

Mac nodded. “Not only that, but bureaucrats often make decisions that favor various special interests and they do so for personal reasons. In this country those interests could be anything from corporations to environmental organizations, and they do it because of the prospect of getting hired by those organizations once they ‘retire’ from government. While all this is going on, the citizen—the taxpayer—is caught in the middle.

“Another problem with a bureaucracy is its approach to solving a problem. The fact is, it is often against the interests of a bureaucracy to solve a problem. Once solved, unless the solution has created more work for them, they’re out of business. So, they aren’t always interested in solutions.”

“Give me an example of a bureaucracy that wouldn’t go out of business,” Dave said.

“An easy one is the one John wrote about a while back. When Prohibition ended, did the enforcers go home? Of course they didn’t. They were sicced onto a problem that was out of the American mainstream—drugs.

“It was white America that brought Prohibition to an end. So, when it ended, rather than going home, the bureaucrats went after drugs because the only people doing them were blacks and Mexicans. No one cared who was getting thrown in jail until white college kids started seeing the inside of slammers in the ’60s. Now, fully one third of the electorate wants at least marijuana decriminalized.”

“Give me an example of a bureaucracy that should be scaled back, but it’s not happening.”

The Cold War is over, and it seemed as if defense spending would be cut back. But today spending is still up while new crisis are found.

“What do you mean? There have been base closures and layoffs...”

He got up and took the 1992 World Almanac and the 1997 World Almanac from the bookshelf.

“Let’s look at defense spending since the Cold War ended. In 1987, two years before the Cold War ended, total defense expenditures were about \$274 billion. In 1995, six years after it ended, about \$260 billion. That’s not much of a change.”

“I didn’t realize that,” Dave said and Mac handed him the almanacs.

“And when we try to cut bureaucracy by cutting their funding, the bureaucrats threaten revenge.”

“How?” Dave asked.

Mac thought a moment. “Let me start with a scenario of how government grows, and then what it does when we try to cut it back.

“From the very earliest days of this country, the citizens expected roads, police and fire protection, and education. Eventually libraries were even included. The enormous growth of government since then has involved everything from farm subsidies to grants to the arts. But, when the tax payers insist on tax cuts and less government spending, is it tree inspectors and artists we’re going to lose? No, they tell us they’re going to have to lay off police and firemen. The schools will be closed. They never say anything about sending the monumental bureaucracy home. And does the electorate stand up to them and call their bluff? Of course not. They believe this is what must be cut and they back away under bureaucratic threats.”

“You sure paint a bleak picture,” I said.

“We like to think that somehow we’re different from those older civilizations—those civilizations that got bogged down in their political machinery, that stagnated, then folded. As a country, we certainly started out differently, but we’re not different now. We’ve gradually let the bureaucratic superstructure evolve until, here

at the end of the 20th century, we have more in common with the old world countries that have existed since the dawn of civilization than the America we started out with. That America, for better or worse, is gone and will never come back."

"Can't we get rid of the bureaucracy?" I asked.

"First of all, bureaucracies don't 'go away.' They live on forever. Do you think the communist bureaucrats went home when the communists fell out of power? The bureaucrats just changed the title on the nameplates on their desks and continued right where they were."

"As Machiavelli would have predicted they would have," Dave said.

"That's right.

"Besides that, I'm not sure we want bureaucrats to go away. What we want to do is to control them."

"What do you mean?" I asked.

"We want them more responsive to our needs and we want the bureaucrats who screw up to be personally responsible for their mistakes.

Controlling bureaucracy

"There's no clear connection between the governed and the bureaucracies, so there's very little input into any bureaucracies. That may be okay in France where the two most powerful forces are the President and the bureaucracy, but in this country the individual is supposed to reign supreme and the government is supposed to exist for his benefit. But the bureaucrats don't see it that way, nor do the politicians, or even the electorate anymore, and because of that this country is becoming more and more European and less and less American.

"But there are steps we could take to make bureaucracies less of a threat the same way our Founding Fathers tried to make the crowd and the legislature less of a threat by giving us a constitution that limits the government's ability to deprive us of our rights. The first

way might be to stress accountability. Someone has to be in danger of losing his or her job—or even going to jail—if a bureaucracy screws up or violates constitutional rights.

"Second, not all bureaucracies allow their members to be unaccountable. The military has a bureaucracy to make it run smoothly and the difference between it and the civil bureaucracy is that the military bureaucracy accepts personal initiative—and responsibility. It allows the individual to override the 'book' but stresses accountability. In fact, that last one, accountability, may be the biggest difference of all. Military personnel who throw the book out risk dishonor when they fail and recognition when they succeed. In civilian bureaucracies, failure is ignored. We should, perhaps, apply principles like that to political bureaucracies.

"Another might be to make it mandatory that there be legislative review of all regulations bureaucracies enact. Let bureaucracies submit laws and regulations to Congress before they can be enacted. It may make things unwieldy, but this country was never meant to run efficiently, it was meant to be free.

"By the way, did you know that only about one percent of all bills proposed in Congress are enacted but that about 99 percent of all regulations proposed by bureaucracies are put into effect. How does that happen? Are we to believe bureaucrats know more about what the American people want than the legislators?"

We didn't answer.

"It also has got to be possible to make a bureaucracy go away. To shut it down. First of all, a bureaucracy should have stated goals and, when those goals are met, it should be shut down.

"Perhaps it should also be possible to make a bureaucracy disappear by referendum so that bureaucracies are directly responsible to the public."

"The I.R.S. would be the first to go," Dave said.

Mac smiled and shrugged.

"But wouldn't that be throwing power back to the crowd?" I asked.

"Yes, it would. But I say it only as a suggestion. Come up with something better. We need to get something going here so that bureaucracies are more responsive and the people have a greater say in what goes on in their lives.

"But what I think would be better would be to allow jury trials by informed juries when people are indicted for violations against bureaucratic rulings."

"What's an informed jury?" I asked.

"We've talked about this before. An informed juror is a juror who realizes that when a citizen is on trial, the law is on trial, too.

"Today, juries are routinely told that they cannot judge the law, despite the fact that they are legally entitled to. No judge can order you to find a defendant guilty when you feel the law is wrong—even when you realize the defendant actually broke the law.

"In fact, since the trials of the Nazis at Nuremberg, Germany, following World War II, it has been a felony in this country to imprison or execute someone when your conscience has told you it's wrong."

"But aren't people always allowed jury trials now?" I asked.

"All too often there are no jury trials, as promised by the Constitution, when you are in violation of bureaucratic code. Two good examples are tax laws and family law.

"Let me ask you something, how does the accused stand when accused of a crime by the government?"

"You're guilty until you're proven guilty," Dave said.

"I don't know how many Americans realize this, but you are actually assumed guilty when prosecuted by the I.R.S. and, not only do they not have to prove you're guilty, they are under no obligation to show cause for indicting you. And, if you can't prove your innocence, you lose. The I.R.S. even admits this is so. I know it runs

counter to our system of justice, but they do it anyway.”

“But,” I said, “They have to do it this way.”

Mac looked at me as if in expectation that I had more to say on the subject.

“If they didn’t do it that way, nobody would pay their taxes...it’s the only way to see that they can collect taxes efficiently so that the government runs efficiently...”

“This is in the name of efficiency?” Mac asked.

“Yes.”

“When our Founding Fathers founded this country and wrote our Constitution and the Bill of Rights, they placed several things far ahead of government efficiency and among them were liberty and personal freedoms. People have died for those freedoms, but the I.R.S. finds them inconvenient.”

“And you feel jury trial...”

“...with jurors who are chosen at random from among our peers as guaranteed by the Constitution, and who are informed of their rights as jurors to question the fairness of the law...”

“Okay, okay” I said. “But that might create new problems.”

“Every solution creates new, and often unforeseen, problems,” he said. “But we can’t let that stop us from trying to solve the problems we have. But I can’t help but think that allowing juries to be a buffer between the individual and the state can’t be all that bad, even if it does create new problems.”

World-wide bureaucracy

“What’s the future?” Dave asked.

“The ultimate bureaucracy will be the U.N. It now has a governing body, it has a standing army, it has overturned the democratic elections in one country, Bosnia, and though it currently gets its money from national governments, there is already in place the

machinery to allow the U.N. to get its finances through direct taxation.”

“Kind of an emerging world government,” Dave said.

“Yes. But those who advocate one world government don’t have history on their side. Whenever and wherever government has acquired too much power, it has invariably become oppressive.

“I used to think if we could take the U.S. Constitution, intact, as the guarantee for individual liberty, that one world government would be okay. But we have the Constitution and it’s already been subverted by our own government—in particular, the bureaucrats”.

“Do you think that if we had a one world government it would be a democracy?” I asked.

“Would it matter? I’ve already pointed out that most dictatorships are democracies. But that would just be one facet of the problems a worldwide government would create.”

“What else do you think would happen?” I asked.

“How long do you think it would be before poor countries could take away the things we, the so-called rich countries, have worked to produce, to benefit themselves. In a worldwide democracy without inherent rights—and we are the only country that has such rights—it will be just a matter of time before we have welfare on a global scope, administered, of course, by bureaucrats whose very existence will depend on them doing their job right.”

“Whose fault is all this bureaucratic takeover?” I asked.

“Yours,” he replied.

“No, really.”

“Really. Ultimately, the responsibility for the abuses of bureaucracies lie with you, me, Duffy...and 260 million other Americans. If the American people said they really wanted more limited government, it would go away. But, though they say they do, they really don’t care and they won’t do

anything about it. If they really wanted it tens of millions would vote Libertarian—even if only for one or two elections—and either elect people who are bent on reducing the size of government and its bureaucracies or just scare the hell out of the Democrats and Republicans so they would actually give us the smaller government they have been promising us for decades.”

“The Libertarians?”

“Those more-freedom-less-government people. But the fact is, Americans don’t really care. No politician or bureaucrat need lose any sleep tonight over what the American people say about wanting less government because the American people don’t really care and they’re getting the government they deserve. The problem is that I too am getting the kind of government they deserve.”

Dave laughed. “There must be some solutions,” he said.

“I often wonder how different things would be if on the back of the tax forms we fill out there was a ballot by which we vote for everyone from President to dog catcher,” Mac said.

“That might give politicians and bureaucrats nightmares.”

“It might. People would be casting their votes when the problems of government was still fresh on their minds.”

Dave looked serious now. “How long before the United States is no more?” he asked.

Mac shrugged. “That’s not an easy question to answer. China never fell, it just kept changing. The fall of Rome took centuries and, even after there wasn’t any Roman Empire left, many Europeans considered themselves Romans. The United States will probably go on for centuries to come, but I guess we’ll be able to say it’s gone when we can say, ‘not one of the Founding Fathers would be able to recognize their creation any more.’”

“That doesn’t sound good for us,” Dave said and Mac went back to his computer game. Δ

From triumph to tragedy to triumph again, Dorothy Ainsworth makes her valiant comeback

BHM readers are familiar with Dorothy Ainsworth, the log home-building Ashland, Oregon, waitress who spent more than six years building a beautiful log home, only to have it burn down in 1995 in a tragic fire. We featured Dorothy's ongoing story in 1994 (issue 27), 1995 (issue 32), and 1996 (issue 38), and the mail rolled in in response to those articles. Here is the final chapter in Dorothy's heroic saga. — Editor)

By Dorothy Ainsworth

As far back as I can remember I wanted the security of owning a piece of land, a spacious rustic home, and a loving partner to help me and share it with. It didn't quite work out that way. I ended up waitressing for a living, rearing two kids by myself, and we were all cooped up in an apartment in town.

The frightening concept of now or never hit me at 40. The children were grown, but I was still young and



Dorothy Ainsworth



The first log home burns on June 29, 1995.

strong and full of hope, I was determined to reach my goals in this short life, even if I had to do it alone.

I found 10 acres in Oregon, bought it with a farm loan, and harnessed myself up like a mule for the long haul. With waitress tips and how-to books, I learned as fast as I could to correct my mistakes, and paid as I progressed. In 14 years, I managed to build 10 structures: pumphouse, concrete water storage tank, concrete root cellar, barn, shop, storage shed, small guest cabin, piano studio, a log home that accidentally burned to the ground in 1995, and now, a new log home nearly identical to the house that burned.

My most powerful resource has been drive, and my most limited— money. I earned \$12,000 a year as a waitress. But today I'm debt free, except for my land payment.

I chose vertical log construction because the logs were short, portable, and cheap to get with a permit from the U.S. Forest Service. (My son and I

cut and carried them.) I practiced first on a 1000 sq.ft. piano studio (story in *BHM's* issue no. 27) before tackling my real house, a 2100 sq.ft. barn-style structure I designed for strength and simplicity.

The main house was well underway (foundation in) when I met a "Bunyanesque" hunk (Kirt) at the fitness center. Never mind he was half my age, we fell in love and time stood still. Kirt insisted on helping me cut and carry the 300 logs I needed for the house. Every "date" for three months was a romantic rendezvous into the woods, where togetherness meant one of us on each end of a log. We "bonded" like construction adhesive.

After stockpiling the logs, Kirt resumed the pursuit of his own goals, and I kept working on the house as my personal quest. Over the next six years, I put in 6,000 hours of labor, asking for Kirt's help only with extremely heavy tasks.

Finally, the big day arrived. On June 28, 1995, I finished up the house with



The completed second log home

a beautiful coat of stain on the logs, and then playfully attempted to carry Kirt across the threshold. Our hysterical laughter was short-lived. On June 29th, a tiny ‘apparently’-dry linseed oil rag spontaneously combusted and burned the house down while we were both at work (story in *BHM*’s issue No. 38).

That tragic evening, standing together in the black rubble, holding onto each other for dear life, Kirt stated in no uncertain terms: “Honey, I want to bring your house back for you. It was your life’s dream. I’ll take a leave of absence from my job, and do all the major work this time. You can bring home the bacon, be the director, and help with the finish work. OK?”

Still in a state of shock, I shuffled around in the charcoal and nodded meekly.

The rebuilding

Right after the fire, help started pouring in, and our spirits were

buoyed up by waves of moral support in a sea of positive people. A music benefit held in my behalf raised \$6,000, and another \$3,000 in dona-



Kirt Meyer

tions came from generous *BHM* magazine readers. Although I had neglected to update my construction insurance policy since completing the floor, at least I had some coverage, including tool replacement. With that sum total, plus my perpetual waitressing job, I was back in business by August.

Before the coals had cooled, one professional log home builder had called and promised to sell me a gigantic load of logs at his cost and said he’d deliver just like pizza. It sounded too good to be true, and it ultimately was.

So first we leveled the site with a tractor and blade. The original house was on huge creosoted piers which burned off, so this time we poured concrete sonotube piers on underground footings. Kirt connected them with a grid of 10-inch x 10-inch DF girders, with shouldered half-lap joints anchor-bolted down over each pier.

The T&G subfloor (7/8-inch OSB) was supported by 2-inch x 12-inch



Kirt works on foundation grid.

joists on 16-inch centers, and fastened with screws.

The 40-foot x 46-foot deck was finished and ready to receive the logs, but where were they? Late October rolled around and it was getting cold.



Eric, Dorothy's son (left), Vadim, and Kirt guide the horizontal beam with tenon into its mortise on the upright log.

Grizzly Log Homes called with grizzly news of a log shortage, then quit returning my calls altogether. In a panic, I ran down to the USFS office for a permit, but was stopped in my tracks. The Clinton Plan had temporarily closed all local logging on federal land to study spotted-owl habi-

tats. That included our old stomping grounds, a beetle-kill area 20 miles away, where Lodgepole pines, pre-felled by rangers, were lying all over the ground like giant toothpicks. They were semi-dry and relatively light, so I would have been able to help lift and

carry again.

We were desperate to find a private source before the winter storms. After hours of diligent research and numerous phone calls, I finally struck it rich. A sympathetic land owner only 25 miles away agreed to let us take what we needed from his 600 timbered acres if we thinned crowded trees, burned slash piles, and didn't use a winch. (The USFS does not allow winching either because it tears up the land.)

It was November 1 and the skies looked ominous. In just three short weeks, Kirt "Hercules" Meyer, the human forklift, felled 100 trees, limbed them, bucked them to length, and carried them single-handedly to



Kirt places foundation beam.

the truck, without incident, accident, or injury.

These huge green logs were so horribly heavy (some 500 pounds), I couldn't lift my end of a single log this time. My job was driving the old Ford ½ ton pickup with 1 ½ tons of logs in each load. It took 25 loads.

Witnessing these excursions of exertion was one of the most awe-inspiring and profound experiences in my life. If this rough-hewn guy with



Kirt hefts the ridgepole supports onto the scaffolding.



Kirt and Vadim placing the ridgepole shoulders an axe-handle wide wasn't the marryin' man, he was certainly the carryin' man.

By November 21 we had stockpiled 300 logs (It was just like a second honeymoon) and began peeling them

with a drawknife and squaring off the ends to specific lengths.

The log-dominated “timber-frame” incorporated mortise and tenon joints to tie it together. Like a standard timber frame, it consisted of four bents (two upright posts and a horizontal beam) creating three bays (space between bents), joined together by connecting girts (also logs), and reinforced with knee braces.

Due to the unconventional nature of the construction (slow and deliberate techniques requiring extreme accuracy), I was unable to use the services of any of the enthusiastic volunteers after the fire with one exception. He was Vadim Agakhanov, a Russian immigrant, contractor, engineer, workaholic, and great friend. He tirelessly donated his exceptional craftsman skills to the project whenever he had a spare moment. That is, until he met my daughter, Cynthia. He generously continued to help, but had fewer spare moments.

The framing began with the most critical job inherent in my design—the (shouldered) mortise and tenon joints. Kirt laid each bent out as it



Kirt predrills log. He will toenail it to the deck with 12-inch polebarn spikes.

would appear standing up, flatted and squared the surfaces where tenons would plug in, and cut the mortises (slots) just so, using a small electric chainsaw, ship's auger, and chisel. He cut tenons on the ends of the four 20-foot horizontal logs after taking great care to insure 90 junctions when the big “Hs” were reassembled standing upright and plumb.

Everything had to be kept level and square with the imaginary centerline of each log. He shimmed the smaller end up off the floor so the measurement from floor to centerline was the same along the entire length of the log.

As a team, Kirt and Vadim erected the post and beam members one at a time, fastening the 14-foot verticals (posts) of each “H” to the floor (and into the 10-inch x 10-inch below) with 12-inch pole-barn spikes in pre-drilled holes. Then they raised the horizontal monsters (beams) of each “H” with a manual Genie-Lift (rented lightweight forklift), slid the tenons into their



Kirt installs picture window stops with screws.



Kirt builds the round window for living room.

respective mortises, drilled holes through the joint, and drove the pegs home.

Next, all four “Hs” were joined together by connecting girts lag-bolted to the posts. With the basic rectangular frame now secured, there was only one way to go—up. Way up. More vertical logs would support the ridge-pole, rafter ties, and top plates (all 9-inch x 9-inch beams). The log lengths were calculated to create a 6 in 12 roof pitch.

Kirt hoisted the logs onto a 8-foot tall roll-around scaffold (rented), precariously stood them up in the middle of each horizontal span (on pre-flatted

spots), and spiked them in place.

He then climbed back down to the deck to operate the Genie-Lift again, this time with the concentration and finesse of a mortal man who has great respect for Newton’s Law.

Vadim had arrived for this big event and was perched 20 feet up on another scaffold, waiting with sledge in hand, to do the dastardly deed—

pound rebar down through each joint and into the log. (Better him than me this time!) I could hear an imaginary drum roll as they repeated this balancing act until all 12 roof framing beams were installed. We sighed with relief, and jokingly scoffed at earthquakes.

Working together, they eagerly stabilized the structure with 4-inch x 10-inch rafters on 4-foot centers, using custom rafter hangers at the ridge and 5/8-inch rebar at the overhang end (driven down through rafter and top plate).

T&G pine (2-inch x 6-inch) went on over the rafters to create an attractive



Vadim and Kirt, donning protective sleeves, handle heavy double-paned picture window glass.

vaulted ceiling, then rigid foam insulation, then OSB sheathing, tarpaper, and finally a handsome fireproofed metal roof.

Kirt methodically put up the outside walls, one log at a time, swapping the log ends alternately (big end up, big end down) to even out the taper and keep the walls plumb. He set the logs 2-inch over the edge of the floor perimeter for a drip edge, and spiked them in place. Where he used a small sledge with one hand and 10 whacks, I had previously used a hammer with both hands and 40 whacks. I could see that with manpower, this house was going to go up fast.

The inner walls remained rustic with the logs visible, but the outer walls had to be insulated. He furred them out with 2 x 4s to receive fiberglass batts and sheetrock, then chinked between the logs on the outside with foam pipe insulation and caulking.

Next came the windows and doors to button the place up. Kirt built 36 window frames from small-knot pine



Open living room with curtains closed to diffuse bright sunlight

and set the glass with moulding and brass brads. Friction-operated case-ment hardware (Whitco awning-style hinges) opened rows of windows east and west for cross-ventilation. Kirt and Vadim donned their protective grommet-studded sleeves to handle the huge and heavy glass panes for the picture windows.

I built nine doors from T&G 2 x 6 pine boards held together with battens and big black bolts, and hung them with old barn hinges (sandblasted and painted black).

Another one of my jobs was to precisely cut and fit the curved knee braces (45-degree braces at every 90-degree junction) and bolt them in place. Knee braces are critical components of a timber-frame; they help keep the structure from racking over time. I used small curved logs for aesthetic appeal.

I fashioned a “tree” in the loft, to be employed as a king-post, and attached the “branches” (struts) to the trunk with rebar, and to the rafters with screws.

The only items I was able to salvage from the wreckage were my hanging knee braces (chains and turnbuckles),



The interior house view from the second floor

and the nautical porthole (cast iron) in the front door. After sandblasting and painting them black, I used them as before.

I hired an electrician to do the extensive industrial-type wiring, but Kirt and Vadim did the plumbing (as I had done on house number 1). I installed

the sinks, toilets, and appliances, over time, as I acquired them.

Some thoughts

When I designed the original house, I gave myself permission to satisfy, not deny, my eccentricities. From years of forethought and soul-searching I knew exactly what I wanted, within the confines of my budget of course.

My home would be spacious, well-lit, and functional, with simplicity and naturalness prevailing throughout. “Rusticity” would insure low-maintenance housekeeping. (I’d rather dig in the garden than dust knick-knacks.)

My list of mandatory amenities included a huge dining room table (the “happening place” in any home), a massive butcher block and a deep auxiliary sink in the kitchen, river-rock showers, and two round picture windows (one in living room, one in den). I did a lot of scrounging, reconditioning, and Rube-Goldberg adaptations to get what I wanted on a low, low budget. My sinks were \$1 each at the dump, the kitchen counters and table are made from laminated beams out of a demolished theatre (free!), and a



An interior house view from the first floor



*View from the kitchen with see-through counter into the living area.
Pots and pans hang from iron pipe with flanges screwed to logs.*

futon bed frame from Goodwill ended up as sink framing in the kitchen.

Poverty is the mother of fabrication. I learned to take common materials made for one purpose and use them to create something entirely different. I call it possibility thinking. My stair railing is iron pipe, elbows, and flanges. So is the coat rack and kettle hanger. Electrical conduit (1/2-inch)

and shower curtain rings (black), and grommets, hang white cotton duck curtains I made from \$3/yd fabric from WalMart.

Now that all is said and done (twice!) I am pleased with the results and I'm glad I didn't compromise my wishes away.

Final thoughts

On the day of the fire, bleary-eyed with tears, Kirt made a very noble promise, and as clear-eyed as a super hero he kept it. Only two years later my knight in natural armor (steely muscles and a T-shirt) carried me over the threshold this time.

I've come to the conclusion that it's better to have built and rebuilt than never to have built at all.

What's everybody doing now?

The fire changed Kirt's profession. He got his contractor's license and is now a builder. He and Vadim are partners in Home Renaissance Co.

Son, Eric, is a classical pianist, composer, tuner, and teacher in Ashland, Oregon.

Daughter, Cynthia, is a professional photographer in Hollywood. You can read a little more about her in the

February, 1998 issue of *Cosmopolitan Magazine*, as one of the contest winners of Fun & Fearless Females of 1997.

Dorothy? She finally threw her apron away after 38 years of waitressing and is working at home doing a variety of jobs, including freelance photography. She's editing her videotapes of building the first house, and she will have an instructional tape ready this year. Δ

Treasures

*I was a little boy,
Walking along the beach in
Marblehead,
When I found jewels blue
 black white green,
Each smooth and radiant.
I was stunned, knowing others
 must have come this way,
Yet they passed them by.
I filled my pockets,
Until I was wealthy with their
 bulging,
Then ran home where,
With triumph and excitement,
I took them from my pockets to
 show
And they were just stones
 and fragments of broken bottles.
And my father smiled,
But when he turned away,
I examined them more closely
Struck now by how ordinary they
 were,
Now that they were dry.
Then I returned to the beach
Where I dropped them back into
 the surf
Where they glistened again like
 jewels,
And left them for another traveller.*

John Silveira
Ojai, CA



Kirt and Dorothy

Make a garden in the desert

By Hank Rettig

An organic compost garden in Las Vegas? Are you kidding? The answer is “No!” As an antidote to the stresses of teaching in the University of Nevada system, I became an off-duty desert compost gardener. That’s when I became a student again, learning by trial and error. I mulched my thoughts and composted experiences which I gladly share with all of you who are interested.

Lesson 1: I learned that a garden is a miniscule model of nature at work. Composting alone is the evidence of things unseen within the gestation of Mother Earth; you don’t contend with the earth mother. You adjust and adapt to whatever makes the growing work.

Lesson 2: Water, of course, is a key factor, but I saw first hand what pond water can do for a nearby garden. My garden was built around a 36- by 16-foot pond I made in the back yard of my one-half acre lot located just south of the so-called fabulous Strip of towering hotels and theme parks. Pond water teems with life and acts like a watery composting generator. I shoveled enriched mulched algae into my wheelbarrow and mixed it with grass clippings, leaves, garbage (no meat), sawdust from my firewood pile, ashes, desert blown sand and manure from a neighbor’s horses. What happens in a compost pile is something one cannot see; micro-organisms work in mystery.

Desert soils, often topping caliche, are poor in organic matter. They tend to lack structure and are hard and tight when dry, and mushy when wet. Clay soil drains slowly and light soil dries

out quickly, especially in the desert heat. That is why composting is so important. A balanced compost mix does the job without having to buy expensive commercial garden foods.

My compost bin was built with old boards from my odds and ends depart-



ment. It is a four-foot high boxed area for the wastes. A wooden trellis like barrier rests between layers of compost. This provides increased permeability and aeration for the benefit of the micro-organisms that do the work. In the summer a roll of plastic material covers the bin for “cooking.” The sun’s rays permeate the plastic to create a hot house; in the cold seasons of late fall and winter, the hot house humidity after routine watering, does the job.

As for the garden area, trees watered by slow leaks from the pond provide

shade for the crops. By the time summer temperatures get to 110 degrees, the crops are all eaten or harvested. That is when I get ready for early fall planting for the harvesting in the desert cold winter.

Lesson 3: I don’t get caught up in the fancy language of so-called expert gardeners. I learned that a local gardening club of hobbyists with money to spend stressed the importance of pH soil conditioning. It was said the pH between 6 and 6.8 was needed for releasing food to plants. I heard that balancing required limestone and aluminum sulfate and varieties of special “bought-un” fertilizers. I heard words like nitrogen, phosphorus, potash, trace elements of iron, copper, zinc, manganese, etc. The words sounded like semantical magic and I laughed to myself as I, with nose common scents smelled out the basic natural goings-on between my compost mix and the above-ground, boxed garden of promising fledgling plantings.

Lesson 4: Back to the mystique of the pond—out of nowhere frogs appeared for security guard duty against insects in the garden. Birds from somewhere joined the search and seizure actions, often catching insects in flight. In this way they seemed to repay me for providing them with a water hole and bird bath.

Lesson 5: I scheduled by staggering the planting. Once a package of seeds grows in the soil, it will produce more than can be eaten at one time. By staggering the planting a week apart the produce appears at just the right time for balancing supply and demand.

Consider one common error of some gardeners like myself. In the beginning, I tore open the top of a package of seeds and shook the open package along the planting trench. When the tiny seedlings sprouted they did so in an overcrowded heap and I had to do

extensive thinning and transplanting. After that I shuffled some seeds into my hand and with thumb and forefinger, picked one or two seeds, gently pushed them into the trench and covered them with soil. What a savings! All I had to do was to follow the packages' instructions on the variable depths of dirt required to cover the seeds.

Lesson 6: Too much hoeing and cultivating against weeds can cause root injury. I used newspaper as a help in the planting after the seedlings had come up. My seedling plants were surrounded with newspaper. The zinc and ink in the paper killed certain bacteria; the paper itself prevented weeds from getting hold of the seedlings and it helped hold water in the ground.

Strictly as an experiment I used dish water and vinegar mixed in cans of water, then sprayed the earth to kill nematodes and harmful bacteria. I also bought earthworms from a local bait shop to help till the soil and improve oxygen movement. This also prevented crusts from forming on the soil after watering.

Lesson 7: Seed tips. Weeds may have to be pulled out. It's easier when the soil is wet. If rye grass is available this can be put on top of the soil. It does not affect crop seeds, but reduces weeds.

It is not good to plant seeds that take too long to germinate, especially in fall or late spring planting. Corn is an example when it develops into the cold of winter or the heat of summer.

I don't keep last year's seeds unless directions indicate a longer life. I favor fresh seeds to save time and energy and provide me with a better guarantee for production. Onion varieties are poor, while celery, cabbage, spinach, tomato, squash, and eggplant seeds can last for five years.

I water my plants less as they develop but do it longer.

Lesson 8: As for bugs, there are good and bad ones as among humans. "Good-for-the garden" lady bug beetles feed on white flies, parasitic

wasps, and surphid flies. For every parasitic bug there is another type of predatory bug which balances the equation.

Giving plants a strong shower provides a force of water for reducing the bug population. I added a detergent to the water which breaks up the pests' resistance to the shower.

While I was aware that I could find proper chemicals from any nursery to destroy pests, a balanced ecosystem such as I have, helps. I refer to the sanctuary of my pond where birds and frogs take care of most insects.

Squash bugs are some of the hardest to control. They puncture squash and pumpkin shells injecting a poison that causes the plant to die or produce wounds that allow rotting organisms to enter. Squash bugs lay eggs on the underside of leaves. They seek shaded areas. I put a small board down for them to get under and later pick the board up for use in squashing—the squash bugs.

Earworm and other moths produce young caterpillars which can be more easily detected, pulled away and squashed upon the ground. Many bugs thrive at watering times. I water early in the morning so that plants are dried by evening and damp soil surfaces are prevented and discourage bugs. By having a compost pile near the garden area, many pests can be attracted away from the garden. An active compost pile becomes a gourmet food source for pests and micro-organisms. This activity breaks up the compost for later use as garden soil—and disperses pests from the garden.

I positively use the negative sow or pill bugs as minute mowing machines by using straw moistened by water spray. The bugs get so happy digesting the straw that they neglect plants such as tomatoes.

Lesson 9: As an experimental organic gardener, I know that leftovers known as odds and ends junk often come in handy. A small piece of wire, for example, was just the thing for reattaching a wind blown bean pole to

its vine. A used glass jar with round screw-on top was used for growing seedlings in the sunlight by a window before spring planting time. Rusty nails were used to provide the soil with iron. Odd pieces of copper wire were used to draw electricity from the air into garden soil. Tin cans were used for timed watering, by punching a small hole into the bottom, filling the can with water and letting the leak nourish a plant like clockwork. Plastic bags used by cleaners to cover garments served to cover early winter vegetables while drawing the sun to keep soil from freezing. The ground area became a miniature hot house. A four-by-four piece of chicken mesh wire made an excellent sieve for screening and transferring past used soil full of vegetation to another location; the screened soil, mixed with fresh mulch, became the base for a new growth area. The screened-out materials were composted for further disintegration.

A simple piece of string can be utilized creatively. In the timely growing of cabbage it can make a difference between an early or late crop. When the cabbage leaves arise out of the soil and look very uncabbage-like, almost like lettuce leaves, a piece of string tying the leaf tops together encourages the cabbage heads to bundle up faster.

A final piece of advice—don't fall into the trap of spending precious money for gardening gadgets and chemicals and end up paying inflationary prices for produce. Unless you can **do it** for less, using what's available in your ecological storehouse, you might as well **buy** the vegetables.

A lost tourist said to a gardener, "Mister, I'm lost. Can you tell me how ...?" "I don't know," the gardener answered. After a few more questions and more don't know answers, the uppity tourist snorted, "Don't you know anything?" The gardener dourly replied, "Well, at least I'm not lost."

In my garden I never feel lost. Δ

Ayoob on firearms

By Massad Ayoob

Coping with gun control in paradise

I'm writing this on a borrowed typewriter outside a Honolulu conference room while my class is listening to a videotape. The topic is judicious use of deadly force in self defense. The students range from cops and police instructors to crime victims. One is a reporter who used to write blistering editorials against guns and their owners, but had her consciousness raised while doing a story on a rape victim who, with her unrepentant attacker about to be released from prison, said that the helplessness she'd felt since the original attack would never go away.

Hawaii's gun laws are among the most restrictive in the nation. The county police chiefs, one on each island, have the absolute right to grant or deny permits to carry concealed weapons. They have chosen for the most part to deny. On the island of Oahu there are said to be fewer than half a dozen such permits. One, not surprisingly, was supposedly issued to a former chief of police. Another allegedly went to an anti-gun former prosecutor. One belongs to the civilian armorer who repairs the department's firearms. I was told one was once issued by a former anti-gun chief of police to his sister, but he had to rescind it in the face of public outcry.

The cops aren't that much better off. A week ago, an off-duty Honolulu officer confronted a crazed man armed with a handgun and terrorizing a crowd. When the cop attempted to calm the situation, the suspect turned on him with the weapon and the officer had to fire his off duty gun, a compact 9mm pistol, with fatal results. Had that one armed good guy not been present, the death toll caused by the suspect could have been hideous. The

citizens were lucky. There are 800,000 people on Oahu, and only a couple thousand cops.

Once retired, the officer in Hawaii can no longer carry a weapon unless he's an anti-gun chief who upon retirement gets a permit from his anti-gun replacement. After 20 or 30 years of sending felons to prison, the officer is now helpless to protect himself or his family from vengeful ex-cons who thought the movie "Cape Fear" was a training film.

Once again, the backwoods lifestyle comes to the rescue to some degree. You may possess a weapon and carry it on your own property. The only Hawaiians I've seen with handguns while out and about are those on working ranches. The ability to have the wherewithal to protect themselves and their loved ones has been a key factor for many in making the decision to escape the rat race and live rurally.

At least one can have a gun at home, with a permit to purchase or possess granted by the police department. Upon arrival I registered my .40 caliber Glock 27, which can be loaded only on the shooting range or while in the domicile of my hotel room.

This place is as beautiful as everyone says. There are many higher crime cities than Honolulu, yet one has to wonder when signs reading "Caution: High Theft Area" are posted in the parking lot of a shrine as sacred as the USS Arizona memorial at Pearl Harbor. Being raped in a low crime city must have been a great comfort to the victim my reporter friend wrote about.

The Hawaii Rifle Association, the state level organization that fights for the civil rights of gun owners, will try

this year to pass "shall issue" concealed carry legislation based on the Florida model. I devoutly hope that they succeed, and that Representative Clifford Stearnes of the latter state is equally successful with HR339, his bill that would allow law abiding citizens to be licensed to carry guns nationwide. Even in paradise, it's no fun being helpless. Δ

Walking to Work

*I walked to work that day,
Two miles each way,
Though I can't remember why I
chose to
That particular morning.
And just before Bard Road
I passed a worm
That was crawling across the
sidewalk
Toward the traffic on Saviers
Road.
I glanced at it
But forty...
Maybe fifty yards
Further along
I stopped,
Retraced my steps,
And there it was,
That damned worm
Inching closer to the curb.
And I,
Hunter of deer,
Killer of rabbits, ducks, coots,
and quail,
Picked it up
And tossed it into the adjacent
yard,
Far from the sidewalk,
Where there were flower beds,
And where it would survive,
Then resumed my journey—
But have spent the last eleven
years
Wondering why*

John Silveira
Ojai, CA

Home sweet home?

By *Danny C. Blevins*

The day I moved into what I then affectionately called my dream house was the most exciting day of my life. Cradled in the Tennessee mountains with a bubbling brook flowing nearby and birds chirping from perches high in a thousand tulip poplars, the long cabin at first glance seemed like paradise.

I stood in front of the house and imagined a virtual Garden of Eden spread before me. I would mature there, watch my family grow, and live out my golden years in a house very much like the one my forefathers built some 200 years before. By the time I left the cabin in the Tennessee woods, I knew why my forefathers had chosen to stop building log cabins and why they had invented the brick.

From the moment I moved my scarce bags through its front door until the day I waved happily goodbye to the house in my rearview mirror, I fought animals for possession and ownership of the house. It began the very first night. I came strolling into the bedroom with full intentions of going to bed when I noticed ants scampering across the floor like sheep before their owner. Red ants. Fire ants. Common big-as-a-finger-that-look-like-they-were-ready-to-carry-my-bed-and-deposit-it-in-the-nearby-creek ants. They were everywhere. In my bed. On the walls. And worst of all, running up my bare feet. Before that memorial night was through, I had assaulted them with every poison legally available to man and a couple not quite legal. At 3:00 a.m. the battle was at its fiercest with ants dying by the hundreds in my wake, yet the outcome was still unclear. When daylight finally arrived, all that remained of the

night's fight were scattered and rotting carcasses of dead insects that litter the landscape. Somehow, I had won. I had claimed the cabin as my house.

For two blissful months, I lived happily in my cabin, having blocked out the ant incident as a freak accident of



nature. After all, what should I expect from a house that had been unoccupied for several months. What happened next left me dumbfounded and amazed.

One day, as I was walking through my house, I noticed a bee bouncing off my ceiling. Going to get a magazine to give it a humane yet dignified end, I saw another one. Then another one. Suddenly bees were everywhere. They were coming out of my walls in an apparent attempt to settle new country for the mother hive. As I ran screaming to the local hardware store, I almost thought I was in one of those old horror movies where giant bees attack New York and eat the Statue of Liberty in one quick gulp. After three cans of the best bee poison \$40.00 can buy, the bees, like their cousins the ants, lay in smoldering piles in every corner of the house, and peace once again reigned, for awhile at least.

Next came the rats. But these were not ordinary rats neither in size nor attitude. These rats were the grandmother of all rats. Put out a box of

poison for these rats and the next day you would find everything gone, including the box. These rats mocked all attempts to keep them out of the house by using steam drills to make holes in walls where they deemed necessary. These rats used common rat traps to pick their teeth, and patrolled yards hoping to ambush unsuspecting tomcats. Well, maybe I exaggerate a little, but they were mean suckers and I fought them for governing control of my cabin for two months.

During that two months, life in that cabin resembled more of a war zone than a peaceful mountain cabin. Let's say I was watching television and wanted a glass of water. I would walk to the kitchen door, pick up my .22 rifle loaded with rat shot, and jump into the kitchen screaming a blood-curdling cry of a commando who had just found his enemy. At my cry the rats on guard duty would scamper for their bunkers, and I would get off a shot if they hesitated in the least. Then I would get my drink of water, back out of the kitchen with my gun at the ready, and go about the pleasurable business of watching T.V.

It took me two months to get rid of the wretched creatures, and for the sake of a family magazine, I will not go into the process I used to exterminate them. Just let me say it involved a stick of dynamite, a small box of six-inch nails, and a collie that had been dead for three days.

With the rat episode safely behind me, it took the next three months to calm my frayed nerves and get back to normal in my house. Had I been married, this would have been the time for the little woman to demand a different house or a different husband. But since I lived alone, I considered myself tough and felt I had taken the

worst Mother Nature could give me and I had prevailed. Wrong again.

The next assault by Mother Nature happened innocently enough, I guess. One day while I was working in my office, I heard the pitter-patter of little feet in the loft of the house. After some brief investigating, I discovered the little feet had little pointed ears and a big bushy red tail. A cute, adorable, lovable, wouldn't-hurt-a-thing-on-earth red squirrel had taken up temporary residence in the top of the house. I smiled as he happily scampered from the walnut tree next to my house to store his nuts in his special place in the top of my house. Being the naturalist I am, I considered myself lucky and even told myself he had chosen my house because he could sense I was not going to hurt him, but was willing to live in peace with him and all creatures. During those early fall days, I would hear the thump-thump-thump of his little feet as he stored his nuts in the top of the house, and I only smiled. A log cabin in the Tennessee mountains, animals living with me, Mother Nature everywhere, what man could be luckier? I felt a little like Grizzly Adams.

One night about 2 a.m. everything changed. As the snow quietly fell outside, I remember I was having a dream about being on a beach with scantily clad women when the dream suddenly changed. In my dream a bear was chasing me and trying to eat my house. The dream was so realistic, I could hear his incessant gnawing at the walls of the house. Then I realized I was not dreaming and something was gnawing a hole in the ceiling of the house. Jumping out of bed, scantily clad myself, I raced for my rifle and a flashlight and climbed into the loft of the house to go hand to paw combat with the bear. There I watched in amazement as red squirrels ran for cover under the beam of light. It seems my little furry friend had invited his friends over and were gnawing at the hard shells of the walnuts stored in my attic, a sound, I might add, that

sounds remarkably like a 2x6 rafter being clawed by a bear paw. Shaking my head and going back to bed, I made a mental note to remove all of those nuts in the morning and to shoot every squirrel that came within 200 yards of my house.

Twenty minutes later, it started again. A high-pitched handsaw-going-through-tough-old-wood sound that is impossible to sleep by and just as irritating to listen to during daylight hours came from every part of my loft. And so began my war with the red squirrels. Over the next six months, I shot, poisoned, stabbed, stepped on, and chased hundreds of red squirrels from the loft of my house. The more I chased away, the more that came. It was as if they had posted my name and number in a local sleazy squirrel bar—"For a good time come to the Blevins cabin and ask for Bennie." I removed the nuts, but that did not stop them. These squirrels had found a place to hang out, play cards, shoot pool, or whatever squirrels do in the dead of winter for fun, and they were not going to give it up without a fight.

An average incident was very similar to the rat episode. I would be watching T. V. when I would hear the thump-thump-thump of little feet in the loft of the house. I would poke the loft with a broom handle, and at this the squirrels would run screaming their little squirrely screams toward the nearest hole of the loft before the fat landlord below caught them. I would then get my rifle and run outside, hoping to catch them exiting the hundred or so holes they had created in every corner of the house. If I got a shot, I was lucky. If I killed one, I was ecstatic and could live peaceably in my own house for a few days before the squirrel gang of toughs came back to get revenge on me in the early hours of the morning.

I have been lucky enough to see many countries of the world and I have spent some miserable nights of sleep in some pretty sleazy parts of

these countries, but I can honestly say I slept less during that six months than at any time in my life. At one point I considered blowing holes in the ceiling with my 12 gauge shotgun, but the answer to this little problem finally came in the most unlikely place. My answer was simple, a chain saw and a sonic rodent machine.

First, I cut every tree within 200 yards of my house. This made the house seem as if it was in the middle of a golf course, but I would sacrifice a little scenery for a few hours sleep. Finally, I purchased one of those anti-rodent sonic sound machines. You have probably seen them advertised on one of those infomercials at 3:30 in the morning with the Ginsu knives and the vacuum cleaner that cuts your hair. The premise to this little machine is ingenious. The machine, which is compact and simply plugs into any electric outlet, gives off sound vibrations that rodents hate. Thus, the rodents stay away from the sound and the vibrations. And believe it or not, it worked. One day I had 40 families of squirrels living in the top of my house in a multi-level condo with plans for a pool, and the day after installing the machine, no squirrels.

To say I was a happy camper is a gross understatement. Finally I could get a good night's sleep and not worry about a ball of red fur gnawing a hole in my ceiling and falling on my face in the middle of the night. I had once again proven I was a mountain man. I had taken the best Mother Nature had to offer, and though it was close, I had won. Or so I thought.

Not many days after installing the vibrating sound machine, I awoke after a blissful night's sleep and sleepily walked into the bathroom. I pulled off my clothes and got into the shower, and like something out of a soap commercial, I was allowing the steam and the soap to pry my eyes open when I thought I saw the hot water handle of the shower move. Now fully awake, I glared through the dim light of the morning and the steam of the

shower in astonishment as a two foot water snake mockingly licked his tongue in my direction.

Jumping over the shower curtain, not through it, I bounded through the house, naked as a new-born fawn, trying to find something with which to go hand-to-fang combat with the serpent. The only thing that was within reach was a handsaw, and I soon had the snake subdued partly due to the fact it was too busy laughing at this 250 pound naked man whacking at him, the shower curtain, and the bathtub with a handsaw. Soon the battle was over, but I don't believe I really killed the beast. I believe it died of mirth.

Shaken but not swayed, I chalked it up to another freak of nature and thought something that strange could never happen again. Wrong! Not many days later, I heard something going through my trash in the kitchen. Thinking I had another rat, I strolled into the kitchen to see a five foot black snake lazily pilfering through my trash like a wino looking for his next meal.

Here let me say that I love Mother Nature. I believe in the fair chase of the hunt and in giving all creatures a fighting chance in the field, whether it be a whitetail deer or a rabbit. I consider myself a modern sportsman and, as one, I have a duty to protect and defend wildlife from all of the lazy poachers that choose to shoot animals that have a distinct disadvantage. But I am not ashamed to say I shot that snake. And I am not ashamed to say I shot or otherwise somehow unfairly killed every one of his hundred or so aunts, uncles, grandparents, cousins, and ex-wives that appeared in my cabin over the next three months. And appear they did.

Snakes came from everywhere and every part of the house. They came from the chimney, from under the couch, and from under the T.V. Snakes were in my cabinets, on my refrigerator, and on the hearth of my fireplace. Snake couples went on dates

through the shag carpet in my living room and gave birth to their babies behind my kitchen stove.

I have never been really fond of snakes to begin with. For one thing their little beady eyes have always reminded me of my Uncle Roy, and like Uncle Roy, they always look as if they are getting ready to hit you up for money. The other reason I never really liked snakes is that little Garden of Eden incident. Who can ever forget that one. But before they invaded my house, I had accepted them as part of nature. I never went out of my way to harm them, but I never hesitated to smile a little when I saw one laying dead in the middle of the highway either.

I guess all things must end, even nightmares, and I knew the end had come to my life in my dream house when on a quiet summer evening I walked into the kitchen to see a four foot black snake wrapped around my microwave as if waiting for me to pop a bag of popcorn so I could share. I had taken all I could take, and I sat down at my kitchen table and cried. I was moving. I didn't care if I had to live in a lean-to under a pine tree for the rest of my life, I was moving out of that cabin.

Within days I had bought another house and sold the cabin to a retired couple who wanted the cabin as a vacation home. And I admit, I at first felt bad about selling the house to them. They were old and frail, and if the house had destroyed me, a modern man of the world, what would it do to them? At this writing it has been one year since they purchased the house, and I have

heard no complaints. They love the place and say they cannot believe I sold it so cheaply. To that, I can only groan.

A few weeks after moving out, I discovered why I had so many snakes in the house—the de-rodent device. The snakes were attracted by the vibrations of the device. A snake relies heavily on vibrations and heat to find prey and that little device was attracting them like a squirrel to a nut you might say.

Today I live in a brick home overlooking a bubbly brook with mountains towering majestically overhead. To date, I have only seen one snake, a puny and wretched little creature who was obviously confused and lost and only wanted direction to the nearest backyard. I have seen no rats, no cockroaches, no squirrels, no bears, no bees, and only a few mice. The mice seem to have an appetite for green pellet-shaped poison, and they cause few problems.

My greatest problem now is whether the barn owl which wakes me up each morning will hoot at 5:00 or 5:25. Sometimes he is not himself and is a little late. I hope he straightens up soon. I would hate to take drastic actions. Δ

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Make “split pulley” bookends

By Dana Martin Batory

After years of hunting for flat belt pulleys at auctions, flea markets, etc. I finally located some at a garage out in the country. The fellow was selling them at 25 cents each regardless of size. Needless to say, I bought all of them. It was indeed my lucky day. Besides those he also had two flat belt split cone pulleys (7/6/5/4/) 8-inches long with 1⁵/₈-inch bores at \$1.50 each.

The rock maple split pulleys were in terrible condition—probably over 75 years old, heavily used and abused, poorly stored, and had spent the last three days setting out in weather that varied between a downpour and a blazing sun. Even so, I purchased them as examples to illustrate how early industry finally eliminated the headache of having to completely dismantle line shafts and their pulleys to make changes or repairs.

More than one old-timer has written of putting everything back and then discovering a leftover or misplaced pulley which meant everything came down again. The split pulleys, however, could simply be placed around the shaft and bolted into position in a mat-

ter of minutes saving hours, if not days, in downtime.

The pulleys were almost artistic in design and too attractive to just store on a shelf. After some careful regluing and cleaning with 0000 steel wool and paste wax, I recycled them into

bookends. Naturally I did it in such a way that they were completely unharmed and unaltered. Always follow the adage: “Never do to an antique what can’t be easily undone later.”

The plans are meant only as a guide. Split pulleys come in all sizes and the designs can easily be adapted to the circumstances.

Design number one

Cutting list/materials:

2 hardwood bases: 7¹/₂-inches long, 4¹/₂-inches wide, 3/4-inches tall
1 flat belt split cone pulley

Instructions:

Cut bases to length and width. Separate pulley. Center the pulley halves on the bases and lightly trace their outline.

Sand and varnish the bases, leaving bare where the pulleys will rest. Glue the pulley halves to bases with water soluble



Bookends made with the pulleys split in half

glue. This way, they can always be separated later if need be. Wax the bases. Felt can be glued to the underside of the bases.

Design number two

Cutting list/materials:

2 flat belt split cone pulleys
2 hardwood bases: 9-inches long, 7³/₄-inches wide, 3/4-inches tall
2 hardwood uprights 9-inches long, 7³/₄-inches wide, 3/4-inches tall
2 hardwood shafts 1⁵/₈-inches in diameter, 9³/₄-inches long

Instructions:

Cut the bases and uprights to size. Cut the shaft blocks slightly longer than required and turn to the given diameter.

Locate the center of the bases and drill a 1⁵/₈-inch diameter hole for shaft. Cut the shafts to length. Sand and varnish all parts, leaving bare all glue surfaces.

Glue the bases to the uprights. Glue the shaft into place. Separate the pulleys and bolt them securely around the shafts.

The felt can be glued to the underside of the bases. Δ



Bookends made with the pulleys kept intact

Travel cheaply but in style by staying at beautiful hostels

By Jan Palmer

Imagine having a room in a light-house overlooking the Pacific Ocean. A hot tub awaits and later a clean, cozy bed takes away the weariness of driving all day. Imagine paying less than \$10 for this experience.

Or stay in a large log-style home with an equipped kitchen so you can prepare your own meals. A piano sits in the living room near a fireplace where you can curl up with a book or write in a journal. Nestled in towering redwood trees it's hard to believe you're less than an hour from the bustle of San Francisco. What would you expect to pay? \$75 per night? \$50 per night? How does under \$10 sound?

Or travel a bit further and find renovated Victorian cottages with a bed-and-breakfast feel. After an early evening meal you're off to explore the wharf at night where you can hear sea lions argue for choice resting spots. The full moon illuminates the bay—or a few blocks away you can check out an Irish pub, a jazz club, a movie or window shopping. For \$12 per night?

Welcome to hosteling. An Australian engineer visiting on business pondered, "Why do they call it hostels? Everyone is so friendly."

Discounted, safe sleeping areas are only one way to cut travel expenses at hostels. Most have a kitchen where you can prepare grocery bought food or food that you brought along. Many also keep on hand basics like coffee, sugar, flour and so forth. You have a chance to meet people from all over the world—most from areas where hosteling is better known than in the U.S. Visit with people from Britain, Australia, South Africa, Korea, Japan and throughout Europe. Talk with

people who may be going to or coming from your destination. If you have room, ask about travellers who may need a ride—most will chip in on gas and cut your expenses for driving.

You're probably thinking 'what's the catch?' Well, there are some rules involved. You'll have to make your own bed and do a small chore—perhaps wipe off the kitchen counter and table, or sweep the bathroom or tidy the living room. Because of the cost,



most hostels are volunteer run so you won't get room service and pressed sheets. With several people doing 10-15 minute chores it adds up to several hours of cleaning daily—so most hostels are very clean. You will probably share a room with several other people in bunk bed style, usually 4-6 to a room. There are usually curfew hours when the hostel doors are locked—which vary from 10 p.m. to midnight, and often you must be out in the morning from 8-10 a.m. (Most give a wake up call an hour or two before). Some take credit cards, but more commonly you'll need cash or travellers checks.

Generally the people hosteling are pretty respectable. Drugs, alcohol and tobacco are not allowed (some allow smoking outside the building). Imagine having conversations about growing grapes or making cheese with

French visitors, agriculture endeavors in England, gardening in Australia and any number of cultural discussions and comparisons. It is a chance to share a little of the home-grown attitude with others. Some may be very different—you may meet 19 year olds who have never before been out of Los Angeles, or strict vegetarians who oppose use of animals for food. Can you deal with people disagreeing with you? On the other hand, many will be interested in hearing about your lifestyle. I've found goats gather conversation from residents of Britain, France, Canada and many other places. Most are genuinely interested.

Most hostels are wheelchair accessible but be sure and ask before you go if that is needed. Most do not allow pets and there are varying parking regulations depending on location. Reservations are paid in some cases as much as two weeks in advance. Memberships in the American Youth Hostels International (733 15th St. NW, Ste 840, Washington DC 20005) are \$25—it saves the \$2-3 a night non-member fee to have a card. Despite the name, hosteling is open to people of all ages, from children to seniors. They vary from restored lighthouses to an old jail and nearly everything in between. Some people have home hostels. Most run from \$7.50 to \$12 per night per person. Like motels, some are better, and friendlier, than others. Children usually are given a cheaper rate. There are more hostels available on the coasts but most bigger cities have a hostel available. If you plan on staying at hostels, bring a sheet, sleeping blanket, and towel to save the small rental charge (which pays for cleaning sheets and towels) at the hostel.

For travelling on a budget, hostels are a great way to cut costs and learn about other countries, cultures and ideas - and a way to share small farm ideas with people who may only see American cities. Consider hosteling for your next trip. Δ

Tony Reitz — not just a chimney sweep

By Gene Sheley

In recent years, wood-fueled heating has become almost as technically advanced as electronics, a change brought about to meet environmental standards and increase stove efficiency. But even the best systems need regular professional care, and that calls for a professional that has evolved from the sooty chimney sweep to the home heating technician.

Although the name has been retained with pride, today's chimney sweeps are responsible for more than just removing soot and clinkers. The "sweep" is often the first line of defense against fires associated with wood-burning heat sources, as they are well trained in fireplace and stove operation safety and wood-heat efficiency.

In 1980, Tony Reitz, a timber faller in the forested areas of extreme northern California, joined this cadre of historic technicians under the name of "Holy Smoke." Raised in Santa Barbara, California, he sought a lifestyle and a career away from that growing metropolis. While living in the northern California woods, the chimney sweep business aroused his interest, and after a brief apprenticeship with Jonathan Lucky of southern Oregon, he went into the business by himself.

Now he is settled down in his backwoods home on the Klamath River area, raising four children and operating his own one-man business as one of the few certified chimney sweeps currently operating along the California-Oregon border area.

He is certified by the Golden State Chimney Sweep Guild and the Chimney Safety Institute of America. Although chimney cleaning remains his primary effort, Reitz expanded into the associated business of wood

heating consultation and sales of stoves. He also does a lot of fireplace and chimney repair, as a state-licensed contractor, during the warmer months, while having a little time for his family during the better weather months of the year.

Reitz hadn't really planned on being a consultant and merchant.

"When I was just sweeping, people kept asking me what kind of stove and size they should have. The answer always was the "Lopi" brand, and he began analyzing the size and style of stove for chimney cleaning customers.

"I thought, this is dumb. Why should I be making recommendations for someone else. Then I contacted Lopi and I set up as a dealer."

His work during the fall can be described only as "intense," and Reitz would like to see the cleaning business spread out through the year.

However, "People procrastinate about having their chimneys cleaned. They wait until they need the fireplace before they think about having it cleaned. I'm usually booked weeks in advance during the winter."

The heating system sales effort is more or less self-run, with a colorful display set up in a small mall in Yreka, California. The display area is stocked with a selection of stoves, literature and information on how to contact Reitz.

"My salesroom is the customer's home," he said. "It doesn't do any good to talk about what a customer needs in the showroom, noting that the specific home must be measured, the existing facilities considered, and the needed heat volume and type of stove calculated.

Initial certification by the guild isn't the end of his proof of skill. "Every three years I have to be re-certified by the guild," said Reitz.

Initially, he wore a top hat and tails which was the traditional garb of long-ago chimney sweeps, but now he wears work clothes of the more conventional type. That doesn't prevent him from displaying the humor also associated with the chimney sweeps of old.

"I'm always looking for the gold that is supposed to be hidden in the smoke shelves of fireplaces," he says. "So far I haven't had any luck."

Although he won't admit to seeing a little chubby man in a red suit, he "finds" a sooty red rag in a fireplace and shows it to the customer's small children.

Reitz maintains this sense of humor in spite of the "extremely" dirty work and the dangers. While he hasn't seriously injured himself in falls, an errant nail two years ago destroyed the vision in his left eye. "It (the eye loss) doesn't interfere with my work but I have a certain amount of depth perception problems."

He says he also encounters hazards for the homeowners, often finding homes "with sheetrock and other structural stuff so badly charred, I'm surprised the house hasn't gone up in flames."

Aside from the stove display, Reitz' truck is his office, shop, and tool storage. A variety of steel-bristle brushes along with rigid and bendable extensions, are the primary tools of his trade.

Critical to his reputation for neatness is a high efficiency vacuum cleaner.

With his brushes, he cleans from three to five chimneys in a day, and the large area he covers often requires more driving time than cleaning time. He's booked three weeks in advance this time of the year, which, he says, demonstrates how many people procrastinate. Δ

THE IRREVERENT JOKE PAGE

(Believing it is important for people to be able to laugh at themselves, this is a new feature in *Backwoods Home Magazine*. We invite readers to submit any jokes you'd like to share to *BHM*, P.O. Box 40, Montague, CA 96064. There is no payment for jokes used.)

Newt Gingrich, Al Gore, and Bill Clinton go to Oz. Gingrich asks for a heart, Gore asks for a brain, what does Clinton ask for?

Answer: Dorothy

In some foreign country a priest, a lawyer, and an engineer are about to be guillotined. The priest puts his head on the block, they pull the rope, and nothing happens. He declares that he's been saved by divine intervention, so he's let go. The lawyer is put on the block, and again the rope doesn't release the blade. He claims he can't be executed twice for the same crime, and he is set free too. They grab the engineer and shove his head into the guillotine. He looks up at the release mechanism and says, "Wait a minute, I see your problem...."

A man is on his way home from work one afternoon in LA and he's stopped in traffic and thinks, "Wow, this traffic seems worse than usual; we're not even moving."

He notices a police officer walking down the highway in between the cars and he rolls down his window and says, "Excuse me officer, what's the hold up?"

"O.J. just found out the verdict, he's all depressed. He's lying down in the middle of the highway and he's threatening to douse himself in gasoline and light himself on fire. He just doesn't have \$8.5 million dollars for the Goldmans. I'm walking around taking up a collection for him."

The man says, "Oh really, how much have you got so far?"

"So far....10 gallons."

Brace yourself, Mr. Jones," the physician told the patient on whom he had performed a battery of costly tests. "You have approximately six months to live."

"But I don't have insurance, doctor," said Cassidy, "and I can't skimp and save enough to pay you in that time!"

"All right, all right," soothed the medical man. "Let's say nine months, then."

A cynical Hollywood agent was interviewing candidates for upcoming acts. The first man entered his office and the agent asked, "What do you do?"

The man sat down, positioned a dummy on his lap, and the dummy began to speak.

"Get out," the agent said. "No one's interested in ventriloquists anymore. Besides, I can see your lips moving."

A second man came in and the agent asked, "What do you do?"

The man waved his arms over the agent's desk and articles on it began to disappear.

"Get out," the agent said. "No one cares about magicians. Besides, I can see you putting things up your sleeves."

A third man came in and the agent asked, "What do you do?"

The man waved his arms and suddenly started to rise from the floor. Soon he was hovering near the ceiling, then he was flying around the room. Next, he flew out an open window despite the fact they were on the seventeenth floor. Then he flew back in and landed in front of the agent's desk.

The agent looked at him and asked, "Is that all you do—bird imitations?"

Two ferocious cannibal chiefs sat licking their fingers after a large meal. "Your wife makes a delicious roast," one chief said.

"Thanks," his friend said. "But I'm sure gonna miss her."

BUMPER STICKERS

- I don't suffer from insanity, I enjoy every minute of it.
- I want to die in my sleep like my grandfather, not yelling and screaming like the passengers in his car.
- Earth first! We'll strip mine the other planets later.
- So many idiots, so few comets.
- The gene pool needs more chlorine.
- Jesus is coming! Quick, look busy!
- Guns don't kill people, postal workers do.
- Friends help you move. GOOD friends help you move bodies.

Save big \$\$\$ by installing your own septic system

By Rev. Dr. J. D. Hooker

There are several things involved in back country living that simply demand a degree of independence and self-sufficiency. As far as home, farm, or ranch sewage treatment goes, there are normally only two realistic possibilities. The first is the simple, "old fashioned" outhouse, which really isn't such a bad option at that, if your needs are simple enough.

Your other option is to install a standard septic system. If your water requirements are relatively high, possibly including a washing machine, several family members who need to bathe or shower daily (really a requirement when you're all working hard), plenty of dishes to wash, and so forth, then in most cases installing a septic system is the best way to go.

Before you start

In just about every case, the very best place to go looking for advice, before starting, would be your County or State Board of Health. These folks will know more about what is actually needed for your particular soil types, water tables, and other variables, than anyone else. Usually, they'll not only tell you how to meet the minimum legal requirements, but give you their own experienced recommendations as well. I've even found that most of these officers are more than happy to sit down and help you custom design a system for whatever situation you happen to be in.

You might consider shaving some corners here and there, but I'd recommend sticking just as close to their guidelines as possible. After all, it's your property we're talking about and you sure don't need sewage problems and pollution mucking up your slice of the country.

Putting in your septic system yourself is a lot of hard work, but there isn't any way around that. But doing all of this work yourself, rather than paying a contractor, can easily slice two thirds or more off the cost of your system. That's a big chunk of change by anyone's standards.

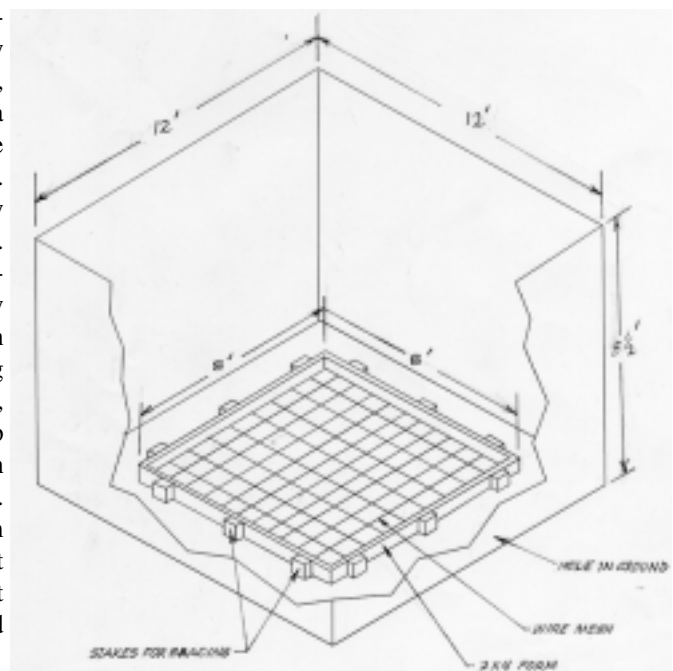
Often, if you'll look around before getting started, you can wind up with even bigger savings, often cutting out quite a bit of the hardest labor as well. When it came time to put in our own septic system, I figured I'd need to rent a backhoe for the job. Our soil is plenty rich enough that you could grow just about anything, but it's also so heavy that it's actually tough to plow, let alone shovel. About that exact same time though, my friend Art needed a big concrete floor poured for his new pole barn.

Aside from farming, Art makes the rest of his living operating his own backhoe service. Smaller concrete jobs, like sidewalks and stuff, he'll tackle himself, but this was a lot more than he could handle. I'm plenty good at concrete, but didn't have a backhoe available unless I rented one. So we very quickly agreed to a trade. Even though neither of us actually ended up putting in more than one long day's work each, we both ended up being pleased with the arrangement. To this day, I'm still convinced that we both came out real money ahead on the deal.

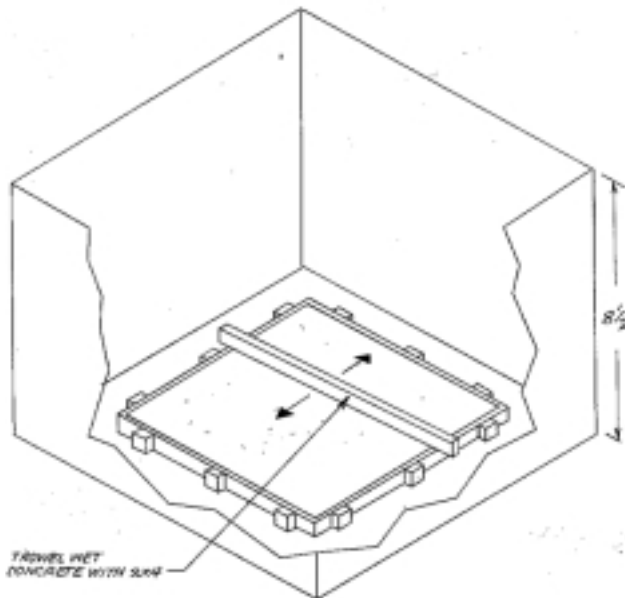
So it's important to check into any cost-cutting options you might have available before you start pouring your own cash and sweat into the project.

While most septic tank makers will include delivering the tank right into the hole (which is the route I went), I've know plenty of people who increased their savings even further by building their own tank right in place. This increases your work load something like 200% or 300%, but if your funds start running a little short, this offers another way to save money.

Even if your original plans call for installing a purchased tank, it's worth discussing the size requirements, etc., with your local health or building department. Then you can sit down with paper and pencil and decide for yourself if the extra savings would be worth the extra labor. You'll just need to take your personal finances, skills, time restraints, and other circumstances into considerations to make this decision.



Dig the hole and prepare the bottom to receive concrete.



Pour the concrete in the bottom and level it.

Starting construction

Should you wind up deciding to build your own septic tank, and unless your local regulations dictate otherwise, a simple square tank, measuring 8-foot long, by 8-foot wide by 6-foot deep, will normally meet all of the needs of an average rural family. To do this you'll need to dig a hole roughly 12- by 12-foot and about 8½-foot deep (which is pretty much what you'd need to dig for a pre-fab tank anyway). Use 2x4s or other lumber to form up an 8- by 8-foot floor area right in the center of this hole.

You'll need to use some sort of steel reinforcing in this floor, but you could save a couple more bucks by using any sort of metal fencing instead of purchasing regular concrete reinforcing mesh.

You'll also need a straight 2x4 at least 8½-foot long to use to level off the concrete inside these forms. Pour these forms full to the top with concrete, then using a sawing motion, pull this 2" x 4" along the top of the forms, to strike the concrete off level. There really isn't any reason at all to finish this floor any smoother, as once the walls and top of the tank are completed, it will never be seen again.

Next you'll need to build six-foot high walls resting on the edges of your floor. You can build or rent wooden forms if you'd prefer to pour concrete walls. But, unless you've already got some experience at this, I'd build the walls from block or brick. Using blocks will take just a little longer than pouring concrete, but the cost is right about the same while laying block is much safer in case you'd made some minor mistake.

You'll need to install a PVC coupling in the tank wall nearest to your dwelling, to allow a four-inch drain pipe to let liquid flow into the tank. Place this approximately four to six inches below the top of the wall and roughly centered. On the opposite wall you'll also need to install a similar coupling just slightly lower to allow the effluent to flow out.

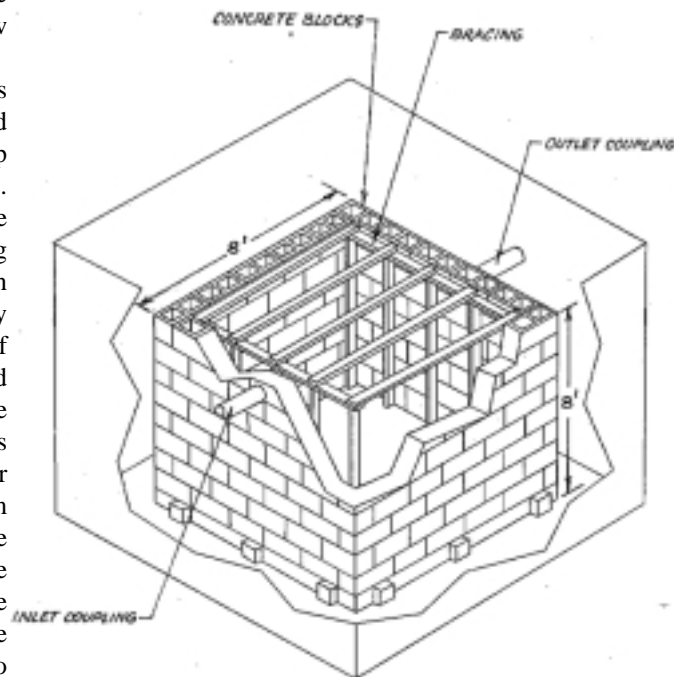
Once the walls are up, you'll need to form up the top lid for the tank. This is best done by fashioning braces, and then resting two 45- by 90-inch sheets of ¾-inch plywood atop the whole structure, as shown. Remember to include the form work for the access hole. Use hardened concrete nails to fasten the 2x8-edge forms to the wall, and run at least a few braces

from these forms to the back of the hole. Pour your concrete and, as the illustration shows, you'll need to pour a reinforced concrete lid to place over the access hole separately.

Let all this cure for a couple of days, then remove the edge forms, cut out the plywood under the access hole, then climb inside and remove all of the bracing. Once you've placed the cover over the access hole, your tank is finished. Very often, though, you'll find that by now surface water, shallow ground water, or maybe both, will be seeping into the hole. If that is the case, you'll need to pump your tank full of water as soon as possible to prevent it from floating up.

Running the pipes

You can run regular schedule 40 PVC pipe (or iron or clay if you'd prefer or have it handy) from your home's sewer system to the tank's inlet. To keep from repeatedly sloshing up the effluent working inside of the tank, you need to really try to keep the drop in the sewer line running into the tank between 1 inch per 10 feet and 2 inches per 10 feet.



Build the sides and install the framing.

The leach field

Now for the overflow side. This requires digging numerous trenches, each about three-foot wide and three-foot deep, and at least four-foot apart. The number and length of trenches you'll require depends on your soil type as well as other considerations. Again, the best place to go for advice is your local Board of Health or Building Department. In most areas, a layout like the one illustrated will meet the needs of a family of four to six people.

Keep the bottoms of the trenches as level as possible as you go.

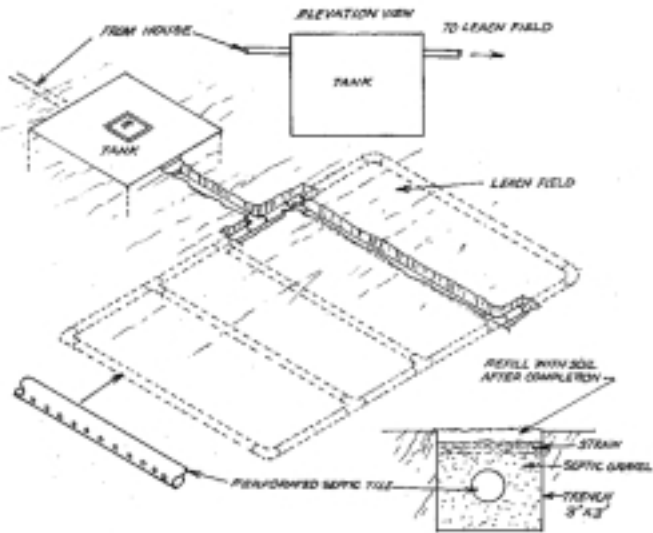
Twelve inches of "septic stone," which is a specific size of gravel available from probably every gravel pit in the country, goes in the bottom of each trench. Next you'll need enough perforated septic tile, along with Ts, elbows and other fittings to place in the center of these trenches. This is where you'll need to work with a lot of care. You have to have "fall" from the tank to the far end of this leach tile. But too little fall and the near portions of the tile will start to plug up in only a few years; too much and the farther portions will plug up

instead. You have to maintain an even and steady 1 inch per 10 feet of fall throughout the system to prevent problems.

If an inspection is required in your area, this is the point where you'll usually want to call for one. After that, another 12 inches of septic stone is used to cover the tile. If all of this sounds like a lot of gravel, it is. We had to use 200 tons of septic stone for our system. Good thing gravel's cheap around here.

You'll need to cover this second layer of stone with either a layer of building paper or about eight inches of straw. This keeps dirt from settling into your gravel and clogging the system.

Finish by filling everything back in with dirt, finding some sort of use for all of the leftover dirt, and spreading some grass seed over the whole area. You'd never want to build or plant trees or shrubs over your septic area. But, once some grass starts filling in, it will usually grow extremely well. So this does make sort of a nice little sort of mini-pasture for a couple of pygmy goats or other small grazing animals if you want to keep from having to mow it all the time.

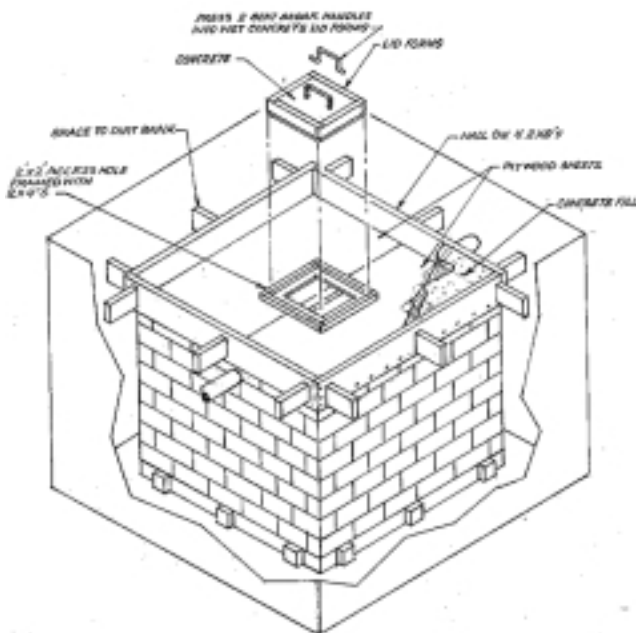


Lay in the leach field.

Just so you'll know, every Board of Health Officer or employee I've ever asked made a point of telling me that all of those septic starters, septic system helpers, and other products that add bacteria to your tank and system are both unnecessary and a waste of money. They don't hurt anything should you insist on using them, but they don't add anything that isn't already there. They're sort of like taking money and flushing it down your toilet. But it's your money, so flush if you want to. But not me.

That's pretty much how to install your own septic system. It is an awful lot of work but you should try looking at it this way: if you need a septic system, then somebody has to do the work anyway, so would you rather pay someone else or yourself? The savings you can realize installing your own system can equal a mighty fat paycheck that you might prefer to keep yourself and, once you've completed the job, you'll not only have the satisfaction that comes from saving so large a handful of green paper, but of having completed a major undertaking that you can see working perfectly for many years to come.

This really is a situation where a job well done is its own reward. Δ



Complete the tank and install the access hole.

Try tempeh as a protein substitute

By Jennifer Stein Barker

Tempeh is a protein source that many Americans are unfamiliar with, even vegetarians who eat soy products as a regular part of their diet. Tempeh has been a favorite food in Indonesia for several hundred years, but was not widely available in the US until the 1970s. Now you may find it in the freezer in a health-food store, or the health-food section of your grocery store.

What is tempeh?

Tempeh is a cultured food, like yogurt, made by the inoculation of partially cooked soybeans with a friendly bacteria (*Rhizopus oligosporus*). The beans are then spread out in sheets about 1/2" thick and incubated for 28 to 32 hours. By then the culture has knitted the beans together into a dense, cohesive cake. It is packaged up and stored frozen or chilled. Fresh or defrosted tempeh will keep 3 to 4 days at 40 degrees. I usually keep it in the freezer and defrost it just before using.

How to use tempeh

Tempeh must be thoroughly cooked before, or during, inclusion into a dish. If you are using tempeh in a cold dish, like a salad or spread, you must simmer, steam, or fry it first and then chill it for use.

Tempeh may be diced, grated, or served as is in patty form. My favorite method is to cut it in strips about 1/4" wide, and then cut again on the diagonal, so that I have a diamond-shaped dice. The thin edges allow the tempeh to soak up the seasonings I use in cooking. Tempeh by itself has a rather bland flavor, which has been described as "mushroom" and "nutty". I find it pleasant, but I also find that it benefits from the addition of spices and herbs.

Nutrition from soy

Soybeans have been called "gold from the earth". Twenty times more protein can be produced from an acre of land used to produce soybeans than from the same acre used to graze cattle. Tempeh contains complete protein, of the same quality as that found in meat. It has no cholesterol, and very little sodium. Tempeh is a good source of iron, vitamin E, and lecithin. It also may contain vitamin B12, produced by the bacteria which grow along with the culture (but not reliably enough to be a good source of the vitamin).

As a primary protein source, or as the addition to a good and varied diet, tempeh is an excellent source of nutrition.

Tempeh stew

This is a wonderful vegetarian stew with a savory miso gravy. Serves 2-3:

2 Tbsp. olive oil
 1 clove garlic, minced
 1 medium onion
 1 8 oz. cake of soy or grain tempeh
 2 cups water
 2 carrots, diced
 2 large potatoes, diced
 1-2 turnips, diced
 1 tsp. prepared mustard
 2 Tbsp. miso
 1/4 tsp. rosemary
 1/2 tsp. thyme
 1/2 tsp. marjoram
 1/2 tsp. sage
 1 Tbsp. arrowroot or 2 Tbsp. flour

Method:

In a 3 quart or larger stockpot or Dutch oven, warm the olive oil on medium heat and saute the onion until it is translucent. Add the tempeh and garlic, and stir-fry briefly.

Now add the water and the diced carrots, potatoes, and turnip. Stir them together and simmer until the vegetables are tender, about 20 minutes after everything comes to the boil (if you dice the vegetables smaller, they will cook quicker).

Stir in the mustard, miso, and herbs. Simmer for about 10 minutes more. Dissolve the arrowroot or flour in 1/4 cup of water and add it to the casserole, stirring well. Simmer about 5 minutes more, until thick, stirring frequently.

Wild mushroom gravy with tempeh

A dense, savory gravy for any occasion. Serve it over toast or mashed potatoes, with a heap of vegetables on the side.

1-8 oz. cake of soy or multi-grain tempeh
 1/2 ounce dried wild mushrooms (such as boletus or morel)
 3 cups stock or water

2 Tbsp. miso
 ¼ cup tamari
 ¼ cup cornstarch
 ¼ cup fine whole wheat flour

Method:

In a saucepan, cover the tempeh with some of the stock or water and simmer gently for 15 minutes. Drain the water off the tempeh onto the mushrooms, and add enough more warm stock or water to make sure the mushrooms are covered. Let them soak while you dice the tempeh and set aside.

Drain the mushrooms, reserving the soaking water (if you are using purchased dried mushrooms, you may at this point need to wash the mushrooms carefully and strain any dirt out of the soaking water). Chop the mushrooms finely.

Measure the soaking water into a saucepan, and add enough more stock or water to make 3 cups. Add the miso, tamari, cornstarch, and flour, and whisk together well. Heat to boiling, whisking constantly. Lower the heat and simmer for a few minutes, still whisking constantly, until thick. Add the diced tempeh. Serve over toast, potatoes, stuffing, or rice.



Method:

Cook the brown rice as directed on package.

Get out a large, deep, heavy skillet. Heat the oil over a medium burner, and saute the onion until it begins to turn transparent (adding a little water as necessary to keep from sticking). Add the garlic, ginger, and diced tempeh. Saute for 3 more minutes, stirring as necessary to keep from sticking.

Add the dried stock or water, hot pepper, potatoes, grated turnip, sliced carrot, and orange peel. Cover and simmer for about 20 minutes (until the vegetables are tender). Put the vinegar, sherry, tamari, honey, cornstarch, and hot sauce in a cup. Whisk to blend well, and set ready near your stove.

When the vegetables are tender, add the sauce and the spinach at the same time. Cook, stirring, just until the sauce thickens and the spinach

wilts. Serve immediately over steamed rice.

Stir-fried tempeh and vegetables

This is basic fare around our house when the veggies roll out of the garden, or in winter with root-cellar vegetables. Serves two:

1 cup raw brown rice, cooked according to directions
 1 Tbsp. peanut or sesame oil
 1 tsp. minced fresh gingerroot
 2 or 3 cloves garlic, minced
 4 oz. (½ cake) soy or wild rice tempeh
 ¼ cup raw cashews
 1 small hot pepper, finely minced
 a heap of vegetables, however much you think you'll eat (suggestions: winter: two carrots, a white turnip, and 1/2 head savoy cabbage; summer: baby carrots, baby zucchinis, and a big bunch of greens)

Method:

Chop or slice all your vegetables and divide them into long-cooking ones and quick-cooking ones. Dice the tempeh into small diamond-shaped pieces (or however you like). Heat your wok or skillet over medium-high, and add the oil, garlic, and ginger. Stir-fry briefly, then add the tempeh, cashews, and hot pepper. Stir-fry for a minute or two until the tempeh and cashews begin to turn golden.

Add the long-cooking vegetables along with a little water, cover, and allow to steam, covered, for a few minutes. When the vegetables are just beginning to be tender, add the quick-cooking vegetables and steam or stir-fry until done. Serve over the cooked rice, with tamari on the side. Δ

Indonesian spicy tempeh

Garden vegetables in a pungent sauce. There are quite a few ingredients in this, but it's really very simple. Serves 4:

1¾ cups raw brown rice, cooked
 2 Tbsp. peanut oil
 1 cup diced onion
 3 cloves garlic, minced
 2 tsp. minced fresh gingerroot
 1-10 oz. cake Indonesian-style tempeh, diced
 1 cup stock or water
 1 dried hot pepper
 2 potatoes, diced
 1 small turnip, grated
 1 medium carrot, halved and sliced
 1 tsp. dried orange peel, or 2 tsp. fresh
 3 Tbsp. balsamic vinegar
 2 Tbsp. sherry
 ¼ cup tamari
 2 Tbsp. honey
 1 Tbsp. cornstarch
 dash hot sauce, to taste
 1 bunch spinach, washed and shredded, 1-inch pieces

Have gourmet fare foraging wild spring greens

By Robert K. Henderson

I gnaw dried, canned and cellared food all winter long, and since you're reading this there's a good chance you do, too. So you know what I mean when I say that by February there isn't much I wouldn't do for fresh greens. Fortunately, succulent wild shoots are only weeks away. You too can savor gourmet greens before the garden has even been planted, if you're open to a wild idea or two.

For my money, the surest cure for the root cellar blues is a meal of tender, steamy knotweed shoots. This works out well, because I don't actually have any money and the shoots are free. Two edible knotweed species grow across the US. Japanese knotweed (*Polygonum cuspidatum*) and giant knotweed (*P. sachalinense*) both have large, heart-shaped leaves and jointed, bamboo-like stems, which is why some call it Mexican bamboo.

The canes grow in dense thickets eight to twelve feet high. If you don't already have a patch in mind, look for leafless stands of "bamboo" along winter roadsides.

Knotweed punches through the dead leaves about mid-March here in western Washington. The shoots resemble fat, pale asparagus, but don't taste like it. Like genuine bamboo, knotweed fairly jumps out of the ground, growing up to several inches a day. A stand at peak production is virtually impossible to overharvest. I cut shoots by the dozen without making a dent in my patch.



Young dock leaves



Young dock opening in spring run-off

Shoots between two and six inches high are perfect for the table. The slime that oozes out of cut knotweed renders it unpalatable raw, but cooking eliminates this slime, leaving a tangy, meltingly tender vegetable that's a real tonic after months of squash. Try simmering knotweed shoots in water, stock or wine, with a little garlic and onion. Or chill cooked shoots and serve

on toast with a cream sauce. For sheer elegance, however, nothing beats velouté d'asperges japonaises, or Japanese asparagus soup. (Guests love my "Japanese asparagus." Sadly, gourmet greengrocers can't seem to find any for them. Ahem.)

Knotweed tastes something like rhubarb, and can substitute for rhubarb in pie and jam recipes. Peel and slice one- to two-foot shoots for sweet dishes. I relish knotweed sauce on toast and pancakes and in filled cookies.

Spinach-like dock

While you're gathering knotweed, be on the lookout for young dock, which often grows nearby. Dock is a very common garden and barnyard weed and is high in iron and vitamins lacking in many backwoods winter diets. Curly, red, yellow and patience dock are but a few of the many varieties of this ubiquitous plant. All are species of genus *Rumex*. The leaves of most are narrow or oval and dark green with a bumpy, orange-peel texture. New foliage sprouts from a



A knotweed ripe for cutting

ground-level crown and arcs gracefully over the surrounding grass. Later, a central stem appears and may bolt to three feet with a long seed spike at the top. The leaves then grow much larger and often have red or yellow spots. Only young, pre-bolt leaves are mild and tender enough for the table. "Scrolls," pale new leaves that haven't unrolled yet, are the most delicious of all.

Dock looks and tastes like strong, slightly chewy spinach when steamed and eaten with lemon juice or vinegar and butter. A pinch of dill or Parmesan dresses the steamed greens up a bit. Or layer raw young leaves into your favorite lasagna recipe before baking. For a gourmet touch, try stuffing crepes with steamed dock greens and ham.

Two kinds of fiddleheads

Fiddleheads are one of the most well-known wild spring greens, though they come on relatively late in the game. The two edible varieties are very different, so if you don't like one, try the other.

Bracken ferns (*Pteridium aquilinum*) can be located in winter by the lacy brown straw they leave behind when they die. Underground, fat black rhizomes run every which way, ready to send up single green shoots seemingly at random when spring comes. Long, straight stems rocketing into the sunshine are your cue to lift the straw and search for edible sprouts. Collect only curled fiddleheads, because they become stringy and poisonous as they straighten. Bracken sprouts are covered with tiny hairs that feel odd on the tongue. Lightly scrub to remove most of them. Then simmer the fiddleheads in wine vinegar or slice to season stir fry, tomato sauces and rice dishes. Bracken shoots' bitter, almond-like flavor is an acquired taste. Some love it. I use bracken fiddleheads mostly to flavor other dishes.

Lady fern sprouts (genus *Athyrium*) are an entirely different vegetable. These tender, translucent shoots are found in moist woodlands, where they come up in the center of a crown of soft green fronds. Their perfectly-round fiddleheads, reminiscent of old-fashioned lacrosse rackets, gracefully unwind until an entire frond is outstretched. They're truly delectable when still tightly rolled and no more than a few inches high. Extremely tender and mild in flavor, missing the fur of their stronger-tasting cousins, they need only be lightly steamed before serving. Lady fern sprouts come up just in time for fishing season and make a great side dish or stuffing for salmon and trout.

Velouté d'asperges japonaises

- | |
|---|
| 1 lb knotweed shoots (about 16 6-inch shoots, 3/4 inch thick at the base) with any leaves that have opened still attached |
| 1/2 cup sliced onion |
| 4 cups chicken stock |
| 1/2 cup onion, chopped |
| 1 large clove garlic |
| 1/2 teaspoon dill or caraway |
| salt and pepper to taste |
| butter and chives, if desired |

Mix all ingredients in a large pot, bring to a boil and lower heat. Simmer until shoots are soft, about 10 minutes. (Or cook in a pressure cooker at 15 lbs for 2 minutes.)

Pour pot contents into a blender and blend until completely smooth. (To avoid scalding yourself, fill the pitcher no more than half-full. Place a folded dishtowel on the lid and hold it down firmly while you turn on the blades.) Velouté should be a bit thinner than split pea soup.

Return soup to pot and reheat briefly.

Serve hot, with a pat of butter in the middle and a sprinkling of chives if desired. Serves 6.



Lady ferns sprouting through forest undergrowth

Knotweed sauce

4 cups knotweed stalks, peeled and sliced into ¼ inch thick rings
1 cup sugar
½ teaspoon nutmeg

Stir all ingredients in a saucepan until sugar has absorbed some liquid from the knotweed. Place pan over low heat and simmer until sugar dissolves into a syrup. Continue simmering until knotweed is soft. Sauce may be served immediately or canned for later use. Makes 2 pints.

Crepes stuffed with ham and dock

Crepes: Recipe makes 12 crepes.

¾ cup flour
1 cup milk
1 egg
1 tablespoon melted butter
pinch of salt

Sauce and filling:

1 can mushroom soup
½ cup chopped onion
1 clove garlic, crushed
1 tablespoon cooking sherry
¼ cup water
½ teaspoon soy sauce
black pepper to taste
8 tightly-packed cups fresh young dock leaves
12 thin slices of ham

Mix crepe ingredients thoroughly. Heat a sauté pan or small skillet over medium heat and brush with butter. Drop a spoonful of batter into the middle of the pan, lift and shake until batter is spread evenly and thinly. Place pan back on burner until crepe's edges curl slightly. Invert pan over a warm plate; crepe should drop onto it. (Unlike pancakes, crepes are browned on only one side.)

Make use of throwaway fish with "fish salad a la carp"

By J. Alan Burdick

Here's a way to fix carp, that fish you usually throw back into the lake, so that you can not only eat it, but truly enjoy it.

Eviscerate the carp and clean the inside well. It is not necessary to remove the head, and it is necessary to leave the scales on the fish. "Brine" the fish (head, scales, and all) in a brine made up of 8 cups of water, 8 tablespoons salt, 2 tablespoons lemon juice, 1 tablespoon of ground ginger, and 1 teaspoon of black pepper for 3 hours. Do this in a cool place, like the refrig-

erator so the fish remains fresh. The lemon juice and ginger change the texture and taste of the carp flesh.

Smoke the fish, after the brining, in a smoker of some kind for about 3 hours (this assumes a 5 pound fish). At the end of this the skin, scales, head, and bones are easily separated. The flesh will flake, but beware of small "Y" shaped bones similar to pike bones.

To each cup of flaked meat (which is delicious plain) add 2 tablespoons of mayonnaise, 3 tablespoons of diced onion, and 3 tablespoons of diced sweet pickle. Use as you would tuna salad. Δ

Keep crepes warm while preparing sauce and filling.

Mix mushroom soup, onion, garlic, sherry, water and seasonings in a saucepan and simmer until onions are soft. Add water if sauce is too thick.

Steam dock leaves in a saucepan until limp, and drain.

Lay crepes browned side down. Place a slice of ham on each, spoon some cooked greens on top and ladle on a little sauce. Roll up crepes and place side-by-side on a warm serving platter. Pour remaining sauce over the top.

¼ teaspoon black pepper
salt to taste
8 whole lady fern shoots, and/or two bias-sliced bracken shoots
melted butter
lemon juice

Preheat oven to 450 degrees.

Mix rice and water in a saucepan with a tight-fitting lid. Cover, bring briefly to a boil, reduce heat to low and steam until tender, about 40 minutes. Add water if necessary.

When rice is ready, remove from heat and stir in mushrooms, onion, garlic, lemon peel, seasonings and bracken shoots, if used.

Fill salmon with rice mixture. Arrange lady fern shoots on top of the mixture, if used. Sew salmon closed.

Place salmon in a baking dish and brush all over with melted butter. Bake uncovered about 30 minutes, or until fish flakes easily when pierced with a fork beside the dorsal fin. Serves 6. Δ

Stuffed salmon with fern shoots

1 whole salmon, about 4 pounds
½ cup uncooked wild rice
1 ½ cups water
½ cup sliced mushrooms
¼ cup chopped onion
1 clove garlic, crushed
1 teaspoon grated lemon peel
¼ teaspoon dill

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Home magazine

practical ideas for self reliant living

11 "making a living" ideas

Make money selling books

Self publishing for profit

Solar oven casseroles

Build a portable forge

Grow elephant garlic

Sell farm produce



If you just love those books, here's how to make \$ with them

By Mary Kenyon

Do you love books? Do you enjoy hunting for the treasures amongst stacks of books at auctions, thrift stores, or library book sales? Want a business you can run from your home? Then the book business might be just what you're looking for.

Our home business selling books has been flourishing since the closing of our used bookstore in November 1997. Eight shelves of books line our living-room and office walls, alongside the three that contain our personal collection and home-schooling books. As homeschoolers and strong believers in learning from "real" books versus textbooks, we are perfectly content being surrounded by our product. While our home business venture started out as part of a small business that was pared down to come home, this type of business would work for anyone with a little book knowledge, time for book-hunting, and a good customer base.

The majority of our targeted customers are homeschoolers, though we do deal with a few collectors, other book-dealers, and some back-woods types who are always searching for out-of-print books on gardening, building homes, raising small livestock, canning, and similar topics. I know book dealers who specialize in certain topics, and the same could be done in a home business, especially for someone hooked up on the internet for selling, which we are not.

Target your market

To get started in a home business selling books, you must decide who your customers are. We sell to homeschoolers because we are homeschoolers and we know what

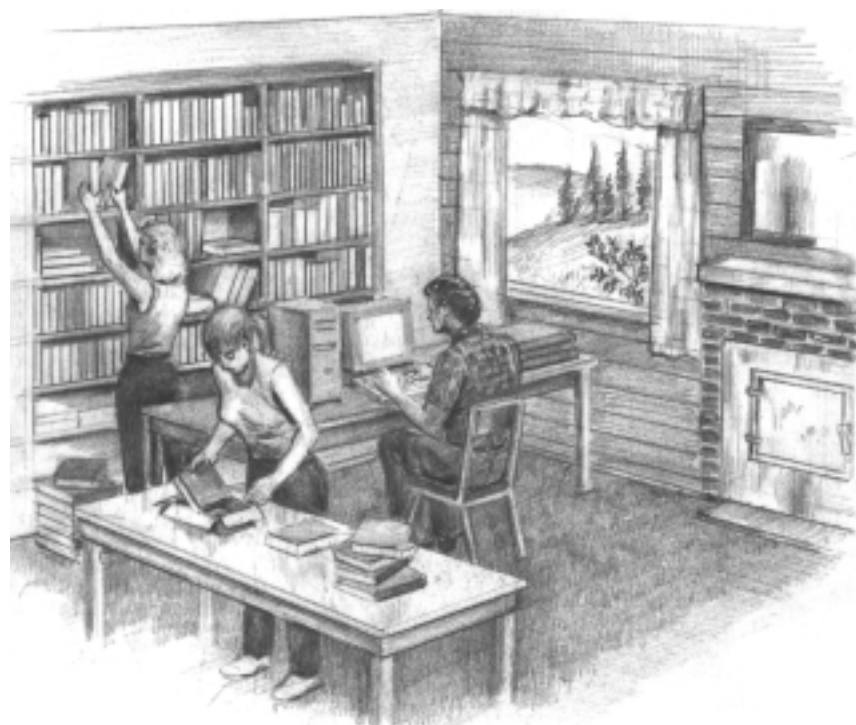
homeschoolers are looking for. As we are learning more about collectible juvenile books, we could feasibly branch out and sell to juvenile book collectors. At this point, however, I prefer to sell to families who are using these books for reading enjoyment, not shelving them just to own a complete collection. We know one bookseller who deals only with juvenile literature on the internet, and her prices have risen beyond the budgets of most homeschoolers we deal with. She has also gotten so busy and involved in her book business she put her own homeschooled children back in school so she would have more time for the business.

Are you a self-sufficient type who can spot a Rodale book on gardening halfway across the room at a library sale? Target this population and advertise in magazines or newsletters written for the back-to-nature crowd. Love history? What about history buffs who can't get enough pre-

revisionist history books? Homeschoolers generally fall into this category too, which is why we can always sell the old history texts we unearth at auctions. Recently we profited \$20 on a children's history book we bought for 50 cents at a thrift store. With beautiful pictures and stories, it was well worth the \$20.50 we charged a special customer who is always searching for this type of book. Are you more into the collectible books, looking for special and first editions, and learning about current trends and values? Your customer base could be collectors, and ads could be run in collector's magazines.

Collecting inventory

Once you've decided your target customers, it is time to start collecting your initial inventory. Maybe your own library can be a starting point. I am just now, after three years, rebuilding our personal library, adding books we once owned or always wanted to own, after selling one-half our collection initially to help get our business going. Call local libraries to see when they will be having



booksales, and attend every one within at least a 50-mile radius, searching for the type of books you want to sell. Prices are generally in the 50-cents to \$1 range, and not all the books are ex-library (with markings that decrease their value). Auctions are another boon to the book-hunter. Twice we have bought an entire hayrack full of boxes of books for only \$1. Yes, we ended up with a lot of worthless junk, but our initial investment netted some real gems, including an original McGuffey's reader and Ray's Arithmetic.

Be aware, however, that when books are mentioned individually in the auction ads, you may be competing with book dealers who will be willing to pay \$100 for one book. Even when this happens, you may end up with boxes of beat-up books that can still be sold as reading copies if they are highly collectible authors or illustrators.

Thrift stores or stores that depend on donations for their stock are another great source for books. Hidden amongst the shelves of old book-club books and Reader's Digest Condensed books (virtually worthless to any book dealer) you can find beautiful out-of-print children's books or a collection of beautifully illustrated Bible stories for a client who wants such things.

Other book dealers can be a source of inventory, too, especially if they are dealing with a different clientele than you. I have found nice ex-library copies of books my customers want at bookstores for as little as \$1, simply because they don't deal with ex-library as a rule, or the majority of their clients aren't interested in general juvenile literature from the 1950s, while mine are. I have many customers who will pay \$3 for a nice-looking copy of a book they read as a child that they want to own for their own children.

During your book searches, don't turn away from good copies of books that you won't personally be dealing with. For instance, when I see

beautiful art books in slipcases at thrift stores for \$1, I buy them up even if I personally don't sell them. Why? Because I know a bookstore that gives me \$5 in credit for each one I bring in. I have gotten over \$500 in credit at one particular store where I know what the owner is looking for. I use that credit, which easily equals five times the investment I put into it, and purchase books at his store that I know will sell on my list. By choosing carefully, my initial investment of \$20 gets me \$100 worth of their books which I can sell for \$150—an end profit of \$130.

When you have your initial inventory of at least 300-500 books, you need to make up a list of what you are selling. I number my books by category, ie, C1, A1, E1 for Children's, Adult's, and Educational), and I add and delete these numbers as books sell and as I add more onto the list.

I have seen many lists that are not coded but simply list the titles and authors of books available, sometimes dividing by author or subject.

I started my list with approximately 500 books total, and in three year's time it has grown to include almost 2000 books, the majority being children's and educational. I have two to three pages of back issues of highly-sought after back issues of magazines which changes quickly. You could feasibly do this list on a typewriter, but with the amount of books I have, it is nice to use a computer and make the print smaller so I can get more on each page. And updating lists is a breeze with a computer, deleting titles that sell and adding a new title in its place. This is more appealing than crossing items out as they sell.

Watch printing costs

Sending out your booklist to prospective customers can be expensive. The cost of printing your lists can quickly eat up profits, so compare prices. I have paid as little as

2-cents a sheet but now my 24-page, double-sided list is costing closer to \$2 each to print and another \$1.50 to mail. I now ask for \$2 for prospective customers to receive a list, and regular customers are good about sending another \$1—or 4 stamps—to help out so they can continue getting lists.

Advertising essential

Once you have your list, you need to advertise. Name your business, and, if you expect a lot of mail or want to look more business-like, rent a post office box. Working on a small budget, I searched for every free advertising space I could find, including review columns in various homeschooling magazines and newsletters. I also mentioned our business in every newspaper and magazine article I wrote and published, including this one. I ran a few paid ads but found personal mentions to be more beneficial in terms of eventual sales. A large proportion of people who request a list never buy, but the good repeat customers make up for them. Repeat customers are good about spreading the word, too, and at least one new customer a month comes from a satisfied regular customer.

When I get an order, I send a postcard or letter letting the customer know what is still available from their request list, how much their total is with postage added in, and let them know I will hold their books for them for 14 days. After I receive the money, I mail the books out book-rate. Approximately one out of 40 customers never pay, which is why I never delete a book from the list until it is paid for.

The time it takes

Our home business entails approximately 2 days a month for traveling on our "book hunts," and approximately 15 hours a week working on updating the list, filling orders, and packing

boxes. I know book dealers who work many more hours than this each week and many of them are also dealing over the internet, but with homeschooling, caring for young children, and writing, 15 hours is enough of a stretch for me. Our children can help with some of this, and the entire family enjoys hunting books and are learning to discern between good books and junk. We figure this in as part of their homeschooling.

Don't want to get quite this involved in selling books? You can start small by selling to people like me. Get to know your local bookstore owner. What is he looking for? If he pays highly for war and history books, keep an eye out for these at book sales. If you can get cash instead of credit, you could feasibly make \$4 or \$5 off a book you paid \$1 for. If no one else is bidding on old quality poetry and classic books at auctions, buy a box for \$1 or two, clean them up, and try selling them to a book dealer that sells this type of book.

Personally, I am always looking for certain types of books and will pay cash for them. Because I sell ex-library books but am unable to attend every library book sale in the state (though I'd like to), someone could purchase all the Lois Lenski's, Landmarks, and Childhood of Famous Americans series books at 50-cents a piece and sell them to me for \$1 to \$4 each, profiting nicely.

Don't just buy up books, hoping someone would like them and give you cash for them, but find out what is being sought after. Maybe you already attend the sales for books for yourself but could spend a few more minutes searching for someone else, and pay for your books in the process.

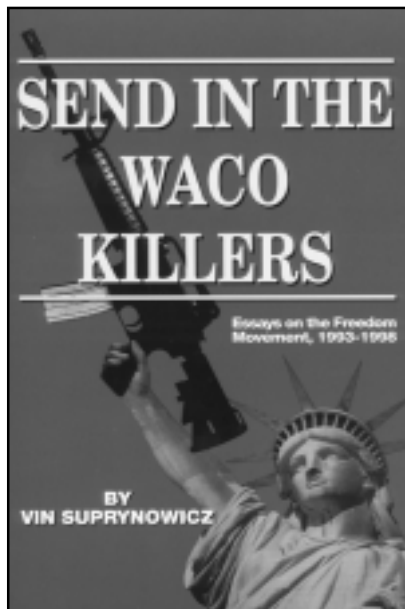
How much can you expect to make in the book business? Of course, it depends on what kind of books you are dealing with, and how many people you can reach. Dealers on the internet can command higher prices, and dealers who sell to collectors can get more for their books, but the condition of the books is much more important than if you are dealing with

customers who are just looking for good reading copies. Because we are constantly adding to our inventory, some months we only see a small profit of a couple hundred dollars. We've built up enough inventory that we could feasibly sell from our current list for months with new customers, but at this point 85% of our monthly sales are to regular customers so it is important to constantly add new stock to the list and to locate certain books we know these customers are interested in. If we were actively reaching out for new customers, our profits would increase exponentially. Selling books can be a nice second income and will always pay for itself as long as you know your market.

So, what are you waiting for, book-lovers? Get hunting and make some money off a product you love and believe in. The only thing you've got to lose is some space in your house.

(To request a list of the Kenyon's books send \$2 to Mary Kenyon, Once Upon a Time Family Books, P.O. Box 296, Manchester, IA 52057) Δ

SEND IN THE WACO KILLERS



Three times the International Society of Newspaper Editors has included Vin Suprynowicz in their list of the 12 top weekly editorial writers in North America. For years his shoot-from-the-hip style has opened the eyes of thousands to government abuse of our liberties. In this book, Send in the Waco Killers, he blends material taken from his syndicated column with new commentary to give the reader a detailed, reporter's-eye-view of how the rights and freedoms of Americans are being subverted.

He uses factual accounts from the daily news to show how the Feds use the drug war, the public schools, jury rights, property rights, the IRS, gun control, and anti-militia hysteria to increase its power and control over us. He details how agents of the ATF and FBI have routinely lied, how they use paid informants to infiltrate Constitutionally-protected militia groups, then fabricate evidence to get arrests and discredit them.

Had he lived 225 years ago he'd have written a book to detail how King George III and Parliament have tried to enslave us but, sadly, this book is about how our government today is depriving us of our freedoms and ruining the lives of thousands without changing even one word of our Constitution.

If you read no other book this year, read Send in the Waco Killers. Just keep your blood pressure medication handy. 506 pages, trade paperback, \$21.95 + \$3 S&H.

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The emu and ostrich craze — Why won't the big birds fly?

By Vern Modeland

Remember all the hoopla about the imminent boom in the ostrich and emu markets about five years ago, and how the big birds were going to make a lot of enterprising people rich, and how we all should jump on the bandwagon to get our share of the loot? I wrote an article for *Backwoods Home Magazine* on the subject in late 1993 titled “Ostriches and emus—backwoods bonanza or feathered pyramid?” Well, the verdict is just about in, and the “big bird craze” has taken on all the appearance of a feathered pyramid.

At the peak of the craze, Ostrich and emu meat sold for up to \$20 a pound at retail. Feathers from the big birds brought \$70 to \$80 a pound. A tanned hide from a mature bird could net as much as \$462. Emu oil was being turned into cosmetic products by a few entrepreneurs who were selling it for as much as \$25 for two ounces. Non-fertile eggs even had a market. Artists and craftspeople bought the big eggs to carve and decorate, paying up to \$8-\$10 each.

Five years ago the promoters of the “big bird craze” promised a lot. And as a “breeders market” developed, it took a lot of money to play. In a market overheated by high-rolling investors and opportunists, ostrich and emu eggs fetched \$1500 each, chicks commanded prices as high as \$4000 to \$5000 each, mature birds routinely sold for \$25,000 to \$30,000. At least one supplier contacted for my previous article—Southwind Ostrich Ranch

in Indiana—wanted \$65,000 to \$70,000 a pair for breeder birds.

At the beginning of the craze, everything sounded almost too good to be true: Ostriches grow to slaughter size in 10-14 months, producing an aver-



The emu is a cute bird, sort of, but it has not turned into the pot of gold many entrepreneurs had hoped.

age 70 pounds of de-boned meat and 14 square feet of hide for tanning. Emus are generally marketed at 12-18 months of age, yielding an average 25-30 pounds of meat, 15-20 pounds of fat from their backs for rendering into oil, and 7-8 square feet of hide.

It was claimed that as many as 100 of the hearty and adaptable big birds could be raised on as few as two to five acres in almost any part of the

United States. It all sounded attractive to homesteaders looking for ways to make money, even get rich.

So what happened? Are there ratites (the family name for ostriches, emus, and rheas) running around on homesteads in your area? Do you find the meat on sale at the local grocery, or featured at the crossroads restaurant? Are those “Saturday Night” boots from Tony Lama and Dan Post being made from American grown ostrich or emu hides? Are the exotic oils from the birds at your local cosmetic counters?

The answer is almost always no, but it's not all bad news for would-be ostrich and emu raisers. In fact, now that the frenzy has been replaced by hard reality, small-scale ratite raising today might be worth another look because the inflated prices of the early 90s are a thing of the past, while marketplace prices generally have not fallen as far.

Emu farmers — Susan and John Paul

Backwoods Home profiled Susan Thompson and John Paul Swearingin in its 1993 article. Susan first heard about ratites at a presentation by the American Emu Association. She and J. P. scratched up \$9000 to buy a pair of breeding-age emus. They built shelters inside a couple of high and sturdily-fenced paddocks right behind the house on their few acres near Huntsville, Arkansas, and they invested in an expensive 120-egg incubator.

Susan dreamed of making \$60,000 that first year, quitting her day job, and spending more time with her son and hobbies. And she did, managing to homeschool her son for the next two years while the breeder ratite market still blew hot. But she had to go back to work when prices plummeted.

Today, Susan is at home full-time again and once more enthusiastic

about emus. But like most emu raisers, Susan would rather talk about the market potential for emu oil. They package and sell that too, under their own brand name of Swearengin Farms Emu Oil.

Susan explains: "After the birds are processed (in Missouri), the fat is frozen. Then I drive it to Texas where they render and refine it for me. Then we bottle it in various sizes."

The oil is being bought by individuals who take it as a dietary supplement, who spread it on aching limbs or scars or burns, who think it has eased the pain and swelling of their arthritis, or who swear it has brought improvement for various other internal and external ailments.

Emu oil is also said to be good for treating ailing livestock, especially horses, where it is applied to treat muscular and skin ailments or the scars of surgery or trauma.

So far, the health claims lack any official medical endorsement although research is said to be underway in Canada, Australia, and at several U.S. universities.

Some emu raisers claim that Food and Drug Administration (FDA) action is pending for various emu oil products, thus validating claims the oil is bacteriostatic, hypoallergenic, and non-comedogenic, i.e., will not clog pores. The FDA says it has not approved any products that contain emu oil.

There is also research going on as to the oil's efficacy in treating cancer, Susan says hopefully. "Someplace in Oklahoma."

Emu meat

There are a hundred birds out back of the Swearengin's house these days. Added pens have filled an otherwise unusable rocky hillside where emus cluster beneath the oaks while growing up. The Swearengins are now raising birds mostly for processing and are working hard to expand meat sales

to wholesalers and feed lots, of which there are now two within a day's haul.

The Swearengins sell emu steaks and hamburger direct to restaurants in Huntsville and Fayetteville, Arkansas.

Susan recently bought into a company based in Las Vegas that she hopes will become a big emu meat outlet. Her decision was based on meeting Ray Pleva, who has appeared on the Oprah Winfrey TV show and CNN with his value-added food product called Plevalean.

Plevalean is ground beef mixed with cherries. Pleva claims to have generated over \$100 million in business for cherry and beef producers through combining their products. At the 1997 national convention of emu growers, he was quoted as saying, "We're going to open up new doors for the emu industry that you never had before."

As a simple test, *Backwoods Home Magazine* publisher Dave Duffy obtained some emu meat from a



Emu skin care and dietary supplements have no government approval, but industry spokespersons say that products using emu oil are a growing market. The question is: When will it grow enough to bring in some serious money?

neighbor, Paul Luckey, who said he was given a grown emu for free because the previous owner couldn't afford to feed his birds.

Duffy said Luckey slaughtered the bird after spending \$30 on special emu pellet food during a two-month period—a feed bill Luckey considered too high.

Duffy's wife, Ilene, sauteed celery, onion, and mushrooms while she fried emu steaks separately in olive oil. Then she combined the vegetables with the meat and added tomato sauce and stewed tomatoes along with seasonings and let it simmer for about two hours. She often makes chicken in this manner and it comes out moist and delicious. But Duffy said the resulting emu dish was "dry and fairly tasteless."

Luckey, a former beef rancher, said he cooked his emu steak in a skillet as he normally would cook a good beef steak. He also did not care for the taste of the meat.

Emu oil market?

Emu raisers have both big dreams and some fear of quantities of emu oil suddenly being in demand by cosmetic and pharmaceutical companies. The catch is that America's emerging emu flock isn't yet large enough to supply any big or long-term demand for oil, Swearengin says, while at the same time the American Emu Association extols celebrity endorsement of a line of skin care products.

The couple has learned to make their own sales brochures to support and promote their products, and they are regularly searching for new and volume purchasers for their emus and emu products.

"I sold some chicks for about \$11,000 a pair that first year," Susan recalls a bit wistfully. "Right now the same chicks are going for about \$50 a pair. At \$50 I can make money on a three month old bird."

Ostrich farmers — Victor and Sharon Just

While Susan and J.P. Swearingin were taking their first tentative steps as emu breeders, Victor and Sharon Just had started looking for ostriches. The Justs chose the larger, more aggressive ostriches over emus for a single reason, according to Sharon. It was the bird's laying cycle.

"Emus lay their eggs during the winter months, normally between November and March. Ostriches lay in the summer."

"We read, we called people, and we drove around to meet others," Sharon recalls. "You need to talk to people who are buying birds, to see what the prices are, and if they are even buying. Prices change. It's just like beef and pork.

"The national associations are where I buy my literature to give people. They have a lot of information, but that wouldn't be the only place I would look."

After studying what they learned, the Justs bought a pair of ostriches to breed in 1993. The next year, they bought two more breeders. And when the females began laying eggs (which happens at an average age of 30-36 months), the Justs bought an incubator and built their own hatching facilities.

Today, the Justs' Rocky Top Ostrich Farm has 10 birds for breeding. Statistically, ostriches can live 70 years, and females can lay 20 to 100 eggs a year and go on laying for as many as 40 years. Theirs produced a total of 100 chicks in 1997. The year before there were 70 to sell. The first major sale by the Justs was 20 female and 10 male year-old birds to a rancher in Indiana. The remainder of that first hatch went to slaughter and, as processed meat, on to consumers that the Justs pretty much also had to unearth by themselves.

The Justs sell ostrich meat cuts to a specialty restaurant in Harrison, Arkansas, about 40 miles away, and to

another cafe in Mountain Home, about 25 miles in the other direction. Rocky Top ostrich meat also goes to a couple of area grocery stores and to a growing list of individuals who have been attracted by health claims for ratite meat and the fact that, for the most part, the Justs' birds are raised medicine and supplement-free.

Total ostrich sales by Rocky Top Ostrich Farm in 1997 just about paid the feed bill. Feed from major companies, ones that have nutritionists to create the proper blends, can cost \$20 to \$25 a ton, and the birds each eat around five pounds a day when mature.

The Justs also work hard at inventing homespun promotions. This past year, they had an exhibit at their county fair and another at a popular regional event, the annual Turkey Trot Festival in Yellville, Arkansas. They offered tasting samples of such things as ostrich sausage, jerky, and seasoned Ostrich Sticks—all prepared by the same USDA-approved meat processor that the Swearingins employ at Verona, Missouri.

While the USDA has approved voluntary inspection of ratite meat, there is no mandatory inspection for ostrich or emu meat required at present.

Ex-emu farmer Jim Cook

Jim Cook is a northern California speciality livestockman who has had long experience with ratite type birds. He feels the industry would not have had such explosive growth, then suffered what he refers to as "a total meltdown," if opportunists and inadequately prepared individuals had stayed out of the market.



This is one of the male breeder birds at Rocky Top Ostrich Farm in Arkansas. Owners Sharon and Victor Just have 100 birds kept in 3 pens on 5 of the 14 acres they own.

"I have watched or been involved in exotic livestock for a number of years" said Cook, who recalled "the Shetland pony craze in the 50s when I was just a kid."

"The prices plummeted from \$5,000 to \$500 for a stud, and geldings went virtually for free. Lots of people have used animals in their get-rich-quick attempts—llamas, pot-bellied pigs, hedgehogs, wild cat hybrids, ferrets, as well as ostriches, emus, and rheas. I have owned some of the above and traded in some and even made money with some."

"I have emus for pets still, which is why I bought them in the first place. And I feel that a great disservice was done by the promoters of the 'breeder craze' to the exotic livestock industry. I would cheerfully kick them in their emus for making the market crazy. Some people did get rich, but a lot

more seem to have invested in a losing proposition.”

There’s still some potential, said Cook, but developing an emu or ostrich operation takes a lot of work, lots of thought, and the realization that the profits may not be any better than any other agricultural endeavor.

Although he’s out of the commercial ratite business, Cook still raises Fallow deer and keeps a full-time job that requires a daily commute of about 100 miles. As a hobby, he raises exotic chickens and usually monopolizes the blue ribbons at the local county fair. The deer are an English import and are legally raised as a year-round venison source for discriminating diners.



Sturdy fences keep flightless emu birds home on Swearingin Farms in Arkansas. Susan Thompson and John Paul Swearingin own 100 emus.

“I know how hard it is to get even a lean, healthy meat into restaurants and grocery stores,” he said, expressing empathy for those who have assumed the same responsibility.

Speaking of his early emu experience, he said the first people who came to buy from him had no exotic animal experience and very little farming experience of any kind.

“But they kept talking about how much money they would make. Now I would be the first to admit that people can learn how to farm, but it helps having some concept of how much work might be involved.”

“Farming is farming and it is not easy no matter how you shake it. If you aim at getting rich you stand a good chance of not. Most of the people talking to me were convinced that someone else, whomever that may be, would build the slaughter market. With a species that produces up to 30 young per female each year, clearly the breeder market would be saturated in a hurry.”

He referred to the potbellied pigs and the lack of an end user market, noting that something other than a meat market would be necessary for profitable operation.

“Emus are a bad choice for a strictly meat animal. They breed only in pairs, which is much more expensive than ostriches or rheas which will breed in flocks like poultry.

“Without a market place, such as auction houses like those for cattle, sheep, and hogs, you have to depend on a processor who has invested in marketing the birds, a processor of the type poultry growers seek. Or small processors like those with which meat goat breeders deal. Otherwise you have to process and market yourself.

“I know that developing and maintaining a market is a very difficult proposition because that’s what I have to do with the Fallow deer I raise. I have a great deal of respect and admiration for those breeders who are making the switch from breeding to meat processing.”

Keep the day job

The Justs are pragmatic about things. Sharon said, “We’re still at the beginning; we need to make a market. We’d like to be selling to commercial slaughterers. We feel the wholesale market will come.”

But until it does, she continues to stay with her health care career. She is a radiologic technician for a regional

hospital. Vic also holds on to a day job too.

National associations

The American Ostrich Association (AOA) is striving for standards for flock health and handling and in inspection of the meat and promotion and development of ostrich markets. Formed in 1987, AOA claimed peak membership in 1993 of almost 4,000. Today it is about 1500. Emphasis in 1993 was largely on what was to come, not what was at hand. Sources where quoting potential gross income of \$30,000 per bird per year, including egg production and the meat, feathers, hides and specialty products. With the shift from breeder to consumer market, it is impossible to compare that price with today’s, says AOA’s Jan Gary.

The American Emu Association’s (AEA) mission parallels that of the AOA, with an additional emphasis on establishing some standards for emu oil processing and purity. Founded in 1989, it tripled its size in the banner year 1993, signing up 13 percent of 3,000 members in just 45 days. But only about 300 of the association’s membership, today said to total 1600, were at its 1997 convention in St. Louis.

The drop in AEA membership, Swearingin says, reflects people who were buying and selling birds for quick return. Today, family and other smaller operations form the backbone of affiliations, especially among those emu raisers speculating that the oil rendered from emus will become the big money maker in the long run.

Active as the secretary of her own state’s emu association, Susan Swearingin faults people who are, as she says, “sitting back and waiting for somebody else to do it.”

History’s lessons

The history of the pond-raised catfish industry may hold some lessons

for anyone looking to put money or energy into ostriches or emus. It was some 30 years before production, marketing, and processing were all in place for catfish raisers to meet all the challenges of supply and demand and reach the share of the food market they have today.

And chicken producers appear none too excited about ostriches or emus pushing poultry out of the meat case. According to executive Ed Nicholson of Tyson Foods, which is the nation's largest poultry producer: "They're going to have to meet both production and marketing challenges—that is create demand on a mass scale, then meet that demand with a product that's priced competitively with all meat proteins on the market."

Jd Belanger, who publishes *Countryside & Small Stock Journal* magazine, has made a point worth adding. He observes that rabbit producers have been promising a breakthrough in U.S. rabbit meat consumption "any minute now." That first was reported in *Countryside* in 1917.

An International Ostrich Association has formed in the Netherlands over this past winter to support global promotion and consumer acceptance for the ratites. At its first meeting, a Dutch ostrich farmer reflected that the total world production of ostrich meat today, which is triple what it was in 1993, still no more than equals the amount of pork slaughtered in a single day.

For more information

- The Center for Appropriate Technology Transfer for Rural Areas. This helpful resource to anyone looking at a new venture has packets of information and a specialist to talk to. Free. ATTRA, Box 3657, Fayetteville, AR, 72702. Phone: 1-800-346-9140. Web site: <http://www.attra.org>.
- American Ostrich Association, 3950 Fossil Creek Blvd., Suite 200, Ft. Worth, TX, 76137. (817) 232-1200. E-mail



Ostriches are segregated by general age in one of three pens at Rocky Top Ostrich Farm. These are production birds.

- (aoa@flash.net). Web site: <http://www.ostriches.org>.
- American Emu Association, P.O. Box 8174, Dallas, TX, 75205. (214) 559-2321. E-mail (amemuasn@nkn.net). Web site: <http://www.pier37.com/aea/>.
- State University Extension services and the Small Business Administration are other sources.

Publications:

- Emu Today & Tomorrow, P.O. Box 7, Nardin, OK, 74646. (405) 628-2933. 12 issues \$25. Special report; "Emu Oil: Reexamining a Natural Remedy" \$24.95. E-mail: (emutoday@aol.com).
- The Ostrich News, P.O. Box 860, 518 C Street, Cache, OK 73527. (405) 429-3765. 12 issues \$48. E-mail: (staff@ostrichnews.com).

Here's a random sampling of information sources we found on-line, searching with Yahoo, Infoseek, and HotBot:

- http://www.na1.usda.gov/afsic/AFSIC_pugs/srb9706
- <http://sunsite.unc.edu/farming-connection/>

- http://envirolink.org/arrs/marc/activist/l_ostri
- <http://cust2.iamerica.net/emuranch>
- <http://www.avon.net.au/~college/ostrich.html>
- <http://www.achiever.com/ostrich/growout.html>
- <http://www.islandnet.com/~ski/ostrich/canost.htm>
- <http://duke.usask.ca/~ladd/ratfarm.htm>
- <http://www.cakemagazine.com/56/kristen.htm> Δ

Sometimes

*Sunlight dapples the steady hands
holding the knife that sliced
sure and sharp through the scales
and skins, emptying the entrails
of the fish clean and neat; a
painless, sure slice that cut
both deep and true with ease.*

Sometimes life is like that.

**Lee Ann Murphy
Neosho, MO**

Spousal support in a small business — it means tolerance, love, and faith in the future

By Patrice Lewis

It sounds almost too good to be true: own your own business, spend time with your family, and set your own hours.

Well, assuming that you've started your own business at home, these are all true. But recall the old adage: Be careful what you wish for; you may get it. Like all things, owning your own business has its ups and downs.

My husband started his own wood-working craft business about five years ago, shortly after we bought our four acres in the country. Starting a business just after investing your last dollar in a mortgage, however modest, may not be the smartest move, but that's what we did. And business has grown, also modestly, through these five years, enough to enable me to quit work and stay home with our children. So how do we deal with the above-mentioned benefits?

We have two small children and an 800-square-foot home. Our "woodshop" consists of a 10 x 14-foot unheated shed and a used converted greenhouse. This means that in winter especially, the shop moves into the house. Or, to put it another way, we live in our shop. Now, don't get me wrong. Business and earnings have improved. It's just that every time we've gotten money ahead to build that dream shop, another "blessed" event seems to occur (my husband refers to our two children as Shop One and Shop Two).

Yes, space gets tight. This has benefits: if you're not fond of housework, you can let things go to pot, and it makes little difference. However, if,

like me, you like a modicum of neatness, it can be frustrating. We have to time having friends over when we're between production runs in order to (a) have enough room to fit them in, and (b) not be humiliated at the state of the house/shop. There are several things to contend with. Dusting, for instance, is a lost cause. I learned this when I was visiting some friends. I would pick up a book from their bookshelf and automatically blow across the top of it, before realizing that they don't have the same problem we do. For years now, I've blown the dust off of any book I pick up at home, no matter how recently I've put it down. Most days, after lunch or at the end of the evening, I have to brush rump-shaped sawdust-prints from couches and chairs. It's a living.

There's the noise. Power tools (located immediately outside the house in the shed) are something our children have been exposed to literally since in utero. They can sleep through a router or planer easier than they can a creaking floorboard (as when we're sneaking to the bathroom at night).

You'd better darn well get along well with your spouse if you're going to have a home business, because, as promised, you will indeed spend a lot more time with your family. You won't be at leisure, you understand; but you learn to apply your toddler's intense interest in everything, creatively ("Here, sweetheart, why don't you sand this piece of wood for me? Okay, now can you pile these pieces of wood in the box? All right, now you can take these pieces of wood out of the box!"). This can also be handy when the infant needs care and the toddler needs attention—the spouse is right there to help. Likewise, if we have rush orders, you'd be amazed how efficient we can be with the baby in a sling across my back, the toddler sanding wood, and we adults manufacturing as fast as we can.



As for hours, you can indeed set your own. Whoopee. I can't count the number of times that we've finally tumbled into bed around midnight or one a.m. (only to waken with one or the other baby shortly thereafter) during a rush job. On the other hand, I also can't count the number of times we've slept in until the kids wake us, had a leisurely breakfast, and kicked off work around one in the afternoon. Easy living? Carefree times of plenty? Hardly. These moments of leisure mostly occur in the winter, our slow season. Understand that an utter lack of money accompanies these fantasies.

Then there are the little mysteries of life. Being so busy, I get to cleaning the bathroom only a couple of times a month. Being female, I rarely raise the toilet seat between times. I've always been disgusted by the coating of sawdust on the rim, but have never been at a loss as to its origin. However, one day my somewhat dense and especially sawdust-y husband came out of the bathroom and said, "You know that dust that shows up all the time on the toilet rim? I just figured out where it comes from!" Ah, sweet mystery of life, at last I've found you...

This same slightly dense husband (which, you understand, in no way impinges on his status as the World's Greatest) was working on some items on the living room coffee table one day, gently hammering tiny nails onto a box lid. It wasn't until half an hour later that he finished his job and left it to me to discover the dozens of small craters in the surface of the coffee table. He gets so busy and so creative that he doesn't always think about these little side effects, you see. This is where it's handy to have a toddler—we can blame it on her.

Then there's the Magic Disappearing Kitchen Implements: missing measuring cups, measuring spoons, double boiler (fortunately a cheap one), baking pans, pie pans, coffee cups, canning jars. I drew the line at my good bread pans and told him to go buy his own.

Even though I am no longer as active in the production side of things since the kids arrived, we are good at bouncing ideas back and forth. My beloved has some trouble ascertaining whether certain product ideas will fly or not, and this appears to be an area of some strength for me. He came up with a miniature version of one of our products once, as a gag gift to a friend. I told him he'd better make dozens, because he would be besieged with orders. "Are you kidding?" he replied "Who'd want one of these?" For two years they were some of our best sellers.

On the other hand, he's had some ideas which he was **sure** would fly. Unfortunately, they generally consist of absurd investments in time, effort, and materials. He blames the short-sightedness of our customers when they don't sell.

Similarly, I've discovered it's my job to rein in and discourage certain fantasies, generally involving large and expensive power tools. "But just think how a gang saw would increase our speed!" "Well, dear, just think of the cost." "Yeah but...but..." That's why there's two of us.

I've also discovered it's my job to stroke fragile egos, and I don't mean our toddler's. Every winter, when things (including money) slow down, my beloved gets the jitters about whether we can survive or not, and maybe he should go out and get a job at the local corner store, and will we have enough money to pay the mortgage, and...

This in spite of weathering five years of slow but steady growth, through five winters, through the birth of two children (with no maternity health insurance you figure the cost), through the increasing frequency of our orders even in the slower winter months. For five years I've told him don't worry, we'll tighten our belts and pull through. That's why there's two of us.

Of course, occasionally during our busiest season, when I'm desperately

wrestling to keep the house/shop marginally livable and keep two tiny kids out of daddy's hair because he's so frantically busy, I'll look up and find him happily carving a dragon or something, impervious to the rush orders sitting on the desk. It's times like this that I'm glad my aim is so poor, since I'd hate to dent the wall above his head or waste a coffee mug.

On the other hand, it's not hard to handle those tough fifteen-second commutes, especially when the air is thick with spring apple blossoms. It's nice to be able to leave the shop and come up to the house for a cup of coffee or lunch or to share something crazy he heard on talk radio. There's always a few minutes to play with the kids. And when I get tired of the kids, I can go down to the shop, and the husband watches the children. As a result, my husband is closer to (and more competent to care for) our children than most men. In addition, he's much less stressed, even during the summer rush season. His blood pressure had dropped significantly with no change in diet and exercise once we moved here and got poor. Maybe it's the perfume of apple blossoms and sawdust.

This, then, is what it's like to Own Your Own Business. A tolerance for long hours and no money, a love for your spouse, and an utter faith that things will eventually get better. Δ

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I grow my homestead fund by stitching “ditty bags”

By Winston Howerton

I’m a merchant mariner by trade, but when I’m on the “beach” I stay knee-deep in compost and rump-high pea pods. For more than a fair part of the year, I’m away at sea. I make a pretty fair wage, but to secure my little bit of “Heaven on Earth,” my wife and I try to make extra money when we can.

During my many years at sea, I’ve become pretty good at what’s called “marlinspike seamanship.” The term goes back over a hundred years, to a time when “ships were made of wood and men were made of iron.” It’s really nothing more than the art of knot making, rope-work, and sail repair, and it has filled an income niche that has done rather well for me.

Several years ago, I stitched a small bag together from scraps of canvas that I’d found in the “bosun’s locker.” There were always small pieces of canvas left over from jobs we did on deck, and normally they would have been thrown out so I began collecting them. I started selling the bags to my shipmates, and from the response I received I was eager to keep on



Drawstring is sewn into flap after body and bottom pieces are sewn together. Pull bag rightside out.

sewing. I sold quite a few bags at sea over the years and have even given several away as gifts for birthdays and holidays.

But only in the past year or so have things really taken off, ever since I started going to boating events and sailboat races. With all those big expensive boats around, people found it easy to afford my “ditty bag.” I also go to the sailboat races early and just chat about the ditty bags with people, and I sell a few right there, then take orders for them later.

I’ve sold the bags for as little as \$6 and for as much as \$18. I’ve also had pretty good luck selling the bags at flea-markets and craft shows. But those events always charge for booth space or entrance fees, so I try to avoid them when I can. I market the bag as a catch-all utility bag—good for anything from a lunch sack to shell hunting bag, or even a rubbish bin for the family car.

The canvas I use makes the bag tough enough for a stuff sack for camping or even for use as a tool kit. While I’m at sea, I keep my sewing kit and survival stuff in my original bag. It’s nine years old now and shows no sign of aging, aside from the grease and dirt stains. It’s been rumored that one of my bags is even being used as a flower pot, giving an indoor basil plant a great place to live.

Here’s how I make the bag: I cut a 6-inch circular piece of canvas to make the bottom (the original template was a large coffee can). A larger piece—19.5 inches long and 10.5 inches wide—forms the body of the bag. With heavy, marine style sail twine, I stitch the bottom piece to one of the 19.5-inch sides, forcing the bag to hold a circular shape. I then sew up the two 10.5-inch ends.

To finish the top, I fold down a flap that measures about a half inch. Into that flap, I stitch a drawstring that will enable the bag to be closed and opened. I’ve used everything from rawhide to old bootlaces to make the drawstring. So long as it will accommodate the cord-loc and looks decent, I’ll use it.

With a little patience, just about anyone can learn these basic marlinspike skills. I only use one or two simple stitches to make each bag. I do most of my stitching when I’m “off watch” during my months at sea. It beats



Bag is held closed by cord-loc attached to drawstring.

watching movies, and since I’ve read nearly every book on my ship my time is well spent. It takes about an hour and a half to make each bag so I don’t always make minimum wage on each one, but my homestead fund doesn’t care. It just wants cash, any and all cash.

To make my time away from home pass without getting too homesick, I try to enjoy the afternoons by sitting out on the stern of my ship. I often watch the sun slip past the mountains of the Kenai Peninsula, putting one stitch at a time into my dream of living on my own land with my family. Maybe one day I won’t have to ship any more, and I can cruise the boat shows looking for a boat of my own. But until then I’ll keep stitchin’ one bag at a time... Δ

Perk up the cash flow by selling farm produce

By Jackie Clay

Every month we used to think the same thing—if we can just make it through this month, we'll have a little more money next month. But, somehow, next month had an uncanny way of ending up same-old.

I farm 200 acres, plus pay leases on several others, and my family and I live a self-reliant lifestyle on our homestead. But we scarcely got by until I discovered a fairly simple way of keeping cash coming in for those things we could not grow or barter for—tractor parts, new tines for the Troy-bilt, insurance for the truck, gasoline, the electric bill, and other cold, hard expenses.

But I had always grown a big garden to “put up” in the fall. With this garden I supplied my family with a large part of our food. One day, the idea just popped into my head: Why not expand the garden and sell the excess?

Once that thought entered my head, one idea led to another. I had a large home-built greenhouse in which to start my garden plants. If I reworked

the shelving and added tables, I could more than double the production capacity. With this increased production, I could sell packs of plants from my home as well as at the farmer's market and small local stores. I also realized I could raise baby veggies on a couple of acres I would set aside in our usual large house garden.

After talking with neighbors, I discovered I was not alone. There were several with the same money problems we had and they were considering the same solution. So we teamed up, each using his or her best talents and equipment. For instance, since I was the one with the greenhouse, I started their plants, too. But when the time came they were right there to help with the tedious job of transplanting thousands of plants.

Also, I had no corn planter, but another neighbor did and I had sweet corn seed, for planting, in bulk.

Next, if we were going to grow for market, we had to determine what would be best to grow. For years, I'd tried different early varieties of canning corn that would flourish in Minnesota, where we then lived, and I

chose varieties that were strong, repelled insects, and were great tasting. I put in an acre of Earlivee along with another acre of other early varieties so we would have a succession of crops ripening that we could sell

throughout the late summer and into the fall.

Tomatoes were another thing that were almost impossible to find in our northern area and growing them was a big gamble because of early frosts. But I figured we'd try them as they did great in the years when we protected them with plastic covers. So we planted a thousand tomato plants. Unfortunately, we had the wettest, coldest summer anyone could remember and the first thousand froze out the sixteenth of June. We put in a second planting and it drowned. But we planted again, on raised beds, along with some broccoli, cauliflower, cabbage, carrots, onions, green and yellow wax beans, and flowers as well.

Luckily, while the other plants were drowning, the corn thrived in the rain, and did great.

We began selling after the 4th of July, and kept on until well past the first freeze in the fall. Once a little regular income was coming in I decided I really was on to something. And not only did we make money, but new friends as well, and I learned one heck of a lot along the way.

What and where to sell

Through the years I found that markets vary from place to place. But generally, there are some things that are always in demand and sell well: bedding plants in six packs, tomatoes, cukes (particularly small pickling cukes), sweet corn, pumpkins, peppers, flowering cactus, baby “gourmet” vegetables (like carrots, onions, corn, string beans, tomatoes), potted plants in flower, cut flowers (especially glads and roses), Indian flour corns, ornamental corns (like strawberry or mini-corns).

In addition I found we could add an assortment of folksy crafts, such as



Jackie Clay shows off her bumper crop of corn.

grape vine wreaths, dried flowers, gourds, wood craft, birdhouses, bird feeders, weavings, stitchery, quilts, honey, soaps, etc., that would stretch the selling season from early spring through late fall with ease.

I sell just about anywhere I can. The easiest, and least labor-intensive, is selling from a small stand at home. We do that. But also, with the help of truck-gardening neighbors, we take and sell our produce at farmer's markets.

We also try to make contacts with small restaurants and general stores, taking orders and making absolutely sure we deliver what we promise. These people have become a reliable source of income.

I also sell at larger campgrounds, making six or so stops during a weekend, Friday through Sunday, and showing up at each one, at the same time, on the same day, so campers will know when to expect me. But always talk to the owner in advance—I've never been turned away—and I put up a notice in the camp's office or store, beforehand, to advise the campers that fresh organic produce will be coming. I always set up my stand in the same place, using the same truck, so people get to recognize us.

Dealing with competition

We do have competition—other people selling the same type of produce we do both at the farmers' markets and the grocery stores in town. Yet, we found that the best location in our town was in an empty lot, owned by a farm supply store (to whom we gave lunch-munchies as rent), and right next to a big commercial chain supermarket. Not only that, but our stand was only half a block from a flea market area where southern produce was sold from two big parked trucks. How did we compete with all that in a town of 1,500? It would have been easy to become negative and chuck the whole idea. But we not only met the competition, we beat them.

Marketing tips

I beat them because I offer the absolute freshest produce that can be found. At the peak of the season, we not only pick on the morning we go to market, we have the "crew" out picking while we sell, and they often bring a fresh truckload in twice during the day. People notice quality, believe me, and there's often a mob collected around us about the time the farm truck rolls in bringing freshly picked produce.

At the end of the day, anything that is left—if there is anything left—I trade for things I need, or I give it



Off to market

away to friends, or I donate it to the food bank. Trying to hold over produce, in hopes of selling it the next day will kill our edge.

With super-tasting varieties, picked fresh, we don't want to dull our customer response with less than extra great tasting produce. And it's paid off. More than one buyer has told me that they picked up some corn (or whatever) at a competitor's stand, only to find it tough and tasteless. But ours was the best they'd ever eaten. Will they be back? You darned betcha—with friends and relatives.

Keeping the produce fresh, looking fresh, takes a little work and planning. A sunshade/rain fly is necessary. Produce displayed in the sun quickly wilts, looks dead, and tastes worse.

Kept shaded with a market umbrella or blue plastic tarp, and sprinkled down with cold water or ice from time to time, the produce looks sparkly fresh all day. We make ice cubes in our freezer daily, bringing it to market in ice cream pails in a cooler. Those little diamonds of icy water on even lowly corn husks attract customers, like bees to honey. They can't help but think that if we take that good care of the produce at market, how much better care we take of it at home. (Watch the ice, as some crops, such as strawberries and cukes, will freeze in spots. Use only spritzer bottles of cold water on them.)

I always stress to our customers that our produce is organically grown and not sprayed with poison, as most other fruits and vegetables are. Even people who are not particularly organically minded appreciate this fact and become repeat customers. Likewise, we let folks know that our eggs are produced by happy hens, scratching in a yard eating bugs, not locked up in chicken "concentration camps" as commercial layers are.

Another thing that keeps people coming back is simple courtesy and above-and-beyond-the-call-of-money helpfulness. Does that little white haired lady really want a dozen ears of corn? If she only can use two ears for supper, sell her two ears. She'll be back every day, bringing her family and friends to buy from "those nice people over by the river." Does the farm wife, in the beat up truck need forty dozen ears of corn to can? I make a deal, quietly, to the side. A customer who knows I'm concerned with her family will be back.

Does someone need a box carried to the car? Want to pick up an order after work? Want me to bring in cukes tomorrow? You can bet I will. Do they want to know how to fix spaghetti squash or make zucchini bread? I carry index cards, an extra pen, and a few simple cookbooks in the front seat to share my recipes in slack moments.

Do they want to know how to grow begonias, make a raised bed or make compost? I carry copies of *Backwoods Home* and *Organic Gardening* in the truck.

Would they like to try an eggplant or ear of my corn? I give them a sample to try. I've never lost out yet.

Beats the heck out of the "gimme your money and get lost" attitude so familiar in today's markets and it brings back the buyers. I've had many marketing days where we made over \$300.

Tips on the stand

When selling off the truck, the "stand" can be simply the tailgate of your pickup supplemented by card tables or it can be more elaborate. The nicest stand we ever used was a joint venture between our family, which had a good wood wagon box—but no wheels or running gear—and a neighbor who had great wooden wheels and running gear, but no box. We put the two together. It was painted green and yellow with a produce sign on the side. Talk about something that caught people's eye. We hauled the wagon to market in my sixteen foot stock trailer and it was well worth the extra effort.

When selling from the road, I always try to set up in a high-traffic area, catching people as they leave town. They can see us as they come into town, and think about stopping all the while they're shopping (often at our competitors). We're sort of like a living billboard. But, being in a high-traffic area can be hazardous. Be sure there's ample, safe parking nearby.

Color attracts people. I've found that a bright blue plastic tarp or colorful market umbrella over the main selling area not only protects the produce from the elements (and buyers from rain) but it makes us visible from a distance and attracts people. Likewise, I try to sell different colored produce, interspersed among bright flowers (both cut and potted varieties). Nothing is more boring than a truck-

load of broccoli. No one will stop. Perk it up with corn—some opened and kept fresh, cauliflower, red peppers, yellow summer squash and a few bouquets of roses, glads and zinnias, and POW! You're in business. Lacking anything else, use a red and white checkered plastic tablecloth or bright woven rug under the produce. Or use quilts and crafts of many colors placed here and there. It works wonders, especially late in the day when you're running out of variety. And keep moving your produce around, taking advantage of its color. Don't get stuck with blah blocks of plain old green.

Simple, large signs, along the road draw in buyers. Advertise the produce they want most, and display the rest prominently. Do you have extra-early tomatoes? The best corn in town? The only corn in town? Tell people.

It's best to set up a simple chalk board with prices. Some people are too shy to ask and will look around, without inquiring, then leave if there are no prices displayed. With the chalkboard, you can easily change prices—neatly—without scribbling.

Keep a good supply of boxes (scavenged from stores) and paper bags. We buy ours from small grocers to whom we also sell. We also have friends save bags for us to cut down on our expenses. But try to keep away from plastic. It detracts from the "farm" image. We did a little experimenting, wrapping some broccoli in plastic bags, leaving others plain. The plastic-wrapped broccoli sold dead last. People prefer to buy out of rustic baskets or even cardboard boxes. I often display small amounts of tomatoes, or other produce, in small woven baskets. I sell huge amounts this way and immediately refill the basket after the sale.

Stretching the season

With a little advance planning, often done as winter's snows are still whistling around the windows, the

marketing season can be stretched more than one can imagine.

I start my first violas, geraniums, pansies and peppers in January and February, as well as potting up flowering cactus. And this is the time crafts can be made, such as woodwork, weaving, candles, wreaths, etc.

As the first warm days of spring roll around we can hit the market armed with bright packs of flowers, bird houses, and the very first sugar pod peas, lettuce, greens, radishes, and rhubarb on the stands. Soon, this expands into more bedding plants and vegetable packs, more salad fixings such as spinach, tiny carrots, and onions, along with maple syrup, asparagus, potted geraniums for Memorial Day, hanging baskets, and home crafts.

As the tourist season gets under way, we get busy with broccoli, peas, beans, more onions, baby beets, the first cukes, summer squash, mint, herbs, strawberries, blueberries, potted plants, and more crafts and folk art.

Later in the summer our truck is loaded with corn, tomatoes, strawberries, raspberries, potatoes, beets, apples, and more from our successive plantings.

Fall brings relief from the rush, but we still can't rest. There are still potatoes, apples, squash, pumpkins, cauliflower, cabbage, jellies, pickles and jams canned at home, as well as dried bouquets of strawflowers, statice, yarrow, baby's breath, wreaths of everlastings, and the first bird feeders.

Even winter can bring a few nice days to market pre-holiday wreaths made from grapevines, everlastings, willow, and balsam boughs decorated simply. We also sell dried bouquets, more bird feeders, little bags of grain for bird feeding and tied with bright calico bows, jellies, pickles, soaps, and other home crafts, all suitable for Christmas gifts.

The possibilities are limitless and have turned out to be so much fun that it has kept me busy just figuring out what we'll try next year. Δ

Remembering “the good life”

By Melissa Yell

As newlyweds, my husband Mike and I thought we lived the good life: established careers, ambition, and a few investments. One of our investments was a remote, dilapidated house on 10 acres we purchased for \$14,000 to remodel and sell for profit (a hobby we enjoyed before “capital gains taxes” got the better of us).

Mike decided to go to college full-time and, being young and idealistic, we sold the Harley and our home for money to live on until he completed college. With a wonderful two-year old son named Michael that I adored, there was no way I was willing to go back into the workplace just yet. Given those circumstances, we boldly went where few men have gone before: the land of voluntary poverty.

At first we lived in the style we were accustomed to, until we realized how quickly our funds were disappearing. With all spending and no income, that seems to happen. We resolved to get by on just the basics, paying only the tax man, utilities, and a few necessities.

Mike quickly sharpened his skills on hunting squirrel’s, rabbits, quail, and deer. My parents seemed to mention at just the right times when the fish were biting at the lake they live on. Mike, Michael, and I caught and ate the best-tasting spring-fed bluegills, catfish, and crappies. I studied wild edibles from library books and spent many hours with Michael gathering fiddleheads, cattails, watercress (cow slips), wild blackberries, raspberries, blueberries, grapes, strawberries, pears, apples, asparagus, choke cherries and May apples for jelly, as well as morels, puff balls, stumpies, and coral mushrooms.

We also raised chickens, turkeys, Guineas, geese, and pigs. The birds we bought inexpensively when we could find them. The pigs were given to us by a neighboring pig farmer because they were sickly runts that were going to be destroyed.

The first pig he gave us weighed only five pounds. We named him Wilber. He lived in a dog house in our laundry room and was a happy pig, thriving on running around in the house, squealing with delight, and playing ball with Michael. At about 25 pounds, he went to live outside when we received four more pigs (each only three to four pounds) that we named Eenie, Meenie, Miney, and Mo. They were all sick with diarrhea and could barely stand. Their ribs could easily be counted. I read books on caring for pigs, bought over-the-counter medicine, and cured all except Miney, who was too far gone. We thoroughly enjoyed raising all the animals.

We felt fortunate when another neighbor (by “neighbor” I mean two miles away) let us scavenge his garden before the frost hit, and I promptly learned how to can tomatoes and hot peppers. I also gathered as many zucchini recipes as possible, and we feasted on zucchini casseroles, breads, cookies, and quiches.

My grandmother, Grandma P-Nut, let me clean her and Grandpa Wally’s house every couple of weeks to earn a little extra money. What I *truly* earned was an education in “Depression era economics.” She taught me many of the survival tricks she learned while raising her family during the Depression, all based on the philosophy “make do, make over, or do without.”

For those two years, Christmas gifts were always hand-made. Crocheted doilies, Barbie doll clothes, and placemats were popular, and woven cattail leaves make beautiful mats to decorate with dried flowers for wall hangings. To this day, every cattail mat I gave away is still on display on the recipients wall.

Another neighbor was glad to have Mike cut trees for firewood from a swampy area on his land . . . *if* he could get in and out of there. Driving our old four-wheel drive in and out of that swamp was more fun for Mike than he’d had since he was a kid riding his bike through mud puddles.

Young Michael did not miss getting video games or brand new toys. He was too busy enjoying an early education in nature, wild edibles, animal husbandry, family togetherness, and making lots of special memories.

The time finally came when Mike got the job he wanted and we tried to be eager to return to “the good life,” as we’d thought of it before our move and change of lifestyle. We focused on all the hardships of our country life such as mosquitoes, mud, no conveniences, no friends for little Michael.

Now we live in the city and, no, we don’t miss the mosquitoes and the mud. But we do long for our backwoods home. We have become so frugal as a result of those few years that we don’t use any of the city conveniences. We still freeze, can, and dehydrate our food; buy most necessities at yard sales; combine errands to make one weekly trip (even though downtown is only 1/2 mile away); and always try to make do, make over, or do without.

As for a friend for Michael, well, we made one—a brother named Kevin. Δ

www.backwoodshome.com

He combined crab pots with car repair to make his business go

By Dave Duffy

John Raxa has combined two skills to make a successful living in the small coastal town of Eureka, California. He makes commercial crab pots and repairs cars and trucks.

While earning a degree in automotive technology from the nearby College of the Redwoods, he had worked for six years for a local commercial crab pot maker. Then he went into the crab pot making business for himself for several years, selling as many as 5,000 crab pots a year to commercial fishermen who worked the coasts of California, Oregon, and Washington.

But part of his business involved delivering the heavy iron crab pots to his customers, which meant he had to maintain a flatbed semi-trailer. One year, the repairs to the trailer amounted to nearly \$10,000, a sum that took a serious bite out of his income. So he decided to employ his automotive degree and opened an auto repair shop in the same building that housed his crab pot business.

He then hired a mechanic who was glad to have the job, and the mechanic, under Raxa's supervision, not only repaired Raxa's own truck, but was available to repair the cars of customers who needed that service.

Raxa finds the two businesses complement each other. "A mechanic can generally fix more than cars," he said. "I've got a lot of equipment in the crab pot shop that sometimes need repair; he takes care of that too."

Raxa says he gets most of his car business from the local telephone directory, where his ad reads: "HONEST DEPENDABLE REPAIR," and he says he makes himself or his mechanic available 24 hours a day, seven days a week. I'll vouch for that, because that's how I met him. My car

had broken down on a Sunday, 12 miles outside of Eureka, while visiting Humboldt State University to watch my daughter, Annie, perform in a chorus performance of the Northern California Honors Chorus. After calling several garages only to find out



John Raxa builds a crab pot as mechanic Anthony Scherman looks on.

none were opened, I saw his ad in the phone book and called him.

I had AAA tow my car to his garage, leaving my family behind in the motel we were staying at. After arriving at his garage, Raxa loaned me his truck so I could go back and pick up my family.

Both Raxa, his mechanic Anthony Scherman, and I suspected the scraping sound coming from my left front wheel was a bad wheel bearing. It turned out to be a small rock that somehow got wedged next to the brake disc.

After removing the rock, Raxa's mechanic asked him what to charge. Raxa replied, "Nothing." I was a bit flabbergasted, because I knew that I had gotten both Raxa and the mechan-

ic out of their homes to work on a Sunday.

So I decided I at least had to buy one of his commercial crab pots, and ask him about his business. It became obvious to me that he was a success because he ran an honest car repair service, just as his telephone directory ad said, and that his crab pots were high quality.

Being a fisherman who has caught his share of crabs in both the Atlantic and Pacific, I was impressed by the sturdiness of the pots. They are made

of 5/8-inch rebar to withstand the abuse of heavy commercial use. We watched him weld together one at his shop. He makes two sizes—36 and 38-inch diameter. Each crab pot is wrapped with scrap rubber to help protect it against salt water corrosion. And each contains two metal cylinders which are essential to grounding ocean static electricity to the bottom of the ocean floor so as not to deter crabs from entering. I had not known about the static electricity problem, and the information made the whole car breakdown worthwhile.

If you ever need a mechanic or crab pot, or want a lesson in how to run a successful small business, I highly recommend this guy: John C. Raxa, POB 6412, Eureka, CA 95502. Telephone: (707) 445-2704. Δ

Try growing the popular potato

By Alice Brantley Yeager

Potatoes are the most widely distributed vegetable being used in the world today. A few centuries ago they were unknown except to the native Peruvians.

We Americans love the potato. We have improved on it and expanded its versatility until we seem to be limited only by our imaginations. The potato has been baked, fried, boiled, stuffed, scalloped, grated, riced, mashed, chilled, dehydrated and made into flour and alcohol. Potatoes are used in the manufacture of starch and, in some places, fed to farm animals. Our great-grandparents used a mixture of potato water, flour, salt and sugar to take the place of yeast in bread making. Today it is doubtful that denizens of the couch could survive without their big bags of potato chips. Witness the growing demand for the potato bar placed alongside the salad bar in restaurants. A baked potato can be stuffed with all manner of combinations—butter, sour cream, cheese, chives, bacon, broccoli, to name only a few. I like to add a few rings of canned jalapeno peppers to baked potato. Zippy, but good! A baked potato can be made as high or low caloric as one's conscience will allow.

There's even a game called "Mr. Potato Head." I'll bet somewhere there's someone working diligently to come up with something else related to the potato.

Whatever the future holds, the fact remains that potatoes are good for us. They are high in carbohydrates, thereby being a healthful source of energy. Besides containing several vitamins, including B and C, they are high in potassium. They are easy to digest, but, like other vegetables, they are

more beneficial to us if obtained as fresh as possible.

A good test for freshness is to cut a potato in half crosswise and look at the mineral ring between the skin and the starchy interior of the tuber. If the ring is narrow, the potato was dug some time ago. If the ring is wide, that's a fresh potato. Skins are also an



The Red Norland is a very smooth, shallow-eyed, red potato with excellent quality white flesh. Early maturing, Red Norland does well in the South.

indication of age. New potatoes have very thin skins that are easily scraped off. Older potatoes have to be peeled with a vegetable peeler or paring knife. Clean, baked potato skins are good to eat, so enjoy them too.

If a potato has been exposed to the sun while developing, it will have a green spot on it although it is perfectly firm. This greening indicates that a

poison has developed known as solanine. All portions of the tuber showing the green color should be cut away before cooking.

Sometimes we gardeners tend to shy away from taking up space in our gardens with potatoes as they are so readily available in the produce stands and usually inexpensive. Also, truckers are often seen parked alongside roads with trailer loads of sacked potatoes for sale at very reasonable prices. These are generally seconds, but many nourishing meals can be had from a big sack of potatoes. The problem is—can you use that many potatoes before they spoil? Where are you going to store them? Chances are, they will have some bruises or cuts from the machinery used to dig them and they will not keep as well as carefully hand-dug potatoes.

There's nothing like fresh potatoes from the garden and they don't have to be dug all at once. Gardeners can begin to enjoy their crop while the tubers are small. Many folks search out some little new potatoes to cook with English peas. That's a delectable dish you won't get from a fifty pound sack of seconds.

Potato plants need plenty of sunshine, a well drained soil and no weed or grass interference. The ideal soil is a loose, sandy loam with plenty of humus and potash content. If the soil has a little higher pH reading than the specified pH 4.8 - 6.5 for potatoes, don't back off from planting them. Almost any good garden soil will raise potatoes. The higher the pH, however, the more prone the tubers may be to scab. If that occurs, just peel or scrape the scab off the potatoes before cooking.

If the garden, as a whole, needs liming, don't apply lime within a year of planting to the area where the potatoes are to grow. Almost the same rule applies to digging-in barnyard fertilizers. Those are best applied several months before potatoes are to be planted so that they may be thorough-

ly decomposed by planting-time. Turning under a good green cover crop (clover or other leguminous green-manure crop) within a few weeks of planting, however, is very beneficial.

Most local seed stores will have seed potatoes available in early spring. A few will have them in the fall, but most of us tend to raise our potatoes in the spring. Fall is a risky time to make a success of planting potatoes, as temperature is a crucial factor in raising them. An early frost can wipe out a fall potato patch. Potatoes do best when temperatures go down to around 53 degrees F at night and do not soar into the upper eighties and nineties during the day. Cool-summer states like Idaho and Maine have an advantage over the South when it comes to raising potatoes.

Don't be fooled into planting potatoes you buy at the supermarket even if they begin to sprout. These won't work well and you'll end up with little or nothing to show for your effort. Buy seed potatoes that have been inspected and certified for planting purposes. Most companies sell several varieties of potatoes that are early, mid or late-maturing.

Here in southwest Arkansas (Zone 8), two favorites in our garden are Red Norland and Kennebec. They both perform well and we need to harvest before hot weather arrives. We live in a great gardening area, but summer comes on fast once the weather settles down in May.

Red Norland, as the name suggests, produces red, medium size tubers with very fine, white flesh. Norlands have good flavor and may be used in all kinds of ways. Being an early variety, there's no trouble with hot weather



Kennebec also produces well in the South as it can be dug shortly after Red Norland. A good, all-purpose potato, Kennebec produces long, oval shaped tubers with shallow eyes and very thin skins.

problems. Red potatoes scrubbed clean, diced (skins and all), mixed with a bit of chopped onion, seasoned to taste and fried in a minimum of butter or oleo make a savory side dish.

Kennebec potatoes are ready to be harvested shortly after the Red Norlands. (Some companies list Kennebec as a late variety and others list it as mid-season.) Kennebec has very thin white skin, much like thin tissue paper. I haven't tasted a better white potato and it is good for baking, creaming or whatever suits your fancy.

There are other good varieties, too, and it might be well to check around to see which do best in your own area, particularly if there is any tendency toward potato diseases there. Some varieties offer more resistance than others. If you're into gourmet cooking, you might like to raise some of the fingerling potatoes such as Russian Banana or Purple Peruvian.

If ordered from a seed company, seed potatoes will arrive already cut and treated unless you specify whole potatoes. If purchased locally, they will probably be whole potatoes that you will need to cut and prepare yourself. The potatoes should be cut in

fairly large pieces, each piece containing one or two eyes. If a piece contains several eyes, too many shoots will develop thus cutting down on the yield.

It is a good practice to cut the pieces a day or so in advance of planting so that the cut surfaces will dry somewhat. A "cured" surface will be more disease resistant than one freshly cut. Another good preventive is to dust the pieces with powdered sulphur before planting. This is easily done by following the same procedure as for flouring chicken pieces for frying.

Put several potato pieces at a time in a paper sack with one or two tablespoons of sulphur and shake. (Amount of sulphur will vary with number of pieces you are coating.)

The old standard practice for planting potatoes is to plant the pieces in "hills." The pieces are buried eyes up, 3 - 4 inches deep, two to a hill and hills spaced 20 - 24 inches apart. Soil should be in good condition and deeply pulverized. If clay soil is a problem, the area should be improved several weeks ahead of time by the addition of plenty of organic material, compost, etc. Like many root crops, potatoes won't do well in heavy soil.

The trench method is preferred by some gardeners particularly if they are using commercial fertilizer. Trenches are dug about eight inches deep in loose soil and the fertilizer scattered along the bottom of the trenches. Two inches of soil are put on top of the fertilizer and the potato pieces are then placed about a foot apart in the trenches. Roots will reach down to the fertilizer as they develop. (Potato pieces coming into direct contact with the fertilizer will "burn.") Fill trenches with soil and bring it up a little higher

than ground level to keep rows from becoming water traps. Space between rows should be ample to allow for easy cultivation when plants put on growth.

Keep plants hilled up by drawing dirt up around the bottom of the stems. Young plants are subject to harsh freezes, so protection should be provided if cold weather threatens. In our area, pine needles or straw are sufficient covering. As the soil warms up in late spring, a heavy mulch of organic material around the base of the plants is helpful in keeping the soil cool and pliable. It will also help to prevent dirt loss from heavy rains.

I like our raised bed method for growing potatoes. With the soil in good loose condition, I can place the potato pieces about a foot apart on top of it and then put about four inches of shredded organic mulch on the pieces for cover. Plants push through easily and the mulch adds nutrients to the soil as it decays. More mulch is added periodically to retain moisture and keep tubers from being exposed to the sun and developing green spots as mentioned earlier. This method produces a cleaner potato when harvested and talk about easy to dig!

Plants need plenty of water particularly when tubers are beginning to form. If dry weather threatens, do not hesitate to give soil a thorough soaking every few days until conditions improve. It is also important to practice rotation when growing potatoes as that will help to minimize disease and assure that soil is not depleted of nutrients as would be the case if potatoes were grown in the same spot each year.

There are several insect pests—aphids, flea beetles, etc., that can attack potato vines. The most widespread is the Colorado potato beetle, that colorful black and yellow striped, hard-shelled flier less than a half inch long. In the larvae stage, the beetles are soft worms, brick red in color with black spots, hump-backed and hungry. If only a few appear, they can be

hand-picked and disposed of, but if infestation is heavy it will take something like ten per cent Sevin Dust to get rid of them.

We have very little trouble with potato diseases in this area. However there are several fungus type diseases that are common to certain parts of the country and the best defense is to recognize the problem early and get some advice from the local county extension office.

Potatoes should be dug as soon as vines die down. Tubers may be spread in a shady place until any clinging dirt has dried and then they may be moved to a cool, dark, well ventilated area for storage. (Be sure no sunbeams touch the storage area as the potatoes will begin to show green spots.) If desired, dry dirt may be whisked off with a soft brush being careful not to damage the tender skins of the new potatoes. Wherever they are stored potatoes should not be piled more than a few inches high to allow for good air circulation. We have an old, but useful, refrigerator for storing our extra garden produce and this works very well for our potatoes. They will keep for several months when refrigerated.

There's a certain deep satisfaction to be had when the steam rises from a hot baked potato—a product of one's own labor and know-how. You don't get that feeling when potatoes are dug from a supermarket bin.

Sources: Ronnigers Seed Potatoes, P.O. Box 1838, Orting, WA 98360; J.W. Jung Seed Co, 335 S High Street, Randolph, WI 53957. Δ

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SEND IN THE WACO KILLERS

Three times the International Society of Newspaper Editors has included Vin Suprynowicz in their list of the 12 top weekly editorial writers in North America. For years his shoot-from-the-hip style has opened the eyes of thousands to government abuse of our liberties. In this book, *Send in the Waco Killers*, he blends material taken from his syndicated column with new commentary to give the reader a detailed, reporter's-eye-view of how the rights and freedoms of Americans are being subverted.

He uses factual accounts from the daily news to show how the Feds use the drug war, the public schools, jury rights, property rights, the IRS, gun control, and anti-militia hysteria to increase its power and control over us. He details how agents of the ATF and FBI have routinely lied, how they use paid informants to infiltrate Constitutionally-protected militia groups, then fabricate evidence to get arrests and discredit them.

Had he lived 225 years ago he'd have written a book to detail how King George III and Parliament have tried to enslave us but, sadly, this book is about how our government today is depriving us of our freedoms and ruining the lives of thousands without changing even one word of our Constitution.

If you read no other book this year, read *Send in the Waco Killers*. Just keep your blood pressure medication handy. 506 pages, trade paperback, \$21.95 + \$3 S&H.

**Only \$24.95
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Your honey will love your sweet buns

By Jennifer Stein Barker

Sweet rolls (or sweet buns, Danish pastries, sticky buns, coffee cake, etc.) are an American tradition for breakfast. Sometimes they are served with eggs and cooked meats, but most often such confections are served as a “Continental” breakfast or brunch, which stands alone. The big advantage to serving breakfast this way is that it can be picked up at leisure, rather than everyone having to eat at once while the cook is cooking.

The big disadvantage to the usual Continental breakfast is that the standard American sweet roll is a puffy thing composed of white flour, fat, sugar, and air. It doesn’t provide much nutrition, any fiber, or enough substance to get through the day. If you are an active person, you will probably find yourself hungry by 10 am after one of these “breakfasts.”

Following are some recipes which produce exquisite sweet rolls and buns, with the substance necessary to keep you going till lunchtime.

About flour

To make a nice soft sweet roll (or to make any whole grain bread softer), you need the most finely ground whole wheat flour you can find. Fine whole wheat flour will provide a more satisfying roll in every way (flavor, texture, nutrition) than white flour or a blend of white and wheat.

Wheats come in two varieties, soft wheat which is used to make “pastry” (cake) flour, and hard wheat which is used to make bread flour. Pastry flour has little to no gluten, and is used for cookies, cakes, and quickbreads leavened with baking powder or soda. Yeasted breads, rolls, and sweet rolls need gluten, in order to trap the little bubbles of gas produced by the yeast as it multiplies. This is how breads get the leavening action from yeast.

While gluten is naturally found in the flours made from hard wheats, it needs to be worked by kneading or beating the dough in order to develop properly. If you are beating a soft dough to develop gluten, use an overhand stroke, and “roll” the dough over and over with your spoon, until it develops thick, ropy strands. If kneading, work the dough for 5-10 minutes, or until it springs back from pressure and develops a smooth, satiny surface.

You need a fine-textured flour to make the softest buns, but ordinary bread flour will do in a pinch. If you cannot get superfine bread flour, and still want a very soft pastry, you can add gluten flour to your whole wheat pastry (cake) flour in the proportion of 2 tablespoons per

cup. Gluten flour is a highly refined product, so you don't want to use too much of it.

Have a great time making these goodies, as your family will have when eating them!

Fruit ring

This is a classic sweet breakfast pastry, with a choice of fruit fillings.

Makes a 9x13-inch ring:

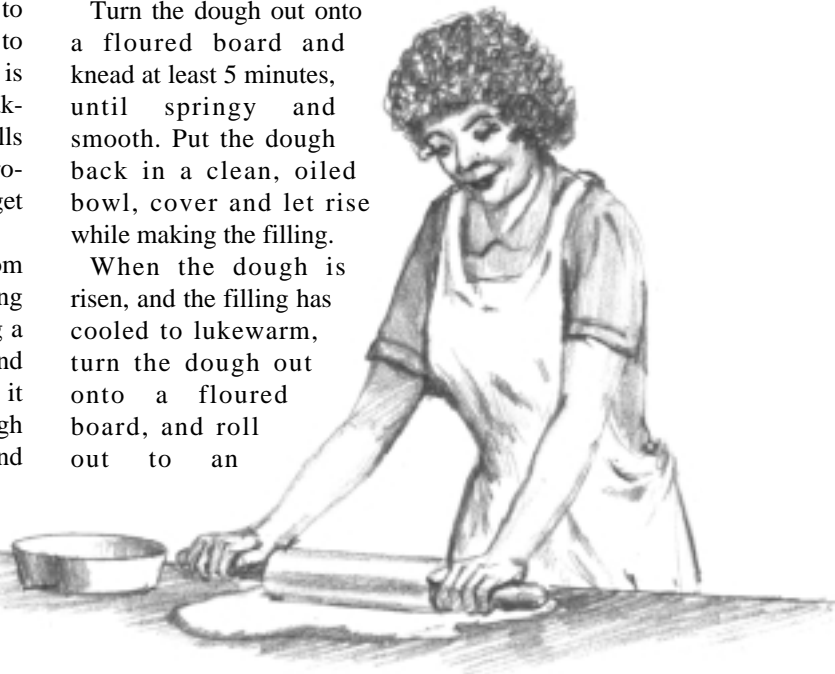
- 1 cup warm water
- 2 Tbsp. dry milk powder
- 3 Tbsp. oil
- 3 Tbsp. honey
- 2 tsp. dry yeast
- 1 egg
- 1/2 tsp. salt
- 3 cups fine whole wheat bread flour
- about 1/4 cup broken nut meats (optional)

Method:

In a medium-large bowl, whisk the milk powder into the warm water. Whisk in the oil and honey. Dissolve the yeast into the mixture, add the egg, and mix well. Allow to set in a warm place for about 10 minutes, or until the mixture begins to foam up. Add 2 cups of the flour and beat well. Continue stirring in flour until the dough forms a ball.

Turn the dough out onto a floured board and knead at least 5 minutes, until springy and smooth. Put the dough back in a clean, oiled bowl, cover and let rise while making the filling.

When the dough is risen, and the filling has cooled to lukewarm, turn the dough out onto a floured board, and roll out to an



A Backwoods Home Anthology

oblong 10x20-inches. Spread the filling lengthwise down the middle third. Sprinkle with nuts if desired. Fold the two long edges over the filling. Roll onto an oiled 9x13 baking sheet with the double layer down. Bring the two ends of the roll around to form an oval.

With a sharp knife, make cuts about 1 inch apart all the way around through the top layer of dough. Put one hand down through the center of the roll, and one on the outside. Gently lifting and stretching, pull the dough towards all the corners of the sheet. The bottom layers will stretch, and the top one will part to show the filling.

Cover the ring and let rise until double in bulk, about 45 minutes. Preheat the oven to 350 degrees. When the ring is risen, brush a little water over the top strips of dough to make a glaze. Bake for about 25 minutes, or until the top is golden and the ring is done. Serve warm or cool.

Apple filling

3 cups diced apple
1/4 cup honey
1/4 cup raisins
1/8 tsp. cinnamon
1 tsp. lemon juice
2 tsp. water
3-4 tsp. cornstarch

Cook the apple, honey, raisins, and cinnamon together just until the apples begin to be tender. Mix the lemon juice, water, and cornstarch in a cup (use more cornstarch if apples are particularly juicy). Add to the apples, and cook over low heat just until thick. Cool to lukewarm.

Prune-date filling

3/4 cup chopped dates
3/4 cup chopped prunes
1 cup hot water
1 Tbsp. honey
1/4 tsp. almond extract

Soak the fruit overnight with the hot water and honey. In the morning, if it has not soaked up all the water, cook over low heat until thick. Stir in the almond extract. Cool to lukewarm.

Honey twirls

When I was in college, the cafeteria called these "Cinnamon Knots" and I was addicted to them! Some people also call them "Sticky Buns."

Makes 1 dozen:

2/3 cup warm water
2 tsp. dry yeast
2 Tbsp. oil
2 Tbsp. honey
1/4 tsp. salt
1 egg
3 Tbsp. milk powder
2 cups fine whole wheat bread flour

Filling:

2 Tbsp. oil
1/4 cup honey
1 tsp. cinnamon
1/2 cup broken pecans or walnuts

In a large bowl or small bread bowl, dissolve the yeast into the warm water. Add the oil and honey, and let sit in a warm place for 10 minutes, or until the yeast foams up. Add the salt and egg, and beat well. Stir the milk powder into the flour, and add to the liquid in the bowl. Beat well until gluten strands form.

Warm the oil, honey, and cinnamon for the filling together just until they will blend easily. Roll out the dough on a well-floured board to a 12-inch square. Spread half of the filling on it, and sprinkle with half of the nuts. Roll up, and cut across the log with a sharp knife to make 12 equal pieces.

Oil a 12-section muffin tin. Combine the remaining filling and nuts, and divide evenly among the tins. Place rolls, cut side down, in the tins. Cover and let rise in a warm place until double, about 1 hour.

Bake in a preheated 350 degree oven for 20-25 minutes, until golden and crusty on top. Remove from pan immediately by twisting each roll as you lift it out. Invert on rack and cool sticky-side up. Best eaten warm!

Cinnamon-oat rolls

Chewy, nutty, spicy and delicious! These rolls take a little extra time, but they are worth every minute.

Makes a 9x13 pan of 24 rolls:

1 1/2 cups rolled oats
2 cups warm water
1 Tbsp. yeast
1/2 cup lukewarm water
1 tsp. honey
1/2 tsp. salt
3 Tbsp. oil
1/4 cup honey
2 Tbsp. gluten flour
4-5 cups bread flour

Filling:

4 Tbsp. honey
1 tsp. brown rice flour
4 tsp. cinnamon
1/3 cup broken walnuts
3/4 cup raisins

Combine the oats and the 2 cups of water. Let soak for 10 minutes. Meanwhile, proof the yeast in the 1/2 cup of water with the 1 tsp. honey. When the yeast foams up, combine the two mixtures and add the salt, 2 Tbsp. honey, and oil.

Beat in the gluten flour and 2 cups of the bread flour. Beat well until gluten strands form between the spoon and the bowl. Add more bread flour, 1/2 cup at a time, until the dough is ready to knead.

Knead the dough on a floured surface at least 7 minutes, until it is smooth and springy. Place the dough in a clean oiled bowl, cover it, and let rise in a warm place until double in bulk. Warm the honey just till it is liquid, and stir in the rice flour and cinnamon. Have the nuts and raisins handy.

Oil a 9x13-inch baking pan, and set it near your work surface. Turn the dough out onto the surface and roll out to a 1x2 foot oblong (the oil from the bowl should keep it from sticking). Spread the cinnamon mixture on the dough, and sprinkle evenly with the nuts and raisins. Roll up across the short direction, so you have a "log" 24 inches long.

Cut the log into 24 equal (about 1-inch) slices. Place the slices in the pan, cut side up. Make 6 rows of 4 rolls. Cover the pan and put in a warm place to rise until double.

Preheat the oven to 375 degrees. Bake the rolls for 25 to 30 minutes, or until the tops are golden. Serve warm, if possible.

Orange-poppysed breakfast rolls

These rolls need no adornment, but a little raspberry jam will elevate them to the sublime! Please use organic oranges, because you will be using the peel.

Makes a 9x13-inch pan of 24 rolls:

2 large oranges
1/4 cup finely chopped date pieces
3 Tbsp. honey
2 Tbsp. poppy seeds
1 Tbsp. dry yeast
1/2 tsp. salt
2 Tbsp. oil
4-5 cups fine whole wheat bread flour

Get out a medium bread bowl. Using the fine side of the grater, grate the orange part of the peel off the two oranges. Squeeze the juice from the oranges, and add enough warm

water to make 2 cups of liquid. Add the liquid to the peel in the bowl.

Add the chopped dates, honey, and poppy seed. Stir well to combine. Sprinkle the yeast over the mixture, and stir to dissolve. Let sit in a warm place for 10 minutes, or until the yeast foams up.

Add the salt and oil, then stir in the flour until stiff enough to knead. Turn the dough out onto a floured board, and knead at least 7 minutes, or until smooth and springy. Place the dough in an oiled bowl, turning to oil the top, cover, and let rise 2 hours or until doubled in bulk.

Prepare a 9x13x2-inch pan by oiling it lightly. Divide the dough into 24 equal pieces, and shape the pieces into round rolls. Arrange in the pan in 6 rows of 4 rolls. Cover and let rise about 45 minutes, until double. Bake in a preheated 350 degree oven for 25-30 minutes, or until the rolls test done. Cool 10 minutes in pan, then on a rack until thoroughly cooled before storing.

If these rolls will be kept more than a day, they are best kept in the refrigerator. Δ

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The pecan is a nut to love

By Alice Brantley Yeager
(Photos by James O. Yeager)

If I were to venture a guess as to which is the most popular nut in America, I'll bet it would be the pecan. Not only are the kernels delicious to eat fresh from the shell, but they are also highly regarded for use in many culinary preparations extending into the gourmet class. The nuts from the papershell cultivars are the most desired commercially, but they can't beat the smaller native pecans for flavor. Regardless of preference, one of the things folks look forward to is the annual pecan harvest.

Early in the growing season, there's speculation as to whether the crop will be heavy or sparse. Those of us most interested in the subject are furnished periodic newsletters from the local county extension agent's office. These reports tell us if there are developing problems in the form of casebearer moths and other pecan insects, scab, too much rain, drought, etc.

An abundant yield of pecans means money in the pockets of the growers as well as lower prices for consumers. A light harvest doesn't benefit anyone. Prices are high and often the nuts aren't of top quality. It seems to be a rule of nature here in southwestern Arkansas for a heavy crop to be followed by a light one. The same thing holds true for many other fruit and nut crops.

Georgia and Texas are the top producers of pecans and Texas is the only state with the pecan tree as its official state tree. There is a story that C. W. Post (cereal family) saw a cluster of pecans at the Chicago World's Fair in 1893 and came down to Texas to find out more about the nuts. Consequently, a new cereal was named "Grape Nuts."

Old native pecan trees can reach 140-150 feet in height at maturity

each bearing hundreds of pounds of pecans in a good season. Indians treated the trees with respect as life sustaining food trees and many forest creatures partially depend on them for survival. However, early settlers, probably because of the abundance of the trees, would chop down an entire tree just to get the nuts. Native pecan trees are long-lived and some of the victims were hundreds of years old.



Papershell pecan grove near Texarkana, AR. Land used for pecan groves often serves a double purpose. If owners are cattlemen, they will pasture their cattle in the groves during the growing season.

The natural range of native pecan trees in the United States seems to be from eastern Iowa across to Indiana and down through the river flood plains to the Rio Grande. Migrating birds and animals have done their part in widening the range of pecan trees. Humans have helped too. One famous example occurred when Thomas Jefferson shared some seeds with George Washington. The pecan trees planted at Mount Vernon are said to be the oldest trees on the property.

With the advance of cultivated and improved varieties, pecan orchards are

now big business and the trees are being grown wherever soil and climactic conditions are favorable. Some small orchards allow people to come and pick up pecans, usually on the halves. Most large producers, having hundreds of acres in production, use machinery to shake the pecans out of the trees at harvest time—a far cry from cutting down the whole tree to collect nuts.

From an economic standpoint, there are no better trees for the homeowner than pecan trees. City folks are usually restricted to one or two trees

depending on the size of their yards, whereas people living in rural areas usually have more room to plant trees. When the trees reach bearing age, one can forget about having to pay high prices for pecans in supermarkets. As pecan trees grow older, crops will increase to the point that there will be a surplus to sell. That is, unless moochers appear about the time the pecans begin to fall. In that case, the owner of the pecan trees must devise methods to protect his /her crop. A plain but scrawled sign reading "Keep out or you'll be persecuted" usually works. I think it's the last word that

gets some people. They don't know exactly what the owner has in mind. Squirrels and crows are another matter as they don't pay much attention to signs.

Besides the harvest, there are a number of fringe benefits attached to pecan trees. These deciduous trees produce plenty of leaves that can be raked up and composted or used for organic mulch. They give nice shade in the summer and their bare branches let the sun in during winter. Pecan trees raise real estate value and homeowners should realize the importance of taking care of their trees with regard to pruning, spraying and fertilizing in order to obtain the maximum benefits from them.

Pecan trees need soil with pH 6.0 - 7.0. They thrive best in soil that has been enriched through cultivation for a number of years. The trees will grow faster and yield quicker in bottom land than in hilly areas, as the bottom land retains moisture longer and is generally richer particularly where there have been alluvial deposits from rivers over a long period of years. Observe the improved variety pecan groves scattered along our famous Red River Valley as well as other river valley areas. Many large old native pecan trees may still be seen thriving in the midst of farms and pastures.

Trees will generally begin bearing in 7 - 10 years, although some of the high density varieties are advertised as bearing sooner than that. The first few pecans harvested can hardly be what



When storing nuts for the winter, the squirrels have nothing on us. These pecan halves will be put in the freezer where they will keep indefinitely and be used in cakes, pies, candies, salads, trail mixes—you name it.

you had in mind when you planted the trees, but patience has its rewards, so hang in there. A pecan tree is not a fast maturing tree like a peach or plum, but it will be producing nuts long after the fruit trees are gone and forgotten.

Almost any nursery that carries nut trees will have an assortment of pecan trees. Know the good and bad points about your locality before selecting or ordering trees. Investigate which trees do best in your zone. Some varieties are advertised to be hardy as far north as Zone 5, but generally speaking, most will be in the range of Zones 6 - 9. If there are pecan trees already in your neighborhood, find out which varieties they are and how well they have done. A little research will pay off as money and time spent on trees highly susceptible to scab, for instance, is money down the drain if your locality is scab prone. A County Extension office is a good place to get information on varieties best suited for your use plus some tips on caring for your trees.

Whichever variety you select, be sure that you pay

attention to nursery pollination charts. Although pecan trees are self-pollinating, a larger yield will be had if there are other pecan trees nearby or if you purchase more than one variety.

When your trees arrive, plant as soon as possible. If weather conditions are prohibitive, put the trees in a cool room and check occasionally to see that they don't dry out. Most nurseries now use the clipped root system, so follow their instructions regarding pruning the trees before planting.

When ground can be worked, dig a hole considerably larger than needed and put enough loose top soil in the bottom of the hole in order to place the tree at the approximate depth as when it grew in the nursery. (Usually, the soil line is easily seen on lower trunk.) Spread the roots, gradually filling the hole with loose dirt until it is about two-thirds full. Gently firm the soil and slowly pour in about a gallon of water. This will help get rid of any air pockets that might form around roots. Finish filling the hole with soil and pour in another gallon of water. This should take care of settling the soil.

If you live in an area subject to summer drought, make an earthen dam



A comparison in size. The large pecans are Stuarts and the small ones are natives.

about 6 inches high and about 3 feet in diameter around the tree. Mulch with organic matter—straw, pine needles, etc.—and check from time to time to be sure the tree has enough moisture. The first years of growth are very important as stunted trees are practically worthless as far as production is concerned. A pecan tree is a long term investment—probably the best you can make in trees for the money.

If you are planting a number of trees, remember that pecan trees need space to spread out, so don't try to crowd them into small areas. Trees need from 50-75 feet between them if they are standard varieties such as Stuart. If they are smaller trees such as the Indian varieties—Cheyenne, Kiowa, etc. they need from 20-30 feet between them in rows about 35 feet apart. The latter are known as high density varieties as more can be planted per acre than in the case of the standard cultivars.

Despite the fact that the large, thin-shelled pecans bring top prices at the produce stands, pecan connoisseurs will readily admit that it's not the size of the nut that is indicative of quality. It's true that the large nuts have good flavor and are easier to shell than the small native pecans, but for superb

flavor one must turn to the natives. These small nuts are higher in oil content than the large ones and are excellent for culinary use. Witness the popularity of the praline, that sugary concoction that is best savored from a home-owned candy kitchen in the Deep South and that is always a money-maker for church and charity bazaars.

The old phrase, "A-nutting we will go," has as much meaning today as it did long ago. There's nothing like the feel of a crisp November day with a blue sky overhead and plenty of pecans lying around to be gathered and enjoyed throughout the winter and beyond. Part of the fun is sampling a few pecans while gathering. New pecans need to dry out a bit before putting them to kitchen use. The recipe list is endless for this popular item—pies, cakes, salads, dips, stuffings—you name it.

Our favorite variety is the Elliott, as it seems to be consistent in quality. This pecan is thin-shelled and kernels are well filled out with excellent flavor and oil content. Some of the larger pecans such as Mahan or Stuart require an almost perfect season to avoid some shriveling of kernels. Pecans should be stored in a cool, dry place for winter use. They will keep



Native pecans ready to drop from their hulls at the next passing breeze.

for several months before becoming rancid, but, with the coming of warm weather, the quality will rapidly deteriorate. The best method for keeping pecans and doing the household cook a favor, too, is to pick out the kernels while they are fresh and freeze them in freezer bags or air-tight containers. The nutmeats will keep indefinitely and there's no danger of losing the goodness of the pecans. Kernels do not stick together when frozen so it's a simple matter to take what one needs from the container and return it to the freezer.

A word to those who would take the cheap way out by planting a pecan and raising a tree from a seedling—what you plant isn't necessarily what you are going to get. Improved cultivars such as Stuart are grafted, so if you're really interested in size and quality, it's best to pay the nurseryman's price and have something worthwhile.

Sources for pecan trees: Stark Bro's, P.O. Box 10, Louisiana, MO 63353; Gurney's Seed & Nursery Co., 110 Capital Street, Yankton, SD 57079; Henry Field's Seed & Nursery Co., 415 N. Burnett, Shenandoah, IA 51602. Δ



These are only a few of the many pecan cultivars now available from nurseries. Before planting it's best to consult with your county extension agent to determine which varieties do best in your area.

Use non-hybrid seeds and save big bucks in this year's garden

By Jackie Clay

Every person who is striving for self-reliance should, and most do, plant a garden from which to raise a good portion of their own food. But how many of us really study ways to get the most food out of our money invested? Having spent a lifetime with earnings below the "poverty level," I certainly have! And here are a few helpful tips for every gardener to ponder on.

Grow only open pollinated varieties

While the popular trend these days has been toward only growing hybrids, this is **not** a good policy for folks aiming at self sufficiency. First of all, the seed of hybrid vegetables does not grow true, should you save your own seed. You may get what you want, or you may not get taste, productivity, or even appearance. Only open pollinated (or "heirloom" "traditional") varieties will produce seed which, when saved and planted next year, will give you the same results as the parent plant.

You can study your seed catalogs carefully. Any listed as "Hybrid" or "F1" should be avoided.

Get in the habit of saving your own seeds. This simple practice can cut your gardening costs down by 1/4 or 1/2. Seed saving is simple and very satisfying. Many seed catalogs, such as the ones published by *Native Seeds/Search* and *Garden City Seeds*, also have extensive information on seed-saving.

An additional reason to raise non-hybrids is that most of the open pollinated varieties taste better. That's opposite what we have been led to believe...often by seed companies, who, by the way, often hold the rights to certain hybrids they developed and/or sell.



Author with cukes, four hours away from bread and butter pickles

The good old heirloom varieties taste great. True, you might not be able to ship them 1500 miles in a truck, they might not last 10 weeks in a warehouse, or they might not have thick rinds or skins to prevent bruising during rough handling, but in a home garden, or even a small market gar-

den, who cares? I'd rather have the taste.

And cost? Where many open pollinated vegetable seeds may be purchased very reasonably, the hybrids are now selling for high prices—many more than \$3 a pack where you have to carefully count your 15 or 30 seeds. And when you save your own seeds, you only buy once. The seeds you buy as a seed bank will provide generations of vegetables.

Buy with care

Even with open pollinated seeds, there is a great deal of difference in the cost of the same varieties of seeds. Early in the year, send for several seed catalogs and carefully compare prices.

If you can, get together with gardening friends and relatives, buying seed as a coop venture. Not only can you split larger packets of seed, but you save significantly on the shipping and handling.

Try not to buy seeds off the racks in stores. Here you will usually find those trusty hybrids along with higher prices. You can sometimes find seeds on sale but usually there are few seeds in the pack and you can buy and raise better varieties.

Remember you are developing your own seed bank and need to find great family favorites, not just yellow beans or sweet corn.

Plan carefully

Raise only what you can take care of. This sounds basic and simple, but after 30 some years of gardening, it's one I still struggle with. You can get more tomatoes out of 12 plants, cared for like babies, than 40 plants left to weeds, insects, and other forms of

neglect. If you have “left-over” space in your garden, tuck in a few squash, pumpkins, or plant it to rye or another form of green manure crop.

Assess your weed problem. If you don’t have much of one, consider planting a good portion of your garden in wide rows or beds. Onions, carrots, beets, greens, and others grow well together, shading out all but major weed problems effectively.

I even grow garden peas in a bed rather than a row, picking the vine and all as the majority of peas ripen. Then feeding the vine to the stock, I reuse the bed as a bean patch with the beans planted in rows. Remember that commercial peas are grown in field conditions and mechanically harvested at one swipe. You can do this too, getting more peas per square foot as they support and shade each other as well as choking out any competing weeds.

I do not plant bush beans this way, as the plants are heavier, and the leaves of closely planted beans can end up interfering with pollination. And it is definitely harder to pick beans well when they are crowded. I have found that a spacing between plants of 8 or even 12 inches (depending on variety), and rows 18 to 24 inches apart, yield much better than crowded plantings. It allows complete pollination (beans are largely self-pollinating), plus ease of picking the three or more flushes of bean crops. An additional bonus of uncrowded planting is that if you live in an area where there are venomous snakes, you can see better.

Don’t plant your tall corn where it will soon shade other heat/light-loving plants such as tomatoes. Or don’t plant vine crops, such as cukes, where they will crawl out onto carrot rows or beds. Plan many times—plant once!

Short of garden space? You’d be amazed at how many veggies you can grow in flower beds, tubs, buckets, and other containers or in a very small garden plot. There are many varieties suitable for container growing, from determinate (bush-type) tomatoes,

bush cukes, squash, peppers (which like a bit of crowding), and even onions, greens, and eggplant.

Plant vining crops in the lawn (dig out the sod in a circle two feet in diameter) where the grass is poor anyway, and let ‘em sprawl. Or plant them in flower beds next to the house, the garage, etc, and trellis them up on old fence wire or string. Tomatoes and cukes don’t climb, but can be trained, tied gently at intervals as the vines grow. I’ve seen folks in apartments grow a huge garden on their roof. They just used recycled containers and a huge imagination.

No room to grow bush beans? Grow pole beans instead, trellising them up on a three-pole tipi or strings on the side of the garage. A few hills of pole beans will provide enough beans for a family to eat, plus a few pints to can as well.

Succession of crops

You can get more bang for the buck out of your garden, especially if you are limited in space, by planting successions of crops. For instance, instead of planting all late bush beans or corn, plant two or more crops in succession, using the same area as the early veggies. I plant a big patch of Venture green bush beans, radishes, lettuce, and other early crops, which mature in less than 50 days. Then when they are about done I quickly till them under when production fades. I plant the same total area into an early sweet corn, such as Black Aztec or Early Golden Bantam.

The beans help put nitrogen into the soil, and tilling keeps weeds to a minimum. If the weather is warm, corn zooms up, usually much exceeding the maturity dates in the catalogs.

The bottom line is that from a patch 30 feet by 10 feet I get late sweet corn and the bonus of beans, greens, and more.

Never leave an area in the garden bare after crops have been harvested. If you don’t need the area, plant it

anyway—for seed, to barter, sell, or give to those who need it. Or plant it into a green manure crop to further enrich the soil and discourage weeds.

Plant wisely

Many gardeners always plant all of the packet. Now, who needs 1,500 radishes all at the same time? Nine hundred summer turnips? Fifty zucchini plants? Not me.

Plant what you truly need. Few families need more than a two foot row of well planted radishes. But keep planting all summer and fall, and you’ll always have nice mild, crisp radishes. You may only need two zucchini or summer squash plants.

Plant what you need, then carefully close the packet and tape or staple it shut and pack it into a glass jar, sealing it against rodents, insects, and dampness. It’ll keep until next year.

Have enough seed that you never plant all of what you have. This is common sense preparedness. I planted a huge garden this year and nearly all of my early planting was totally consumed by a plague of grasshoppers. With a sigh and a few very dark thoughts, I tilled my garden under, and promptly replanted, with seeds that I had saved.

As the seedlings popped up, I kept them dusted and sprayed with organic insecticides, spread grasshopper spore bait around to give them the “plague,” and harvested so much produce it was all I could to get it put up. Most neighbors planted once using all their seeds, had their gardens destroyed, and promptly gave up. Having the seeds right on hand to replant, and replant again, if necessary, gives one the feeling of preparedness.

Most seeds keep well, for years if kept cool, dry, and in the dark. There are a few exceptions. Onions keep one year, and parsnips two years, but generally your personal seed bank should be treated as carefully as your financial bank.

Good garden care

To get the absolute most out of your garden, for the least money, it must receive good care. Limit the size of your garden to what you can truly handle. Maybe you need to limit the size next year to what really works.

If you have a good tiller, great soil, and few weeds, your garden can be larger than if you till by hand, have poor soil, and a huge weed problem.

Your own plants

You can go out to the garden center or the market and buy tomato, pepper, and eggplants, often sold in four packs or six packs for better than two dollars each. But these may not be varieties that will taste good or perform well in your area, and they will most likely be hybrids. You will not be able to “save your own” from their seeds.

Instead, how about shopping those seed catalogs early and choosing some open pollinated traditional and heritage seeds that produce plants that do it all—taste great, perform well under your garden conditions, look pretty, and have the additional benefit of letting you save seeds to grow next year’s plants?

Each packet contains from 30 to 150 seeds in most cases. Enough to start plants for your family and a friend or relative this year, and to keep some for next year.

Starting the seeds is easy. Peppers (no matter what the pack says) should be started 12 weeks before you would even begin to think about setting them out, tomatoes 8 to 10 weeks, and the same for eggplant. Using seed starting medium from the nursery, fill the container (an old bread pan, flat, or whatever) and moisten the soil well with warm water, not soggy and certainly not dry. Then carefully place your seeds on top of the medium, keeping at least an inch apart in all directions. Plant a few more than you need, as some may not germinate and some

may die. If I want a dozen finished plants, I plant about 20 seeds.

Cover the seeds evenly to about 1/8 inch, then gently sprinkle with hot water until moist, and cover with clear plastic leaving an air space between plastic and soil. Place in a warm place, such as on top of the fridge or on a high shelf. Warm air rises. Germination may take place in as few as three days, so check every day or the seedlings will quickly become too leggy to ever recover. Peppers usually take quite a bit longer, but check, just in case, as I’ve had some take right off.

Keep the medium damp, but never soggy or the seeds will rot. When the seedlings just begin to show up, move the container to a window where there is at least eight hours of strong light (a south window is best, never a north window). If there is not a good window, use a Grow Light or a two-bulb fluorescent shop light, with the plants only two to four inches below the light. As the plants grow, move the light up, keeping the same distance between plant and light. Keep turning those plants in the window, so they don’t grow leaning toward the light, but straight and stocky.

As they get two sets of leaves, it’s time to transplant to an individual container, or rows in a larger flat, keeping three or four inches between plants in all directions. An additional transplant is beneficial when they seem to be growing too large.

When warm weather hits, gradually harden these plants off by moving them outdoors in a protected location out of direct sun and high wind for a few hours in the morning. Then, gradually, leave them out longer, moving them to a less protected area. Be sure they do not dry out during this hardening off period. It’s easy to forget them and have this happen. And watch those cold evenings as you begin to leave them out at night.

Now they’re ready to plant, with protection, such as Walls-O-Water to warm them in case of cold. If you

plant them without such protection, wait until all chance of frost is over and plant with some protection against the wind if needed in your area. Here, I plant them in deep basins, both for ease of water collection and to keep the wind off.

In just the same way, I raise my sweet potato starts from mother sweet potatoes, saved from last year’s crop. I insert four toothpicks into the mother about half-way down, then place it in a glass full of water. Setting several on a sunny window ledge in late January. I begin to see sprouts forming above the water line area. Slowly these develop into leaves which grow into the sprouts.

As soon as the nights are dependably frost free, I just pull these sprouts out of the mother and set them into well worked, warm, damp soil on a nice day. Believe it or not, these rootless sprouts soon begin to grow and thrive. No cost sweet potato plants!

Irish potatoes? Same way. I just save some of the nicest potatoes from the garden for seed for the next year. I save medium sized potatoes and plant the whole thing or half if it is very large. You might buy your first sets to try some different varieties. Then on finding your favorite, just develop your personal seed bank, and never buy seed potatoes again.

Insect control

Other than weeds, which most folks figure out how to control, insects cause the most loss of garden produce. Now all gardens do not have insect problems. But few of us are that lucky, especially if it is a relatively new garden.

Keep a close watch on each row or plant. Lift the leaves and really look. When you see insects, learn what they are. You don’t want to kill a big group of lacewings thinking they are the bad guys, as they are your friends eating harmful insects. Learning about harmful garden insects is a great winter project.

If you just find one or two bad guys, such as potato beetles, for example, just pick and squash 'em. Then watch closely, as more may soon show up. If this is the case and they get thicker, then picking and squashing them will work. Begin a treatment with an effective organic spray or dust. Again, studying books and catalogs will quickly provide you with the needed information. Generally I use such sprays as Bt, which only affects caterpillars which eat sprayed leaves, and rotenone, one of the least toxic organic compounds.

Only spraying once or spraying only when the problem is severe is not cost-effective as you will lose a lot of produce and not stop the insects. You must generally spray or dust after each rain or overhead watering. Often a week or so apart even when the dusting doesn't wash off.

For corn ear worms begin spraying Bt when the corn is knee high, not tassled out, not even showing ears. Then spray every week thoroughly.

Your problem will soon disappear as the corn ear worm moths are not reproduced in cycles. Always be watchful, even years later.

Harvest prudently

We've all had 'em—battleship sized cucumbers, string beans with golf ball sized beans. Not only is this wasteful (we could have had great pickles and beans), but allowing produce to mature on the vine/bush tells the plant to stop putting out flowers which stops further production. This is why picking the very first beans, even if a bit scarce, is necessary, to insure a heavier harvest, which will also last for a longer period of time.

Keeping all cukes picked before maturity will allow a 20-foot row to provide all the salad cukes and all the pickles that an average sized family could possibly eat in a year.

I let some ripen and mature so I can save my own seed. I choose only one or two plants. More for beans, peas, or

corn. These are my best plants, ear marked as seed producers. All the others are kept picked, which more than doubles production.

Suggested reading:

Seed to Seed: Saving our Vegetable Heritage by Suzanne Ashworth

The New Seed Starter's Handbook by Nancy Bubell

The Organic Gardener's Handbook of Natural Insect and Disease Control by Barbara Ellis and Fern Bradley.

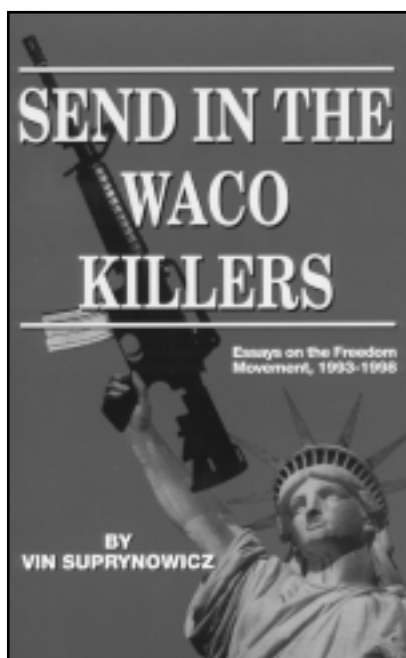
Catalogues:

Garden City Seeds, 778 Highway 93 North, Hamilton, MT 59840 (free catalog)

Native Seeds/SEARCH, 2509 North Campbell #325, Tucson, AZ 85719 (catalog \$1)

Southern Exposure Seed Exchange, P.O. Box 170, Earlysville, VA 22936 (catalog \$2 — much culture and seed saving information. Δ

SEND IN THE WACO KILLERS



Three times the International Society of Newspaper Editors has included Vin Suprynowicz in their list of the 12 top weekly editorial writers in North America. For years his shoot-from-the-hip style has opened the eyes of thousands to government abuse of our liberties. In this book, Send in the Waco Killers, he blends material taken from his syndicated column with new commentary to give the reader a detailed, reporter's-eye-view of how the rights and freedoms of Americans are being subverted.

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Solar oven casseroles are good and easy

By Jennifer Stein Barker

In sunny summer weather, a country person's thoughts turn to spending as much time as possible outdoors. The last thing on the mind is cooking complicated dishes in a hot kitchen. Ideally, a meal for this kind of weather should be both fuss-free and nutritious, to provide lots of time and energy for that outside work. It should also include some of your own home-grown garden vegetables.

If you are lucky enough to own a solar oven, you can provide yourself with good, nutritious meals all summer without spending lots of time indoors cooking. A solar oven uses the rays of the sun, intensified by reflectors and dark paint, to provide all the heat needed to cook. It does not use any electrical energy or fossil fuels. It just sits there and gathers in the energy that is freely delivered by old Sol for all of us to use as we will.

Solar ovens have the slight drawback that cooking in them may happen more slowly than you are used to. The greater the mass of food in the oven, the longer it will take to reach cooking temperatures. You cannot just "turn up the heat," and get the food to the boiling point rapidly. You must learn to allow for this extra time in your cooking.

However, once the food is brought to the boiling point, standardized cooking time is used (except for slight variations caused by elevation above sea level). If brown rice is done after boiling for 45 minutes on an electric or wood stove, it will be the same in a solar oven. The only difference will be the amount of time necessary to bring the food to the boil.

An advantage you will love getting used to is that of care-free cooking. If you cannot check your food and turn the oven's reflectors toward the sun every 15 to 30 minutes, don't worry. Your food will cook a little slower, but it will never burn! The sun just moves on past the untended solar oven, and the interior temperature drops below the danger point.

There are several types of solar ovens, but all use the principle that the sun's rays, reflected to intensify and magnify their effect, will produce enough heat to cook a meal. Most use an insulated box as the "oven". My favorite solar oven is the "Sun Oven," which is a commercially made oven, available from many solar dealers (I got mine from Kansas Wind Power, a *BHM* advertiser.) I like it because it is convenient to use and store, easy to clean, and uses the sunlight efficiently. These recipes were all developed with the "Sun Oven," but they will work in any solar oven. Cooking times may need to be adjusted for other brands or homemade ovens.

Casseroles cook very well in solar ovens, because they are one-dish meals. Ideally, you should have a casserole dish which fits into your solar oven, and which will hold enough food for the number of people you normally feed. Glass dishes allow you to see the food and check the progress of the cooking without opening the oven and losing valuable heat. Dark dishes help collect more heat from the sun. Lids are necessary to help hold the heat in.

I usually use an amber glass covered casserole by Corning which holds 2 liters. That makes enough for the two of us if the casserole is all we're eating, or for four people if we are having a full-course meal with bread, salad, and dessert.

General cooking instructions:

Casseroles have a large amount of water incorporated into them in order to cook the pastas, grains, and legumes. They can be put into a cold oven and the whole thing can come to boiling temperature together. Once the contents come to a boil, cooking time will be the same as in a conventional oven, but it may take quite a while to get the whole mass up to a boiling temperature.

If you are assured of a clear day, and your casserole doesn't require more than 1/2 hour of boiling time, you can place it in the sun oven, turn it towards where the sun will be at 3:00, and go away. Dinner will be ready and warm at 5:30 (don't do this with meat or any other potentially dangerous food). For longer cooking times, you must start earlier and turn the sun oven at least every 1/2 hour or so to keep the contents boiling.

You can help speed the cooking time by preheating the solar oven. If you do this, be careful. An empty solar oven may quickly become hot enough to smoke the interior paint (over 450 degrees). Solar ovens need the mass of food inside to moderate the temperature. If you preheat an empty solar oven, always leave the glass open a crack, or watch the oven closely and put the food in as soon as the temperature reaches 350 degrees.

Any recipe designed for a slow cooker will do very well in a solar oven. Plain rice or grains can be cooked in the solar oven, and a quick stir-fry made on the woodstove or campstove at the last minute to go on top of it.

Following are some of my favorite solar oven casseroles. Instructions for conventional kitchens (electric, gas, or wood stoves) are included for those not lucky enough to have a solar oven and plenty of sunshine.

Mama Gianna's easy veggie lasagna

This is a one dish lasagna with nothing precooked. If you do not have a covered casserole, you must use foil to cover the pan, because the noodles need the steam to cook! This is great with whole wheat lasagna noodles. Serves 2-4:

Sauce:

3 cups chopped tomatoes (fresh or canned)
1/2 cup water
1 Tbsp. red wine
3 cloves garlic, minced
1 tsp. oregano
1/2 tsp. basil
1/4 tsp. fennel seed, crushed
1 Tbsp. tamari

Veggies:

1 medium carrot, grated
1 green pepper, diced
1/2 cup diced onion

Cheese:

1 cup ricotta
1/4 cup Parmesan
1 egg, beaten
freshly-grated black pepper to taste
grated mozzarella for topping (optional)

Noodles:

8-10 lasagna noodles, or enough to make two complete layers in your pan

Preheat the solar oven and get out a 2-liter or larger casserole. In a medium bowl, mix together the sauce ingredients. In another medium bowl, toss together the prepared vegetables. In a small bowl, stir together the cheeses, egg, and pepper.

Layer as follows in the casserole:

1/3 of the sauce
a layer of uncooked noodles
all the vegetables
1/3 of the sauce
all of the cheese mixture
a layer of uncooked noodles
1/3 of the sauce

Cover the casserole with a lid or foil (this is necessary to keep the steam in with the noodles), and bake until the sauce has been bubbling vigorously for 1/2 hour (because of the liquid mass of this one, it will take a long time to bring it to the boil).

When the noodles are cooked, the lid can be removed and a layer of grated mozzarella may be added to the top of the lasagna. Bake 15-20 minutes more, uncovered, until the cheese bubbles and browns.

Conventional oven instructions:

Bake, covered, at 350 degrees for about 1 1/2 hours, until noodles are tender. Then follow instructions for adding cheese on top.

Risotto

This is a baked rice dish—Italian style. If you cannot get fresh oregano and lovage, follow the substitutions for “winter risotto.” Serves 3-4:

1 2/3 cups raw brown rice
2 Tbsp. lentils
1 1/2 cups chopped or ground tomatoes
2 2/3 cups stock or water
1 small onion, sliced thin
2 cloves garlic, minced
1 small turnip, coarsely grated
1/3 cup chopped fresh oregano
2 tsp. finely chopped fresh lovage leaf
dash Tabasco
1/4 tsp. ground cumin
1 Tbsp. olive oil
1 Tbsp. tamari

Winter risotto:

For the fresh oregano and lovage, substitute:
2 tsp. dried oregano, crushed
1/2 tsp. fennel seed, crushed or ground

Combine ingredients in a two liter or larger casserole. Stir to mix. Bake, covered, in sun oven until all liquid is absorbed. The rice and lentils should be tender (if not, add more liquid and adjust recipe). When it is done, the herbs will be on the top. Stir everything together before serving. Serve with a crusty bread and green salad.

Conventional oven instructions:

Preheat oven to 350 degrees. Combine all ingredients in a two liter or larger casserole. Stir to mix. Bake, covered, until all the liquid is absorbed and the rice and lentils are tender, about two hours. This may also be made in a slow cooker.

Blackeyed peas and rice

Blackeyed peas and rice are a traditional Southern combination. Combine them with plenty of vegetables and season “just right” for an easy-to-fix meal. The greens are a traditional touch. Use whatever kind of tender greens you have in your garden or at the store: turnip, beet, chard, mustard, etc.

Serves 3-4:

- 1 cup diced onion
- 1 1/2 cups uncooked brown rice
- 1/3 cup blackeyed peas, picked over and washed
- 5 cups water
- 2 Tbsp. tamari
- 1/4 tsp. Tobasco
- 1/2 tsp. ground coriander
- 2 carrots, sliced or diced 1/2-inch
- 1 white turnip, sliced or diced 1/2-inch
- 1 bay leaf
- 1/2 tsp. dry thyme
- 1 bunch greens (see above), washed and shredded

In a 2 liter or larger covered casserole, combine all the ingredients except the greens. Place in the solar oven and bake, covered, until the casserole has boiled for about 45 minutes and the liquid is absorbed. Remove the casserole from the solar oven, and immediately stir in the greens. Replace the cover on the casserole, and let stand for 5 minutes. Serve immediately, garnished with grated cheese and salsa if desired.

Conventional kitchen instructions:

In a large saucepan or Dutch oven over medium heat, saute the onions in 1 Tbsp. olive oil until transparent, adding a little water as necessary to keep from sticking. Wash the blackeyed peas and add them, and then add the rice and five cups of water. Add the tamari, Tabasco, coriander, carrots, and turnip. Stir together.

Bring the pot to a boil, lower the heat, and simmer, covered, for 45 minutes without stirring. Remove the cover and taste the beans and rice. They should be tender. Poke a spoon to the bottom of the pot, and if there is less than 1/4-inch of liquid on the bottom, add 1/4 cup of water. Add the greens, the bay leaf, and the thyme, then stir. Turn the heat as low as it will go, and cook for five more minutes, stirring frequently. Once you stir the pot and release the starch from

the rice, it will tend to stick. As soon as the greens are wilted and minimally cooked, remove the pot from the stove.

This may also be cooked in a slow cooker. Use solar oven instructions.

Curried rice and lentils

A quick and easy main dish, best served with a big salad on the side. Use either raw or toasted cashews as you prefer. Serves 3-4:

- 1 1/2 cups raw brown rice
- 1/3 cup lentils
- 4 1/2 cups water
- 1 1/2 cups diced onion
- 3 cloves garlic, minced
- 2 tsp. fresh ginger root, minced
- 1 tsp. turmeric
- 1 tsp. cumin
- 1/2 tsp. coriander
- 1/8 tsp. cayenne
- 2-3 Tbsp. tamari (to taste)
- 1/4 cup cashews
- 2 cups fresh or frozen peas

In a 2 liter or larger covered casserole, combine all the ingredients except the peas. Place in the solar oven and bake, covered, until the casserole has boiled for about 45 minutes and the liquid is absorbed. The rice and lentils should be tender. If not, add more water and adjust the recipe. Remove the casserole from the solar oven, and immediately stir in the peas. Replace the cover on the casserole, and let stand for 2 or 3 minutes.

Serve with a green salad and chutney. Optionally, you can use the cashews as a garnish instead of stirring them in.

Conventional kitchen instructions:

Put the rice, lentils, and water in a large saucepan and bring to a boil. Reduce the heat and simmer, covered, until the water is absorbed, about 45 minutes. Do not stir while cooking. Check for doneness by sticking a spoon straight down through the rice and pushing it to one side to see if the water on the bottom of the pan has been absorbed, then taste for tenderness.

Meanwhile, heat 2 tablespoons olive oil in a medium frying pan and saute the onions, garlic, and ginger root gently until the onions are transparent. Add the turmeric, cumin, coriander, and cayenne and cook to “toast” the spices for a few moments. Scrape the mixture into the cooked rice and lentils, add the cashews and frozen peas, let sit for 2 or 3 minutes.

This may also be cooked in a slow cooker. Use solar oven instructions. Δ

Ayoob on firearms

By Massad Ayoob

Four X .44 —the logical backwoods handgun

Spartan lifestyles go hand in hand with backwoods living. Instead of getting a dozen little variations of everything, the tendency is to get one and make do. If you're only going to have one handgun, what should it be?

Many would vote for the .22, and a strong argument can be made in that direction. The ammo is cheap. The guns are accurate. Mild report and almost non-existent recoil make them ideal for teaching youngsters and newcomers marksmanship, and for recreational target shooting. They're perfect for shooting rats raiding the granary or for hunting squirrel and rabbit size critters. However, they're generally inhumanely underpowered for use on anything deer size and larger, and if you're an Alaskan backpacker facing a grizzly bear, you'll find yourself looking at your little .22 and wondering whether to shoot the bruin or yourself. Most experts also agree that the .22 lacks potency for self defense, but it's certainly better than nothing.

The .357 Magnum is a versatile choice. Light .38 wadcutters are perfect for squirrels, varmints with a short shot from house to garden, or a practice session with the kids. .38 Special 158 grain lead +P hollowpoints are quite adequate for home defense and easily controllable in rapid fire. If you've paid your dues with lots of shooting experience, the much hotter 125 grain .357 Magnum cartridge is a legendary manstopper, and 158 to 180 grain bullets are adequate for deer, if barely so. Taking this wide range of cartridges makes the .357 extremely versatile.

Still, for my money, the "four by forty-four," a .44 Magnum revolver with four inch barrel, may be the top

choice. In a full 180 to 240 grain Magnum load, it's an excellent deer cartridge. With the heavier bullet, it'll do nicely on New England black bear. Load up some 320 grain SSK bullets or buy some factory 300 grain Pro-Load cartridges and it'll be your best insurance against big bears, and an amply suitable handgun for elk and moose.

Living and working outdoors in game country is almost like full time hunting. The trick is having the gun with you. If you work with your hands, you'll quickly get tired of a slung rifle, and won't always be able to reach a long gun that's in the truck, on the tractor, or leaning against a fence when a shot presents itself. Long barrel revolvers are fine when hunting is the dedicated task, but can get in the way of a strenuous day's work. The four inch barrel .44 revolver, carried in a high ride holster behind the hip, is out of the way and much more convenient for all day wear. It'll be there when you need it. And you can cover it up discreetly when you go into town, with your carry permit of course tucked in your wallet.

My choice is the Smith & Wesson, known as the Model 29 in blue or nickel finish and as the Model 629 in stainless. I've had both and now use the 629 almost exclusively. My particular favorite is the Mountain Gun variation. It has a tapered barrel like the old Target Model .44 Special, which is not only more graceful but noticeably lighter for all day carry. It draws fast and reholsters easy. Yes, it kicks more, but here's a tip: the Mountain model comes with the round-butt gripframe, and K-RB size Pachmayr Compac grips not only fit it

perfectly, but are shaped to cushion the recoil into the hand with amazing efficiency. The gun still wants to move a lot when you fire, but it doesn't sting the hand nearly as much when doing so.

Why the S&W? Single actions like the short Rugers are handsomer and more traditional, but slower to fire. Ruger's double action Redhawk is a fine gun, but bigger and heavier than the Smith. Because the gun may be used defensively against man or beast, the double action is the fastest style to shoot, and much faster to load or reload, especially with readily available speedloaders.

With the .44 as with the .357, the Magnum revolver will take the milder Special cartridge. .44 Special factory ammo is a pussycat to shoot in these guns; my daughters found that out when they were each ten years old. Winchester Silvertip and Federal lead hollowpoint .44 Special are very adequate defense rounds. A good middle ground for the experienced shooter is the "urban load" by Triton Cartridge, a devastating 165 grain hollowpoint at 1250 feet per second. This may be the .44 Magnum defense cartridge of choice. It practically takes a Ph.D in combat handgunning to learn to shoot the brutally recoiling full power .44 Magnum ammo with the requisite speed and accuracy for police and self defense work.

These are accurate revolvers. As a rule, they'll stay in six inches or so at a hundred yards if you do your part and have a solid rest position.

If you join me in this choice, you'll find we're both in good company. Elmer Keith, the legendary outdoorsman who convinced Smith & Wesson to introduce the .44 Magnum in 1956, carried a 4" Model 29 on his hip daily until his death. He killed much big game with it, including a controversial

buck at the incredible distance of 600 yards. Some thought it impossible, but the people who knew Keith and his extraordinary shooting skills believed him. I didn't know Keith personally, but my old friend Bill Jordan was tight with him and told me once, "Nobody who's seen Elmer shoot would stand six hundred yards away and let Elmer shoot at him with a four-inch .44!"

Personally, the farthest I've used one of mine is 120 yards, a small impala that I shot for food in the Eastern Transvaal of South Africa one day when our party was running low on provisions. Normally, I'd prefer to hold my shots to about fifty yards with an iron sight revolver of this type.

Most double action revolvers are tight enough in the trigger guard area that a gloved finger can block the trigger's return and jam the gun after the first shot. These big N-frame S&Ws are large enough in that area that I find I can shoot them rapidly and reliably with gloves on. It's an advantage for those of us in cold weather climates.

With my Mitch Rosen Ayoob Rear Guard holster, the S&W .44 rides inside my waistband and conceals easily under even a loose-fitting untucked shirt. The new Kydex holster from Blade-Tech is a favorite when I don't need concealment, and exquisitely fast to draw from. If farm chores are in order, a flapped holster will best protect the gun, and while you won't win quick draw contests with it, it'll be at hand when you require its services.

I've carried the four-inch S&W .44 Magnum from America's West Coast East, and in Europe and Africa. It's never failed me. It may be the best backwoods firearm for everyday wear, if your needs include ample power along with excellent "shootability."

(Mas Ayoob's classes in armed self defense are taught nationwide. For information contact Lethal Force Institute, PO Box 122, Concord, NH 03302, or check the LFI website at www.ayoob.com.) Δ

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Build a fish pond—just for fun

By Dorothy Einsele

The following is a short how to story about the fish pond I put in our yard. I hope it will inspire others to do the same.

I woke up one Saturday morning in April of '94 and said, "I want a fish pond in our backyard." So, after breakfast I grabbed some gloves and a shovel and ventured out to start my project.

One could say it was a labor of love or possibly an obsession but I had a dream and so I went head first into what is now a delight for our whole family, fish included.

I never had fish before, not even a boyfriend with fish so I was guided by instinct. My husband's only comment as he looked on rather skeptically was, "You might want to put it where they'll get some shade or they'll fry."

Having found the perfect spot I started digging. Mid-day I realized I needed to line my pond with something, so we went to town and bought a roll of black plastic, 16 fish, and some food. I was anxious to see the little guys swimming about, so keeping them in a bucket of water I quickly lined the hole I dug, filled it with the garden hose, put in a few rock houses, and in they went. I later lined the perimeter with rocks so it looked real nice.

Well, after that, I was pleased and thought I should find out a bit more about fish and ponds, so I asked everyone I could and found out quite a bit. Now, with over three years experience and happy fish, I'd like to share what I've learned, because anyone can have a pond with minimal effort and expense. Of course one could go all

out and buy pond pumps and expensive rubber liners—for that check out a nursery for more info.

Okay, so here's what you can do:

Buy a roll of 6 mil. black plastic at least 20 x 25 feet—or 2 rolls if you want your pond bigger than, say, 8 foot long x 2 feet deep. Remember to dig more than two feet deep to allow for the plastic. A roll of plastic is about \$20.

Go on a rock hunt. My son was real helpful with hauling good flat rocks. If rocks aren't available, you could purchase cement stepping stones sold in garden stores.



Our backyard fish pond was easy to build.

A perfect spot for your pond would be one where there are not too many deciduous trees that will dropping leaves into the pond. The fish need good sun and some shade. Also avoid tree roots, unless you're willing to cut a few if they get in the way.

The hole should be a minimum of two feet in the center so they can winter over. Make a shelf around the sides, and be creative with different depths and shapes. Remove any sharp rocks and roots.

It's now ready for the plastic. If you don't want to fuss with it for years, I

suggest you get two rolls of plastic and plan on three or four layers. One roll doubled over is enough for a 1 1/2 x 5 1/2 x 2 1/2 foot pond. Get in there and fold the plastic around the contours, leaving about 8 to 10 inches of overhang to be covered by the rocks.

I didn't want to use a pump so I have a hose hidden under rocks set up to drip water in at any time. And I purchased a siphon bulb so I can drip water in and siphon water out just like a natural pond. In hot weather you can leave that going all day long, or the fish can go days or over a week in the same water, then you can empty out half or so and refill it.

I think you'll find that being around the pond is quite enjoyable, so maintenance is a pleasure. I use a small bucket to clean off debris from the top, especially after a rainy or windy day. You'll find that they love it when you pour water from the bucket, making bubbles (oxygenating). Feeding is also part of the fun. They seem to prefer the pellets that float.

Naturally, in no time you will have created an ecosystem which will support all sorts of living things like the water striders. Birds and squirrels will also enjoy your pond.

You will probably want to buy some greens; one or two bunches is plenty. They grow freely once established. Twenty or so fish are plenty. You may lose a few at first. It seems better to start with extra fish rather than introduce new ones later. Have fun watching them grow.

Our fish pond is a wonderful addition to our home. It can be a family project or your own personal undertaking. It can be a place you go to relax and meditate, or just part of the landscape enhancing your yard.

I do hope anyone who wants a pond just gets out there and does it. It's easier than you might have thought. Δ

THE IRREVERENT JOKE PAGE

(Believing it is important for people to be able to laugh at themselves, this is a new feature in *Backwoods Home Magazine*. We invite readers to submit any jokes you'd like to share to *BHM*, P.O. Box 40, Montague, CA 96064. There is no payment for jokes used.)

A cat dies and goes to heaven. God meets him at the gate and says, "You've been a good cat all these years. Anything you desire, all you have to do is ask." The cat says, "Well, I lived all my life with a poor family on a farm and had to sleep on hardwood floors." God says, "Say no more." And instantly, a fluffy pillow appears.

A few days later, 6 mice are killed in a tragic accident and they go to Heaven. God meets them at the gate with the same offer He made the cat. The mice said, "All our life we've had to run. We've been chased by cats, dogs, and even women with brooms. If we could only have a pair of roller skates, we wouldn't have to run any more." God says, "Say no more." And instantly, each mouse is fitted with a beautiful pair of tiny roller skates.

About a week later, God decides to check and see how the cat is doing. The cat is sound asleep on his new pillow. God gently nudges him awake and asks, "How are you doing? Are you happy here?" The cat yawns and stretches and says, "Oh, I've never been happier in my life. And those meals on wheels you've been sending over are the best."

The average woman would rather have beauty than brains, because the average man can see better than he can think.

Patty and Mike were walking along the street and came across a building with a sign that said Taco Bell. Patty turned to Mike and said, "I didn't know the Mexicans had their own phone company."

Three blondes got in the car and drove to Disneyland. When they exited the freeway, they saw a sign, "Disneyland Left." So they turned around and went home.

I LIKE CATS!
(THEY TASTE LIKE CHICKEN!)

Letter to the Secretary of Agriculture, Washington, D.C.
(Submitted by a potential pig farmer)

Dear Sir:

My friend Ed Peterson, over at Wells, Iowa, received a check for \$1,000 from the government for not raising hogs. Therefore I want to go into the "Not Raising Hogs" business next year.

What I want to know is, in your opinion, what is the best kind of farm not to raise hogs on, and what is the best breed of hogs not to raise? I want to be sure I approach this project while keeping in line with all government policies. I would prefer not to raise Yorkshires, but if that isn't a good breed not to raise, then I will just as gladly not raise Durocs or Razorbacks.

As I see it, the hardest part of this program will be in keeping an accurate inventory of how many hogs I haven't raised.

My friend Peterson is very excited about the future of the business. He has been raising hogs for 20 years or so and the best he ever made on them was \$628 in 1982, until this year when he got your check for \$1000 for not raising hogs.

If I get \$1,000 for not raising 50 hogs, will I get \$2,000 for not raising 100 hogs? I plan to operate on a small scale at first, holding myself down to about 4,000 hogs not raised, which should mean about \$80,000 the first year. Then I can afford one of those new Dodge Ram 4 wheel drive pickups.

Now another thing. These hogs I will not raise will not eat 100,000 bushels of corn. I understand you also pay farmers for not raising corn and wheat. Will I qualify for payments for not raising the corn that won't be needed to feed the 4,000 hogs I am not going to raise?

Also, I am considering the "Not Milking Cows" business too, so please send any information you have on that program.

In view of these circumstances, you understand I will be totally unemployed and will need to file for unemployment and food stamps. Please let me know when you plan to distribute free cheese and flour in this area.

Be assured that you and Bill Clinton will get my vote in the coming election.

Patriotically yours,
Joe Schmoie

While waiting two hours at the Honolulu Airport for their next flight to San Francisco two friends decided to go have a drink. It was early in the morning and none of the bars were open so they ended up down a hallway and in a room filled with 50-gallon barrels of jet fuel. John said to his friend Gary, "A friend of mine drank this stuff once and it got him super high." Gary said, "Hey, let's try some." They both drank their fill and laughed all the way to San Francisco on the plane.

Later that afternoon John called Gary to ask him if he was feeling O.K. Gary said, "Yeah, just great. I've never felt so good after not sleeping all night—and I'm still laughing." John said, "Well, I just called to warn you—whatever you do, don't pass gas—I did and ended up in Miami."

Wild raspberries—summertime's finest treat

By Linda Gabris

One for me, Grandpa would laugh as he smacked his lips loudly, savoring one tangy, juicy raspberry after another. His eyes twinkled as he danced about, making sure that he was safely out of Grandmother's sight. "And," he'd continue, his knobby fingers expertly working amongst the prickly thorns, "one for my pail..." He'd gently place a berry in the large, shiny tin can that dangled from his waist, looped to his belt by its shoestring handle. This left both hands free for picking and eating. Grandmother and I would be rigged up in similar fashion, pails hanging from cloth belts strung around our middles. Only we would actually be busying ourselves trying to fill our pails, whereas Grandpa never collected near as many raspberries as he ate!

Ever-so-often on our berry-picking-outings, Grandmother would catch Grandpa pickin' and eatin' and she'd give him a scolding. "No raspberry dumplings for you tonight..." she'd threaten, but Grandpa just couldn't help himself. The berries were too irresistible. Even Grandmother and I would stoop to temptation and sample a few berries while hidden neath the fragrant greenery of the woody canes. At the end of the day, berry stained lips and tongues easily tattled on us all.

"Two for me..." He would yum secretly. "One for my pail. Three for me...One for my pail..."

Regardless of Grandpa's hand to mouth habit, an afternoon of raspberry picking out back of the old sheds, out-buildings and open wooded areas around our farm would yield a plentiful mess of fragrant, delicious berries. Picking often throughout their growing season—from early July to late August, we'd collect enough berries for grandmother to make into all our favorite dishes. Besides plenty of berries

to use in fresh raspberry pies, tarts and squares, we also collected enough to do up into treats to last over the winter months, too.

Raspberry preserves, syrup and jam brought colorful summer flavor to our table all year round. I still look forward to picking wild raspberries today with as much relish as I did years ago when I was a girl. And I must admit, raspberries are still my favorite summer treat. Not only wonderful tasting—but the very thing that good memories are made of.

On a hot summer day, nothing quenches the thirst better than an icy tall glass of raspberry frizzle. This homemade 'pop' comes from a very old recipe handed down to Grandmother from her mother. It's not only an exceptionally pretty drink and great tasting as well, the really nice thing is that you can easily control the sweetness in your drink by adjusting the amount of syrup per glass.

To make raspberry syrup, sprinkle fresh picked, washed raspberries generously with white sugar and let stand overnight at room temperature. The sugar will draw the flavor out of the berries. In the morning, take a hand masher and crush the berries until all the pulp is off the seeds. Run the berries through a sieve or cheesecloth. Discard the seeds. Birds like them so you might mix them in with your bird

feeder seeds. Measure the juice. To each cup of juice, add two cups of sugar. Stir well. Heat to boiling and simmer about five minutes. Bottle in sterilized jars. Grandmother stored hers in the root cellar. I refrigerate mine.

Raspberry frizzle

To make raspberry frizzle, pour water over ice in a tall glass. Stir in a spoon or two of raspberry syrup—the drink should be pleasantly rosy in color. Add a dab (half a teaspoon of white vinegar) to the drink. If you'd rather, you



Wild raspberries

can use a squeeze of lemon instead of vinegar. Stir and serve.

Raspberry syrup is also delicious stirred into a glass of cold milk, poured on top of pudding, cake or ice-cream, or mixed with soda. For toasting special occasions, I use Grandmother's traditional old recipe for making a light, refreshing cocktail. Pour white wine into small stemmed glasses and flavor with raspberry syrup. This is a lovely drink to accompany a trush of grapes and a plate of mild cheese at afternoon get togethers.

Nothing tastes better on fresh bread or biscuits than homemade raspberry jam. This old recipe of Grandmother's follows her simple 'rule of thumb' for jam making—"Equal parts fruit to equal parts sugar with a squeeze of lemon to 'pucker' and your jam will never fail...." Even the novice jam maker can have success with this recipe.

Easy raspberry jam

6 cups fresh wild raspberries (the store-bought kind will do, but honestly, they don't measure up to the little wild treasures)
6 cups white sugar
juice of 2 lemons

Combine berries and sugar in a big, heavy bottomed kettle. Place over heat and stir constantly, bringing to a boil. Boil for 30 minutes, stirring and watching so it doesn't scorch. Add lemon juice. Boil to jellying stage—when a drop of jam sets on a cold plate. Pour into hot, sterilized jars. Seal with paraffin wax. Store in cellar or fridge. Makes about 8 or 9 jelly jars. Recipe can easily be halved or doubled.

Aunt Aleta's blue ribbon dumplings

Simmer for about 5 minutes:

2 cups raspberries
1/2 cup water
1 cup honey

Mix 3 teaspoons of cornstarch with 1/4 cup of water. Add to berries and thicken over low heat. Set aside and make dumplings.

Dumplings:

1 1/2 cups of flour
1 Tbsp baking powder
pinch salt
3/4 cup milk
pinch of nutmeg

Mix flour, baking powder and salt. Stir in milk and nutmeg. Drop by spoonful into a kettle of simmering water. Cover and cook for 10 minutes. Spoon out of water, drain and place into dessert dishes. Smother with the prepared raspberries and crown with fresh cream, if you like. These are equally good served warm or cold.

Grandmother's raspberry-buttermilk pot

This recipe I share from memory as Grandmother never had it written down. You just take some fresh buttermilk and gently heat it to boiling. Add honey to taste. Next, mix in some crushed raspberries, seeds and all. Stir. Eat hot with the help of a spoon. This is a very different treat—I find it pleasantly reminiscent of yogurt. You might call it a hot fruit soup.

Wild raspberry tea

All summer long, I enjoy a wonderful tea steeped up from fresh raspberry leaves. To make raspberry tea from fresh leaves, just pick a handful of leaves, wash under cold running water and put into a teapot. Pour boiling water over leaves and allow to steep until desired strength is reached. If you like strong brew, use more leaves. If you prefer weaker tea, use less.

Sweeten this delicate tea with honey if you wish. To savor raspberry tea all year long, collect as many leaves as you can, wash, pat dry and spread on screens or paper and allow to dry in the attic or warm place until crispy. Crush with hands and store in tea tins. Use as you would any loose tea. Raspberry tea is said to be a good relaxant. I find it's a nice tea to drink before bedtime as it is so mild and pleasing.

Wild raspberries are summertime's most wonderful offering. Don't let a season go by without sampling their sunny goodness. Δ

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Build your own portable forge

By Corceigh Green
(photos by Gene Lewis)

Looking for a handy summer project while building skills, supplies, and knowledge to put away for a rainy future? Here's one to consider: try making your own forge. The ability to forge scrap metal into useful tools is a skill that can bring self reliance and even extra income to any handy person willing to turn a hobby into a part time trade. Whether you're just pounding out a simple project like a poker or hammering out custom knives, you'll be building the tools and skills you'll need to become more self reliant in the future.

Building a small, portable hobby forge is not that difficult. This article will show you how to build one from a charcoal grill. Later, when you delve more deeply into blacksmithing, you can build yourself a full blown smithy.

Let's start with what you'll need. For my first forge, which I built six years ago, I started with an old portable 24-inch charcoal grill. Next, I bought myself some iron pipes and fixtures: one 18-inch pipe, two 6-inch pipes, one 8-inch pipe, two pipe caps, one elbow connector, and one T con-

necter. All pipes and fixtures were 1-inch diameter, and all pipes were threaded on both ends.

Black or galvanized pipe?

Buy black pipe. If you buy galvanized pipe, you will have to let it "burn off" for a few hours before you can use it. "Burning off" is the process where, after you've completed your forge, you load it with charcoal (not storebought charcoal) and burn while forcing air through the pipes. During this process, approach the forge only to load coals, and come in with the wind. The zinc in the galvanized pipes is burning off at this time and will pose a hazard, as it is toxic.

Next, you'll need 12 fire bricks.

Here's how to build your portable forge: Screw one end cap on one end of each of the 6-inch pipes. Next, using a drill press or hand drill with a one quarter inch drill bit, drill holes (not on the threads) on one side of a pipe. Start at the open end, drill a hole, then measure one half inch toward the opposite end and drill another hole. Repeat this process until you have a line of holes running between the

threads, from one end of the pipe to the other end. Next, using the same drill bit, offset the pipe to the right one half inch, and drill between the existing holes, again from one end of the pipe to the other. Repeat this process one half inch to the left of the first holes drilled and you have finished the first pipe. Do the same thing with the other pipe. Check with Figure A for a visualization of the hole pattern. You do not have to drill all the way around the pipe, as you want the air to flow



The portable forge, made from an old charcoal grill, fire brick, and iron pipe.



Placement of the bottom bricks and tuyere

upward only, through the coals in the forge.

Now take the T connector and, using the same drill bit, drill three holes (see Figure B) parallel with the threading one half inch apart and 3 quarters of an inch inward away from the threading. Complete this process on both sides of the T connector's parallel connectors. Next, screw the 6-inch pipes into the T connector so that all the holes face the same way, as in Figure B. Now connect the 8-inch pipe into the stem of the T connector. That's it; you've just built a tuyere, the part of the forge that channels air up through the coals.

For the body of the forge, assemble the 24-inch diameter charcoal grill. You only need to connect the charcoal burner to the tripod. You don't need



Assembled forge with shop-vac

the grill, and you can remove the center grill holder with a hack saw. Next, drill out the bottom center of the burner so that the one inch diameter pipe will fit through the hole. You can use a reamer and a hand drill for this job. When looking from the ground up, your hole must be directly in the center of the burner.

Next, before laying the bricks out in the burner, I like to spread ashes in the burner so that I have a flat surface in which to lay out the bricks. In place of ashes, sand will work fine.

Next, lay fire bricks, face side down, in accordance with Figure C. With your six remaining fire bricks you will make a rectangular box by laying the remaining bricks edge down on top of the face down bricks (see the photos). You've just completed the body of the forge.

Since you now have the tuyere and the body of the forge, you can simply put everything together by placing the tuyere's 8-inch pipe down between the bricks through the bottom hole of the forge. Then screw the elbow connector to the tuyere's open end, then to the 18-inch pipe. You now have the means to force air through your forge.

As a blower to actually force air through the pipes, you can use a squirrel cage blower or bellows. For simplicity I use an old shop-vac with one end of its hose on the exhaust outport and the other end put over the open end of the 18-inch pipe. Make sure that the shop-vac's hose is attached to the exhaust port. You want to force air up through the pipes, and through the coals. You do not want to suck smoke and hot coals down into the shop-vac.

I would like to point out here that I have not recommended that you lay the bricks permanently with mortar, or in this case refractory clay. This way you can remove the bricks and pipes for mobility.

Once you've connected the shop-vac or blower, you have completed the project, and you now own a forge, one of the central pieces of equipment that you'll need for blacksmithing projects.

Other pieces of equipment you'll need are: an anvil, (which can be made from a length of railroad track or I-beam), a cross pein hammer, 2 or 3-pound sledge, a pair of tongs, a metal ash can to catch coals and hot embers as they fall through the bottom hole of the forge. Sooner or later, you'll also want two metal cans that

can accommodate hot metal of at least three feet in length—one for water to cool iron and mild steel, and for emergencies, and the other for oil to quench and harden high carbon steel.

Making charcoal

Earlier in the article, I stated not to use store-bought charcoal (the kind most people cook out with). This is because store-bought charcoal contains impurities which can contaminate the steel or iron being worked, and can cause your project to become brittle. Fortunately, you can make your own contaminate-free charcoal.

Start by gathering some hardwood such as maple, oak, hickory. In many cases willow is preferred. I have had good results with all hardwoods. Saw the wood to adequate length (between the span and half the span of a hand). Chop to different thicknesses, but no thicker than is long. Next, you can either dig a fire pit or do as I do, which is use an old gas-burning grill with a lid with the gas components removed and the bottom lined with fire bricks. When I am sure the fire is burning adequately, I load the grill (or pit) with an abundance of hardwood and close the lid. In the case of the fire pit, cover with dirt, leaving one or more small openings to act as chimneys. Allow to burn for some time, 15 minutes to half an hour depending on the size of your pit/grill. Check periodically. When the wood becomes blackened through most of its depth, but not fully consumed, you have charcoal fuel. Depending on your pro-

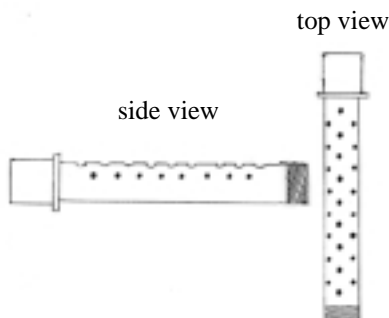


Figure A



Figure B

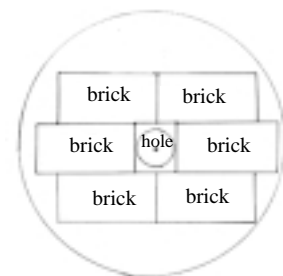


Figure C

ject, you may need between one and three wheelbarrow loads of charcoal fuel. If the hardwood is burning into ash, or becoming too fully consumed by the fire, you are allowing too much oxygen into the fire. If this happens, block off places that air is getting in with more dirt, or bricks. When you are satisfied that you are getting quality charcoal, remove your charcoal from the fire using tongs, and bury it

in sand or dirt, or immerse it in water or, in the case of the fire pit, bury fully, blocking all air intake, and allow the fire to smother.

Now that you have your forge, fuel, and other essential equipment, you'll be ready for your first project. Unless you have a well ventilated smithy, you'll have to wait until dark. The reason for dark is that you must be able to see the color of the steel or iron

being worked. You must bring the iron or steel you are working up to a red color before you can shape it with the hammer. In broad daylight this process is too difficult to discern, but much easier in dim light.

In a future article, we'll go over the process of shaping scrap metal into useful tools. Δ

Extend the vase life of flowers

By Tom R. Kovach

There are a number of simple ways in which to get longer enjoyment out of fresh-cut flowers. The first thing you should do after bringing in your flowers is to recut the stems about one inch from the bottom, making an angled cut with a clean, sharp knife. Then remove all the lower foliage from the stem. This will prevent bacteria from building up in the water.

Fill your vase with warm water as this contains fewer air bubbles than cold water does. If you allow air bubbles to get in the vase, they can get trapped in the stems and block the uptake of water to the upper foliage and the flower. Warm water also works best to thoroughly dissolve floral preservatives.

Add a floral preservative to the water. Preservatives contain substances that prevent bacteria from forming in the vase water and provide an energy source to assure long-lasting full blooms.

Homemade preservatives work about as well as commercial ones. Use a half gallon container and put in one-fourth gallon of water, one-fourth gallon of lemonade, and one teaspoon bleach. Make enough of the preservative to cover at least the lower three to four inches of the stems where the foliage has been removed. Because the flower can no longer produce its own carbohydrate food sources, the sugar acts as an alternative energy source. The lemon or lime in the soda provides citric acid, which acts as a preservative, and the bleach prevents bacteria from forming in the water. This mixture will also help the flowers bloom if buds are not fully opened.

Place your flower vases with the new cut flowers in a cool, well-lit place. Don't put them in direct sunlight or near

heaters or air-conditioners because drafts will dehydrate your flowers.

Make sure you keep the flowers away from ripening fruits or vegetables. The ethylene gas they release speeds the decline of fresh cut flowers.

If a preservative has not been used, change the water every two days and recut the stems. With a preservative, recut the stems and change the water every four or five days.

Flower arrangements in florist foam bricks should be watered every day so the foam doesn't dry out.

There are certain kinds of fresh cut flowers that require special care. Some of these flowers include roses, tropical flowers like orchids, heliconias, strelitizias, and anthuriums.

Roses are very susceptible to air bubbles lodging in their stems. The bent necks that result from this can be prevented by cutting the stems under warm water. Make an angled cut with a clean, sharp knife. Don't crush the end of the stems because this can greatly decrease the flower's vase life. Thorns may be removed as long as the stems are not injured.

Orchids and other tropical fresh flowers do best if they are frequently misted with water. Tropical flowers like higher humidity levels so they should be kept away from air-conditioning and heating units to limit moisture loss.

If orchids or other flowers in a corsage appear to be limp when you put them in a vase, recut the stems and place the entire flower under warm water for one hour. If corsages are not immediately used, put them in a container of water in the refrigerator.

Refrigeration helps preserve freshness only if moisture is also available. Tropical flowers are especially sensitive to the deteriorating effects of ethylene gas. Δ

Dixie butterpeas — not just for the South

By Alice Brantley Yeager

Don't let the name "Dixie" fool you. Dixie butterpeas are not strictly for the Deep South but will thrive almost anywhere lima beans grow. Speckled Dixie butterpeas are a fun job to shell as the opening of each pod reveals a different color arrangement. Depending on the stage of maturity, the butterpeas range from light green to speckled pink to deep red. When cooked, they lose quite a bit of their color but their flavor remains superb.

If you have never tasted these little nuggets of buttery goodness, you have a special treat in store when you plant speckled butterpeas. (The speckled type is different to the white butterpea, as the latter is only one color as the name implies.) Speckled butterpeas have a distinct rich lime flavor all

their own and like okra, thrive in hot weather if given an occasional soaking when summer rains taper off. From their first crop in early summer until the cool days of autumn, plants continue to put on pods if kept picked and tended.

Butterpeas are easy to grow, but one should wait to sow seeds until spring weather has stabilized and soil has warmed somewhat. The eager beaver who plants Dixie butterpeas in the cold soil of early spring is in for a rude awakening, as seeds will either rot or seedlings will be stunted. Late frosts play havoc with most bean plants, so the gardener who wants a bumper crop should be familiar with local spring frost dates. Even so, weather related surprises can occur.

Butterpeas require plenty of sunshine and a moderately rich soil with a goodly amount of humus. Soil should be loose, a bit on the acid side (pH 5.5-6.5) and have adequate moisture retaining qualities—not soggy, mind you, but not sieve-like either.

Ground must be well prepared (no clods) so that seedlings won't have difficulty breaking through the dirt. If soil is on the heavy side with a tendency to pack after hard rains or form a crust when it begins to dry out, seeds should be planted only about a half inch deep. Also, it may pay to gently loosen the top of the soil if you suspect the seedlings are having trouble pushing through. In loamy soils where this is seldom a problem, 1-1.5 inches deep is recommended for planting. To avoid a lot of thinning of seedlings, I like to space seeds 4-5 inches apart. Mature plants are bushy and will easily fill in the spaces. As a general rule,

butterpeas have a high percentage of germination, but I save a few seeds in case there are any gaps that need to be filled in after seedlings appear.

Like many other vegetables, butterpeas do best if planted in rows for easy access to cultivation and picking. Rows should be a minimum of two feet apart and plants must be kept grass and weed free. Refrain from walking among the rows while plants are wet from dew or showers, as that is one of the ways in which disease organisms are spread among plants. Wet weather fosters anthracnose, bacterial blight, and mildew as well as some others. In our southwestern corner of Arkansas, I have found Dixie butterpeas easy to raise just by following a common sense approach.

If weeds and grass are kept out of the rows until young plants are beginning to spread out and put on blossoms, you will find that the plants will shade the soil sufficiently to keep most unwanted plants from growing. A good practice is to put down at least an inch thick mulch of pine needles and leaves or other organic material when plants are about six inches high. This not only conserves moisture, but it keeps pods from touching the ground and becoming coated with dirt when rains occur.

Whichever method one chooses—mulch or bare ground—it is well to leave off cultivation after the plants come into bloom, as butterpeas, like most limas, have a shallow root system and will drop their immature pods if disturbed after pods are set. The neatly hoed row may look good, but cultivation may also cut down considerably on the harvest.

Every garden has its assortment of pests and ours is no exception. However I have found that lightly sprinkling ten per cent Sevin Dust



Typical summer scene in our garden. Plants are yielding a good day's picking with lots of blossoms promising more butterpeas to come.



Shelled and ready-to-cook speckled butterpeas. Cooking a few of the immature pods in with the shelled butterpeas will enhance flavor.

along the ground next to the plants will deter sneak attacks by sowbugs, cutworms and other undesirables. There is nothing that raises the ire of this gardener as much as finding young plants done in overnight by pests.

In northern gardens where spring comes much later than in the southern United States, some gardeners use a little trick to trap warmth from the sun and get their lima bean varieties into production early. A ridge of earth piled about four to five inches high and running east and west is prepared the length of row(s) desired and seeds are planted on the south side of the ridge. The sun heats the south side, seeds germinate sooner and the young plants are protected from the cold winds of the north and west that would otherwise keep the ground chilled for a longer period of time, (Who is craftier and more inventive than an avid gardener!)

Some folks like to bring seeds into fast germination by soaking them overnight, but I believe soaking has some serious drawbacks to it. It is easy to oversoak, particularly if one loses track of time. Too much soaking of any of the lima seeds will cause them to sprout making handling a

tedious process as the emerging sprout (root) is easily broken off. Also, if there is an unexpected change for the worse in the weather, here are all of these sprouting seeds to be dealt with. I believe it's more practical to plant seeds directly in the ground at the proper time and let nature take its course.

Butterpeas require 75 - 80 days from planting to first harvest and the prime time for picking them is when the pods have filled out to a plump size and the butterpeas come loose easily when the pod is opened. If the pod does not open readily when pressed firmly along the edges, it should remain on the plant a few days longer. Also, the mature pod will change from a medium green color to a yellow-green or light yellow. If you're undecided about which pods to pick, try opening a few and you'll soon get the hang of it.

Summertime meals are often quite simple when fresh vegetables are available from the garden. One of our favorite meals is planned around fresh butterpeas with hot corncakes (see recipes). Add a plate of sliced tomatoes and your favorite summertime beverage and you will not only have a nutritious meal but one that's

easy and quick to prepare. Persons with a tendency toward anemia will especially benefit from eating butterpeas, as they are high in iron, protein, potassium and B-vitamins.

To give soil a boost, dig the plants under to decay after the last of the crop has been gathered. These plants will return nutrients to the soil as they came from a family of plants noted for being soil builders.

An abundance of butterpeas is like an oversupply of anything else, as we can't eat it all when it's harvested. Like the industrious ant, we like to tuck favorite things away for winter especially if it's simple to do. Butterpeas are very easy to freeze. Just take freshly shelled and washed butterpeas, put them in a French-fry container (one with holes that won't allow butterpeas to escape) and submerge them in a pot of boiling water for 2 1/2 minutes. Drain and move the container to a pan of ice-cold water and chill for about three to four minutes. Drain well, put in freezer bags, cover with the chilling water and store in freezer. Be sure that bags have tight seals to prevent leakage. We stack our bags on their sides with cardboard between layers until contents are frozen. Then we remove the cardboard to use again.

When winter conditions make life on the outside miserable, mighty comforting to have some of last summer's bounty to savor. Let the winter winds howl! Inside, it's summer.

Some Seed Sources:

Geo. W. Park Seed Co
1 Parkton Ave.
Greenwood, SC 29647-0001

R. H. Shurnway's
P.O. Box 1
Graniteville, SC 29829

Vermont Bean Seed Co.
Garden Lane
Fair Haven, VT 05743

Butterpeas

3 - 4 strips of cured, sliced bacon
1 quart shelled and washed
butterpeas
1 medium onion, coarsely chopped
1 medium bell pepper, coarsely
chopped
1/2 teaspoon salt (optional)
1/8 teaspoon black OR cayenne
pepper

Fry bacon until done but not crisp. Save drippings and cut bacon into small pieces. Put butterpeas in a saucepan with enough water to cover them well. Add rest of ingredients plus about 3 tablespoons of the bacon drippings. Cover saucepan, bring

contents to a boil and then simmer about 20 minutes or until butterpeas are tender. Serves 3 to 4 persons depending on other side dishes.

Butterpea corncakes

1/2 cup yellow cornmeal
1/4 cup unbleached flour
1/4 cup whole wheat flour
2 teaspoons baking powder
1/8 teaspoon garlic powder
(optional)
1/2 teaspoon salt (optional)
1 egg, lightly beaten
1 tablespoon cooking oil
1/2 cup milk

Sift dry ingredients together in mixing bowl. Stir in egg, cooking oil and milk. Mixture should be of a consistency to drop by table-spoonfuls into skillet for cooking. (If you think mixture is too thick put in a bit more milk, but be careful not to thin it too much). Use a nonstick skillet or heavy iron one with about 1/8 inch good quality cooking oil in it. (Add more oil when needed.) Heat until oil slightly bubbles and drop cornmeal mixture in by spoonfuls leaving enough space between corncakes to be able to turn them over easily, as they will spread out some as they begin to cook. About two minutes on each side should be sufficient to cook corncakes, depending on their thickness. Serves 3 or 4 persons. Δ

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Elephant garlic as a cash crop

By Charles O'Sullivan

When a person decides to grow a cash crop, a number of considerations must be a part of the decision.

A product which is inherently pest free not only lends itself to being grown organically but also eliminates the need to buy pesticides. People are naturally attracted to products grown without chemicals. Elephant garlic attracts no pests at all. I have never had a problem with pests eating the bulb in the ground or the vegetation. As a matter of fact, gardeners often plant garlic around the perimeter of their gardens to discourage pests.

High recognition in the market place is a real plus. In other words, it makes little sense to put all the effort into growing a product only to be forced to educate your buyers to the value of your product. The object is to turn the product into money not mini seminars. Elephant garlic is a part of the family of plants which is the third most purchased seasoning in America. Salt is first, pepper is second and garlic is third. According to the United Nations Food and Agricultural Organization, some five billion pounds are consumed annually around the world.

Competition is a very important consideration. It doesn't make a lot of sense to use your limited space and time to grow a crop which others are also growing in mass quantity. Corn, for example, sells for about 10 cents per ear. If you grow 10,000 stalks and end up with 9,000 ears for sale, at 10

cents a piece, you will earn \$900. It sure is hard to get excited about \$900. But to the farmer who produces several hundred thousand, the numbers work. Don't compete with large growers! Elephant garlic solves this problem. In this article you will learn how to turn 1/4 acre into a cash flow of as much as \$35,000 per year and I'm not kidding!

In America, commercially grown garlic is by far the leader in pounds produced and its production has quadrupled in the last 25 years.



After eight weeks these garlic plants are well on their way.

California leads all states producing some 90% of all American grown garlic. Garlic production is concentrated in the area of Gilroy, California which is about 70 miles southeast of San Francisco. According to the California Agricultural Statistician, in 1995, 31,000 acres produced 5,115,000 pounds with a value of \$179,834,000. Pretty impressive figures but do you want to compete with companies that plant 31,000 acres? I don't.

Commercial garlic, "Silverskin French" and "Serpentine," is different from elephant garlic in a number of ways. One is that it produces multiple bulbs—perfect for the commercial

grower who is after large numbers and tons of product. The plant produces fertile seeds which enables the grower to sell every last plant. It lends itself to the use of large machinery both for planting and harvesting thereby keeping the cost of labor to a minimum.

Elephant garlic does not produce multiple bulbs. One clove will produce one bulb. Each bulb will consist of four to six cloves, each of which can be replanted. Elephant garlic does not produce fertile seeds. It does produce a center stalk with a rather pretty flower and cluster of seeds but none of the seeds is of any value because they're sterile.

Elephant garlic is almost always planted and harvested by hand. Some growers of elephant garlic harvest with potato pickers but for the most part each plant is removed from the ground one at a time. These factors are not attractive to the large commercial growers in California so they don't grow elephant garlic.

Underproduction is another consideration. There is a reason why elephant garlic retails for \$6.00 per pound while the small, commercially grown, hard-to-peel garlic cloves sell for half that price. Quite simply, there is not enough elephant garlic to go around. It is under produced. When demand exceeds supply, the price goes up. Why is it under produced? To put it in a nutshell, it takes several years for an individual to produce enough seed stock to enable him/her to sell any. (I'll explain that a little later.) We live in an era of instant gratification and most people are not

willing to dedicate their time to a project which, although very fruitful, has a reward which is several years away. We want it **now!**

Elephant garlic can be grown in any climate where a person presently has an outside garden. The person who sold my original seed stock to me lives in Illinois where winters can be rather nasty. He grew elephant garlic quite successfully for many years. I am located in central Florida where it rarely drops below freezing and am having incredible success with the plant. So, I think it is safe to say that if you live anywhere between Illinois and Florida, your climate will work.

Elephant garlic is much smoother tasting than either commercially grown or specialty garlic and, therefore, lends itself to being consumed as a food warmed slightly or as a spice. The cloves are quite large and some can weigh as much as four ounces. I offer these for sale as “Giants.” Most cloves weigh between 1 and 2 1/2 ounces. This size should be your primary seed stock. Other cloves are somewhat small. I sell them at a discounted price through local health food stores in half-pint clamshell containers. Health food stores love ‘em. I have received quite a few sales for large clove seed stock from customers who bought my small cloves locally and wanted to grow their own.



Small cloves can be sold to health food stores in this clamshell container which holds six ounces. The cost of creating the label—artwork and set up—is about \$400. The labels and containers cost about three cents each, and I wholesale them for \$1.60.



Elephant garlic cloves come in several sizes, (left to right.) A perfect bulb weighs about 8 ounces (center top.) A “giant” clove can weigh 4 ounces, (center bottom.) Grade “A” cloves weigh 1 1/4 oz. and are prime seed stock. Grade “B” cloves are also terrific growers. Grade “C” cloves are sold through retail stores in clamshell containers. (Far right) Hard shell “corms” grow on the outside of the large bulbs and can become a large bulb after 2 growing seasons.

How to get started. Let me preface the following explanation with a couple of thoughts. This is not a phony multi-level marketing scam, nor is it a get rich quick deal that doesn’t work. This is honest, hard work for the honest, hard worker producing a real product with real value. Depending on the amount of money you have to purchase seed stock, this project will take you from three to five years before you can sell anything. So, if you are not the type of person who can dedicate him/herself to a long term project, don’t even start.

I am in my fourth year growing elephant garlic and expect to clear \$35,000 selling product this year. Last year, I cleared about \$8,500 and bought enough new seed stock to completely fill my area measuring 110’ by 137’. I have 27 three foot rows each of which has about 4,000 plants growing. I started out with less than \$200 invested.

Let’s say a person started with 100 cloves. Each clove will grow for 8 to 10 months (depending on the length of your winter.) It will then split into four to six cloves each of which is a genetic duplication of the mother and can be replanted. The 100 cloves will have become 500. Don’t sell any. Replant for a second season and the

500 cloves will become 500 bulbs each of which will have four to six cloves. You now own 2,500 cloves. Don’t sell any. Repeat the process for a third year and you will possess 2,500 bulbs (12,500 cloves) and now you can start to sell. As long as you retain your seed stock of 2,500 cloves, you can sell 10,000 cloves and never go out of business. I sell my large cloves for 50 to 60 cents each. With this as a guideline, your 10,000 cloves are worth about \$5,500. If you want to become a larger grower, put off selling for one more year and you will have in excess of \$25,000 worth of elephant garlic available for sale. But it will take you four years. If you have more money to invest in seed stock, you can cut the number of years down. By starting with 500 cloves, you will save one year.

Interested? I have a 100-page manual available which explains everything. I also have seed stock available which you can use to start this fall. Plant in September and harvest in May. I also have eight pages of related information which I will be pleased to send to you at no charge. A SASE with one 32 cent stamp affixed would be appreciated. Send it to Charles O’Sullivan, PO Box 1525, Polk City, FL 33868. Δ

Here's how one man made the transition from city to country

By Gene Sheley

Dave and Colleen Reber have made a successful transition from city life to backwoods living, but it required several years and took a measure of determination, a healthy dose of self-confidence, and some pure luck.

Their hidden rustic home along the Oregon border is a long way from the confines of California's Fresno and Santa Cruz Counties, and his career choices from electric utility foreman to fishing guide to 21st century satellite television technician are equally distant from one another.

Reber operates Dave's Satellite Television Service out of his home, and his years of work are evident by the number of large dishes that bring a big variety of clear television programming to homes that otherwise would depend on archaic antennas delivering bleary pictures.

A native of Nebraska, Reber learned the basics of electrical utility work at the end of his stint with the U.S. Marine Corps in Vietnam.

He worked for Pacific Gas & Electric, one of California's major electric utility franchises and "was making good money as a foreman with a good future and good retirement."

However, the job created an unstable home life with frequent transfers to places he didn't necessarily want to go.

"I was getting tired of being shifted around. I would be cutting the lawn at 4:30 in the afternoon and the company would tell me I was being transferred the next day," said Reber.

His chance to escape from the city and the arbitrary policies of the power firm came in 1979 when he and his parents purchased a grocery and gen-

eral store in the forested area shared by Oregon and California, backwoods location mostly administered by the U.S. Forest Service.

His initial function was as the store-connected fishing guide in an area that once was a major center for steelhead and salmon along with trout.

"I didn't know anything about being a fishing guide, but I can do anything I want to do when I set my mind to it," said Reber.

The Rebers lived in an 11-foot camper located behind the store. They shared the accommodations with two

maintaining our input and takeout accesses. We fish guides were doing most of the maintenance and I wasn't about to share with the forest service. So I stopped the fish guide business."

The couple shared the duties of operating the store complex, which initially included the federally-operated post office that serves the area.

Colleen qualified as a postal clerk and a year later became postmaster.

Now with an assured family income, Reber decided he wanted to do something else. "I was just bored with the store," he said, and eventually sold the business.

While operating the store, the Rebers bought their secluded rustic home that is found only with explicit



It was a long way around for Dave Reber to reach a goal of having a good business in an area where he preferred to live. Now he operates a high-tech satellite television business from his secluded home along the California-Oregon border.

kids and two dogs but later, after some alterations to a second story area over the store, they moved into that space.

The responsibilities for the entire business became his with the unexpected death of his mother.

After three years as a fish guide, a clash with the U.S. Forest Service ended that enterprise.

"The forest service wanted to be my business partner by charging three percent of the gross for using 'their' river. The river belongs to everyone but the fee was supposed to go for

directions and with the help of individuals familiar with the area.

Although the family had an assured income from Colleen's federal job, Dave Reber isn't one to sit around. He soon found employment with Dale Stolte, a nearby resident of the remote wooded area who had been in on the ground floor when satellite television receiving dishes initially became operationally practical.

Stolte operated under the name of D&D Television Satellite Service.

Dave wasn't part of the D&D name, but spent so much time with the busi-



A knack for electronics and a lot of self-confidence led Dave Reber to eventually purchase a former employer's big dish television satellite business. Now Reber is ready for the coming digital transmission to help usher the remote forest residents into the 21st century.

ness that most assumed the name came from Dale and Dave.

"I just tagged along at first," said Reber, "but by the end of the first year there wasn't anything I couldn't do in the satellite dish business. I have a knack for things electronic. I was shown only once how to fix the refrigeration equipment in the store and after that I did all the repairs.

"After about the first year, I asked Dale if I could buy him out and he kept saying 'next year.' I was about to start my own business when Dale had a stroke and agreed to sell me the business."

That "business" consists of sales of satellite equipment and maintenance, repair and parts replacement of existing units that proliferate throughout the Klamath River area.

Competition increased in the past couple of years as Direct Digital Satellite (DDS) with its smaller and less expensive receiving systems began to enter the market.

Reber is ready for the digital changeover, but right now notes that the clearer and more realistic image available in "digital" television of any kind still is some months away.

"I have always liked to take things apart and put them back together just to see how they work. I'm inquisitive about things that do something—that work.

For the individual dreaming of escaping the traffic and other big city problems, Reber said, "Just do it. I had a good paying job and took a big chance in leaving it. Now I can sit on my porch, with no light pollution, and see lights of Medford, Oregon 50 miles away. If you want to do it, just do it." Δ

The Fan

The fan has called again
And I'm getting tired of her.
She bought a copy of my book with my picture on the cover.
She yells at me over the phone she's angry
Because I don't call
Because one of my recent poems is about her
Because I've written about other women
Or, in this case, because I referred to her as
The fan.

John Silveira
Ojai, CA

Make a fun stick whistle

By Charles Sanders

Out here in the sticks, that is exactly what we use to make a neat toy whistle. Every spring when the sap starts flowing, the kids remember that it is time to make whistles and we journey out to get the proper wood. In addition to getting "whistle-makins," the boys also receive some practical lessons in tree identification.

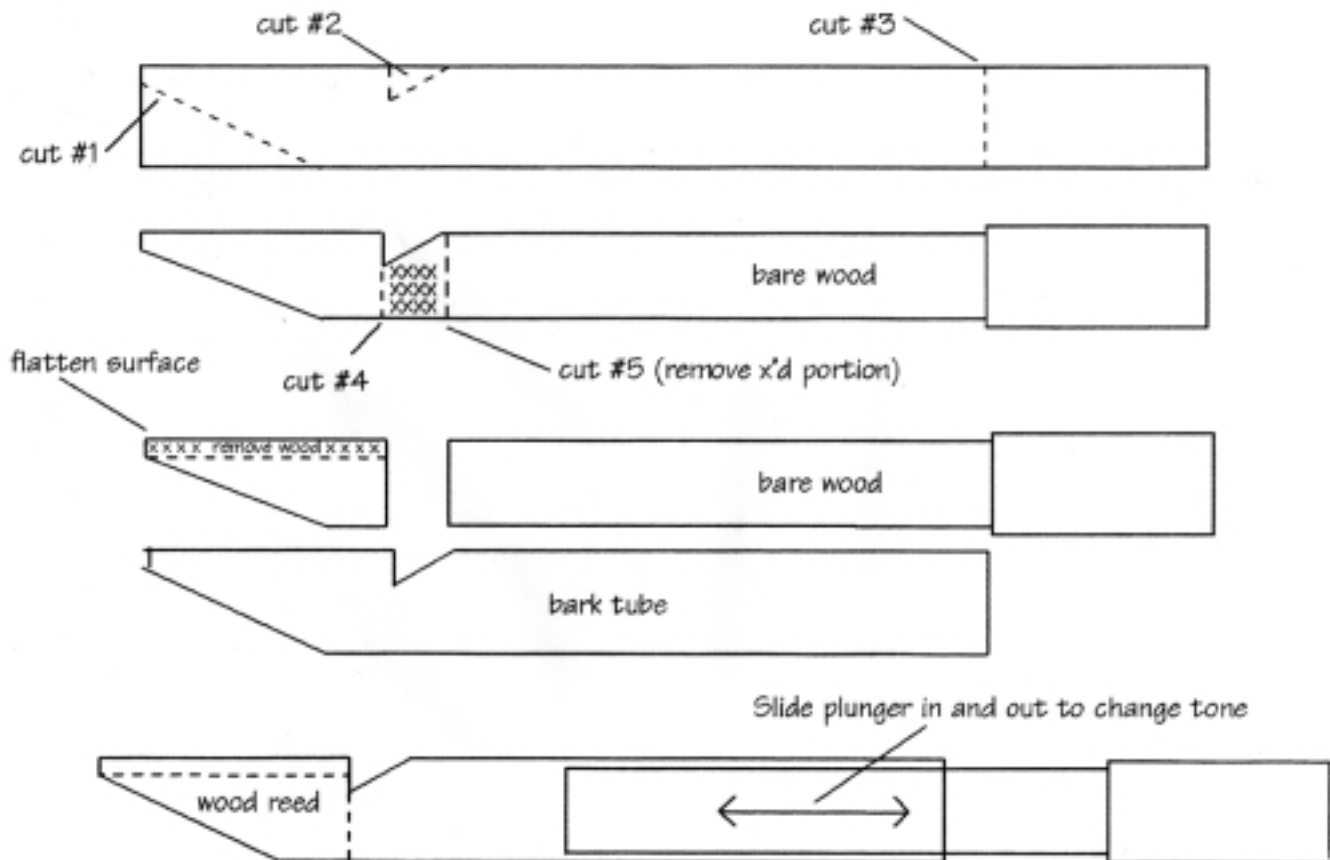
To make your own whistle, you will need to select a sprout or sapling from one of the smooth barked species of

trees. In my area, tulip poplar and hickory are popular choices for making the little noise makers. In some areas, I believe that alder or willow is used. Basically, any species which can be made to slip easily from the bark will work. The important thing is to cut the wood in the spring when the sap is running.

Select a smooth section of young live wood about one-half inch or so in diameter and about six inches in length. I have made whistles up to nearly an inch, but the wood is much more difficult to work with. Try to

pick the straightest piece you can find with no bud scars or knots. If you must select wood with scars or knots, cut the stick so that the scars and knots are where the whistle notch will be located, or on the handle.

Now we're ready to start cutting. First, cut the angle at what will be the reed and mouthpiece. Start at a point about 3/4-inch back from the end and cut up towards the opposite side leaving about 1/8-inch of flat surface on the end. Cut #2 is a notch cut into the stick as shown. Make the cut about 1/4 to 1/3 as deep as the diameter of the stick. Be sure to make a straight cut facing the mouthpiece end of the stick. Cut #3 is just a bit different. To make this cut, score through the bark



Use a green stick cut in spring when the sap is running. Make the cuts and tap the bark with the knife handle or small hammer until you can slip the bark from the stick. Cut the reed as shown. Clean up the end of the plunger. Re-insert the plunger and give it a blow!



Four completed hickory whistles

all the way around the stick cutting completely through the bark but just barely into the wood.

Now, with the smooth side of the handle of your pocketknife or a small hammer, commence to wrap the bark of the stick around the portion where you have cut the notches. Tap the bark lightly but firmly, not hard enough to split the bark. What you are doing here is loosening the bark from the woody stem inside. Take your time and tap the wood all over the stick above the line which you scored around the stick's diameter.

Now, firmly wrap your hand around the loosened bark and grasp the other end of the stick with your other hand. Gently, but firmly twist the bark until it frees from the wood. If it hangs on a bit too much, just rap on it again until you are able to free it. Once the bark is loosened, slide the woody stem out of the bark.

Next, flatten the wood at what will become the reed. This is much easier to do while the piece is still attached to the "handle." Basically, you are flattening the "reed" in order to allow air to pass over it (remove the wood marked with the x's in the diagram.)

Now, make cut #4. Doing this will free the end of the woody stem from the rest. You will end up with a small wooden plug or reed. Now shorten the

plunger as shown and finish by whittling off the end to smooth it up.

All that is left is to insert the "reed" into the mouthpiece of the whistle as shown. Slide the plunger into the other end of the whistle and you are ready to go.

Now start piping! Slide the plunger in and out of the bark tube to vary the pitch of the tones produced. As a child, we would apply a coating of shortening to the wood stem to keep the plunger operating smoothly. The whistle will last for many days, but after a day or so you may notice the bark tube drying out and reducing the space over the reed. This will restrict the airflow over the reed and affect your whistling. To rejuvenate the bark tube and prolong the life of the whistle, just remove the plunger and soak the bark tube in a saucer of water overnight. In the morning the whistle will be as good as new.

This little whistle is simple and fun to make. Experiment with the length and diameter of wood that you use. You can amaze small children with your skill and knowhow the first few times you make these simple rustic, music makers! After a few years though, they will realize just how easy they are to reproduce and will begin to make their own. Δ

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Self-publishing can be profitable but stay clear of vanity presses

By Robert L. Williams

Every would-be writer in the nation has seen the ads, the brochures, and the come-ons that promise wealth, fame, national recognition and prestige, and adoring multitudes. And across the country thousands of these aspiring writers leap into the abyss and find not wealth and fame, but debts and despair. The ads are all similar. You write your best-selling (in your dreams) novel, and the publisher promises you great success. You sign a contract, pay the money, and get a few copies of the book. In most cases, that's it.

Many times if you submit the book on speculation, the publisher will call you and promise the moon, but he must have an immediate answer. Give him one: No. Here's the deal: He will say that because you are a newcomer writer, you must show that you have at least as much faith in your book as the publisher has. You can show that faith by paying "half the cost" of publishing (which is usually *all* of the cost, plus).

The publisher will then edit your book, design a cover, print it, and send review copies to major newspapers throughout the nation. They will assign you a personal publicist to set up press conferences, talk show appearances, and book store autograph sessions. They even promise to pay for all of your plane flights, meals, and accommodations in top-flight hotels. Royalty rates are higher than you dreamed possible. But 50% of zero is still zero.

I have a friend who, despite my advice, insisted on submitting her book to a vanity press. She received a contract which read in part,

"Author agrees to supply a copy of the manuscript in word perfect on three and one half inch floppy disk, preferably, if this is not feasible we will except two cleanly typed copies of the manuscript."

Errors in the previous sentence are the exact wording from the contract. You can see how professional the publisher is.

The author was asked to pay \$12,000 as her half of the costs of printing, and she would get 25 copies of the book, plus royalties. The author would receive, for her \$12,000, a few copies of the book and little else. Vanity books are seldom reviewed by major media.

The type of operation described above is what is known as *vanity* or *subsidy publishing*. While there are some reliable subsidy houses in the country, most operate on the premise that there is a sucker born not every minute but every second, and it is their duty to fleece them. The typical customer will be lucky if he or she sells 500 copies of the book.

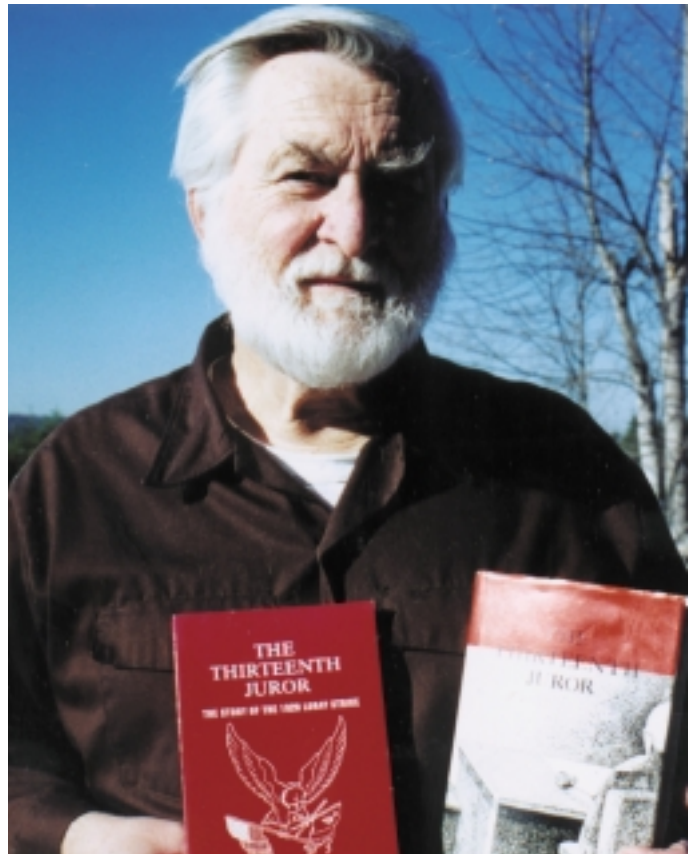
The woman who asked my advice on the book contract

would have had to take out a second mortgage on her house in order to pay for having the book published.

Three ways to publish

Now let's get down to hard facts. There are basically three intelligent ways to have a book published. The first is to be good enough or lucky enough to get a contract with a **trade book publisher** who will pay you an advance against royalties. You do not pay him one cent. He pays you. The advance may range anywhere from \$100 up to \$40,000 or more.

Your royalty base will range from 5% up to 15 or even 20% on wholesale (sometimes retail) book sales. If your book sells for \$22, you may receive as high as \$3.30 per book. You may also receive as low as \$2.10 or perhaps even lower. But you must realize that the publisher has paid



The author with hard-cover and soft-cover copies of his self-published book The Thirteenth Juror



Newspapers bought articles about the book and provided not only cash but superb free advertising. These are samples of articles that appeared in area newspapers.

thousands to get your book on the market and is entitled to an appropriate share.

It can be very difficult to get a contract with a large company. Some of these companies receive thousands of manuscripts in a year and will publish only a small percentage of them. Some will not even read manuscripts, except from agents.

A second way to publish is via the **work-for-hire contract**, in which the other party hires you at a specific fee to write a book. A few trade book publishers will also offer work-for-hire contracts in which they will pay you \$5,000 or so (sometimes much more) to write a book for them. The money usually is paid one-half upon signing the contract and one-half when an acceptable manuscript has been delivered.

A third way, and this is the one I recommend for writers who, for whatever reasons, want to have complete control over their work, is **self-publishing**, which is not to be confused with subsidy or vanity publishing.

You are the author, editor, printer, promoter, and the sales staff. You contact a printer, select the type style you want, pick out paper grade, choose cover materials and design, and you pay for every tiny item along the way.

In my years as a writer, I have published with large trade companies (ranging from McGraw-Hill to Berkley to Loompanics), and I have done work-for-hire books for large companies. I

have also self-published when I knew I had a sure thing working for me.

Can you make money by self-publishing? Not only can you make money, you can make a great deal of money. There are some self-published writers who earn \$50,000 a year or more on the books they issue themselves. There are many others who earn \$5,000 to \$10,000, just as there are still others who lose money.

Who should self-publish?

The first question is: Who should self-publish? The answer is, anyone who:

- has an appealing or important work that should be in print
- can afford to pay the costs
- can market the book successfully

How do you decide whether a book should be printed? First of all, you **analyze the market**. You do homework that should tell you whether the book will pay for itself and pay you for your efforts. Let me give you an example of how I self-published one book.



These are samples of vanity books, a trade book, and a self-published book. Picking the self-published book would be very difficult, even for an editor.

A Backwoods Home Anthology

When I wrote The Thirteenth Juror (the story of the 1929 Loray Strike), I had three contracts offered to me by trade publishers. For various reasons, I did not like any of the contracts and decided to market the book myself.

I visited a printer who told me that he'd print the book for \$5 per copy if I ordered 500 copies. My total bill would be \$2,500. If I printed 1000 books, the cost per book would be \$3.50, so my total cost would be \$3,500. If I printed 2,000 books, each book would cost me \$2.25, and my total cost would be \$4,500.

I did my market research and learned that I could expect to sell at least 400 books immediately. Figure it out: 400 books at \$13.95 each equals \$5,580. So I was into the profit side of the ledger instantly.

When the book was printed, I sold enough books the first week to pay the total cost of printing. This meant that, apart from a few minor expenses, every book I sold after that would return a 100% profit.

I am telling you what I did, because this is what you can do. Each book and each author will differ, naturally, but there will be inevitable similarities.

Marketing

First, I contacted the local newspaper and offered to write them an article which actually represented a few pages from my book. They paid me \$50 for the article. And the paper later asked me to write my own story about my book. I did, and I was not only paid for writing the story but received great free publicity.

Other newspapers responded in kind. I sold articles to a dozen papers and at the same time received payment and free advertising. I contacted radio stations, and more than a dozen area stations asked

me to come to the station for a call-in talk show appearance. The same was true of television stations. After each appearance, there was a rash of orders for the book.

I had some mailers prepared, and I sent leaflets or flyers to every library, nationally and locally. The list included public and private libraries as well as high school, junior high school, college, and university libraries. The first week, I sold books to the North Carolina State College Library in Raleigh, to the UCLA Law School Library in Los Angeles, and to the University of Chicago Law School. Along the way, I sold books to libraries in nearly every state in the Union and in several foreign countries.

Civic clubs learned about the book, and I spoke regularly to breakfast, lunch, and evening groups. I could expect to sell no fewer than 20 books at each gathering, and I often left with \$300 plus a speaker's fee in my pocket.

I earned \$20,000 in fees for articles about the area and times described in the book, in addition to book sales. I still sell articles about the book, which

has sold out two printings and is still in demand. Orders arrive regularly.

Best of all, perhaps, is that one of the leading television networks asked me to write a mini-series script for consideration. I had the script nearly completed when a tornado destroyed our house, and to date I have not had time to re-write the script.

Important questions

Before you rush out and have your own book printed, you must ask several questions and make several decisions. Can you afford to pull \$5,000 or so from your pocket or bank account without causing your family financial problems? Is the printer willing to allow you time to sell a few books before he demands final payment?

Do you have a ready and available market? Is the book a non-perishable commodity, or will it have a limited shelf life? Is it a seasonal or an all-year book? Do you have contacts at radio and television stations, at newspapers, and at schools, churches, and civic clubs? Do you have the spare time to devote to promoting and marketing the book? Are there ancillary income opportunities?



Signatures (or sections of books) are done in a variety of ways. Here is how one signature looks.

Production details

If your responses suggest moving ahead, get the book written. Check and re-check it for grammar and punctuation and factual accuracy. The printer will not be responsible for these matters.

When you visit the printer, ask if you can typeset the book on your own computer. If so, you can save \$1,000 or more, depending upon the size of the book. A typesetter will typically charge more than \$2 per page, and if you can do it yourself, the money stays in your pocket. You can buy a splendid computer, complete with Windows and WordPerfect installed, for less than \$1000. You can actually pay for the computer with money saved on typesetting.

Take with you to the printer a book that has a paper grade, a format, and a general appearance that you like. Ask the printer if he can produce a book like the one you brought.

To save extra money, produce a perfect-bound softcover book rather than a hardback. You can save hundreds of dollars with the four-color softbound format. If the printer wants to sell you a higher grade of paper than you need, ask him for a slightly lower grade that will have a much lower price and will not take away from the overall quality of the book.

Try to have as much of the book done "under one roof" as you can. The more elements you must job out, the more it will cost you. The jobber must make his profit, and the printer must be paid for his work in getting the book to the jobber. Simplify and save time and money and reduce the chance of damage or loss of quality.

In planning your book, you must think in terms of *signatures*. When you open a book wide and look at the tiny groups of bound pages, each of these sections is a signature. Signatures can come in several numbers of pages, but 16 is a common figure. This means that your book will be put together in 16-page sections, so

the number of pages in your book will ideally be divisible by 16. A 320-page book will have 20 signatures. A 192-page book will have 12 signatures. Pay attention to the signatures, because you may wind up with wasted pages that you paid for. You can ask if the printer can work with other types of signatures, such as 8 or 12 pages.

What's the right price?

Now think of the price you intend to put on the book. A rule of thumb for trade books is that a book should sell for five times its printing price. But if your book costs you \$5 per copy, it's doubtful that you can sell it for \$25 per copy. You may have to content yourself with selling for twice the printing cost.

One important matter is the number of give-aways needed. You must give free copies to reviewers, whether they review the book or not. You cannot expect someone to buy your book in order to give you free advertising.

You will also realize that your friends and family members will expect you to give them free copies. Keep in mind that if you give away one copy to a friend, it is difficult to say no to other friends. If these people ask you for a complimentary copy, remind them that they would never ask a grocer for a complimentary pound of steak or a hardware store for a complimentary hammer or saw.

When people complain about the high cost of the book, agree with them, then point out that the book costs about the same as a meal at a fast-food restaurant or a package of underwear. But the book is a lifetime possession, not a temporary purchase.

Keep prices, even discount prices, constant. If one dealer learns that another dealer gets the books cheaper, he'll want to know why you are robbing him.

When people ask if the book is in the local bookstores, tell them that you prefer to sell personally rather than deal with bookstores. By selling

direct, you can autograph the copies for customers (*and* keep all the profits). Bookstores expect a 35-40% discount. If the book costs you \$5 and you retail it for \$12, and if you give a 40% discount to a store, you are making a \$2.20 profit while the store makes a \$4.80 profit, when all they are doing is taking the money across the counter.

Final tips

Always keep copies of the book with you when you travel. You often meet people who want to buy a copy, and if you don't sell it at that moment, you may never sell it. When the customer is buying, that's the time to sell. Take them with you on vacation, to work, or when you go shopping.

Don't push buyers: you come across as begging. Show that you are interested but not desperate. When you speak at meetings, have someone trustworthy go with you to handle the cash while you sign books and exchange small talk with buyers. Give customer discounts on purchases of five books or more at a time. Many people will spend more money if they think they are getting a bargain. Trade books for services or products. A \$12 book ought to be worth \$12 in trade in a business deal.

Finally, don't apologize for having self-published a book. I have written 30 books, and some of the largest publishers in the nation have published them. But I will self-publish again the moment I am certain that the book I want to write and print is a good business item. You will be surprised how many people will regard you with new respect, once they learn that you are a published writer. And you may well be surprised at just how much money you can make. Δ

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A determined Rosie Bley escaped the city

By Gene Sheley

Rosie Bley's self-reliance and confidence has served her well all her life, permitting her to live in one of the most remote areas of California and to meet the challenges that the lifestyle unexpectedly thrust in her way.

Bley is a businesswoman in the tiny Klamath River community of Happy Camp, about halfway between no place and nowhere, in the forests along the border of California and Oregon.

In March, 1986, she left southern California for a trip north, anywhere north just to get away from the congestion and complexities in the area where more than two-thirds of California's 30 million people live. By

chance, she drove down the Klamath River and "I immediately knew this is where I wanted to live." Rosie returned to southern California, sold her home, and bought a place in Seiad (S[eye] add), which consists of a few homes, a store, and a firehouse.

The Klamath River area is nearly all Klamath National Forest land with a small percentage of private holdings, mostly old patented gold mining claims that were deeded before the U.S. Forest Service was created.

Among the pine, fir, cedar, madrone, and oak, she lived for four years until she met and married Robert Bley in 1990, and made their home in Happy Camp, a small town 18 miles farther west. Her husband was a career timber worker, employed in an industry that collapsed in 1993 with the federally-

ordered reduction in timber harvest. Misfortune struck after Rosie's mother was diagnosed with cancer and was brought to the river country for her final days.

Her mother wanted a computer, expressing interest in learning to operate it before she succumbed to the disease. Rosie did as her mother wished but Rosie, who had no computer experience, had to learn to run the device in order to show her mother its operating nature. While her mother learned only the rudiments before her death, Rosie continued to teach herself all the intricacies of the electronic device, integrating her previous layout and design experience from a drafting table into a computerized environment.

Before their marriage, her husband, who had been a resident for more than 35 years, had acquired the property where he had lived as a boy on Indian Creek with the hopes of fixing up the shell of a house someday. But needing a place to live after they married, they bought a home for their new life together.

Two years later, the couple had a son. Then problems arose when Bob was injured and underwent surgery on his neck and hip. Rosie worked at one of the local grocery stores and continued her self-taught computer education while Bob recovered from his surgery. Disability income isn't enough to maintain a household, so Bob looked at careers that might allow him to continue to live in Happy Camp. Since he had a great love for children, the best bet was the elementary or high school.

Because a school teacher education would take him so far away for so long, it was with mixed emotions that Rosie finally told her husband to get on with his training and she would manage somehow. At the age of 38, the former mill worker started his aca-



Rosie Bley

demic education at a community college more than 100 miles away. In the meantime, Rosie had to find gainful employment in a place where employment outside of business ownership is virtually non-existent. For five years she had worked at the local grocery, but after the timber harvest reduction hit, that grocery, one of two in the community, converted its business to a pizza restaurant. Rosie had become adept enough at desktop publishing to go into that business from the Bley home where one of her best customers was her former employer.

Business thrived, at least to the point that she could make a moderate living, and with that, coupled with Bob's retirement money from the mill, they managed to survive. By then, his disability had run out.

When the retirement money ran out, they sold Bob's boyhood property. In 1996, she took an entrepreneurial business class offered by extension in Happy Camp from the same community college previously attended on-campus by her husband. One of the class members was Mike Trombetta, a retired telephone company telecomputer specialist.

Trombetta and his wife, Janice, moved to Happy Camp six years ago but they didn't retire long. Janice worked for a gold mining organization, and Mike taught school as a substitute and did some computer consulting.

Bley and Trombetta found that both had considered a computer supply and general stationery business for Happy Camp, a resource absent in the hurting community. In spite of the economics caused by the mill closure, Rosie's self-confidence, coupled with Mike's own self-assured attitude, convinced them that an office supply store might be economically feasible. The two potential partners traveled to other small economically-hurting timber communities, interviewing business owners about the market potential for everything from pencils to computers.

In June, 1996, just four months after the college course, Office Outfitters opened its doors in a section of the town's only general merchandise store.

Rosie moved her desktop publishing equipment to the new location and Trombetta provided computer consulting. Their business also features office and school supplies, public fax, copy service, and many other necessary goods and services of that nature.

Little more than a year later, Trombetta became involved in a successful funding effort to locate a state-of-the-art computer center in the community, and in late 1997 it became a reality with Trombetta as the director. Because his new responsibilities are full-time, Janice quit her job with the mining business and took over her husband's store functions to work alongside Rosie.

The Bley's still have some moderately difficult economic times but Rosie wouldn't have it any other way.

Bob is in his fourth year of the five-year education process, now attending a university in southern Oregon about 100 miles northeast of Happy Camp. He spends his weekends at the Bley's forested home near Indian Creek. During the week, Rosie "commutes" the mile or so from her creekside home to her own business, dropping her young son off at kindergarten or day care.

It's 75 miles to the nearest town of any size and a million miles from southern California's teeming masses, and it is exactly what Rosie wanted in life. Now she has gotten more than she expected. "We could move back to a bigger area, where my husband could go to school, then teach, and I could make more money. But here I have a vocation that I love, a strong and endearing family life; I live in one of the most beautiful places on earth, in a town where everyone is like family, and soon my husband will be finished with his education and come home to stay. I have been blessed." Δ

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Supplement your income by raising exotic tortoises

By Tom Bartoli

Raising exotic tortoises for profit is probably not high on most peoples' list of country money making ventures. Tortoise breeding is, however, a natural for nearly any rural environment and it can be an excellent way to earn extra income without a huge investment in time, money, materials or space.

Tortoise breeding is not for everyone and it will probably not provide enough cash to be your sole source of income. However, once established even a small tortoise colony can easily earn several hundred, even several thousand, dollars per year.

First of all, what is a tortoise? Although there is some disagreement among biologists, a tortoise is generally a dry land turtle. Most are vegetarian and most do not live in or even near water. For the purposes of this article the term tortoise will be used since the vast majority of the most popular, and thus the most profitable, turtles among collectors are tortoises. Although the information in this article is specific to the breeding of tortoises, it is also applicable to turtles in general.

Getting started

It is important to select a species that is suited to your environment. Notice I

said "a species." It's best to begin with one species. Once you are successful with that species you can add others if you desire.

Tortoises inhabit a variety of climatic regions, but each species tends to have a limited range that is uniform in climate. You do not, for example, find Sonora Desert Tortoises in wet, cold climates like those in the Pacific Northwest. Similarly, you do not find the Red Footed Tortoise, which is native to the tropical regions of South America, in the arid Southwest.

Also, certain species have unusual needs. Some, such as the Leopard Tortoise, do not hibernate. Others, such as the Russian Tortoise, estivate, which means they sleep for days, even weeks, during the summer when it is too hot or dry.

You can alter your environment to some degree to provide suitable habi-



Leopard tortoise — A medium-sized prolific breeder that does not hibernate

tat for a specific species. You can create a desert-like landscape for a species that is native to an arid climate, or you might provide a greenhouse or a heated burrow in an area with nights that are too cool for your chosen species.

Food is another consideration. Some species are strict vegetarians that will graze on grasses and plants. Others approach carnivorousness and prefer insects and worms. Still others will eat nearly anything.

Choose carefully. Select a species that is suited to your environment (or to an environment that you can easily create and maintain) and that has eating habits that you can support with minimal effort.

Legal considerations

Many tortoise species are protected by law and are strictly controlled. Some require a license. Others are forbidden entirely. Some can be kept but cannot be sold or traded for anything of value. To make matters more complicated, there are both federal and state laws to contend with and laws vary from state to state. In Arizona, where we live, snapping turtles are prohibited and will be confiscated immediately by the state's fish and game department. Conversely, many other states do not restrict or control snapping turtles in any way.

Check with the appropriate state and federal authorities in your area before you select a species. At least one member of the nearest tortoise club will probably know exactly who to contact in your area.

Building the habitat

Your tortoise habitat must be designed carefully. It must be secure, both to prevent escape (turtles are very patient and persistent if they decide they want out) and to keep out unwanted intruders. It must also provide food, shelter, and space.



Hermann tortoise — A hardy, small, highly-spirited, and very productive breed

All tortoises use a den, usually a burrow of some sort, as their home. It is best to build the den yourself so that you can control it. The primary consideration here is that the den is large enough, safe from invaders, and designed so that it will not fill with water. The den can be a true burrow dug into the ground, or it can be an above ground house covered with dirt. The den, or dens, must be in an enclosed area (a pen) that provides room for sunning, eating, mating, and egg laying.

Ideally, the pen will emulate the tortoise's natural habitat as closely as possible. A species from the grasslands of Africa would have a large pen with plenty of hardy, nutritious grass, few or even no trees, and lots of sunshine. A pen for a species native to the steppes of Afghanistan would have plenty of rocky mounds dotted with a mixture of grass and low, edible shrubs. When building a habitat, it is important to know and understand the needs of the species you have selected.

Acquiring animals

Tortoises can be obtained through a number of sources including pet stores, hobbyists, breeders, importers,

and wholesalers. Pet stores are usually not a good place for a breeder to find animals. They are nearly always more expensive than they would be elsewhere, and the staff is seldom very knowledgeable.

Hobbyists, such as those you might meet at the local turtle/tortoise or herpetological club, are frequently a good source of animals. These people truly love the animals they keep. The tortoises you get from a hobbyist are usually well cared for, and you will nearly always know the sex, age, and species. The price is typically reasonable, and you will likely get to see the hobbyist's pen, as well as garner tried and true details on the care and feeding of the animal you are buying.

Other breeders, importers, and wholesalers can also be good sources of animals, but they are usually not good sources for beginners. Breeders tend to get top dollar for their turtles and be strictly business. Importers and wholesalers offer lower prices but you seldom get a choice as to sex, age, or condition of the animals you buy. In fact, wholesalers and importers almost always sell their animals sight unseen via the mail, air cargo, or motor freight.

It does not really matter where you get your animals as long as they are

healthy, the price is acceptable to you, and it is legal.

One other point regarding your breeding stock. Most breeders keep only one or two adult males and as many females as they can afford and care for. One male and three females will produce more offspring than two males and two females for obvious reasons.

Routine care

Once they have become established in their new home, tortoises require minimal daily care. You should make sure that they have ample food—be it forage or feed that you provide—a supply of fresh water, and that the pen is clean. Inspect the pen itself for possible escape routes. Inspect the burrow for unwanted pests such as rodents and spiders. If your female shows signs of laying, you should look for a nest site.

If you find a nest site with eggs, there are two things you can do: leave the eggs in the nest and let them hatch naturally, or carefully remove the eggs and place them in an incubator.

Leaving the eggs in the ground is obviously less work and any hatchlings that eventually emerge will be fairly hardy with a very good survival rate. Incubating the eggs takes more effort and requires the purchase or construction of an incubator, but you will typically get a higher hatch rate.

Just to be on the safe side, do not use pesticides, herbicides, or solid fertilizers (pellets, granules, spikes, etc) in or near your pens. These chemicals can cause birth defects, reduce fertility rates, weaken the immune system, and even kill your animals.

Selling

After you have hatched your first clutch you must then decide when and how to sell your tortoises. There are several options.

Hatchlings typically sell for more than adults, but not always. You must

keep in touch with the market, through your contacts at local tortoise clubs, etc, so that you know the current prices. Most breeders sell nearly all of their animals as hatchlings, even when adults are priced higher.

Having decided when you sell, you must decide where and how to sell. You can sell to individuals, through classified advertising or shows, to pet stores, or to wholesalers or other breeders by taking advantage of contacts you have developed.

Selling to individuals typically yields the highest price per animal but can take a great deal of time and effort. Selling directly to pet stores is also very time consuming but yields less money than selling to individuals. Selling to wholesalers and other breeders normally requires the least effort but the price per animal is somewhat lower. The advantage to selling to wholesalers and other breeders is the fact that you can often sell an entire clutch at one time, thereby saving a great deal of time.

The rewards

Raising exotic tortoises can be quite profitable. Captive bred hatchlings can fetch \$25 to \$250 each or more, depending on the species. That may not sound like much until you consider that some of the larger species regularly lay clutches of 20 to 40 eggs. Consider too that a well cared for mature female can lay up to four clutches a year, though two is more common, and you can see that a yearly income of several thousand dollars is feasible.

In addition to money, there are other rewards as well. Many of the most popular, exotic species are under extreme pressure in the wild. Their habitat is being destroyed at an alarming rate and many are being collected for food and profit at rates which threaten their survival as a species. By raising these animals in captivity and satisfying at least some of the demand, you can both reduce the pressure on

wild populations and help to increase the total number of animals.

Suggested reading:

Magazines: *Reptiles*, P.O. Box 6040, Mission Viejo, CA 92690-9953; *Reptile and Amphibian Magazine*, RD #3, Box 3709-A, Pottsville, PA 17901.

Books: Two excellent guides for beginners are Tortoise Trust Guide to Tortoises and Turtles, A.C. Highfield, Carapace Press, c/o The Tortoise Trust, BM Tortoise, London, WC1N 3XX, England; Turtles: Keeping Them and Breeding Them in Captivity, John Coburn, T.F.H. Publications, Inc., One T.F.H. Plaza, Neptune City, NJ 07753.

Two in-depth, comprehensive (and expensive) guides are *Practical Encyclopedia of Keeping and Breeding Tortoises and Fresh Water Turtles*, A.C. Highfield, Carapace Press, c/o The Tortoise Trust, BM Tortoise, London, WC1N 3XX, England; *Encyclopedia of Turtles*, Dr. Peter C.H. Pritchard, T.F.H. Publications, Inc., One T.F.H. Plaza, Neptune City, NJ 07753

An excellent source of animal related books is Zoo Book Sales, P.O. Box 405, Lanesboro, MN 55949-0405. Δ

An Ozark Wood

*These woods know no time:
This is a place without time,
An Ozark forest primeval
as the past; a place where
one easily senses the spirit
of a land conquered by pioneers.
These Ozark woods untouched
by progress or human hands
hold the legacy of the past,
a priceless leaving in an age
of space travel and success -
a simple Ozark wood that once
was the world.*

**Lee Ann Murphy
Neosho, MO**

Backwoods

July/Aug 1998

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Home magazine

practical ideas for self reliant living

What's liberal — What's conservative?

*Kerosene lamps revisited
Cooking with hot peppers
Dehydrated watermelon
Build a storage closet
Irreverent joke page
Selling with humor*



My view

Happy birthday Communist Manifesto

The other day I was reminded that this year is the 150th anniversary of the Communist Manifesto. It would have eluded me but on May 1st National Public Radio did a paean to the book that expounded the “philosophy of the working man.” The book, of course, was written by Karl Marx, a man who couldn’t hold a job.

Caller after caller phoned in to praise the book’s ideals and bemoan communism’s passing. Communism, we all know, has fallen on bad times. But some of the callers explained that it was actually relevant in 1848 when it was formulated, though perhaps not so relevant during most of the 20th century, but they swore it has become relevant again today.

Let’s see what they were really saying: Communism was relevant before anyone adopted it, wasn’t relevant when it was put to the test and proved to be a disaster, but now it is relevant again today even though most of the world has abandoned it as unworkable. I’m not going to bother to point out the absurdities in this line of reasoning.

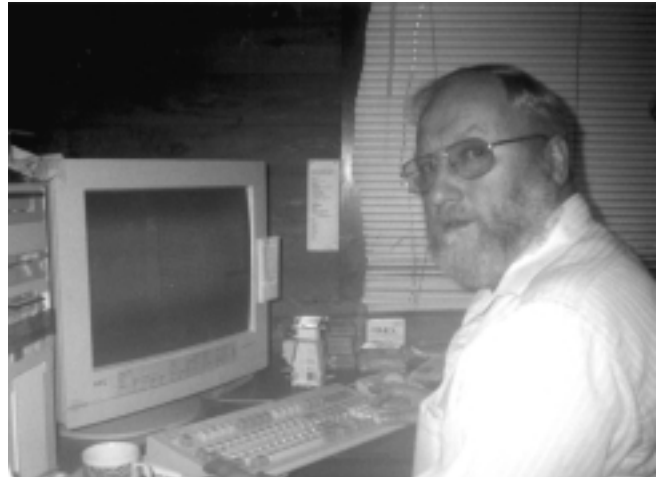
It is also interesting that none of the callers mentioned that communism still exists among a quarter of the world’s population: in China, where the Chinese are trying to get away from it because it has crippled their economy, and in North Korea, one of the most oppressive dictatorships remaining in the world. Nor did anyone point out that, to save themselves, the Chinese are experimenting with Marx’s bogeyman—capitalism.

Your tax dollars at work

But what bothered me most was that this program was being supported by my tax dollars. The same way Marx couldn’t hold a job, National Public Radio can’t get anyone to finance their programming the way even a rock & roll station can, so they have the IRS wrench it from those of us who can hold jobs. If that’s the way you want your tax dollars spent, fine. But I’d like mine spent on something productive—or at least not wasted on glorifying murder.

Communism, which professed to be the philosophy of the working man, was in reality the most effective machine of death ever contrived by man. At least 20 million, and some say upwards of 80 million, died at the hands of communism in the Soviet Union. Another 60 million died in China. And in the “Killing Fields” of Cambodia, 2 to 3 million were murdered in recent memory.

Hitler and fascism killed 12 million, including 6 million Jews, in his concentration camps, and since I was a school-boy I have been told fascism is evil. 12 million? That’s just a drop in the bucket compared to communism.



John Silveira

Still, the moderator and the esteemed guest—a professor of history and labor—and most of the callers drooled over the prospects of reviving it and mused about it as if it were the panacea for all that ills mankind. And this, folks, was funded in part by your tax dollars. Had this money been spent to praise fascism, I’ll bet you whatever the IRS leaves me of my next paycheck that these same people would be rioting in the streets. It leaves my head spinning.

Nationalizing Microsoft

And, while they were pining for the return of communism, what else did they want? Well, one caller suggested they nationalize Microsoft.

And why not? What does Bill Gates do with all of his wealth—\$40 billion at last estimate. How does he spend it? I know he can’t eat more than I. He can only wear one suit of clothes at a time, and only drive one car. Granted, he can eat three times a day in restaurants if he wants, wear designer clothes, and drive a better car. But there are people doing that already who make hardly more than me and that would hardly make a dent in his \$40 billion, anyway. So, what’s he do with it all? I’ll tell you what he does with it. Gates, and others like him, provide thousands with employment—both directly and indirectly—and he creates new products that make our lives easier. Even the \$30 million he recently spent on a Winslow Homer painting was not “consumed.” It went to someone else who will ultimately invest it to create even more jobs.

On the other hand, what do the NPR whiners propose to do with Microsoft? They said they would turn the whole enterprise over to the control of the government, the people who have given us the Postal Service, Social Security, and Defense Department contracting with its \$700 toilets and coffee pots. But, come to think of it, I’d be willing to pay \$700 for a toilet if I could flush NPR along with its disproven Marxist ideas down the tubes. — **John Silveira**

Dehydrated watermelon—for flavor explosions all year round

By Robert L. Williams

Now that it's the peak of the summer growing season and you can find watermelons, cantaloupes, and honeydew melons at nearly all supermarkets, curb markets, and roadside stands, you can pig out on the juicy delights. And each taste is made a little sweeter by the realization that within a few weeks there will be no more melons for months and months.

At least, it is that way for some people. But, starting now, you can provide yourself a full winter's supply of melons of all sorts by simply dehydrating your favorites and then storing them in a suitable place until your appetite tells you to pull them out and eat them.

Dehydrated watermelon? From all corners of the nation come the questions: doesn't dehydrating take all the flavor out of melons? Isn't it a messy job? Doesn't it require a lot of special equipment and other supplies? And what does it taste like when all the water and flavors are removed from the meat of the melon—leather?

Here are the answers

First, dehydrating watermelon or cantaloupe or any other kind of melon in no way diminishes the flavor of the melon. In fact, it actually increases the

flavor so that you get a rich taste you never before found in a watermelon or honeydew.

Is it a messy job? Not nearly as messy as it is to eat the fresh-cut melon right from the patch or market. All you need to do is butcher the melon, slice it according to instructions given below, and dehydrate it.

As far as equipment is concerned, you can buy an inexpensive dehydrator, or you can make one for nearly nothing. You can even spread the



Begin the drying process by slicing the watermelon in half, across the middle.

melon meats in the sun and let nature take its course.

What does dehydrated watermelon or cantaloupe taste like?

Let me assure you that the taste is unlike anything you have ever tried before. First, think of how a fresh melon tastes, and then keep in mind that the melon is largely water, and the water dilutes the sweetness and flavor of the melon greatly. When you take out the water, all that is left is flavor.

Think of it this way. Imagine a glass half-full of terrific grape juice. Take a sip and revel in the great taste. Now fill the glass to the top with tap water and taste the mixture again. Much of the flavor has disappeared. Imagine how flat the taste would be if the mixture were 80 per cent water.

That's about the taste approximation of a good watermelon. Even with the water, it's terrific. Take out the water and you have a flavor explosion beyond comparison.

What you are going to learn in the next few paragraphs is how to prepare the melon, how to dehydrate it, and how to store it.

Start, if you need reassuring, by remembering how great dried fruit in general is. You have doubtless eaten dried apples, plums, peaches, apricots, and grapes. Ever notice how sweet a raisin is?

Ready to work? Start with a good-sized melon. Lay the melon in front of you lengthwise and cut it into halves. Then cut off round slices about an inch and one-half thick. Then cut the melon meat out of the rind. Cut the slices down until each section is about the size of your palm.

This is a good time to remove the seeds, if you wish. If you don't wish, leave them in.

Now you are ready to dehydrate. If you own a dehydrator, pull it out and set it up. Clean the trays thoroughly to avoid any kind of contamination. Some trays come with very thin mesh liners, like incredibly thin screen wire.

You can spread the slices of watermelon onto the mesh sections so that the pieces barely touch each other. It



Slice five-inch sections of melon and then cut the meat from the slice. De-seed if you wish, at this point. Note the size of the section of watermelon meat.

is easy to place half a dozen or more chunks of melon in one tray.

I have found that if I add a section of waxed paper or one of the food wrapping products, I can keep the dehydrator from getting so messy. The juice will seep out of the melon and then as it accumulates it will run to the lowest edge of the tray.

For this reason I place a thin strip of wood under the back and one side of the dehydrator so that the juice runs to the front of the tray and then to the low corner. You can set a wide pan of some sort under the corner so that you catch nearly all of the juice.

Don't discard the juice. You can either drink it or use it in beverages as a flavor-adder.

As the melon slices begin to dry, you can, after four or five hours, rotate the trays so that the one that started on the bottom will move to the top, and the one at the top will move to the bottom. Reverse the two middle trays, too.

The reason for doing this is that in nearly all dehydrators the heating element is at the bottom so that heat can rise through the trays. The tray nearest the heating element will dry faster than the others, with the top tray drying last. So if you rotate the trays, you will have fairly uniform drying.

A good plan for tray rotation is to start the dehydrating process early in

the morning, and then in mid-afternoon rotate the trays. Then, before going to bed, rotate them again.

It will take about two days for the melon to dehydrate totally. Give it all the time it needs: you do not want to try to store still-moist melon. If you do, you'll wind up with spoilage and nothing fit to eat.

The second way to dehydrate is to build your own box. This can consist of a simple rectangular box equipped with a light socket and bulb and with ledges from which to hang shelves. The shelves can be made of a wood-strip border with mesh wire (not metal kinds) stapled across them and covered with Saran wrap or equivalent. Rig it up so that juices do not drip on the bulb.

The third way to dehydrate melons (or anything else) is to use the sun and

some screen mesh. Construct a border of wood strips and then attach the mesh to cover the space in-between. Make another section the same way. A good measurement is three feet square.

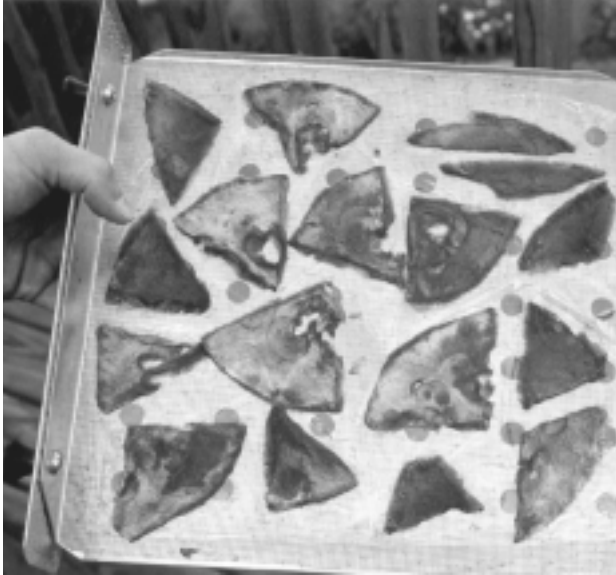
Use wood strips thick enough that when the screen mesh is loaded, the mesh will not be resting on top of the melon. In other words, if the melon slices are 1.5 inches thick, the space between the mesh layers should be at least two inches.

When both sections are completed, cover the first section with Saran wrap and then lay your melon sections on the wrap. Fill the section from border to border. Then lay the section in the sun, with the melon side facing up. Position the other section so that the wood-strip borders rest together.

It is a good idea to rest the entire assembly atop a couple of bricks or other devices to keep the melons away from the floor or dirt. The mesh will keep insects from bothering the melons, and the sun may dehydrate the slices in a short time. You can turn the whole assembly simply by lifting and flipping the two sections. Do this so that both sides of the melon are exposed to the sun.



Arrange the 3/4-inch thick melon slices on the dehydrator trays as shown.



When the slices are dried, remove them from the dehydrator.

Obviously you need a bright sunny day. If it rains, bring the melons into the house.

You will find that you are far better off by using a real dehydrator rather than a home-made rig, at least in most cases.

Now, how do you store the dehydrated melon? Or, a better question is how to know when the melon is ready.

It is ready when it is very tacky or sticky. When you lift it, if it will stick to your fingers without your grasping it, you are ready to store it.

I store my dehydrated melon in a commercial bag of some sort, like a sandwich bag or freezer bag. First, I wrap it in a clear type of wrap, one slide at a time, and then I slip all the slices into the freezer bag.

Then, just for safety's sake, I keep the bag in the freezer. If you leave it out, there is a chance that someone or something may punch a hole in the bag and let air into it. Room-temperature air is humid, and the result is a re-hydration. Soon after that the spoiling starts.

When you are ready to eat the melon, take it out of the freezer and let it come to room temperature. Then chow down.

Do not expect the melon to taste the way it did before you dehydrated it. Appreciate it for its own taste.

Remember, you can use your dehydrator not just for melons but for nearly everything that can be eaten, as long as it has some moisture in it.

So you have used everything but the rind and the seeds. But don't stop now. Use these items, too.

You can make delightful watermelon rind pickles by trimming off all the thick

green and tender pink parts of the rind (in other words, peel the skin off and cut the edible portion away) and cut these into one-inch cubes. Soak the cubes ten hours in a solution of eight tablespoons of salt to one gallon of water.

After the soaking, drain the rind and cook it until not quite tender. Drain, and then make a syrup of four cups of sugar, two cups of vinegar, four teaspoons of whole cloves, eight cinnamon sticks, and a sprinkle of mustard seeds. You can tie all of the spices into a cloth so that they don't stay in the container and darken the pickles.

Heat the syrup to boiling, then let it cool for 15 minutes before you add the watermelon rind and cook until the rind becomes almost transparent. Pack into hot sterilized jars and seal. Add one slice of lemon, if you like, or you can add other spices.

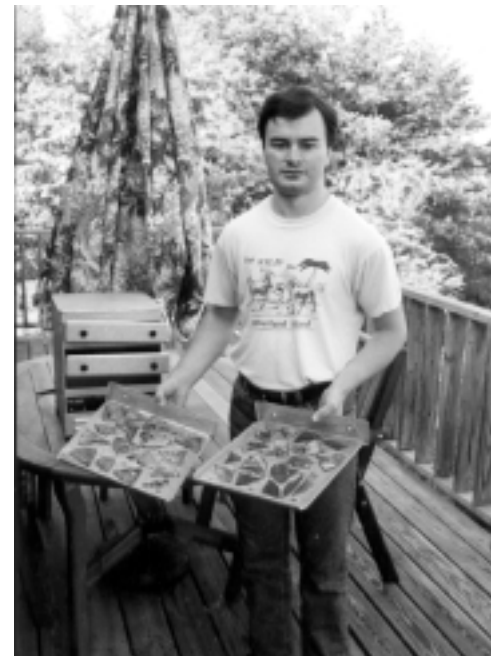
If you want to make watermelon rind preserves, trim the rind as before and cut into thin strips an inch long and half an inch wide and thick. Mix one-half cup of salt to one gallon of

cool water and soak the rinds for 8 to 10 hours. Then drain, rinse, and cook the rinds in water until they are transparent.

Drain again, then make a syrup of 8 cups sugar and 8 cups of water, the juice of four lemons, and any spices like cinnamon or cloves that you prefer (again, in a spice bag). Boil the syrup five to seven minutes and add the rinds. Cook until they are transparent and tender.

When the mixture has thickened to the desirable point, remove from heat and remove the spice bag. Pour the preserves into hot, sterilized jars and seal in a canner or in hot-water bath for 10 minutes.

That takes care of everything but the outer rind and the seeds. Dry the seeds and save them to plant next year, and use the outer rinds for compost.



The finished product looks like this.

Then, when winter winds blow and the searing heat of summer is only a memory, you can recapture a taste of summer by pulling out a handful of dehydrated watermelon.

And then your pleasure was well worth the work. Δ

The Cochrans boost their sales with humor

By Vern Modeland

First you have to have a source of income before you can successfully make a sustainable home in the backwoods. Michael Cochran thinks that has priority over anything else when it comes to planning your escape to self-reliance.

Maybe your dream is of raising goats and having a garden once you have your shelter hammered into livable shape, but short of poverty or assistance, there has to be income to meet all the outgo. That just never goes away.

Michael Cochran and his wife, Penny, after more than 12 years as a team, are still working on many of the details of getting their own dream homestead established on the west slope of the Sierra Nevada Mountains in California. But they're not in a hurry, they say. They've found a fun way of making money. In fact, humor is a tool they say you too can use to make a better living.

Michael and Penny own *Olive Drab Enterprises*. Their business is buying



Mike and Penny Cochran stand by their booth at the Preparedness Exposition in Denver, Colorado. They use humor on signs to increase sales.

and re-selling government surplus property. Some of it they sell at the preparedness expositions and knife and gun shows that are held within 1,000 miles or so of where they live just outside of Grass Valley, California. They're usually easy to locate at these shows and expos. Theirs will be the booth that about anyone can tell you how to find. It'll be one with a large crowd around it, the one where people are walking away with smiles on their faces. And often they're also carrying something they just bought that they never dreamed of buying.

Humor that sells

Could you resist "Equality Pants" for just \$2, or 3 pair for \$5? "Fit men or women equally. Protect them equally also," explains a sign. Equality Pants in reality are government surplus hospital scrubs.

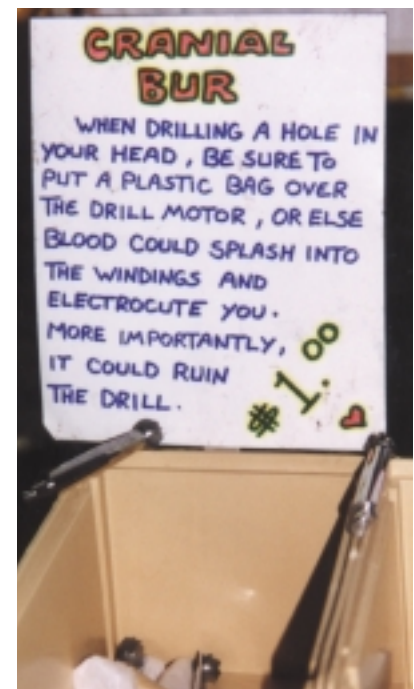
And who wouldn't want an "Original Coors Crucible?" These are white bone china bowls. "They're

cheap! Trust me on this one," promises another colorful hand-lettered sign.

Or a "Secret 33rd Degree Masonic Illuminati New World Order Glass



The Cochrans are often irreverent with sense of humor.



No holds barred with the Cochran signs. Their prices are cheap too.

ing more money at the flea market than I could at a vacuum cleaner shop. Let me take you to the [military] base so you can start buying stuff that would really be good for the flea market instead of just emptying out my garage.”

They went into business together buying surplus and reselling it at flea markets. And that’s just what Mike and Penny continued to do early in their marriage. Then another friend suggested they take a look at a gun show. Neither of them had been to one before, Mike recalls.

Gun shows

Where flea markets charged \$12 to rent a table, a gun show sales space cost more like \$45, they found out. But the potential for income looked better than flea markets.



Michael Cochran demonstrates a sales leader—magnesium fire-starting kits.

“And we had enough stuff to rent 20 tables.”

So they sorted through their surplus goodies, selecting what they thought might get the attention of folks who

go to gun shows. They then rented three tables at one of the shows.

“We did so good we were in shock,” says Mike.

“Every time our competition sold \$1 worth of stuff, we sold \$20.”

The Cochrans sold as much the first day of the gun show as they could in a month at flea markets.

And in their free minutes, they walked and talked, looking at what was going on around them. Fewer than half of the exhibitors were selling guns, the Cochrans learned. They also saw there was plenty of competition for selling holsters, ammunition, relocation information, and the like.

“So we shifted to buying more surplus that we thought would fit gun shows.”

Government surplus stocks often included a lot of medical items that they could buy cheaply in quantities.

“Things people could never get at a drug store because they just aren’t available there, things of interest to survivalists or field gun users, so they can prepare a complete First Aid kit and even do dental work.”

There were suture kits, scalpels, burn dressings, disposable thermometers, and rolls of stretch gauze.

Dental tools that the Cochrans bought as surplus included small drill bits, grinding attachments and other tools useful in engraving guns. And, with a little persuasive suggestion, other hobbyists could find a need for surplus dental tools too, Mike adds, sounding much like a salesman.

Some other exhibitors displayed similar things, Mike admits, and their prices sometimes were not all that far apart. But, as true salespeople, he and Penny aren’t easily discouraged. They didn’t do as they saw others doing—



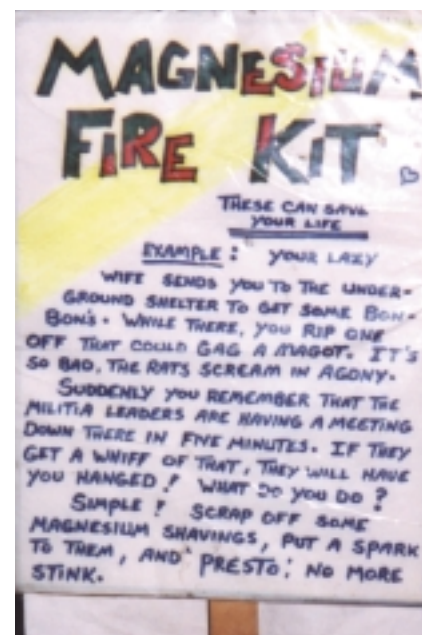
Some of the signs are political, with a decided anti-government and anti-UN slant.

“throwing stuff on a table and when people ask how much, make up a price as you go.”

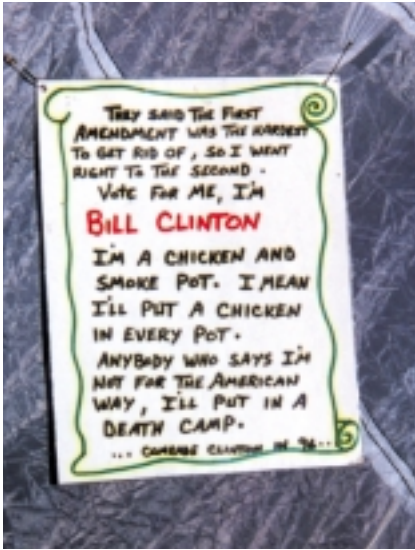
Jokes as a marketing tool

“We made some signs that had a lot of humor. People liked that and that egged us on to make more.

Soon, we had a sign with a funny



A close-up of the magnesium fire starter kit sign



Every item displayed for sale has its own story to tell.

saying for about 90 percent of our display products. We found people coming by just to read the signs. It would take them sometimes half an hour to walk around our table to read all of our signs. We became, like, the entertainment section.”

“A lot of people would say, ‘you ought to charge admission just to read the signs and not sell anything,’” Mike recalls.



Many of the items they sell are very inexpensive. But can you use them?

“We started making a profit on 25- and 50-cent and dollar items. Now, guns sell for \$300 and \$500 and more. And not everybody is that rich every day, but most have a couple of bucks to spend. So they come to our tables and read the funny signs and that makes them look at the merchandise and finally they will find something they actually might use.”

And a profitable business was born, one that Mike and Penny Cochran think is suitable for a lot of folks who want to live in rural areas.

It takes a lot of time and energy, but the Cochrans think it makes more sense than trying to make meaningful money by selling produce or poultry or hand-crafted items to neighbors or anyone who might happen by the homestead or stop at a roadside stand.

Anybody can do what they do and do it well, Mike is convinced.

“There are now trade shows in every interest you can imagine. Doll shows, auto shows, ham radio, computers. The preparedness shows are endless.”

Whatever you get interested in, Mike suggests, ask the people at the shows who look like they do it for a living where they will be going next.

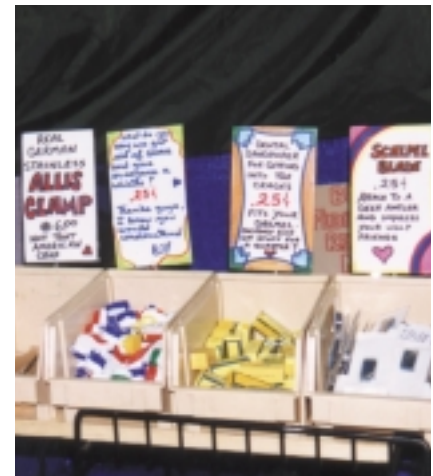
“They’ll likely tell you the location, then add where they will be going from there and you can learn the show sponsor or promoters name. “It doesn’t take you but an hour at any of these shows and you’ll have their schedule for a year. And once you get on the list you’ll be getting mail coming out of your ears with offers from all over the country. All of the promoters will be wanting you to come to their show and you’ll know ‘em all so it is real easy to get in.”

Cochran philosophy

Start your self-reliance in the country but don’t depend on the country for your income is Mike Cochran’s theme.

“Anybody who is going to move to the country needs to prepare while they’re in the city,” Mike says. Do a simple thing like buy an RV or a trailer house or something you can live in, and then go out to the country and rent or buy a little piece of land for the lowest down you can get. Put the trailer on it and buy a couple of those container sheds and set them out for a storage or extra bedrooms. Now you are living for relatively low rent so you can use the money you save up to invest in yourself which is your business.

“Maybe then you can move into your sales realm by getting items from



Everything you ever wanted or think you might want someday.

the city or making something at home. Assemble such things as kit radios or burglar alarms—or whatever—all week, then on weekends go to the shows and expos and sell whatever you’ve got. You might buy holsters wholesale for selling at gun shows. Buy electric trains and refurbish them. Or books or T-shirts, and market them. That’s the easiest way to get out of the city. And once you become able to make ends meet living in your RV or trailer house, you can take the next step.

“Remember, if you want to save money, it is always easier to earn money first.” Δ

Convert dead space to closet space

By Oliver Del Signore

If there's one thing few homes have enough of, it's storage space. This is despite the fact that many home owners are fortunate to have spacious attics, full basements, garages, or storage rooms in which to store all the precious possessions they either can't bear to part with or forgot they own. All of these are good for large items or for things we use but once or twice a year. However, quickly accessible storage space within the living area, where there are no extremes of temperature or humidity, is often at a premium.

But anyone can build a storage closet that can be tucked under a stairwell, located at the end of a hallway, or even in a room that has extra floor space. To make my own, I decided to utilize some dead space at the end of a hallway (Figure 1).

Measuring

My first step was to determine the dimensions of the new closet. I found I could install a closet whose outside dimensions would be 59½ inches long by 18½ inches deep. This would allow it to line up with but not block the stairwell on the opposite wall. Neither would it interfere with the existing window or with the door leading to the attic.

Drawing the plans

It is far better to make mistakes on paper than it is to make them in the actual construction. That's why I always draw up plans, even for the smallest project. The plans can be as neat and ordered as an architectural rendering or as messy as some lines scratched on paper. The important things to remember are to note all measurements, the size and arrange-

ment of all components, and to include a detailed materials list so you won't be running back and forth to the local home center or hardware store (Table 1).

My plans consisted of two different drawings. The first was a stud layout for the two new walls, which also noted the position of the shelves (Figure 2). The second one showed how I expected the outside to look when I had finished (Figure 3).

As I laid out the wall studs, there were a number of important points I had to remember:

- When using 2x3 or 2x4 lumber, the studs should be placed 16 inches apart, center to center.
- The first 16-inch span is measured from either the existing wall or the outside corner of the new wall to the center of the first stud (Figure 4A).
- An extra stud is placed at the outside corner of the wall to help stiffen it (Figure 4B).
- If the inside will be finished, rather than leaving the studs exposed, an extra stud must be added at the corner to provide a place to nail or screw the wall-board or other finish material. This is called a return. Installing

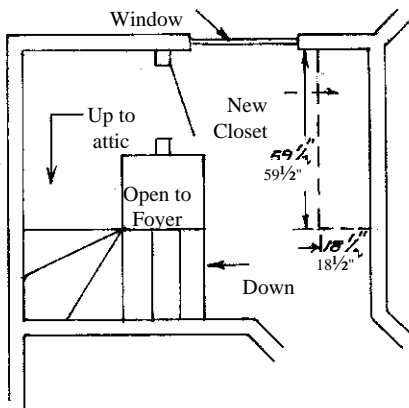


Figure 1. Dead space in my hallway I decided to turn into closet space

Table 1. Materials list

16	2" x 4" x 8' KD stud
2	1" x 6" x 7' clear pine
1	1" x 6" x 5' clear pine
2	1" x 6" x 5' common pine
1	4½" x 3' colonial base
2	2½" x 8' colonial casing
1	2½" x 5' colonial casing
1	¾" 4' x 8' sheet luan plywood
5	¾" x ¾" x 8' ground
2	½" 4' x 8' drywall
1	10' metal corner bead
2	1⅜" x 24" x 80" hollow core luan door
1	4' track kit for doors
1	gallon joint compound
1	roll joint tape
	assorted drywall screws 1⅝", 2½", 3", 4"
	drywall nails 1½"
	finish nails 4d, 6d, 8d
	common nails 6d, 8d
6	4" toggle bolts
6	heavy flat washers
1	gallon Alkyd Primer
1	gallon latex finish paint
1	gallon polyurethane

a third stud at the corner of the long wall will further stiffen it as well as form the return for the inside finish (Figure 4C).

- The shelves must be supported on both ends and along the back by shelf cleats (Figure 5). If any shelves will not be as deep as the closet itself (usually the case with high shelves), a stud must be added at the appropriate depth to provide a place to which to nail the shorter shelf cleat(s) (Figure 4D). An alternative is to simply run all the end cleats the entire width of the closet.
- If the door casings are much wider than the 2¼-inch to 3½-

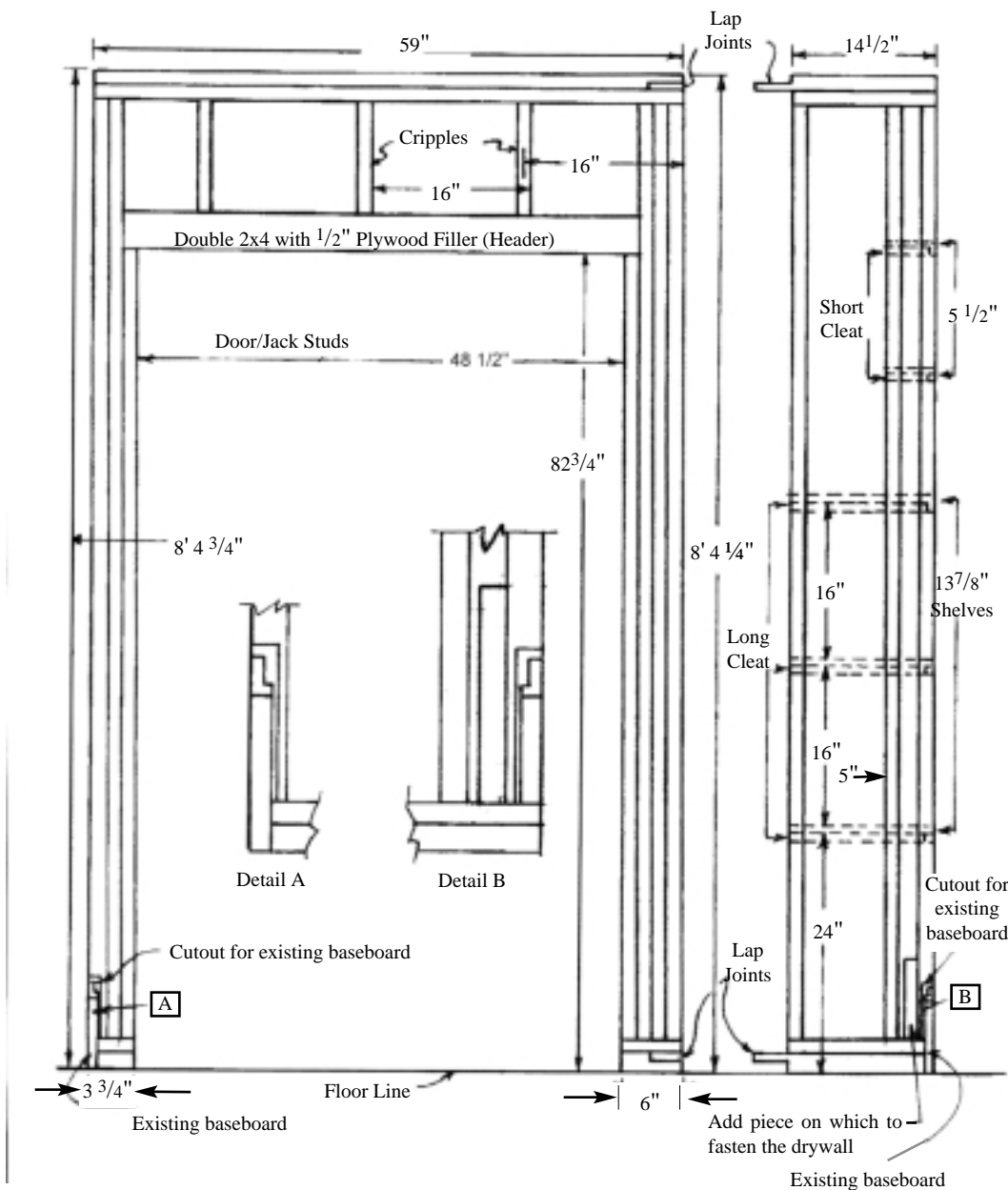


Figure 2. Stud layout for the two new walls which also notes the position of the shelves

inch widths, which are common today, an extra stud must be added next to the door frame to provide nailing for the outside edge of the casing (Figure 6).

- Always check the manufacturer's rough opening recommendations for the door unit you will be installing. Generally speaking, to calculate the rough opening:

Hinged doors: add $2\frac{1}{8}$ inches to the width of the door and $2\frac{5}{8}$ inches to the height of the door to allow for the frame.

2 sliding doors: add $\frac{1}{2}$ inch to the total width of both doors and add 2 inches to the height of the door. This allows for $\frac{3}{4}$ -inch finish material applied directly to the studs on both sides and along the top.

Folding doors: read the installation instructions for the particular type of door being installed.

The ceiling height in the hallway varied from 8 feet $4\frac{1}{4}$ inches to 8 feet $4\frac{3}{4}$ inches. Such variation is not an unusual occurrence in an older home. Since the standard stud length is 8 feet, that meant I would either have to purchase 10-foot studs—at a significant premium and then waste about 20 inches of each one—or double up on both the top and bottom plates, then trim the standard studs to fit at each location. Being thrifty, and hating waste, I chose the latter option.

While doing the drawing which showed the finished view (Figure 3), I tried a number of different door arrangements. I finally settled on double, 24-inch sliding doors. The sliders would allow easy and complete access without having to be concerned with door swings.

If a light will be installed in the storage closet, now is the time to think about how to get the wires there and

where to locate both the fixture and the switch.

Purchasing materials

Nearly everyone who has ever purchased lumber has had the experience of buying nice, straight 2x4s, bringing them home and discovering the next day they had twisted and warped, making the whole job more difficult.

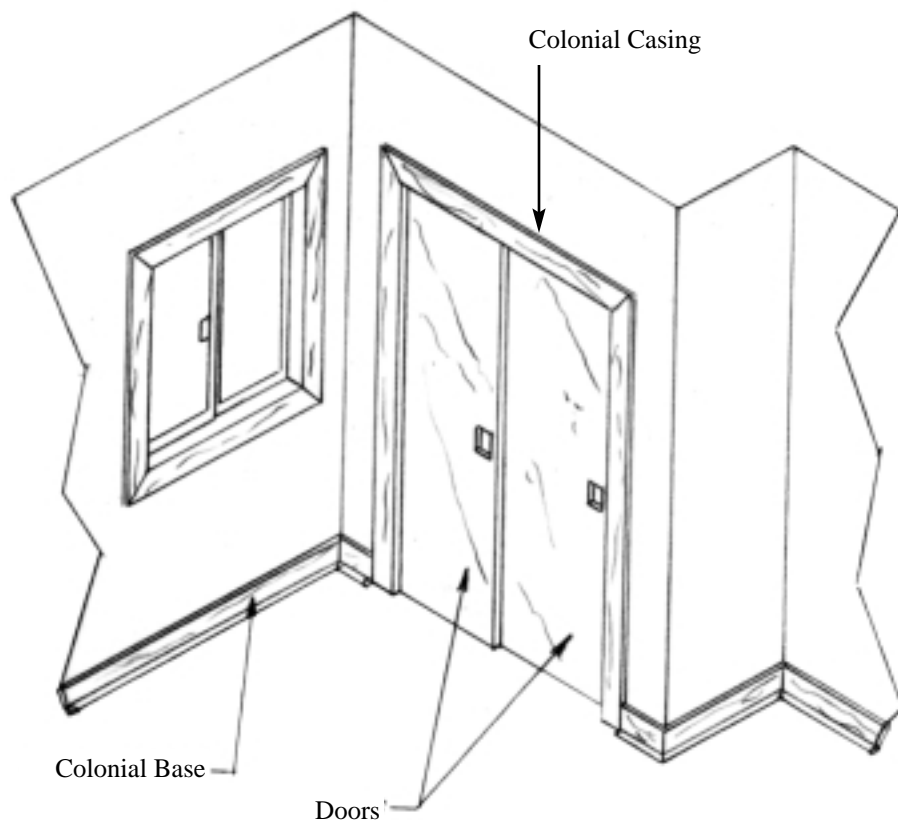


Figure 3. The expected outside look of the closet when finished

With lumber, as with most other things, you get what you pay for. Buy good grade studs, preferably kiln-dried.

In addition to studs, I also purchased some clear 1x6 pine to finish the door opening, 4½-inch colonial style base-board, 2¼-inch colonial style door casing, ½-inch drywall, metal corner

bead, two unhung 24-inch hollow core 1⅜-inch luan doors and a track kit with which to hang them. For the top shelves I purchased 1x6 common pine, and for the bottom shelves a sheet of ¾-inch luan plywood.

I had plenty of nails and screws in the basement, as well as the joint compound, joint tape, and tools I would need to finish the walls—all leftovers from other projects.

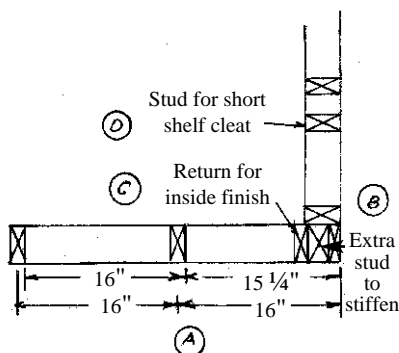


Figure 4. The placing of an extra stud at the outside corner of the wall to help stiffen it

Layout

Ceiling plate: I placed my straight-edge flat against the ceiling along the existing long wall to establish a straight line, then placed my ruler against the drawn line and measured out to a distance of 18 inches from the wall in two locations (Figure 7A). After connecting the two marks, I measured 59 inches from the existing

side wall, then used my framing square to draw a right angle for the corner (Figure 7B). I now had the outside line of the top plate.

Bottom plate: To transfer the position down to the floor for the bottom plate, I used my plumb bob to drop a line from the exact point of the outside corner (Figure 7C). I also dropped from a point near where the new walls would meet the existing walls. Connecting the points with the straightedge gave me the lines on which to install the bottom plate so that it would be perfectly plumb (vertically even) with the top plate.

Framing the plates

For stability, the top plate of the stud walls had to be fastened to the ceiling joists above it. I checked to determine which way they were running. As they ran perpendicular to the long wall of the closet, I knew I could fasten my top plate directly to them (Figure 8A). Had the ceiling joists been running parallel to the long wall, I would have searched for the strapping to which are fastened the ceiling laths in an old house or the blueboard or drywall in a newer home. (Figure 8B)

I cut the front piece 59-inches long and the side piece the full 18-inches long, both from the same eight-foot 2x4, then formed a half-lap joint on each piece (Figure 9). Once fastened together, this would help tie the two walls together for additional stability.

Next, I used 4-inch drywall screws to fasten the front plate to the ceiling.

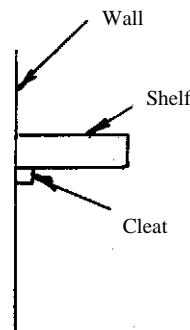


Figure 5. The supporting of a shelf with a shelf cleat

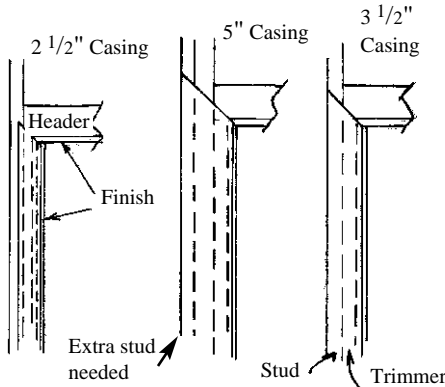


Figure 6. Adding an extra stud next to the door frame to provide nailing for the outside edge of the casing

Such long screws were required because I needed to go through the plate itself, the plaster, the old wood lath, and the strapping—all of which added up to three inches—in order to reach the joists. I could have used 20d or even 30d common nails, but I would have run the risk of compressing, cracking, or even pulverizing the plaster on the ceiling. Besides, swinging a hammer up and trying to drive a

large nail is so much harder than holding my power screwdriver and letting it do all the hard work. An additional benefit to using screws, not only to attach the plates but wherever possible, is that it makes taking the structure down much easier in the future, should I or a subsequent owner wish to do so. The screws went in easily with the help of my cordless driver. Had they not,

I would have drilled some pilot holes through the plate, plaster, and lath, which would have allowed them to glide in with less trouble.

The short side plate went up next. I used two 3-inch screws to fasten the wall end to the strapping I knew would be above it. I then used three 1⁵/₈-inch screws to fasten the lap joint.

The floor plate presented a special challenge. Due to the wide door opening, the front pieces were very short—6 inches on one side with a lap joint and 3³/₄ inches on the other.

Normally, I would simply lay a 2x4 running the full length, then cut out the piece for the door open-

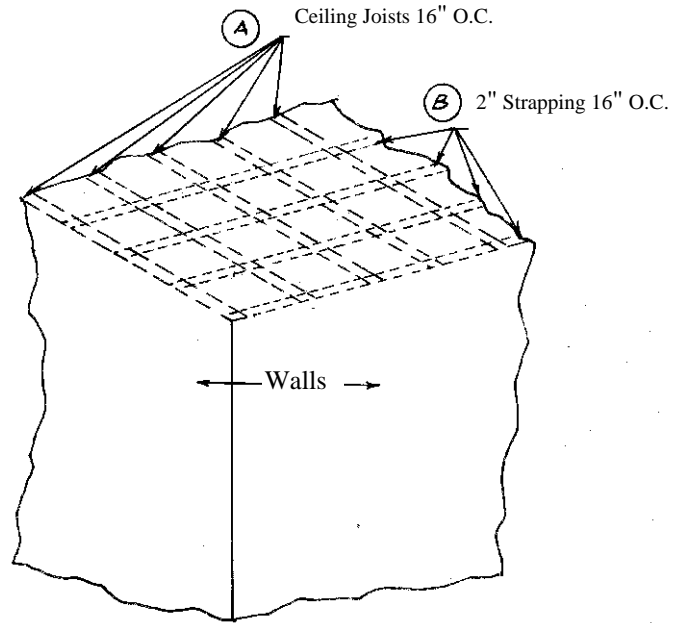


Figure 8. Fastening the ceiling plate to the ceiling joists above it

ing with a reciprocating saw, or hand saw, once all the wall studs had been installed. To do that here, however, could mar the finished floor. I solved the problem by first cutting a piece 59 inches and making the lap joint, as I did at the top. I then made partial cuts on the bottom of the plate where it would have to be trimmed later on (Figure 10). This way, when it was time to cut the area out, the saw blade would only need to go halfway through the plate. It would never even get near the finished floor.

I then cut the smaller plate to fit, fastening them both to the floor using 2¹/₂-inch screws. I made sure to screw down the long plate **only** in the areas that would not be removed later.

The ends of the pieces for the second layer of the plates were cut square, without the lap joints, which were not necessary on this layer. They were fastened to the first layer, top and bottom, using 2¹/₂-inch screws.

Framing wall studs

The 1/2-inch difference in height from one side to the other meant that

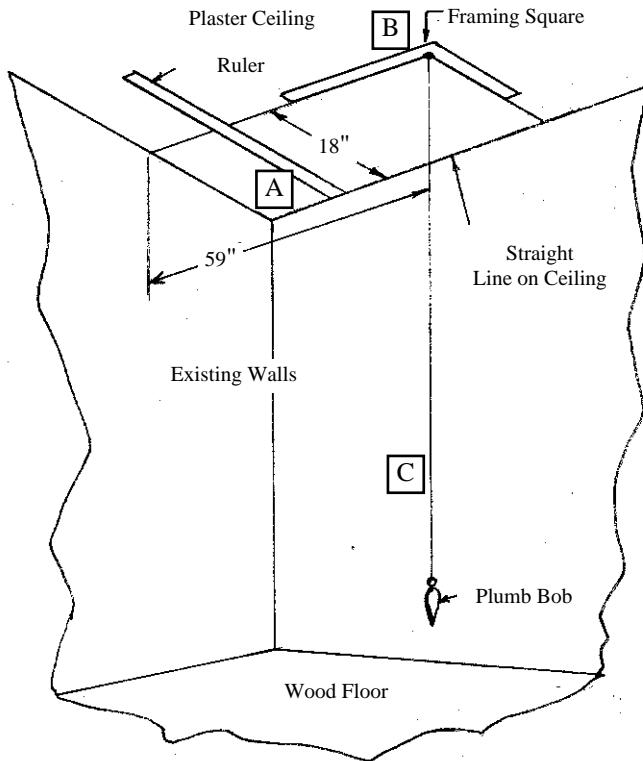


Figure 7. Layout of the ceiling and bottom plates

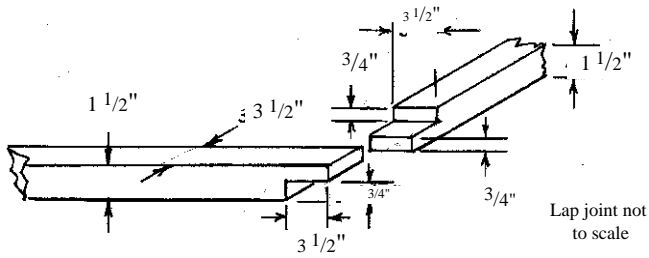


Figure 9. Forming a lap joint to help tie the two walls together for additional stability

the studs would have to be measured, cut and installed individually.

I worked first on the two studs which would lay against the existing walls, since they would need to be trimmed at the bottom to allow them to clear the existing baseboard (Figure 11, #1 & #2).

I did not try to scribe the studs to fit the profile of the baseboard. I simply made square cuts similar to the lap joints I had done earlier. I could have chosen to cut and remove the baseboard, but that would be far more work than trimming the studs to fit around it. It also left the baseboard intact in case the closet were ever removed in the future.

To the bottom of the end piece for the short wall (Figure 11, #1) I fastened a 12-inch long piece (see Figure 2) using 1⁵/₈- and 2¹/₂-inch screws. This would provide stability, good

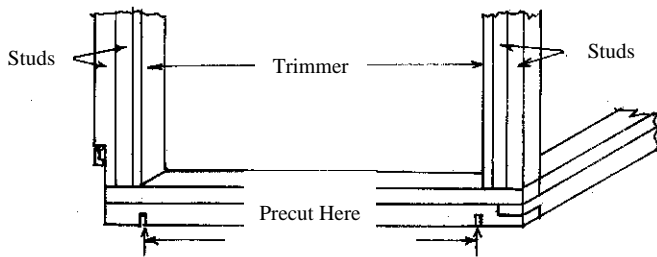


Figure 10. Precuts in the bottom plate to help prevent marring the finished floor during installation

nailing, and an ample surface for fastening the drywall and baseboard finish.

Neither end stud met the wall where there was an existing wall stud. Since

the thickness of the stud (1¹/₂ inches) and the thickness of the existing plaster and lath (3/4 inch) to the length of the wing on the bolt (3/4 inch) when it was folded,

I determined that I needed bolts at least 3-inches long. I decided to buy the 4-inch size, though, so the wing would not have to remain too close to the end of the bolt. I also purchased six heavy duty washers which I placed between the wing and the head of the bolt. These would allow me to tighten the bolts without the heads sinking into the wood.

Since my drill bit was not long enough to pass all the way through the stud and the wall, I temporarily tacked the two studs into position, then drilled holes just wide enough to allow the wings to pass through. Next, I removed the studs and drilled the rest of the way through the plaster and lath.

I could not screw the new stud to an existing one, I decided to use three toggle bolts (Figure 12) on each stud in addition to toenailing the top and bottom to the plates. By adding the thick-

ness of the stud (1¹/₂ inches) and the thickness of the existing plaster and lath (3/4 inch) to the length of the wing on the bolt (3/4 inch) when it was folded, I determined that I needed bolts at least 3-inches long. I decided to buy the 4-inch size, though, so the wing would not have to remain too close to the end of the bolt. I also purchased six heavy duty washers which I placed between the wing and the head of the bolt. These would allow me to tighten the bolts without the heads sinking into the wood.

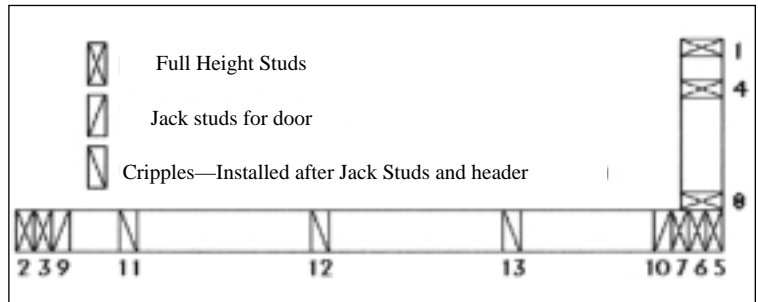


Figure 11. Wall stud installation order

I then installed the second stud on the long side near the wall (Figure 11 #3) as well as the middle stud on the short wall (Figure 11 #4).

The four studs that formed the outside corner of the long side (Figure 11

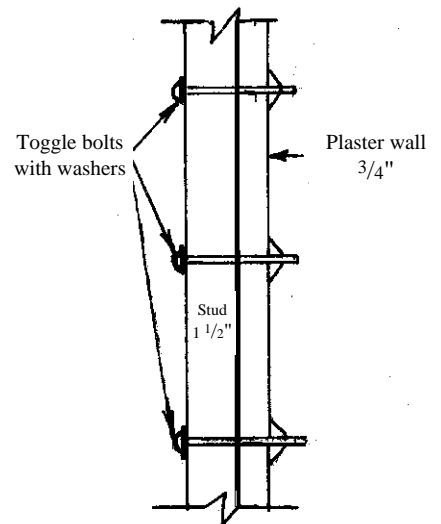


Figure 12. Using toggle bolts to affix the studs to the wall

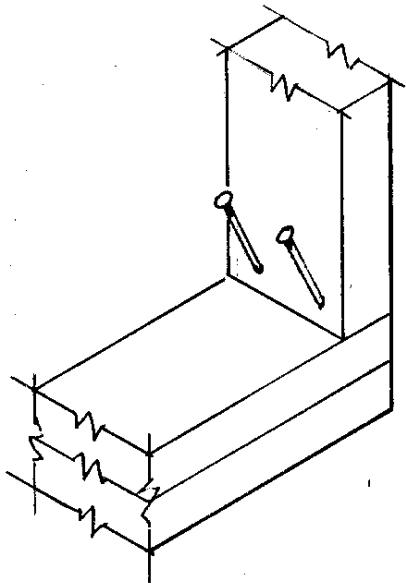


Figure 13. Toe-nailing the studs in the corners

#'s 5, 6, 7, 8) were installed one at a time. I measured, cut, then toenailed the corner stud (#5) to both the top and bottom plates using two 8d common nails on both of the long sides, at the top and at the bottom of the stud (Figure 13).

One at a time, the next two were toenailed using two 8d common nails at the top and bottom, then joined to the previous stud using two 2½" screws every two feet.

The door studs, also known as jack studs, which would be supporting the door header, were installed using only screws. Sets of two 2½-inch screws were spaced about 16 inches apart.

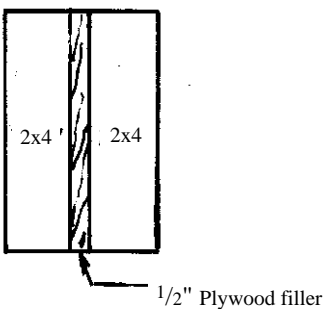


Figure 14. Plywood filler between the studs

The header itself was made of two 2x4s with a long piece of ½-inch plywood to fill out the depth and provide extra strength against sagging. These were all screwed together using 3-inch screws.

The header was installed on its "side" (the plywood filler in a vertical position) using two 8d nails on each side of both ends to toenail it to the abutting stud (Figure 14).

Finally, the short pieces, known as cripples, which run from the top of the header to the bottom of the top plate to provide nailing for the drywall were cut, then installed, making sure to keep them 16 inches on center.

It was now time to cut off the part of the bottom two plates that ran across the door opening. I used my reciprocating saw—sometimes known as a "sawzall." I was very careful not to move too fast and not to tilt the blade so that it might hit the finished floor. An ordinary hand saw, of course, would have worked as well and would have exercised my arm muscles as a bonus.

Drywall

Installing drywall is a two step process. The first step is to get it fastened to the wall. The second step is to use joint compound to fill and smooth all the joints, corners, and the depressions made by the nails or screws.

By following a few simple rules, a professional looking result can be achieved.

- Minimize the number of joints by planning the work. It is always better to install one large piece than two or more small pieces. Remember—every joint must be covered with joint tape, must have three or four applications of joint compound, and must be finish sanded. The fewer the number of joints, the less time and effort it will take to hide them.
- If small scrap pieces must be used, use them on the inside of

the closet where the finish will not be as visible.

- Always stagger end joints to minimize the likelihood of stress cracks in the future (Figure 15).
- Use the proper tools, both for installing the drywall and applying the joint compound.
- Take your time. You will have to live with the results of your efforts for many years.

And be sure to always wear a dust mask when cutting drywall or sanding the joint compound.

Cutting

The easiest and fastest way to cut drywall is with a sharp utility knife. Using a straightedge or a drywall T-

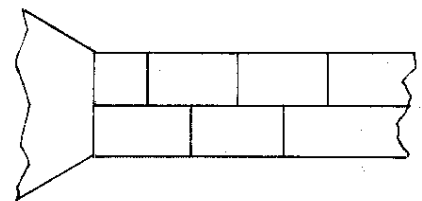


Figure 15. Staggered end joints will minimize the likelihood of stress cracks in the future

square, score the paper on one side, cutting slightly into the gypsum below. Slide a 2x4 under the sheet or slide the sheet over the edge of the table so that the score mark is even with the edge. Grip the drywall at the edge with both hands, then snap the gypsum core with a sharp downward motion (Figure 16). Turn the drywall over and cut the paper on the other side.

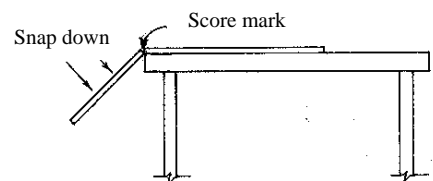


Figure 16. Cutting gypsum by first scoring then snapping the board

Fastening

There are two ways to fasten the drywall to a wall or ceiling—nails and screws. I believe screws to be superior since they are far less likely to loosen over time and “pop” off the covering of joint compound. Screws are normally installed with a special, ratchet-

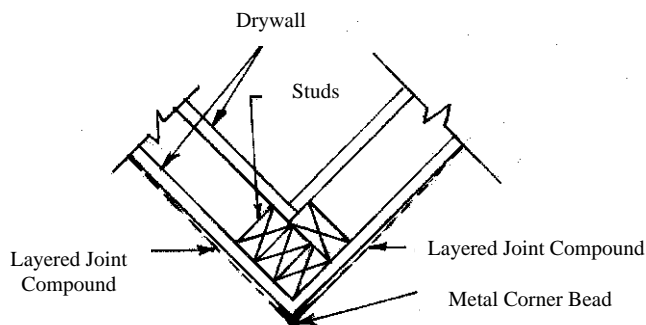


Figure 17. Using a metal corner bead and layered joint compound, outside corners will look professionally done

ing drill called a drywall gun or “Zip” gun. This tool has an adjustable collar ring that will set the screw just below the surface of the paper, but without breaking the paper or crushing the gypsum below it. It is possible to use a regular, variable speed drill to install the screws, but great care must be taken not to drive the screw in too far. That would break the paper, which is not good, since it is the paper that actually holds the board against the wall. Drywall guns can often be rented by the day from local building supply or rental centers.

If nails are to be used, bang the drywall nail in until the head just touches the paper, then give it one more blow to “dimple” the surface of the paper, creating a small, shallow crater which will later be filled with joint compound, then sanded smooth. Those who have never before done this should start with the inside of the closet. It is better to learn and make any mistakes there where they will not show.

Had my walls been 8-foot high or less, I could have avoided having a joint on the sidewall. Since they were

higher, I needed a small piece 4¼ inches high.

Normally, it is best to avoid such small pieces but I decided to use the small strip along the floor since it would be covered by the baseboard moulding.

I cut a strip 8 feet by 18 inches and another 4¼ inches by 18 inches. I installed the small piece first, along the floor, then used that piece to hold up the larger piece while I got a few screws into it. Starting at one side and working toward the other I used 1⅝-inch screws to fasten the drywall to

the studs. I spaced the screws every 10 to 12 inches on inside studs and every 6 to 8 inches at the edges.

The front of the closet I did differently. First, I cut a piece 59 x 18 inches to cover the area from the top of the door opening to the ceiling. Then I cut two pieces, one 3¾ by 84¾ inches and the other 6 by 84¾ inches for the small pieces of wall on both sides of the door opening. Thus, I was able to cover the whole outside with less than one 4x8 sheet of drywall.

I followed the same procedure on the inside of the closet except that I did the front wall first. That allowed the widest fastening surface on the return stud.

Corner bead

Outside corners are almost always covered with a metal bead which provides a crisp, clean corner line. The corner bead also helps to protect the corner from damage should something bang into it. It must be applied perfectly plumb and with the corner rib slightly higher than both wall surfaces. This will allow the joint compound to fill in the resulting slight valley and be feathered out so that the wall looks perfectly flat.

A good level is essential for getting the bead plumb. I began by laying the bead against the corner. Starting at the bottom, I made sure the sides were flat against the wallboard with the rib snug to the corner. This left a slight valley on each side if I placed a straightedge against the bead and the wallboard (Figure 17). I then hammered in a drywall nail at the bottom of each side. I used 1½-inch nails so that they would penetrate an inch into the stud below the drywall.

Next, I put my level vertically against the corner rib. Adjusting the bead until it was plumb, I tacked it with a nail on both sides every two

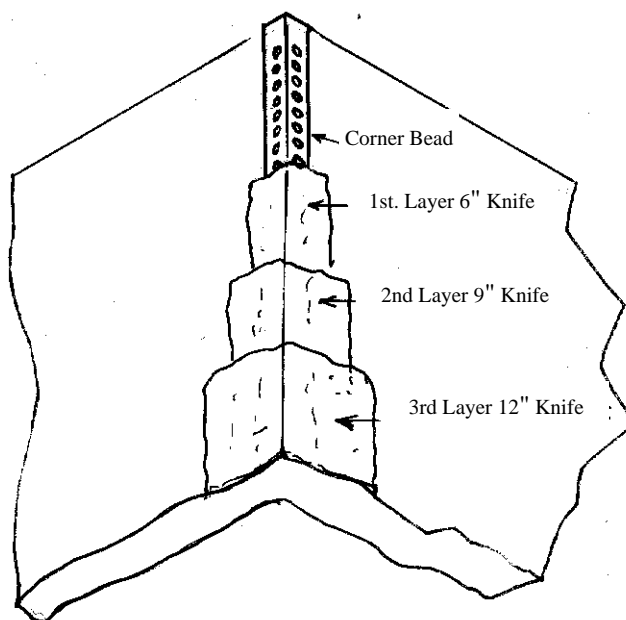


Figure 18. Applying joint compound in successive layers using the 6-, 9-, and 12-inch knives

feet. I continued this all the way to the ceiling, then went back, double checking and nailing the bead every six inches on both sides.

Applying joint compound

Thin layers are the secret to successfully applying joint compound. If applied too thickly, the wall will end up with noticeable “waves” or ridges that take forever to sand smooth.

The most important tools for compounding are the 6-, 9- and 12-inch taping knives. Using these, you can achieve professional looking results with just a little practice. If you have never applied joint compound before, practice on the inside of your closet where even major mistakes will not be readily visible.

The other materials needed are the compound itself, paper joint tape, a small bucket, trough or other means of holding small amounts of compound as you are applying it, and medium grit (100-120) sandpaper.

Apply a 6-inch wide coat of joint compound over the corner bead on each side. When dry, sand off any ridges with the sandpaper and a sanding block. Use a very light pressure when sanding. Try not to go over bare paper so as to avoid scratching it, and be careful not to let the sandpaper dig into the dried compound. If you do happen to gouge the compound, simply apply more, in thin layers, until it's even with the adjacent area.

Apply a second thin coat using the 9-inch knife, making sure to feather out the edges to nothing. When dry, apply the last thin coat with either the 9- or 12-inch knife, again feathering the edges (Figure 18).

Joints

Using the 6-inch knife and, allowing it to straddle the joint, apply a thin coat the full length of the joint. Next, starting at the top or on one side, press the paper tape into the compound with the knife. Make sure to keep it flat and

to avoid tearing the paper. Immediately apply a second thin coat of compound over the tape, still using the 6-inch knife. Do this gently so as not to disturb or tear the tape. When completely dry, knock off any ridges and apply another coat with the 9-inch knife. When dry, repeat with the 12-inch knife.

Inside corners

Fold the tape lengthwise to a sharp crease. Apply a thin coat of compound to both sides of the corner. Carefully press the tape into the still wet compound with your fingers, getting it even on both sides for the whole length. Then, use the 6-inch knife to smooth it and feather out the compound and let dry.

Apply the second coat with the 6-inch knife again and the third with the 9-inch knife. A fourth coat is not usually necessary, but it certainly will not hurt to apply it if you want to. I did not bother as it was inside the closet.

Nail/screw dimples

Dimples require two to three coats. Apply the compound with the 6-inch knife and allow to dry. If you are careful and do not allow extra compound to stay on the paper surrounding the dimple you may not have to sand when it is dry. There will invariably be a small crater or crack in the middle of the spot where the compound shrunk. Apply the second, third, or even fourth coats, as necessary, allowing each to dry before applying the next. After the final coat, gently sand and smooth.

Final finish

Drywall should always be finished with paint, even if you will be applying wallpaper. One coat of oil-based or alkyd primer and one or two finish coats of latex will provide a good base on which wallpaper can be applied and, someday, removed without destroying the drywall underneath.

Shelves

This closet would serve as a catch-all space for a mix of items that included boxes of books, magazines and clothes, games—pretty much anything and everything we wanted to be quickly accessible but had no space for in the bedrooms.

The bottom three shelves would be 13⁷/₈ inches wide while the top two would be 5 1/2 inches to allow for easy access. I had purchased 1x6 pine for the top shelves. Since it is factory milled to 3/4 x 5 1/2 inches I would only have to cut it to the proper length. For the wide shelves, I had chosen a 5-ply, 3/4-inch luan plywood both for strength and for the luan finish which is smooth and attractive.

I used my ruler to measure up from the floor, marking the height of the top of each shelf cleat at one spot on the wall. Next, I used my 4' level to draw a level line along the back wall for each shelf. Since the side walls were much too short to use my 2' level, I set a small torpedo level on a straight scrap of lumber and used that to extend the lines onto the side walls.

These days, one can spend twenty or thirty dollars for an electronic stud locator that will find the studs behind most plaster, wood and even tile walls. Being as thrifty as I am, however, I used a 6d finish nail and a hammer to locate each stud in the existing walls. I was careful to make the probing holes just below one of the lines I had drawn, so that the holes would be covered up by the shelf cleat, once it was installed. I made a small pencil mark above the level line at each stud location, so I would know where to put the nails or screws I would use to fasten the cleats to the walls. Once I had marked all the stud locations along one of the level lines, I used my level to transfer the location marks to all the other shelf lines.

As I was concerned about doing too much banging on an old plaster wall, the cleats were then cut to length and fastened to the wall using 3" drywall

screws instead of nails. Using the screws involved an extra step. I had to drill a pilot hole and countersink for each screw so that the shaft would not split the cleat and the head would be able to sit flush with the surface.

I cut the bottom three shelves from the sheet of plywood using my $7\frac{1}{4}$ -inch circular saw and a metal straight-edge which I clamped to the plywood as a guide. First I cut the sheet to a length of $54\frac{7}{8}$ inches. That would make the shelves $\frac{1}{8}$ inch shorter than the actual length of the space which would allow the shelves to be installed and removed without binding. I then ripped the piece into three $13\frac{7}{8}$ inches wide strips then gave all the edges a good sanding, both to smooth them and to slightly round them, which would help prevent splintering in the future.

The top shelves were easy since I needed only to cut the 1 x 6 stock to the proper length, then sand and slightly round the edges.

Doors

With the shelves done, I moved on to the doors. First I had to install the pine finish over the exposed studs that formed the door opening. I cut the top piece first, then the sides. I did not bother to miter the corners since all but a small strip of the front edge would be covered later by the door mouldings. The pieces had to be ripped down to a width of $4\frac{1}{2}$ inches, which would cover the stud and both layers of drywall. I did this on my table saw, but I could also have done it using the rip guide that came with my circular saw.

Once ripped, I sanded the cut edge a bit to remove the roughness. I didn't bother making it perfectly smooth since I would install the pieces with the cut edges toward the inside.

Keeping the front even with the edge of the drywall, I used 6d finish nails, which I hammered in until they were almost flush with the surface of the wood, to fasten the top, then both

sides. When all three were installed, I went back and used a nail set to set the nails $\frac{1}{16}$ inch below the surface of the wood.

I then followed the instructions that came with the track kit. The top track went up first, then the rollers were fastened to the tops of the doors. I tilted the doors up onto the tracks and, once again, followed the instructions on how to adjust them so that they would fit squarely against each side.

Mouldings

Next came the mouldings. I cut and fit the moulding around the door first since the base moulding had to butt up against it. I started by marking a $\frac{1}{4}$ -inch setback in two places on the front edge of both sides and the top (Figure 19A). Using my level to bridge the two marks on each side, I drew both a vertical and horizontal line at each corner to locate the exact spot where the inside of the side and top mouldings would meet (Figure 19B).

Taking a length of the door moulding, I positioned it across the $\frac{1}{4}$ -inch marks on the top edge, then transferred the two corner marks onto it and marked the direction of the cuts. At the miter box, I was very careful to make the 45 degree angle cuts just at the corner marks.

I tacked the piece in place using 4d finish nails along the inside edge, making sure that it lined up exactly with the setback and corner marks. I then took another length of door moulding. Placing one end on the floor and aligning the moulding with the setback

marks on the left side of the door frame, I carefully marked the inside edge where it met the top piece. I repeated that for the right side of the door frame, then cut both pieces.

My trial fit showed me that the left side fit perfectly but that the right side was just a hair too long. Rather than mess around with the miter cut, I chose to remove the small amount necessary from the bottom of the piece, where it would meet the floor, since that would be an easy square cut.

Once everything fit nicely, I nailed them in place using 4d finish nails on the thin, inside edge and 6d finish nails along the outside where the wood was thicker and where I would have to penetrate the drywall before hitting the stud below.

Only two pieces of base moulding, those which formed the outside corner, were required since the door moulding on the left side butted against the existing base moulding on the old wall.

First, I scribed the end which would go against the existing moulding, in order to ensure a tight fit. I used my dividers, but I could also have used a pencil taped to a stick. With my block plane, I shaved the end of the piece down to the line, then checked to

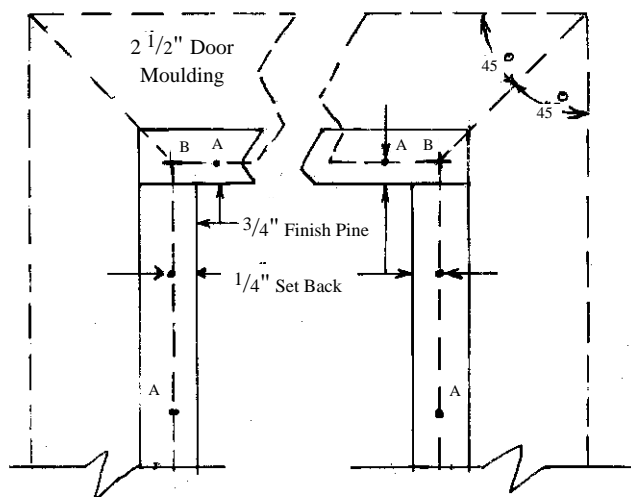


Figure 19. By accurately measuring where the mouldings would meet, you can ensure a professional looking finish.



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make sure it fit perfectly. Holding the piece in place, I marked the spot just at the corner, then used my miter box to make a 45 degree angle cut. I repeated the process on the short piece for the front, then nailed both pieces using 6d finish nails.

All that remained now was the finish work.

Paint & varnish

I decided to stain the doors and mouldings to match the color of the existing woodwork in the area. I removed the doors and brought them down to the cellar where I could lay them flat to work on them. I lightly sanded them on all surfaces, including the top and bottom edges, using 220 grit paper, then vacuumed the dust. Next, I used a tack cloth to lightly rub over the surface of the doors to remove every last speck of sawdust that the vacuum might have missed. Had I not done so, the sanding dust on the surface of the doors could have ruined the finish I would be applying.

Donning a pair of rubber gloves, I used a small, lint free rag to wipe the stain onto the front side of each door and all the edges. I like to do the front side first so that any drips I might miss will end up on the bottom edge. Since the bottom is the back of the door they will not be easily visible. I let the stain sit on the doors for about 30 minutes, according to the directions on the can, then used a clean, lint free cloth to lightly wipe down the doors, removing any excess that had not been absorbed. The doors would now have to dry for several hours so I decided to work on the mouldings.

The first step was to set all the nails in the mouldings as I had done on the pieces for the door opening. I then sanded it all using 150 grit paper and then 240 grit paper for a smooth finish. As with the doors, I vacuumed, then used the tack cloth to remove all the dust.

I used a brush to apply the stain, rather than a cloth, since I wanted to

avoid getting stain on the painted walls. After 30 minutes, I rubbed it down with a lint free cloth, just as I had done with the doors.

When all the stain was completely dry, it was time to apply the first coat of varnish. I chose a satin urethane varnish because it would be durable and would match the gloss level of the existing woodwork in the hall. I used a two inch brush and applied a thin coat, being careful not to leave puddles on the doors or drip marks on the vertical surfaces of the mouldings. I also chose to varnish all the shelves to seal the wood and help prevent future splintering.

Hint: To avoid troublesome air bubbles which can mar the finish, do not use the rim of the can to scrape the excess varnish off the brush after dipping it. Instead, tap the brush on the inside surface of the can. Also, after you have finished a surface, lightly drag the tip of the brush from one end to the other, over the whole surface, to even out any brush marks.

The first coat of varnish took about 8 hours to dry completely. I sanded it very lightly, as per the directions on the can, then vacuumed, used the tack cloth and applied the second coat of varnish.

I let the second coat dry for 24 hours. Then, I turned the doors over and repeated the steps I had done on the front.

Each of the shelves also received two coats of varnish to seal them.

The nail holes on the woodwork were filled using a special colored wax pencil which is widely available at home centers and hardware stores.

The walls were primed, inside and out, with an alkyd primer, then finished with two coats of latex paint.

The next day, after the shelves and doors had completely dried and cured, I re-hung the doors, installed the shelves and the closet was complete.

Forty-eight hours later it was jammed full. Δ

How to make fruit picking easy

By Robert L. Williams

It's great to have fruits of all sorts growing in the back yard or along the roadside, and it's hard to beat the taste of an apple or peach picked right off the tree on a sunny day. The only problem is that sometimes the best fruit seems to be in the very top of the tree, and you either have to climb the tree and risk breaking limbs (the tree's and yours) or hauling a ladder to the site and climbing it.

As kids we used to rock the trees—in more ways than one. We'd try to shake the tree hard enough to dislodge the apples or other fruit, and at times we'd even climb the tree in order to get more shaking done. This was not a solution, however; the damage to the tree was too great, and the dislodged fruit would be damaged by the fall and would not keep more than a day or so.

So we made our own fruit-picker. Total cost is under \$2, and the time needed is about half an hour—unless you have to cut the handles, as we did—and still do.

You need an empty tin can with the top cut out of it, and you will also need two or three long and slender bolts with wing nuts. That's about it, other than the handle, which can be made of almost anything from metal pipes to slender saplings.

Here's how to make the fruit-picker. Start with the can. If you want to pick only one apple or peach at a time, you can use a small can, such as the can used to hold corn, green beans, or fruit in the supermarket. If you want to pick several of the best fruits at one whack, use an empty and large grapefruit or orange juice can.

Be sure the top is cut completely away. A kitchen can opener will do the trick nicely. Now use tin shears or hacksaw (you can even use scissors, but don't let your wife catch you doing it) and cut from the top straight down for about an inch or two. The exact length does not matter.

Now make another cut to the side of the first cut and about half an inch or so from it (again, the exact distance is unimportant, but the cut should not be more than an inch away). Bend the tab between the two cuts out from the side of the can and snip it off. If you prefer, you can make a vee-shaped cut and the tab is cut away with the second cut.

Now you need to fasten the can to a long pole or pipe. You can punch two holes in the can on the side opposite the slot you cut out about two and three inches from the top. Lay the pole on the ground and lay the can on top of the pole so that you can drive nails (with large heads, to keep from pulling out) through the metal and into

the pole. You can also use screws and a long-handled screwdriver for an easier and more stable hold. Drill pilot holes at an angle and then start the screws.

You are now in business. To pick

fruit, simply hold the pole and can up and slip the opening in the top of the can under the fruit. Be sure that the stem slips into the groove or notch you cut, and then push upward. The pressure of your push causes the apple to wedge against the side of the can at the point of the notch, but because the apple is too large to go through the



Cutting the notch in the top of the metal can



Fastening the can to the top of the pole



Drilling the holes for the extension pole



Attaching the extension pole

opening the stem breaks and the apple drops softly into the can.

You can lower the pole and retrieve your fruit, or you can pick two or



Using the extended pole and picker

three more apples or peaches and retrieve all of them at once.

But the odds are that the pole still will not reach the top of the tree where some of the best fruit is growing. So here you make an extension.

To do so, lay the end of a second pole so that it overlaps the bottom end of the first pole by about a foot. Drill a hole through both poles and then slide long and slender bolts through the holes using a wing nut to tighten the two poles together.

There is no limit as to how many extensions you can add, as long as you have the strength to lift them. What we have found to work well is a two-by-two strip of wood. We cut these with a chain saw from leftover materials from our backyard lumber operation where we cut our lumber with a chain saw.

The advantage of the two-by-two over a pole is that because the dimensions are the same, as opposed to the pole which is large at the bottom and small at the top, the two-by-two strip weighs less and is easier to attach to another strip.

That's all there is to it. Consider that most fruit trees do not reach enormous heights. You can connect two or three ten-foot sections and reach the tops of most reasonable fruit trees. The weight is not great, and the only real problem is that of lowering the poles without awkwardness. The trick here is to have a helper who can take the can end of the poles, remove the fruit, and stash it in a basket.

But if you have no helper, you can still do the work alone. This method will not, of course, be suitable for picking the fruit in

Storm Front

*the west wind
whips*

*the cathedral bells
into one long clang*

*that reverberates through thunder
and lightning
and hail*

*then calms
to a quaking*

*ring of thunderheads
drifting east*

*fading into
a rainbow finale*

*of gentled
chimes*

**Sheryl L. Nelms
Azle, TX**

an entire orchard. This is good only for backyard fruit trees.

Remember, too, that you can reach the lower fruit without any trouble and will need the picker only for the hard-to-reach limbs.

So invest a few pennies, make the picker, and eliminate the shaking and climbing. Δ

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No worrying about fire blight with Orient and Kieffer pears

By Alice Brantley Yeager
(Photos by James O. Yeager)

Everyone likes a good success story, and if I were called upon to name the most successful tree in our small orchard I'd have to say it's the Orient pear closely followed by its hale and hearty relative, the Kieffer. Both of these varieties have stood the test of time, giving us plenty of fruit for pies, preserves, salads, etc.

Pears with smooth flesh such as Bartlett have great taste and texture appeal, but I gave up long ago trying to grow those. I finally became convinced that no matter how I tried to follow the advice of the experts, Bartletts with their poor resistance to fire blight are not for southwestern Arkansas (Zone 8), as well as a number of other areas. Bartletts seem to do best along the Pacific coast and in northern states east of the Mississippi River.

Folks who live where fire blight is not a problem should count their blessings as it definitely puts a damper on trying to grow a number of fruit trees and ornamentals. There is virtually no way for the average gardener to cope with it other than to seek out varieties that have high resistance to the blight. The first signs of trouble usually show up during wet spring seasons when fire blight makes its appearance in the form of blackened blossoms and tips of branches that look as though they have been scorched by fire. The affected parts turn black, bend into a wilted position, and rapidly die back.

There are so many agents helping to spread the blight—bees and other insects, wind-blown rain, etc.—that there is no feasible way of preventing

contagion. Some authorities recommend spraying for blossom control and pruning to save the unaffected branches. If the spring is a relatively dry one, spraying is helpful. In our area, spring is accompanied with plen-



Pear trees in spring are a feast for the eyes and a boon to beekeepers. The trees usually bloom late enough to avoid frost damage.

ty of rain either in the form of showers or storms, and spraying is a wasted effort. This year, for good measure, we're reaping some of El Nino's erratic behavior. As for pruning, my experience with blight-prone trees has been that I prune back more of the branches than grow in a season. Progress in reverse!

Fire blight is a capricious disease. There are times when it will only affect the blossoms of a tree, as in the

case of a Maxine pear in our orchard. The Maxine (very much like a Bartlett pear and advertised to be blight resistant) apparently has a certain amount of resistance as it seemed to be doing well for a few years, although its crops of pears were scant. Now the blossoms turn black as soon as they start to drop their petals, giving the tree the appearance of having been dabbled with black paint. No other part of the tree is affected, but there's no hope of fruit without blossoms. So, when time permits, I'm considering making pear-wood picture frames.

Some years ago I read about a pear called the Orient in a southern grower's catalog. The part of the description that stood out to me was "highly resistant to fire blight." I embarked on another pear trial and have never regretted it, as the Orient grew with vigor, produced a few pears its third year, and has been going strong ever since with no fire blight.

Orient pears are not as fine grained as the Bartletts, but many of the Orient fruits will weigh a pound a piece. They begin ripening here about mid-July and finish up 4-5 weeks later. This is an advantage as we don't suddenly find ourselves faced with a tree full of ripe fruit to process all at once. The fruit is excellent when canned in light syrup for dessert or salad use, but is a little too juicy for preserves or pear honey.

Most pears are ready to pick when they may be snapped off by lifting them up and having them break away easily from the limbs. The best way to enjoy fresh pears is to harvest them when they will break away, as mentioned, putting them in a cool place inside the house for a few days. When they reach a less firm, more aromatic stage, they are ready to be eaten. The Orient pears are best for canning, however,



Fire blight can be devastating to many trees and shrubs. Here the blight has blackened a major portion of a young Seckel pear tree necessitating removal of a large part of its growth.

while they are firm and first picked from the tree.

Sometimes life plays tricks on gardeners. Happy with the success of our first Orient tree, I ordered another one. Apparently the new tree was mislabeled as it turned out to be a Kieffer. (It's hard to tell the difference between standard pear trees until they reach fruit-bearing age.) The only thing that kept me from ousting the Kieffer was that I didn't have time to remove it when I discovered the mistake.

The undesired Kieffer, apparently aware that it was living in jeopardy, made great haste to begin bearing heavy crops of pears that were excellent for making pear preserves and pear honey (see recipe). Having redeemed itself, the Kieffer is still in the orchard. Kieffers are drier pears

than the Orients, so each makes up for the other's shortcomings. Kieffers are also highly resistant to fire blight. Notice the survival of abandoned pear orchards around the countryside where old home places have been. The hard-as-a-rock Kieffers may not be as highly regarded by pear lovers as the Bartletts, but they're survivors and they produce where others will not. I have never seen a Kieffer tree with fire blight.

As a general rule, pear trees should be planted in poor soil, as very fertile soil increases the likelihood of fire blight attack. Coupled with plenty of rain, causing rapid growth, rich soil works hand in hand with the blight.

Pear trees don't usually require a great deal of pruning. Weak limbs having a tendency to droop

toward the ground should be removed along with any dead wood that occurs. As with any fruit tree, branches that rub together should be thinned to prevent scars and rotten limbs. When trees are heavily laden with fruit, limbs should be propped up with some type of support that will not harm the bark.

Pear trees are like roses in that they do not like wet feet. They should be planted in a well drained, open spot with no big trees nearby. Soil should have moisture-retaining qualities, but not boggy or subject to creek or river overflows. Pear trees need room to develop their potential and should be

planted about 25 feet apart. Orients and Kieffers are long term investments as they will begin bearing in 3-5 years and will be around 25-75 years if properly attended.

If possible, a tree should be planted when first received from the nursery. (Most nurseries include specific instructions regarding planting). I have often received dormant trees when weather did not permit immediate planting and I have found the best thing to do is to place the shipment in a cool room where it can remain for a few days and not dry out.

When ready to place a tree in a selected site, one should always study the root system by gently spreading the roots out from their cramped shipping container. Cleanly cut off any damaged roots. If tree is in bad shape, immediately notify the shipper, as most nurseries will replace damaged



The old hard-as-a-rock Kieffer pear may not be as large as some varieties of pears, but it has stood the test of time. No fire blight here.

stock if informed soon after shipment is received.

The hole should be dug about six inches wider than the root span so that feeder roots may have a good chance to develop and spread out. Depth of hole may be judged by the soil line on the tree. Place tree in hole and fill about halfway up with pulverized soil (no clods). Ample water the soil down so that it settles, leaving no air pockets. Finish filling the hole with soil and water again.

Some of us live in drought prone areas and, as a precaution, I always make a small levee about three feet in diameter around a new tree. This levee will help to direct water to the roots when needed. An organic mulch of leaves, straw, etc, also helps to retain moisture. Even with mature trees, it is well to give the ground underneath the trees an occasional slow, thorough soaking during dry conditions, particularly if the trees are laden with fruit.



There is very little damage, if any, to fruit when picked with this type of picker. A long handle (ours is bamboo), gives easy access to out-of-reach fruit such as the Orient pears shown here.



Orient pears on the left have been canned in quarters for use in salads or desserts. Pear honey on the right is a delicious spread made from Kieffer pears.

To avoid trunk borer trouble, I generously sprinkle wood ashes around the base of our fruit trees during winter. A cupful is plenty for a young tree.

Although most pear trees are self-pollinating, it is advisable to plant more than one variety to increase production, particularly if there are no other pear trees within a quarter mile of your orchard. There are fringe benefits to Orient and Kieffers, as they are outstanding additions to the spring landscape when in bloom and a boon to beekeepers. Moreover they always seem to bloom late enough to escape frost damage. Late autumn brings forth a different colorful display when the leaves turn from green to golden bronze.

I urge anyone who has given up in disgust on trying to raise good pears to give the Orient and Kieffers a chance. They'll hang in there!

Some sources for trees

Orient—Johnson Nursery, Route 5, Box 29-J, Ellijay, GA 30540.
Kieffer—Stark Brothers, P.O. Box 10, Louisiana, MO 63353.

Pear honey

Pare and core hard-ripe Kieffer pears. Cut in chunks small enough to easily feed through food grinder fitted with coarse blade. To each quart of ground pears add the following:

3 cups sugar
Juice of one lemon
Grated rind of one-half lemon
1/2 teaspoon ground ginger

Boil mixture in stainless steel, porcelain, or graniteware pot stirring frequently until thickened (Do not use aluminum). When desired thickness is achieved, immediately put in hot, sterilized jars and seal. Remember that this is a spread and should not be overcooked to a jelly stage.

A tasty variation is to substitute orange and nutmeg for lemon and ginger. Δ

Recipes from my mother's kitchen

By Richard Blunt

One of my earliest and fondest childhood memories is of my mother and me walking nearly a mile down the road from our house, in the rain, to deliver a fresh baked batch of Hamentaschen (pronounced hamentashin) cookies. We were taking them to a Jamaican family that had just moved into our neighborhood. It was in the early spring, and the gastronomically festive Jewish holiday of Purim (pronounced poor-EEM) was being celebrated in many of our neighbors' homes. It happened that another one of my mother's close friends had just given her the recipe for Hamentaschen and my mom could not wait to make a batch. A new family moving into the neighborhood was a perfect reason for sharing her new recipe. Despite never having eaten a pastry like Hamentaschen before, the gift was well received by our new neighbors and enjoyed especially by me and their two kids.

Hamentaschen

Hamentaschen is only one of many delicious desserts associated with Purim, the festival that celebrates the deliverance of the Jews from a massacre in the Persian Empire. The dessert is named for Haman, the malicious chief minister to the King of Persia, who devised the failed plot to kill all of the Jews. He wore a three pointed hat, hence the symbolic three pointed cookie. Unfortunately, this is a holiday that is little noticed by many today. But in the neighborhood where I grew up it was a big deal, and it's carnival spirit affected everyone regardless of faith. For my mother, Purim, like Christmas and Easter, was a prime opportunity to jump into the kitchen and work with a host of new foods that were shared with her by her many friends in our neighborhood.

This recipe contains a formula for making the traditional poppy seed filling, from scratch. If you find yourself short of time, a 12-ounce can of Solo brand poppy seed filling, or prune filling, are good substitutes. For the best results, both the dough and the filling should rest in the refrigerator overnight before preparing the cookies for baking.

Cookie dough:

2 cups all purpose flour
 2 tsp. baking powder
 1/3 cup sugar
 1/2 lb. margarine
 2 Tbsp. honey
 2 eggs
 grated rind of one orange
 1/2 cup finely ground pecans
 2 Tbsp. Lairds Applejack or brandy



Richard Blunt

Filling:

1 cup poppy seeds
 4 Tbsp. raisins
 3/4 cup apple juice
 3 Tbsp. honey
 4 Tbsp. sugar
 1 Tbsp. grated lemon rind
 1 1/2 Tbsp. margarine
 1 Tbsp. Lairds Applejack or brandy
 1/3 cup finely ground pecans

Method (for the cookie dough):

1. Combine the flour, baking powder and sugar in a large bowl. Stir with a wire whisk to blend the ingredients.
2. Using a pastry blender or two knives, cut the margarine into the flour until the mixture resembles coarse oatmeal.
3. In a separate bowl blend the honey, eggs, grated orange rind, ground pecans and Applejack. Gently stir this mixture into the flour. Continue stirring only until all of the ingredients are incorporated.
4. Shape the dough into a ball, dust it lightly with flour, wrap it loosely in waxed paper and place it in a gallon size ziplock plastic bag. Refrigerate the dough for at least six hours.

Method (for the filling):

1. In a heavy bottom sauce pan combine the poppy seeds, raisins, and apple juice. Simmer the mixture over low heat until the seeds start to soften and the mixture starts to thicken, about 10 minutes.
2. Add the honey, sugar, grated lemon rind, margarine, and applejack. Continue to simmer the mixture for another five minutes. Remove the pan from the heat, stir in the ground pecans and set the mixture aside to cool. When cool, place the

filling in an air tight container and refrigerate along with the dough.

Assembling and baking the cookies:

1. Preheat the oven to 350 degrees F.
2. Remove the dough and the filling from the refrigerator and let both set at room temperature for 30 minutes. To make rolling the dough easier, divide it into two equal-size pieces.
3. On a lightly floured surface, gently roll the first half of the dough to a thickness of approximately $\frac{1}{8}$ -inch. Using a 3-inch cookie cutter, cut as many circles as you can, about 18.
4. Place one rounded teaspoon of filling in the center of each cookie. Form triangular pyramids with each cookie by folding the edges of the dough up on three sides of the circle. Gently shape the raised edges up over the filling to form a pocket. Pinch the points of the newly formed pyramid to prevent the sides from falling during baking.
5. Place the cookies on a lightly greased baking sheet and bake until lightly browned, about 15 minutes.

Pickled chili peppers

My mom used pickled chili peppers as a basic flavor enhancing ingredient in countless recipes. In Boston during the '50s and '60s chili peppers were considered ethnic foods and were not as widely available in supermarkets as they are today. To an enterprising opportunist like my mother, this never seemed to pose any problem. She knew a great deal about chili peppers and knew how, when, and where to find the peppers she needed to prepare her assorted chili pepper dishes.

In New England, late August is prime season for home gardeners to harvest their chili pepper crops. Amy and John Wheatly, our Jamaican neighbors, maintained a huge garden, in which they grew three varieties of chili peppers: jalapeno, cherry, and a small blistering hot variety similar to the chiltepin of Mexico and the West Indian datil. Every August, my mother was invited into the Wheatly's garden. She would pick several pounds of collard greens, bring them home, and cook them in her own special way. She would then exchange the whole batch of greens with Mrs. Wheatly for two gallons of freshly picked red chili peppers, mostly jalapeno and hot cherry. Then she would pickle the peppers and use them throughout the year to make her favorite chili pepper dishes.

In the old recipe file she kept I found recipes for several homemade table sauces made with chili peppers. My mom used these to add zip to just about every food she ate. Some of the sauces were aromatic and mild. Others were so fiery hot they were shared only with friends who shared my mom's love of hot and spicy foods. "I'm afraid if I serve this stuff to anyone else, they'd probably end up walking around the room backwards," was her usual comment after

preparing a fresh bottle of her favorite hot sauce. Try the following pickled pepper recipe. But if hot peppers are not to your liking, substitute sweet cherry, pepperoncini, tomato, or any other ripe sweet pepper. The result will be a pickled sweet pepper with much of its natural flavor preserved in a gentle tasting sauce that is unlike most other acidic pickling solutions.

This recipe makes 8 to 12 pints, depending on the size of the peppers and how tightly you pack them. I use a mixture of jalapenos that are about 3-inches long and $1\frac{1}{2}$ -inches wide, along with cherry peppers that are about 1-inch long and $1\frac{1}{2}$ -inches wide and I don't try to jam the peppers tightly into the jars. For me, this process yields 12 pints. You can count on getting at least eight.

Ingredients:

Brine:

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| 2 lbs. (1 gallon) fresh, ripe, chili peppers |
| 1 gallon water |
| 2 cups of sea or Kosher salt |

Marinade:

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|-----------------------------------|
| 1 cup water |
| 5 cups white vinegar (5% acidity) |
| 2 Tbsp. sugar |
| 1 tsp. dried thyme |
| 10 whole allspice |
| 1 tsp. whole coriander seeds |
| 12 black peppercorns |
| 12 white peppercorns |
| 1 tsp. whole mustard seeds |
| 2 juniper berries |
| 6 whole cloves |

Herb Oil Garnish:

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| 4 dried bay leaves |
| 12 whole, unpeeled, garlic cloves (par boiled for 2 minutes) |
| 2 carrots, par boiled for 2 minutes and sliced into $\frac{1}{8}$ -inch coins |
| 6 peeled shallots |
| 12 Tbsp. virgin olive oil |

Method:

1. Wash the peppers, trim the stems to a stub and prick each pepper twice with a fork on opposite sides.
2. Bring the water to a boil, immediately remove it from the heat, and dissolve the salt in it to make a brine. Let it cool.
3. Combine the washed peppers and the cooled brine in a glass, plastic, stainless steel, or other non reactive container.

Place a china plate on top of the peppers to hold them down in the brine. Use two if necessary. Soak the peppers in the brine for a minimum of 12 hours.

4. Combine all the marinade ingredients in a heavy bottom stainless steel sauce pan. Bring this mixture to a boil, then reduce the heat to low and simmer, uncovered, for 10 minutes

5. Wash and sterilize 8 to 12 pint-size canning jars and lids. In each sanitized, hot jar place ¼ of a dried bay leaf, one garlic clove, several carrot slices, ½ of a shallot and 1 tablespoon of olive oil, then pack the peppers into the jars. Pour marinading liquid into each jar leaving at least ½-inch of head space from the top of the liquid to the rim.

6. Use a boiling water bath method to seal the jars and process the peppers for five minutes. Store the jars in a cool, dark place for three to four weeks before using.

Refrigerate unused portions after you've opened a jar.

Nana V's fire sauce

This is one of the many hot table sauces my mother made using her store of pickled peppers. It's good on greens, eggs, and practically everything else. When I was a kid, at any given time one could find at least three different homemade hot sauces in our refrigerator. The uneducated palate would usually be hard pressed to distinguish one from the other but this sauce was the only exception, simply because it was always labeled as "sauce for greens." In years when the late summer was hot and yielded little or no rain in Boston, chili peppers of all varieties would come off the bush as hot and flavorful as it was possible for each variety to get. Sauce for greens was made exclusively from these peppers, and was seldom offered to anyone outside my mothers small conclave of chili pepper lovers. Of course it is not necessary to use fire breathing chili peppers to assemble this recipe. The mixture of ripe jalapeno and cherry peppers that I suggested in the pickled pepper recipe will almost always give this sauce the right balance of heat and flavor. Unlike my mother, I don't limit the use of this sauce to cooked greens. I use it as an all purpose sauce to add zip to any food, including my over easy eggs at breakfast.

Ingredients:

1 pint homemade pickled chili peppers from the previous recipe
1 12 oz. bottle chili sauce
½ cup pickling marinade strained from the chili peppers
½ cup Lairds Applejack or brandy
1 Tbsp. Worcestershire sauce
¼ tsp. fresh ground black pepper
¼ tsp. ground coriander
⅛ tsp. liquid smoke
⅛ tsp. ground cumin

Method:

1. Strain the peppers saving the pickling liquid, garlic clove, shallot, and carrot slices. Discard the spices.

2. Remove the stems and seeds from each of the peppers, and process the peppers, garlic clove, shallot and carrot slices into a paste, using a food processor or blender.

3. Combine the chili pepper paste, chili sauce, pickling liquid, applejack and Worcestershire sauce in a stainless steel sauce pan. Simmer the mixture over low heat for five minutes. Stir in the black pepper and coriander and simmer for another minute.

4. Remove the sauce from the heat and stir in the liquid smoke and cumin.

5. Let the sauce cool in refrigerator.

You may prefer a thinner sauce, so before bottling, adjust the thickness of the sauce to suit your preference by adding a little more pickling liquid or applejack. Store in the refrigerator in a sanitized pint canning jar or other sanitized container of your choice.

Mystery salsa

I will be honest here and admit that I don't know where my mother got this recipe. I have included it in this collection because she uses a measured amount of her pickled peppers, as a flavor enhancer. For her to limit a measured amount of any enhancer in a recipe meant that she was creating a formula for some special purpose. I can only guess that she found a basic fresh salsa recipe that she liked and customized it to suit her own taste.

I first served this sauce to some close friends at a surprise birthday party for Tricia, my wife. The adults gobbled the first batch so fast that I had to make a second batch for the kids and myself. This sauce is easy to make and can be prepared year round because it uses canned plum tomatoes. Unlike salsas made from fresh tomatoes, it will keep in the refrigerator for a couple of days without loosing its zip.

Why canned tomatoes? My mother was a cook who understood that the so called fresh tomatoes sold in New England during the winter were immature fruits that were picked green in some unknown part of the world then shipped to our area, placed in gas chambers, and treated with ethylene gas to turn them red. The science of using this simple hydrocarbon gas to ripen immature fruit has been around since the 4th century B.C. But the result is lower nutrient value, bland taste, and a rubbery texture that is characteristic to all fruits treated in this manner. This unfortunate condition, however, is not a result of the ethylene treatment. Picking the fruit before it has a chance to mature naturally is the problem. Ethylene is produced naturally by fruit bearing plants well in advance of ripening and it initiates the ripening process in an organized and efficient way.

The good news is that most canned tomatoes are allowed to ripen on the plant, as nature intended, and the canning

process does minimal damage to their taste and nutritional value. This makes them a much better choice for cooking during the off season. When fresh tomatoes are in season, simply substitute three cups of peeled, seeded and diced, very ripe fresh tomatoes for the canned tomatoes.

Try this salsa on eggs, hamburgers, hot dogs, or even as a dip for oysters and clams. I think that you will discover, as I have, that salsa can be enjoyed with more than corn chips.

Ingredients:

1 28 oz. can name brand whole plum tomatoes (avoid bargain brands)
½ cup red onions
⅓ cup red bell pepper, finely diced
2 or 3 home pickled jalapeno or cherry peppers, finely diced
2 Tbsp. Lairds Applejack or brandy
¼ cup fresh cilantro, washed, drained and finely chopped
½ tsp. malt vinegar
kosher salt to taste
fresh lime juice to taste

Method:

1. Strain the tomatoes over a bowl and save the juice. Gently remove as many of the seeds from each tomato as possible without mashing the flesh. With a very sharp knife, dice the drained tomatoes into medium chunks.

2. Pour the juice into a heavy bottom, stainless steel sauce pan and simmer over low heat until it is reduced by half. Combine the reduced tomato juice with the diced tomatoes in a stainless steel or glass bowl.

3. Combine the red onion, bell pepper, pickled peppers, applejack, cilantro and malt vinegar. Add this mixture to the tomatoes, and let the salsa mellow at room temperature for a couple of hours.

4. After the mellowing period, taste the salsa and add salt and lime juice to suit your taste. This salsa is best when served the day it is made, but it will hold in the refrigerator for a couple of days with only a slight loss of flavor.

Raspberry ketchup

My mother was never a great ketchup lover but she frequently made table sauces that she called “flavored ketchup.” These sauces were usually prepared during Thanksgiving and Christmas holidays, packed into an assortment of fancy bottles, then given to friends and neighbors as gifts. She made these ketchup-like sauces from a variety of fruits combined with fresh or canned tomato sauce and spices. I chose this recipe because it is easy to prepare and my children love it. My in-house food committee, chaired by daughter Sarah with my two sons Jason and Michael holding the other two seats, gave this recipe a

unanimous thumbs up. I have reduced my mother’s recipe from a 12-pint yield to about a pint because the larger quantity requires processing. Also, the fruits that are used to make these flavored ketchups are available all year long in fresh or frozen state and the finished sauce lasts for weeks in the refrigerator. My daughter Sarah says, “Tell everyone to try this ketchup with chicken, it’s great.”

Ingredients:

1½ cups fresh or frozen raspberries
1 to 3 home pickled chili peppers (let your taste be the judge) or substitute ⅛ tsp. of cayenne pepper
⅓ cup fresh or canned tomato puree
⅓ cup wine vinegar
¼ cup medium or dry sherry
⅔ cup firmly packed light brown sugar
¼ tsp. ground clove
¼ tsp. ground ginger
½ tsp. fresh ground nutmeg
¼ tsp. kosher salt
1 Tbsp. butter or margarine

If you are using fresh raspberries, carefully pick them over and use only firm unblemished berries. If you are using the home pickled chili peppers, remove the seeds and the stems.

Method:

1. In a stainless steel heavy bottomed sauce pot, combine the raspberries and pickled chili peppers with the tomato puree, wine vinegar, and sherry. If you are substituting cayenne pepper for the peppers, do not add it at this time. Over low heat simmer the mixture for 60 seconds.

2. Over a bowl put the mixture through a food mill or press the mixture through a stainless steel strainer and discard the pulp.

3. Return the strained mixture to the stainless steel sauce pan along with the sugar, ground clove, ground ginger, ground nutmeg, salt, butter, and, if you are substituting it for the pickled peppers, cayenne pepper. Return the pot to the stove and simmer for about 10 minutes over a low heat until the desired consistency is reached. If the sauce appears to be too thick adjust the consistency with a little more vinegar mixed half-and-half with water.

4. Transfer the sauce to a sanitized pint canning jar, and place it in the refrigerator to cool. This sauce is at its best when warmed over low heat to just below the simmering point.

That’s it for this issue. I hope you enjoy the recipes and I know my mom would love the idea of sharing all of this good food with so many good people. Δ

Here's a business that's going to the dogs

By Robert L. Williams

Lynn Allen for ages wanted to move to the country. Growing up in the big city, she always had a love for horses, dogs, and the wide-open spaces. In fact, she spent most of her spare time and too much of her money in an effort to raise horses.

Her father once told her that she would wind up animal-poor, that her life was going to the dogs. He didn't know how right he was. For the past several years Lynn Allen's working life has, indeed, gone to the dogs. She grooms them, six days a week.

That means washing, drying, brushing, combing, ridding the animals of fleas, ticks, and other parasitic skin problems. And Lynn Allen has found that she can not only stay close to animals—she still raises horses but now on a slightly larger scale—but she has the best of all possible worlds.

First, she gets to be close to her children and husband. Like many wives in the United States, she found herself becoming highly frustrated by having to make one of two career choices—both wrong: She could work outside the home and leave the children at a childcare business and pay a huge portion of her salary for child care, or she could stay at home with the kids and deprive the family of needed income.

So when she had the opportunity to start a dog-grooming business she leaped at the chance. But still she faced problems—money problems. There was, first, the question of advertising. Then there was a matter of work space: where would she groom the dogs? In her house there wasn't enough room to spare, and even if there had been, the idea of keeping the

dogs in the house was not attractive. There were other problems as well. She needed equipment and she didn't want to invest a great deal of money on what might turn out to be a doomed business.

After all, she didn't know if people would really want to spend the time and money necessary for good grooming of their dogs. And she didn't know if customers (or clients) would agree



Lynn Allen has discovered that the dog grooming business is very rewarding.

to drive out to the country to deliver the dogs, and then make a second trip (of several miles, one way) to pick them up.

Then there was the matter of people who could bring the dogs but their schedules would not permit them to pick them up at the end of the day, and Lynn figured that she would be stuck with dogsitting all night.

Does this sound vaguely familiar?

Does the Lynn Allen story echo that of thousands of wives or mates of people who live in the backwoods? It would be staggering to know how many people have faced or are facing the dilemma confronting Lynn.

There was still another problem: Lynn wanted to homeschool her children, and there was the problem of how working would conflict with teaching time.

Here's what she did, and she's delighted at the way it all turned out.

First, she let some of her dog-owner friends know that she was opening her own business. Earlier she had worked for a highly popular and successful veterinarian in the area and had been able to meet many of the doctor's clients. The vet himself was not into pet grooming: his professional life was already filled with the needs of local animals.

When she started her business, Lynn had a dozen or so of the regular clients. And then a strange—actually a highly predictable thing happened. She did such a good job on the animals that the clients told their friends, who also owned dogs.

And the friends brought their animals. And then told other friends.

"I think often of how my father warned me about becoming animal-poor," Lynn says. "But my business did not go to the dogs. The dogs came to me."

She now works with a partner named Stephanie, and the two have a great symbiotic relationship. If one needs to take some time off, the other is there to pick up the slack. And with two people at work, one can do the washing and brushing and the other can do the clipping and caring for the

animal's cosmetic appearance, which includes the ears, toenails, and the rest.

"We think our job is concerned with several levels," Allen says. "First of all, we like to educate owners of dogs. We tell them how important it is for their pets to have clean and healthy coats, but we also point out that it is important to care for the dog's nails—perhaps just as important is concern about the animal's disposition and spirit. We like to see dogs that are not only healthy but happy.

She adds, "and we have to realize that many pet owners do not have the time and the equipment to give their dogs the proper grooming we try to provide."

A dog's visit to the grooming shop is much like a human being's trip to the beauty shop. Stephanie and Lynn provide the complete works, and they

use special shampoos to rid the animal of fleas and other undesirable pests.

"Owners want their dogs to smell good, look good, and feel good," Allen says, "and when we have done our job the way the owners want it done, then we in turn feel good."

Allen stresses that she and Stephanie in no way treat the dogs medically. "Take your dog to the vet if he's sick," Allen says.

"Bring him to us if he's dirty."

She stresses the idea of dogs—they do not handle cats or any other animals at their shop which is located between two small towns. A long-time dog lover, Allen once raised Great Danes in addition to working for the vet.

"I loved working at the veterinary hospital," Allen says, "but at the same time I wanted to be able to stay home as much as possible and still have an income. So this has turned out great for us."

At present the grooming service has all the business the two can handle. "We have 50 to 60 dogs each week," Allen says, "and we could have more business if we wanted it. We are now actually turning down clients because we don't have time to take on more



The haircut is a crucial part of the grooming. It is here that the special characteristics of a breed of dog are enhanced.

work, not if we are going to do it correctly."

The clients come in all sizes and breeds. One of the largest dogs they groom weighs 132 pounds.

Allen says that she does not recommend that dog owners try to groom their dogs themselves unless they are really familiar with the care and treatment of their animals. "You have to know a dog's anatomy," she points out. "I don't mean just the obvious. You have to give special attention to the dog's skin, feet, and ears. You have to cut the dog's toenails properly so that the dog's feet will stay healthy. And when we groom animals we sometimes discover a variety of problems that the owners don't know about—things like tumors and infected ears."

She adds, "Educating the client is one of the most important jobs we do. As an example, a full treatment—bathing, clipping, drying, and all the rest—can be a traumatic experience for a dog, and we try to make the visit here as pleasant as we possibly can. We try to live up to our goals. We make good dogs look great and great dogs even greater."

So the story started in doubt and ended happily, but what about the middle parts. No less an authority than



A good scrub-down and soaping with special shampoo cleanses and rids the dog of unwanted scents and guests.

Aristotle told us that a good story should have a beginning, a middle, and an end. So here is the middle.

First, when the clients started coming, Lynn and Stephanie bought a small used trailer—the mobile home type—and had it set up on the property of Allen and her husband David. It took very little time for the business to pay for the trailer.

Even before that, they bought the necessary equipment: bathtubs for the dogs (actually, large sinks so the animals are waist-high to Lynn when she works), had water connections and electrical connections run into the trailer, bought some small heaters for colder weather, purchased clippers, brushes, and the other necessities for the work.

This was done as they were able to afford the items. They had to buy cages for the dogs so that there wouldn't be any fights between the dogs. They equipped the cages so that dogs could stay overnight if necessary, and they could add a boarding fee to the cost of grooming.

This was a master stroke. Now, clients realized, they could plan their vacation and while they were gone their dogs would not only be boarded and cared for but they would be groomed and ready when the owners returned.

But what about the money? It's there, too.

Assume you open your own dog grooming business and can handle 50 to 60 dogs each week, as Lynn and Stephanie do. If you charge \$35 per dog, which is a fairly inexpensive fee, your weekly income will be \$1,750 for 50 dogs and \$2,100 for 60 dogs.

Now, wait. Before you get excited about making \$2,000 per week, there are some necessary expenses. For

instance, suppose the trailer payment is \$200 per month and heat, electricity, and other business-related expenses add up to another \$600 per month. In fact, make your expenses an even \$1000 per month.

The news is still not bad. In one month you take in \$7,000 per month and pay out \$1,000, or even more. That still leaves \$5,000 monthly, at least.

Look at the worst possible scenario. Suppose you can't charge more than \$20 and the best you can do is 10 dogs each week. That adds up to only \$200



The dogs tend to like both bath and drying, once they realize it's not painful.

weekly, less expenses. Still, you could do 10 dogs in a very short time, even if you allot two hours per dog. That's less than three days each week. You still have two or three more days in which to pick up extra money.

But you can and should charge more than \$20 for your work. If you go up to \$25 and have 25 dogs weekly, your income, before your expenses, will be \$625 weekly or \$2,500 monthly.

That's \$30,000 per year, and you don't have to leave home or invest heavily into equipment. If you groom only a few dogs each week, you can possibly do the work in your house (in

a spare room or a screened-in porch in warm weather.

You get the point. You can start small and expand as your experience and number of clients will permit.

But how do you get started? The easy way is to work for an experienced groomer for a while, until you know the basic work inside and out. Read books to help fill in the gaps you did not take care of during your work. You can even take courses at some colleges in animal grooming.

And you do not need to limit yourself to dogs. There are many animals that need occasional or regular grooming. Many people do not like to groom cats, but you might find steady customers who will pay to clean their feline friends.

What about horses? What about other household pets? The more you specialize, the more narrow your list of potential clients will become. People have an endless list of pets (or so it seems), from snakes to ferrets to skunks.

This article in no way attempts to tell you how to do the actual work. There's a reason: I have no earthly idea other

than the basic wash job for Fido. Learn from the professionals. Find out what types of insurance, if any, you need. I am confident that there are hidden expenses: there always will be.

But after all of the costs of operation, you still will enjoy a nice profit from your work. And, as Lynn Allen learned, some of the benefits are far greater than money. She gets to stay at home each day, if she wishes. She can enjoy working with her own dogs and horses and she has the most family time she has ever had at her disposal.

And that's not bad, for a business that has gone to the dogs. Δ

Ayoob on firearms

By Massad Ayoob

Part 1—Is this the ultimate backwoods home rifle?

My friend Nolan Santy, the master gunsmith, was standing with me on the back porch of the cabin on the lake as we sipped our beverages and talked about guns. Specifically, about the lighter and lighter rifles that aging males such as we prefer for hunting and general “woodswalking.”

“My buddy Eric raves about his Thompson/Center Contender carbines,” said Nolan. “He has a bunch of

them in different calibers. Most of them shoot under an inch at a hundred yards, and he’s got a couple that do half that. You wouldn’t believe how well they shoot.”

“Oddly enough, I would,” I answered.

For a few weeks now I had been playing with a Contender carbine in caliber .223 Remington. The Contender pistol designed by Warren Center decades ago had proven to be amazingly accurate. It almost totally rules the shooting sport known as Hunter Pistol under NRA auspices. The most accurate handgun I own is a Contender customized by J.D. Jones and chambered for his fabulous, proprietary big game hunting cartridge, the .375 JDJ. My friend Glenn Dubois, a better shot than I, once delivered a 1.5-inch group with it at 200 yards. That’s the kind of accuracy one normally gets from a sniper rifle.

Some years ago the Thompson/Center people brought it out as a carbine (short rifle) and while it has sold enough to remain in production since, it hasn’t set the world on fire. Shooters and hunters are a traditional lot, and it takes them a long time to warm up to a firearm that looks different from what they’re used to.

I invited my daughters to come and shoot the single shot carbine with me. Elder brat, a graduate of high tech advanced combat shooting schools like Chapman Academy and Thunder Ranch, responded with an expression I had last seen on my Great Dane as he regarded a passing chihuahua. Younger brat looked at me, looked at her custom Olympic Arms AR-15 semiautomatic, looked at the single shot, and looked back at me. She said,



Massad Ayoob

with the soft compassion for which teenage girls are so universally noted, “Gettin’ too old for the fast ones, huh?”

OK, so I’m getting old. Old people slow down. However, we also tend to return to the Old Values, of which “one target, one shot” should rank high on the list. After all, if you own a backwoods home, this is your property we’re talking about shooting on, and not just at the part where you’ve set up your own range. Do you really want to be hosing your landscape with high capacity magazines? Besides, the single shot—the single chance to take the quarry before it runs—is held in many circles to be the mark of the quintessential sportsman.

I want an auto rifle with lots of ammo in its magazine for tasks like police work and home defense. For the routine farm chores where a shot needs to be fired, however, the little Contender carbine will do just fine.



Author’s T/C .223 works fine with fore-end removed and weighs only four pounds in that format.

The T/C is extremely safe. It has a break-open action that requires a firm pull on the release lever, the spurred lower part of the trigger guard. One safety device is a pivot lever on the hammer that “sets” the firing pin. Another is the fact that the hammer must be thumb-cocked before the gun can fire.

Trigger pull on this specimen was crisp and clean, firing at about four pounds pressure. Though numerous adjustments possible in the trigger as it comes from the factory are one reason it’s so beloved by serious shooters, this one did all I needed right out of the box. The front post sight was sharp and clear. The rear sight was a square notch like on a target pistol. The sights had been registered for dead-on point of aim/point of impact before it was shipped, the mark of a company that really cares about quality control and product performance.

Initial testing was done with the iron sights at 25 yards. All rounds tried in the 52 to 55 grain weight range shot well. That’s what the barrel was rifled for. A different rifling twist is needed for the currently trendy 68 and 69 grain bullets, and these didn’t shoot well in the test carbine at all.

Best performance came with Black Hills’ new 52-grain hollowpoint Moly-Coat. Though some experts swear the moly coating merely makes the guns easier to clean (which it does) and opinion is divided on whether or not the coating really improves accuracy, no one can say it’s deleterious to accuracy. Even with the iron sights, this rifle would put three of the Black Hills slugs into a group the size of a single .30 caliber bullet hole at 25 yards from the bench rest. My worst group at that distance was 9/16ths of one inch.

Why test a rifle at only 25 yards? First, it’s the easiest way to find out

where it shoots initially and how much sight correction it’s going to need. But think about it. Those marauding squirrels that have been ripping off your bird feeder: with a head-shot from an accurate rifle, they become not only a solved problem but the key ingredient in a pot of Songbird’s Revenge Stew. The fox in the henhouse (the furry one, not the political one). The usually nocturnal



Walt Carlson’s heavy barrel T/C .22 weighs seven pounds with Tasco 6-24X telescopic sight and exotic stock.

raccoon that staggers into your yard in broad daylight during a rabies epidemic. Are any of these likely to be farther than 25 yards away when you take the shot?

At a hundred yards, groups opened up. 68-grain match ammo was like throwing rocks, but again the Black Hills 52-grain hollowpoint came up aces. Groups ran one and five-sixteenth of an inch at best to a little over three inches. But bear in mind, this was with iron sights guided by middle

aged eyes and with the rifle braced on a car door. No wonder this gun has a reputation for one-inch accuracy or better at that range with a good scope.

Right now, the iron sights are still in place. I discovered that if I remove the fore-end, the gun weighs only four pounds, but it’s just as easy to aim and shoot accurately from the shoulder. The fore-end is there in part to insulate the hand from the rifle barrel when it gets hot. In any application but a day at the range, when will we fire enough rounds in rapid sequence from a single shot rifle to heat up the barrel?

I like this wee .223 just as it is, and I like it even better with the fore-end slipped off. My friend, Walt Carlson, uses a Contender carbine for club rifle matches (steel critter silhouettes up to 100 yards with a rimfire rifle). In handgun or carbine configuration, Contenders take barrels in a wide variety of calibers, and the safety switch on the hammer is also convertible between centerfire and rimfire. Walt’s is in .22 Long Rifle with the heavy “Super 16-inch barrel, a beautiful laminated thumb-hole stock, and a Tasco 6 to 12 power telescopic sight. He’s delighted with it.

However, that rifle weighs seven pounds. I like the slimness and lightness of the test gun the way it is. Still, the gun is so inherently accurate it calls out for a telescopic sight, especially a quickly removable one that will return to sight zero when replaced. I need to try that.

Stay tuned for Part II of our assessment of what might just be the handiest little rifle to have in a backwoods home.

(Mas Ayoob’s classes in armed self defense are taught nationwide. For information contact Lethal Force Institute, PO Box 122, Concord, NH 03302, or check the LFI website at www.ayoob.com.) Δ

Think of it this way...

By John Silveira

What's left, what's right? What's liberal, what's conservative?

The issue was all but done and Dave, the fellow who publishes this magazine, was at his computer working on his editorial. It's always the last thing that goes in. I, on the other hand, who had finished all my tasks, sat near the window playing one game of solitaire after another on my computer.

Meanwhile, Mac—that's O.E. MacDougal, our poker playing friend from Ventura, California—was up visiting. The lake is supposed to be real good for fishing this spring and he'd made the 700-mile trip to see if it was true. So far, he hadn't been disappointed. At the moment he was sitting across the room next to the fax machine reading a book on differential equations. I didn't ask him why.

"Why left and right?" Dave suddenly asked.

I paused and turned toward him. "What d'you say?" All I could see was the back of his head. I didn't know if he was talking to me or what.

"We use those terms, but I don't know why," he said. He turned around and saw I was looking at him. "Do you know where they come from?"

"Left and right?" I thought. "Ahh..."

"You don't, do you."

I shook my head. "I don't even know what you're talking about."

"Mac?" he asked.

MacDougal raised his left hand—a signal for Dave to wait until he finished writing some figures on the paper. Finally, he put his hand down and stared a moment at what he had written. Then he checked a page at the back of the book. I supposed it was the answer key. Finally, he looked up.

"Did you hear the question?" Dave asked.

"Left and right?"

"Yeah."

"Do you mean left and right in the brain, accounting, politics, physics...?"

"Politics," Dave said.

"It comes from the way the representatives seated themselves in the parliament of post-revolutionary France."

"What do you mean?"

"You know what the French Revolution was, right?"

"Yeah, it happened right around the time of our own Revolution—but a little bit later."

"That's right. Ours started in 1776 and went on until 1783. The French Revolution started in 1789 and ended, depending on which historian you read, about a decade later. After their revolution, those in the French parliament who demanded greater popular sovereignty and democratic control over political, social, and economic life sat to the left of the presiding officer's chair while the others, mostly those who advocated holding onto the wisdom embodied in traditional culture and institutions, sat to the right."

"You're saying the revolutionaries sat to the left and those who wanted to keep the old ways sat to the right," Dave said.

Mac nodded.

"That's it? That's where the terms came from?"

"That's right. And they've become political terms in just about every culture on the planet since then. In the meantime, of course, there have been certain ironies in the way the meanings of the words have changed. But it all started in the French parliament."

Dave nodded and said, "Thanks," then went back to work on his editori-



John Silveira

al and Mac started working the next problem in his book while I went back to playing computers games.

A few minutes later, Dave turned around again. "What ironies?"

It's funny because I was wondering the same thing though I hadn't bothered to ask. But I stopped playing my game and Dave and I both turned to Mac who was checking the back of his book again.

He stopped and looked at us again. "What was that?"

"What ironies?" Dave repeated.

Mac glanced up at the ceiling for a moment as if considering the question.

Dave started to say, "You had said..."

"Oh, you mean the ironies about the way left and right are used."

Dave nodded.

The original left

"Just think about those who were originally on the left. They were the ones who wanted the old political system changed and they also wanted

more say by the people in society's processes.

"On the other hand, those who were on the right were those who wanted to keep the old institutions in place because they felt there was a lot of wisdom and stability in those time tested ideas. They also didn't trust democratic input."

"So, where's the irony?" Dave asked.

"Can't you see it?"

Dave shook his head and Mac looked to me expectantly but I just sat there.

"Think about those who are on the left today."

"I guess you'd say that those are the liberals."

"Okay, we'll call them liberals. In this country, these liberals have changed society. But at the same time they've institutionalized their beliefs."

"What do you mean?"

"Every program these modern-day leftists have gotten enacted is now carried out by bureaucracies and they insist the solutions to nearly all of society's problems lie in government and bureaucratic controls." He hesitated.

"And?" Dave asked.

"Nothing can be further removed from democratic input than a bureaucracy. Not even dictators are further removed from the people than bureaucrats and nothing is more enduring. Dictators are overthrown; dictators die. But bureaucracies seem to be immortal.

"It's ironic that these leftists who advocated democratic control have placed their policies so far beyond democratic control. And they did this intentionally.

"In the meantime, to ensure that their 'democratic' policies are followed, they define those who would live differently as lawbreakers."

"What do you mean, lawbreakers?" I asked.

"What if you don't want to participate in many of the liberal programs. Say you don't want to participate in

Social Security, or you don't want to wear seat belts or motorcycle helmets, or you want to use your private property in your own way—and risk the wrath of the Environmental Protection Agency? There's a whole list of programs instituted by these so-called liberals and, when they have put them in place, they've made it illegal for you not to follow their agenda. If you try to live your life counter to their programs you can find yourself paying fines—even doing time—for crimes that are really little more than political crimes.

"Worse yet, they won't give up on programs that are obviously failing. They won't even give up those that are even harmful to society."

"Like what?" Dave asked.

"One of the greatest social failures in history is our welfare system. It's resulted in the destruction of the black segment of American society. Welfare as we know it has been a failure for at least three decades. But it continues because those who call themselves leftists refuse to admit it's failed and will not try new solutions—particularly if the proposed solutions run counter to their philosophical beliefs or, even worse, the solutions might erode their political power base. Today's leftists, those who instituted and maintain these programs, now perfectly fit the definition of those on the right after the French Revolution."

"You mean, they are now the people who advocate holding onto the so-called wisdom and traditions of the past," Dave said.

"That's right. We've made most blacks and a large percentage of those on welfare a permanent underclass that has become self perpetuating. Surely this was not intended by the people who started these programs. But, in spite of this, the only solutions the promoters of these programs can come up with have been to add more money and more bureaucracy, which removes it even further from public control. The fact that all the money spent so far and all the bureaucratic

control seems to have made the problems worse is ignored as less important than maintaining the program.

"Is that the only example you can give?" I asked.

"Social Security is failing and it's inefficient. There are other ways to ensure retirement and there's already a successful working model of privatized retirement in Chile, and no one down there is talking about when the system goes broke—because it won't. But almost no one is willing to talk about getting rid of the system we have in this country, and while Social Security slowly crumbles, no one is allowed to leave it, to stop participating in it, or to use the money taken from them to get into a program that works."

"Are you trying to say those who claim to be on the left are no longer democratic," Dave said.

"They're not. In fact they oppose many other programs that offer society powerful democratic alternatives."

"Like what?"

"If they, the left, wanted more everyday democracy they would be FIJA advocates; they would back school voucher programs; and they would endorse laissez-faire economics which is the ultimate in freedom and democracy."

Fully informed jury

"FIJA?" I asked.

"The Fully Informed Jury Association."

"How would FIJA contribute to making a more democratic society?" Dave asked.

"What that organization wants is a constitutional amendment that says a judge is obligated to inform jurors that they don't have to bring a verdict of guilt in a criminal trial if they feel the law is a bad law—even if it's clear the defendant actually broke the law he's on trial for."

"When would you not bring a guilty verdict?" Dave asked.

“Let’s say a cancer patient is undergoing chemotherapy and the only thing that keeps her from feeling suicidally sick and continuously vomiting is smoking marijuana. So she smokes some, finds it make the chemotherapy bearable, but one day she gets caught. They bring her to trial. She admits to breaking the law, but explains why she had to. You’re on the jury and the closing arguments have been rendered. What’s your verdict?”

Dave looked at the floor then back at Mac. “She’s in violation of the law, but without the pot she can’t keep anything down.”

“She may even give up the chemotherapy.”

“In that case I’d say not guilty,” Dave said.

“But she broke the law.”

“But in her case the law is wrong so I’d hold out for acquittal.”

“Well, that’s the kind of power FIJA wants to put into the hands of the people. They want it as an amendment to the Constitution, and to put teeth into it they want included in the wording that in the instructions a judge gives to jurors, he must inform them that they can nullify the law in any case where they feel the law is being wrongfully applied or just plain wrong. It would also say that if those instructions are not given, the defendant has grounds for a mistrial if found guilty.

“With that kind of power, jurors could make bad laws go away. It’s how the government finally gave up on Prohibition in the 1920s and 30s—because juries stopped bringing guilty verdicts, even when it was clear the defendants broke the law, because Americans overall felt the Volstead Act, the federal law that enforced Prohibition, was wrong. Because jurors voted their consciences, the government found it impossible to get convictions anymore, and Prohibition was finally repealed.”

“And the left opposes this jury nullification you talk about?”

“The left and most of whoever is supposed to be on the right oppose it. But the left claims to be more democratic and what could be more democratic than the people having the ability to repeal bad laws in the courtroom and not having to wait years, or even generations, while the legislators try to make up their minds what to do about bad laws while under the pressure of special interest groups. Thousands of lives are ruined every year by juries that bring verdicts of guilt that don’t want to, but don’t know they don’t have to.”

If you try to live your life counter to their programs you can find yourself paying fines—even doing time—for crimes that are really little more than political crimes.

“But we’ve run a couple of articles on jury nullification in the magazine,” I said, “and actually jurors already have the power to do what you’re saying. Why would we need a constitutional amendment for it?”

“Because most people today don’t know it. And the question is, why doesn’t the left want them to know?”

“Do so-called right wing interests advocate jury rights?” Dave asked.

“Some do. A lot don’t. As soon as they realize marijuana smokers and people who engage in consensual sex could go free, many on what we call the right oppose jurors’ rights.”

School vouchers

“What about school vouchers?” Dave asked. “How are they more democratic?”

“Nationwide, the public educational system is in trouble. The solution offered by special interest groups that back public education is that we need more money and standardized testing. But why not let people take the money that is spent on their child’s education and let them take the kids somewhere

else where they feel they may be better educated? What could be more democratic than letting people decide for themselves how and where their children will be educated?

“Why doesn’t the left want this?” I asked.

“Because the National Education Association is one of the three or four largest and most powerful special interest groups in this country and the left is afraid of losing their support. Public school teachers are afraid of losing their jobs. So, parents are not allowed to determine how the educational dollars are spent on their children.

Free market democracy

“And what was the third thing you said?”

“Laissez faire economics—a free market economy,” Mac said. “This may be the most important opportunity for democratic action because in a free economy every action you take, whether it’s as a supplier or the consumer, you are making a free vote. The marketplace is the the ultimate democracy because it takes place everyday. In a free marketplace—free from government and bureaucratic control—you can have something even if the majority doesn’t. It’s really the ultimate freedom.

“Think of it this way: When a presidential candidate is elected with 53% of the vote, those 53% get what they voted for, but the other 47% are stuck with it too. On the other hand, in a free market, if 53% of the people want American cars and 47% want imports, *everyone* gets what they want 100% of the time. This happens everyday as long as there’s someone willing to be a supplier. Even if only one person in a hundred wants something, he can have it if someone is willing to supply it. A free market is the most basic democracy we have and it happens everyday.”

“So, to sum it up, you’re saying today’s left isn’t like the left in the

post-revolutionary French parliament,” Dave said. “It’s like the right.”

New left — new right

“In the topsy-turvy world of politics, those who claim to be on the left today would actually feel more comfortable sitting on the right in the post-revolutionary parliament and, ironically, many of those who are called right wingers today would find themselves sitting on the left.”

“What do you mean?” I asked. “Which right wingers would be on the left?”

“Today’s militia groups would sit on the left side of the old French parliament.”

“I don’t get it,” I said.

There was a long pause while Dave thought. “You mean because they advocate smaller government and more democratic input,” he finally said.

“That’s exactly right. Today’s militia groups are advocating much of what the post-revolutionary radicals in France—those who sat on the left—advocated.”

“I think I see your logic,” Dave said. “But why don’t I hear anyone else saying this?”

“Most people, including most commentators, have no sense of history.”

“You can’t be saying everyone in the press is missing this,” I said.

“I can’t? Several months ago we sat in this office and talked about how the communists in Russia and the old Soviet Union had been called leftists from the late 19th century until the dissolution of the Soviet Union just a few years ago. They were called leftists despite the fact that the Soviet Union was more than a little undemocratic; in fact it was a dictatorship. But not long after the fall of the Soviet Union, when the old-guard communists opposed instituting democratic elections and capitalistic practices—and remember, capitalism is one of the very things the leftists in this country have opposed for decades, and it was

also opposed by the Soviet communists all along—these same communists were suddenly portrayed as right wingers by the media.”

“I remember we talked about it,” I said. “And I remember it on the news.”

“Then the question,” Dave said, “is how could they be left wingers one day and right wingers the next?”

“And the answer,” Mac responded, “is that those who call themselves leftists in the West didn’t like them anymore.”

“Then who is it that actually decides who’s on the left and who’s on the right?” Dave asked.

“Western intellectuals do. On the left are those they like, along with themselves, while on the right is anyone who opposes them—even if those they place on the right have very little in common with each other.”

“So that’s how the Russian communists got put on the right a few years ago,” I said.

“And that’s how Hitler and Mussolini got kicked off the left,” Mac said. “Don’t look surprised,” he added when I did what must have appeared to be a double take. “We’ve talked about this too.”

“Yeah, we did,” Dave said.

“The fascists were espousers of National Socialism. Mussolini, himself, was once the darling of the left—until World War II. Then he got thrown onto the right. You see, fascist economics is little different from what the Democratic Party has been for almost 70 years and what the Republicans have been becoming since 1950.

“The managed competition the Clinton’s and other Democrats have talked about when explaining how they would guide the economy is actually the cornerstone of fascist economics.”

“So the meaning of what it is to be on the left has changed over time,” Dave said.

“I think it’s pretty obvious that it has, and sometimes it changes from day to day.”

“So what we’ve got right now is that left and right aren’t necessarily good terms if you want to understand politics, especially in the historical sense,” Dave said.

Liberal vs. conservative

“Are ‘liberal and conservative’ better terms to use?” I asked.



Mac glanced up at the ceiling as if trying to find what to say. “In the 1800s, those who advocated free markets, free trade, capitalism, etc., were called...” He hesitated.

“Conservatives,” I said before Dave could.

“No,” Mac said, and I wished Dave had beaten me to it.

“Back then,” Mac continued, “they were called liberals. If you were a liberal in the last century, it meant you believed there should be limits on government—its authority and its size—and you believed in free markets. Today, people who believe these things are called conservatives. But if you think about it, today they are in fact the liberals again in the sense the term was used in post-revolutionary France, and the real conservatives, now, are nearly all the Democrats and the majority of Republicans.”

“You’ve got my head spinning,” I said. “I can’t keep up with how the definitions keep switching.”

“That’s because you’re dyslexic,” Dave said, then turned back to Mac. “What you’re saying is that those on the left are those who say they’re on the left, and everyone else is on the right.”

“That’s pretty accurate. And because those who are on the left call the shots, they’ve told conservative Christians and free market businessmen that they’re on the right along with survivalists and a host of other groups when these groups have little more in common than that they oppose the ‘left.’”

Government by experts

“If you had to sum up what makes a modern leftist today, what would your words be?” Dave asked.

“I can answer that right away. There are two extremes of politics. At one end are those who believe that experts should run the world; at the other are those who think every man is his or her own expert.

“The left, for all it professes about democracy, believes the world should be run by experts.”

“Many religious groups feel that way,” Dave said.

“And because of that, I’d lump many of them with the leftists. On the other side I’d put those who feel every man and woman is entitled to run his or her own life, whether they take risks with their lives or not.”

“Is your editorial about ‘left and right,’” Mac asked.

Dave thought a second. “No, I was just wondering where the terms came from.”

Mac nodded and went back to his math book while Dave went back to his editorial and I to my games.

It was quiet for awhile until, again, Dave said, “Left, right...”

Déjà vu, I thought. I turned to look at him again.

He turned around, too. “Hey, Mac, you’re saying the terms left and right are shifted to suit political ends?”

“Yes.”

“Well, given left and right, is there anyone who’s ambidextrous?”

I laughed and Dave seemed delighted with his little joke.

But Mac didn’t. He thought a second, then said, “Yes.”

Dave eyed him suspiciously as if expecting a punch line. I myself expected something funny.

Instead, Mac said, “The Libertarians.”

“What do you mean?” Dave asked.

“The Libertarians are a mixture of democratic ideals they want to carry into the future both in politics and economics, but they also have a wish to retain the wisdom of the past—a past to which the Democrats and Republicans pay lip service but ignore in practice. Libertarians are often considered right wingers by the left and left wingers by many so-called conservative groups. And you’ll find more and more people becoming Libertarians.

“Conservative gays—and they do exist—find themselves in the

Libertarian Party because homosexuality is considered a personal issue by Libertarians and not an issue in which the government has business.”

“What ‘past wisdom’ are you talking about?” I asked.

“The Constitution. If Libertarians had their way, we’d start all over again with the Constitution as it was written, and they’d drop all but a few of the Amendments that came after the 15th Amendment. In other words, they’d keep things like the 19th Amendment, which guarantees suffrage, and they’d probably keep the 22nd, which limits the terms of the presidency.”

He was getting up as he spoke. He put his math book into his tackle box and picked up his fishing rod as he started toward the door.

“And they don’t believe experts should run anyone’s life.”

“Where are you going?” Dave asked.

“Out to the boat.”

“Are you going to go fishing this early?”

“No. I’m going to go to the boat because there I can work these math problems in peace,” he said as the door closed behind him.

Dave and I sat there staring at the closed door.

“Touchy, isn’t he?” Dave said.

I nodded and Dave went back to his editorial.

A few minutes later Dave asked, “Why do you think the terms liberal and conservative switched meanings?”

I turned around and he was looking at me.

I didn’t say anything.

“You don’t know, do you.”

I didn’t say anything.

“Where are you going,” Dave asked.

I was heading for the door and picked up my rod as I passed it. “You talk too much,” I said. “I’m going fishing.”

“You’re going down to the boat to ask him why, aren’t you?” I heard him shout as I closed the door behind me. Δ

Used bookstores can be successful in the hinterlands

By Jennifer Stein Barker

If you stand reading at the rack closest to the window, you can look up from your book to see the Strawberry Wilderness looming its wooded heights into the blue sky above the town. The woman from Denver is browsing the shelves. She stares at the drama section for a long time, and finally bursts out “I can’t believe you have *Waiting for Godot* in John Day, Oregon!”

A local man with a reputation for fixing anything spots an incomplete set of *The Thomas Register*, a compendium of who makes what. It contains sources for everything from church pews to electronic equipment, with product listings and descriptions. The man just sits and shakes his head in disbelief that such a wonderful thing exists.

David Judson had bought the set to keep in the shop as a reference, but it goes out the door with the handyman, who uses it to find obscure parts and fix even more things around town than before. The Judsons now plan to buy a brand new set for the shop. It will not be for sale. They’ll give it a special shelf near a sitting area where customers can browse through it at leisure. The next nearest public set is in the Ontario library.

Welcome to the Uffda-shop, which has more used and antiquarian books than the population of this remote county of 8,000 people. Apparently, good used bookstores may be found wherever lovers of old books live.

Kathy Judson started the book business when she and her husband David moved from Ontario, Oregon. David had an established career building and repairing computers. They had been commuting to John Day to fill the need here for some years, and wanted

to live in the smaller community. David thought the move would involve some volume tradeoffs, but was pleased to find out that his excellent work generated more business than he thought possible in this remote area.

Kathy had never lived beyond easy commuting distance from a good used bookstore, and she says “I couldn’t stand it.” The book section grew from a shelf in the corner to take over 2/3 of their present space in a prime retail spot in this small town.

People often come in to the store looking for books to replace copies loaned (and not returned) or lost. They sometimes find things they’ve been seeking for years. “It’s really fun when they’ve been looking for something, and they find it, and it’s out of print and here it is!” Of course, used books are a moving target, and what’s in the collection is in constant revision as books are brought in and sold. Kathy tries to keep the collection as eclectic as possible.

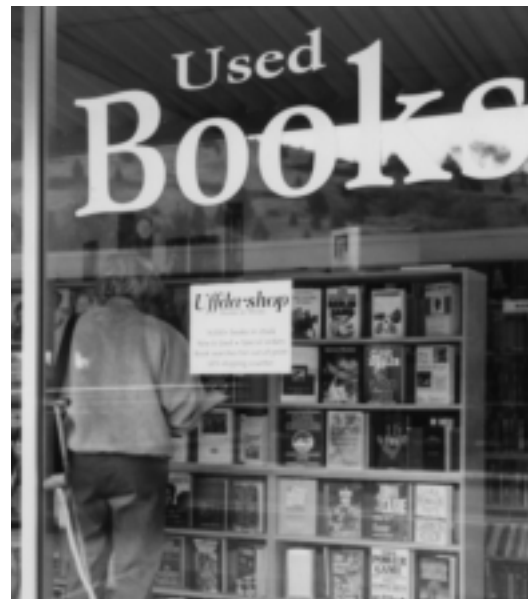
The Judsons have an innovative way of buying used books. Cash can be pretty scarce in a small town, especially during off-season for logging and tourists. They use “Uffda Bucks,” store money which looks like pretty play money. Local book traders can use them like cash at the store. Inventory cost is not accounted until the “Uffda Buck” is spent at the till (and of course, if they get lost, the inventory was free).

Kathy only pays cash for used books in special circumstances, such as buying fine collector’s books or a customer moving away. A lot of the books brought into the store

come from Bend, Boise, Powell’s in Portland. “Local readers are very well-traveled. They do some of my book-buying for me.”

Kathy says that if you look at the demographics of the John Day area, you wouldn’t expect the range of reading tastes. She sells a lot of classics, new books that have been recently reviewed in *The Oregonian*, and a wide range of other types of literature. The extreme variety of reading tastes in town doesn’t fit the image generated by the bucolic surroundings. “Anyone who thinks they know what loggers and ranchers will read is going to be really surprised!”

The store feels different from the stereotypical dusty, claustrophobic used bookstore. “We broke a lot of the rules,” Kathy says. The books have all been cleaned with “409” glass cleaner, and old labels removed with lighter fluid. The aisles are roomy and airy, the stacks merely head-height, the shelves spaced to see through between the books. Kathy hated the green shag carpeting when she first saw it, but she admits it has a grassy, bright appearance and makes a friendly surface for children (and their grandparents) to sprawl on.



A main-street location makes the shop highly visible.



Louisa Gray, age 4, checks out the children's books at Uffda-Shop.

The children's section has even lower shelves, so little hands can reach the books. The children's books are unorganized, because they always end up that way anyway, and the kids don't seem to care. There are selected new books among them, since good children's literature is always coming out, and young people don't always leave their books in buyable shape. Kathy is careful about the condition of what she buys.

There is a jar of penny candy on the counter. A visitor from Vermont says "Oh, Tootsie Rolls, my favorite!" throws in a dime, stuffs his pocket, and munches as he peruses the books. He sits at the table by the window while he checks one out more closely. He leaves with a songbook which contains the lyrics he's been looking for to a cowboy song.

One of the specialties of the shop is the regional section. It contains mostly nonfiction about the inland west. Many of the books in this section are brought in new because they are difficult to find on the used market. Kathy has a good section of older Westerns, depending on what's available in good shape, and what people are asking for. The shop is developing a specialty in old hunting and fishing books.

General recreational fiction is the largest single section. "You never know what people are going to buy. About the time you're ready to give up on (an author or subject), someone will come in and buy every single one of them. I just try to keep a good selection." While I was there, a woman bought a pile of Sandra Brown books, and Kathy said, "That's the second time I've been cleaned out of hers in a month."

Though there aren't very many local authors, Kathy keeps their books in stock. She also buys from small presses like Caxton (which specializes in western nonfiction), as well as from a new-book wholesaler on computer.

Used and new books are entirely different business strategies, but more and more stores are combining them. At the time they started the Uffda shop, there was a new bookstore in John Day, so Kathy planned to stick with the used books. With her innovative way of purchasing used books, they were a much safer business strategy.

When the other bookstore's owner retired last year and closed her shop, Kathy began filling the demand for special orders, for which she gives a 10% discount if prepaid (she finds people pick up their books a lot faster!). She has gradually added a few up-to-date technical manuals and other new books to the shelves that she feels will round out the collection, and reports happily that most of them have sold.

For special order used books, Kathy has access through the Internet to antiquarian booksellers around the world, and she and David check with book-

sellors from Bend to Boise on their personal bookbuying trips. "We do used-book searches for people from out of the area, and mail them the books when they come in."

The store has a friendly feel. David's walking sticks, which are also for sale, loiter in the corners. "Have you ever read a book that you didn't see the word walking-stick or cane in?" David demands. "There's a great deal of walking-stick lore." They have sticks, some functional and some strictly decorative, made from an eclectic variety of materials. There are sagebrush, juniper, pine, birch, rosewood, and cedar ones. There is one made of what Kathy delicately calls "the reproductive organ of a bull." There are some made of Rocky Mountain Blue Spruce with a warm curve that fits the hand and has been polished almost to a glass-like smoothness.

They buy walking-sticks from all over the country, from manufacturers



Kathy Judson assists customers in the bright and airy bookstore.

and individual artisans. One burled pine stick has an owl's head carved at the top and western designs down the shaft to the bottom. Its maker, Seneca artisan Monte Sanford, carved it while he was dying of cancer. There will be no more like it.

Visitors are always curious about the store's name. David is part-Norwegian, and when he and Kathy were considering a list of potential names for the store, none of them

seemed to work. "Uff-da!" David exclaimed in frustration, and that was it. The name brings lots of amused comments, and many part-Norwegian visitors. Kathy hands out a card with some of the many interpretations of "Uffda" on the back.

When you have looked your fill at Kathy's shop, and bought your books, she will send you on your way with cheery directions to the next good bookstore down your road. She will tell you which other stores in town might have what you are looking for, if she did not, and where next to head off through the mountains on your quest for superb scenery and great reading.

There are several good lessons to learn from the way Kathy and David do business at their bookstore. You should have as diverse a business as possible. David works his service business out of the store's back room, which pays some of the rent. The walking sticks, penny candy, local newspaper sales, all help to bring people in the door. There is a sale table outside with marked-down books.

The big draw is the quality and variety of the book selection, made possible by Kathy's innovative "Uffda Buck" plan whereby purchases are not accounted (or paid for) until sales are made. The visible location helps make sure that some of the old stock goes out of town with tourists. With new stock coming in as residents make shopping trips to the outside world, this assures that the same books are not just making a round-trip within the community. Kathy is a selective book-buyer.

Kathy is willing to talk to lovers of old books who want to open a business. She says she received a lot of help from existing bookstores, including reduced prices for start-up stock. You may visit her at: Uffda-shop Books and Sticks, 201 W. Main St., John Day, OR 97845. Or e-mail the Judsons at: djud@eoni.com for Godot in John Day, Oregon! Δ

The Ninth Year

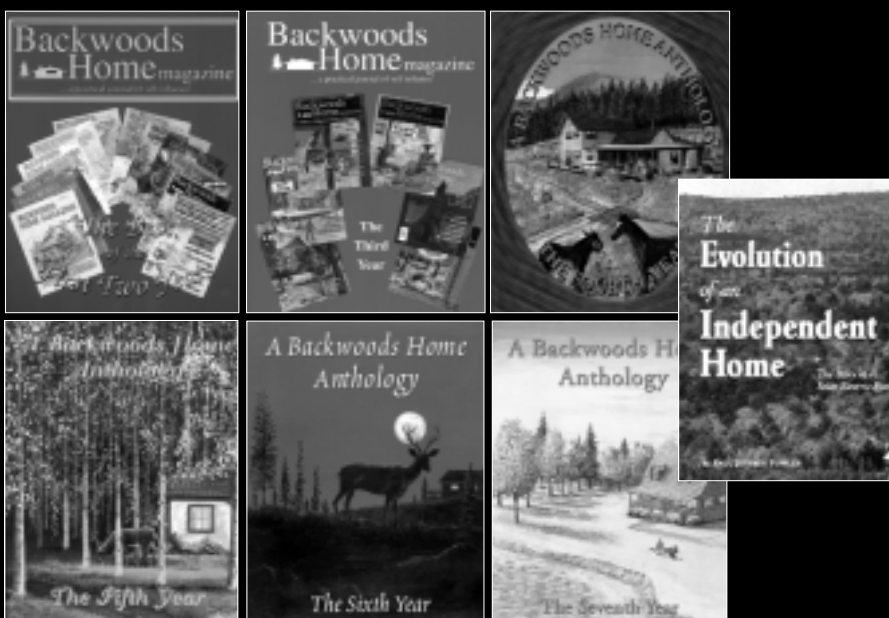
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Grow and use hot peppers this year

By Jackie Clay

Hot peppers have been around for centuries but it has just been in the last few years that North Americans are really taking notice. It is a prominent ingredient of South American, Mexican, and Asian meals. Few Americans ever used anything more than a dash of cayenne powder or mild chili powder in their home cooking. But glory be, nowadays folks are discovering the huge variety and exquisite tastes of hot peppers.

“Hot” covers quite a range, from mildly spicy and mellow to the so-called “gringo killers” which will actually blister the mouth and lips of the uninitiated. Luckily, there is a scale of hotness, called the Scoville scale, that measures the hotness of the many varieties of peppers. At the top (the break-glass-in-case-of-fire peppers) are the Red Habañero, the Chilitipine, and Yellow Habañero. These have complex flavors but they are hidden under a veil of fire to those not used to eating volcanoes. If you are new to hot peppers, it is best to work your way up from the bottom of the Scoville scale starting with milder cousins with nicer mellow chile flavor, such as the Big Jim, Anaheims, and Relleno.

Some of the varieties we grow in our garden—and even grew when we lived in northern Minnesota—are the Big Jim, a very large, quite mild, but spicy chile nearly a foot long and about two inches wide; the versatile

Jalepeño which is hot or its milder cousins Tam and Señorita which have the flavor but not the heat; Del Arbor, a thin hot chile about three inches long and less than an inch wide; and the Pasilla Chile, which has a mild, complex flavor—until you add the fiery seeds.

These peppers and other varieties can be used in hundreds of ways. Pickle them; roast them in your oven or on your grill; peel and stuff them for chile rellenos; mix them with meat



A variety of chilies, fresh, dried, and canned.

dishes, casseroles, or rice; dry them, grind them, and use the little rascals in the tastiest chili and other dishes; make sauces with them, such as the famous mole sauces from Mexico; or use them in a zingy salad. The uses are endless and the varieties are, too. Each pepper has a different taste and texture. They are no longer just “hot peppers.”

And, easy to raise? You bet. As I’ve said, we grew them in northern Minnesota. Most seed packages say “start seed indoors, in flats six to eight weeks before setting them out in the garden after the last frosts.” Naw.

You’ll find you have much better luck starting them 10 to 12 weeks ahead of planting time. The plants will develop a woody stem, heavy root systems, and be ready to produce like crazy. Do not plant them so early that they are blooming when you set them out as they may suffer a setback at transplanting time.

Peppers like heat. That’s why they were first cultivated in Mexico and South America and later in Asia. In cold climates, you’ll have much better luck using black plastic mulch, walls-o’-water, and row covers in the spring. When pepper plants get chilled, they often do not go on to produce prolifically later in the season.

Although folks think of them as a dry-climate plant, peppers perform better if they receive adequate moisture. A drip system works excellently as does the traditional southwestern system of small irrigation ditches between raised rows.

Pepper plants bear heavily and you can begin using the peppers in the unriper green stage. We use only open pollinated varieties so we can save our own seeds. If you plan on doing this, remember that peppers cross easily so you will have to isolate and cover the individual future seed plants with Reemay or fine screening to prevent cross pollination.

The seed plants should be left alone and allowed to quickly mature. But the others can be picked green, or later as they turn color from yellow to red and even the black in the case of the Pasilla and Negro. For it is upon maturity that the pepper shines with



The author's kitchen done in a chile motif.

all of its true complex and often fruity flavor. They are so good we munch them while working in the garden.

Pepper pests are few but do not let a smoker handle your plants. Not only is smoking bad for people, but the smoker can pass on problems that will kill your plants just by the tobacco/smoke on his or her hands.

If you decide to save your own seeds from non-hybrid hot peppers, let them mature to their full color. If frost or rainy weather threatens, bring the pods indoors and let them dry in a warm place. Do not put them in a heated dehydrator as this may “cook” the seeds making them useless for planting. I know of several folks who have done this, much to their dismay.

Some sources of pepper seeds

Native Seeds/Search
250 N. Campbell Ave. #325
Tucson, AZ 85719

Abundant Life Seed Foundation
P.O. Box 772
Port Townsend, WA 98368

Seeds of Change
P.O. Box 15700
Santa Fe, NM 87506-5700

Totally Tomatoes
P.O. Box 1626
Augusta, GA 30903

The hot pepper craze is not a fad but a new discovery and, as in the past few years, you will see more and more varieties available to gardeners. Like us, I'm sure you'll want to try a few new ones each growing season. And remember, peppers are naturally perennials, so you can carefully dig your favorites in the fall, pot them in a large pot, and bring them indoors where they will produce and produce and produce till you set them out again next year.

I totally love chilies because of their superb, often complex and varying flavors, their brilliant, vibrant colors, the wonderful aromas, the beauty and then ease of growing them in the garden, greenhouse or even in a sunny window indoors. In fact, I love my peppers so much that I've incorporated them into my kitchen decor. When remodeling my tiny, cupboard-less kitchen, I not only hung ristras (strings of dried peppers) from the ceilings and walls, I also used carved wooden chilies for door handles and used chile in my kitchen towels, all with a green chile background color. Everyone comments on the effect: sort of a chili-Christmas year-round. Best of all, it didn't cost much at all using only paint, very cheap and cast-off cupboards, plus a little imagination. Δ

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Cooking with hot peppers

By Jackie Clay

Many recipes that call for hot peppers demand roasted chilies and, unless you happen to live in the Southwest or are of Hispanic or Southwest Native American heritage, you probably don't have the foggiest idea of how to "roast" a pepper. I know I didn't. I roast chilies on a simple grill fueled by charcoal or, better yet, pinon or juniper wood. Mesquite is great, too. I lay washed, clean peppers on a grill, a few inches above hot coals and stand by until they start to char slightly on one side. With a long-handled fork or a clean stick I roll the peppers over to roast the other side. Stand back as they will sometimes pop scattering hot seeds everywhere. My six-year old, David, loves to watch the peppers pop. It's sort of like popcorn, only better.

As the chilies are roasted, drop them into a clean bucket or mixing bowl filled with cold water. Many folks simply place the cold chilies in Zip-Lock bags and freeze them and peel later as they are used. Because I can my peppers, I peel them immediately, de-seed and de-vein them, then plop them into jars with a bit of salt to process in the pressure canner. It's a good idea to wear plastic or rubber gloves as when you handle hot peppers because your hands may burn, especially under your fingernails where you are very tender. And this chile oil, containing capsicum, does not wash off and rubbing your eyes or even flossing your teeth later that night, may provide unpleasant surprises.

Peppers may also be roasted in an oven at 450° F by placing them near the heat source until they blister and are partially charred, then popped into ice water or put into a paper bag for steaming and cooling.



Carved wooden chiles, painted red are door handles on a green chile background, ristas of dry chiles, and even chiles are on my dish towels!

Chilies Rellenos

This is a great stuffed chile dish. The name is pronounced "chilies re-YEN-os" for you folks who don't want to sound uneducated in a Mexican eatery.

8 large Big Jim, Poblano, or Relleno chilies, green and roasted
 1 16-oz. can tomatoes
 1 small onion, finely chopped
 1 tsp. beef bouillon granules
 Dash of comino
 Dash of cinnamon
 4 cups shredded cheddar cheese or Monterey jack
 8 egg yolks
 2 Tbsp. water
 ¼ cup flour
 ½ tsp salt
 8 egg whites
 Shortening for frying

Make tomato sauce from undrained tomatoes, onions, bouillon, comino, and cinnamon, heat thoroughly, then simmer while fixing peppers.

Remove the seeds and veins from the peppers, slitting each carefully on one side only, then stuff each with ½ cup of cheese. Set these aside on a plate.

Slightly beat the egg yolks and water. Add the flour and salt and beat until thick. (If you use the same whip or blades you used to beat the yolks, make sure you first clean them thoroughly because the whites will not get stiff if there is any yolk on them.) Fold whites into yolks.

In large cast iron skillets heat ½-inch of shortening until hot, but not smoking. For each serving, spoon about ⅓-cup of batter into the hot fat, spreading it in a circle. Fry three or four at a time. As the batter begins to set, gently place a stuffed chile on top of each. Cover it with another ⅓-cup of batter. Continue cooking until the underside is browning...not dark. Turn carefully and brown other side. Drain on paper towels and keep warm in 300° oven until all are finished.

Serve with tomato sauce and enjoy the compliments.

Española eggs

Shortening to fry
 1 medium onion, sliced
 8 Anaheim, Big Jim, or Relleno peppers, green roasted
 If you want fire for breakfast use one chiltipine or habañoero, diced
 3 eggs
 ½ cup cheddar cheese, grated
 Dash salt & black pepper

Saute the sliced onion, diced hot pepper, and green roasted chile in large frying pan.

When chile is browning on both sides and the onion is transparent, add the eggs, mixed thoroughly, holding the eggs around the peppers. Let eggs cook until you can gently turn over, dividing the batch, as needed to turn over. When all have been turned sprinkle the top with grated cheese and finish cooking.

When done, serve with warm flour tortillas for a great breakfast. I like mine with a dollop of salsa and sour cream.

Homemade salsa

4 medium tomatoes
 ½ cup onion, finely chopped
 ¼ cup celery, finely chopped
 ¼ cup bell pepper, finely chopped
 ¼ cup olive oil
 3 Tbsp. fresh Jalapeño or Tam Jalapeño pepper, finely chopped
 2 Tbsp. vinegar or juice from one small lime
 1 tsp. fresh cilantro, finely chopped
 1 tsp. salt

Peel the tomatoes by plunging them into boiling water for 30 seconds, then dipping into ice cold water. Cut out the stem and core, then slip off the peel. Add the other ingredients, cover and refrigerate overnight. Stir before serving. Like everything else, homemade salsa beats the heck out of the expensive stuff from the store.

Red chile powder

In Mexican and many New Mexican and Arizonan markets, chile powder is simply dried, seeded chilies. Often ancho, Big Jim, Anaheim, or other large peppers are used. The “American” variety of chile powder is usually “diluted” with other ingredients, such as cumin, oregano and garlic. My chile powder is just that: powdered chilies!

To make your own superior chile powder, simply dry whatever peppers you prefer, from mild and mellow to fiery hot, just as they come from the bush. Red, ripe chilies are best, but I also use green chilies which can be quite good. I dry mine using simple ristas, strung with a carpet thread through the stem, into eighteen inch to two foot bunches, and leave them hanging in the kitchen until needed. You can also dry them in a dehydrator.

Before grinding, cut into each pepper and remove the seeds and ribs. Remember to wear rubber gloves to avoid becoming a hot chile, yourself. You can grind in a traditional metate with a stone manor or use a blender. I use an old glass blender I picked up for 50¢ at a yard sale. That’s the only use that blender sees because the capsicum oil doesn’t easily wash away and will remain for several washings strongly flavoring any other foods processed. Likewise, be sure there is a top as that flying, drifting chile dust will get in your sinuses and eyes. Grind a small amount at a time and pour the powder into a tight fitting dry glass jar for storage.

Native American squash and chilies

2 green roasted chilies, such as ancho, del arbol or Big Jim
 1 medium onion, finely chopped
 1 diced green or red bell pepper
 Dash, each black pepper, salt, garlic powder

4 ears fresh corn cut from cob or 2 cups frozen or canned corn
 2 small summer squash, cut into fairly thin strips
 ½ cup shelled beans or French cut green beans
 Oil to saute

Coarsely chop chilies, then add onion, bell pepper, and spices to moderately hot oil in a medium frying pan. Stir until barely tender. Add corn, squash, and beans. Simmer until tender. Serve with salsa or top with salted sunflower seeds (hulled). Look, a tasty, native, healthy dish—plus you got rid of two more summer squash. Δ

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THE IRREVERENT JOKE PAGE

(Believing it is important for people to be able to laugh at themselves, this is a new feature in *Backwoods Home Magazine*. We invite readers to submit any jokes you'd like to share to *BHM*, P.O. Box 40, Montague, CA 96064. There is no payment for jokes used.)

One hundred women were interviewed and asked the question, "Would they sleep with the President if the opportunity arose?" Seventy four percent said: "No! Never again!"

There was a very rich Irishman who had a little dog. It meant the world to him. When the dog died, he went to the priest. "Father Murphy, my little dog is dead. I'd sure enough appreciate it if ye'd say a public mass fer 'im." "Sorry, Patrick," said the priest, "We don't say mass fer dogs 'n' the like. But you go on down there to the Protestant church. With their progressive thinking, who knows what they'll do." "Well, Father, I wouldn't want to offend them. Do ya think a donation of a 100,000 pounds would be fitting fer such a service?" Patrick asked. "Now, Patrick, why didn't ye tell me that there little dog was a Catholic in the first place!!!"

Rodney Dangerfield Quotes

- I could tell my parents hated me. My bath toys were a toaster and a radio.
- What a dog I got, he found out we look alike, so he killed himself.
- I worked in a pet store and people would ask how big I would get.
- I remember the time I was kidnapped and they sent back a piece of my finger to my father. He said he wanted more proof.
- My uncle's dying wish was to have me sit in his lap—he was in the electric chair.
- I went to a gay bar, they wanted proof of sex so I showed them; they said it wasn't enough.
- I went to a freak show and they let me in for nothing.
- I stuck my head out the window and got arrested for mooning.
- When my old man wanted sex, my mother would show him a picture of me.

BUMPER STICKERS

Submitted by Kelley Construction of Indiana

WE HAVE ENOUGH YOUTH.
HOW ABOUT A FOUNTAIN
OF SMART.

LEARN FROM YOUR
PARENTS' MISTAKES —
USE BIRTH CONTROL

MAKE IT IDIOT PROOF
AND SOMEONE WILL MAKE
A BETTER IDIOT

LORENA BOBBITT FOR
WHITE HOUSE INTERN

KEEP HONKING —
I'M RELOADING

The Best Things About Being Male

(Submitted by Robert Bateman)

- Phone conversations are over in 30 seconds flat.
- You can rationalize any behavior.
- A five-day vacation requires only one suitcase.
- Your public bathroom lines are 80 percent shorter.
- Princess Di's death was just another obituary.
- You get to think about sex 90% of your waking hours
- You can kill your own food.
- You know at least 20 ways to open a beer bottle.
- You get extra credit for the slightest act of thoughtfulness.
- You never have to clean a toilet.
- You can be showered and ready to go in 10 minutes.
- Wedding plans take care of themselves.
- You never have to worry about other people's feelings.
- You can write your name in the snow.
- Flowers fix everything.
- Someday you'll be a dirty old man.
- If something mechanical doesn't work, you can bash it with a hammer or throw it against the wall.

THE IRREVERENT JOKE PAGE

STRANGE COINCIDENCES

Abraham Lincoln was elected to Congress in 1846.
John F. Kennedy was elected to Congress in 1946.
Abraham Lincoln was elected President in 1860.
John F. Kennedy was elected President in 1960.

The names Lincoln and Kennedy each contain seven letters. Both were particularly concerned with civil rights.

Both wives lost their children while living in the White House. Both Presidents were shot on a Friday.

Both were shot in the head.

Lincoln's secretary was named Kennedy.
Kennedy's secretary was named Lincoln.

Both were assassinated by Southerners.
Both were succeeded by Southerners.

Both successors were named Johnson.

Andrew Johnson, who succeeded Lincoln, was born in 1808.
Lyndon Johnson, who succeeded Kennedy, was born in 1908.

John Wilkes Booth, who assassinated Lincoln, was born in 1839.
Lee Harvey Oswald, who assassinated Kennedy, was born in 1939.

Both assassins were known by their three names. Both names comprise 15 letters.

Booth ran from the theater and was caught in a warehouse.
Oswald ran from a warehouse and was caught in a theater.

Booth and Oswald were both assassinated before their trials.

And here's the kicker:

A week before Lincoln was shot he was in Monroe, Maryland.
A week before Kennedy was shot he was in Marilyn Monroe?

Spooky, eh?

After having their 11th child, a redneck couple decided that that was enough. They could not afford a larger double-wide. So, the husband went to his doctor, who also treated mules, and told him that he and his wife/cousin didn't want to have any more children.

The doctor told him that there was a procedure called a vasectomy that could fix the problem. The doctor instructed him to go home, get a cherry bomb (small fireworks), light it, put it in a beer can, then hold the can up to his ear and count to 10.

The redneck said to the doctor, "I may not be the smartest man, but I don't see how putting a cherry bomb in a beer can next to my ear is going to help me."

So, the couple drove to get a second opinion.

The second doctor was just about to tell them about the medical procedure for a vasectomy when he realized how truly backwards these people were. This doctor instead told the man to go home and get a cherry bomb, light it, place it in a beer can, hold it to his ear, and count to 10.

Figuring that both learned physicians couldn't be wrong, the man went home, lit a cherry bomb, and put it in a beer can. He held the can up to his ear and began to count. "1, 2, 3, 4, 5 ...", at which point he paused, placed the beer can between his legs, and resumed counting on his other hand.

The following are actual statements made during court cases.

From a defendant representing himself...

Defendant: Did you get a good look at me when I stole your purse?

Victim: Yes, I saw you clearly. You are the one who stole my purse.

Defendant: I should have shot you while I had the chance.

Lawyer: "Doctor, before you performed the autopsy, did you check for a pulse?"

Witness: "No."

Lawyer: "Did you check for blood pressure?"

Witness: "No."

Lawyer: "Did you check for breathing?"

Witness: "No."

Lawyer: "So, then it is possible that the patient was alive when you began the autopsy?"

Witness: "No."

Lawyer: "How can you be so sure, Doctor?"

Witness: "Because his brain was sitting on my desk in a jar."

Lawyer: "But could the patient have still been alive nevertheless?"

Witness: "It is possible that he could have been alive and practicing law somewhere."

Lawyer: How do you feel about defense attorneys?

Juror: I think they should all be drowned at birth.

Lawyer: Well, then, you are obviously biased for the prosecution.

Juror: That's not true. I think prosecutors should be drowned at birth, too.

Where I live

By Annie Duffy

Shearing, carding, spinning, weaving, and creating with Margaret Boos

“If you’re going to make something that you want to last, why not start with good quality material,” says Margaret Boos who raises and spins her own wool. She makes and sells beautiful hats, purses, scarves, and many other things, and I recently had the chance to learn how she does it and make some with her.

Margaret and her husband, Paul Boos, have raised their own sheep for 20 years. They are currently the only owners and breeders of Cotswold sheep in Siskiyou County in northern California. Cotswolds are a long-wooled breed of sheep. Their wool is

curly, rather than crimpy, and has an amazing luster that is apparent even when the wool is dyed and felted. They are on the rare breeds list of sheep, the livestock equivalent to the endangered species list.

Along with her blue-ribbon Purebred Cotswolds, Margaret also raises Corriedale-Cotswold and Rambouillet-Cotswold crosses.

The Booses hire a professional to come shear their sheep. The last time they sheered sheep they got 33 fleeces.

Margaret individually wraps and labels each wool fleece with the sheep’s name, because each sheep produces a different texture of wool. She wraps it with a bed sheet instead of a plastic bag because the wool has to breathe.

Before she washes the wool, she shakes out as much dirt as she can. Then, using her washing machine as a basin because it is large, she fills it with hot water and soaks the wool adding Orvis, a mild detergent used for 4-H animals and handmade crafts. Orvis has no chemicals and leaves no residue.

Margaret said it’s important not to agitate



Some of Margaret’s ski caps that she made out of un-dyed yarn

the wool, or even let the water beat down on the wool, because that can ruin the wool by making it turn to felt.

After the wool soaks for a few hours, she pulls it out, drains the washer, and refills it with lukewarm water to rinse it. She takes the wool out again, drains the water, and puts it back in and runs the machine on the spin cycle to spin the excess water out. She then lays the wool out to dry on racks out of the sun. Once the wool is dry, she picks out the remaining burrs.

I got to help Margaret when it came time to spin the wool into yarn. The first step to prepare the wool for spinning is to card it. Carding wool is like brushing it: it lines up the fibers so they can be easily spun. Most people don’t have the luxury of an electric carder, but Margaret wanted to save herself the nasty task of hand-carding. She says hers was expensive but well worth it. Depending on how smooth you want the finished yarn, you can run the wool through the carder as many times as you want. Today we ran the wool through the carder twice so it wouldn’t be too lumpy to work with. If we wanted the coarser “home



Annie Duffy spins Cotswold wool.



Some of Margaret's other projects

wrapped yarn around it to make the warp of the loom, then wove some of my yarn back and forth. Margaret gave me some of her dyed yarns to intersperse with mine. I wove in some green, blue, and red. Once I finished weaving, I tucked some feathers into it and tied on some beads. It now hangs on my wall near my bed. Not only did I learn a

lot about making yarn, but I also made a good hand-made addition to my art collection. Δ

Chat with other self-reliant people at *Backwoods Home Magazine's* popular website at:

www.backwoodshome.com

spun" look, we would have only run the wool through once.

Then I spun the wool into yarn on a spinning wheel. It was hard for me to keep the yarn from over-twisting on the wheel because I'm so inexperienced, but after a while I got the hang of it. My finished yarn had some huge nubs in it, but Margaret said it looked pretty good for the first time.

Once all of the wool was spun into yarn, I took one end of the yarn and wound it onto a yarn winder to count the yardage. Each time the rack makes a full revolution it equals two yards. I tied the yarn on one side so it wouldn't get tangled, then took the yarn off the winder and put it in a sink to get it wet so we could stretch the kinks out. We didn't let the yarn soak, but just swished it in warm water, then spun the water out in the washing machine. We put the yarn on an Umbrella Swift, a rack that expands to any diameter to get some of the kinks out by stretching it a little bit, then wound it back onto the yarn winder. We let it dry overnight.

The next day, when I got back from school, I went back to Margaret's to finish my project. I wasn't even sure yet what I wanted to make. I decided to make a dream catcher-like weaving. Margaret had made a circular frame by weaving small sticks together and I



Mother takes interest as Margaret Boos plays with lambs.

Consider these seven factors when selecting good alfalfa hay

By Kim Dieter

Livestock grazing on a lush green pasture is the ideal situation for many animal owners. But pasture is often limited or not available during parts of the year and other sources of feed are required. One popular feed is baled alfalfa hay. It is a good source of energy, protein, vitamins, and minerals, and it is widely available. However, alfalfa hay can be expensive to purchase and haul. Livestock owners must be able to evaluate alfalfa hay and select the most nutritious hay for the money.

Alfalfa hay varies tremendously in quality and, unfortunately, there is no standard grading system. Hay is purchased from a local producer or feed store and the buyer often has to choose among hay advertised as “cow hay” or “first-cutting hay” or “horse hay.” But can goats eat horse hay? Or should cow hay be purchased for sheep?

Many factors affect hay quality. These include climactic conditions, methods of harvest, and the presence of weeds. One part of a field may produce hay vastly different in quality

than another part of the same field. The nutrient requirements of livestock also vary according to the type of animal and the stage of production.

To produce hay, alfalfa plants must be cut and allowed to dry in swaths or windrows. When the moisture content has been reduced to about 20%, the hay is baled, removed from the field, and stored. Bales weigh from 40 pounds to over 100 pounds and are secured with either 2 or 3 strands of twine or wire. Alfalfa may be cut up to 11 times a year, depending on the climate. Each cutting has its own characteristics. If the plants grow during cool weather, the nutrient content will often be higher than plants grown in hot weather.

The seven factors below are very useful in hay evaluation. Once each of the factors has been considered, a decision about the value of the hay for a particular animal can be made. To make the evaluation, find an open bale that represents the hay to be purchased. Pull off a few flakes and observe them carefully.

1. Color: Alfalfa hay should be a bright green color. A yellow color indicates damage due to rain, disease, or insects. When hay is baled with a high moisture content, it often turns brown or black. Moldy hay will contain white or gray sections.

2. Smell: Good quality alfalfa hay has a sweet aroma. Improperly cured hay smells musty.

3. Leafiness: There should be a high ratio of leaves to stems. The leaves contain much higher levels of nutrients than the stems.

4. Maturity of plants when harvested: Check for purple blossoms. The best quality hay has few or no blossoms. As the plant matures and blooms, the nutrient levels decrease.

5. Stems: Good quality hay has thin, soft, pliable stems. Large, tough stems reduce the palatability of the hay.

6. Condition: The leaves should be firmly attached to the stems. If the hay is baled too dry, the leaves will shatter and separate.

7. Foreign material: Avoid hay with thistles, foxtails, poisonous weeds, excess dirt, and rocks. These materials can be a direct hazard to livestock or reduce the nutritive value of the feed. Some hay producers provide a chemical analysis of the hay. Tests are conducted to determine protein, energy, calcium, and phosphorus levels. Data may also be available on the levels of cellulose and other poorly digested materials and the relative feeding value. Be sure to use this data as a method of comparison, if available.

Next, match the quality of the feed with the needs of your livestock. Young growing animals, pregnant females, nursing females, and very active animals require more nutrients. Ruminants such as cattle, sheep, and goats have different requirements than simple-stomached animals. Don't buy moldy hay or hay with dangerous foreign materials for any animal. It isn't worth the risk to the animal's health.

These feeding guides for alfalfa hay are general rules. An animal's condition is the best indicator of adequate nutrition.

Beef cattle

At least 2% of the body weight of cows and bulls should be fed as hay daily. A 1000-pound cow requires a minimum of 20 pounds of hay. For fattening, up to 3% of the body weight



Good-quality, barn-stored alfalfa hay



To assess hay quality, open a representative bale and pull off a few flakes.

may be required. Often these cattle are fed about 60% grain and 40% hay.

Dairy cattle

Use the best quality alfalfa available to provide adequate energy for lactating cows. Don't feed a ration that includes more than 60% grains. Begin feeding top-quality alfalfa to calves at one week of age along with milk and grain. Alfalfa is a good choice for growing heifers and steers.



Low-quality alfalfa hay. There is a high weed content. The color is bright green and there is no sign of mold or dangerous weeds, however, so it is suitable for beef cows.

Goats

Milking does require about 5% to 7% of their body weight as feed daily. Feed high-quality alfalfa and 1/2 pound grain per quart of milk produced. Kids should receive alfalfa hay in addition to milk and grain at one to two weeks of age.

Sheep

Ewes require about 3% of their body weight as hay. Pregnant ewes will require an additional 1/2 pound or so of grain daily in the last one to two months before lambing. Market lambs should be fed approximately 2% of their body weight as hay and 2 to 3% as grain.

Horses

Horses used for light work (1 to 3 hours per day) require 1.5% of the body weight as hay and .5% to .75% of body weight as grain.



A flake of good-quality alfalfa hay. The color is bright green, there is a high leaf-to-stem ratio, the stems are thin, and there is no foreign material.

Rabbits

Rabbits require the highest-quality alfalfa. It can be used as the only feed for dry does, bucks, and older rabbits. Lactating does should receive up to 40% of their diet as hay.

Chickens and swine are normally fed grain and protein supplements. However, chickens enjoy a flake of

hay occasionally when foraging is not available. Sows and boars can be fed a flake of alfalfa along with their grain ration. The breeding swine will fill up on the hay but remain in trim condition.

Alfalfa hay can be expensive. There are several money-saving techniques for feeding certain types of animals. Beef cattle and sheep can often be fed lower-quality hay successfully. After cows and ewes wean their calves and lambs, their nutritional requirements drop. These animals are good candidates for fair or good-quality hay. Hay with a slightly bleached color due to a

summer rainstorm or alfalfa/grass mix hay are both usually less expensive.

Take a week or two to gradually switch from another feed source to alfalfa hay. Be sure to monitor consumption. Overeating lush alfalfa hay may cause bloat in ruminants.

Finally, consider the bale size. The livestock owner must be able to move and feed the hay. Pick bales that can be handled easily.

When properly harvested and stored, alfalfa hay is a high quality feed. Use the seven steps to locate the best hay for the money and follow the feeding guidelines to produce healthy animals. Δ

Kerosene lamps – a bright idea

By Don Fallick

My first experience with a kerosene lamp was humiliating. I was visiting friends who lived in the backwoods. When night came on, they showed me to their guest house, a cozy, eight by ten room complete with six quilts on the bed against a bitter January night, a wood-stove, and two kerosene lamps merrily burning.

I read a while, then realized I had no idea how to turn out the lights. Leave them burning? Too dangerous and wasteful. Turn down the wick? Didn't work. They just smoked terribly. Besides, what if I turned it so far down that the burning end fell in the kerosene? I tried blowing them out. No luck. I tried wrapping a shirt around the chimney to remove it, but just scorched my shirt and burned my fingers. Finally, I tried again to blow directly down the chimney, burning the end of my nose in the process. At this point I humbled myself, got dressed, and walked to the house to beg for help.

Kerosene lamps need not be this daunting, but they are not as simple to use as an electric light. To get the most light from kerosene, with the fewest problems, you really do need to know what you are doing. Here are a few tips:

Fuel

If at all possible, use “number two,” water-clear kerosene. Tinted or scented “lamp oil” looks and smells nice, but it give less light, and can gum up your wick or smoke up your chimney. Lower grades of kerosene, which have higher numbers, can cause similar problems. They will work, if you have nothing else, but you may want to change wicks later, and you'll probably have to clean chimneys sooner.

Kerosene may cost as much as two

dollars per gallon. Keep this in perspective. We use five traditional kerosene lamps and a lantern, and burn about a gallon a month, on average. The lamps burn about five hours per night in winter.

Use a cheap bulb-siphon from the hardware store or auto parts house to transfer fuel from can to lamps. It's important to use the siphon **ONLY** for kerosene. Gasoline residues in a kerosene lamp are extremely dangerous. I mark the kerosene siphon with adhesive tape to avoid accidental contamination. Keep the intake end of the



Blowing out a lamp safely

siphon just above the bottom of the can, to avoid sucking up any sludge that may be present, and throw away the last half-cup or so in the can. Rinse it out with warm water and let it dry thoroughly before refilling.

Siphon outdoors, to minimize problems from spills. In bad weather, use the kitchen sink and be very careful. Work over several thicknesses of old newspapers to soak up spills. Do not burn kerosene-soaked newspapers in your wood-stove! They can start a chimney fire. Kerosene is not volatile like gasoline, and will stay in the

paper for a long, long time. We use kerosene-soaked newspapers to start fires in the burning barrel, where they will do no harm.

Operation

Do not over-fill the kerosene reservoir. You need some air space between the bottom of the wick holder and the top of the kerosene for good wicking. I have never heard a really satisfactory explanation for this, but have verified it experimentally. When installing a new wick, always soak the wick in kerosene before installing it. The idea is to burn kerosene, not wick. If the top of the wick is dry, it'll be the wick that burns. Burning cotton gives lousy light.

Trim the wick before the first time you light it, and periodically when it needs trimming. Trimming a wick is more art than science, but as a general guideline, at least cut off the corners, and if possible, round the top of the wick a bit. A wick trimmed straight across will give a wide, flat-topped flame that cannot be turned up without smoking excessively. Too pointy a wick produces a thin flame that gives little light. Experiment until you get a flame that gives a strong, bright light when turned up, without smoking. After many hours of burning, the top of the wick will get a little ragged and charred. The flame may have two or more lobes. Trim the char off in the shape that you have learned works best for your lamp.

There are two kinds of lamp owners: those who have burned themselves on a hot chimney—and those who will. To minimize the chance of burns, always check chimneys for heat before you grab them, by placing your hand just above the chimney, palm down. A chimney that is too hot to touch will radiate enough heat to feel. Always check before touching. Someone else may have just blown the lamp out. You cannot see heat.

To light a kerosene lamp, remove the chimney, turn the wick up a bit and light it, and replace the chimney.

The glass will fog up a bit, then clear as it heats up. Pay attention to the lamp while it warms up. As the wick begins to smoke, turn it down, just enough to keep it from smoking. When the glass is hot and the wick is burning well, adjust for maximum light without smoke.

Extinguish a kerosene lamp by holding your hand just behind and above the top of the chimney, and blow on your hand. Adjust the angle of the palm to direct your breath straight down the chimney. A quick puff of breath will blow out the flame. Let the chimney cool before touching it. It's not a bad idea to keep some Solarcaine® around to cool the burns of those who forget.

Maintenance

Routine maintenance involves cleaning chimneys and replacing wicks. Chimneys eventually collect enough soot to diminish the lamp's light output. Remove the soot with a facial tissue, then wash in warm, soapy water. Rinse in very hot water to which baking soda has been added, to eliminate spotting, and air dry. It's a pain in the neck to clean chimneys properly, especially if you have big hands. Many users clean chimneys and inspect and trim wicks when they fill the lamps.

When the wick gets too short to work right, take the stub wick with you and go buy a replacement. Wicks come in many styles and sizes, even tube-shaped "circular wicks." Even if you get the right style and width,

some wicks are thicker than others. A wick that is too thin or too thick will not feed properly through the wick adjuster and may even damage it. If you cannot find exactly the right wick, it is better to use one that is too narrow than one that is the wrong thickness. A wick that is too narrow will not provide as much light, because the burning surface will be less. You may also have trouble keeping it centered in the adjuster if it is much too narrow, producing an asymmetrical flame that cannot be turned up all the way without smoking.

Chimneys also come in various sizes, and the difference may not be obvious. The lamp is useless without a chimney, so it's a good idea to keep spares on hand. Even a small difference in circumference of the base may keep the lamp from holding the chimney securely. The metal prongs that hold the chimney can be bent to make them tighter or looser, but it's still a good idea to bring the lamp with you when you shop for chimneys. Replacement chimneys are also available mail order from Lehman's Hardware. You must specify the exact size and style.

I have found replacement chimneys at hardware stores, home builder's suppliers, even in the lighting departments of department stores. They come in many styles. Plain chimneys cost three to five dollars. The thickness of the glass is the biggest difference. Thin glass costs less but breaks easier. Chimneys with a thicker bead around the edge seem to last longer than those without. Frosted glass

chimneys give a more diffuse light than clear glass, and are more suitable for decorative lamps than for real, working lights. They

cost more than clear glass, and give less light.

The shape of the chimney also makes a difference. It is not just cosmetic. Air flows differently through different shaped chimneys, producing a different shaped flame. There is no way to predict the exact effect on the light by just looking at the shape of the chimney, but in general, tall, straight chimneys produce a tall, thin, very bright flame, while bulbous chimneys produce a wider flame that may give more total light. The only way to tell is to experiment. Every time you change chimney styles, you will have to adjust the way you trim the wick, too.

Occasionally, a lamp's wick adjuster will get so loose that it can no longer move the wick in and out. This is usually due to age, but may also be caused by using the wrong size wick. You must replace the whole burner. Some of the same stores that sell chimneys also sell replacement burners. It is possible to use a lamp with one of the metal chimney-holding tabs broken off the burner, but it's not a good idea. You don't want a hot glass chimney falling on you or someone you love. This almost always happens at night, when you are using the lamp, of course. Even five or six kerosene lamps together will not give enough light to allow a really good job of sweeping up the broken glass. It's not worth the risk. Keep an extra burner on hand too.

Purchase

The best lamps have heavy, glass bases, which allow you to see how much kerosene you have left. Sheet metal lamps are much cheaper, and burn just as well, but you will eventually forget to check during the day and run out of kerosene at night. Glass-based lamps have another advantage which is not obvious if you haven't used one. The weight of the base is enough to keep it steady, even with a tall base. Anyone who has ever tried to read a newspaper at night by the



Flame shapes produced by trimming wicks in various ways

A Backwoods Home Anthology

light of a cheap kerosene lamp will appreciate this. In order to see the print, you must put the newspaper close to the light. This is clumsy and dangerous when the light is a burning flame and the lamp is light and unstable. A tall, heavy, glass-based lamp placed on a side table will shed enough light for comfortable reading and be stable enough for safety.

Perfectly good glass lamps can sometimes be found at garage sales and flea markets. Expect to pay more than they are worth if all the parts are in working condition. People think they are antiques. You can frequently find a bargain if the chimney or the burner are missing or damaged. These parts are not expensive to replace.

Most of the damaged or partial lamps you'll find are not traditional kerosene lamps. The Aladdin® Lamp Company has been making high quality, super efficient, kerosene lamps for decades. They use air pressure to volatilize the kerosene and a mantle to distribute and intensify the flame, much like a Coleman® lantern. They are not cheap, they burn twice as much kerosene as a traditional lamp, and you have to replace the mantles frequently. Over the years, Aladdin has produced many different models, and the parts are not interchangeable. There are also Aladdin imitations around, and parts for them are generally unavailable.

Despite these disadvantages, people still buy Aladdin lamps, because they are the best around for home use. They give a pure white light that's as bright as a Coleman® lantern, while avoiding the dangers of storing and using gasoline, white gas, or propane. With optional lamp shades and wall sconces, they look like home furnishings, not like camp lanterns that have been brought indoors. Lehman's Hardware also sells Aladdin lamps and parts. Because of their expense, many users keep only one or two Aladdin lamps for spot lighting or reading, and use traditional lamps for background illumination. Δ

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Make beautiful bandsaw boxes from scrap wood

By Tony Nester

For the past three years, I have been collecting scrap pieces of wood and turning them into decorative boxes using my bandsaw. It's a very simple procedure and, with the exception of the bandsaw and some glue, costs almost nothing in materials. Whether you are interested in making some one-of-a-kind gifts for the holidays or are considering a part-time income in the arts and crafts circuit, making bandsaw boxes can be an enjoyable approach to woodworking.

Obtaining wood

I get most of my wood from one of two places: nature and other woodworkers scrap-piles. The first one is, of course, the least expensive. Whenever I go on a hike through the forest, I bring my trusty bow-saw and collect wood from dead, fallen trees. I prefer those that are medium hardwoods—maple being the best. I look for those that are semi-rotted and have the unique marble swirls of black fungus snaking through their grain. You can often see this by looking at the end of the stump. In woodworking circles, this is referred to as spalted wood and it makes some of the loveliest boxes. Next to spalted wood, you can collect driftwood, cedar, and even ironwood if you don't mind the additional elbow-grease required to complete one. Don't forget to check your

own woodpile if you've just cut a cord of wood.

If you select the natural approach, keep in mind that you may need to let your pieces dry for up to six months or more depending on the thickness of the wood. After removing any bark and dirt, place the wood in a warm, dry place where the air can circulate and then rotate it once a month. A hot attic or shed sounds ideal for drying but can often cause the wood to severely crack.

The second approach is to visit other woodworkers, lumberyards, and furniture-makers to see if they have any scraps free for the taking. One such furniture shop in Grand Rapids, Michigan where I once lived, used to regularly toss out chunks of mahogany! The nice thing with wood from the above sources is that they are ready to be worked. If you can't locate any wood go to the lumberstore and ask for a 4"x4" piece of pine or aspen. This is great material to start on and, because it's softwood, will make life easier on your bandsaw blades.

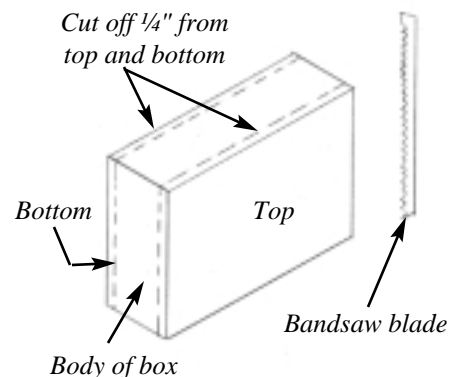
When you are ready to

make your first box, you will need only a pencil and a good eye for studying how the wood wants to be shaped. In bandsaw boxes, unlike more traditional, mitered boxes where the angles and joinery must be precise, one can flow with the inherent shape of the wood and create unconventional, artsy designs.

My bandsaw is a small, Delta 8" with a 1/3 horsepower that has made hundreds of boxes and roughed out a few wood bows. I mainly use two blade sizes: 3/8" for cutting thick sections and 1/8" for making wavy designs or sharp turns. The following are some general outlines regardless of what type or size machine you may have.

Making the boxes

Step 1: Pencil in the top and bottom edges on your block of wood (drawing A). Make them around 1/4-inch thick.



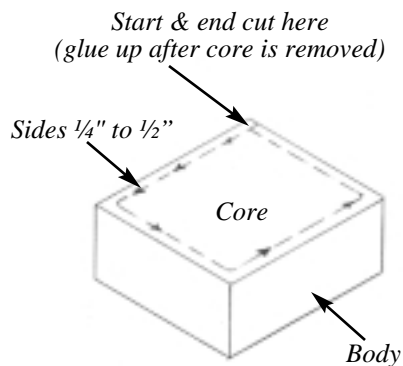
Drawing A. Cutting off the top and bottom

Any thinner and you risk weakening the area. With the flattest surface down, use your bandsaw to slice these edges off.

Place these aside, marking top from bottom.

Next, pencil in the edge of the box interior, allowing the

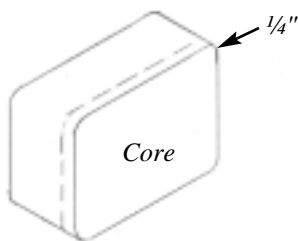




Drawing B. Cutting out the core

same 1/4-inch margin and determine what side you will enter the blade from (this will later be glued up and nearly invisible).

The 1/8-inch blade is helpful for the next part. Cut out the box interior



Drawing C. Remove 1/4" from core. This will be glued onto the lid.

(drawing B), making sure to proceed slowly around the turns. Just as you approach the finishing spot (where you began), turn the machine off and carefully back the blade out of the original entrance. The center should now separate from the box.

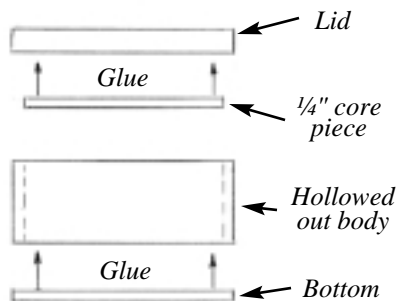
Use woodglue to seal the entrance cut, making sure to wipe excess glue from the inside. Wrap tape or rubberbands around the body to supply pressure while the glue dries. Now, take that chunk of wood that was the center, turn it on its side and slice off a 1/4-inch to 1/2-inch piece (drawing C). This will be glued onto the inside of the lid (the top piece you first cut) and provide a form-fitting cover for the box.



From left to right: Maple root box, large mesquite box, and spalted maple box

Clamp these parts and set aside. The last glue-job will be reattaching the bottom to the body of the box (drawing D). Coat the body's underside with glue and press firmly to the bottom section, again wiping excess from the inside. To ensure proper joining, you can either clamp the entire object to a workbench or simply stack some bricks or weights on top of the body. Let all parts dry for a few hours or overnight. Remember also that any leftover pieces can be transformed into more boxes.

Step 2: For sanding, you really only need to smooth the outside unless the blade marks are really obvious on the inside of your box. Start at #80 grit to remove the blade marks and continue up to #220 for a satiny, smooth feel.



Drawing D. Assembly of the box

Afterwards, lightly brush off the pieces to remove the dust.

If you are content with the look of your box, then all you have to do is to preserve it with oil. However, you can also spice it up by gluing a colorful insert of leather or suede to the bottom of the inside.

Step 3: For the final finish, I brush on a mixture of Danish Oil and vegetable oil. You can use plain vegetable oil but it takes a while to saturate the wood deep down, so it may take several coatings. By the way, spalted wood will suck up every quart of oil in your house if you let it but it's essential to oil this type of wood at least once as it stops the fungal growth from breaking down the fibers. For the long life of your box or any similar piece of wood, oil it a few times a year and you'll have a friend for life.

Lastly, once everything is dry, wipe it to remove any residue and your one-of-a-kind box will delight anyone who sees it.

If you decide to pursue this hobby or if you are using spalted wood, which contains fungus, it's a good idea to either do your woodworking outside and/or pickup a good dust mask.

Two excellent books containing dozens of plans are *Making Boxes With The Bandsaw* by Tom Crabb, and *Read the Wood* by Michael Elkan. Δ

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My view

Do we need a Taxpayers' Bill of Rights?

Once again there is a storm of complaints from American citizens concerning abuses and harassment on the part of a government agency. In the past the offending agencies have included the Food and Drug Administration, the Federal Bureau of Investigation, and the Bureau of Alcohol, Tobacco, and Firearms, among others. The latest agency accused of abuse is the IRS—again.

On the floor of Congress there have been hearings with sometimes tearful testimony from victims who have been hounded into bankruptcy, divorce, and even to the brink of suicide because of the agency's tactics. Oftentimes these victims weren't guilty of violating any of the tax codes. But that didn't seem to matter.

Even more troubling is that accompanying these complaints were confessions from IRS employees who verified the victim's complaints but who had refused to testify until they were promised their testimony would be incognito, because they were afraid of reprisals from within the agency.

As a consequence, some members of Congress have proposed remedies to curtail IRS abuses. These remedies include laws that would provide a "Taxpayers' Bill of Rights," as well as a watchdog group to oversee the agency.

This, of course, makes me wonder: are we going to need a separate "Bill of Rights" to protect us from the FDA, another to protect us from the FBI, and yet another from the ATF, with even more needed for the countless other agencies of the government?

Of course not. The fact is, we don't need to be "given" any new rights. And while watching the hearings on TV I couldn't help but wonder, can't just one member of Congress stand up and say:

"Folks, we don't need new rights or new laws. All we need to do to protect our citizens from rapacious and arrogant bureaucrats and politicians is to enforce the Constitution of the United States, specifically the 4th Amendment which denies any government agency the right to conduct warrantless searches; the 5th and 6th Amendments which guarantee jury trials before a jury of their peers, along with the presumption of innocence for the accused, with the burden of proof on the IRS to show the accused are guilty—not for the citizen to prove he is innocent; the 9th Amendment which guarantees that we have more rights than just those listed in that venerable old document; and the 10th which clearly states that the Federal Government, including its agencies, haven't got any more power over us than are listed in the Constitution itself. It's

been around for over 200 years. Someone here must have read it."

But no one in Congress is going give that speech because many of them feel that if the government is to operate efficiently it has to operate unconstitutionally—at least some of the time. Proof of this is that the excuse we're given for the IRS using its Gestapo tactics—and this is from testimony given before Congress—is that trampling on the Bill of Rights is the only way that the IRS can operate and that enforcing our constitutional guarantees will stand in their way of doing their jobs efficiently.

Really? Color me surprised.

Does it make you wonder why, given that the way the Bill of Rights can hamstring efforts toward government efficiency, that our Founding Fathers insisted on them anyway? It's because low on their list of priorities was government efficiency. Really. But at the top of their list were individual liberties. So, in their testimony before Congress, what the IRS is saying is that the only way they can do their job efficiently is to turn that list upside down.

And they have. They conduct warrantless searches, they seize property without proof of guilt, they feel that instead of having to prove your guilt you must prove your innocence, and when you go to court you don't get a trial before a jury of your peers but are tried in a tax court before officials who used to be IRS personnel.

Let me tell you what I think the future of tax reform is: nothing. That's right folks, I don't think anything meaningful is going to happen. Any purported reform will be cosmetic with no penalties for the bureaucrats who violate our rights. For the IRS, and every other agency that wants to trample on our rights, it will be business as usual.

So, what can we—that's you, me, and the guy down the street—do about this? When our Founding Fathers felt the oppression of the British—King George III was *their* king—they took their guns and went into the field. They fought an eight-year war at the cost of at least 4400 of their own lives to win their liberties. Has it come to that for us? I don't know. But, until it does, write letters to your Senator and Representative. Tell them to enforce the Bill of Rights and inform them that you will no longer tolerate courts that bar trials before juries of our peers, where we the citizens determine guilt or innocence. Then vote Libertarian. Their platform, year in and year out, is the Constitution.

Finally, join the Fully Informed Jury Association and find out what you can do to recapture the jury system and how, when on a jury, you can throw out bad laws.

People have got to realize that our rights aren't the property of the President, the Congress, the Supreme Court, the lawyers, or the police to interpret as they please. They belong to you, and me, and that guy down the street. But if we don't act like we want them, we're going to lose them, because folks, the bureaucrats are right, the Bill of Rights really does stand in the way of "government efficiency." Δ

— John Silveira

Cut your grocery bill in half

By C. M. Hudman

There was a time when I despised grocery shopping. Every time I walked into a grocery store it seemed the dollars were simply sucked out of my wallet. If it felt like I was getting ripped off, I probably was. Fed up with spending over a hundred dollars and walking out with only a week's worth of food, I found a number of easy ways to cut my family's food bill in half.



Shop around

Loyalty to your favorite spacious and contemporary supermarket is a guaranteed way to throw money down the drain. I have yet to find a store that carries the cheapest of every possible item. Open your mind to a variety of different possibilities. Look for bulk food stores, canned goods outlets, restaurant supply stores, or food coops. They all may offer some great prices. The local butcher may also have some highly competitive prices on meat. Butchers are a great way to get in touch with farmers who are willing to sell a cow or hog for a good price. Roadside stands often have the best deals on quality produce. They are also more open to negotiation and even bartering.

Cut out the middleman

Every time you buy a product in the grocery store you pay the farmer, processor, packager, distributor, and the grocery store, who in turn pay the stocker and checker, not to mention the mortgages on all those buildings. Try buying direct from the farmer.

There is bound to be some locally grown produce in your area. Check fruit orchards for seasonal deals, or herb farms (dehydrate your own spices). Stopping buy the local

farmer's market on the weekend while running errands can be a great way to buy direct and meet local farmers. If you are anywhere near the ocean try taking a trip to the harbor docks and buy direct from fishing boats or crabbing vessels.

Plan your route

I know most hard working people are already short of time, and probably the thought of shopping at four or five different stores makes you shake your head. But I used to stop at the supermarket a couple of times a week anyway, and that was outside of the "big" bi-weekly trip.

Some store's have monthly sales. Plan on stopping at these once a month towards the beginning of the sale. Twice a month plan your bulk grocery shopping. Bring out the advertisements and plan your route. It may seem overwhelming at first but I spend far less time (and money) now that I've stocked my pantry full of loss leader sale items.

Get gutsy and try generic

If you have shunned away from generic or store brands because of childhood memories of flat white and black boxes, it's time to try them again. They taste fine and the price is

even better. In today's competitive market the stores have taken it upon themselves to produce higher quality foods than ever. I have even heard that they are often packaged in the same processing plants. As for frozen vegetables, frozen broccoli spears is frozen broccoli spears, no matter what brand the package reads.

Avoid convenience foods

When was the last time that a frozen pizza filled your family up. Try new recipes for pizza dough, and pile on the toppings. With far less money you can truly have pizzeria quality at home.

If you still waste money on serving-size juice boxes for the kids, invest in some reusable plastic juice glasses, fill them with bulk-bought juice, and keep them in the refrigerator for the kids to grab. It pays.

Be an educated consumer

Knowing your prices will help you save money in many ways. Do you ever get mad at your spouse because he'll spend twice the going price for ice cream? Over time you have probably become educated and memorized prices for frequently bought items. I once had a friend that gasped in horror when the price of macaroni and cheese was raised a nickel a box. Sure her hubby still laughs about it, but she was truly shocked over the price increase.

Make up a list with the best unit prices you've ever found on regularly bought items. Try beating these prices every time you go to the store. You'll soon learn the difference between true sales and "sale priced" items.

Figure unit prices

Bigger is not always better. Take a calculator along to figure out unit prices quickly. Some supermarkets have it conveniently posted on shelf tags already. Use what is available.

Taking the time to figure unit prices will save money. Are you buying the “family value” packaged goods because they indicate value? It may shock you to find that in comparison to the average size there may be little savings, and sometimes they cost more. Don’t believe packaging; the truth is revealed in the numbers. Figure out the price per unit of measurement—per pound, per ounce, per gallon. The other day I compared the prices of a 5-pound bag of russet potatoes for 69-cents and a 10-pound “sale” bag for \$1.79. Buying two 5-pound bags would save 41-cents over one 10-pound bag.

Buy big

When you find an excellent deal it’s time to stock up your pantry. If you find an unbelievably low price, spend an extra \$5 or \$10 and buy enough to last until the next sale.

My husband laughed at me when I came home with 33 bottles of name brand BBQ sauce. It may have been crazy if the price had not been 29 cents a bottle, I have yet to see it cheaper, and because we love BBQ sauce not one bottle went to waste.

I’ve also been mocked by a teenage checkout boy because I was “buying out the meat department.” Maybe if he had to pay his own rent he would have taken note. The cut up fryers were on sale for a third the normal price. I had bought \$90 worth of good meat for only \$30 cost. I didn’t have to buy another chicken for months. I could have bought one or two extra, then paid full price a week later. Fill your freezer and your pantry with the highest quality foods available at the lowest possible price.

Get a rain check

Are they out of the cans of soup that were a loss leader sale. Ask a stock person to check the back; many times the shelves are cleared so fast that stock people can barely keep up.

If there are no more to be found, get a rain check and have one made up in your child’s name also. Most stores are happy to fill out a rain check. It’s a little slip of paper that allows you the sale price when the new stock arrives, even if the sale is over.

Bypass customer limits

If your store lures you in with loss leaders and then slaps a limit on the number you can purchase, it’s time for a creative solution. Every one of your children are a potential customer (the store never complains when they buy a candy bar). Split up the family and build more purchasing power.

Every time you walk into a store you are a potential customer. I will make repeated trips to the store for a great loss leader sale. You should too. The grocery store is trying to lure you into spending more so it’s time to beat them at their own game.

Get the inside scoop

Ask your friendly grocer when they roll out the day old bread rack. This is a great way to fill up the freezer for half price. Do they fill up the discounted or damaged foods cart on a specific day each week? If they bring out the sale items Friday morning, plan accordingly.

Make them work for you

If you are filling lunch boxes with expensive bologna and packaged ham, here is an easy solution that can save you a lot of money. Does your grocery store have a butcher or a deli? Instead of paying \$3.99 a pound for sliced sandwich ham, pick a whole or half ham from the meat cooler, and have them slice it. Many markets are happy to slice it as thin as you’d like, for free. This can result in big savings because whole hams are sold for far less (\$1.75 per pound).

Your butcher may also be willing to slice big chunks of cheese for you.

Double up savings

I rarely use coupons because they are often for overpriced foods. However, double coupon day can sure bring down the prices. My daughter and I now look through the local coupon exchange bin at the library for possible great deals. The combination of free coupons and double coupon day gets us cans of chili for a quarter, and other items for next to nothing.

Double up the deals by combining coupons, sale items, and rebates. It does take some time, but for some people the deals add up. Call the 1-800 phone numbers on the packaging of your favorite products; many will send coupons directly to you if you ask. Δ

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Try this gravel road waterbreak

By Mike Honeycutt

In the winter of 1995 I fulfilled a lifelong dream and purchased my East Tennessee mountain homestead consisting of an old seven-room house, 65 acres of land, and various outbuildings. The mile-long access road to the farm had been neglected over the years and was in need of repair. The road follows a wet weather creek and is bordered by steep terrain on both sides. In March of the following year I had the road ditched and scraped by a local grading contractor who afterwards spread over 150 tons of ¾-inch gravel along the length of the road. It did not take me long to realize that no amount of gravel and scraping would keep the road in good shape if water stayed in the road during heavy rains or melting snowfall.

In the spring of 1996 the area around my homestead received rainfall

amounting to over six inches in a twelve-hour time frame. Needless to say, the work I had done to the road disappeared as quickly as the rain had come and gone. I scraped the road with my tractor and had more gravel hauled in. After several attempts at devising ditches and blade-cut water breaks, I came up with the following method of diverting water off my road. It has been said that necessity is the mother of invention, and in this case that is exactly what happened.

The water break is constructed of 2x4 and 2x8 CCA treated pine. This material is readily available in 8-, 10-,



The water break crosses the road at an angle.

12-, and 16-foot lengths. In my case I needed a 12-foot long break to cover the road at an angle necessary to divert the water. I chose to piece the material for economy, but full length material can be used if desired. Using this method, a 12-foot unit can be built for under \$20 with new material.

Use the 2x8 pieces on the sides and the 2x4 for the bottom. Nail or screw the 2x8s into the side of the 2x4.

The beauty of this construction is that the leaves, gravel, and wash that accumulate in the water break can be easily removed by hand. The use of 2x8 sides provides a 6-inch depth for water flow, and this has proven to be adequate in my case. You could use 2x10-inch stock for the sides to give an increased depth. Be aware that it was not an easy task to dig the ditches at the eight inch depth in the rocky soil of this area. One could substitute wood, flattened conduit, or whatever is at hand to accomplish the same purpose.

The best way to place the breaks along your road is to do what I did. Get out your rainsuit during a heavy rain and mark wherever runoff diversion is necessary. My water breaks have been in use for some time now and have saved me considerable amounts of time and expense on the maintenance of my road. An occasional blading of the road with my 20hp tractor has kept the road in excellent condition. Δ

How to tell a bad egg

By Scott Matthews

One of the things that my family loves most about living in the country is that we get to eat fresh eggs from our genuine free-range chickens. But then, free-range chickens don't always play by the rules; sometimes they don't lay their eggs in the nesting boxes we've so thoughtfully provided. It is all too common for one of our boys to run into the house with a clutch of eggs nestled in the front of his Tshirt.

"Look, Dad!" he cries excitedly. "I found one of the hens nesting in the hay barn (or under the trailer, or in the horse's manger, or even in a feed bucket)."

We used to feed those "wild" eggs to the pigs unless we felt adventurous (or desperate) enough to carefully crack one open to check it for freshness. Believe me, cracking open one rotten egg satisfies both my need for adventure and my hunger for eggs for a long time.

One day, however, a friend of ours showed us that you could judge the freshness of an egg by placing it in water about an inch deeper than the egg is long. A fresh egg will lay on the bottom, but as an egg ages, the air cell expands and it will start to stand on end, and when it's finally unfit to eat it floats. So, depending on how the egg lays in the water you can tell whether the egg is fresh enough to eat on its own, or if it is old enough that, because of the taste, you should use it only for baking, or if it is best to just discard it.

A little warning though: you can't tell the age of a frozen egg by floating it. Even a fresh egg will float if it's frozen. Δ

Canning 101—pickles, fruits, jams, jellies, etc.

By Jackie Clay

For some reason, (definitely unknown to me) canning, as a method of very long term food storage, fell into disuse. Maybe it's the hurry/rush syndrome many folks have become addicted to, necessitating "instant" foods, microwave ovens, and mixes for everything from pancakes to casseroles. But for people of a self-reliant inclination—raising a good portion of their own wholesome, chemical-free food and establishing a storage method that is easy and results in tasty food, even years down the road—home canning is the way to go.

And remember, no power outage or mechanical failure will cause your pantry full of home canned food to go bad, as can happen with frozen food. This is the reason I do not freeze food now. I lost half a freezer full of food due to a two-week-long ice storm power outage. Besides, where food only stays good for a year, max, in the freezer, it stays great tasting for years

on the pantry shelf neatly packaged in shining glass jars.

I regard home canning as essential to self-reliance as any other facet of my lifestyle. Canning allows my family to eat chemical-free, delectable fruits, vegetables, nutmeats, pickles, preserves, jams, and jellies, as well as meats and fish, already cooked and tender, just waiting for a meal.

I can year-round, making up such things as chili, stews, dry beans, (like pintos for refried beans), spaghetti sauce, pizza sauce, smoked trout, elk stew, etc. Whatever the season, there's always something special to can up for later meals. Nearly anything you can find on a store shelf can be canned easily at home.

When I tell this to people, I'm usually met with the same blank stare and the questions: Isn't home canning hard to do? Won't eating home canned food give you food poisoning? Won't the canner blow up?

No. Canning is very easy. If you can boil water and tell time you can home can.



Tomatoes: 15 minutes from garden to spaghetti sauce, pizza sauce, tomato paste...

Properly canned food will not give your family food poisoning. I've canned for 35 years and no one has ever suffered from the least bit of ill effect from my delicious home canned food. And no, the canner will not blow up despite the old cartoons to the contrary. My old canner is 20 years old, has received very heavy use, and is still going strong, with no repairs necessary.

It is simple to start out. Canning doesn't even require a pressure canner, which can be a bit expensive—about \$130-\$150. (Remember, though, that this is often a once-in-a-lifetime expense, bringing the cost down to less than \$10 a year.) A person may begin canning with a water bath canner, available at most discount stores for under \$20. These are the big blue pots with a lid and wire rack you may already be familiar with. You can also find them at yard sales for as little as a dollar. Just hold them up to the light and stick your head



Check each jar after it cools with one finger, being sure it is tightly indented; if it is not, it is not sealed, and must be redone or eaten soon. It needs refrigerating until then.

inside to be sure there are no small holes allowing leakage.

Jars do not have to be purchased new. Just get word around to your neighbors and friends that you are going to be canning and need jars. A note tacked up on a grocery store or feed store bulletin board or placed in your local advertiser paper will also work wonders. Any jar that a canning jar lid and ring will fit on—and is chip and crack free—will work. Despite rumors, such jars—previously containing such things as honey, mayonnaise, Sanka, etc.—will work for home canning. I have used them

for many years even for such things as corn, meat, and fish, all of which require long, pressure canning. They do not break any more often than do brand name canning jars. And canning jars last for generations. I am canning with a few of my grandmother's old blue Mason Jars.

Pick up a good, fairly recent canning book. This is a "must," as it contains time tables, specific directions for many, many different foods, as well as a lot of recipes for home canned goodies. You can also ask your county extension office for literature on home canning. It's usually free for the asking. Or go to your library. But, if you plan to keep up with your new endeavor, you will want a detailed book or booklet of your own.

Do not try to can using those "country style" cute jars with zinc lids, glass lids, and rubbers. Not only are they

expensive, but you cannot tell if they are properly sealed. A jar improperly sealed will allow the food to spoil—not a good thing.



Green beans: 15 minutes from garden to canning jars!

Often, when your friends or neighbors give you jars or you buy them at a flea market, auction, or yard sale, you will also get some rings. These are reusable for years and years, serving only to hold the flexible metal lid down on the jar rim during the canning process. The rings need only to be solid and strong. Rust is of no consequence, unless it is so bad that the rings are flimsy.

Lids need to be bought new for each use, for if the lid has been bent on opening it will not reseat, and the rubber is usually only good for a one-time use. Further use may result in seals which come loose or a lid that will not seal. Both conditions are a waste of money, time, and the result can be dangerous, i.e., food spoilage.

Canning with the hot water bath is a simple process: cleaned, sterilized (boiled) jars are filled with (often) hot high-acid food. The jar rim is wiped clean. A hot, boiled new lid is placed on the jar. And a clean ring is screwed firmly onto the jar. The filled jars are then placed carefully in the boiling water bath of the canning kettle and settled into an individual place on the wire rack. When

filled, the water level needs to be one to two inches above the top of the tallest jars. The cover is put on the kettle and it is allowed to return to a full rolling boil, at which time the processing time is begun.

At the end of the processing time each jar is carefully lifted out and placed on dry folded towels where sealing will occur as the jar cools. Usually you can hear the loud, musical ping as each jar seals. (I've noticed that my wide-mouth jars usually seal first). Leave the jars alone until they are cool. Don't wipe, poke or move them, or you may end up with an incomplete seal. And do not screw the rings tighter thinking it will "help" the jar to seal. Tightness doesn't equal good sealing. It happens due to the vacuum caused by the processing.

After the jars have cooled (usually overnight), you may remove the rings, wash the jar, and place it in a cool, dark, dry area to store. It is a good idea to mark the lid with the contents and date, in order to allow for the best rotation. Often, foods such as spaghetti and taco sauce look alike, and you



David filling jars with green beans

really don't want spaghetti sauce in tacos.

What foods can you can with the hot water bath? A lot! This processing method will be good for all high acid foods—jams, jellies, preserves, nut meats, pickles, tomatoes, tomato sauce, (without mushrooms or meat), all fruits and fruit products such as butters, conserves, fruit cocktail, juices etc., barbecue sauce, chili sauce, catsup, relish, and more. This list would be huge if we took into consideration all the possibilities with fruits and pickles. I can prickly pear jelly and jam, chokecherry jelly, corn relish mix, barbecue sauces, tomato relish, eight types of pickles, watermelon pickles, six fruit juices, and combinations such as raspberry-apple and many more, often forgotten by countless home canners.

Hot water bath tips

- A combination of hot and cold will crack and break jars. Put hot food into hot jars, cold into warm jars. Do not put hot jars onto cold surfaces or in cold drafts.
- Using a jar with a tiny chip in the top or a small crack in the side will result in either a broken jar or an incomplete seal. Before filling them, check each jar carefully. I routinely run my clean finger around each top as I am about to fill it, just to double check.
- Be sure to adjust your processing time according to altitude. Most charts are calculated to altitudes of 1,000 feet or less. You must increase the processing time by five minutes for altitudes of 1,000 to 3,000-feet, ten minutes for 3,001 to 6,000-feet, fifteen minutes for altitudes of 6,001 to 8,000-feet etc.
- Do not remove the jar rings for those pickles that are not processed before placing in jars, such as some types of dill pick-

les. Again, read your canning book.

- If the boiling water does not come over the tops of the jars by at least one inch, add more boiling water to accomplish this.
- Always use the wire rack of your canning kettle, as the boiling water must circulate well under, over, and between jars. The wire rack will also prevent overheating (and possible cracking) of the jar bottoms and will keep the jars from bumping together while processing, which might result in breakage.
- Always check the seal as you store the jars. Each jar lid should be indented in the center, having no give as you gently press down with a finger. If it makes a noise on pressure, or if it can be moved downward, it is not sealed and must either be reprocessed with a new lid or eaten soon.
- When canning tomatoes or tomato products, use "regular" high-acid tomatoes, not low-acid tomato varieties. If unsure—for instance if you bought them at a



The finished product being lifted to a folded dry towel to cool and seal. The jar lifter prevents burns.



Canning tools of the trade: lids, jars, wooden long handled spoon, canning funnel, jar lifter, measuring spoons, jar rings

farm market—add two tablespoons of lemon juice or ½ tsp. citric acid (vitamin C) to each quart to ensure the product is acid enough not to spoil. Neither product affects the taste a bit and only increases the nutritional value.

- Don't try to double recipes or otherwise alter them. You may run into trouble, especially if inexperienced.
- Always be careful of steam and hot jars as they can burn you. Lift canner lid away from you to allow steam to escape safely, away from your face.

Two easy projects

Bread and butter pickles:

(Called thus because they are good enough to eat at every meal)

7 slim medium cukes
5 crisp medium onions
1 bell pepper, chopped
1 small sweet red pepper (chopped)
¼ c salt
cracked ice

Pickling solution:

2½ c white vinegar
2 ½ c granulated sugar
1 Tbsp mustard seed
1 tsp celery seed
½ tsp whole cloves
¾ tsp turmeric

Mix veggies, mix in salt and cracked ice. Put in fridge or a cool place and let stand for at least three hours, then drain.

Mix pickling solution. Add to drained veggies in kettle. Bring mix to boiling, remove veggies to clean, sterilized jars immediately. Pour hot liquid over to cover leaving 1/2-inch of headspace (no more). Wipe jar rims, checking for nicks, with a clean damp cloth, then place hot, sterilized lids on and screw the rings on firmly-tight. Place filled jars on a dry folded towel. Quickly repeat this process with the rest so that the veggies do not cool down. If pickles in the kettle are allowed to boil, they will soften. These pickles are very crisp and fresh tasting. Our favorites. (I also slice a batch of smaller cukes lengthwise for spears, and use the same recipe with great results).

Canned tomatoes:

Fill a large pot with water up to 3/4 full and put on to boil. Fill a clean water bath canner 1/2 full and bring it to a boil, with the wire rack in place. Wash the jars in warm soapy water and rinse. Check each one for minute cracks and nicks in the rim. Leave the jars in the hot water until needed. Separate the lids and place them in a sauce pan of water. Bring to a boil, then leave in the water until you need them.

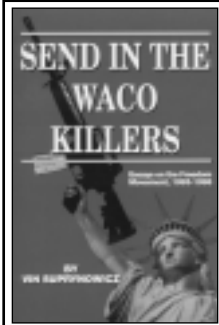
Wash sound, ripe, high-acid tomatoes and dip them in the boiling water of your large pot (I use a wire basket) for about a minute or until the skins crack. Then place the tomatoes in cold water. This allows the skins to slip off easily. Core out the stem and discard. Leave the tomatoes whole or cut, depending on size and preference. Pack into jars and either mash down, so that the juice covers them, or cover with hot water leaving a 1/2-inch of space between the product and jar rim.

Add 1/2-tsp of salt to each pint or 1 tsp. to each quart, if desired for taste. Remove any large air bubbles with a wooden spoon. Wipe off jar rim with

damp cloth, place the lid on, and screw ring down firmly. Place the jars into boiling water bath carefully and process pints for 40 minutes and quarts for 45 minutes counting from when the water returns to a full rolling boil. (Remember to adjust time according to altitude). Remove carefully and place jars on dry folded towel until cool and sealing is complete.

See how easy canning is? Neither of these projects takes a rocket scientist or over an hour of your time. The total cost to me is about 10-cents a quart canned on the wood range, or 12-cents a quart on the propane stove. Not bad for really great eating—picked fresh from our garden 15 minutes before, and absolutely no chemicals added. Even my seven-year-old son, David, can put up a surprising number of crops with very little assistance. So you see, canning truly is for everybody, men included. After all, some men are our best cooks. Just look at Richard Blunt, *Backwoods Home's* illustrious food editor. Like I said, if you can boil water and tell time, you can definitely learn to can on your first try. My oldest son, Bill, who is unmarried, makes fantastic meals including wonderful apple pies from scratch. And he, like David, learned to can at an early age. Home canning is a definite life skill worth developing. Δ

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SEND IN THE WACO KILLERS

Three times the International Society of Newspaper Editors has included Vin Suprynowicz in their list of the 12 top weekly editorial writers in North America. For years his shoot-from-the-hip style has opened the eyes of thousands to government abuse of our liberties. In this book, *Send in the Waco Killers*, he blends material taken from his syndicated column with new commentary to give the reader a detailed, reporter's-eye-view of how the rights and freedoms of Americans are being subverted.

He uses factual accounts from the daily news to show how the Feds use the drug war, the public schools, jury rights, property rights, the IRS, gun control, and anti-militia hysteria to increase its power and control over us. He details how agents of the ATF and FBI have routinely lied, how they use paid informants to infiltrate Constitutionally-protected militia groups, then fabricate evidence to get arrests and discredit them.

Had he lived 225 years ago he'd have written a book to detail how King George III and Parliament have tried to enslave us but, sadly, this book is about how our government today is depriving us of our freedoms and ruining the lives of thousands without changing even one word of our Constitution.

If you read no other book this year, read *Send in the Waco Killers*. Just keep your blood pressure medication handy. 506 pages, trade paperback, \$21.95 + \$3 S&H.

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You must understand venison to be able to cook it successfully

By Bill Palmroth

Venison, the collective term for the meat of all hoofed big game animals including deer, elk, antelope, and even bighorn sheep, differs from domestic meats in some important ways. Understanding these differences will be an important factor in your successes or failures as a chef.

When using domestic meats like beef and pork, one has some assurances that the animal was probably fed no strongly flavored foods, was fattened well, aged correctly, and even limited in exercise. Venison offers none of these promises. If cared for like domestic meat (and it should be) after the kill, however, it also should be excellent.

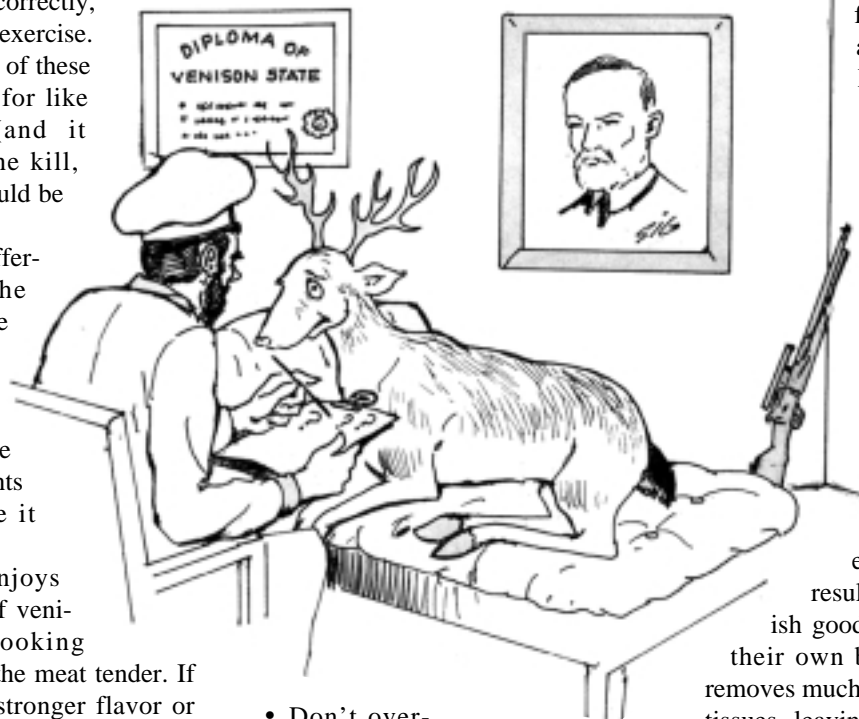
The effect of a different lifestyle on the meat of big game must be considered when substituting it in your favorite recipes. Here are some helpful hints on how to prepare it properly.

If your family enjoys the natural flavor of venison, your only cooking problem is making the meat tender. If your animal has a stronger flavor or the folks at home do not prefer the natural venison taste, you may increase their enjoyment of these meats in three ways:

- Disguise the flavor with spices, herbs, or seasonings. Recipes with barbecue sauces, soy sauce, and marinades will help this effort.
- Dilute the flavor by mixing venison with other meats and vegetables in stews, soups, and hamburger dishes.

- Overwhelm the family by serving venison in so many ways that they learn to like it.

Most cooks like to try new recipes now and then and even make up some of their own. Be reasonable. Expect some limited successes and maybe even a failure or two when experimenting with venison. Write some notes to yourself when you hit on a combination the family really enjoys. Keep these general rules in mind for successful venison cookery:



- Don't over-cook. Venison, especially deer, has short fibers that toughen quickly. Overcooking or using very high temperature leads to tough meat. Serve venison about medium-well, never rare or very well done.
- Most venison has little fat and in this way only corresponds to low-quality beef. Take this into consideration when cooking. Tender cuts like

loin or tenderloin can be broiled or cooked on the charcoal grill. Less tender cuts like round are best cooked with moist heat—i.e., stewing or potroasting.

- With little fat, venison is a dry meat. Efforts must be made to preserve moisture. Wrapping in foil, using a cooking bag, or covering with bacon strips will help.
- Remove any venison fat before cooking. This seems like a contradiction since the meat is normally low in fat, but any game flavor will be most pronounced in the fat. Substitute beef or pork fat if needed.

Use acid to tenderize. Vinegar, tomato sauce, and french dressing sauces are good possibilities. Crushed papaya fruit also will do a suitable job of tenderizing. Meat should be marinated in the chosen sauce at least 24 hours. Venison treated this way may be broiled or charcoaled.

- Venison generally is sweeter than domestic meats. Reduce sugar by one-fourth in sauce recipes originally developed for beef or pork.

Successful cooking may need to start several steps sooner for best results. Those who truly relish good venison invariably cut their own by boning it out. This removes much of the tough connective tissues, leaving straight-grained muscle for steaks and roasts. The following recipes are based on boned-out meat. If someone else cut the meat, it is a simple task to remove any bone before trying one of these old favorites.

Panfried venison:

One of the oldest and probably still the best ways to serve venison is quick

frying of thin steaks. Cut thin steaks from the loin, sirloin, or round $\frac{1}{4}$ or $\frac{3}{8}$ -inch thick. Flour or bread lightly. Quick fry in a sizzling hot skillet not over $1\frac{1}{2}$ minutes per side. Season with salt and serve hot. Use cooking oil, butter, bacon grease, or beef suet for shortening. Frying time is critical. Meat should be brown outside and gray or just a hint of pink in the middle. If steak is dry or tough, it was overcooked. Leavings in the skillet make good pan gravy.

Venison roast:

Another method that preserves moisture is cooking in foil. Lay out a thawed roast on a sheet of foil large enough for double wrapping. Sprinkle with one package of dehydrated vegetable soup mix. Roll the roast in the mix until as much of the dry soup as possible is coating the roast's surface. Wrap tightly in the foil and place in the oven preheated to 350 degrees. Depending on how well done you like your venison, cook the average 2 to 3-pound roast $1\frac{1}{2}$ to $2\frac{1}{2}$ hours. The dry soup mix provides salt and seasoning; the meat will come out moist and juicy.

Crock pot venison:

Cut steak-sized portions $\frac{1}{2}$ to $\frac{3}{4}$ -inch thick. Brown approximately $1\frac{1}{2}$ pounds of these in a skillet and place in the bottom of the average 3 to 4-quart crock pot. Cover with a can of cream of mushroom soup thinned with up to $\frac{1}{2}$ cup milk. Top with 2 tablespoons of butter. Peel or scrub 6 small to medium potatoes and place them on top of the meat and soup. Finish filling the crock pot with uncooked chunks of squash or similar form of vegetable. Set on low and forget for 8 to 10 hours. If you do this after breakfast in the morning, supper will be ready and waiting with no further effort. The meat will be tender and the soup will have formed a delightful gravy for the potatoes. Δ

The Ninth Year

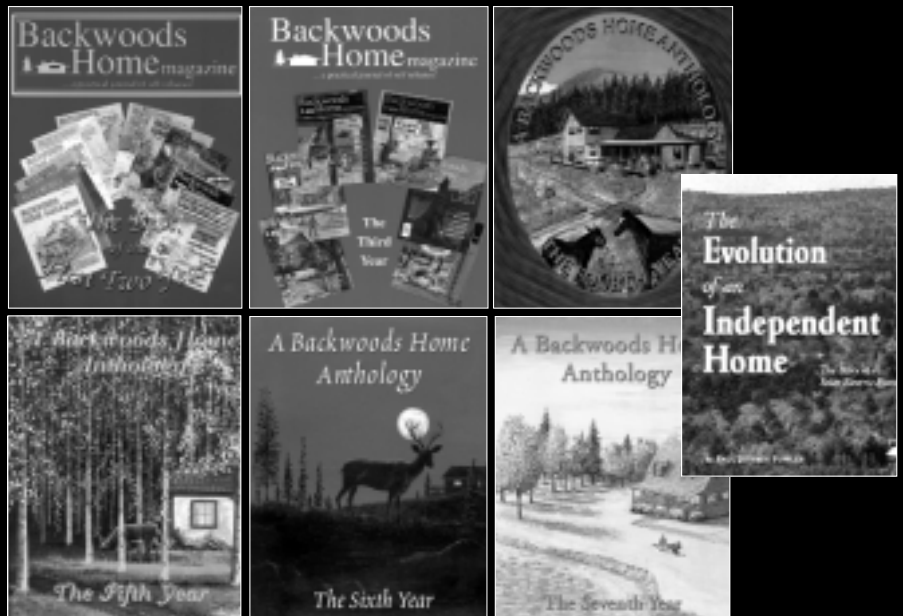
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The manure heated hot-bed — an old-tyme Yankee jewel

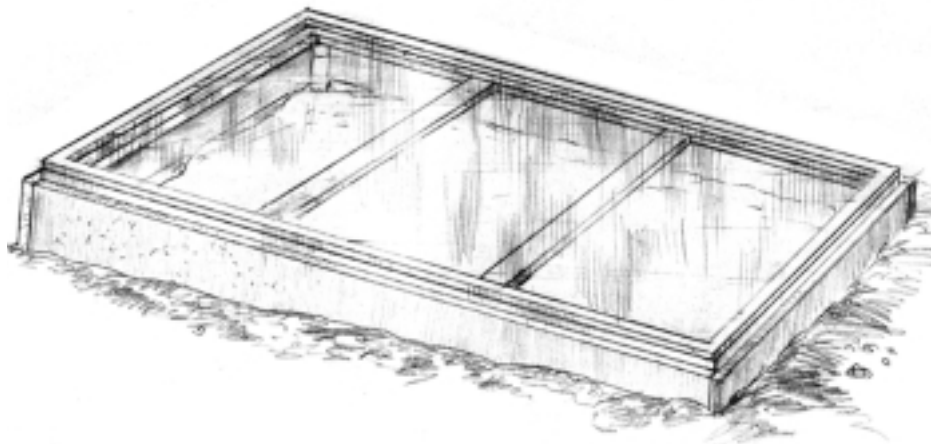
By Rev. J.D. Hooker

For several years, my wife and I had been planning on building ourselves a simple greenhouse in which we'd planned on starting our tomato and other spring bedding plants, as well as possibly providing ourselves with some type of fresh produce during the cold winter months. I guess now though those plans are on hold, possibly for keeps, as we've found what appears to be a superior alternative.

Actually we first learned of this "better idea" from a sweet elderly lady who now resides in one of our area's nursing homes. Her body might be worn clear out, and I doubt if she has very much time left here on earth, but her mind is still sharper than her embroidery needles. She's among the very best story tellers I've ever met.

In fact, this whole idea originally came up from hearing one of her tales of growing up on her grandfather's truck farm just outside Boston, Massachusetts. It seems that he'd operated hundreds of these sort of hot-beds every winter, employing about a dozen people to provide fresh lettuce

and other produce for several of Boston's restaurants and markets through the cold months of winter. He also used the same hot-beds to start



Years ago, this style of hot-bed was routinely used by New England market farmers.

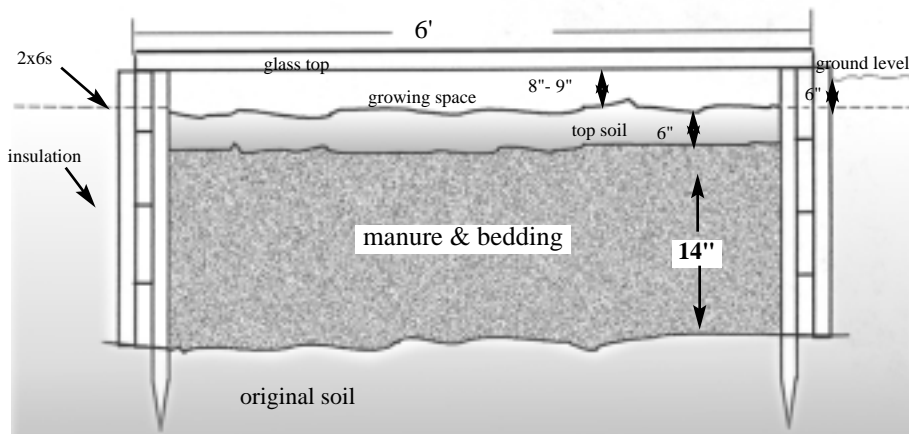
the thousands of tomato, pepper, egg plant, and other vegetables that his small farm produced during the regular growing season.

The areas outlying many of our larger eastern cities, such as New York, Providence, Boston, Newark, and others, once sustained hundreds of such

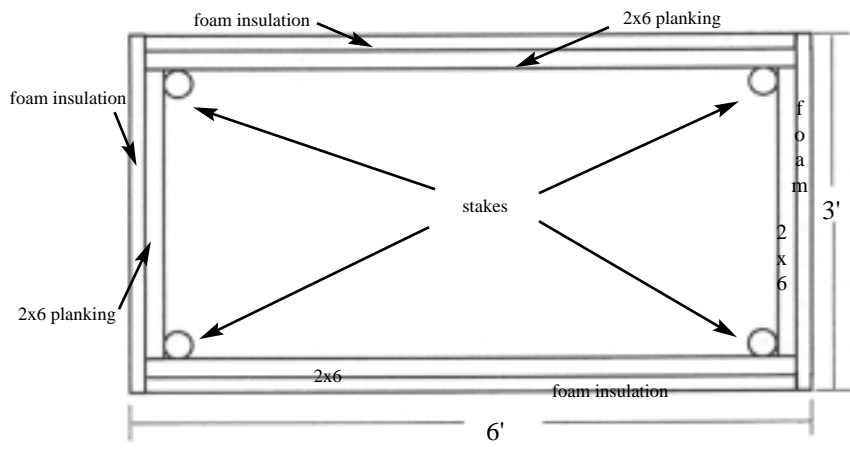
Additionally, the same manure that is used to warm the hot-bed as it decomposes also provides the fertilizer for the growing beds, and it is a plentiful supply of quality compost for use in the regular garden at the same time.

So, following our friend's suggestion, I put together one of these manure heated hot-beds last September for a "trial run." I just wanted to see what we could actually grow, and in early November we planted several different vegetable varieties inside. Towards the end of that same month, I wound up spending a lengthy stay in the hospital. But when I was finally home again, we were enjoying buttercrunch lettuce, kohlrabi, Swiss chard, endive, and even coleslaw made from fresh Stonehead cabbage—all picked fresh from our hot-bed at Christmas time.

Replanting in early February (this time striving just to see what sort of



side view



overhead view

quantities we could produce), we managed to grow 48 fresh heads of lettuce before the end of March, after which we used the same hotbed for starting our tomato, tobacco, and other plants for setting out in our regular garden.

Honestly, putting together this basic manure heated hot-bed was really a simple task, especially since all of the actual details had already been worked out more than a hundred years ago. The only modern adaptation that I opted to include was in using two-inch thick rigid Styrofoam insulation, rather than a foot of manure, to insulate around the outside of the growing box.

Years ago, when this style of hot-bed was routinely used by our New England market farmers, three-foot wide by six-foot long was the most widely standardized size used. Having half of an old wooden framed glass patio door readily on hand for fashioning the top cover, we decided to just stick with those same dimensions. So our first step was to dig out about a 40-inch wide by 80-inch long hole that was roughly 28-inches deep, on a gently sloping spot right near the house.

Next, not wanting the whole thing to just rot away—yet reluctant to use pressure-treated wood near growing food—I drove 2½-inch diameter mul-

berry wood stakes in the corners, and used osage, (2-inches x 6-inches) to box in the sides as shown. Any other naturally rot resistant wood—cedar, catalpa, redwood, etc.—should work just as well. Two-inch thick, 24-inch wide pieces of rigid foam insulation were then nailed to the outside of this in-ground wooden box.

The rear side of the box was built about two inches higher than the front to allow rain, melting snow, etc. to run off of the glass easily, while regular inexpensive stamped sheet-metal hinges were used to attach the used patio door to this upper side.

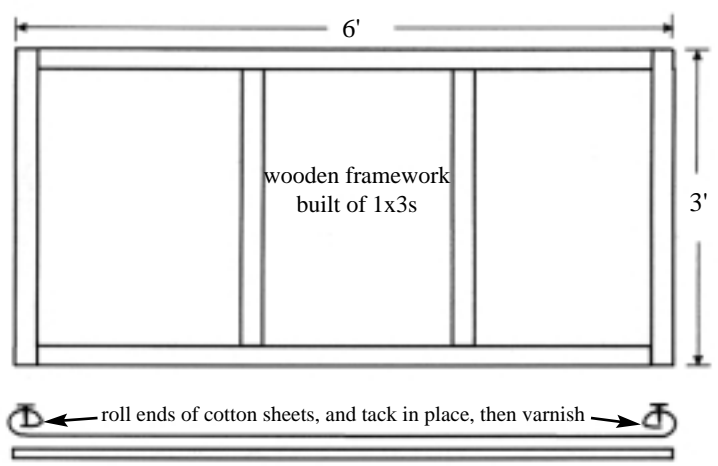
About a week before we figured we were ready to plant, we cleaned out our burros' stalls and packed 14 inch-

es of manure and urine-rich bedding into the bottom of the hole. We added about six inches of rich garden soil atop this manure pack and brought the level inside of this framework right up to six inches below regular ground level, which we'd been informed was perfect.

It's probably worth mentioning here that our elderly friend informed us that her grandfather'd insisted that only equine manure, (from horse, ponies, mules, and burros) produces enough heat to make these hot-beds work. Since that was what we had available anyway, it's what we used. And it did work just fine. I'd be mighty interested, though, in hearing of any other readers' results with cow, goat, rabbit, or other manures.

At any rate, every night a couple of heavy old quilts and a waterproof canvas tarp were used to cover up the glass top to help conserve the heat. After eight days, the thermometer we'd left inside showed that the manure pack had heated the interior to just over 80 degrees. So, we planted our seeds, which germinated just as readily as if they'd been sown in the spring garden. An inch and a half of half-rotted sawdust was used to mulch around these young plants.

On days when the inside temperature reached up over 90-degrees or so, we'd prop the glass cover open a cou-



cloth "windows" for coverings

ple of inches for a few hours. This allowed some of the frigid winter outside air to lower the internal temperature to a nice growing level. Of course, we continued to cover the glass with the quilts and tarp every night.

As our stalls needed to be cleaned out again by the end of January anyway, we shoveled the contents of the hot-bed back out, added them to the compost pile, then started all over again with equally terrific results. I'm not absolutely certain that this step was really necessary, but it did ensure that the bed would provide sufficient heat to grow a really nice lettuce crop during those cold and cloudy late winter months.

Now, the results we achieved with this type of hot-bed the very first winter really impressed us. But, possibly more importantly, a really good friend of ours, who owns a large, first rate, restaurant in Ft. Wayne (only about 30 miles away from us), was just as impressed. So this summer we're putting in a couple dozen similar manure-heated hot-beds, with a built-in ready market for all of the fresh specialty salad produce we can provide next winter. And I'm certain we can provide at a greater profit margin for ourselves than growers in the warm-winter states who need to ship their produce over long distances to market.

At the same time, a grocery store-owning acquaintance has developed an interest in purchasing bedding plants (tomatoes, eggplant, squash, collards, flowers, and so forth) from us next spring. We can start these in the hot-beds and get paid cash when we deliver them, while she can resell them at retail for a tidy profit of her own.

As I very seriously doubt that we'll wind up finding a sufficient number of used patio doors to cover this many hot-beds, I plan on just building some simple wooden frame-works, and stretching used white cotton bed-sheets (readily available very inexpen-

sively at the Salvation Army store) over them as shown. With a couple of coats of clear varnish, these translucent coverings will admit nearly as much light as clear glass windows, with very negligible out-of-pocket expense.

I really doubt if I can actually impress on you just how pleased we are with this "old timey" growing method. But I can really see how so many of New England's earlier market farmers once grew so much produce while employing so many folks, for so many winters, so profitably. This old-fashioned manure heated hot-bed really is like a diamond from the past and seems far too valuable an idea to be lost.

So, no matter whether you're interests lie only in providing your family with some delectably fresh salad makings all winter, or like us, you have located a ready market for the crisp, fresh veggies that you could provide through the cold months, or you want to use it to start spring bedding plants for your own use and/or to market, my family and I give this old Yankee growing method the highest possible recommendation. It really works. Δ

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For good compost every time, observe these few simple rules

By Tom R. Kovach

Composting allows naturally occurring microbes to convert yard waste, such as leaves and grass clippings, to a useful organic soil additive or mulch.

For effective decomposition, the microorganisms need oxygen, water, and nitrogen. Particle size also affects efficiency. The smaller the plant pieces, the more rapidly they will break down. Use a shredder or power mower to chop leaves and small twigs before adding them to the pile.

To keep your yard looking neat, save space, and speed composting time, plan to contain your compost pile in some type of structure. Typical dimensions of a compost pile are five feet by five feet by five feet. Simple bin-type structures can be built from woven-wire fencing and metal posts. More permanent structures can be bought or made.

Locate your compost pile close to where the compost will be used and where it is protected from drying winds, yet where it can receive some sunlight to help heat it.

Among materials that can be composted are nonwoody shrub trimmings or twigs less than one-fourth inch in diameter, faded flowers, plants left over at the end of the gardening season, lake plants, straw, coffee grounds, eggshells, fruit and vegetable scraps, shredded newspaper (black-and-white print only), small amounts of wood ash, and sawdust. Sawdust requires the addition of extra nitrogen; wood ash raises compost alkalinity and may result in nitrogen loss from the pile.

There should be little need to compost grass, since clippings can be safely left on the lawn if you mow regularly and remove only a third of

the blade length each time. However, if you do compost grass, mix it with other yard waste. Grass clippings alone pack down and restrict air flow, which limits the availability of oxygen that is needed for decomposition.

Some things should not be composted. Pet feces can transmit diseases. Meat, bones, grease, whole eggs and dairy products attract rodents and other animals. Badly diseased or insect-infested plants and weeds that are loaded with seed may not heat up enough to be rendered harmless.

Build your compost pile in layers. Begin with 8 to 10 inches of leaves, grass, or plant trimmings. Water it to the point of being moist, but not soggy. Then add a nitrogen source, such as ammonium nitrate, ammonium sulfate, or an inexpensive high-nitrogen lawn fertilizer without pesticide.

Sprinkle the pile with one-third to a half cup of fertilizer per 25 square feet of surface area. If you have access to livestock manure, you can use a two-inch layer of manure as your nitrogen source.

You may choose to add a one-inch layer of soil or completed compost over the nitrogen to increase the number of decomposing microbes in the pile. However, most leaves and plant scraps have enough microorganisms to get the job done without this addition.

Repeat these layers until the pile is about five-feet high, watering each time you add new layers.

An active compost pile will heat to somewhere between 130 and 150 degrees. As the center cools, turn the pile to help speed decomposition and minimize any objectionable odors. You will need to do this once or twice a month. Continue watering your

compost pile periodically to keep it moist but not soggy. You can add a little fresh material when you turn the pile, but generally you're better off beginning a new pile.

A well-managed compost pile will be ready in two to four months during the warm season. An untended pile will take a year or more to decompose. When completed, your compost pile will be about half its original height and will have a pleasant, earthy smell. Δ

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We built our solid rubble road out of the debris of a carwash

By Glynis Hart

“It looks like we’re finally going to get the road in,” I told my dad, walking along the 20-foot-wide right of way that led to the homestead my husband and I had been building in Upstate New York. What do you think?”

A lifelong woodsman and former forester, one who had supervised roadbuilding, Dad looked uncomfortable. A large, quiet man who rarely smiles, he is careful not to criticize, either. Around us were acres of pine and poplar; the soil is mostly clay, and it stays wet year-round. Underground springs and seasonal streams trickle everywhere, despite the fact that we’re at the top of a hill.

“Put it anywhere but here,” he said finally. “It’s too wet.”

“Can’t. The right of way crosses someone else’s property, and they want it where it is. Besides, the whole hill is wet. All the basements up here have water running through them.”

We dropped the subject and continued picking our way through the mud toward his car, parked on dry ground at the beginning of the road. The road had been in progress for 10 years. First, my husband Harry had paid a guy who was doing some work for the neighbors about \$75 to drive his loader on a track through the woods until he reached the home site. The driver knocked the trees down—giant white pines with wide, shallow root systems—and lifted them aside.

Next, two 6-ton dump loads of shale gave us a place to park off the neighbors’ road, and Harry put 14 pickup truck loads of field stone in the deep spots. In dry weather you could get a truck down the road, but it was still always possible to get stuck.

To move building material for the house, we bought a full-time four-wheel-drive Ram Charger and drove it to death on the road. The truck’s big tires chewed away at the rock and



A car wash bites the dust and is recycled into an attractive rubble road.

roots until the road had the consistency of pancake batter, so that even the Ram Charger could no longer make it.

After Harry had dragged his beloved truck out of the mud several times using come-alongs and a 100-foot rope—not to mention changing all the universals on the truck twice—its transmission gave up and it refused to go any faster than 12 mph. We parked it in the rapidly growing truck graveyard near the house, and we fell back to carrying



This is the concrete block used to form the base layer of the road

everything to and from the house to the parking spot.

We tried to move as much as we could in winter. First, because we could drag heavy loads over the snow on a sled, and second because a hard freeze and snow made the road safe to drive on. If we had it graded with a tractor before the cold set in, the road was firm and level. One cold Friday in February, after two weeks of sub-zero weather, two concrete trucks rumbled down our neatly plowed road and poured the slab underneath the building.

I got off work early and drove down the driveway fearfully, expecting to find a concrete truck up to its axles in frozen slush around every next curve. Two clean sets of tracks led in and out, and the concrete drivers never knew a thing.

Over the years our house had grown from a two-room A-frame to a three-story structure with a steep metal roof. The site became a clearing, the clearing became a yard, and poplars and poison ivy were replaced with fruit trees and daffodils. But we still didn’t have a good access road to it. So we decided to build one, with enough material that would hold up in any weather, during any season. That meant we needed solid materials—rocks, concrete, bricks, etc.—as the base of the road.



This picture illustrates the height of the road, which is 4 to 6-feet deep in places.

Harry began searching for suitable salvageable material. Whenever he saw a suitable building being demolished, Harry would ask the crew what they were doing with the rubble. Usually, they had a place to dump it. “Clean fill is not that hard to get rid of,” Harry said. “If they can find another spot closer to dump it they will.”

“Brick is the best,” said a friend, explaining that another guy used a demolished brick building for the base of his road. He said, “Any kind of rubble from a foundation—concrete, brick, rocks—will work.”

The car wash

After years of “no’s” Harry finally got a “yes.” The company taking down a concrete and cinderblock car wash about 3½ miles from us agreed to dump the rubble in our roadway. It would end up to be about 60, 10-wheeler dump-truck loads, enough to do all 1400 feet of the road.

The dump trucks drove in as far as they could without sinking before dropping their loads of concrete, cinder block, and asphalt.

They blended it on purpose, dumping the larger rubble in first. The drivers tried to alternate the piles of material—big stuff, small stuff—to make the road work easier. While the

bulldozer driver worked at crushing down the piles, Harry looked for pieces of metal or rebar and pulled them out. “In 1400 feet I only had to cut the rebar flush with the concrete in two spots.

The dozer driver told Harry he’d done similar road work in the swamps in Vietnam. His technique was to drive back and forth on the rubble piles, crushing and compacting them. It involved very little pushing or spreading.

“The big huge pieces of concrete are in the bottom,” he said. “They’re the base of the road. We tried to put the lighter stuff on top. It’s a good firm road.”

Dad visited us while the roadway was a long line of heaped rubble, stepping carefully between the chunks of cinder block and the dense brush on the side. He didn’t comment, but asked me what I thought.

“I think it’s nuts,” I admitted, “But I thought the stunt with the concrete trucks was impossible too, and Harry pulled that off.”

Two months later Dad was back, driving his little Saturn down the new, flat, dry road to the edge of our yard. The front and the back half of the road were done and the dozen piles of rubble that would make the parking area now stood in the place of some pickup trucks that had finally been hauled away.

His grizzled outdoorsman’s face was a study as he got out of the car. He took a step, looked at the road, looked again.

“I didn’t think it would work,” he said. Then he stood straighter and waved a hand at the rubble piles: “What’s this? Another car wash bites the dust?” Δ



SEND IN THE WACO KILLERS

Three times the International Society of Newspaper Editors has included Vin Suprynowicz in their list of the 12 top weekly editorial writers in North America. For years his shoot-from-the-hip style has opened the eyes of thousands to government abuse of our liberties. In this book, *Send in the Waco Killers*, he blends material taken from his syndicated column with new commentary to give the reader a detailed, reporter’s-eye-view of how the rights and freedoms of Americans are being subverted.

He uses factual accounts from the daily news to show how the Feds use the drug war, the public schools, jury rights, property rights, the IRS, gun control, and anti-militia hysteria to increase its power and control over us. He details how agents of the ATF and FBI have routinely lied, how they use paid informants to infiltrate Constitutionally-protected militia groups, then fabricate evidence to get arrests and discredit them.

Had he lived 225 years ago he’d have written a book to detail how King George III and Parliament have tried to enslave us but, sadly, this book is about how our government today is depriving us of our freedoms and ruining the lives of thousands without changing even one word of our Constitution.

If you read no other book this year, read *Send in the Waco Killers*. Just keep your blood pressure medication handy. 506 pages, trade paperback, \$21.95 + \$3 S&H.

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THE IRREVERENT JOKE PAGE

(Believing it is important for people to be able to laugh at themselves, this is a new feature in *Backwoods Home Magazine*. We invite readers to submit any jokes you'd like to share to *BHM*, P.O. Box 712, Gold Beach, OR 97444. There is no payment for jokes used.)

An Amish boy and his father were visiting a mall. They were amazed by almost everything they saw, but especially by two shiny, silver walls that could move apart and back together again.

The boy asked his father, "What is this, Father?" The father, never having seen an elevator, responded, "Son, I have never seen anything like this in my life; I don't know what it is."

While the boy and his father were watching wide-eyed, an old lady in a wheel chair rolled up to the moving walls and pressed a button. The walls opened and the lady rolled between them into a small room. The walls closed and the boy and his father watched small circles of lights with numbers above the walls light up. They continued to watch the circles light up in the reverse direction. The walls opened up again and a beautiful 24-year old woman stepped out.

The father said to his son, "Go get your mother."

Four Catholic women were sitting around sipping coffee. The first woman said, "My son is a priest. Whenever he walks into a room, people say, 'Good morning, Father.'" The second woman said, "Well, my son is a Bishop, and whenever he walks into a room, people say, 'Good morning, Your Grace.'" The third woman said, "My son is a Cardinal, and when he walks into a room, everyone says, 'Good morning, Your Eminence.'" The fourth woman sat quietly, drinking her coffee, until the other three finally said, "Well, how about your son?" She answered, "Well, my son is 6' 2", broad-shouldered, handsome, with dark hair and blue eyes, and whenever he walks into a room, the women all say, 'Oh my God!'"

Submitted by Walter Scott Hughes

News you may have missed

Submitted by Montey R. Eldridge

- The average cost of rehabilitating a seal after the Exxon Valdez oil spill in Alaska was \$80,000. At a special ceremony, two of the most expensively saved animals were released back into the wild amid cheers and applause from onlookers. A minute later they were both eaten by a killer whale.

- A woman came home to find her husband in the kitchen, shaking frantically with what looked like a wire running from his waist towards the electric kettle. Intending to jolt him away from the deadly current, she whacked him with a handy plank of wood by the back door, breaking his arm in two places. A shame, as he had merely been listening to his walkman.

- Two animal rights protesters were protesting at the cruelty of sending pigs to a slaughterhouse in Bonn. Suddenly the pigs, all two thousand of them, escaped through a broken fence and stampeded, trampling the two hapless protesters to death.

- Iraqi terrorist, Khay Rahnajet, didn't pay enough postage on a letter bomb. It came back with "**RETURN TO SENDER**" stamped on it. You've guessed it; he opened it and said a fond farewell to his face.

- Police in Los Angeles had good luck with a robbery suspect who just couldn't control himself during a lineup. When detectives asked each man in the lineup to repeat the words, "Give me all your money or I'll shoot," the man shouted, "That's not what I said!"

It is two o'clock in the morning and a husband and his wife are asleep when suddenly the phone rings.

The husband picks up the phone and says, "Hello? How the heck do I know? What am I, the weather man?" promptly slamming the phone down.

His wife rolls over and asks, "Who was that?"

The husband replies, "I don't know, it was some guy who wanted to know if the coast was clear."

THE IRREVERENT JOKE PAGE

Recently reported in the Massachusetts Bar Association Lawyers Journal, the following are questions actually asked of witnesses by attorneys during trials and, in certain cases, the responses given by insightful witnesses:

1. "Now doctor, isn't it true that when a person dies in his sleep, he doesn't know about it until the next morning?"
2. "The youngest son, the twenty-year old, how old is he?"
3. "Were you present when your picture was taken?"
4. "Were you alone or by yourself?"
5. "Was it you or your younger brother who was killed in the war?"
6. "Did he kill you?"
7. "You were there until the time you left, is that true?"
8. "How many times have you committed suicide?"
9. Q: "So the date of conception (of the baby) was August 8th?"
A: "Yes."
Q: "And what were you doing at that time?"
10. Q: "She had three children, right?"
A: "Yes."
Q: "How many were boys?"
A: "None."
Q: "How many were girls?"
11. Q: "You say the stairs went down to the basement?"
A: "Yes."
Q: "And these stairs, did they go up also?"
12. Q: "All your responses must be oral, OK? What school did you go to?"
A: "Oral."
13. Q: "Do you recall the time that you examined the body?"
A: "The autopsy started around 8:30 p.m."
Q: "And Mr. Dennington was dead at the time?"
A: "No, he was sitting on the table wondering why I was doing an autopsy."
14. Q: "You were shot in the fracas?"
A: "No, I was shot midway between the fracas and the navel."

European News Note

The European Commission has just announced an agreement whereby the official language of the European Union (EU) will now be English, rather than German which was the other possibility. As part of the negotiations, Her Majesty's Government conceded that English spelling had some room for improvement and has accepted a five-year phase in plan that will be known as "EuroEnglish."

In the first year, "S" will replace the soft "C." Certainly, this will make the sivil servants skip with joy. The hard "C" will be dropped in favor of the "K." This should klear up konfusun and keyboards kan have one less letter.

In the sekond year, there will be growing publik enthusiasm when the troublesome "PH" will be replaced with the "F." This will make words like fotograf 20% shorter.

In the third year, publik akseptanse of the new spelling kan be expekted to reach the stage where more komplikated changes are possible. Government will enkorage the removal of double letters, which have always been a deterrent to akurate speling. Also, al wil agre that the horrible mes of the silent "E" in the languag is disgrasful, and they should go away.

By the 4th yar, peopl wil be reseptiv to steps such as replasing "TH" with "Z" and "W" with "V."

During ze fifz yar, ze unesesary "O" kan be dropd from vords kontain- ing "OU" and similar changs vud of kurs be aplid to ozer kombinations of leters.

After zis fifz yar, ve vil hav a reli sensible riten styl. Zer vil be no mor trubls or difikultis and evrivun wil find it ezi tu understand ech ozer.

ZE DREM VIL FINALI KUM TRU!!!

Submitted By Bob Riley

California Radio Show Excerpt

Submitted By Rep. Bob Riley (R-Calif.)

Female newscaster: "So, Mr. Jones, what are you going to do with these children on this adventure holiday?"

Mr. Jones: "We're going to teach them climbing, canoeing, archery, shoot- ing..."

Female newscaster: "Shooting! That's a bit irresponsible, isn't it?"

Mr. Jones: "I don't see why; they'll be properly supervised on the range."

Female newscaster: "Don't you admit that this is a terribly dangerous activ- ity to be teaching children?"

Mr. Jones: "I don't see how, we will be teaching them proper range disci- pline before they even touch a firearm."

Female newscaster: "But you're equipping them to become violent killers."

Mr. Jones: "Well, you're equipped to be a prostitute, but you're not one, are you?"

Cash in on those windfalls

By Robert L. Williams

In modern parlance a windfall is thought of as a sudden or unexpected gain or advantage, but the older meaning (and the true one, literally speaking) is something, such as fruit or tree limbs or even entire trees, blown down by the wind.

It's this second meaning that brings in more unexpected money than you would believe—that is, unless you suddenly have to hire someone to cut and remove some windfall from your own yard!

First, let's be sure we are all singing from the same page. In your community there is a windstorm or thunderstorm resulting in downed or broken trees. You've seen it dozens of times: a once-stately oak or poplar tree, (or any other kind, for that matter) that once shaded half a yard now lies like a gigantic corpse stretched across yard, shrubs, car ports, or even part of the house.

What is the owner of the property to do? He has only a few choices, other than selling the house and moving away, or waiting for the tree to decay and fall off the structure. He can drag out his chain saw and start cutting away at the tree, and perhaps risk a heart attack from the unusual exertion, injury from kick-back (because these trees often have limbs bent and under great stress), strained muscles, or further damage to the lawn, house, garage, or power lines. Or he can hire someone to remove the tree for him.

That's where you come in. If you have a good chain saw, a

few basic pieces of equipment, some spare time, and a use for some pretty significant dollars, you can take the following steps.

First, be sure that you know how to use your chain saw. I do not mean that you know how to cut up a few small saplings for an occasional fire or that you can cut up a small fallen tree. I mean that you need to know how to



When you are in the tree, you must work with great care. The many limbs create kick-back hazards, and although you are supported by a strong rope, if the saw kicks back it can slice the rope in an instant. A small chain saw is good for jobs where you must hang on with one hand and cut with the other.

cut limbs under the stress spoken of earlier; that you can under-cut and at times even cut one-handed; and that you are well-versed in the dangers of kickback, of limbs that swing and fall suddenly or in other ways attack you.

Second, you need to be in reasonably good shape. This does not mean that you have the energy and stamina to walk to the mailbox and back; it means that you can take sustained effort, reasonably great exertion, and toughness.

Third, you must be disciplined. Once you start a job, no matter how discouraging it may become, you need to stick with it to its satisfactory conclusion.

Fourth, you need to have free time. If the property owner hires you to do the job, he wants it done quickly. He will become understandably impatient if you start to work on the first of the month and three weeks later the tree is still half-harvested.

Fifth, you must be thorough. Do not cut and haul off the perfect-sized parts of the tree and leave the stump and twigs and small branches lying all over the lawn. Don't abandon the huge knotty portions of the tree simply because you can't split them without extra effort.

Sixth, be certain, before you show up for work, to have a total and complete understanding of the work you are expected to do. If the home-owner wants only the huge trunk of the tree cut and removed, be sure that you both know that. Get it in writing if there is a real danger of miscommunication.

Perhaps the owner wants the firewood for himself. If so, set your price accordingly. And then learn how he wants the wood handled. Does he want the trunk cut into firewood lengths so that later he can split and stack them? Does he want

you to do both the splitting and stacking?

What about the smaller twigs and branches? Does he want these removed, or will he handle that part of the job? Does he want the branches chipped into mulch? If so, can you do that part of the work? What about the sawdust? There will be a considerable amount of it, and you need to have it understood that you will (or will not) remove as much of the sawdust as possible.

Now you are ready, once all the details have been resolved, to talk money. But how much you charge will depend largely on a series of factors.

Is the tree easily accessible, or is it in the grove of trees behind the house? Will you need a tractor or other equipment to clear the way to the tree? Are there electrical lines involved? Will you need to buy special pieces of equipment in order to do the work?

Let's take the easiest scenario. A gigantic oak tree has blown over and has fallen across the man's yard. No buildings or shrubs are involved. It's a pure and simple job of cutting the tree into pieces and hauling it away. The owner does not want any of the wood or mulch. He just wants the tree trunk and larger limbs removed.

What will you charge? A good price is \$350 for the actual cutting and hauling work.

How much time should you allow? This is a good two-day job, so agree to have the job completed within a week. Allow yourself a little leeway in case of illness, bad weather, or personal emergencies.

Then go to work. Cut off all the limbs that you can reach, and, as soon as one is cut loose from the tree, cut into firewood lengths. You might even be able to cut some of the limbs into firewood lengths while they are still attached to the trunk. The reason for cutting the limbs into firewood is obvious—don't leave anything underfoot that will cause you to stumble and fall. It is even a good idea to stack the

wood in a convenient location so that when you are ready to load it, all you need to do is back the truck to the stack and toss the wood into the bed of the truck.

When you are ready to harvest the trunk, you will need to do one or two things: first, cut the trunk into workable sections, if you can do so without digging the tip of your saw into the dirt. Second, you may need to raise the trunk slightly so that you can put a block of wood (or section of a limb or branch) under it so that you can saw safely.

If you are working alone, you may be able to finish the job in a day or day and a half, even though you made your price estimate based on two full days of work. Be sure the owner knows that this is possible. Don't let him try to adjust the price downward because the job didn't take as long as he thought it would. You should not be penalized because you worked harder and longer than you originally thought.

When you get a truckload of wood cut, load it and haul it away to your own property. Be sure to take the chain saw and small pieces of equipment with you so that someone passing by does not decide to help himself to your property.

The reason for hauling wood as it is cut is that you avoid the dangers of having someone carry off the remaining wood while you are hauling away the first load.

Another job: a huge tree is in the way and the owner wants it cut down and hauled away. Your job is now considerably more involved than that of simply cutting up a fallen tree. You have to drop the tree before you can cut it up, and there is a danger that the



Sometimes the apparently rotted tree you take down contains great wood. Look at these logs cut from two gigantic oaks that had been lightning struck. Except for an inch or so of pulp around the outside, the rest of the logs are great for firewood or lumber. These jewels will soon be oak boards from 5-inches to more than a foot wide and up to 16-feet long.

tree may fall on valuable shrubs or other property.

Your price is no longer \$350. It is at least \$400 and perhaps \$425. You must not only drop the tree but you must drop it with great care. Pay yourself the extra \$50 or \$75 to run the risk of injury and the extra work of getting the tree down.

New scenario: there is a huge oak tree that has been struck by lightning and has died standing. Over a period of months the limbs have fallen away and the trunk has started to decay. How much should you charge?

If you must cut down the tree, and if there is the danger that the tree is so rotted that there is a danger that the tree top may break and fall upon you, the price goes to \$500. You should raise the price even more if the tree is on a hillside or is leaning one way and

you need to drop it against the laws of gravity.

You can make similar price adjustments if the characteristics of the job are truly challenging. If the tree is a sapling that you can cut and then slice into firewood, you can charge \$75 and still earn a nice day's pay for a couple of hours of work.

If the owner wants to keep the firewood and mulch, charge him more. After all, you can use the firewood to great advantage by either using it to heat your home or you can sell it and add to your profits. You can sell a pick-up load of good firewood for \$50 fairly easily. You can move it rapidly at \$35 to \$45 per load.

Think about this for a moment. You charge \$350 for cutting up the tree, and you get four or five truckloads of firewood from it. You sell four loads of wood at \$45 per load. That's another \$180 you earned, to be added to the \$350, for a total of \$530 for one or two days of pretty intensive work.

If you use the wood to heat your own house, you don't get any extra pay, but you get nearly free heat. In our house, which is a three-level structure of 4,300 square feet, we heated all this past winter for less than \$300. There have been winters in which our heating bill was less than \$25. So you are still realizing a super financial windfall.

None of the prices listed above will reflect the cost of removing the tree stump. If the owner wants that done, you can add at least \$200 to the fee.

The next questions are basic ones. First, will people actually pay this amount of money to have a tree cut and removed? The answer is a definite yes. While you are not trying to scalp people, keep in mind that you are using two full days of your life to help

a property owner out of a problem that was none of your doing. For what price would you sell two days of your life? Or, if you worked at minimum wage for two days, at eight or ten hours a day, you would earn \$100 just for bagging groceries or doing other less-strenuous work. And I will guar-



Keep one eye on the weather. Notice the storm clouds just behind the trimmer. Lightning and high winds can cause catastrophe.

antee you that while bagging the groceries is demanding, it cannot compare with the exertion needed to use a chain saw and splitting maul or with carrying chunks of heavy green wood. And there is not the danger involved in most jobs that you find in chain-sawing.

Second, can you find enough business to pay you to buy a good chain saw and other equipment? Again, the

answer is yes, if there are trees in your area. Where there are trees, there is inevitable tree damage. Sooner or later, every tree in the forest will die from wind damage, lightning, insect damage, or other causes. If nothing else happens, the tree will die of old age.

And whenever a tree dies in someone's yard, someone must deal with the tree, and it might as well be you. Some tree harvesters or cutters stay busy all the time, particularly during winter months. Many turn down business because there isn't enough time for them to handle the work load.

So there is an abundance of opportunities in most parts of the country. And if you get into the tree-trimming or cutting business pretty deeply, you will want to add a smaller chain saw for the tiny limbs, perhaps a chipper, a come-along or power pull, some chains, ropes, or cable, and whatever else you find that you need for the more difficult jobs.

Be sure to wear a hard hat, steel-toed boots, and gloves at all times. In summer be alert to the dangers of snakes, wasps, hornets, spiders, rats, bats, and other biting critters. In winter as well as summer, be aware of the dangers of kick-back, breaking or broken limbs, and rotted branches.

If you do good work, you can pick up from \$350 to \$800 on a fairly good week. One harvester or tree-remover that we know has expanded his work to include tree-trimming, and he earns as much as \$2,500 to \$3,000 per week, before expenses. He has a small crew working for him, and he has invested in special equipment, so his take-home pay is considerably reduced, but even if he keeps only \$1,000 a week for himself, that's not peanuts. Δ

Whole-grain sourdough recipes

By Jennifer Stein Barker

Sourdough is an American tradition. When the pioneers came west with neither refrigeration nor “active dry yeast,” sourdough provided a reliable source of leavening for breads. Kept in a crock, it had to be used and replenished every few days or it would spoil. It often picked up wild bacteria from the air, which could either enhance the flavor or introduce harmful spoilage. If the starter (or “sponge,” as many called it) spoiled, it could be multiplied and divided among friends so that each had their own again. This provided insurance against a whole community’s losing their source of leavening.

With refrigeration and convenient packaged yeast products, sweet bread is quick and easy to make in these times, but sourdough has a nostalgic appeal for many people. For some, like me, it also has a flavor appeal. I love the slightly tangy taste it gives to bread. No pancakes are as fluffy and moist as sourdough pancakes, and no bagels as chewy and smooth-textured as sourdough bagels. Give these recipes a try and see if you don’t agree with me that sourdough is better than ever!

My favorite starter

Make sure you get a yogurt with active cultures (it will say on the package) such as Nancy’s or Mountain High.

1 cup nonfat milk (reconstituted powdered is fine)
 1 teaspoon dry yeast
 3 Tbsp. plain unflavored yogurt with live cultures
 1 cup all-purpose whole wheat flour (or a blend of bread & pastry flours)

Method:

Place the milk in a glass, plastic, or stainless steel bowl, and set the bowl in a pan of hot water until the milk is 95 degrees. Dissolve in the yeast, then stir in the yogurt and flour until you have a smooth batter. Cover the container with plastic wrap or a lid with a small vent hole punched in it. Do not cover tightly, as this starter is going to be very active for several days. Set the starter in a warm place to work.

The starter will be active and bubbly, but should not form any black, blue/green, or pink spots. If it does, these indicate spoilage, and you should throw it away and start over. In three or four days, the wild bubbling should subside and the starter will settle down, perhaps forming a clear liquid on top. This separation is not a problem, and the starter should just be stirred back together before use.

Once your starter has calmed down and smells good and sour, you are ready to feed it and work with it. It will develop more complex flavor and become more reliable with frequent use over time. The evening before you want to use it, take your starter out of the refrigerator and bring it to room temperature. Look at the recipe you intend to use, and decide how much starter you need to make.

Add warm (95 degree) water or milk, and flour, in equal parts. Figure that one cup each of liquid and flour will make 1½ cups of additional starter. Use all-purpose flour or a blend of bread and pastry flour.

Add the required amount of milk and flour, and set the starter in a warm place until it has bubbled and soured (overnight or 8 hours is usually enough). If liquid separates out from the starter, this is perfectly OK. Just stir it back in, then remove the amount required in the recipe and set aside the remainder to save for next time.

In between uses, keep your starter in the refrigerator. Keep it in a nonreactive container like glass or plastic, as the acid which makes it taste sour will react with some metals and cause off-taste and color. You should use your starter every two weeks or so, or at least pour some out, feed it again, and let it bubble before returning to the refrigerator. The yeasties in discarded starter will benefit both your septic tank and your compost pile.

Hint: If you do not have a warm place in which to sour your starter, try putting the container in a box with a towel in the bottom and a few jars of 95-degree water tucked in with it to keep it warm. Place a pillow or towel over the top to keep the heat in.

Hint: I like to keep an extra 2 cups of starter in the refrigerator container so that I can have sourdough pancakes on impulse. It saves having to think of feeding the starter the evening before I want them. A one quart yogurt container with a tiny hole punched in the lid is the perfect size for this.

Sourdough whole wheat bread

A tasty, chewy loaf, somewhat larger than a standard loaf of bread.

Makes one peasant loaf:

¼ cup warm water
 2 tsp. yeast
 1 tsp. honey
 2 cups sourdough starter
 3-4 cups whole wheat bread flour
 coarse cornmeal

Method:

Dissolve the yeast and honey in the warm water and let sit in a warm place for about 10 minutes until it foams up. This is called “proofing” the yeast. If it does not foam up, get fresh yeast and try again.



Add the starter to the proofed yeast. Add the first cup of bread flour and beat the dough well until it looks smooth and satiny and comes together in glutenous strands. Add more flour ½ cup at a time, beating well with each addition, until the dough is stiff enough to knead.

Turn the dough out onto a floured board and knead 8 to 10 minutes, until the dough springs back vigorously from an impression. Place the dough in an oiled bowl, turning once to coat the top. Cover and place in a warm spot to rise until doubled in bulk (about 1 to 1½ hours). Prepare a cookie sheet or a pan at least 7x11 inches by oiling it and sprinkling it lightly with cornmeal. Punch the dough down and let rest a minute, then turn out of the bowl and form into one oblong loaf. Place the loaf on the prepared pan. Cover and let rise until doubled in bulk.

Preheat the oven to 375 degrees. Brush the top of the loaf with a little water. Bake 40 to 45 minutes, until the crust is golden and the loaf tests done. Cool the loaf thoroughly before storing in an airtight container.

Pain Rustique (rustic bread)

A traditional bread and a nice combination of flavors.

Makes two 5x9-inch loaves:

- 2 cups warm water
- 1 Tbsp. yeast
- 1 tsp. honey
- 1½ cups sourdough starter
- 3 Tbsp. oil
- 3 Tbsp. honey
- 1½ tsp. salt
- 3 Tbsp. gluten flour (optional)
- 3 cups rye flour
- 3 cups whole wheat bread flour
- wheat flour to knead

Method:

In a large bread bowl, dissolve the yeast in the warm water with the honey. Allow to sit in a warm place 10 min-

utes until it foams up. Add the sourdough starter, oil, 3 Tbsp. honey, and salt. Stir well to combine. Add the gluten flour, if using, and 1 cup each of the rye and wheat flours. Beat well. Add rye and wheat flours in equal amounts until the dough is stiff enough to knead.

Knead 10 minutes, until the dough is very smooth and elastic. Place the dough in a clean, oiled bowl, and turn to oil the top. Cover and let rise until doubled, about 1½ hours. Form into 2 loaves and place in two oiled 5x9-inch loaf pans. Let rise until doubled, about 45 minutes.

Bake in a preheated 350 degree oven for 35-40 minutes, or until the loaves test done. Cool 10 minutes in the pan, then remove to racks and cool thoroughly before storing.

Pumpernickel bagels

These bagels are made of classic dark, sour dough. Caraway seeds are optional.

Makes 16 good-sized bagels:

- 1 cup lukewarm water
- 1 Tbsp. yeast
- ½ tsp. honey
- 1 ½ cups sourdough starter
- 2 Tbsp. oil
- 2 Tbsp. dark molasses
- 2 tsp. salt
- 1 egg
- 2 tsp. caraway seeds (optional)
- 2 Tbsp. gluten flour (optional)
- 2-3 cups whole wheat bread flour
- 2-3 cups rye flour
- 2 quarts boiling water with 1 tsp. honey dissolved in it

Method:

In a bread bowl, dissolve the yeast in the warm water with the ½ tsp. honey. Allow to sit 10 minutes, or until the yeast foams up. Then add the sourdough starter, oil, dark molasses, salt, eggs, and caraway seeds (if using). Beat well.

Add the gluten flour, if using, and 1 cup each of the wheat flour and rye flour. Beat well until gluten strands form. Continue adding alternate ½ cups of wheat and rye flour until the dough is too stiff to add any more.

Turn the dough out onto a floured board, and knead for 10 minutes or until it is smooth and springs back from an impression. Place dough in a clean oiled bowl. Turn dough to oil the top, cover, and let rise in a warm place until double, about 1 or 2 hours.

Turn the dough out onto the board again, knead briefly, and form bagels as follows: divide the dough into 16 equal pieces. Roll each piece into a rope long enough to go around your hand. Seal the ends of the rope together by

overlapping, pinching, etc. Make as many as will fit a single layer in the pan of boiling water.

Have your oven preheated to 375 degrees, and two large oiled cookie sheets ready. Drop the bagels into the boiling water with the ½ tsp. honey added. Boil one minute on each side, then remove, drain well, and place on an oiled cookie sheet. When the cookie sheet is full, slide it into the oven and bake for 25-30 minutes, until the bagels are done. Continue until all of your bagels are boiled and baked, and remove the bagels to a rack to cool.

Sourdough hazelnut pancakes

This recipe makes enough substantial, nutty-flavored pancakes to feed four hungry pancake-eaters.

Makes about sixteen 4-inch pancakes:

2 cups whole wheat sourdough starter
2 eggs
2 Tbsp. oil
1 cup whole wheat bread flour
1/3 cup ground hazelnuts*
1/2 tsp. soda
1/2 tsp. baking powder
approx. 1/2 cup milk or water

Method:

Whisk together the starter, eggs and oil. Add enough milk or water to make a runny batter, whisking well to blend. In a small bowl, stir together the flour, ground nuts, soda, and baking powder until thoroughly blended. Combine the two mixtures, whisking until completely combined. It is not necessary to beat down the bubbles which form. If the batter is too thick to spread on the griddle, it may be thinned with additional milk or water. If too thin, just add a little more flour.

Heat a griddle or skillet on medium-high until a drop of water thrown on the surface will sizzle. Oil the griddle lightly, then pour or ladle batter on the griddle to make pancakes the size you want. Cook each pancake until bubbles

form on the top, and the edges begin to set up. Flip and cook on the other side until golden on both sides.

Serve immediately with warm maple syrup.

* To grind hazelnuts, place 1/3 cup nuts in blender and pulse just until ground to a coarse cornmeal consistency. Do not worry about a few chunks. If you go too far, you will get nut butter. It is not necessary to peel the nuts, but if you prefer them with the skins removed, you may toast them in a 350 degree oven for 10 minutes. The skins will then rub off. Δ

Harbor

My son takes me by the hand, leads me out
into the dark yard. "See," he points, his shadow hand
against the stars, "there's Mars." It's orange-
red, all right. Toads and frogs fill the night
with their mad relief songs of winter gone.
He recites a litany: Procyon,
Aldeberan, Regulus, Arcturus.
He tells me of the Bear, how the Irish
have named it the Plough, that the first two stars
point to Polaris. I enjoy him,
him teaching me as my father did.
He is as pleased with his stars as the frogs
are with spring. He ends, "My starbook says
our galaxy is a hundred thousand
light years long." We deplore our country's lack
of funding for the space program. He leaves
for a piece of pie before bed; I call
my thanks, stand surveying the immensity.
Tomorrow I am fifty-one. How quickly
I ran those years. I look about me, see
lights of neighbors' farms, my own windows bright,
am glad someone wants to voyage the stars
but is contented just now with pie.

*By Jim Thomas
Hermann, Montana*



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Squirrel surprise

By Grace Petrisin

One day, after coming home from a neighbor's, I walked in the house and my mother's face was shining. "You'll never guess what Dad brought home," she said.

By the look on Mom's face, I knew it was something terrific. I bubbled up with excitement. What could it be? She pointed to a bucket on the counter and put a finger to her lips. Right away I thought there was a toad inside, but why would Dad bring home a toad? I tiptoed to the bucket and looked in. There lay three baby



Grace, age 10, feeds the babies milk from an eye dropper.

squirrels. Their heads looked big for their bodies and their eyes weren't even open yet. They had gray backs and pink bellies with a brown edge separating the gray from the pink. Their tails were long and rat-like.

Dad told us how he got the squirrels. A work crew had cut down a tree and there was a squirrel nest at the top. The mother got scared and left the babies behind. Dad decided to bring them home.

We fed the babies milk that night from an eyedropper. The next morning Mom called the vet to find out how to care for them. The vet told us to get puppy formula from an Agway store and to feed them a couple of millimeters every few hours. We also put them in a box with a heating pad turned on low underneath a couple of towels. After feeding the babies we had to wipe their behinds gently with a damp cotton ball to stimulate them to go to the bathroom.

Later on we figured our squirrels were four to five weeks old. There were two boys and a girl. We named the boys Max and Pete. The girl was mine and I named her Daisy. As the squirrels grew, so did their personalities.



Guess what dad brought home!

Daisy was well-behaved and loved to snuggle. Pete was the runt of the litter. He was ragged looking and weaker than the other two. Mom took special care of him. Max was the big eater. He was the messiest eater too. He



At nine weeks the squirrels began to eat solid foods.



Me and Daisy in a tree

drank the formula so fast that it would come out of his nose in a big sneeze. Max belonged to my brother, Ben.

That week we went to the library to research gray squirrels. We learned these facts: Three to ten squirrels are born to a litter. The babies open their eyes at six weeks and at ten weeks they are weaned from their mother.

We had the squirrels nine days when they began to open their eyes. They were eating more formula and still sleeping a lot but they began moving around a little.



Max, Pete, and Daisy

At eight weeks the babies looked like miniature squirrels. Their fur had grown in more, and their ratty tails started to bush out. They were eating a lot more but not as often—four to six millimeters every four to five hours. We began to feed them with a syringe rather than an eyedropper because it held more. The squirrels were getting active and crawled around in the cardboard box. One night Pete got out and we could not find him. Mom said he would probably turn up in the morning and, sure enough, he did. When Dad got up for work, he found Pete



Max rests in Ben's pocket.

standing in the middle of the living room floor. We decided to move them all to a wire cage.

After another week the squirrels were climbing the cage and began to eat solid food. We started them on apples.

At ten weeks the three, frisky animals grew restless so we

let them out of the cage to explore the house. Max and Daisy played on a clothes rack that we had inside. It looked like they were playing hide and seek as they darted between T-shirts, underwear, and socks. Sometimes they knocked the clothes down. When they got tired, the squirrels wanted to burrow in our arms or under our necks. Max always climbed into Dad's sleeve to fall asleep.

The time finally came when we let the squirrels outside. The first few days they didn't wander too far. But after awhile, they were climbing trees in the yard. At this point they were eating peanuts and corn. They loved corn on the cob and were soaked by the time they finished one.

Eventually they all left to live as squirrels are meant to live—wild. But Max stuck around the longest. When my family sat on the front porch Max would come dancing across the lawn, jump onto the railing, and then spring to someone's head or shoulder. He loved to wrestle and would usually attack my hand. As I twirled him on his back, he would grab for my fingers but he never bit any of us hard.

Max slept in a big maple tree at the edge of our property. When Ben and I



My brother, Ben, plays with Max.

climbed the tree Max came down from the highest branches to play with us.

Raising squirrels is hard work but it is worth it. They make great pets and



Max would come dancing across the lawn, jump onto the railing of the porch, and then spring to someone's head or shoulder.

you don't have to housebreak them. It's sad when they finally leave, but they're a lot of fun while they stick around. Δ

(Author Grace Petrisin is 10 years old)

Think of it this way...

By John Silveira

If we can't throw out our outmoded Constitution, then let's have the NBA run the U.S. government

Oh, how I hate deadlines. I'm the great procrastinator. I've turned putting things off into a fine art. My obituary will be in the papers for weeks—perhaps months—before I get around to dying. The undertaker will be waving my death certificate in my face saying, "Silveira, get in the casket."

Dave Duffy, the guy who publishes this magazine, knows what I'm like. He's learned to ask for oral progress reports to see how far along I've gotten with my article. And I've learned to lie to him about it. Monday, I said I was a quarter done, but I hadn't even started. The next day I said I was half done and all I did was stare at the computer monitor for 10 minutes before I did something else. Today is Saturday and Dave thinks I'm polishing up the finished product. But this is as far as I've gotten.

Dave's friend, O.E. MacDougal, the poker player who's helped me with a lot of my articles, is up for the weekend. He wants to get in some fishing. Because it's deadline, the rest of us are busier than pickpockets at a kangaroo convention.

I was hoping MacDougal would give me some ideas, but instead he fell asleep on the floor by the fax machine. Mac can sleep anywhere. While he dozed, a guy named Nelson, who drops in from time to time just to let us know what he thinks is wrong with the world, came into the office.

He said hello and looked at some of the back issues of the magazine sitting on Dave's desk. "I've got to read this rag you guys put out sometime," he said and laughed.

"So, how's it going?" I asked and realized my mistake because he start-

ed giving me the details of his life over the last week, and I just didn't have time for a social visit.

I tried to ignore him and went back to work. Then he asked, "Who's the guy on the floor?"

"That's MacDougal," I said.

"O.E. MacDougal, the poker player?"

"Yeah. You know him?"

"I've heard Dave talk about him. I'd like to see how he'd do in the game we play down at the club," he sneered.

Mac didn't stir.

"What do you guys play for?" I asked.

"We play half-dollar limit. But we'd play for anything he wants," he said with a wave of his hand. With the other hand he dropped a copy of one of the California papers on my desk. "By the way, have you seen this?" he asked.

I looked at the paper, but I wasn't sure what he was talking about. He got impatient when I didn't comment and let his finger fall on a story there.

"Look at all these anti-government groups. They're saying they love this country but hate the government. How can they say that? How can you pretend to love this country but say the government is bad?"

I didn't say anything. To get rid of him I went back to work but he wasn't to be dissuaded.

"How can they be against the government? These people drive on the roads, drink the water, use and take advantage of the Constitution the government has provided us, then they turn around and say they hate the government."

"I don't think the roads or water are what they're complaining about," I



John Silveira

said, even though I realized that by joining his conversation I was going to prolong his visit.

"It's all or nothing," he said.

"I suppose that's one way of looking at it," I replied. "But that very Constitution guarantees that they have the right to say those things."

"Yeah, constitutional guarantees," he mumbled. "That's where guys like that like to hide—behind the Bill of Rights."

I shrugged and tried to get back to work.

"That's the problem in this country," he said, "Criminals, foreigners, and political fringe groups try to hide behind the Bill of Rights. It protects them like they were endangered species. Even known criminals get away with using the Constitution against us."

"What do you mean?" I asked.

"Once we know someone's a criminal the police shouldn't need search warrants and stuff like that. Just get them out of society. The Bill of Rights is meant for law abiding citizens, not

hoods—or foreigners. I don't know what the problem is."

"The problem is the whole Bill of Rights is screwed up," a voice said.

It was Mac. He was up on one arm looking at us.

"Did we wake you up?" I asked.

He stood up without answering.

"It's not screwed up," Nelson said. "It's just the way lawbreakers and political wackos try to hide behind it."

"And that's because it's screwed up. The whole Bill of Rights should be thrown out. Too many people have hidden behind it for too long. Fortunately, there are politicians and bureaucrats all around the country who are putting a stop to it," he said and walked to the kitchen and started looking through the cupboards.

"Where's the coffee, John?" he yelled to me.

"I think we're out."

He glanced at me and his eyes got bigger. "You can't be," he said and started opening one cupboard door after another, moving cans and boxes to see deeper into them.

"What do you mean they should be thrown out?" Nelson called. He was talking to Mac who finally stopped and took down a box of tea bags. He stared at them balefully in his hand.

"What do you call him?...Mac?" Nelson asked me.

I nodded.

"Mac, what do you mean it should be thrown out?" he asked again.

But Mac still didn't reply. He put the kettle on the stove and his hand moved as if to turn the heat on, but he didn't. Instead he turned around and came back into the room with us and said, "Caffeine—it's my addiction. But it's got to be in coffee." Then he proffered a hand to Nelson and said, "Hi, I'm Mac."

"Nelson," Nelson said as he shook it.

The Bill of Wrongs

Mac sat down. "Well, Nelson," he began, "the Bill of Rights should have

been called the Bill of Wrongs. And though I'm sure that for their times the people who wrote them tried their best, I'm also sure that in the light of what's happening today even they would have to admit they didn't do a very good job. So, we've been fine-tuning and improving on their work ever since."

"I'll admit there are problems with the Bill of Rights..." Nelson began.

"Of course there are, not the least of which are that no one ever says what the source of these rights are. You have read the Constitution, haven't you?"

Nelson nodded but allowed, "It's been a few years."

"Does it say anywhere where we get these rights from?"

Nelson scratched his head. "I don't recall seeing anything about that."

"Because it's not there. They never even mention it. I think they just made them up. If they can't tell us who gave us these rights, then how do we know whether or not they're valid? Do they say we get them from God? The government? Ourselves? No, the implication is that we've had them all along, and that we all have them, white or black, Christian, Jew, or Moslem—even agnostics and atheists, if you can believe that, man or woman, American or foreigner, criminal or law abiding, as if one set of rights can fit everybody. This, of course, is patently ridiculous. If we have rights, we have to know where they came from; otherwise, how can we say they actually exist? And how can anyone believe foreigners have the same rights we do? In fact, should foreigners enjoy our rights if they come to our country?"

"Not necessarily," Nelson said.

"Of course they shouldn't. Just as Americans shouldn't be allowed free speech, the right to practice their religious freedom, or expect freedom from warrantless searches, or get speedy trials, or anything else like that when they go to foreign countries. Should they?"

Nelson frowned at that. "Well, Americans should be treated according to our rights no matter where we go."

"But we can't assume we have those rights when we're in someone else's country any more than foreigners should have rights when they're in ours."

He gave Nelson a chance to think that over.

"You know," Nelson began, "our rights are our rights. But now that I think of it, I think the rights in the Bill of Rights are supposed to belong to everyone. I mean, the Declaration of Independence says we're all endowed with certain unalienable rights—it doesn't say just Americans are. I think the guys who wrote the Bill of Rights thought everyone in the world is supposed to have these rights but that governments often deny them."

Mac scowled and said, "But not the way they wrote them. Take a look at these so-called rights," and he grabbed the World Almanac from the shelf. "When you read them, at first they seem pretty good, even though they were made up by a bunch of ancient people. They're flawed, but they can be straightened out without much effort."

Scrapping the First Amendment

He held the almanac in one hand and rubbed his chin with the other. "But not the First Amendment," he said after looking into the book for a few seconds. "It's so deeply flawed it may be unrecoverable."

He looked at Nelson. "Are you following me?"

"What do you mean the *whole* First Amendment?" Nelson asked.

"Listen, and think about it as I read it," Mac said. He read:

Congress shall make no law respecting an establishment of religion, or prohibiting the free exercise thereof; or abridging

freedom of speech, or of the press; or the right of the people peaceably to assemble, and to petition the Government for a redress of grievances.

"Does anyone really think you should be able to practice any religion you want at anytime you want?"

"Well," Nelson said, "freedom of religion is a pretty important thing."

"What about cults?" Mac asked.

"They're different."

"Of course they are. The Founding Fathers never dealt with cults. Thankfully, today we have a government that accepts more and more of the responsibility for deciding which religions should be allowed and which shouldn't.

"Look at what the government did on our behalf at Waco. There's no telling what those people would have done if the government hadn't stepped in. Although she's taken a lot of bad press, Attorney General Janet Reno will be remembered by future generations as the one person who helped us decide which religions should be practiced."

"Well, I didn't like the Branch Davidians, but I'm not sure it's up to the government to decide which..."

"You know," Mac interrupted. "It would also be a good idea if, in the future, people have to register as to what religion they belong to. We could weed out the religious nuts that way."

"No," Nelson said.

"Why not? It can't hurt, can it? If you're not doing anything wrong, why would you care if your religion was registered. It would be like the registration of a business. If you're not doing something wrong with your business, you shouldn't mind registering them.

"Well, I think I can agree with registering a business, but that's different from a religion."

"But by registering religions, if you belong to one of these fringe religious groups, it will let us keep an eye on

you—and there's nothing wrong with that unless you're doing something wrong."

"No, I don't think registering religions is such a good idea," Nelson said.

"Do you know how many religions there are?" Mac asked. "Just the number of Christian sects alone is staggering, and they're all waiting for Christ's return. Do you think we need all those religions? Some of them do things I'm sure neither you nor I approve of and I think there should be some kind of government body to oversee them."

"I don't think I'd like that. There's nothing wrong with freedom of religion," Nelson said.

"There isn't? Do you know how many people have deceived countless numbers of people over the years because they've claimed they're Jesus Christ? If Christ comes down here again, I don't think it's up to individuals to identify him. That should be left to the government, and I'm sure they'll let us know who he is. In the meantime, anyone pretending to know better than the authorities who God is and what he wants should be fined and imprisoned."

"Are you crazy?"

Mac looked hurt. "No. I'm just trying to protect people. The nut houses and jails are full of religious pretenders, and many of their followers have been hurt so I think the government should step in."

"Well, I'm sure those things can be ironed out," Nelson started to say, "but I'm sure I don't want the government..."

"You know," Mac interrupted, "I'm just trying to agree with you. People abuse the Bill of Rights and then when we go to deal with them, they hide behind those same rights. Now I get the feeling you want to side with them. We should have regulations so people can't hide. This will take care of the religious nuts. The good religions wouldn't have to worry about anything. They'd register themselves

and their members and just go on with their business."

"I don't know about this," Nelson said.

"Another troubling part of the First Amendment," Mac continued as if he hadn't noticed Nelson was still disagreeing with him, "is this so-called free speech. Now, I know the Founding Fathers meant well when they added this provision to the Bill of Rights, but they obviously didn't consider that by allowing certain people to say whatever they wanted, they could hurt someone's self-esteem. No one should be allowed to say anything that might hurt the feelings of women, blacks, Hispanics, gays, or anyone else, especially on college campuses."

"Is this guy for real?" Nelson asked me.

I didn't say anything. I was content to listen.

"Well," Nelson said to Mac, "people shouldn't be allowed to say things that aren't true about other people."

"Oh, I agree," Mac said, "but it's not always a case of whether it's true or not. It's often a matter of whether or not it hurts someone's feelings, especially on college campuses. Why should people be allowed free speech to hurt the feelings of minorities or women, for example? We should make clear once and for all the things we're allowed to have free speech about, and what speech should be regulated. Luckily, many colleges are taking care of that problem already.

"Which of course leads to that great law which I predict may one day become the cornerstone of America's legacy to civilization: Election finance reform. Why should anyone be able to have more free speech, just because they have money, than someone who's poor? It's only fitting that there should be government limits on how much money I can contribute to a candidate to get my message out."

"I'm in agreement with that," Nelson said.

"But you know, contributions to candidates isn't only in the form of

cash, cars, and office space, and I'm sure future politicians will realize that there's no reason why Garry Trudeau—you know, the guy who draws *Doonsbury*—Rush Limbaugh, George Will, Alexander Cockburn, and others have more free speech to back their candidates and causes than the rest of us. There should be limits on what commentators are able to say."

"Huh?" Nelson grunted.

"Those guys and their ilk are able to say more, to bigger audiences, than you or I. And what they say is worth bundles of dough. It's 'free' to the candidates and causes they support, but it's tantamount to a huge financial contribution you and I can't afford to make. If we're trying to limit the message cash contributors can have, we should be able to limit contributions that appear to be free, but actually are worth tens of thousands of dollars."

"But that would interfere with freedom of the press," Nelson protested.

"People are hiding behind freedom of the press in the Bill of Rights. If the Founding Fathers had had even one farsighted man among them, they might have realized that there should be controls to ensure no ideas get more free press than any other. This could be achieved by the licensing of newspapers..."

"No," Nelson said.

"...the same way they license television and radio stations," Mac continued. "That way, we would be guaranteed of the benefits of a fair press and addressing community concerns. TV and radio stations can lose their licenses for annoying the public because saying the right things is what freedom means, anyway. And the government and college administrations will tell us what the right things are."

"No," Nelson said. "We can't have politicians, bureaucrats, and college professors determining what we can say, and we can't have licensing of the press."

"Besides," Mac said, "if we don't have some kind of reforms, it could

someday cause problems for the approved political parties."

Approved parties

Nelson looked at Mac in disbelief. "Approved political parties? We don't have *approved* political parties."

"Sure we do."

"Who are they?"

"The Democrats and Republicans."

"What do you mean they're the 'approved political parties?' Anyone can form a political party."

"But the Democrats and Republicans are the ones that get financial support from the government."

"What financial support?"

"For one thing, matching funds in presidential elections. You can only get matching funds from the government if you get a certain minimum number of votes. But no one gets those votes unless they're on the ballot and you can't get on the ballot unless the government approves you and no one is going to know who you are so you can get enough votes to be on the ballot unless you've got the money to advertise. So those matching funds are really subsidies for the two big parties who are automatically placed on the ballot. The only party other than the Democrats and Republicans that qualifies for those funds won't take them. That's those crazy Libertarians."

"Who are they?"

"They're the guys who want the Constitution strictly interpreted the way it was written. They're nothing but troublemakers. They oppose modern interpretations of the Constitution. Don't vote for them."

"And, by the way, the government has already decided that the Democrats and Republicans are the only ones who can benefit from the Fairness Doctrine. Anarchy could reign without the Fairness Doctrine."

"What's the Fairness Doctrine?" I asked.

"It says that a presidential candidate can't be denied radio or television time just because he hasn't got the money to buy it. But thankfully it only applies if you're a government approved political party. If you're a small party, or even just a little known candidate in the Democratic or Republican parties, fairness doesn't apply to you."

"Then it isn't fair," Nelson said.

"Now, neither the government financing of political parties nor the Fairness Doctrine were the creation of our shortsighted Founding Fathers," Mac said. "It is the creation of our more enlightened modern government."

"Is it even constitutional?" I asked.

"Not really. And that's the problem. It's the reason the Constitution needs reinterpretation. Thankfully we have politicians and bureaucrats taking care of the problem."

"But we've got to stay within the bounds of the Constitution," Nelson said.

"Can you imagine what a mess this country would be in if, instead of reinterpreting the Constitution, the government had to submit proposals to change it to the people and the states every time they wanted to do something the Founding Fathers didn't like?"

"That's bypassing the amendment process," Nelson said. "I know you're real happy with this reinterpretation crap, but the more I hear you talk about shortcomings in the Constitution, the more I like it as it is."

"Nelson, you've just got to realize we need more flexibility in the Constitution so we can deal with modern society's problems. You know, the Europeans, having older and wiser civilizations than ours, have often led the way with wise laws. For example, the Germans, to this day, only allow approved religions, and for years the Rumanian practiced the licensing of typewriters and mimeograph machines."

"I don't care what the Germans and the Rumanians do; I'm not ready to give up freedom of the press, speech, or religion," Nelson said.

"And computers!" Mac said as if suddenly inspired.

"What about computers?" Nelson asked.

"They should be registered too."

"Are you crazy? Why?"

"To keep track of troublemakers."

"But computers aren't a problem," Nelson said.

"Of course they're a problem. Look at the potential trouble they can cause. Even Clinton's pointed out that it may be possible for computer hackers to bring down the world's economy. So we've got to get the government to control the internet. And what's wrong with registering computers while we're at it?"

"Computers are part of our right to communicate."

"You can still do that if they're registered...and maybe licensed. The only people who would be bothered by it would be troublemakers. It's not going to affect those who behave."

Nelson rolled his eyes, then looked at me.

"If you're not doing anything wrong, what's your complaint?" Mac asked and looked back in the almanac.

Getting rid of the Second Amendment

Mac continued, "Perhaps the most dangerous amendment in the Bill of Rights is the following:

A well regulated militia, being necessary to the security of a free State, the right of the people to keep and bear Arms, shall not be infringed.

"The Founding Fathers must have been out all night drinking when they thought this one up," Mac said. "You see, they wrote this Amendment because they didn't trust government. A little paranoid, wouldn't you say?"

"Well, they'd just overthrown one," Nelson said.

"Don't you trust our government?" Mac asked.

"It's not a question of whether or not I trust it."

"And do you see that word 'keep' in there?" Mac continued. "They actually thought the average person should be able to keep guns in his house. And the word 'bear?' They actually thought we should be able to carry them around. Well, government bodies at all levels have passed laws registering, restricting, and banning guns to make sure less and less of this happens every day. You don't have any problem with the progressive gun laws we have in this country, do you?"

"I don't know. I have a hunting rifle," Nelson said. "I think I should be allowed to keep that."

"Of course. And we should reword that amendment so it reflects the hunting and plinking rights of sportsmen everywhere."

"And I think we should be allowed guns for self-defense in our homes," Nelson said.

"That's a rather lame reason," Mac answered. "That's what we have the police for. You don't keep guns for self-defense, do you?"

"According to the law, and every court decision to date, the police are not legally obligated to protect us," Nelson said.

Mac waved his hand in disdain. "Do you think the police are going to let us down?"

Nelson shook his head and started to get up. "This is crazy. I gotta be going."

But Mac put his hand up and Nelson paused. "Let's see what the Third Amendment says." He shrugged. "No big deal there."

"But get a load of this next one—the Fourth Amendment. It makes me wonder just how subversive the Founding Fathers really were."

Nelson waited like a man waiting to get shot.

Civil forfeiture

"Get this," Mac said. "They claimed:

The right of the people to be secure in their persons, houses, papers, and effects, against unreasonable searches and seizures, shall not be violated, and no Warrants shall issue, but upon probable cause, supported by Oath or affirmation, and particularly describing the place to be searched, and the persons or things to be seized.

"If I've said it once, I've say it a million times: 'If you haven't got something to hide, what do you have to worry about?' I'd be even more suspicious of a person who objected to the government coming into their houses and businesses. I mean, it would mean that they were hiding something."

"No it wouldn't. I don't want people just walking into my house," Nelson said.

"It's not just people; it's government people...and you'd get used to it. And only the bad guys would suffer from this. But don't worry, the government's already found ways to ignore this stupid amendment."

"What do you mean?" Nelson asked.

"Well, take the part about seizures. Now the government can take anything from the bad guys by doing something they used to do in England—they arrest property, including money, if they think there's a possibility you could be guilty of a crime. It's called civil forfeiture and it's become a perfect way around the Fourth Amendment. This way, there's no hearings, no warrants, and no court appearances because they're arresting property, and property doesn't have rights."

"How do they determine if you're guilty of a crime?" Nelson asked.

"Well, say you have too much money on you, you might be a drug dealer—especially if you fit one of

their profiles such as being too young to have much money or being black.”

“But how much is too much money?” Nelson asked.

Mac shrugged. “Whatever the cop who stops you thinks is too much.”

“I don’t believe this happens in this country,” Nelson said and looked at me.

“It does,” I said. “Has been ever since Reagan’s first administration with the passage of the Comprehensive Crime Control Act in 1984.”

“But it doesn’t make sense. How do we know if someone’s guilty so they can take the property?”

“They’re not saying you’re guilty. They’re saying your property or your money is guilty. They’re not arresting you, they’re arresting your property or your money. It’s that simple.”

“It sounds like Alice in Wonderland, and it’s not the way things should be,” Nelson said.

“Why not?”

“The police could come into your house anytime they wanted and take your property if they wanted.”

“But if you have nothing to hide, what’s the problem?”

“It seems like everything you’re saying is a recipe for tyranny,” Nelson said.

“But this makes it harder for people to hide behind their rights,” Mac said.

Nelson looked at me, then back at Mac. “I think you’re crazy.”

“Get a load of this next one,” Mac said. “It’s the Fifth Amendment.

No person shall be held to answer for a capital, or otherwise infamous crime, unless on a presentment or indictment of a Grand Jury, except in cases arising in the land or naval forces, or in the Militia, when in actual service in time of War or public danger; nor shall any person be subject for the same offence to be twice put in jeopardy of life or limb; nor shall be compelled

in any criminal case to be a witness against himself, nor be deprived of life, liberty, or property, without due process of law; nor shall private property be taken for public use, without just compensation.

“One of the first things you’ve got to realize is that the Bill of Rights were intended as a limit on government. This was one of the mistakes our Founding Fathers made. But luckily what the government has managed to do, in our interest of course, is to turn that around and make it so that if a right isn’t mentioned in any of the Amendments, then we don’t have it. This has been done by being very quiet about the Ninth Amendment. Shh.”

“Were those guys nuts when they came up with this one? Take just the private property issue. Private property may have been a good idea once, but now it’s an outmoded concept. Clinton’s former Secretary of Labor, Robert Reich, even said so on television a few years ago. I’m just glad that a guy that high up in government finally said so. And to save us the trouble of taking a vote or holding a Constitutional Convention or having to amend the Constitution to change this, folks in Clinton’s administration and at the Environmental Protection Agency have wisely pointed out that environmental and collective rights are more important than these outmoded old individual rights we’re supposed to have.”

“You’re wrong,” Nelson said. We need these rights.

“No, you’re wrong,” Mac said. “At this point we need to change the Constitution at all costs to deal with modern problems. Another good thing is that by ignoring this Amendment and the previous one we talked about, we can save police departments from going broke. Otherwise, crime will run rampant.”

“How can police departments go broke if we keep our rights?” Nelson asked.

“All that money from those property seizures is used by law enforcement. There are currently more than 250,000 civil forfeitures or property seizures every year. That’s 5,000 a week. In the beginning, the funds from seized property were intended to supplement police budgets so they could better fight crime. But you know how things work in the real world. There’s never enough money to go around, so as soon as police departments started getting money from civil forfeiture, other agencies asked why the police were getting all that extra money when things like libraries, fire departments, public works, and bureaucratic and politicians’ salaries are running on tight budgets? So, our wise politicians started cutting police budgets by the same amount of money they figured the police could earn from civil forfeitures. Those cops had an endless supply of money, the politicians reasoned, so they gave much of the tax funds to other government agencies.”

“But a lot of that money seized is probably used to fight the criminals that had it,” Nelson said.

Mac looked at the ceiling. “No, actually 80% of those who have their property seized are never charged with any crime. They’re never declared criminals, so the money isn’t wasted on them.”

“Then how do they know the person was guilty of anything and should have had their money or property seized?” Nelson asked.

“I told you, it’s not whether the person is guilty, it’s the property that’s guilty.”

“This is crazy.”

“But it doesn’t allow anyone to hide behind the Bill of Rights,” Mac said.

“Do you believe what he’s saying is true?” Nelson asked me.

I nodded.

“I’d want some proof,” he said.

I opened the file draw on my desk and took out a folder. “Here are a couple of examples from some articles I once wrote,” I said. “In the first a man had his luxury boat seized when the Coast Guard found the remains of a marijuana joint on the deck. When the man pointed out that it must have belonged to one of the men he hired to crew for him, the Coast Guard told him it didn’t matter, that it was his boat and he is responsible for what happens onboard.

“Well, that makes sense,” Nelson said.

“The man’s lawyer pointed out that when drugs are found on a cruise ship, the Coast Guard won’t seize the ship, but the government’s lawyers didn’t think that mattered.

“And when a man borrowed his ex-wife’s car and picked up a hooker and took her to motel, they seized the ex-wife’s vehicle because her ex-husband was breaking the law with it. Just because she didn’t know was no defense. But when it was pointed out that by the same logic they should also have seized that particular national motel chain, they were also ignored.

“You can wind up doing time just for resisting a wrongful seizure, and people have been shot and killed by police who were trying to wrongfully seize their property.”

“I don’t believe that,” Nelson said.

“That’s exactly what happened to Donald Scott in Santa Monica, California. He had no reason to think it was cops who were breaking into his house and scaring the wits out of his wife so when they busted down his door to seize his property—because they’d gotten a tip that he was growing marijuana on his estate—and they came rushing in in their black suits, his wife started screaming and he

came rushing out of his bedroom, supposedly to protect himself and his wife, and they blew him away. In the end they never found drugs on his estate.”

“A little mistake,” Mac said. “But the government was not held liable for Scott’s death. Agents of the government are seldom held accountable, so they’re never discouraged from trying more modern methods of getting around that damned Bill of Rights. Just keep in mind that if we stop these property seizures, we may lose police protection.”

“This isn’t police protection,” Nelson said. “It’s the foundation for a police state.”

“I think you’re overreacting,” Mac said, “Let’s see what else there is,” and he continued to read from the almanac.

Unlisted rights

“Hmm,” he said as he scanned the rest of the page. “We can skip this one and that one.” But get a load of this, it’s the Ninth Amendment:

The enumeration in the Constitution, of certain rights, shall not be construed to deny or disparage others retained by the people.

“They must have had more than just milk in their tea when they thought this one up. Do you know what they’re saying? That there are other rights, not mentioned here. It implies that because homosexuality isn’t prohibited by the Constitution, it’s a right. Because drugs aren’t prohibited by the Constitution, people can do them. Because privacy isn’t mentioned, people have a right to it. Because travel is not restricted in the Constitution, people can travel, whether in a horse and buggy or in an automobile, without needing a government license such as those issued by your local DMV. Holy cow, how are we going to make things illegal?”

“Why do you want to make everything illegal?” Nelson asked.

“One of the first things you’ve got to realize is that the Bill of Rights were intended as a limit on government. This was one of the mistakes our Founding Fathers made. But luckily what the government has managed to do, in our interest of course, is to turn that around and make it so that if a right isn’t mentioned in any of the Amendments, then we don’t have it. This has been done by being very quiet about the Ninth Amendment. Shh.”

Nelson looked horrified now.

“You have no idea how dangerous this amendment is and you should be thankful that our leaders have been wise enough to ignore it when enacting laws. Whew.”

Nelson got up and was pacing the floor. “You know, Mac, I’ve heard Dave talk about you and I thought I’d respect you, but what you want in this country is a government that can do anything it wants to do and a Constitution that doesn’t mean anything.”

Mac acted as if he wasn’t listening as he read the book. “Hey, get this one,” he blurted out. “The Tenth Amendment says:

The powers not delegated to the United States by the Constitution, nor prohibited by it to the States, are reserved to the States respectively, or to the people.

“If the guys in Washington observed this amendment, the federal government, as we know it, would have to shut down. It’s more proof that the Constitution is inadequate. I mean, it would be absurd to think that all the things the government should be allowed to do could be contained in one document.

“Do you have an automobile owners manual in your car?” Mac asked.

“What’s my owners’ manual got to do with what we’re talking about?”

“I’m just asking a question.”

"Of course I do."

"How long is it?"

Nelson was looking at him again as if Mac was crazy. "I don't know, 200 pages?"

"200 pages," Mac said. "200 pages just to run one stinking car. Do you realize that this copy of the Constitution with all of its Amendments is only eight pages long? If it takes 200 pages to show you how to run your car, how can you run something as complicated as the United States of America with just eight pages of instructions?"

Horse and buggy days

"You want to throw the whole Constitution out," Nelson yelled.

"No I don't," Mac said calmly. "I just want us to handle it differently. I'm just trying to find a way to use this inefficient, outmoded, and at times dangerous document? Should we repeal it? No, that'll stir up too much trouble. There are some people in this country who are as deluded as our Founding Fathers and think we should keep it intact."

"I'm one of them," Nelson growled.

"Well, we can still keep it," Mac said. "But to keep people from hiding behind it and to keep the government running smoothly, I suggest we continue to do what we're doing now."

"What's that?"

"Ignore it. Just pretend it doesn't exist and, when pressed, just point out that the document is ancient, outmoded, or even dangerous. Even our greatest President, Franklin Roosevelt, called it a document that was only suitable for the horse and buggy days. For both national security and public and personal safety, there should be exceptions to any clause or Amendment that's holding us back. We have experts at the national, state, and local levels who are making progress in this direction. I think they took a tip from basketball."

"What's basketball got to do with this?"

"Well, the National Basketball Association has shown that ignoring its own rules can be beneficial."

"What do you mean?"

"You used to get called for traveling if you took too many steps. But the game was too boring. So, what did they do? If you don't know, watch today's stars when they go to the basket. Travelling? They look as though they should be carrying luggage and a train ticket.

"And palming the ball? Well, technically it's illegal, but most of these guys coming down court look like they learned to dribble from Lester Hayes."

"Who's Lester Hayes?"

"Remember Hayes of the Oakland Raiders. He had so much stick 'um on his hands I used to wonder how they got the ball away from him after he touched it. One day, they're going realize even the pretension of dribbling is a waste of time and they're going to give it up completely. And the beauty is, the NBA didn't even go through the trouble of changing even one rule to change the game, they just ignored the ones that are there; look how much better basketball is for it."

Nelson looked at me again. "I'm telling you, John, this guy's crazy."

Mac continued, "Nelson, if you don't want people hiding behind the Constitution, I suggest you write to your Congressman. Let him or her know what we need."

"Mac, you're not listening to me, are you?" Nelson said. "You're crazy."

"Let them know what we deserve," Mac said as he closed the almanac. "Let them know we want to be kept safe. Let them know we can't run a government with a document that's over two centuries old. Tell them terrorists, criminals, religious nuts, political wackos, and a host of others hide behind it. Tell them they should choose our rights as they go along, and when some group tells them our so-called rights are in the way of environmental policies, or the war on

drugs, or police procedures, they need to adjust them.

Mac stood up and put the book back on the shelf.

"You know, your friend is crazy," Nelson said to me.

"I know," I said.

Mac headed for the door.

"Where are you going?" I asked.

"Fishing," he said as he picked up his fishing rod near the bookcase and went out the door, and we could hear his footfalls as he went down the stairs.

Nelson stared at the door and didn't say anything for a long time.

Finally he said, "I'm not sure whether I like that guy or not."

"You know he was just kidding, don't you?"

He didn't say anything for awhile.

"He was pulling your leg," I said. "Not about what the government's doing, but that he thinks it's a good idea."

"You mean, he doesn't think the government should be able to get away with that kind of stuff?"

"He must have already been awake when you said you don't read the magazine. If you did, you'd already know that Mac's a strict constitutionalist."

"He is?"

"That's right."

There was a long pause. "You know, I actually figured that."

"I knew you'd see through him."

Nelson nodded.

"He probably heard the part about you and your friends being willing to play poker with him for a lot of money. You should invite him."

There was a heavy silence in the room after I said that.

"He was just kidding about all that stuff he said, huh?"

"Yes."

"I don't think I'd want to play poker with him."

"That's probably a good idea," I said, and I went back to work on my column. Δ

Here's how to make the hay business pay off

By Emory Warner

Making a living in the country is hard work. I see many good ideas presented in *BHM*—everything from telecommuting to handyman's services, and I would like to present another alternative: making hay. While no ticket to riches, (what is?) hay can give you a lump sum just prior to the fall and winter spending season.

Like any other business, nothing happens until something is sold. Before starting, survey your local area for a market. Direct sales to hay users will net the most profit, but are the most difficult sales to make. Auctions are an excellent place to sell your hay, the drawback being that you are at the mercy of supply and demand. I suggest that you talk, in person, to boarding stable operators, horse and beef farms, and one or two dairy operators to get a feel for the local market. I have found that the same hay will bring \$2.50 to \$3 a bale in one end of the county, and \$1.25 at the other end. I have had poor success with those who advertise themselves as hay buyers. They either beat you way down on the price, or just plain don't pay. If you make good hay, the word will get out. Every rural community has a gathering place where everyone tends to congregate, and good quality hay producers will find themselves a frequent topic of discussion.

Getting started is not as difficult as it appears. Three things are necessary:

- Equipment
- Sufficient grass
- Storage

Equipment is not as costly as it appears, fields can be

cut on a shares basis, and storage can be made up with discarded pallets and poly tarps. You can get started for about \$5,000, less if you are willing to buy equipment in need of repair.

The major expense in equipment will be the tractor itself. You can easily upgrade equipment later if you have an adequate tractor. You'll need at least 35 horsepower, and 50 would be better to operate a baler and wagon. A low clearance, live Power Takeoff (PTO), and good brakes are essential. Diesel power is well worth the added expense, as you will quickly realize savings in reduced operating costs compared to gasoline. Expect to pay at least \$3,000 for a useable tractor. If



40 HP Deutz tractor and John Deere side-delivery rake

you're homesteading, you probably already have a tractor. If too small, trade in the little one for a bigger one.

Mowers are next in expense. If you can find one in good shape, buy a mower-conditioner or "haybine." Haybines run the cut grass through rollers much like the wringer on an old-fashioned washing machine, which cracks the hard stems, making the hay better due to its softer texture

as well as helping the hay to dry more quickly and uniformly. Second and third cutting hay is much less "stalky" and can just as easily be mowed with a sickle bar. If you find a "hay conditioner," then a sickle bar mower alone will suffice. The conditioner is run over the first cutting hay, crimping it, and is not really needed for subsequent cuttings. Mowers run the range from "free for the hauling" to well over \$1,000. Haybines can usually be found for \$1,000 to



This is what we did with the rain-spoiled hay. It makes an excellent mulch, and it will be plowed under in the spring.

\$1,500. Hay conditioners run from “haul it away” to \$1,000. Hayrakes run about \$500 to \$1,000. Find one in decent shape and pay the money; you’ll save very little trying to repair a clunker. Side-delivery rakes have changed very little in the last 50 years, and they hold their value as a result.

Balers can be found at surprisingly low cost. Most commercial operators make hay into large round or 3’x3’x8’ rectangular bales, so that the hay is handled efficiently by a front-end loader with a long spike. The older small square balers that make 18”x18”x40” bales are available anywhere for \$600 or so with a drop chute, or \$1,200 for a baler with a kicker.

Hay wagons are not optional. Chute balers can drop bales on the ground to be picked up later, but this is a waste of time. Towing a wagon behind the baler to catch bales is a far more efficient method. If you have a chute baler, you’ll need someone on the wagon to stack bales as they come off the chute. A kicker baler will launch bales overhead and into the wagon mechanically, making baling a one-man operation. Flat wagons suitable for a chute job can be had for as little as \$200. Rack wagons for a kicker will start at about \$600. You’ll have to look around a bit to get a good deal, and you’ll need more than one.

Finding grass to make hay from is not too difficult. Obviously, start with your own land. Cutting other people’s land is how most of us do it, and will fall into several categories. Absentee landowners, retirees’, and city refugees on acreages frequently will give away whatever hay you make in return for mowing fields for which they have no use. Other homesteaders will usually accept half the hay made as rent. I pay my landowners 40% of my profit, with the understanding that any improvements will come out of my pocket. I don’t like a 50/50 split of profits and expenses: profits are easy to expend, and expenses can sometimes be hard to collect, especially if

you’re dealing with an absentee landowner who sees no need for fertilizer, etc. Start out small, care for the land like it’s yours, and you’ll soon have landowners seeking you out.

Don’t overlook storage of finished hay. I made this mistake and lost 80% of my first cutting. The best place to store hay is in your own barn if you have one. If not, finding a rental may be difficult. If you are lucky, one of your absentee or retired landowners will have a suitable building to rent



Tractor, baler, and borrowed wagon. As you can see, it makes a long rig.

for 10-cents a bale. Otherwise you’ll have to stack your hay on pallets and cover it. This will work if you do it right. Make certain that there is room for air to circulate. Stack the bales in a pyramid shape, and use a large enough tarp to cover the hay right down to the pallets. Tie it down securely and use something to keep the tarps from lying on the top row of bales. Condensation will collect on the inside of the tarp and drip into the hay and ruin it.

I made a flat-topped stack, used poly to cover it, and didn’t tie it down well enough. A gusty thunderstorm blew through and tore holes in the plastic that didn’t blow away outright. Wet bales rapidly become moldy and are unfit for animal feed.

The only “secret” to making good hay is to dry it thoroughly after cutting and keep it dry. Hay that is rained on in the windrow will bleach out and lose much of its feed value. Hay baled too quickly will heat up, get moldy,

and may even catch fire. Conditioned hay will cure in two days of sunshine; mowed hay will take three. Once the mowed hay is cured, rake it into windrows and bale it. Experience will quickly teach you how large a windrow to make for maximum efficiency of the baler. Good hay will have a green color and a sweet smell. Moldy hay will be dusty and smell musty. Avoid breathing the dust from moldy hay; it is a haven of mold

spores and bacteria and will make you ill.

Your initial survey will aid you greatly in marketing your product. If you concentrate on making quality hay, attempt to capture some of the horse feed market. If you have a horse racing track nearby, start there. Take several sample bales, phone ahead for an appointment, and good luck. While you’re out, locate any boarding stables, rental stables, etc. and try your luck. Bulletin boards in tack shops and feed dealers may help. I’ve gotten referrals from the local sawmill and from people picking up sawdust for bedding. Don’t overlook local freebie want ads, as well as the local classifieds. Farming oriented newsletters or newspapers are excellent sources. The fastest way to sell your hay is at auction. Most farmers’ markets and rural produce auctions also auction hay on a regular basis.

Of the above, the horse folks are the best market. Once you've won a customer, they will stay with you. A local boarding stable bought 300 bales from me this year, and ordered 1,000 bales in advance for next year to be delivered straight off the wagon.

Pricing your product will vary from year to year, according to supply. Mixed grass seems to sell the best and usually runs \$1.25 to \$1.50 a bale in this area. We've had a very dry year, and the same hay is selling for up to \$2 a bale and may go higher. Delivery fees work out to about 50 cents a bale. Poor quality hay can be sold as steer feed. The junk hay can be sold as bedding, straw mulch, or composted. We used some for mulch in the vegetable garden, sold some to the mushroom growers, and composted the rest.

Don't overlook "custom" work, making other people's hay for a fee. Some homesteaders grow their own hay for home use and the quantity is insufficient to justify buying their own equipment. This is easier money in that you don't have to sell a product, because you're selling a service. The going rate for this is 50 cents a bale, and the landowner stacks his own.

My first year in the hay business was a real education. I was very fortunate to get hooked up with a custom operator who works in round bales which is a complement to my square bales. I made about all of the mistakes you can make, but I still made enough to pay for the equipment.

Borrowing equipment is not the way to go; it seems that everyone makes hay at the same time. Equipment

breakdowns are another fact of life, especially with older equipment. I suggest that you buy equipment based on parts availability, as well as condition and price. A good parts man and a well-stocked local dealer would make a lesser brand machine more attractive, so I hesitate to recommend brands. However, John Deere and New Holland both have an excellent reputation in hay-making equipment and would be as good a place to start as any. Tractors are an entire story in themselves and may be the subject of a future article.

Consider this carefully and well: hay is a lot of hard work in high summer. It is also a good way to make money. Good luck, and I may see you at the auction. Δ

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Build quick and inexpensive slabwood outbuildings

By Rev. J. D. Hooker

In most parts of the country the outer slabs removed from logs, as they are processed into lumber at sawmills, are relegated to use as firewood. This is a shameful waste because these slabs were once commonly used for building material, especially by folks dwelling in the Adirondacks and northern parts of the Appalachians.

Whether sawing up spruce and white pine for regular construction grade lumber or hardwoods for flooring and shipping pallets, the leftover outer portions of each log represent some pretty good building materials that can usually be had at truly modest prices—and often they're free just for the hauling away.

Many of the slab-sided and slab-roofed hunting shacks and cabins built in parts of Pennsylvania and New York State started out as nothing more than temporary, but comfortable, hunting shelters 100 years ago, but they are still standing today, evidence not only of how such material was once used but how durable it is.

Over the past 10 years or so, slabwood has become much more popular for use in fashioning poultry houses, horse shelters, and other outbuildings here in our part of Indiana. I can't say for certain that the rise in the use of this sort of "lumber" actually started after so many folks saw the slabwood roof I put on one of our own outbuildings around that time, or if it's because, by coincidence, a lot of other folks started looking at this kind of wood the same way I did.

At any rate, the roof of one of my outbuildings, shown in photo, is about



An outbuilding with a slabwood roof

11 years old now and has yet to leak. In fact, the bark that was still clinging to several of the pieces of the slabwood I used still hasn't loosened up enough to fall off.

Like many of our other outbuildings, the walls of this one were fashioned from worn out basement and crawl-space forms, left over from my years as a contractor. If I remember correctly, that's a 100-square-foot roof and my actual cost was exactly \$2—for nails.

Framing and siding

Most of the buildings I've seen or helped put up that used sawmill slabs as a major building material have been simple pole-building type construction using posts of one sort or another, such as treated wood, used telephone or light poles, railroad ties, or

naturally rot-resistant woods like catalpa and cedar. These are set into the ground at the corners (Figure 1).

Larger buildings are built using the same types of posts, set in the same way, at about 8 or 10-foot intervals around the building's perimeter.

Next, heavier slabs (at least two-inches thick) are nailed around the bottom of these posts along the outside and approximately two inches above the ground. About six or eight feet higher—or whatever height you desire—similar heavy sawmill slabs are again nailed around the outside. Keeping these upper slabs perfectly level lets you know where to saw off the supporting posts.

The ridge beam rafters, and any other necessary roof framing members, are also fashioned of slabwood that's at least 1½-inches thick.

With the framing completed, the next step is to cut a whole stack of slabs to the required length, which is then applied in a manner pretty similar to installing board and batten siding (Figure 2), covering all the exterior

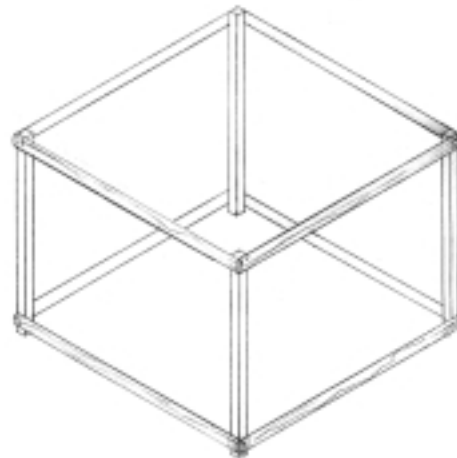


Figure 1



Figure 2

walls, but leaving the openings you'll require for doors and windows of course.

Doors

Simple crossbuck type doors are readily fashioned from wooden slabs as well. To do so, you'll only need to rip-saw several slabs so that both edges are straight and square. If you don't have a table-saw, a skill saw works well enough for this. Then just nail the door together as illustrated (Figure 3). Thinner, narrow slabs can be nailed over any minor gaps, on the side opposite your bracing. Of course shutters can be easily put together using the same method.

The next step is to nail several slabs atop the rafters, installing them just like the old style spaced sheathing. It works best to attach these spaced pieces of slabwood 10-inches on center (Figure 4).

After installing the sheathing, a chain saw, circular saw, or occasionally a tractor-powered cut-off saw is used to cut a large quantity of sawmill slabs to length. For roofing over a building which might be heated, a length of 48 inches is usually required while for unheated buildings three feet works just fine. You'll need to saw up

enough of your thinnest pieces of slab-wood for use as starter shingles at the bottom edges of your roof (Figure 4).

Anyone who has ever installed a cedar shake roof already knows how to go about nailing these pieces of sawed off slabwood in place. Simply remember to install them with a 20-inch exposure to the weather.

Those of you unfamiliar with installing cedar shake roofing

need not be intimidated by the task. Start by nailing in place your thinnest pieces of slab-wood shakes at the bottom edge of your roof. Leave about a 1/4-inch gap between the sides of each piece (just guessing close to 1/4-inch is plenty good enough) while allowing the bottom edges to overhang the roof edge by about two inches.

Next, apply a second layer of this wooden roofing in exactly the same manner right on top of your first layer. Make certain that none of the gaps in this layer end up over top of the gaps in your original row.

After that your next step is simply to measure up 20 inches from the bottom edge of this first row of slabwood shakes and snap a chalk line. Nail in place your next row of roofing, using this chalk line as a guide for the bottom edges. Repeating this step

until you've reached the peak of your roof while making certain that none of the 1/4-inch gaps between your pieces of slabwood line up with the ones directly below them (Figure 5). Don't use more or less than two nails per slabwood shake regardless of its width.

Should you be installing these on a peaked roof, you'll need to saw off that portion of the roofing which ends up extending over the peak. As shown in the illustrations, when installing a peaked roof you'll also need to nail together and install pieces of slab-wood for use as a ridge cap.



Figure 3

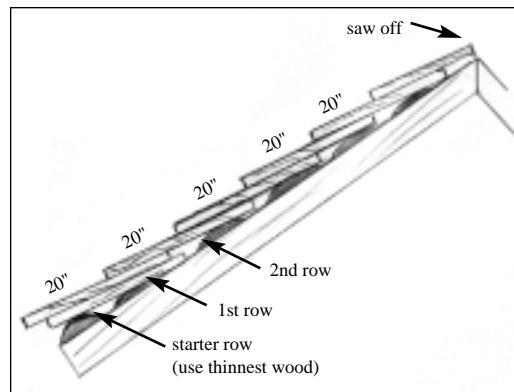


Figure 4

Flooring

Because of the tough clay soil of our area, most folks around here (including me) prefer to use either rammed earth or soil cement as a floor for any livestock

or storage buildings made from slab-wood. Add a few inches of dry sawdust, which is generally available from the same sawmill that your slab-wood came from, then spread some

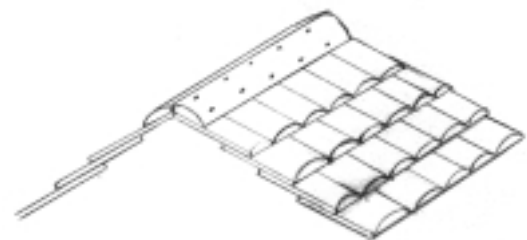


Figure 5

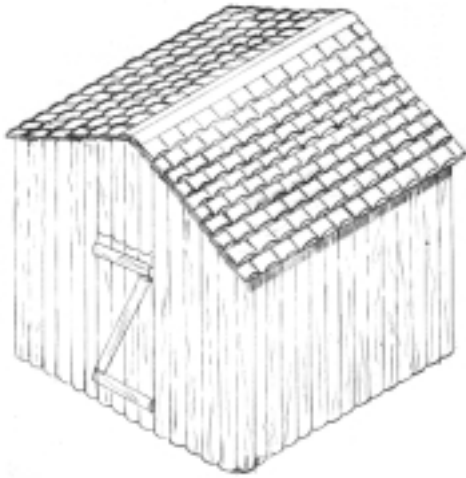


Figure 6

clean straw for bedding atop the sawdust, and your animals will love their new quarters.

Once you've completed the job, you'll have a sturdy, weatherproof, long lasting, and picturesque rustic-type building which is well suited to a wide array of rural uses (Figure 6). The only out-of-pocket expenses you should encounter are for nails, possibly some token payment for the sawmill slabs, and the fuel required to transport this free—or at least very low cost—lumber.

Over the years I've also seen quite a few folks use some real backwoods ingenuity to find other uses for this kind of lumber for wooden fencing, garden benches, workshop shelving, goat and cattle stanchions, mangers, feed troughs, and puncheon flooring. Nearly everything one could possibly craft from standard lumber can be, and often has been, fashioned from sawmill slabs. So why not at least look into putting this nice, ruggedly rustic, high quality, low (or no) cost lumber, along with some of your own ingenuity, to use around your own backwoods home. Δ

Herb scented candles

By Darlene Polachic

Candlemaking has been a popular craft for years, but this method adds a little twist: dried or fresh-chopped herbs for long-lasting fragrance.

Materials needed:

(for two 8-inch x 3-inch candles):

- 2 pounds paraffin or beeswax broken in chunks. (Though beeswax burns better, both paraffin and beeswax take color and fragrance well and may be used singly or mixed in any proportions desired.)

- 2 cups powdered dried herbs or 3 cups fresh herbs, chopped finely. (Petals of richly perfumed flowers can also be used.

Experiment with rosemary, lemon verbena, rose, camomile, lavender and santolina. Or try adding lemon and orange gratings.)

- 2 crayons or 2 sticks of candle colorant, shaved.
- 2 11-inch candle wicks or thick cotton twine.
- 2 8-inch x 3-inch candle molds. (May be quart milk cartons, or various sized tin cans used single or double-decker by removing the bottom from the uppermost can and sealing the seam with heat resistant tape.)

Procedure:

1. Cover work area with newspaper.
2. Melt wax over double boiler. CAUTION: Never work over direct heat and never leave

unattended. Wax is highly flammable.

3. When wax is melted, remove from heat and stir in coloring and herb material. Allow wax to cool slightly while you prepare the molds.
4. Lightly coat the inside of the mold with petroleum jelly to make removal easier.
5. Wrap one end of wicking around a pencil or stick and balance it across the top of the mold, centering the wick and making sure it extends all the way to the bottom of the mold.

6. When the wax is cooled to the consistency of almost-set jello, pour carefully into molds. After about 45 minutes, poke a small hole with a pencil in the crust near the wick and fill hole with hot wax. If you don't, a deep well will form around the wick as the wax hardens



and shrinks.

7. Allow wax to set thoroughly.
8. Carefully remove candle from mold. Trim edges with a knife and polish the sides with an old piece of pantyhose.
9. Embellish the scented candle if desired. Dried flowers or herbs may be 'glued' on with melted wax. For Christmas giving, surround the candle with a small evergreen wreath or a ring of shiny holly leaves and add a festive bow. Δ

Ayoob on firearms

By Massad Ayoob

National junior handgun championships

Yeah, I know, this issue was supposed to have Part II of the story on the Thompson/Center Contender. The project has been on hold because I've been buried with other responsibilities, one of which is a fabulous story I'd like to share with you now.

Most *Backwoods Home* readers appreciate that one advantage of the rural lifestyle is that you can take your kids out in the back yard to teach them to shoot. Seen by the urban public as an icon of power, the gun is better known to its actual users as a touchstone of responsibility and independence. I've found it a tool of parenting to show my kids that with responsibility comes power, and with power comes responsibility. So have many of you reading this.

The National Junior Handgun Championships of 1998 came into being a year earlier. Richard Davis, inventor of concealable body armor and sponsor of the famous Second Chance Shoot, agreed to host it concurrent with Second Chance '98. John Maxwell, a long-time Second Chance competitor and an ex-cop, was the prime mover. Tom Sheppardson, a professional middle school educator, volunteered also. I rounded out the committee.

The event became a reality the week of June 12-19 in the pastoral village of Central Lake, Michigan, on the southern peninsula. Almost two dozen kids showed up. The format was Second Chance's trademark: shooting heavy bowling pins off steel tables, an enhanced version of shooting tin cans off the back fence. On Tom's advice, we set up two categories: Sub-Junior, with an age range of 13 and down, and

Junior for kids 14-17. This, Tom advised us, was the average age break where growing bones wouldn't be damaged by training regimen of firing with hard-kicking handguns.

The Juniors shot by the same rules as adults: six tables of five pins each, which had to all be blown three feet back off the table before the timers would stop the watches. The aggregate of the best five of the six tables would count. This requires a powerful handgun; most competitors use .45 or 10mm automatics, or Magnum revolvers.

Sub-Juniors got a different "pin-set." Each of their tables had five pins set only a foot from the back. This allowed a lighter recoiling gun, like a 9mm, a .45 with reduced loads, or .38 Special cartridges in revolvers. An adult parent or coach had to be on the line with Sub-Juniors while they shot.

We did not separate the genders. Our collective experience had convinced us that in two-handed fast shooting, the boys' advantage of greater upper body strength and muscular endurance would be equalized by the girls' finer motor skills and better concentration. This was validated by the results. Entries were 4:1 boys over girls, but girls captured two of the six available first place titles.

And the winners were...

Top Junior in the main event was Cody Maxwell, 13. His score was the envy of many adult contestants. Firing a Colt .45 auto with recoil compensator that was built by his dad, Cody was on a roll. A few days later he was destined to collect many medals at the National Junior Air Pistol championship in Atlanta.



Massad Ayoob

Winning Sub-Junior class was Adam Clark, 13. He fired a pistol similar to Cody's, but with light handloads. He exhibited the same coolness and poise as Cody winning the championship. Both of these kids are absolute role models.

Cody Maxwell won the junior light rifle event with Adam Clark winning the Sub-Junior title, and Kristin Britt captured individual Junior shotgun with Adam Clark winning in the Sub-Junior category. In the latter, it should be noted, full size 12-gauge shotguns with buckshot were necessary. It's a tough job for an adult to shoot a gun that powerful with winning speed, and a tougher job still for a kid.

In the parent/child team events, John and Cody Maxwell won the Junior with a time I've seen win guns when posted in the adult two-man team event. They did it with a pair of .45s. My daughter Justine, 13, and I won the national title. At that point she had switched from the HK 9mm she used

for the main event to a Springfield Armory .45 auto with full power loads, and I was shooting a Colt 10mm with Triton ammunition. She used the same Springfield .45 to win the last-day shootoff.

Cody Maxwell won the national Junior championship shooting alone, his father waiting anxiously in the parking lot because he knew his presence on the line would add to the pressure. Adam Clark won the national sub-Junior championship with his dad Randy standing proudly at his shoulder. Different kids react differently to parental presence when they are "in the arena."

Some parents told me their kids bowed out of shooting the match at the last minute for fear of disappointing their dads with a sub-par performance. The pressure of competing in a national event is fierce. Not all the kids who shot the National Championship did as well as they expected. But every one of them left knowing that their having the courage to compete under that kind of pressure had made their parents enormously proud.

Not everyone could be National Champion. I'll tell you this, though. Every one of those kids was a winner.

Let me close by thanking Ruger, Taurus, Wilson Custom, Cylinder & Slide, and Morris Custom for the prize guns they donated. I want to particularly thank the many individual adult shooters who donated prizes for the kids. Special kudos go to John Maxwell, the man who really made it happen.

The Second Annual National Junior Handgun championships will be held under the same rules June 11-17, 1999, in Waterloo, Iowa. The contestant doesn't have to be there the whole time, nor be present at the awards ceremony, to win, and the main event can be shot in a single day. For information write Clare Dixon, 5907 Daisy Drive, Waterloo, IA 50701, or phone him at (319) 345-6307. Δ

The Ninth Year

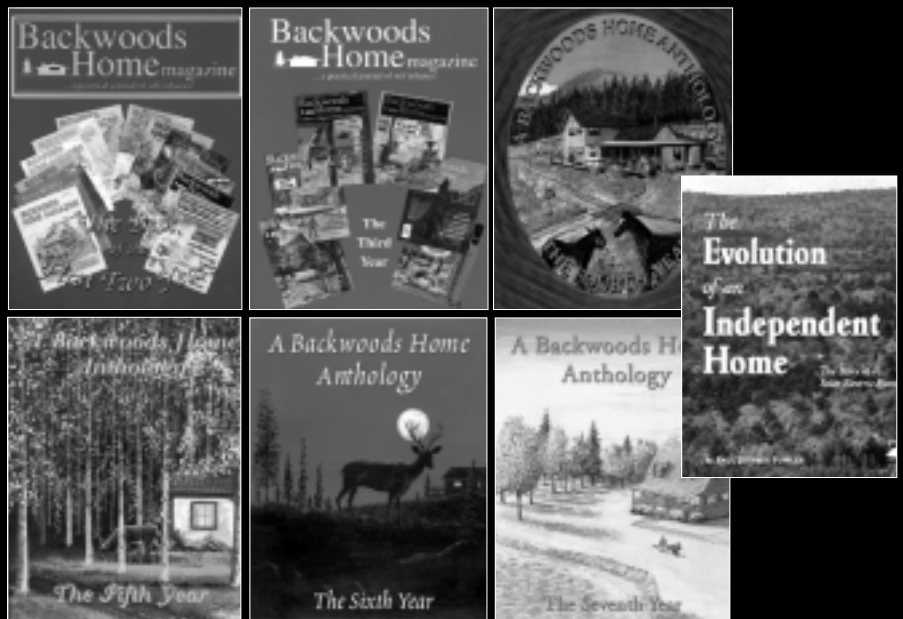
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Quiet your noisy generator with an automobile muffler

By Jon B. Bushey

Having a cabin in a remote area of Utah, I depend upon a generator to provide electricity. I have a solar electric system, but for the high power tools I run the generator. I don't mind filling it with gas, restarting it, or even the maintenance. But the noise drives me crazy.

I have read articles in *BHM* about generator sheds to reduce noise, but I didn't want to go to that much work. Plus my generator needs to be portable as we work about the "ranch."

For a few years, I had tried to find a replacement muffler that would reduce the noise. It seemed to me the stock muffler was intended to reduce sparks—not lessen the noise. I found out later how true that was. I searched the hardware catalogs for mufflers and even ordered a few that looked promising. After trying them, I found that they too did little to quiet the engine. I visited various small engine shops and asked about "quiet mufflers." I was told again and again that the mufflers were all the same—"Just live with it."

Now, it's important to realize that this had become a quest. The more I heard that there's nothing that can be done, the more I thought that there has to be something. I searched more catalogs, called engine dealers, and rummaged part stores. Every time we had to start the generator the noise would grind on me. Not only the pulsing sound waves crushing my eardrums, but the emotional grinding of being helpless.

Determined to try anything, I sought a new fresh approach. I thought, "Okay, if the small engine dealers can't (or won't) come up with a solution, I'll try someplace else." I reasoned that the small mufflers just don't have the capacity (volume, size) to do anything about the noise. What about taking an automotive muffler and somehow hooking it up? As an engineer, I knew there could be dozens of technical challenges, not only in "hooking" the parts together, but getting them to work together effectively. And what about the metal work—I didn't have a machine shop or welder. I had nothing



In this picture, you can see where I threaded an extra nipple into the engine. I used Teflon plumbing tape to seal the threads. The 90-degree elbow is where I will attach the nipple/connector/exhaust-pipe assembly. The muffler then slips over the assembly.

more than hand tools. Was I getting in over my head?

At this point, if someone had told me, like I'm telling you, how simple this is, I never would have believed them. After years of research, design, trials, and errors, the job ended up taking about half an hour. And most of the half hour was running around—maybe 10 minutes of actual work.

There are two secrets that make this a dream-come-true. First, a lot of small engines, like my eight-horse Tecumseh, use NPT to thread the muffler on. Briggs & Stratton uses NPT also, but in 1/2, 3/4, or 1-inch diameter. Mine has 3/4-inch threads. Check your engine, as you will need to know the size. The second secret is that the NPT connectors used to join pipes have a little smaller outside diameter than the inside diameter of an automotive



The finished unit

exhaust pipe. This means that an off-the-shelf piece of pipe, threaded at one end for your engine, will slip inside a car muffler.

Now, to get the pipe and connector to mate your small engine to a car muffler, go to the hardware store and walk down the plumbing aisle. Yes, we are getting engine parts; it's just that normal people use them for plumbing. Find a "nipple" that has the diameter of your engine's muffler. As a rule of thumb, it's a 1/2-inch for 5-horse, 3/4 for 8-horse, and a 1-inch for 10-horse. You will need to get a length that will suit your engine's mounting. I got a 2 1/2-inch. I also got a 90-degree elbow because I wanted the muffler to parallel the generator. It was easier for me to support the muffler that way. You may need additional fittings to get the muffler in a position for mounting.

The final thing we need is a connector/adaptor. Use either one. The result



The before and after connector/adapters

we are looking for is to have one end of the pipe to be a little less than 1 3/4 inches outside diameter.

The smaller of the two shown in the photo above is the result of putting together the nipple and the connector. The other is the result of taking the two parts to a muffler shop. At the

muffler shop, I had them weld a small piece of exhaust pipe onto the outside of the connector. The connector is not visible in the larger set because it is hidden inside the exhaust pipe. While at the muffler shop get a muffler and a muffler clamp. I paid \$30 for the welding, muffler, and clamp. I also got a tail pipe and another clamp because it made it easier for me to mount the muffler.

Make sure to securely mount the muffler. Between the weight and the vibration, the threads cannot support the muffler. And, of course, the muffler will get very hot.

I did some measurements of the sound levels before and after. I just used a simple cassette recorder with a sound meter, so the results are not accurate. However, it wasn't really needed anyway—the difference in sound level is very apparent to the ear.

It turns out there is not much difference between no muffler and having one of the many small engine mufflers attached. The small engine mufflers just don't make any noticeable difference in the sound level. After hooking up the car muffler (and all the plumbing), I went to pull the rope starter and I could hardly believe the difference. It was hard to tell the engine was turning over. After a second or two, the engine powered up to speed and the noise did increase. Keep in mind that a generator runs at 1/2 to 3/4 throttle so there's going to be some noise. While the sound is still noticeable, it's much more peaceful than before. If you're curious about what your generator would sound like, you can use your vehicle as a test. Start your engine and let it idle out of gear. Next, press the accelerator until you reach about 2700 RPM. The sound your engine makes will be about the same as the generator with these modifications. If you don't have a tachometer, accelerate to about four times the hot idle, the same as going down the highway doing 55 mph. Δ

A country moment



Tony Pennucci holds his 16 3/4 pound catfish caught at Copco Lake in northern California as Jason Lemke, age 10, looks on.

Make these inexpensive wood surface clamps

By Dana Martin Batory

No matter what size lumber you have on hand in the workshop it always seems your project requires wider stock. That calls for gluing up several narrow boards and trying to control the buckling encountered with bar and/or pipe clamps. Often I must glue up rough-planed planks into panels 18 to 20 inches wide before feeding them through my antique 24-inch Defiance planer.

I've managed to devise a clamping fixture that, while not completely eliminating the problem, does bring it within acceptable limits. By straddling the boards with one broad face on each side, the clamp exerts equal pressure on both sides of the flat work. Besides this, each clamp cost me less than 50 cents.

General construction

In my case the clamps were constructed from red oak 2x4s salvaged



The salvaged red oak 2x4s and T-nuts

from the pallets and skids on which BAJA Boats of Bucyrus, Ohio, used to receive their inboard motors. A good illustration that any hardwood scrap will work. The T-nuts were also removed from the pallets. The

only real expense was the bolts and washers.

The beauty of the design lies in the fact that the 2x4s can even be warped. In fact, a slight warp seems to help by exerting even more pressure

when the bolts are tightened. The clamps can be as crude or as fancy as you want and still work.

Cutting list/materials:

- (2) Clamp Faces 36" long x 4" wide x 2" tall
- (6) 3/8 x 16 T-Nuts
- (2) 3/8" I.D. Washers
- (2) 3/8 x 16 6" hex head bolts

Instructions:

Square up the lumber and cut to size. Lay out location of holes. First countersink for the T-nut flange in the bottom clamp's underside with a 1-inch spade bit. The hole should be about a 1/4-inch deep.

Use these as guides to drill the inch holes for the bolts. To ensure alignment, both faces should be drilled at the same time by clamping them together. A drill press will ensure better accuracy. If the



Drilling the hole for the bolt shank

drill bit isn't long enough to do both at once, then unclamp and finish drilling.

Tap the T-nuts into place and draw them down using the bolts and top clamp. Disassemble clamps. Sand and varnish the clamps at least three times, sanding between coats, and then wax. This helps keep glue from sticking to them.



Gluing up sycamore boards with the clamps

Use

Apply glue to board edges. Place one clamp face above the work surface and one below. Run the bolts through the holes closest to the board's edges. Draw the bolts down to where the clamp faces are just snug so the boards can move horizontally when the bar or pipe clamps are tightened. Δ

Have some all natural desserts on a stick and be real cool on a hot summer day

By Robert L. Williams

When summer arrives, the ice cream truck can't be far behind. And kids (and adults) all over the land will be consuming vast amounts of ice cream in an endless array of designs. There will be the old-fashioned hand-cranked ice cream, the commercial brands, reduced fat, no fat, sherbet, popsicles, Eskimo pies, Polar Bears, and more other brands than you can count.

And what do nearly all of them have in common? Sugar, for one thing. Just what the family dentist needs! So he can make payments on his place at the shore.

Cholesterol, for another thing. And recent studies show us that even nine and ten-year olds are starting to ingest too much fat, which in turn may be converted into cholesterol.

You want more bad news? Read the medical pages of almost any magazine or newspaper in the country and you will find that today's kids are overweight, developing early signs of heart problems, and in general in less than ideal health.

If you want more bad news, you won't get it here. This article is filled with good news.

The best news is that you can make, in your own kitchen and using the finest of natural ingredients, desserts on a stick that I call fruitsicles or veg-esicles.

What's the good news? For starters, it's that these hot-weather treats are either totally free or nearly free from all fats, cholesterol, and other enemies of good health.

These fruitsicles are also free of sugar, unless you feel the need to add a little. You can also add honey if you prefer.

More good news? These treats don't cost a buck-and-a-half for three bites. They are, in fact, almost free.

Better news? Not only are these goodies nearly free, and not only are they not bad for you, but they are actually very good for you and your kids. You get some of the best nourishment possible and at the same time get great taste.

The bottom line is that your kids will eat their fruit and even their vegetables and come back for more.

It's the truth. Your kids will eat—and love—some of the foods you couldn't otherwise get down their throats with a crowbar and ramrod.

By making these treats (for goodness sake, don't tell the kids these things are good for them!) you can fill your kids' tummies with wonderfully nourishing foods that add vitamins, bulk, and all the other necessities of a good diet.

Start with flavors. You can make these fruitsicles with apples, plums, strawberries, bananas, raspberries,



Neighborhood kids love the fresh-fruit taste and the popsicle format.

grapes, peaches, blackberries, dewberries, blueberries, cherries, watermelon, cantaloupes (incidentally, this is one of the most nourishing foods you can eat), honeydew melons, and tomatoes, among others.

This has to be a joke, right? There is no way you can make a frozen dessert from tomatoes, and even if you could there is no way your kids would eat it.

Try it and see. Odds are that your kids or adult family members will not even know they are eating tomatoes.



The ingredients of the fruitsicles: watermelon, cantaloupe, apples, peaches, plums, and other natural goodies.

Or squash, zucchini, or other vegetables.

Start with the fruits. Take a small amount of cherries, for example, and remove the pits. When you have five or six cups of the cherries, dump them into a blender and puree them. Leave the juice as well as the pureed fruits.

If the cherries are naturally sweet, you can add a hint of vanilla or any other flavors that blend well with cherries. You can also mix finely chopped nuts as well. You can mix in other fruits if you like. If you feel that you must do so, particularly if the cherries are tart, you can add a small amount of artificial sweetener or honey. Use granulated sugar as a last resort.

If you wish to modify the taste slightly, add a tiny amount of non-fat milk. You can also add small amounts of carbonated beverages in diet form (or the regular blend, if you are not counting calories).

How much do you add? Let your own taste buds answer this question. When you have it so that it tastes perfect, you can pour the mixture into paper cups, plastic cups, or any other containers that will not break when the liquid is frozen.

You can buy molds especially made for this sort of thing. They are not expensive, and they come with tops and built-in handles.

If you want to keep it cheap, use the plastic or paper. You can buy ice-cream sticks at many groceries or discount stores, and when you are ready to use them, cut a section of thin cardboard and then make a series of tiny slits in it. The cardboard section should be the same size as the mold, or large enough to cover the plastic or paper cups.

Place the cardboard over the cups and then insert a stick into the slits. Let the stick extend into the liquid desserts. Now the cardboard will hold the sticks in an erect position while the liquid freezes.

When the desserts are frozen solid, remove them from the containers. You

may have to run lukewarm water over the cups in order to free the frozen desserts from the cups. When the cups—with sticks in place—are out, wrap them in Saran paper or similar material and then place them in a bag, and return the bag to the freezer compartment. The desserts will keep as long as you need them to stay in the freezer. Take them out and serve them as needed.

You can use the same cups and sticks over and over, if you wash them after each use.

Use the same process for all fruits and melons. Scoop out or slice pieces of watermelon. Remove the seeds, then hand-squeeze the watermelon into a juicy pulp. Mix as before, adding sugar or honey only if the melon is not sweet. You can use vanilla extract if you wish. Use the same procedure as before. Do the same with other melons, such as cantaloupes or honeydew melons.

If you use grapes, start with seedless varieties if you can obtain them. If you use seeded grapes, put them into a blender and later remove the seeds.

For tomato popsicles, cut up chunks of tomatoes and put these into the blender. Puree, then add vanilla extract and honey or sugar to suit your taste, and make the desserts as before. The sugar or honey will neutralize the acids in the tomatoes, and the result is a frozen treat that has all the nutritional value of the regular tomatoes, but it's no problem getting the kids to eat the frozen veggies on a stick.

Try zucchini or yellow squash. Simply cut into tiny chunks, remove seeds, and puree. Add the flavoring and sugar or honey, if necessary, and freeze and eat.

What I do is choose raw materials out of whatever I have the most of at hand. Occasionally a grocer I know will call and tell me that he has bananas that are at the peak of ripeness. He knows that the bananas will not last more than a day, and he will sell them to me for ten cents a

pound. He does the same with other fruits and melons.

We also grow many of our fruits and berries, and we use the blackberries and wild strawberries and blueberries, all of which make wonderful desserts on a stick. Yellow tomatoes are also very good. Kids all over the country love colorful foods, and to many of them if it looks good, it is good.

Thus far no one has been able to tell the tomato desserts from the fruit and berry treats.

Now, here's the final idea. Some time ago I was at a local supply store and as a sort of joke I took along some of the fruit and tomato popsicles. I offered them, without telling them what it was, to the owner and his workers.

They loved them, and the owner asked if I would make some and let him sell them. He said that he could give me fifty cents for each of the desserts and he would sell them for a nice profit. Soon his customers were clamoring for more of the fruitsicles and the watermelon popsicles.

The only limitations you have are those imposed by your lack of imagination or lack of ingredients. Try some yourself, and then try them on the kids. Who knows? You may open a whole new world. At least, you may improve the health and eating habits of your family. Δ

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Build a simple through-the-wall woodbox that keeps the cold out and the heat in

By Rev. J.D. Hooker

Anyone who supplies even a portion of his winter heating needs using a fireplace or woodstove should take a serious look at adding a simple BTU-preserving, through-the-wall woodbox to their set-up. In probably 99% of all cases this will prove to be a valuable energy conservation measure.

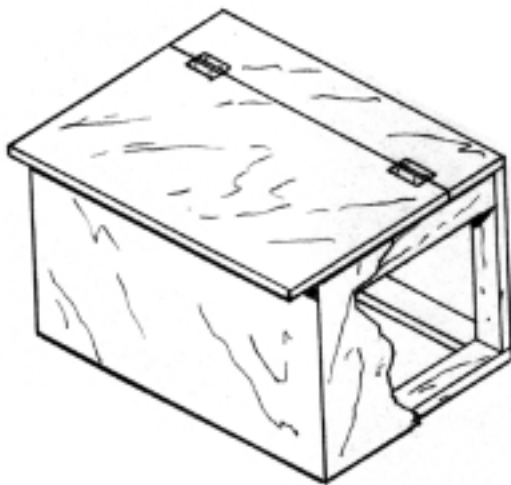
Basically, you wouldn't be doing anything more complicated than cutting a hole through one of the exterior walls of your house, then bracing up the framework and adding a large wooden box with two sets of tight-sealing doors.

As you can see from the illustrations, the outer doors are opened and the box is filled with wood from outside. Later, with the exterior doors tightly closed back up, the inside door (or doors) can be opened as needed to feed more fuel to the flames.

All of this is just as simple as it sounds. However, because individual



The interior doors of our through-the-wall woodbox are located right next to our big fieldstone fireplace, allowing us to fuel the fireplace with ease. The design illustrated below is different from this one.



The hinged lid on this type of interior woodbox can double as a seat.

most instances, though, a box that holds a two-day supply of firewood seems to work out quite well. So, should you opt to use a two-day supply of firewood as your guideline, all you need do is determine how much firewood you'll use on two very cold days, then size your own woodbox accordingly.

Of course, not every reader lives in a standard stud-framed building. Still, it's not difficult to adapt such a through-the-wall woodbox to other types of construction. For instance, though we've been heating our home for years with a really dandy and reliable Jotul woodstove, a few years back my wife mentioned how she's always loved the look of the big old fieldstone fireplaces common in West Virginia's mountain areas and how she'd always dreamed of having one.

Oddly enough, though I'd always felt much the same way, we'd been married for more than 20 years without either of us ever mentioning this.

At any rate, we sat down and went over everything we knew about such fireplaces, as well as what sort of options each of us would like to include in such a heating system. Though we leaned towards simplicity, I included an oversized firebox as well as a separate stove-top height grill for midwinter "cook-outs" into the construction. The point, though, is that I built a through-the-wall woodbox, capable of holding nearly half-a-truckload of hardwood fuel at a time, right into the masonry work.

All of this illustrates that by adapting your own ideas and requirements to fit this very old heat conservation idea, it's possible for you to enjoy the benefits of this unique heat-saving innovation yourself. Δ

situations vary with differences in stove and fireplace efficiencies, as well as vastly varying sizes of the areas requiring heating, I couldn't possibly hope to make any sort of generalization regarding the woodbox's dimensions that are going to satisfy every need. In

Making money is a piece of cake

By Robert L. Williams

What do you do when you are old enough to retire but have too much energy to just sit and watch the trees grow? Or how do you supplement an income when you have just given up a high-paying job in the big city and moved to the backwoods country to watch your life take form?

Harry Truman once commented that if you can't take the heat, get out of the kitchen. What the former President did not say is that if you can take the heat, the kitchen may be the perfect place for you, particularly if you want to earn money by creating works of art.

Some people have found, in fact, that solving the money problem is a piece of cake. Wedding cake, that is. Or birthday cakes. Or cakes for all special occasions, or simply cakes because somebody wants to buy a cake.

The major questions that rise, along with the rising cake batter, are whether you can really make money by doing home baking and where you can go to school to learn how to bake beautiful and profitable cakes.

The answers to these questions are yes, you can make money—quite a bit of it—and to the second question, you need no special kind of training whatever in order to bake great cakes.

Back to the money part of the question for a moment: how much money you can make depends upon several variables. First, how hard do you plan to work? Second, what kinds of cakes will you bake? Third, when will the cakes be needed?

If you bake a super-special wedding cake, a four-tiered creation with all the special effects, you can easily get \$150 or more for each cake. A regular four-tiered cake brings \$115 to \$130,

while a three-tiered cake sells for \$105 to \$115.

If the customer wants a more basic cake, he will expect to pay \$15 to \$20 for a full-size three-layer coconut cake. A huge devil's food cake sells for \$15, and an un-iced pound cake brings \$12 to \$15, while an iced cake sells for \$13 to \$16.

But that's not a large amount of money, considering the time that goes into the process of baking cakes. At least, that may be how it appears on the surface.

But look at reality. Buner Canipe is a retired woman who lives in the South Mountains area of North Carolina. She bakes, on a regular basis, 15 to 20 cakes per week.

Assume that she bakes two huge wedding cakes, three smaller wedding cakes, half a dozen coconut cakes, and eight iced pound cakes. The effort could bring in, if she charges rock-bottom prices, \$735 per week. If she charges in the higher ranges, one week's work could net well over \$1,000 per week.

That is, if she bakes only 19 cakes per week. If she wanted to work harder, or if she managed to schedule the baking on a daily basis over six days a week, she could bake, she says, up to 35 cakes per week.

Think of that. If she—or you—could bake one giant cake for \$150, a four-tiered wedding cake for \$120, a three-tiered wedding cake for \$110, one coconut cake for \$15, one devil's food cake for \$13, a pound cake—un-iced—for \$12, and one iced pound cake for \$13 (and these, as stated earlier, are on the low range as far as prices go), she—or you—could take in an average of about \$62 per cake.

Now, pay careful attention to this. If she—or you—baked 35 cakes per week at the average price of \$62 per

cake, the week's income could be \$2170.

Did that register? \$2170 per week, for working in your own house and at your own pace, as your own boss.

That comes out to \$112,840 per year. Naturally, this isn't all profit. You must buy flour, butter, sugar, baking powder, and all the other ingredients, and you must pay for the gas or electricity used in baking the cakes. But if you buy flour in 50-pound bags and sugar in 10-pound bags, you save money over the regular five-pound bags.

Buner Canipe says that she buys 7 dozen eggs each week, 20 pounds of confectioner's sugar, 8 pounds of butter, and 50 pounds of flour. Even if she spends \$100 weekly on ingredients and if her electricity costs another \$50 weekly—and both figures are too high—she could still earn several hundred dollars clear each week.

But how can you learn to bake great cakes? Buner Canipe never had a lesson of any sort.

"I had been married for several months before I decided to bake my first cake from scratch," she said. "I agonized over every step. The recipe said to beat the batter 300 times, and I didn't have beaters. So I used a spoon and counted three hundred times. I beat the cake and it turned out fine." What about the failure rate?

"I never have one fail," she said modestly, "unless the power goes off or something like that. People ask me what my secret is, and I tell them I find a good recipe and then I follow it exactly. I always go with what works best for me and what my customers seem to like best."

Buner Canipe says that she doesn't want to work all the time, so she bakes only about 800 cakes per year. You can figure out what she could earn, on the basis of the average cost per cake given above.

But if she wanted more orders, she could get them. She turns down orders at an alarming rate simply because she wants time for church and her hus-

band and children. But when she wants to work, she knows how to get it done.

“I have baked eight cakes before lunch a number of times,” she says. “In a full day of work, if that’s all I do, I could bake twice that many. Maybe more.”

Suppose she—or, again, you—baked 16 to 20 cakes in one day. Not wedding cakes but basic pound cakes or coconut cakes, that is. That would amount to about \$250 per day. Even after the cost of ingredients and power are deduced, that’s still around \$200 per day.

Naturally, if you throw in some of the more expensive cakes, the income level rises dramatically. But after you have bought the recipe book and learned how to bake the basic pound cake, carrot cake, devil’s food, and all the other popular types, how do you learn to decorate them?

The simple answer is that most icings require very little expertise. Prepare them according to directions and then spread the finished product over the cake. But wedding cakes require a little more creativity, as do birthday, anniversary, and other celebration cakes.

You can enroll in a community college adult education program and learn to decorate cakes, or you can borrow or buy a good book and follow the simple step-by-step procedures. It is a challenging field, but it isn’t rocket science. You can learn to do it. Look at the people you know who are already doing it and ask if they are that much smarter or more gifted than you are.

One of the real tricks of the trade is not just how to bake and decorate cakes but how to schedule the cakes for the most efficient work program. Many customers want cakes for week-



If you bake a super-special wedding cake, a four-tiered creation with all the special effects, you can easily get \$150. Buner Canipe bakes, on a regular basis, 15 to 20 cakes a week.

end occasions, which means that you cannot bake the cake on Monday and let it grow stale for a full week. You need to complete the cake on Thursday and let the customer pick it up on Friday.

So you need to fill in Monday through Thursday with orders that can be filled and picked up early in the week. So how do you fill in the empty days?

First, birthdays occur every day of the week, so build up a clientele for individual or small celebrations. Keep a file of people who buy birthday cakes and call them the next year before they have ordered their cakes.

Keep a file of anniversary and other special occasion orders and make your yearly contact. Advertise in local papers. Take full advantage of word-of-mouth advertising. Remember that many people don’t need a reason to want a cake. They just like the taste and they don’t want to take the time and trouble to bake one. The housewife or house-husband who spends the day in the office, on the road, or in the mill doesn’t feel like coming home to bake a cake. He or she would rather buy one.

It’s often false economy to do your own baking. If it takes you an hour and costs you \$3 to bake a nice cake

that you can buy for \$12 or so, you may be better off financially to buy the cake and use your hour to earn money or relax.

So you as a baker can take advantage of such thinking. Let people know you bake cakes. Take them to work with you and let your co-workers sample your work.

One great market is church socials or fund-raisers. Many churches, schools, and other social organizations have bake sales to raise money. Cakes are auctioned off. Sell your cakes to the group and let them double

the price at the auction. And always remember the immortal words of Truman’s wife: If you can stand the heat, stay in the kitchen. Δ

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Free pallet wood and birdhouses add up to big country dollars

By Rick Brentlinger

If I could show you how to manufacture a product anywhere in the country and if I offered to find you the raw materials free, would you be interested? If so, here is a business plan that works.

Have you seen those weathered wooden pallets stacked behind grocery stores, piled beside feed stores or next to the dumpster in your local lumber yard? Those pallets, your initiative, and the information that follows could mean money in your pocket for years to come.

Pallets are often available free for the asking. Businesses are glad to get rid of them so they don't have to pay to haul them away. There are two kinds of pallets—reusable and throw away. The reusable pallets are often made of oak, poplar, and occasionally maple. If there is a big stack of them, some stores will give these away free too. But the ones I like best are the throw away pallets made of pine, oak, or poplar wood.

What you do is locate a stack of pallets and ask if you can help the business owner by hauling them off for free. Always get permission before you take pallets. When you have a pickup load, stack them neatly near your workshop and you're ready to begin.

I use a circular saw to dismantle the pallets, cutting the wood off the stringers and stacking it in a dry place.

The 2 x 4 stringers can be cut in half and burned in your woodstove. The wood you've cut off the stringers is where the real money is.

Pallet wood is naturally weathered and looks like old barn siding. I use it



Birdhouses and bird feeders made from wood scavenged for free

to make simple, rustic birdhouses and bird feeders which I then sell at flea markets or wholesale to garden centers around town. I get \$10 to \$20 a piece for these birdhouses. The retailer usually resells them at double my price.

At this point, you're probably thinking, "Yeah, but I'm not a woodworker" or "I don't have any power equipment." The truth is that anyone can learn to make a nice birdhouse in just a few days of experimenting. After all, a birdhouse is a simple structure with seven basic parts—two sides, a front and back, a bottom, and two pieces for the top. And you don't necessarily need power equipment to cut the wood. It can be done with a handsaw

if that's all you have. Once you've made some money selling your hand-made rustic birdhouses, you can think about buying some power equipment to make the work go faster.

I use a circular saw to do the initial cutting and a Delta 12-inch bandsaw for the rest of the work. I can cut up enough pallets in one morning to make 40 or 50 birdhouses or feeders. Once the pallets are cut up and I have the wood stacked in my shop, I can make 4 or 5 birdhouses a day (less than 8 hours). That is a minimum of \$40 a day for pleasant work in the privacy of my own shop, with no boss breathing down my neck.

Once you have a bunch of birdhouses ready to sell, load them on the truck and head for the local gardening center. Carry several of your creations with you and offer them with a smile as you ask, "How many do you need?" Some buyers

will want you to put them in the shop on consignment, something I always refuse to do. I prefer payment up front since I know I have a good product that people want.

Birdhouses and bird feeders sell well at hardware stores, garden centers, larger grocery stores, craft stores, feed stores, and, sometimes, antique stores. The rustic pallet wood bird homes nicely complement antiques.

Some people do not want rustic birdhouses. For them, I make birdhouses or feeders from number one pine and fir, maple, oak, and even mahogany which I also get free. In most areas, there are cabinet shops and wood working shops which throw away scrap wood in the dumpster. You can locate woodworking shops,



Rustic pallet wood bird houses sell well at hardware stores, garden centers, craft and feed stores

cabinet shops, and other sources of free wood by using the Yellow Pages. I stop at these businesses and find the owner or manager. I explain that I putter around making birdhouses and ask permission to go through the dumpster for wood. I have never had anyone say no. They have to pay to have the dumpster emptied. If I carry off some of the wood, I'm saving them money.

Small pieces which the cabinet shop cannot use are perfect for birdhouses. A birdhouse business recycles material that would otherwise clog the landfill. And it provides income for us backwoods types who prefer not to work for someone else. An entrepreneurial type could make this a full-time business. Dumpster wood and pallet wood is also suitable for making shadow boxes, chicken or rabbit nesting boxes and book shelves.

If I want bigger pieces of wood from the pallets for building wood fences and chicken sheds, I use a Milwaukee Sawzall to cut the nails so the pieces of wood are intact. By the way, I bought the Sawzall used, but in like-new condition, at a pawn shop for \$99. It makes short work of pallets and I have larger pieces of wood for bigger projects. I figure it this way: seven birdhouses at \$15 each pays for the Sawzall.

For a few weeks of work gathering and taking apart pallets, you can have enough wood for 100 birdhouses. At

four a day for five weeks, you can have 100 birdhouses ready to sell for \$10 to \$20 each. That is a minimum \$1000 in six weeks or less. Enlist your wife or children and make it a family endeavor. If you are lucky enough to live in a tourist area, birdhouses are impulse buys that create vacation memories for years to come. They can also be sold at your roadside produce stand.

Here are some tips for making a quality birdhouse that will catch a buyer's eyes and make them want your product.

(1) Sand saw cuts so there are no splinters or rough edges. (2) Use a Forstner bit or spade bit to drill your entrance holes. Forstner bits make the cleanest cut. It's easier to drill the entrance hole before you assemble the birdhouse. You can also make a rectangular entrance hole using your bandsaw.

(3) Use paneling nails for assembly since they hold better than finish nails.

(4) When using oak, it's best to pre-drill nail holes since oak is hard to drive nails through.

(5) Cut a piece of roofing tin with tin snips to form a rustic metal roof.

Rust only enhances the antique appearance. Old license tags also work as roofs.

(6) Cut and trim a tree branch in one-inch lengths and nail three pieces to the front porch of your birdhouse to make a woodpile. Takes just a few minutes and customers love it.

(7) You can utilize small pieces of wood by sanding one side lightly and painting a hand-lettered, rustic sign: Coke, Burma Shave, Canoe Rental, Park Ranger, For Wrent For a Song, Don't Feed the Bears, No Crows Allowed, etc. Tack these to the side, front, and back. They're real eye catchers and help sell birdhouses.

(8) Cut up Coke, Pepsi, or beer cans and use the logos as signs. Tack them onto your birdhouses with 1/2-inch brads. The aluminum lasts a long time and looks great. In my area, red Coke signs are the most popular. Metal bottle caps also make a colorful birdhouse decoration. Specialty beer bottle caps are the most colorful.

(9) If you have a resort, bed and breakfast, or other businesses in your area, use their name on a birdhouse sign. They may buy several to display or resell.

(10) Use your imagination and experiment. If you have access to driftwood, utilize that in your birdhouses and feeders.



It's possible to make 4 or 5 birdhouses a day in less than 8 hours.

(11) Exterior house paint, in vibrant pink, red, yellow, green, and blue, gives birdhomes an art deco look. Specially mixed colors that other customers decided not to buy can be purchased for \$3 to \$5 a gallon.

Additional sources of pallets and free wood

1. Motorcycle dealers, (Crating around new bikes) 2. Snowmobile dealers, (Crating around new machines) 3. Major appliance dealers, (Crating) 4. Cabinet shops 5. Tool & die shops 6. Machine shops 7. Lumber yards 8. Paint stores 9. Grocery stores 10. Garden centers 11. Behind shopping centers 12. Brickyards 13. New home sites 14. Custom window & door builders 15. Kitchen countertop makers 16. Electrical supply houses 17. Plumbing supply businesses 18. Manufacturing plants 19. Hardware stores 20. Old barns, sheds, and houses

Easy steps to making a beautiful birdhouse

1) Find and prepare pallet wood as described above. Be sure to make the front and back at the same time.

(2) Choose two same size pieces and draw a 45 degree angle to form the gable.

(3) Nail these two pieces lightly together with a smooth finish nail, leaving enough to pull out the nail after you cut the wood.

(4) Now saw the angle you drew. This forms the A gable for the roof and gives you two pieces cut exactly the same. Remove the nail. (5) Drill an entrance hole in one of the pieces you just cut. Sand any rough edges.

Make the sides:

(6) Find two pieces, approximately the same size and trim them to fit. (7) Using one inch paneling nails, nail the side pieces to the front and back pieces. Pine and poplar usually do not require pre-drilling. If the wood splits or if using hardwoods, pre-drilling is

required, with a 1/16-inch drill bit. (8) Now you have the basic shape of the birdhouse.

Making the bottom:

(9) Choose a piece of pallet wood wide enough to extend to the outer edge of your side pieces. If you do not have a piece that wide, make one by nailing two pieces together. Lay them side by side and connect them with one-inch wood straps. Drive the nails clear through and then bend them over or snip them off.

(10) Nail the bottom to the sides, again pre-drilling if necessary. We should note here that if you want your birdhouse to have a front porch, you can make the bottom piece two or three inches longer than the birdhouse. This gives the birds a place to perch outside the nest.

(11) Before roofing the birdhouse, nail a bottle cap or aluminum can sign to the front. It's easier to do now, while the roof is off. If you want to add a small woodpile, now is the time. Three pieces, two nailed to the porch floor and one nailed on top of the two, makes a nice looking woodpile.

Making the roof

(12) The roof should be as long as the bottom piece, so your bird porch has a roof, or just slightly longer so that it overhangs the entrance hole to keep out the rain.

(13) Your roof can be multiple slats that overlap to give a chalet look. Or you can use just one piece on each side of the A gable. Pre-drill before you nail, making sure the roof piece is straight. Nail the second roof piece and your birdhouse is finished.

(14) I like to make my birdhouses distinctive so I often cut a 1-inch thick branch and trim off the limbs. Then I cut the trimmed branch and use it to make two rustic porch columns. I pre-drill and attach these with drywall screws, countersinking the hole. This makes a good, solid fit and is strong enough to be used as a handle when picking up the birdhouse.

(15) Now is the time to make use of the signs we mentioned earlier. Using 1/2-inch brads. Nail bottle caps or hand lettered signs, or colorful logos cut from aluminum cans to the sides, front, back, or top of your birdhouse.

(16) If you used dumpster wood, you may wish to paint the birdhouse. Use bright, vibrant colors for an art deco look or woodsy, subdued colors to blend with the natural surroundings.

(17) Now you are ready to make another birdhouse. The more you make, the better they'll look. Practice makes perfect. Soon, you'll be putting them together easily, almost on autopilot.

(18) Offer them to your customers with a smile. You might offer wholesale buyers a 10% price break if they buy five or more.

(19) Remember, use your imagination. Look in books and decorator magazines for birdhouse ideas. Try your hand at bookshelves, shadow boxes, laying boxes for chickens, doghouses or what ever strikes your fancy. The wood is free and about all you've got invested is your time. You can make a nice profit using the tools you already have. If you have to buy or borrow tools, you can still make enough birdhouses in a month to pay for the tools.

As you get more proficient at wood-working, you might want to use your dumpster or pallet wood to make other craft items. Now that you have an almost inexhaustible supply of free wood, you can go as far as your enthusiasm and entrepreneurial ability will take you. Δ

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Try this end-of-summer fare

By Richard Blunt

As the end of summer approaches I can sense that my taste buds have become a little jaded. It's the result of eating too many grilled hamburgers, frankfurters, and other easy-to-prepare warm weather foods. Now I need an antidote, so I turn to my taste-bud-lifter recipe file for relief. Since I'm not ready to pack away my Weber kettle grill and move into the kitchen, creative barbecue seems the way to go. Over the years all of the recipes in this file have added a lot of excitement to my dinner table when other foods seem to have become boring. In this issue I'll share with you a couple of the recipes that have made this summer more interesting and hope that my selections add some excitement to your dinner table as well.

The recipes here are drawn from two of the most opinion-laced culinary experiences I can think of: chili con carne and barbecue. These are two areas of the culinary arts that invite free interpretation and creative thinking. With the recipes that follow I have done just that. If pork loin, marinated in a home made Jamaican jerk seasoning and slow smoke-roasted over charcoal, or a chili spiced mixed bean casserole with rich caramel flavor sound interesting to you, read on. You'll have some fun here.

Barbecued jerked pork roast

Cooking with Jamaican jerk seasoning is an intense and addicting experience. When barbecuing, you can use the seasoning as a paste, a rub, or a wet marinade for roasts. With a minor modification it can be used as a basting sauce and can even be "painted" on grilled hamburgers, chicken, or chops. Its pungent and lively flavor complements any meat, poultry, or fish but it is at its best when rubbed on a bone-in-pork roast and slow roasted over charcoal enhanced with hardwood smoke.

I usually reserve Jamaican jerk barbecue for lovers of spicy food or those who think they have tasted everything. A couple weeks ago my wife, Tricia, asked me to prepare something different using a bone-in-pork loin she had taken from the freezer. At the time I was hopelessly trying to create some order out of the recipes in my taste-bud-lifter file. I had just set the Jamaican jerk recipe aside, along with seven or eight other nearly forgotten recipes. But, after hearing her request, I grabbed the recipe, ran to the kitchen, and took a quick inventory of ingredients there. Everything I needed to make a respectable jerk marinade was in stock. If the kids couldn't handle this spicy pork dish, I would cook hamburgers for them. As it turned out the hamburgers were not necessary because Sarah, Jason, and Michael



Richard Blunt

loved the pork. They did, however, drink nearly a quart of milk, to cool the "tong tingle," as Michael put it.

Over the years this recipe has caused a great deal of controversy at my dinner table. I have been told that true Jamaican jerk barbecue taste can only be attained when the paste is made with the fiery West India grown Jamaican red chili pepper and a uniquely pungent scallion, both of which are hard, if not impossible, to find in this country. The authentic taste also requires that the meat be slow cooked over the smoldering wood of the allspice tree, another rare item in this country. However, I have found that ripe habañero or scotch bonnet peppers combined with local garden-fresh scallions will produce a very satisfactory and lively tasting paste. Also, available hard woods such as mesquite, hickory, or maple enhance barbecued food with a flavor of their own and all of them will produce an enjoyable jerk barbecue flavor.

After you have prepared the formula that I suggest here, feel free to make the additions and changes that suit your personal taste and let me know what you think.

When you make your choice of chili pepper for this or any other recipe containing chili peppers, remember one important rule: each variety of chili pepper has its own unique taste. Success with this recipe requires the use of a pepper that has a flavor close to that of the Jamaican red, and the habañero or Scotch bonnet, in my opinion, are two that do. Any other pepper will change the character of the marinade—but they'd be worth trying sometime. Also, do not combine the marinade suggested in this recipe with the paste. Treat them as two separate elements. It may not be necessary to use all the paste, it depends on the size of your roast, and any leftover paste will keep well under refrigera-

tion for at least a week. All of the marinade, on the other hand, should be used, regardless of the size of your roast.

Ingredients:

1 4 to 5 pound bone-in loin of pork

Paste ingredients:

2 Tbsp. toasted allspice berries
3 tsp. toasted whole black peppercorns
1 cinnamon stick, broken into small pieces and toasted
6 toasted whole cloves
1½ tsp. kosher salt
½ nutmeg berry, grated
2 cups onion, diced medium
4 whole scallions, diced medium
2 cloves fresh garlic, peeled and chopped
1 tsp. malt vinegar
1 tsp. dark brown sugar
5 tsp. fresh thyme leaves
6 fresh habañero or scotch bonnet chili peppers, stemmed and seeded
2 Tbsp. extra virgin olive oil
A little dry white wine to add moisture and some additional flavor during the pureeing process

Method:

1. Toast the allspice berries, peppercorns, cinnamon stick, and whole cloves over medium heat in a heavy bottom pan. Cast iron works best. Be careful, this process can be tricky. For the first minute or two nothing will seem to be happening. Then suddenly the spices will give off a small amount of aromatic smoke and will start browning very rapidly. Stir the spices constantly during this process, and remove them from the heat as soon as the cinnamon starts to brown.

2. Set the spices aside to cool, then grind them to a fine powder in a spice mill, blender, or a coffee grinder that is reserved for this purpose.

3. Combine the toasted and ground spices with the salt and ground nutmeg and set this mixture aside.

4. Combine the onion, scallions, garlic, malt vinegar, brown sugar, fresh thyme and prepared chili peppers in a blender or food processor. Add the olive oil then add about 2 tablespoons of the wine and process the mixture into a course paste. You can add a little more wine if the mixture seems to be too dry.

5. Add the dry ingredients, and pulse the machine a couple of times to mix.

Marinade:

½ cup light soy sauce
¼ cup fresh lime juice
1 cup apple juice or fresh apple cider if the season is right

Method:

Combine all ingredients and set aside.

The barbecue:

1. The day before the barbecue place the pork roast on a cutting board a punch holes, about ½-inch deep and about 1 inch apart, into the roast with a sharp knife.

2. Rub the paste all over roast. Using your fingers push as much of the paste as possible into the holes.

3. Place the roast in a nonreactive bowl or large plastic bag you can seal, add the marinade, cover and marinate the roast overnight in the refrigerator.

4. Remove the roast from the refrigerator and let it stand at room temperature for one hour. While the roast is standing, prepare your covered grill for cooking. At the same time put four hardwood chunks in warm water to soak.

5. Fire up about 60 charcoal briquets. When the coals are covered with a white ash, divide them into two equal piles and push the piles to opposite sides of the fire grate, and drop two of the soaking hardwood chunks on each pile. Place a suitably sized disposable aluminum pan, half filled with water, in the middle of the fire grate. This is your drip pan.

6. Position the roast directly over the drip pan, put the lid in place, then check to make sure that the top and bottom vents are completely open.

7. Figure on 30 minutes roasting time per pound of meat. The roast is done when your meat thermometer reads 170 degrees F. at the thickest part of the roast.

Custom made chili seasoning

Chili is more than just a culinary experience to folks who consider this simple but elegant dish a favorite food. To them it's an irresistible passion. Some even call it chili madness. It is the only food I know of with several societies dedicated solely to its appreciation and even its own newspaper.

Since its humble beginnings in south Texas during the early 1800s, chili has risen over the years to become an international food with devotees from all walks of life and all economic strata. And this dedicated collective is by no means passive. Since the mid 1960s chili cookoffs have been organized in all parts of the country throughout the year. These chili cookoffs have been the scene of feuds, rivalries, and even knock-down drag-out fights over who makes the greatest chili.

The following chili seasoning is one that I use to season most of my chili recipes. I also use it to enhance the flavor of many other dishes such as salad dressings, table sauces, and casseroles. It has never gotten me into a fight, but it receives almost as many comments, both positive and negative, as my Jamaican jerk seasoning. It is used here to season the chili bean casserole that follows. The obvious presence of chili peppers, both sweet and hot, in this casserole

has always invited dinner table discussion over the proper use of chili peppers, and the rights and wrongs of seasoning a pot of chili. Give these two recipes a try and see if you can bring on some lively conversation at your own dinner table.

Ingredients:

2 oz. dried ancho chilies, stems, seeds and veins removed
2 dried pasilla chilies, stems, seeds and veins removed
2 Tbsp. whole cumin seed, toasted
1 Tbsp. whole coriander seed, toasted
4 whole cloves, toasted
½ tsp. allspice berries, toasted
1 Tbsp. dried marjoram
1 tsp. dried oregano
1½ tsp. dried, granulated garlic
2 Tbsp. hot Hungarian paprika

Method:

1. After you've removed the stems, seeds and veins from the chilies, break or cut them up into pieces. To toast them, place the pieces in a heavy-bottomed skillet over low heat and toast until they are fragrant, slightly darkened, and somewhat crisp. Do not walk away from this procedure, and stir the peppers constantly while they are in the pan. Set the toasted peppers aside to cool.

2. Using the same procedure described above, lightly toast the cumin seed, coriander seed, whole cloves and allspice berries.

3. In a spice grinder, blender, or a coffee mill reserved for grinding spices, process the toasted peppers into a fine powder. Combine the cumin seed, coriander seed, whole cloves and allspice berries and repeat the grinding process.

4. Combine the powdered chilies and spices with the marjoram, oregano, granulated garlic, and Hungarian paprika.

This formula is designed to add chili flavor to dishes, not heat. You can add as much heat as you can handle by simply adding measured amounts of powdered cayenne pepper or other pure hot chili powder. The seasoning itself will keep for months if stored in an air tight container and kept in your freezer.

Chili spiced cowboy beans

This is a great dish to serve with any type of barbecued roast. If you add a pound of spicy sausage or smoked ham this dish can be served as a complete meal. The addition of dried pasilla chili pepper strips gives this dish a deep rich chili flavor with just a hint of sweetness. If you follow my example and serve this casserole with the barbecued jerked pork you will have all critics and supporters returning for more.

You can use any dried bean of your choice with this recipe. I have used kidney and navy beans in combination

with blackeye peas with excellent results. The casserole can also be made into a meatless dish by eliminating the bacon and adding 2 Tbsp. of vegetable oil to saute the onion.

Ingredients:

6 oz. dried pinto beans
6 oz. dried black beans
4 oz. hickory smoked slab bacon, diced
1 cup onion, diced
4 dried ancho or pasilla chilies, stemmed, seeded, and deveined
2 Tbsp. tomato paste
14 oz. can diced tomatoes with the juice
2 Tbsp. brown sugar
1 Tbsp. molasses
2 Tbsp. soy sauce
1 Tbsp. malt vinegar
¼ cup canned vegetable stock
½ cup of your favorite beer or ale
1 Tbsp. custom chili seasoning
kosher salt to taste
ground cayenne pepper to taste

Method:

1. Soak the beans overnight in a large pot, following the directions on the package. After soaking, rinse the beans at least twice using plenty of cold water.

2. Put the beans in a suitably sized pot with enough water to cover the beans by three inches. Bring the beans to a boil and boil rapidly for five minutes. Drain the beans immediately and place them in a casserole large enough to readily hold all of the ingredients.

3. Place the diced bacon in a heavy bottomed skillet over medium heat and saute the bacon until it is browned and most of the fat has been removed from the pieces. Drain the bacon, reserving 2 Tbsp. of the fat. Do not wash or scrape the bits from the bottom of the pan. Return the skillet to the burner, place over a medium heat, and add the reserved fat. Add the diced onion to the skillet and saute until the onion is lightly browned, about 10 minutes. Stir the sauteed onions and the reserved bacon into the beans.

4. Cut or tear the prepared chilies into strips that are about ½-inch long and ¼-inch wide and add them to the beans. Do the best you can but the measurements are not critical.

5. Combine the tomato paste, diced tomatoes, brown sugar, molasses, soy sauce, vinegar, vegetable stock, beer, and chili seasoning. Gently stir this mixture into the beans.

6. Cover the casserole and place it in an oven, preheated to 350 degrees. Bake for 1½ to 2 hours, or until the beans are tender without being mushy. After the first hour check the beans for the desired degree of tenderness every 15 minutes. During the final fifteen minutes of baking add salt and cayenne pepper to taste. Δ

Holy mackerel, don't flounder around; make your own lures just for the halibut

By Tom Mysiewicz

For several years I lived on a remote island in Washington's San Juan group, and when I wanted fresh food the water was sometimes the only place to turn. Actually having to catch fish, rather than just entertaining myself, taught me a thing or two about seafood self-sufficiency.

Aside from recreation, there's little point in fishing if what you catch winds up costing you more than if you purchased it, which is likely when you take into account the many variables in fishing: expensive lures (that frequently hang up on reefs), costly bait, and gas-consuming boats for trolling.

After wearing out several trolling motors, losing a small mint to bottom formations of the North Pacific, and listening to my wife's howling about bait residues on my fishing clothes, I began to experiment with homemade lures. I tried some alternatives. Ultimately, I hit on an effective bottom-fish and salmon lure for use on the West coast. With this lure I've caught king and silver salmon, rock cod, ling cod, greenling, small halibut, and flounder.



This sea-run trout thought the lure was its next big meal.

To make this lure, you'll need the following:

- Approximately one-square-foot of copper sheet from a hardware store.
- A lead melting pot or lead ladle you can heat lead in over a blow torch.
- Old tire-balancing weights or other scrap lead.
- 10-inch lengths of 100-lb. plus test stainless steel crab-pot wire. If you can find a crab-pot maker, as I did, he'll probably be glad to give you his wire scraps for free.
- 60-pound test (or higher) barrel fishing swivels.
- 1/0 or larger treble hooks
- Spray paint. White, blue, green, and yellow are good colors to work with.

You'll use the copper sheet to make your mold. This will save you the \$20 or more it would cost you to buy a manufactured aluminum mold. Using a stylus or nail on the sheet, outline the approximate size of the lure (Figure 1). I've found that in the Pacific Northwest a 4-inch by 1/2-inch lure imitating a needlefish is a good size. Where herring or anchovies are the prevalent bait fish, wider and larger or smaller sizes may be tried.

Using a blunt metal punch, hammer out a 1/4-inch depression in the copper sheet corresponding to your outline (Figure 2). You may go slightly deeper for extra weight. Since making the depression will cause some deformation in the copper plate, hammer out the flat parts so they are fairly flush with the upper rim of the depression you just made and so, when you pour it, the molten lead will stay in the depression.

Next, take a length of stainless steel wire and center it lengthwise over the



Homemade lures can be cast from shore or a boat, or vertically jigged

depression in the copper sheet. Press the wire down into the depression and, holding it with one hand, bend the ends sticking out so they are flush with the copper sheet. If the wire stays balanced in the depression when you let go, it's fine. Otherwise, adjust the ends so it stays put when you pour the lead.

Next, melt your lead. If you're using old balancing weights, be sure to fish out the steel retainers after the lead is melted.

Give the copper sheet a spritz of WD-40 before pouring the lead for the first lure. Once the sheet gets hot the lead won't stick to it anymore and you can shake out the lures by flipping the copper sheet with pliers.

Then, put your first wire length into the depression on the sheet. Pour lead into the depression until the lead

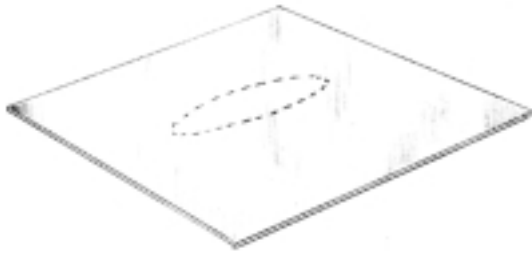


Figure 1

appears to be just over the depression (Figure 3). When the lead has solidified, flip out the lure. Remember, the wire has to be inside the lead with two ends sticking out. Use needlenose pliers to put the next wire into the mold.

Repeat the process until you have made as many lures as you have melted lead for.

After allowing the lures to cool for a half hour, line them up on a sheet of plywood and give them a coat of white paint on one side. When dry, turn them over and do the same on the other side. Then spray small amounts of blue, yellow, and/or green on each side to achieve the desired effect. In different areas and in different depths, fish actually do prefer certain colors so you may have to experiment. I have also found fish that prefer the lures unpainted on cloudy days or at deep depths.

When the paint is completely dry, put swivels on one end of each lure by putting one of the protruding wires on

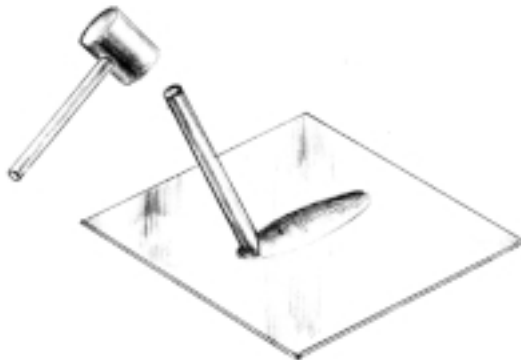


Figure 2

each through one swivel loop, and make four to five wraps. Snip off the excess wire. Next put treble hooks on each lure by putting the other protruding wire on each lure through the hook eye, twisting the wire about five loops, and snipping off the excess. The lures are now complete (Figure 4).

Do not worry if your lure has some uneven or odd-shaped features. After a while you will learn which ones actually make the lures more attractive to fish. I've found that minor blemishes do not repel fish. The key is that there should be no sharp or angular edges that can fray your line. A small file will allow you to quickly smooth burrs and sharp edges.

This lure works so well on the West Coast that I haven't used bait from a boat in more than 10 years. (Commercial lures such as the Dungeness Stinger and Buzz-Bomb also work well, but can be costly when fishing in rocky areas, as previously mentioned, where you can lose several daily).

And here's a tip: Except for striped bass, bluefish, pollack, and cod, lures, in my opinion, don't work all that well on the East Coast, so stick with bait if your homestead is there.

Using the lure

While the homemade lure can be cast from shore or jugged off jetties and piers, you'll get the most fish if you can use it from a boat and vertically jig. This is done by letting the lure down to the desired depth (three feet or more off bottom for bottomfish), lifting up slowly, then letting the rod tip dip quickly down.

When the lure flutters down and you once again feel its weight, lift slowly again. When you feel a fish grab it or hang on, lift sharply but do not drop the rod tip until you have begun reeling fast enough to prevent slack.

When and where

Picking the time you fish is next in importance. Slack high tide is best for most saltwater species on both coasts (except halibut, which prefer slack low tide). Any nautical shop can steer you to a current atlas that will show you the current flow for the spot you plan to fish, when you plan to fish it, and at the time you hope to fish it. Often, an atlas will show a period of



Figure 3

relatively gentle current that stretches between tides, and you can't tell this from an ordinary tide chart. Find the right slack period and you'll catch fish all day, regardless of what that tide chart says.

Location is next in importance. Inlets usually have rocky areas that hold fish. Likewise, large rock outcroppings on shore can be indicative of an underwater ridge running out a considerable distance. If such a rocky ridge runs out from shore, fish will often hold on the side of the ridge opposite the current flow. This lessens the amount of work they have to do while waiting for a meal. In deep water, buoys often mark hidden reefs and high spots that can be virtual fish



Figure 4

magnets—at least I’ve met some halibut that seemed to think so.

Fish deep on the West Coast. The deeper the better. I rarely fish in less than 100 feet of water. In Oregon and Washington, a medium-to-light boat rod is ideal for such fishing. Use one of the newer non-stretch lines, e.g., Spiderwire, and you’ll be able to set your hook several hundred feet down.

Often small reefs in very deep water are overlooked by anglers searching for easier prey, and huge rockfish are just waiting there to be caught.

Cleaning and packing your catch

I’ve eaten inordinate amounts of fish over my lifetime and I’ve also worked in commercial fish packing plants. I can summarize my experience by saying that, if you’re planning to freeze your fish for a prolonged period, the following steps should help fish from getting fishy or drying out for up to six months:

1. Bleed fish whenever possible. Cutting a gill immediately after battling a caught fish and placing it in water will often be sufficient. This is especially true of salmonoids.
2. Don’t let fish get hot or sit in the sun; clean them as soon as practical.
3. Fillets and whole fish should be soaked in cool salt water after cleaning for at least 10 minutes.
4. If you have a vacuum sealer, that’s the optimal way to prepare fish

for freezing. If not, use reclosable freezer bags and leave enough water in the bags to glaze or coat the fish. If you don’t have reclosable bags, freeze the fish first, dip it in water/sugar solution for a moment to glaze it, then put it in a regular plastic bag and close it. Reusable plastic freezer containers can be used in place of plastic bags; just leave in fluid sufficient to coat the fish. The key here is to prevent drying in the cold atmosphere of your freezer.

Fish can also be smoked, salted and/or dried, but that’s the subject of a future article. Δ

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Note from the publisher

First back-to-Oregon edition

This is our first edition produced after having moved the magazine back into the state of Oregon. Please note our new address: P.O. Box 712, Gold Beach, OR 97444. Our 800 number is the same: (800) 835-2418. Our regular office number has changed to: 1-541-247-8900. Our FAX has changed to: 1-541-247-8600.

It's great to be back in Oregon, next to the Pacific ocean, although I still love northern California. I've spent nearly all of my life close to an ocean, first in Boston for nearly 30 years where I could generally walk to Boston Harbor and do some fishing, and since then on the Pacific, mainly in southern California, and now in southern Oregon. I am a salt water fisherman at heart and am well acquainted with places like Quincy Bay and Cape Cod on the Atlantic, and I can usually name the fish I am catching long before I've reeled it up from the ocean floor. Out here on the Pacific I'm less familiar with the types of fish, but I'm an eager learner.

I often refer to the oceans as part of my psychic space. Just as it has always been more comfortable for me to live in a house with tall ceilings, or to be any place where there is a lot of space around me, having the ability to daily drive to work alongside the Pacific Ocean is both relaxing and energizing. Our new home is on a 1500-foot hill above the Pacific, and as I walk on my acreage and look down at the ocean I tend to step back in time and imagine that my exhilaration is shared by my Irish grandparents—and my mother before she emigrated to the United States—as they walked above their part of the Atlantic off the southern Irish coast many years ago.

The new office is located off Highway 101 in downtown Gold Beach, a breezy coastal town of about 2,000 people. Because it's located on a beautifully rugged coast with miles of sandy beaches, it's a tourist area in the summer with lots of RVs going by, but otherwise it's a relatively calm area with mild weather year-round. If you're in this area, feel free to drop by for a visit, but bring a beer for me, John, and MacDougal.

Riding the Y2K wave

Even though I have written an editorial saying all the fuss over the Y2K—or Millennium Bug—problem is more hysteria than reality, this magazine continues to benefit from the concern. Book writers and newsletter publishers, who forecast horrific Y2K scenarios at the onset of the new millennium, continue to recommend people buy this magazine so they can be prepared for whatever eventuality develops. Even Gary North, perhaps the most widely read of the Y2K forecasters (garynorth.com on the Internet) recommends us.



Dave Duffy

Which just goes to show that commonsense preparedness of the nature that we recommend, namely, always be prepared to take care of yourself and your family, always rely on yourself and no one else, and always make self-reliance the dominant philosophical theme of your life, is simply a very good idea, no matter what's around the next corner.

Whether civilization as we know it is about to hit a big bump in the road, or whether it's going to continue its haphazard journey down the road, the articles in this magazine will be useful and are being used everyday by the readers and writers alike. They are all based on science and practicality, all the result of people trying to become as self-reliant as possible, which is consistent with this great American way of life of ours. If Thomas Jefferson were sitting with me today and reading over back issues of this magazine, he'd be nodding his head approvingly. This magazine, and the people who write and read it, are self reliance in action.

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Which leads me right into my latest subscription offer. The ad for it is on page 14. Give two friends gift subscriptions to the magazine, and we'll give you the anthology of your choice free. We'll enclose a gift card stating the subscription is a gift from you, and we'll immediately send you the anthology you check off.

It's a nice gift for your friends, a nice gift for yourself, and a nice way to boost our subscriber base. We'll do our part by keeping the solid self-reliance information coming, whether or not the Millennium Bug brings chaos and catastrophe with the new year.

By the way, our next issue is all about commonsense preparation for—you guessed it—the Millennium Bug. Δ

My view

Do we need more democracy?

On Tuesday, November 3, 1998, all of the House, one third of the Senate, 38 governorships, and an assortment of state legislators, judges, mayors, and dog catchers will be up for election, their fates determined by the voters.

As in every election year, there's a hue and cry to get the voters out—all of 'em: old and young, black and white, men and women, rich and poor... The more voters, the more democracy. It's the American way. Who'd be crazy enough to question it?

Why, just the other day I heard President Clinton speak of one or another of those Third World countries where leadership changes are frequent, violent, and usually in off-election years. He said what we need to do is bring them more democracy. And now that we police the world, democracy has become our chief export. It's America's solution to what ails humanity. Only a fool would question it. So, naturally, I will: "Do we really need more democracy?" No!

For starters, we already have people voting who are functionally illiterate, who don't know the Constitution from a cow pie. No one has explained to me how getting even more of them to vote is going to make this world a better place to live.

Still, we Americans put great stock in democracy. According to literature produced by the Immigration and Naturalization Service, which is given to every applicant for American citizenship, the most important thing about being an American is the right to vote. But, trust me, it's not. The most important thing about being an American is our Bill of Rights.

Consider this: many people don't ever vote, yet their lives are little different than their voting neighbors. And foreigners in this country make out pretty well without even being allowed to vote. Why? Because in this country they're guaranteed protection by the same Bill of Rights that protects you and me, just because they're members of that exclusive club, *homo sapiens*. The Founding Fathers never said you had to be an American to benefit from constitutional protections. They believed "our" rights belong to everyone.

So I might never vote for the rest of my life, yet I will be just fine—just so long as no one ever tramples on my freedoms. And the funny part is, democracy is no guarantor of those freedoms, for as Claire Wolfe points out in her book, 101 Things to Do 'til the Revolution, today's most oppressive countries are almost all democracies. Scary, huh?

Democracy can be dangerous. Among the failures of the ancient Greek civilization were its democratic excesses.

Socrates drank the hemlock that killed him because the Greeks felt democracy outweighed individual freedoms, and the mob decreed the death penalty because he exercised what we call free speech. And later, when the Roman electorate discovered they could vote themselves bread and circuses, then send the bill to someone else, their country also headed for the cesspool of civilizations.

So, what we really need is not more democracy, but restrictions on democracy. People have got to understand that just because 51 percent of them have strong feelings about something, it doesn't mean they can force that belief on everyone else. Nor can we vote away another's basic rights, as the Greeks did, or create new ones for ourselves, particularly if you expect your fellow citizens to bankroll them for you, as they did in Rome.

Our Founding Fathers understood this and it was part of their thinking as they adopted our Bill of Rights.

Today, I listen to campaign promises. Candidates garner votes in our democratic elections by promising new "rights" our forefathers never thought of. Among them, the right to work, right to housing, right to food, etc. But there's a difference between those rights and the rights conceived by our forefathers. Rights listed in the Bill of Rights, as well as others implied by the Ninth Amendment, we are born with. They are neither earned nor bestowed, do not cost someone money, nor are they taken from someone else.

However, the new rights we hear about today must be supplied by someone else. Cash must be taken—some say, extorted—from your fellow citizens, under the threat of property confiscation, imprisonment, and even death so we can pay for them. Don't believe me? Try not paying your taxes. Worse yet, our electorate today believes it can deny others their property rights in the name of the environment, deny their right to free speech with election campaign laws, deny their right to treat their own bodies as they wish with drug laws, helmet laws, sex laws, etc.

But ask yourself: Can you vote someone else's rights away? If we repeal the First Amendment, which states we have the right to free speech, a free press, and the freedom of religion, etc., would those rights be gone? Our Founding Fathers didn't think so. According to them our rights are not bestowed by the government so they can't take them away, either. Governments can only deny you the opportunity to exercise your rights. It's called dictatorship. This is true even when the electorate does it.

So what we need, rather than more democracy, are to observe the restrictions on democracy. We need voters who understand we cannot vote away each other's basic rights and freedoms nor create new ones for ourselves and demand our fellow citizens finance them for us. We can only do this by understanding, each time we step into the polling booth, where the limits on democracy are and that when we carry democracy to an extreme it becomes tyranny. Δ

— John Silveira

Get a jump on homesteading with a recreational vehicle

By Judy Wogoman

When setting up a homestead, which takes priority? Refrigeration? Light? Water? Drainage? Shelter? And for that matter, where should the homestead be? Do we want to build in the valley or atop the hill?

It would be nice to have an “instant homestead” that we could try in different spots, that would have a few of the comforts of home, and that might help get us started when we find that perfect place.

It happens that a self-contained recreational vehicle (RV) can do all these things while serving as a stepping-stone to self-sufficiency in three ways.

- It is useful in exploring different homestead sites.
- The RV is relatively complete, eliminating the which-urgent-project-do-I-do-first dilemma.
- The RV can provide a stopgap for many of the necessities—refrigeration, light, shelter, etc.—while you set up your homestead, instantly and at low cost.

Choosing a location

If you haven’t narrowed your search area yet, choosing a location for your

homestead can be an expensive and frustrating task. All Chambers of Commerce describe the business climate as “great.” All realtors have “perfect” homesites. And almost all motel desk clerks know absolutely nothing about zoning, laws, financing

the Chamber of Commerce or realtor won’t tell you. (Property taxes going up 40% next year? New building ordinance prohibits owner-built homes? Phone system just one step above two tin cans and a string?)

Found a promising site? With a self-contained RV you may be able to convince the seller to let you spend a day on the site. You may find, like our family did, that the lovely pond was the neighbor-up-the-road’s sewage disposal, and that the peaceful serenity

of 15 acres of rolling, wooded land, was punctuated at all hours of the day and night by the shouting offspring and revving race car of said neighbor. Perhaps a few trips around the curves or up the hill will convince you to hold “accessibility” in higher regard on your wish list.

Once the homesite is located, the fun begins. The view from the west ridge is nice—except between 7 and 9, when the sun is blinding. The little brook is peaceful and soothing as long as upstream thunderstorms don’t turn it into a ravenous river. The site on the ridge may mean a steep, uphill driveway. The bridge that will cross the brook 10 months out of

the year may be 3 feet under water during spring thaws. By homesteading on various spots on your acreage you can also find the prettiest spot and determine how to make it even better. Otherwise, you may find you’ve started building a permanent home on the wrong spot, and your time, money, and effort will have been wasted. By using the RV as a temporary homestead, you can avoid some of these problems. Park it here for a few days, there for a few. Try out each possibility before it’s cast in stone (or concrete).



options, building permits, or septic systems. Not to mention the fact that your motel neighbors are either clandestine lovers or weary travelers interested only in a few zzzzs between point A and point B. And even the cheapest motel costs at least twice as much as the average RV campground.

Campgrounds, on the other hand, are full of friendly people who are often willing to chat. On weekends, more than half are usually local people. You can often get leads on property for sale, and other valuable information

Developing the site

Theoretically, your highest priority should claim your attention, your finances your focus. So, what is first priority? Refrigeration? Water? Drainage? Shelter? Heat? Light? And if you can decide which one is of over-riding importance, which system(s) do you want? Icebox? Root cellar? Spring house? Well? Spring? Cistern? Solar? Wind? Water?

The big problem is that these are all priority one. Most of them can't be put off for long, and many of the alternative systems are expensive. (Priced a kerosene refrigerator lately?) It takes time and money to properly set up a homestead and both are often in short supply in the early months. It takes time to decide which option is best.

The RV stepping stone allows you time to decide among the options and time to build the systems right.

Finally, the RV provides a level of comfort that can be valuable in keeping you motivated. While you probably won't need an RV satellite dish or microwave oven, a hot bath and comfortable bed are priceless after a day of digging, planting, chopping, hauling, etc. You can live on peanut butter and crackers, but a hot meal cooked on a bottle-gas stove is a whole lot tastier.

Which RV for me?

There are three basic types of self-contained RVs: pickup campers, travel trailers, and motor homes. Each has advantages and disadvantages. (I am not including pop-up tent campers because they don't offer the same self-contained features of the others.)

Pickup campers range from 8-foot models that slide into the bed of a pickup truck to huge fifth-wheel rigs. The smaller slide-ins are the most economical. Used slide-ins can often be found for under \$500. (I've seen two 8-foot models that sold for under \$150, and the 10-foot model I have now was \$250.) Fifth-wheels are a lot

more expensive. A used 25-footer the same vintage as my slide-in was priced at \$2500. The fifth-wheels are roomier, of course but slide-ins have certain other advantages. For example, if you don't already have a truck, you're going to need a truck for the homestead anyway. The same features that are good for hauling campers (heavy-duty suspension, radiator, and transmission coolers, etc.) will be helpful when you start hauling lumber, concrete blocks, and other building materials. The camper can be loaded onto the truck in a matter of minutes without losing maneuverability.

Slide-in campers provide only the basics: the bathrooms are small with showers, not bathtubs. Some have iceboxes instead of refrigerators. You will want a three-way refrigerator (bottle-gas, 12-volt electric, and 110-volt electric).

Travel trailers are the midrange alternative. They come in a wide range of sizes and styles and have the most storage space of the three RV types. Used models are priced from \$1000 to \$5000 depending on age and amenities. Many trailers are roomy inside, and some even have full baths complete with bathtub. Like the pickup camper, the trailer can be separated from the tow vehicle. With practice, the trailer can be hitched and unhitched fairly quickly. However, pulling a trailer is more difficult than simply driving with a camper down the road. Turning and backing are two areas where practice is essential.

The third type of RV is the motorhome. Even used, motorhomes are expensive to buy, operate, and maintain. Used motorhomes start at about \$3000 and are subject to the same drawbacks as a used car. They offer the least amount of storage space. And if there is a problem with either the RV systems or the drive components, the entire unit has to go in the shop.

My personal recommendation—and the setup our family uses—is a combi-

nation. We have a one-ton pickup, a ten-foot slide-in camper, and a 22-foot travel trailer. For short weekend trips the pickup camper is quick and easy to use. For longer trips, the added trailer provides additional comfort, as well as privacy for parents and children.

If you'd like to try before you buy, many RV dealers offer rentals. Rates and terms vary, so call several local dealers before renting.

Important checkpoints

When inspecting a used unit, there are three important checks you should make before you let yourself fall in love with the floor plan, the cute storage spaces, or the decor. If the unit fails any one of the three, keep shopping. These problems are the most difficult to fix and among the most critical. If the unit passes the three tests, then look at the other details too.

1. Check ceiling for evidence of leaks, especially around air conditioner or vent opening.
2. Poke your finger around window corners, inside. If paneling is "soft" it indicates a leak.
3. Check the refrigerator. The design of RV refrigerators, especially older models, sometimes leads to a wide range of dependability—or the lack thereof. Some models won't work if they aren't perfectly level in all directions. Others would probably work teetering at the peak of Mt. Everest.

Homesteading is a challenge, whether starting from scratch or reclaiming a rural fixer-upper. A self-contained RV can provide us an "instant homestead" before we make the actual move, making the move itself smoother and less stressful on both our nerves and our finances. Δ

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Dreaming of a Civil War Christmas dinner

By Larry Cywin

As anyone who has served in the military can tell you, home cooked meals are almost always superior to military rations. It was never more certain than during the Civil War.

The usual ration on both sides was bread of some sort, a little meat (salt pork or beef), dried beans, and coffee. Coffee was important to the soldiers. They would go for days without food if they got their coffee. The bread ration had to be something that traveled well. Cornmeal was popular on both sides, but wheat flour was often hard to find. The worst bread though was in the form of biscuits called hardtack. Usually it was too hard to bite into, and often, it was wormy, though some soldiers claimed that wormholes made the stuff easier to chew. It was soaked in water or broth to soften it up.

Christmas was the premier American holiday in the 1800s. Even if no other day was celebrated in the year,

Christmas was. It was a time of feasting and merriment and joining with friends and family for the round of social events. Of course the soldiers in the field, with their meager, low-quality rations, missed the celebrations back home.

These were the dishes that the soldiers longed for in the field. They would think about the pleasures of home so far away, while consuming their soup and bread. Some did not even have bread, and their soup was nothing more than dry beans boiled in water. Let's step back in time and dream with these Civil War soldiers.

Roast turkey with oyster sauce

The usual main dish of Christmas dinner during the Civil War was a roast turkey. However, it was often cooked without stuffing and served with oyster sauce. Oysters were common and popular fare during the war. They traveled well and were cheap. They were also quite tasty and made a nice departure from the more common gravy.



1 turkey
butter
a dozen oysters, shucked
1½ cups of milk
4 tablespoons of butter
½ cup of flour
salt
pepper
1 Tbsp. mixed herbs (sage, rosemary, parsley)

Method:

1. Cover the turkey with aluminum foil and roast at 350° F for 20 minutes per pound plus 20 minutes.
2. About 20 minutes before the bird is done, remove the foil and brush the skin with butter. Return the bird to the oven to finish cooking.
3. Strain the oysters, reserving the juice. Set the oysters aside.
4. Mix the oyster juice with the milk.
5. Melt the butter in a pan, remove from heat, and stir in the flour.
6. Return the pan to the heat and add the butter-flour mixture slowly while stirring constantly.
7. Cook the sauce until thickened.
8. When the turkey is ready to serve, add the oysters and seasonings to the sauce. Simmer just enough to heat the oysters.
9. Serve the sauce on the side.

Vegetables

A number of vegetables were commonly used during this period. Naturally, most of them were ones that stored well. This includes roots such as carrots, parsnips, turnips, rutabagas, potatoes, and squash. Cabbage, in the form of sauerkraut, was also quite popular.

The roots were cooked simply. They were peeled and cut into chunks and simmered until tender. They were served with butter or possibly a dash of vinegar.

Sweet potato pudding

Potatoes were served baked, boiled, mashed, or fried just like they are today. Sweet potatoes were well liked, and lent themselves to some interesting variations such as sweet potato pudding.

6 medium sweet potatoes
1 cup of milk
1 cup of sugar
3 eggs
1 Tbsp. of lemon juice
1 tsp. of cinnamon

Method:

1. Peel the potatoes and boil until tender.
2. Mash potatoes with the milk until smooth.
3. Add the remaining ingredients and beat until well mixed.
4. Pour into shallow, lightly greased dish. Bake at 375° F for 30 minutes.

Squash

Winter squash saw quite a lot of use. It was easy to prepare and easy to store. It was either baked or boiled until tender. In either case, cooked squash could be served as is or seasoned with salt, pepper, nutmeg, brown sugar, maple syrup, or butter.

An excellent squash dish was made by browning pork or bacon in a pan. Cooked squash was mashed and mixed with the meat and drippings. This mixture was heated thoroughly and served with salt and pepper.

Corn bread

Bread was essential to any meal, and it ran the gamut from plain corn bread to sweet yeast dough like Sally Lunn to various flavored loaves.

Corn bread could be anything from cornmeal, water, and salt (johnny cakes) to spoon bread (so rich in eggs and milk that it was eaten with a spoon). A middle of the spectrum type was something like the next recipe.

½ cup cornmeal
1 cup flour
pinch of salt
4 eggs
2 Tbsp. milk
3 Tbsp. butter

Method:

1. Combine the dry ingredients in a bowl.
2. Add the remaining ingredients and mix well.
3. Pour the batter into a greased 9x9-inch pan and bake at 375° F for 15 to 20 minutes.

Sally Lunn

The richer Sally Lunn was from England and it was quite popular as a bread for celebrations.

1 cup of milk
2 Tbsp. of shortening
½ ounce of active dry yeast
3 cups of flour
½ tsp. of salt
1 egg
1 Tbsp. of sugar

Method:

1. Combine milk and shortening and heat to scalding. Remove from heat and let cool.
2. Pour milk mixture into a bowl. Add the remaining ingredients and mix until smooth.
3. Cover the bowl with a towel and let the dough rise for 60 to 90 minutes.
4. Punch down the dough and put in greased loaf pan. Let rise for another hour.
5. Bake at 375° F for approximately 45 minutes.

Pumpkin bread

Pumpkins were a common crop. Not only did they keep well but they could be used as food for livestock as well as people. Besides the traditional pumpkin pies, they were served as vegetables, in sweet dishes similar to the sweet potato pudding above, and in this pumpkin bread recipe.

- | |
|---|
| 2 eggs
1 cup of cooked, mashed pumpkin
2 cups of flour
¾ cups of sugar
½ tsp. grated nutmeg |
|---|

Method:

1. Mix eggs and pumpkin.
2. Mix remaining ingredients into pumpkin mix.
3. Mix well, pour into a buttered loaf pan.
4. Bake at 350° F for one hour.

Eggnog

One of the favorite holiday drinks during the Civil War was eggnog. Unlike the commercial varieties sold today, eggnog was made with real eggs and always had whiskey, brandy, or rum in it. This is a traditional recipe.

- | |
|---|
| 4 egg yolks
4 Tbsp. of sugar
1 cup of heavy or whipping cream
1 cup of brandy (or whiskey or rum)
¼ cup wine
4 egg whites
grated nutmeg or cinnamon |
|---|

Method:

1. Beat the egg yolks until light in color.
2. Slowly beat in the sugar, cream, brandy, and wine.
3. Whip the egg white separately.
4. Fold the egg whites into the other ingredients.
5. Sprinkle with spices and serve. Δ

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Canning your meats and vegetables at home — it's not only easy, it's safe and inexpensive

By Jackie Clay

While quite a few people still put up pickles, jams, jellies, and tomatoes, it is estimated that less than 5% of the population in the United States actively cans vegetables, meat, fish, and poultry. Why? I think it's because people fear it is difficult, dangerous, and expensive. They're afraid they will give their families food poisoning, and they think they can buy canned goods cheaper at the store.

Let's look at the arguments realistically. Difficult? I can put up 10 pounds of meat in less than 2 hours, while I work on the word processor or home school our son, and I'm no rocket scientist.

Dangerous? No, the canner won't blow up if you read common sense directions and regularly monitor the pressure, adjusting the heat as needed to keep it at the correct pressure. Nor do you have to worry about tainted food if you follow the precautions given in a canning book.

Expensive? If it was, this frugal home canner sure wouldn't do it. On an average, it costs me 10¢ to can a jar of vegetables and meat (provided I grow the produce and hunt or home raise the meat) and even less if I can on our wood range, which I often do during the cool mornings of autumn.

And that jar can be anywhere from a half-pint to a half-gallon of food. Store-bought canned vegetables and meat cost a lot more than that. Just yesterday I priced eight ounces of canned chicken breast, on sale, at \$2.19. That translates to \$4.38 a pint vs. 10¢ for a pint of my home-canned chicken. And even if I bought the chicken from a butcher, then canned it, I could put up a pint for half the

cost of that store-bought canned meat. And besides the reduced cost, there are no chemical additives in anything I can.

To successfully can, all you need are some basic equipment and instructions and you can enjoy clean, chemical-free, inexpensive, and nutritious vegetables and meat all year long.



Canning tools: good canning book, jar lifter, rings, lids, funnel, and jar. A pressure canner is also necessary.

Equipment

A good **canning book** is a must for all home canners. I have four, not because canning is difficult or that I am stupid, but because each provides a lot of different recipes and ideas. The processing and safety tips in each book are the same, but I'm always open to new ideas and you should be too. But until you become experienced you should not free-lance, that is, change the recipes, as incomplete processing times can result.

Jars are a must, of course. Some folks will swear that you cannot

process meat and vegetables in other than brand-name canning jars and that if you use pickle, mayonnaise, salad dressing, or other jars, which a canning lid and ring will fit well, they will break in the pressure canner. Not so. I've used these "orphan" jars for over 35 years, along with Mason and Kerr jars. I can see absolutely no dif-

ference in the instance of breakage. So a note on a bulletin board or in a free shopper, or just plain telling everyone you know, will usually result in a lot of free jars.

Examine each jar as you wash it at home for any minute chips or cracks, especially in the rim of the glass. Chips will usually result in the jar not sealing or a larger crack developing. And cracks, of course, weaken the jar and cause it to break as it processes.

A **pressure canner** is necessary to can all meat, fish, poultry, and meat products such as soups, stews, spaghetti sauces, etc. This is a fairly



Two days' canning yields beets, elk meat, green beans, potatoes, chili, and corn.

large expense for many frugal folks, costing about \$125 for the larger, more work-worthy size. But, when you figure it will last for over 20 years, without maintenance, it is one of the best buys of a lifetime. Remember, you can use it to put up nearly anything that you would see on a store shelf or that you may hunt or fish for yourself.

Vegetables and meat products must be processed in a pressure canner to raise the temperature of the product you are processing and hold it at that level for for a considerable time. This ensures that you will kill all the bacteria.

Water not under pressure, as is used in simple water-bath processing, boils at 212° F. This is fine when canning fruits and tomatoes which have high acid content that kills microbes that may survive the boiling. But it is not adequate for low-acid vegetables and meats. Still, it was the method used by our grandmothers, as they did not have pressure canners as young women. And the food they canned did seal and was usually okay to eat.

Usually. But I won't gamble my family's lives on "usually." Food poisoning is nothing to fool with, so I, and all intelligent home canners, process all meat and vegetable products in a pressure canner.

Jar rings (sometimes called bands) and lids are a basic, as well. Jar rings are used to hold the lid in place during processing. They *do not* help keep the jar sealed during storage. A properly sealed jar will remain sealed, without its ring, even when handled. In fact, jars should *not* be stored with rings on them as dampness can collect under the rings and promote rusting, making the ring useless for further use, and the jar lid may rust too, which will ultimately cause the seal to fail and the food to spoil.

Jar lids need to be of high quality. Never use el-cheepo lids from Asia that you've never heard of before. The three most dependable brands are Mason, Kerr, and Bernardin. The lids are boxed a dozen to a box, and they consist of a disk of lightweight metal, rimmed with a rubberized compound which, under heat, effectively seals the jar. They are *not* reusable and should be discarded after one use. Boxes of lids will store for years, remaining good. Self-reliant people should stock up on jar lids.

Other handy equipment to have around are a **canning funnel, sharp knives, mixing bowls, a jar lifter, chopping board, and a lid lifter** which neatly picks individual jar lids out of a pan of boiling water.

Canning steps for vegetables and meat

1. Have all the equipment on hand and ready.
2. Inspect the jar rims again for nicks.
3. Fill the jars.
4. Wipe off the jar rim.

5. Put the lid into place.
6. Screw the ring on firmly, but not forcefully.
7. Place the jar into canner.
8. Put the canner lid on, securing it firmly, but leaving the exhaust vent open.
9. When a steady stream of forceful steam comes from the vent, close it off.
10. Wait for the pressure to build to correct readings, then begin counting the processing time.
11. When time is up, shut off the heat, then allow pressure to drop to zero.
12. Remove the canner's lid away from yourself, so steam does not scald you, and remove the jars.
13. Set jars on dry, folded towels away from drafts until they cool.
14. Examine for seal using one finger to press on center of the lid. If it gives, it is not sealed and you must reprocess it using a new lid.
15. Remove the rings, wash the jars, and store them in cool, dark, dry place.

While many foods are most easily canned using the hot pack method (where partially or wholly cooked food is placed in hot jars, then pres-



Asparagus, ready to can.

sure canned), most foods I can are placed in the jars cold for ease and speed of processing a batch. Read your canning book, then decide which method is best for you and the food you are processing.

When getting ready to can a batch of food, have all your equipment clean and ready to go. The jars do not need to be sterile but must be freshly washed and clean. It is good to remember that in canning, cold should not be mixed with hot. That is, don't put boiling food into cool jars, cold food into hot jars, or set hot jars on a cool surface. I learned a lesson after many years of canning: every once in a while, a jar bottom would break during processing. Finally, I discovered that if I warmed up the canner before setting warm jars of food into it to process, I drastically reduced this breakage. Just turning the burner on a few seconds before placing the first jars in did the trick. Match the canner's bottom temperature with the jar temperatures.

Place a small pan of water on to boil. Separate the jar lids and drop into the water. Boil the lids, then remove them from the heat, but keep them warm.

Place the jars to be filled on a folded towel, then carefully fill each jar. The folded towel not only moderates the temperature from the table or counter surface, but it also catches spills making cleanup a snap.

Using a canning funnel helps keep foods from dripping onto the jar rim. You want to prevent this, especially with meats and poultry, as grease on the jar rim (or even a tiny bit of green bean) will keep the jar lid from sealing onto the jar rim correctly. An unsealed jar equals spoiled food.

Cut-up or whole green beans, potatoes, corn, other vegetables or meat, poultry, and fish may be placed in



A variety of foods canned in the pressure canner: left to right: beets, hominy, squash, chili, corn, carrots, elk meat, baked beans, asparagus, potatoes, and wild mushrooms.

the jar raw. This is the raw pack which I most often use. Canning books have gotten away from raw-packed meats. I believe it's because the writers felt that home canners would become sloppy and possibly cause incomplete processing, resulting in meat which might harbor harmful bacteria. It is possible, but personally I get tired of folks trying so hard to keep me safe from my own responsibilities. And when I have an elk to can—and an elk

is a lot of meat—I need to get it processed fast. So I still raw pack pieces of boneless meat. I am not advising others to do what I do; I am only explaining how I do it. You may well choose to hot pack partially cooked meat.

I place fat-free boneless steaks, roasts, stewing meat, and just plain chunks of meat into a clean jar. (I use everything from half pint jars to half gallon jars, but I always process jars of a like size together—I don't mix sizes.) A teaspoon full of salt may be added but is not necessary. Water is not usually added, so the jar rim is carefully washed with a warm damp cloth, the hot lid is put in place, and the ring screwed down securely but not overly tight. The jar is now ready to put into the canner.

Hot-packed meat, such as partially cooked roast, steak, stew meat, boiled chicken and meat products, such as stew, chili, soup, etc. are put into warm jars. Liquid is



The author packs cold asparagus into clean jars.

usually added, i.e., broth or soup, the rim carefully wiped, the hot lid placed on, and the ring tightened.

Hot packing is great and convenient for canning large batches of spaghetti sauce, chili, stew, baked beans, canned dry pinto beans, etc. Just cook and dump into jars, then process. Okay, I'm simplifying, but once you get the hang of it you'll see it becomes that easy.

All raw meat should be heated or "exhausted" in the jars, which are placed in a pan of water deep enough to heat the jars thoroughly, while the water boils, but not so deep that the water boils into the open jars. Bring this pan to a slow boil and check with a meat thermometer inserted into the center of a jar. You need to heat the meat to 170° F, then quickly remove the jars from the bath with a jar lifter, place them on a folded towel, wipe the rims clean, and put the lids and rings firmly into place. Then place the jars in the canner and exhaust the canner. This means you should ensure there is a steady stream of forceful steam escaping the vent, not just spurts now and then.

After the canner is hot, i.e., exhausted, close the vent and begin raising the pressure until it reaches the desired processing pressure. Remember that most canning books give an average processing pressure of say 10 pounds. But if you live at an elevation higher than 1000 feet, you must bring the pressure up higher. Check your canning book for your exact pressure needs. Begin to count the processing time.

Keep the pressure at the correct reading by adjusting the heat under the canner or moving the canner gently on a wood range's surface or adding wood to the fire, as needed. If you let the pressure fluctuate, it will suck the fluid out of the jars. The resulting food will still be edible, but may be dry-tasting, or food bits may get under the jar lid making a proper seal impossible.

After the food has processed long enough, turn off the heat or remove the canner from heat. Allow the pressure to return to zero, then carefully remove the canner's lid—away from you, so escaping steam does not scald your arms or face. (Don't get in a hurry, thinking to just leave the jars in the canner with the lids on to cool. The jars will not seal correctly.)

Carefully set the hot jars, still boiling and bubbling, on a dry (never damp or the jars may crack) folded towel in a draft-free area to cool. Soon the telltale musical "pings" will let you know they are sealing. Never fool around with the hot jars or you may disturb the seal.

When the jars are perfectly cool to the touch, remove the rings, and wash them for next time. Then wash the jars with warm soapy water, rinse and dry them, and then store them in a cool, dry, and dark place.

Canning green beans

Pick the beans, wash them in cool water, and prepare to can them immediately. The beans may be canned whole, Frenched, or however your family likes them. I usually can a variety, from whole to Frenched, with the bulk cut into convenient chunks an inch or so long. Cut the beans, removing any tough strings, as well as the stem and pointy end, if desired. Using a canning funnel, dump the raw, cut beans into clean jars placed on a folded towel.

Pour two inches of water into the canner and place the basket or inner kettle into place. The canner must never boil dry or it will warp.

In the meantime, have enough lids separated and boiled. Also, have boiling a large pan of water with which you will cover the beans.

Fill all jars to within one inch of the rim. This is called "head space" and is necessary for proper processing and storage. In canning, you do not want to cram as much food into a jar as it will hold. Some foods expand as they

process, and all need a certain amount of head room to process and keep well. Always follow your canning book's directions exactly.

You may add a teaspoon full of salt to each jar if you want to enhance the flavor, but it is not necessary.

Pour boiling water into each jar, just covering the beans. Then carefully clean off the rim of each jar with a warm, damp cloth to remove any food bits which might prevent the jar from sealing, and check for nicks in the rim with a clean finger. Place the lids and rings into position. Do not over-tighten the rings. The ring only holds the lid securely into place for processing, and does not have anything to do with how well the jar seals.

Bring the canner up to the same approximate temperature as the jars, then carefully place the hot jars into the canner, taking care not to thunk them together. Leave space between jars to allow for steam to circulate during processing.

Tighten the canner lid, raise the heat to high, and allow the canner to exhaust. When a steady, forceful stream of steam blows from the vent, close it and let the pressure build up. When it reaches the correct pressure



*Bob cutting elk with a chain saw,
I'm getting ready to can!*

(10 pounds for altitudes less than 1,000 feet above sea level, but see your canning book for higher elevations), begin timing. Pints of green beans will be processed for 20 minutes, and quarts for 25 minutes.

At the end of this time, turn off the heat or remove the canner from the heat and allow the pressure to return to zero. When it does, unfasten the lid and carefully lift it away from you, allowing hot steam to escape away from your arms and face. Then remove the jars carefully with jar lifter, again not thumping them together, which could result in cracks. Place the hot jars on a dry folded towel in a draft-free area until they cool.

Canning ground meat

Any ground meat or ground meat products such as chili, spaghetti sauce, taco meat, etc., should be cooked before it is canned or it will not have a good texture. The meat will clump together in lumps. So, in a large frying pan fry the meat in as little grease as possible. (Grease is the #1 enemy of jars sealing). Add the spices you desire, then the tomato sauce, beans, chopped onions, or whatever.

Have clean canning jars on hand, kept hot in water. Also have a sufficient number of boiled lids on hand so that the process proceeds as quickly as possible.

Using a canning funnel, carefully fill each jar to within an inch of the rim (one inch head space), wipe the jar's rim with a warm, damp cloth and

Tips for canning meat and vegetables (Low acid foods)

1. Always use a pressure canner for all meats, fish, poultry, wild game, vegetables, and products containing these products such as soups, stews, sauces, etc.

2. If unsure of processing time, process the jars for the ingredient which requires the longest time. For instance, spaghetti sauce needs to be processed for the time given for meat, not tomatoes.

3. Can only fresh food. Never use questionable food for canning.

4. Remember, hot + cold = broken jars.

5. Never take shortcuts in processing time.

6. Following canning book directions results in wholesome, long-keeping canned food.

7. Get into the habit of checking and rechecking for nicks and cracks in jars. You'll save frustration, food, and money.

8. Don't try to pressure-can with arty jars that use zinc lids, or glass tops with wire bails, etc. You can't tell if they are sealed or not. A dangerous practice.

9. Don't experiment with recipes for canning until you are experienced and understand canning fundamentals completely. There are hundreds of tried and true recipes out there for you to gain experience with. (Spices may be varied to one's taste without endangering processing.)

10. Don't can meat with bones or fat intact, excepting fish or poultry. The bones and fat impart an unpleasant flavor at times, especially in game meat or mutton, and the bones take up unnecessary room in the jars. Also remember that fat is the #1 enemy of jars sealing.

11. Before eating or tasting a newly opened jar of food, visually check it for normal appearance and odor first. If there is any frothing, cloudy juices, unusual odor, or if a jar gushes or is not sealed when opening, then discard the contents where animals cannot get at it. This food is a definite risk. When it passes inspection, boil it for 15 minutes, just to be sure. This will kill bacteria that might make you sick.

inspect the jar again for any minute nicks.

Then screw the band snugly on over the hot lids and place each hot jar into the warm canner. Again, be careful not to thump the jars together as it could crack them.

Turn up the heat with the canner vent open, and wait until a steady stream of forceful steam exits the vent. When this happens, close the vent and wait until the pressure arrives at 10 pounds. (Again, if you are canning at altitudes over 1,000 feet above sea level, check your canning book, as the pressure must be increased with the increased altitude.) When the correct pressure is attained, begin to count the processing time. Be careful not to let the pressure fluctuate as it can blow liquid out of the jar.

Pints will be finished in one hour and fifteen minutes and quarts in an hour and a half. I process half pints, which are very handy for casseroles, etc., for one hour and fifteen minutes.

Some reliable food processing books

The Ball Blue Book (the Guide to Home Canning and Freezing), Alltrista Corporation Direct Marketing Department PK31, P.O. Box 2005, Muncie, IN 47307-0005, \$5.95, including shipping. IN residents add 5% tax

Putting Food By, by Hertzberg, Vaughan & Green, Stephen Green Press

Stocking Up, by Carot Hopping, Rodale Press

Other great books are available, of course. Check out your local book store (or their catalog) and the library. Your county extension officer, usually located in the courthouse, can usually provide free (or very low cost) canning publications and leaflets.

When the jars have processed for the correct amount of time, turn off the heat or carefully remove the canner from the heat, and allow the pressure to return to zero. (Do not try to hurry this by fooling with the exhaust valve or you may end up with broken jars or jars that do not seal.)

Carefully remove the cover away from you to avoid steam burns, then take the jars out carefully and place them on a folded, dry towel in a draft-free place to cool.

When completely cool—overnight is best—remove the rings. Then carefully wash each jar in warm soapy water, dry them, and store them in a cool, dark, dry place. This meat will last indefinitely, regardless of what you have been led to believe.

Home canning meats and vegetables should be a part of your family's lifestyle as you strive for more self-reliance and control over what you eat. It is so simple to learn, with easy-to-follow instructions readily available for almost any sort of food from green beans to shrimp. This allows your family more freedom to not only eat well, economically, but to save hundreds of dollars a year. And it provides the convenience of having a sumptuous meal ready in minutes whenever company comes or when you are in a hurry. After all, how else can we have a complete roast elk dinner ready in half an hour—meat, potatoes, onions, carrots and green beans?

△

Preserve mushroom harvests

By Eudene Murphy

While on a camping and hunting trip in the mountains, we met a man who was looking for mushrooms. He showed us some very good ones which we enjoyed nearly every day. I sliced some steaks from the hanging venison and placed them on a grill over a small charcoal fire. Meanwhile, I sauteed the mushrooms in butter. We ate like kings.

We've found several different mushrooms in our area that are good to eat. Some can be found only a few weeks, like the morel. Others are plentiful for a season. Among our favorites are the morel, puffball, coral, oyster, and chicken-of-the-woods. A field guide with photos will identify the edible mushroom. Positively identify each one collected.

I tried different ways to preserve mushrooms, but with little success until I found an old recipe called Duxelles. The mushrooms are cooked with other ingredients and then frozen. Duxelles can be used to make soup, sauces, or added to meat or vegetables.

Mushrooms will grow delicately around leaves, twigs, grass stems, and bark. These parts will have to be

trimmed away. Pick over mushrooms carefully because all kinds of little insects like to live in and on them. Cut away parts that are tough or inedible. Rinse well in cold water. Set aside the best parts for frying or to be used soon. Use the rest for Duxelles.

Press out excess liquid and chop finely. Melt one fourth cup butter and two tablespoons cooking oil in a frying pan. Add two cups of prepared mushrooms and one small onion, chopped. Cook over medium heat, stirring constantly until liquid is evaporated and mixture is dry but not brown. Add salt and pepper to taste, a dash of nutmeg and a teaspoon of parsley flakes. Mix well and cool. Store in a covered jar in the refrigerator or in a plastic bag in the freezer. Duxelles is a convenient and versatile addition to many dishes.

Sometimes a large amount of mushrooms will be found. Preparing Duxelles is a good way to preserve them.

Become familiar with the edible then frozen. Duxelles can be used to mushrooms in your area. They are a delicious natural food and quite a treat that fits right in with country living. △



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Dad's incredible (secret ingredient) holiday ham

By Don Fallick

The first Christmas after my divorce, I decided to break with tradition and cook a ham. It would be my first holiday season as cook, and I wanted the *pièce de résistance* to be memorable, delicious, and within my limited ability. I also wanted it to be cheap. Hams are quite cheap around Christmas, even ones big enough to feed our large family. Over the years, it has become a holiday tradition around our house. I've learned a few things about cooking ham including a "secret ingredient" that makes it taste better than the commercial "honey baked" kind.

Ingredients:

1 whole, "bone in" ham, at least 1 lb. per person
 1 box of whole cloves
 1 pint "secret ingredient" — fresh apple juice
 canned or fresh pineapple, or candied crab-apple rings
 applesauce
 cinnamon powder (optional)
 potatoes for baking
 aluminum foil
 traditional holiday side dishes

Buy ham with the bone left in. "Bone in" hams are not only cheaper than boneless ones, they taste better. When butchers remove the bone from a ham, they also take some of the tastiest meat, found right next to the bone. Also, the bone helps conduct heat right into the center of the ham, cooking it from the inside and the outside. So the ham stays moist and tender. "Cook before serving" hams generally cost less than "fully cooked" or "ready to eat." They'll take a bit longer to cook, but are otherwise just as good. If you have a smaller family, you may want to buy a half ham, or even a "picnic" ham. This is nothing more than the shoulder of the animal, instead of its rump. If you smoke your own ham, you can use either the front or rear leg of the pig, or even make ham from goats or other animals.

Place the ham fat-side up on a rack in an open roasting pan. The rack keeps the meat up out of the drippings. Bake at 325°F. Baking time depends on the weight of the ham and whether it is fully cooked ("ready to eat") or not. See the cooking timetable for specific cooking times.

Every recipe I've seen says to use a meat thermometer and bake cooked hams to 130°F, or uncooked hams to 160°F. Temperatures are the same for half-hams of 5 to 8 pounds, but add 10 degrees for an uncooked picnic ham. If you have a meat thermometer, use it. I've never owned one, so I go by the time and have never had a problem.

Ham is much easier to carve if you let it "set" for 15 minutes or so after it comes out of the oven. It will continue to cook in its own internal heat, so take it out 5 degrees cooler than the required temperature, or count the "setting" time as part of the baking time if you don't use a meat thermometer.

However you decide to tell when the ham is done, it's important to know in advance how long it'll take, so you can take the ham out of the oven and slash it. One hour before the ham is done, remove it from the oven. You'll need a meat fork to hold it, as it'll be too hot to handle. Using a very sharp knife, slash open the rind and fat all the way to the meat, in parallel lines one inch apart. Then make parallel slashes approximately perpendicular to the first lines, creating one-inch squares or diamond shapes. Stick a clove in the center of each square or diamond. Baste freely with fresh apple juice and return to the oven. Baste with fresh juice every 10 minutes or so until the ham is done.

While you've got the oven open to slash your ham, pop a few foil-wrapped spuds in to bake. I

like thick skinned, brown potatoes best. But then, I eat the skins.

Actually, any variety of potato you come across is OK to bake.

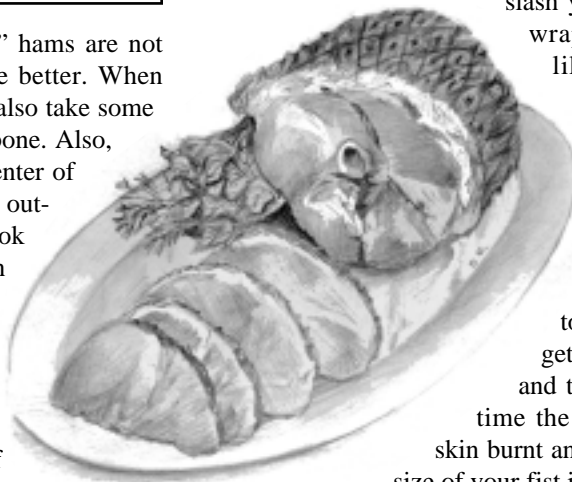
Size is more important than variety. If the potatoes are too big, they won't

get done in time. Too small, and they'll be overdone by the

time the ham is cooked, with the skin burnt and unappetizing.

About the size of your fist is a good size for baking at

this relatively low temperature. If you've got great big spuds, leave them in a few minutes longer while you carve the ham. Just be sure you don't forget them.



Carving

Use a solid meat fork and two separate carving knives: one with a long, narrow blade for cutting around the bone, and another with a wide, serrated blade for slicing the ham.

Cooking timetable for ham Oven temperature 325 degrees			
Type and cut	Weight range	Meat thermometer temperature	Cooking time (min. per lb.)
Fully cooked			
whole	10 - 15 lbs.	130°F	10 - 15
half	5 - 7 lbs.	130°F	18 - 24
picnic	5 - 8 lbs.	130°F	25 - 30
Uncooked			
whole	10 - 15 lbs.	160°F	18 - 20
half	5 - 7 lbs.	160°F	22 - 25
picnic	5 - 8 lbs.	170°F	35

Both should be very sharp. I like to use the time while the ham is baking to touch up the blades of my carving knives. The kids have come to associate the sound of a knife on steel with scrumptious food. It's a memory that'll last them

a lifetime. Place the ham directly on a firm surface, such as a chopping block or clean table. It will likely drip grease on the surface, so protection for your clothes is in order. The first time I tried carving a ham, I tried to do it right on the serving platter, and it wouldn't hold still.

Holding the ham with the fork, and using the long, thin knife, cut all the way around the bone. Stay as close to the bone as you can. Some of the tastiest meat is located there. Then change knives and cut off slices about ¼-inch thick or so. If you like your ham thin-sliced, cut it that way. It won't affect the flavor. And the ham will be so tender, thick slices won't be noticeably harder to chew than thin ones. I just like the visual effect of a big, thick slab of ham on the plate. Garnish with pineapple or candied crab-apple rings, and serve with applesauce. The applesauce is for dipping chunks of ham into, and may be lightly dusted with cinnamon powder when served. Add whatever holiday side dishes are traditional around your house. And never reveal the "secret" ingredient. Δ

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Use common herbs to treat the common cold

By Bill Palmroth

So you feel a cold coming on. What are you going to do about it? Run to the drug store for some Anacin, AlkaSeltzer, decongestants, and a lot of cough drops? Oh, no! What you need to do instead is help Mother Nature do her housecleaning with fruits, juices, pure water, and herbal laxatives. Also, it is best to stop eating mucus-forming foods—dairy products, meats, and even flour. Remember, a cold is nature's way of cleaning toxins from the system, and it does not have to put you in bed feeling miserable.

At the first sneeze, chill, or watery eyes, hop into a "ginger" bath—about four tablespoons of powdered ginger per hot tub, and soak for 20 minutes. This will pull toxins through the pores of your skin.

Consider some Vitamin C, the infection fighter. It also increases resistance.

Vitamin A will heal those mucus linings, particularly those in the respiratory system, and it is a protector of the cells.

Then there are herbs: garlic, echinacea, capsicum, fenugreek, and goldenseal. They fight and pull those rascally bugs and mucus out of your system. Fenugreek, in particular, helps loosen mucus in the system and goldenseal is healing to mucus membranes, while both garlic and echinacea are natural antibiotics and capsicum helps all the herbs do their job of healing and nourishing the system (lots of natural Vitamin C) and is stimulating. Herbs are meant to regulate organs and glands, correct the balance, and cleanse the cells. They are not as palatable as fresh fruit, but they are workers.

Fruit has the ability to dissolve mucus from the body and works as a

laxative in the bowels. Herbal laxatives help move the waste out of the body.

Emily Glenn, a certified herbalist in Portland, Oregon, put me on to a garlic-based cold remedy that works wonders on all virus cold symptoms and is especially good for sore throats. My own experience with this remedy has been excellent, and I highly recommend it to others.



To one quart of water, add a whole ball of garlic cloves (unpeeled) and a grapefruit which has been peeled and quartered. Rapid boil the ingredients

Herbs will do more to help eliminate the symptoms of a cold and make you feel better in just hours than any medicine on the market.

for 20 minutes, then strain the mixture into a container.

In addition to being an excellent source of Vitamin C, juice from the grapefruit adds flavoring to the remedy which helps neutralize the strong garlic taste.

Drink a hot cup of the remedy once every hour for as long as it lasts. By then, your cold symptoms should be gradually diminishing. However, you can make another batch and repeat the dosage if you feel it is necessary.

Herbs will do more to help eliminate the symptoms of a cold and make you

feel better in just hours than any medicine on the market. The last time I began sneezing and getting watery-eyed, I took a dropperful of echinacea-goldenseal liquid extract every two hours and by bedtime that evening it was obvious that my big battle was over. My cold symptoms had almost completely disappeared and I was feeling much better.

Earlier, I took the same compound herbal extract to fight off the flu bug. On that occasion, I found that echinacea alone didn't do much to relieve my flu symptoms. I needed something more effective and I found it in the echinacea-goldenseal liquid extract.

Let's examine both echinacea and goldenseal to determine why they work so well together as cold and flu fighters:

Echinacea stimulates the immune system in colds, flu, and sore throat, increasing the body's ability to resist infection, especially the production of white blood cells. It is considered one of the best blood cleansers and is called the King of Blood Purifiers. Echinacea contains vitamins A, E, and C, iron, iodine, copper, sulphur, and potassium.

Goldenseal is valuable for all catarrhal conditions and has the ability to heal mucus membranes anywhere in the body. It ranks high as one of the best general medicinal aids in the herbal kingdom. When taken with other herbs, such as echinacea, it increases the tonic properties for whatever ailment is being treated.

Goldenseal contains Vitamin A and C. It also contains Vitamin B-complex, E, F, calcium, copper, potassium, lots of phosphorus, manganese, iron, zinc, and sodium.

The next time a cold strikes, try the natural way to help nature eliminate the toxins from your body—herbs, vitamins, minerals, juices, and fruit. Δ

Ayoob on firearms

By Massad Ayoob

Home defense handguns: simplicity suffices

You can get as high-tech as you feel you might need when you select the firearm(s) you'll use to protect your family. I "do firearms" for a living, and the gun I prefer to have at the bedside is a customized Beretta 92 with super-accurate Jarvis barrel and kick-reducing Magna-Port. It has night sights and an attached SureFire flashlight, and is loaded with an extended 20-round magazine of 115 grain +P+ 9mm hollowpoints.

Does one need to go that high-tech? Frankly, no. A basic handgun will get you through tough challenges. If I was going to have only one firearm in the home for family protection, it would be a handgun. Despite the greater power and other advantages of a rifle or shotgun, it's seldom practical to take one outside when trouble is expected. You can't answer a late-night knock at the door with a long gun in your hand without the risk of terrifying an innocent visitor.

The fact that a basic handgun will get the job done was reinforced for me recently at the New Hampshire State Championships of IDPA, the International Defensive Pistol Association. IDPA was developed by a group of pistol champions and tac-

tics instructors who wanted a skill test environment for the kind of handguns cops and lawfully armed citizens use for protection.

Which handgun? Most people shoot semiautomatics better (i.e., faster and straighter) than revolvers. Their more modern designs simply have better human engineering. The overall top shot at the match and champion in the Custom Defensive Pistol category was Mark Mazzotta, a grandmaster shooter. His gun, lightly customized by Bill Wilson, was a Colt Government Model .45 auto. This was the primary US military handgun from 1911 to the present, with Delta Force still using it in lieu of the Beretta 9mm that is otherwise standard military issue. The only difference between Mark's pistol and the one you might have inherited from your grandfather is that Mark's has been made more accurate with a crisper trigger pull.

Many feel that a high cartridge capacity 9mm makes the most sense for a home defense handgun that might have to be grabbed so suddenly that you can't access spare ammunition. A 16-shot Smith & Wesson PC 5906 was the gun that Bristol, Connecticut, cop Bryce Linskey used



Massad Ayoob

to win both first place in Stock Service Pistol category and top score by a law enforcement officer. It has a smoother action and greater accuracy potential than a stock S&W 9mm, thanks to the ministrations of the S&W Performance Center, but at across-the-room distance will be equalled in performance by the S&W Model 59 pistol your dad might have bought in 1970.

Others split the difference between round count and per-shot power. Winner of the Enhanced Service Pistol class was Tom Calandra, using a Para-Ordnance P-16. This Canadian pistol is essentially a very well made copy of the 1911 Colt, capable of firing 16 rounds of the .40 Smith & Wesson cartridge. The .40 has for many provided the compromise between the high capacity, medium power 9mm pistol and the lower capacity, higher power .45.

A compact 9mm with fewer rounds can also suffice. The female state champion was LFI instructor Deb



Mark Mazzotta uses a "plain vanilla" Colt Government Model .45 to win the NH IDPA state championships. This gun has protected our nation and its citizens since 1911. Note that there are no scopes, compensators, flashlights, lasers, bells or whistles attached.

Morris. She used the HK P7M8 that she carries daily in a Mitch Rosen "Nancy Special," a hip holster especially designed around the female anatomy. The ergonomics and reliability of this 9-shot 9mm compact pistol mean more to Deb than a few less rounds in the magazine.

Finally, the reliable old revolver is still the general recommendation for first-time handgunners. I managed to win the Stock Service Revolver title with a Smith & Wesson Model 625, the lineal descendant of the World War I S&W 1917 model that was designed to fire the .45 Auto service cartridge with the rounds held together by metal clips. Modern "moon clips" allow a very fast reload of this accurate six-shooter. Half a dozen rounds will still get you through the great majority of "shots fired" home defense situations.

Al Greco had done an action job on my revolver. Is custom gunsmithing necessary for the sixgun to "keep up" with autos? Not necessarily. In second place was the winner of the Winter National Championships of IDPA, Brent Purucker of Smith & Wesson Academy. He uses a box-stock S&W Model 13 .357 Magnum with four inch barrel and what felt like a fourteen pound trigger pull. This simple fixed-sight revolver is part of the Smith & Wesson Military and Police series that was introduced in 1899. It's not the gun so much as it's the shooter.

In closing, let me say that when you analyze the outcomes of a lot of violent encounters, you discover that "did you have a gun" and "did you know how to use your gun" are questions a helluva lot more important than "what kind of gun did you have."

If you have a good quality firearm and know how and when to use it, don't worry about having all the high-tech goodies.

For information on IDPA and matches near you, contact IDPA PO Box 639, Berryville, AR 72616, website www.idpa.com. Δ

The Ninth Year

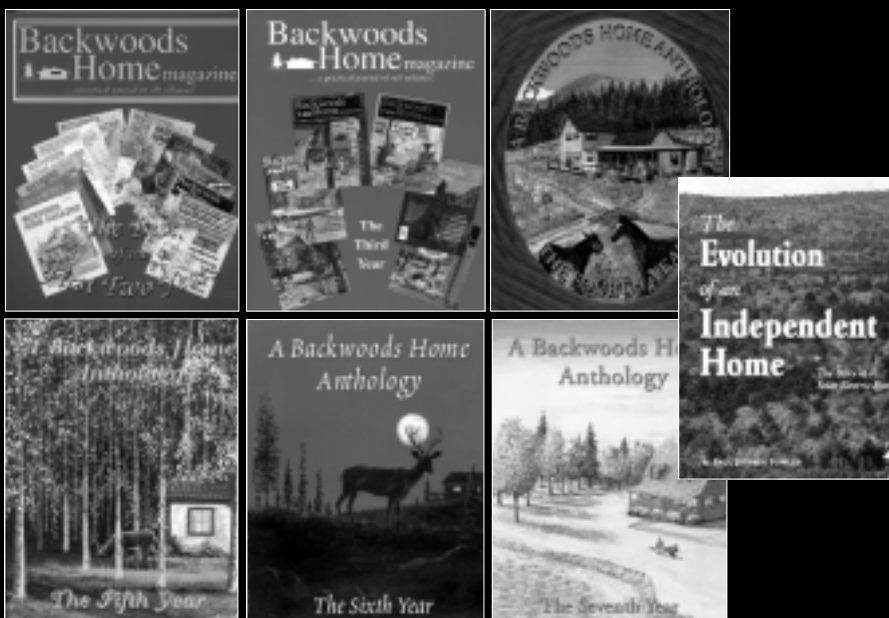
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Victory Gardens

By Alice Brantley Yeager
(Photos by James O. Yeager)

There have been very few times in our nation's history when "We, the people" have banded together so fiercely as we did during World War II. We were united in our effort to bring about a successful end to the global conflict and we went about it with utmost dedication. Everyone had someone—husband, sweetheart, relative, friend, neighbor—who was in the armed services. Many of us who remained at home were employed in the defense industry, but no matter where we worked we were all supportive of the war effort.

Certain foods were rationed, as well as tires and gasoline. We had our shoes repaired and we forgot about buying new cars. Most of us depended on crowded buses and trains to get to wherever we wanted to go. A sense of pride swept over us every time we heard our national anthem or saw our flag displayed. Patriotism spilled over into every facet of our lives. Food gardens weren't merely "gardens." They were Victory Gardens! We were urged to grow as much as we could, and a pantry filled with home-canned vegetables was something to be proud of. The home front's frugality made it possible to ship much needed food supplies overseas to support our troops.

Anyone who had space to grow anything in the food line got out his gardening tools and laid out rows for a

garden. Some of the folks, who couldn't do much actual gardening, managed to prepare "V" shaped plots on their front lawns and fill them with bright colored flowers. V for victory! On many porches there were large pots of red, white, and blue petunias. Anywhere you looked, someone was doing his part to show support for the war effort. Even lawns of public buildings had special flower beds designed to remind passers-by of our team effort.

Now it doesn't seem so important to hawk the virtues of the Victory Gardens. We're not at war and there are supermarkets brimming over with every kind of produce imaginable and from every country on earth. We used to enjoy local fruits and vegetables during their seasons. Now we may have almost anything we want at any time of year. Abundance is ours.

Despite the overwhelming amount of produce available, the fact stands out that a great deal of this produce cannot measure up to the great taste of the things we harvest from our own kitchen gardens. With every mile produce is hauled, flavor is sacrificed. What is it they say about sweet corn? To enjoy peak flavor, run as fast as you can to the kitchen with your fresh



A variety of peppers—some spicy, some not—provide wonderful flavor for all sorts of dishes from salads to salsa.

ears of corn. Strip away the shucks and silks and drop the clean ears into a pot of boiling water. Cover and let simmer five to seven minutes. Then remove to a plate, dribble with butter, season with salt and pepper if you like, and enjoy. No loss of flavor here!

And what about those bargain-priced bins of green beans often seen at odd times in the produce markets? A complete waste of time and money if you're looking for flavor. If flavor is missing, you can bet something else has slipped away too.

To go back to the Victory Garden idea may not be a bad thing. We can certainly have some personal victories over our choice of food supplies and we can enjoy varieties of home grown produce never seen in markets. We also know we're getting food that is free of pesticides.

One of the first requirements for the Victory Garden was a load of "well-

rotted barnyard manure” which was spread over the garden plot, dug in and allowed to rest for several weeks prior to planting. Depending on the severity of the climate, some gardeners also applied a thick coating of mulch.

The well-rotted barnyard manure may not be as available today in some areas as it was during the forties and before. However, some of the best fertilizer to be found comes from chicken houses where litter is cleaned out after every flock is sent to market. Poultry manure is twice as valuable as cow manure on the basis of nutrients contained. Gardeners need to be aware of what is available locally at a reasonable cost. County Extension agents are often a good source of information as they are in touch with their agricultural communities.

A well balanced soil should not be dependent on the usage of a lot of chemicals or soil additives. Unfortunately, since World War II we seem to have drifted toward dependency on chemicals. We use them to enhance production, kill weeds, fight off intruders, eliminate bugs, and on and on. When I walk into the chemical section of a gardening supply house, I often wonder how the employees survive their place of employment and, usually, no one is wearing a protective mask. This is a far cry from a load of well-rotted manure.

Recently a lady told me she has some friends who give her cucumbers. “They’re perfect looking, but they taste bitter. Do you know what causes them to be bitter?” I told her my guess is that the growers are using a commercial fertilizer. I have never tasted an organically grown cucumber that was bitter.

A good compost pile is one of the best friends a gardener can have, and it’s not difficult to start. Just select a convenient spot accessible to the garden and enclose a space about four-feet by four-feet with some type of fencing that will keep the compost contained and provide good air circu-



Let’s not forget to protect our garden friends such as this green tree frog who makes his livelihood devouring insects. No pesticides please!

lation. Have an easy side opening so you may occasionally stir or turn over the pile. Start putting in kitchen waste (egg shells, vegetable peelings, wilted flowers, etc., but **no** meat scraps), lawn trimmings, leaves—anything organic. Avoid any grass or weeds that have gone to seed as you don’t want to spread a crop of gremlins

every time you use the compost on your garden plot.

A shredder is a very useful machine to have to aid in pulverizing shrubbery and vine clippings, rose trimmings, and all manner of small greenery. The smaller the particles, the sooner they will decompose into that black gold known as compost. Along with the compost will come earthworms. When the latter appear, welcome them with a dance around the compost bin. Who cares what the neighbors think. This is a type of victory in itself.

Here in southwest Arkansas (Zone 8), as in many places, we gardeners are lucky enough to be able to garden almost all year long. We have cool season gardens when we grow many types of greens, onions, radishes, etc. During the summer a greater number of vegetables may be grown.

One of our most anticipated summertime treats is a salad made from our homegrown vegetables—tomatoes, onions, sweet peppers, cucumbers—all cut in chunks and ready for a favorite salad dressing. Personally, I prefer a bit of plain mayonnaise as it doesn’t detract from the wonderful fresh flavors of the veggies.

Exit supermarket. Victory is ours. Δ



Mixed vegetables—squash, peppers, tomatoes, beans, and sprigs of sweet basil—promise real culinary treats.

Simplify life in your backwoods home by using these easy mountain methods

By Rev. J.D. Hooker

Backwoods folk, or in my case, mountain folk, are typically very resourceful, utilizing whatever is on hand to make their lives easier and more pleasant. And hill-women are just as particular about neatness and cleanliness as their city-bred sisters. In fact they can frequently become almighty vocally abusive towards anyone foolhardy enough to track mud across their clean floors.



Deer antler coat and rack

So here are a few simple mountain methods I and some of my neighbors have used to make our life easier. The first couple can save you and the missus from a tremendous amount of hollering.

1. Boot scraper:

Even in mail-order catalogs you won't come across items like this everyday, and when you do they're generally fashioned of thin, stamped

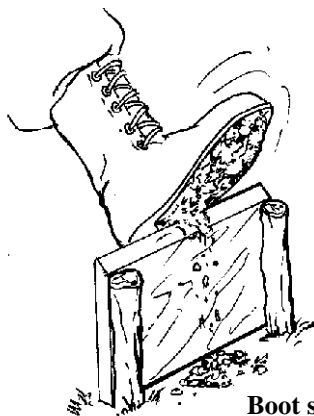
metal useful mainly for looking at. Yet, by merely driving a couple of strong hardwood stakes into the ground just outside your door and using a few nails to attach a beveled piece of hardwood 1-inch x 6-inches or 1-inch x 8-inches, it's easy to scrape the mud and gunk off the bottoms of your shoes before heading inside.

2. Boot jack:

While I've seen these offered in equestrian shops and catalogs, they usually cost upwards of 20 bucks. As you can very readily see from the illustration, this same thing, serving exactly the same purpose, is simply put together from nothing more than a couple of stout sticks and a nail or two. So why not keep your cash in your own pocket while staying safely out of trouble by easily removing your muddy footwear before tracking indoors?

3. Planting sticks:

English gardeners have their "dib-bles," with which they poke nice neat holes in their soil for ease in planting seeds, small bulbs, and so forth. In the Appalachian hill country, most folks would never even dream



Boot scraper

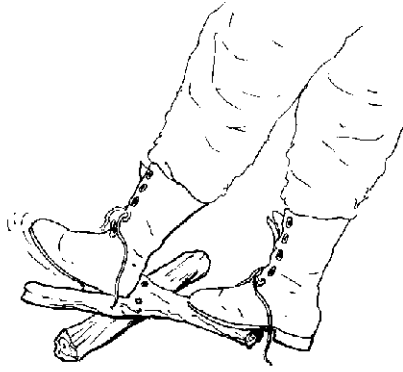


The missus amid her shotshell cupboard door and drawer pulls

of shelling out hard-to-come-by cash for such a simple gadget. Especially when the same thing is so readily user-produced from nothing more than a properly forked limb. While such simple "dibbles" are pretty ideal for planting small kitchen gardens and beds, when planting larger areas it's more normal to see one parent striding along with one sharply pointed walking stick in each hand, poking planting holes in two parallel rows at a time, while the other parent, or maybe one of the older children, follows behind dropping seeds into the holes. In the meantime, the smaller kids will be bringing up the rear, kicking dirt over each hole and firming up the soil over the seeds.

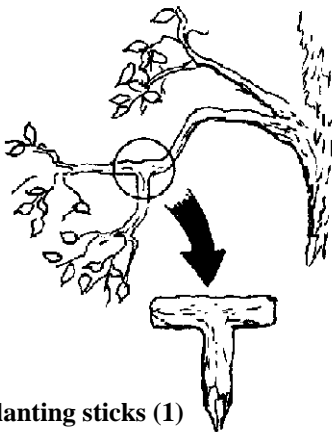
4. Coat and hat "racks:"

Though many mountain families have a variety of wooden pegs driven into the walls, mantel, and other



Boot jack

handy places inside of the house, many consider the simple single deer antler multi-purpose rack, as shown in the photo, to be the best option of all. Depending upon the number of tines, such a ready-made rack can be used to hang a person's coat, hat, gloves, or mittens, and maybe even a thick woolen scarf or two. Simply drill or burn a couple of holes through the heavy part of the antler's main beam and nail in place.



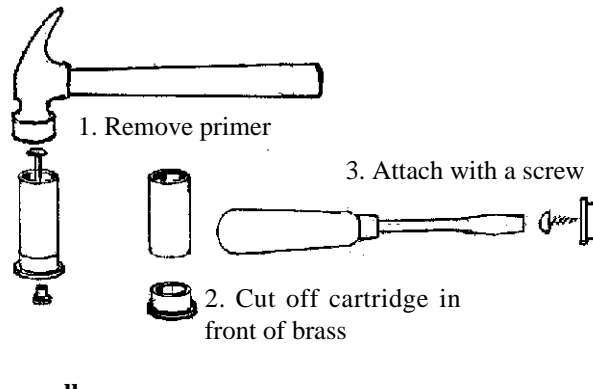
Planting sticks (1)

5. Shotgun door and drawer pulls, and buttons:

"Use it over, use it up, make it do, or do without" seems to be one of the major credos which the hill people live by. Hunters in this area, which usually include everyone old enough to tote a firearm, aren't any exception. Maybe mountain folk are better known for their superb rifle marksmanship, but in very many cases a shotgun has been found to be a much

more versatile working firearm, and smoothbores are at least as common as rifled guns in much of the eastern mountains.

When I was a youngster, reloading "tools" usually consisted of a hammer and large nail, a few large washers, about a 3-inch length of 3/4-inch iron pipe, and a couple of short dowel-like sticks. In any case, shotgun shells are normally repeatedly reloaded until they are absolutely used up, worn out, and completely unsafe to reload any longer. Even after they've reached this point these hulls still aren't usually discarded, but go into a box, bucket, or can of "calamities" until they are



Drawer pulls

needed to fashion drawer pulls or buttons, as required.

Carefully following the illustrations will allow you to use up your own worn-out shotgun hulls in a worthwhile manner. They really do add a nice, and rather unique, look when employed in this manner.

6. Corn shuck mop:

I've already mentioned that Appalachian mountain women are just as fastidious about housekeeping as any city women might be, while they're also usually exactly frugal and mighty inventive, using up anything and everything available to keep their domicile in tip-top condition. And this is how this simple, hard-scrubbing mop very probably was born. I can picture some long ago mountain wife devising such a handy contraption from practically nothing at all, with women in the surrounding

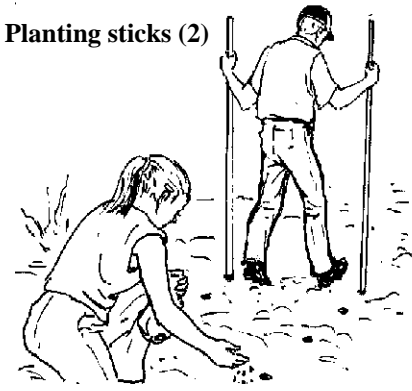
mountains and valleys readily duplicating her newly devised invention.

Using nothing more than a piece of board, a small quantity of leftover corn shucks, and a stout stick handle for materials, and a drill with 3/4-inch bit, a sharp knife, and a pair of sharp scissors as tools, it's relatively easy to follow the illustrations in fashioning your own corn shuck mop, entirely capable of scrubbing floors and such just as well as anything that's available at the mall.

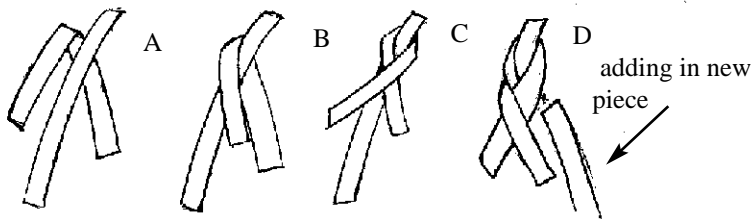
7. Corn shuck mats:

Whether the interest might be in producing corn meal, grits, hominy, or 'shine, corn is the staple crop of these

Appalachian ranges. It's from one of this crop's byproducts—the shucks or husks removed from around the ears—that door mats, table setting place mats, and many similar items are traditionally home-manufactured. As shown in the illustrations, very simple braiding and sewing techniques are the only skills you need to

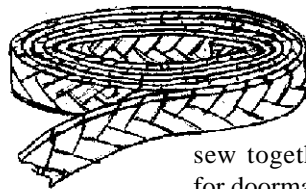


Planting sticks (2)

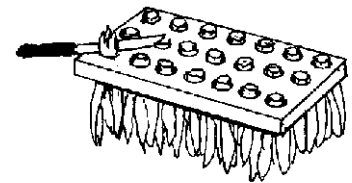


Corn shuck mat

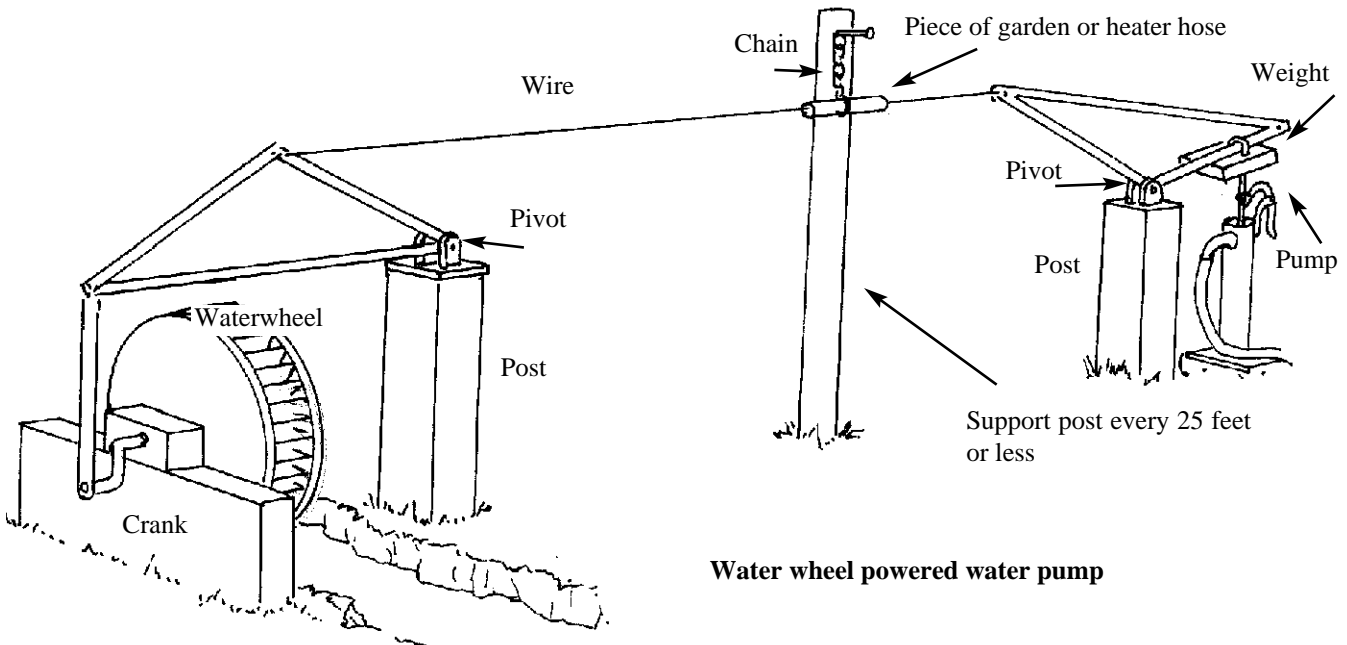
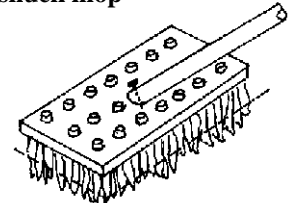
sew together flat for placemats



sew together on edge for doormats, etc



Corn shuck mop



Water wheel powered water pump

produce an array of good, usable, and unique items.

8. Water wheel water pump:

Though this particular mountain-style craft is a bit more complex to put together than the rest of these projects, it's still a worthwhile endeavor. Actually, it's only been during the last couple of decades that electrically-powered well pumps have become affordably available throughout most of these mountain regions. In fact, until quite recently even shallow wells have been considered as exceptionally valuable commodities. Of course clear, cold mountain streams are pret-

ty common in the area, but streams still don't just flow right in to your standard stock tank or out of your kitchen tap.

I don't know right when these hardy and inventive mountain dwelling folks figured out that it was possible to harness the power flowing through these mountain streams to operate the pumps drawing water from their wells and cisterns, but it must have been a mighty long time ago because my grandmother (long since deceased) remembered the method shown in the illustration to have already been a very old idea when she was in her

early childhood. While similar set-ups are still seeing daily use today in many areas, there isn't any reason this won't work just as well in any off-grid location.

So whether your own rural homestead is located somewhere along Florida's eastern seaboard, northern California's coast, or any place in between, many of these methods and contrivances, developed or used by the rugged hill-folk of the Appalachian mountain regions, are readily put to good use in any remote area. It just takes a mite of a backwoods attitude. Δ

Enjoy cheap, delicious lettuce all through the winter months

By Robert L. Williams

Last winter, when the price of lettuce was \$2 per head, one of my family's great pleasures was going out into the garden and picking a basket of crisp, green, tasty lettuce for the salads which make up a large part of our meals.

By the end of the winter we estimated that we had saved hundreds of dollars on that one crop of greens alone. Keep in mind that we eat lots and lots of salads, and we picked lettuce from the winterized lettuce bed from the first of September until the end of May, which meant that if we picked three or four times a week, we were saving about \$6 weekly, \$24 monthly, and about \$216 over the winter and early spring.

And of the amount we saved, all but about 75¢ was pure profit. Our only expenses were a few seeds and a sprinkling of fertilizer. There were no hidden costs of any sort.

Before you rush out to build your winter lettuce patch, look at a few basic values and ideas. First, the lettuce crop was always protected from rabbits, deer, woodchucks, and other critters that like to eat our gardens.

Second, remember how long it takes to wash leaf lettuce to be sure to get all the insects and their leavings off the plants? In our patch there simply were no insects and therefore no insect debris of any sort.

Third, when heavy rains water your outdoor lettuce patch, you must wash repeatedly to get all the grit off the lettuce. In our little patch, there was no time when the rain actually struck the plants or the soil next to the plants. We could, if we had wished, have eaten the lettuce straight from the garden, without washing it at all. We did wash it, but only for aesthetic purposes

more than to eliminate contaminants.

Fourth, when most garden crops are covered with or at least dusted with insecticides, we had no worries because we never had a reason to dust or spray the plants.

Fifth, and perhaps most important, we found that there were many produce stand operators who would happily have bought all the excess lettuce



Elizabeth Williams picks some winter lettuce in the snow.

we could provide. This means that if we had made the patch five or ten times as large as we did, we could have sold many dollars worth of lettuce. By modest estimates, we could have easily sold several hundreds of dollars worth.

Now it's time to rush out to build the lettuce bed. In our case there was no cost of materials at all, and we did not have to drive to a supply store or anywhere else to pick up the materials. In fact, all we needed was in our storage house behind our own home.

The time spent in constructing the lettuce bed was, believe it or not, less than 15 minutes.

So there are the arguments for doing what we did. I have listed several

advantages, and I would have listed some of the disadvantages, if I could think of any.

Here's how to do it. At least, here's how we did it. If you have a plan that works better, then use your own methods. You may find materials that worked better than ours did, although I can't think of many ways that would be much simpler or easier than our methods.

One final point concerning the money saved or earned. I have mentioned that we saved more than \$200 in lettuce at the cost of the rabbit food in mid-winter. But the savings are even greater than I indicated.

How? Simply because when you have a large salad with a meal, you need far less of the other foods. So if you have a small steak, a baked potato, and a whopping salad, you need little if anything else. Or if you have a small serving of roast beef, you can leave off the green beans, peas, or other additions to the meal. Here's the way we did it.

We had an old storm door that we had taken down months earlier and we felt that the door was too good to throw away but not good enough to use on the house. We had thought that maybe one day we would build a small shed where the door would have been useful to us. But to that date the door had simply gathered dust.

We then found several concrete blocks that we had salvaged earlier from an old building. With the blocks we simply outlined the rectangle that the storm door would cover and then laid the storm door over the blocks.

That was it! Can you imagine anything simpler? Inside the rectangle we scattered lettuce seeds, put the door in place, and waited.

And that's when we learned just what an advantage we had in our mini-greenhouse. Because the cement blocks retained heat so well, and because the storm door glass admitted plenty of light and kept out the cold, the temperature inside the rectangle stayed at an ideal level at all times.

This meant that the lettuce grew at an amazing speed, so that we were starting to pick within a few short days of the time we planted.

We sowed leaf lettuce rather than head lettuce, largely because the leaf lettuce can be picked daily, and the heads of lettuce can be picked only once. It is true, however, that if you start picking individual leaves of the head lettuce, the heads will not form and you can pick leaf lettuce regularly.

With the rectangle in place and the storm door on top, you can rest assured that in moderate climates you will have no worries that the lettuce will freeze. I do not know that this method will work in extremely cold areas, but in the foothills of the North Carolina mountains we have days in which the temperature drops to below zero degrees Fahrenheit.

During the winter we had many days when temperatures were in the teens and even in single-digit numbers, and at no time did we see any signs of freezing lettuce. We picked day after day when the ground was covered with snow or when the nearby trees were coated with freezing rain.

On several occasions we had to scrape several inches of snow off the storm door in order to raise it so we could get to the lettuce. The crop began its first yield in September and we had fresh lettuce all during the fall, winter, and into late spring.

We don't know this for a fact, but it seemed that the winter cold kept the lettuce from maturing and going to seed. We have for years planted lettuce beds, but we have never seen a crop yield for such a long period of time.

The lettuce continued to grow, even in the colder weather, and the only time we had damage was when the tips of leaves came into contact with the icy storm door. There was, in essence, a sort of freezer burn, but only on the very tips.

Will we repeat the winter lettuce bed? It was one hundred per cent

delightful, economical, and aesthetically rewarding. I can think of no reason that we will not repeat the experiment. The only changes I can imagine making are to enlarge the bed and to try other crops, such as radishes and other greens.

You do not need a storm door, of course; you can use windows, sheets of plexiglass, heavy plastic, or any other material that will permit light and keep out the cold. And instead of cement blocks you can use thick and wide boards. The wood is also great insulation, and you may be able to find scrap lumber more readily than you can get cement blocks.

Whatever you use, I think you will be delightfully surprised by the results. And you'll be a little richer, too. Δ

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THE IRREVERENT JOKE PAGE

(Believing it is important for people to be able to laugh at themselves, this is a new feature in *Backwoods Home Magazine*. We invite readers to submit any jokes you'd like to share to *BHM*, P.O. Box 712, Gold Beach, OR 97444. There is no payment for jokes used.)

A guy walks into a flower store and says, "I'd like three dozen of those beautiful anemones you've been advertising." The shopkeeper replied, "I'm sorry sir, but we only have one dozen left. May I recommend some of these luscious ferns we just got in. I think they'd make a beautiful arrangement all by themselves."

"You're right," the customer said, "With frondes like these, who needs anemones?"

Noah Webster's wife, returning from a long trip, discovered the lexicographer 'flagrante delicto' with a pretty chambermaid. "Mr. Webster!" she gasped. "I'm surprised!"

"No my dear" said Webster with a reproving smile, "You're shocked...I am surprised."

Aphorisms for our time

99 percent of lawyers give the rest a bad name.

Deja Moo: The feeling that you've heard this bull before.

The 2 most common elements in the universe are hydrogen and stupidity.

If at first you don't succeed, sky-diving is not for you.

If at first you don't succeed, destroy all the evidence that you tried.

To succeed in politics, it is often necessary to rise above your principles.

You never really learn to swear until you learn to drive.

Money can't buy love, But it CAN rent a very close imitation

Borrow money from pessimists—they don't expect it back.

How smart are you really? Take the Idiot Test and find out

Scoring guide:

- 20 correct - Genius
- 17 correct - Above Normal
- 15 correct - Normal
- 8 correct - Nincompoop
- 6 correct - Moron
- 3 correct - Idiot

1. Do they have a 4th of July in England?
2. How many birthdays does the average man have?
3. Some months have 31 days; how many have 28?
4. A woman gives a beggar 50 cents; the woman is the beggar's sister, but the beggar is not the woman's brother. How come?
5. Why can't a man living in the USA be buried in Canada?
6. How many outs are there in an inning?
7. Is it legal for a man in California to marry his widow's sister? Why?
8. Two men play five games of checkers. Each man wins the same number of games. There are no ties. Explain this.
9. Divide 30 by 1/2 and add 10. What is the answer?
10. A man builds a house rectangular in shape. All sides have southern exposure. A big bear walks by, what color is the bear? Why?
11. If there are 3 apples and you take away 2, how many do you have?
12. I have two US coins totaling 55 cents. One is not a nickel. What are the coins?
13. If you have only one match and you walked into a room where there was an oil burner, a kerosene lamp, and a wood burning stove, which one would you light first?
14. How far can a dog run into the woods?
15. A doctor gives you three pills telling you to take one every half hour. How long would the pills last?
16. A farmer has 17 sheep, and all but 9 die. How many are left?
17. How many animals of each sex did Moses take on the ark?
18. A clerk in the butcher shop is 5'10" tall. What does he weigh?
19. How many two-cent stamps are there in a dozen?
20. What was the President's name in 1950?

Answers at bottom of opposite page

LIGHTBULB JOKES

Submitted by Robert Bateman



How many () does it take to screw in a light bulb?

Auto mechanics —

Two. One to screw in the wrong-sized bulb and one to replace the burned-out socket.

Nuclear engineers —

Seven. One to install the new bulb; and six to figure out what to do with the old one for the next ten thousand years.

Californians —

Four. One to screw in the bulb and three to share the experience.

Oregonians —

Six. One to screw in the bulb, and five more to chase off the Californians who have come up to share the experience.

New Yorkers —

None of your damn business.

Christian Scientists —

One. To sit and pray for the old one to go back on.

Jews —

Three. One to call the cleaning woman and two to feel guilty about calling the cleaning woman.

Jewish mothers —

None. No, it's okay, I'll sit in the dark.

Zen Masters —

Two. One to screw in the bulb and one not to screw in the bulb.

Teamsters —

Fifteen. You got a problem with that?

Country singers —

Four. One to screw it in and three to write about the old one.

Women with PMS —

24 ... Why 24? ... It just does, dammit!!

Feminists —

That's not funny!

One fine day, an Englishman, a Scotsman, and an Irishman walked into a pub together. They proceeded to each buy a pint of Guinness. Just as they were about to enjoy their creamy beverage, three flies landed in each of their pints and became stuck in the thick head.

The Englishman pushed his beer away from him in disgust.

The Scotsman fished the offending fly out of his beer and continued drinking it as if nothing had happened.

The Irishman picked the fly out of his drink, held it out over the beer and then started yelling, "SPIT IT OUT, SPIT IT OUT, YOU BASTARD!!"

Submitted by Julie Duffy

Rodney Dangerfield quotes

I come from a stupid family. My father worked in a bank. They caught him stealing pens.

I was so depressed that I decided to jump from the tenth floor. They sent up a priest. He said "On your mark"

My wife made me join her bridge club ... I jump next Tuesday.

I met the surgeon general ... He offered me a cigarette.

When I played in the sandbox, the cat kept covering me up.

This morning when I put on my underwear I could hear the fruit-of-the-loom guys laughing at me.

I got myself good this morning too. I did my pushups in the nude; I didn't see the mouse trap.

A man stuck his head into a supermarket and called out, "Does someone in here own the Great Dane that's chained to a parking meter?"

A man in the checkout line yelled, "That's my dog, why?"

"Well, my dog just killed your dog."


"Killed my Great Dane?" the shocked man asked. "What kind of dog do you own?"

"A Chihuahua."

"How did a Chihuahua kill my Great Dane?"

"He choked on it."

Idiot Test Answers: 1. Yes 2. One 3. All of them (12) 4. The beggar is her sister 5. He can't be buried if he isn't dead. 6. 6 7. No - because he is dead. 8. They aren't playing each other. 9. 70 10. White. The house is at the North Pole so it is a polar bear. 11. 2 12. 50-cent piece and a nickel. (The other one is a nickel) 13. The match. 14. Half way. Then he is running out of the woods. 15. 1 Hour 16. 9 17. None-Noah took them on the ark. 18. Meat 19. 12 20. Same as it is now.



Can you boil
WATER?

By Richard Blunt

Everyone has his or her own idea about how to make good soup. Soup is like people: sometimes it's good, sometimes it's just awful. My first professional mentor, Chef Sully, had a very simple and workable formula for making good soup. "Blunt," he would say with a serious face, "making a good soup is not complicated. There are only three essentials: a well-made broth, fresh raw ingredients, and a proven formula. With these and the ability to boil water, anyone can make a good soup."

Fresh ingredients and proven recipes—or formulas, as Sully put it—are easy to obtain. Supermarket produce bins and meat counters are stocked daily with everything necessary to make good broth and soup. Bookstore and library shelves are rich with books containing an endless variety of delicious soup recipes. However, many an excellent soup or broth is ruined when a cook does not understand how and when to use the various stages of a boil when preparing their favorite soup. This is surprising because the boiling point of water is unmistakably the most reliable and easy to recognize reference point in the kitchen.

As part of my first lesson in making soups and broths, Chef Sully taught me how to recognize the three primary stages of a boil. According to him good soup or broth was not possible unless the cook knew how to control the temperature of its liquid with precision during preparation. You can get a clear view of the different levels of boiling by trying the following simple exercise. It will take about 10 minutes of your time but it will show you everything you need to know about the various stages.

First place a small pot half filled with cold water on the stove over a medium heat. Watch carefully. As the water heats up, small bubbles will start forming on the bottom of

the pot. These bubbles will start slowly rising but not quite reaching the surface. This causes a sluggish movement of the water called a simmer, the first stage of boil.

As the heat increases, the bubbles start rising a little faster and will just barely break the surface of the water. This is stage two, a gentle boil.

Beyond this, bubbles begin rapidly rising to, and vigorously breaking onto the surface. This is stage three, or a hard boil.

Boiling methods

Simmering is used to cook soup and stock for a long period of time to extract and blend the flavor of the ingredients. This type of slow cooking is necessary to prevent small particles from breaking off of the ingredients and emulsifying into the broth along with fat, causing a clear soup or broth to become cloudy. The gentle boil performs relatively the same function as the simmer, but will do it a little faster. When using a gentle boil, however, stay near the pot to keep an eye on it. A gentle boil can turn into a raging hard boil very quickly. I use the gentle boil to reduce the quantity of liquid and to concentrate flavors in broths only after the other ingredients have been strained out and the fat removed. The hard boil, in my opinion, has little use in soup or broth preparation. The vigorous activity caused by a rolling hard boil can seriously damage soup ingredients and turn a good soup or broth into a pot full of cloudy mush.

Preparing your broth

Most professional and home cooks will agree that the first and most important step in soup making is preparing a good broth. A broth is a liquid made from the slow simmering of



Richard Blunt

water containing meat or meat bones, fish or fish bones, and a few vegetables, herbs, and spices to extract and concentrate their flavor. Broths take time to prepare, but once started require little attention from the cook. I make a fresh batch of chicken broth every month and freeze it in pint containers. I also make brown meat broth and fish stock as needed.

In my article published in the January/February 1998 issue of *BHM*, I discussed making a basic chicken broth. In this article I will discuss making a rich tasting brown beef broth and an easy-to-prepare fish stock that will make you a fish soup and chowder lover forever. Then we'll make a soup from the beef broth and a chowder from the fish stock. Success with these recipes requires a clear, comfortable understanding of the simmering stage of boiling. If you are not sure, repeat the boiling water exercise until you are confident.

Basic meat broth

This formula can be used to make any type of meat broth. I have used beef, veal, and pork bones, but I never mix them in the same broth. Mixing different bones in the same broth adversely affects its flavor and color. If you are using beef meat and bones and want a brown broth with a more intense flavor and color, first brown the meat, bones, and vegetables in a 400° F oven for about a half hour or until they reach a medium golden brown. I don't believe that there is any benefit to browning veal or pork. The browning process masks the delicate and subtle flavor of these meats rather than enhancing them.

This broth takes about three hours to prepare, but as I mentioned above, once started it requires little attention. The trick is to set the heat so that the broth reaches a slow simmer. The liquid will be just bulging at the surface at slow simmer with no bubbles showing. When done, this

broth can be frozen and will remain in excellent condition for months. The following recipe yields about 2 quarts.

Ingredients:

2 lbs. meaty beef bones (fresh or frozen)
3 qts. cold water
1 lb. lean brisket or stew beef cut into cubes
2 medium carrots peeled and sliced
2 large unpeeled yellow onions, washed and cut into quarters
2 celery ribs, cut into chunks
pinch Kosher salt
1 unpeeled garlic clove
1 bay leaf
10 whole black peppercorns
2 whole cloves
½ tsp. dried thyme

Method:

1. Put the meat, meat bones, and water into a deep soup kettle that will readily hold all the ingredients. Place the kettle over a low heat and let the water heat. It is not necessary at this point to boil the water. In about 45 minutes a scum will start to form on the top as the water heats. Remove the scum as it forms. From this point on, do not stir the kettle.

2. The scum will continue to form for about a half hour. When it stops forming, adjust the heat and bring the broth to a simmer for about an hour.

3. Add the vegetables along with a pinch of salt, raise the heat to a medium low, and bring the mixture back to a slow simmer. Adjust the heat as necessary to maintain the simmer. The addition of the vegetables will create more scum on the surface, which should be skimmed off as it rises.

4. When the scum stops forming, add the garlic clove, bay leaf, peppercorns, whole cloves, and thyme. Again, adjust the heat to maintain the broth at a slow simmer. Continue simmering for a least three hours or until the stock reaches the desired flavor intensity.

5. When finished, ladle the stock through a triple thickness of moistened cheese cloth. Cool the stock, uncovered as quickly as possible. One way to do this is to place the pot in a sink filled with cold water, changing the water as necessary until the broth is cooled.

6. Refrigerate the amount of stock that you intend to use within 24 hours and freeze the rest.

Senate bean soup

The wonderful aroma of a fresh, homemade soup or chowder was a constant surge from my mom's small but busy kitchen. Her demanding work schedule left her little time to prepare multicourse meals. But she made the best use of that time by preparing a wide variety of one-dish meals. Hearty, protein-rich soups and chowders served with

fresh crusty breads, vegetable salads, and a variety of cheeses were my favorites. Senate bean soup is a thick, filling soup that met all of my mom's requirements for nutrition and heartiness. Her version of this great soup contains white turnip or rutabaga, depending on which one was available in the market. This is an addition that foils its authenticity but, in my opinion, adds a nice flavor touch. She also made it with plain water and let the soup form its own stock while cooking. I prefer to include a portion of meat broth to give the soup added richness. However you make this soup, with or without broth, I'm sure you'll find it satisfying for lunches or dinners that require a filling protein-rich food.

Ingredients:

1 lb. dried Great Northern or navy beans
8 cups cold water to soak the beans
3 smoked pork hocks
2 qts. cold water to cook with
1 qt. meat broth
1½ yellow onions, chopped fine
2 cloves fresh garlic, minced
1 cup rutabaga, peeled and diced fine
1 cup celery, diced fine
1 cup plain, fresh mashed potatoes
¼ tsp. fresh ground black pepper
1 tsp. chopped green onions (without the white part) to be used as a garnish

Method:

1. Combine the beans with the soaking water and soak them for 12 hours or overnight.
2. Drain the beans, discard the soaking water and rinse with plenty of fresh water.
3. In a large soup kettle (five-quart minimum size) combine the beans, smoked pork hocks, cooking water, and meat broth. Bring the mixture to a boil, reduce the heat and simmer the beans for 1½ hours. Skim off any scum that rises to the surface.
4. Add the onions, garlic, rutabaga, celery, and mashed potatoes to the pot and continue to simmer the soup for another hour or until the beans are tender.
5. Remove the pork hocks from the soup, dice the meat, discard the bones and return the diced meat to the pot.
6. Serve the soup directly from the pot into heated bowls and garnish with the diced green onion.

Fish stock or fumet (pron. foo-may)

A rich fish broth is the secret of making a good fish chowder or soup. It is simple to make, taking only about an hour to cook. My mom made a batch of fish stock whenever I returned from a successful fishing trip. Some flesh always remains on the fish bones and head after filleting, and she

would never let this go to waste. She would simply remove the fins and tail from the frame and the gills from the head. Removing the gills was important because if left on they made the stock bitter. She would then combine the cleaned and washed frames with a few simple ingredients, simmer the mixture for about an hour, and strain the liquid through cheese cloth. Usually she would end up with about a quart of broth. This was just enough to make one of her great fish chowders. If you have never made a fish chowder from fresh-caught fish and homemade fish stock, give the following two recipes a try. If you appreciate good chowder you will find the reward well worth the effort. This recipe yields about two quarts.

Ingredients:

2 lbs. fresh fish frames and heads with the gills removed
4 ribs celery with the tops coarsely chopped
1 large yellow onion, peeled and coarsely chopped
pinch kosher salt
½ tsp. lemon juice
1 cup dry white wine (optional)
2½ qts. water
1 peeled garlic clove, crushed
1 bay leaf
4 whole black peppercorns

Method:

1. Rinse the fish frames and head in cold water to remove any slime. Chop the frames into two- or three- inch lengths.
2. Combine the washed fish frames and heads with the remaining ingredients in a stock pot that will hold all of the ingredients readily. Bring the mixture to a boil, lower the heat to a point where the stock comes to a simmer. Simmer the stock for one hour, carefully skimming off any scum that appears on the surface.
3. Remove the pot from the heat and let the stock rest for 30 minutes. Strain the stock through a triple fold of moistened cheese cloth. Strip any cooked flesh from the bones and head before you discard the bones. Save this treasure and add it to your chowder
4. Cool the stock quickly, using the cold water bath method, then refrigerate or freeze it until ready to use.

Fish chowder

The secret to good chowder is a rich stock and fresh fish. My mom would only make this chowder when she had both. She used mainly pollack and cod because they were inexpensive and they were the fish most often given to her by our neighborhood fishermen. I have also made this chowder with freshwater bass, catfish, perch, and other firm-fleshed, nonoily fish. My mom also used salt pork in her recipe to give her chowder that "Cape Cod" flavor. Cholesterol and I don't get along very well, so I have sub-

stituted vegetable oil. If salt pork is a must for you, replace the oil in the recipe with four ounces of diced salt pork. Sauté the salt pork with a little water until it becomes opaque. Remove it from the pan and set it aside. Add it to the chowder when you add the diced fish.

Ingredients:

- 3 lbs. firm-fleshed white fish, cut into one inch pieces
- 2 Tbsp. peanut oil or any oil of your choice
- 3½ cups yellow onions, diced medium
- 2 pounds potatoes, peeled and diced
- 1 qt. fresh fish stock
- 2 Tbsp. butter or margarine
- 2 Tbsp. all purpose flour
- 1 qt. whole milk
- Kosher salt and fresh ground pepper to taste

Method:

1. In a large skillet, heat the oil over a medium heat. Add the onions and sauté them until they are light brown.
2. Combine the onions, potatoes, and fish stock in a pot that will hold all of the ingredients comfortably. Set the pot over medium heat and bring the mixture to a gentle boil.

Reduce the heat until the mixture reaches a slow simmer. Continue to cook the mixture until the potatoes are done

3. While the above mixture is cooking, start a roux by melting the butter or margarine over a medium heat in a small pan. Stir in the flour and cook this mixture for about two minutes, stirring constantly. This roux should be a pale brown when ready.

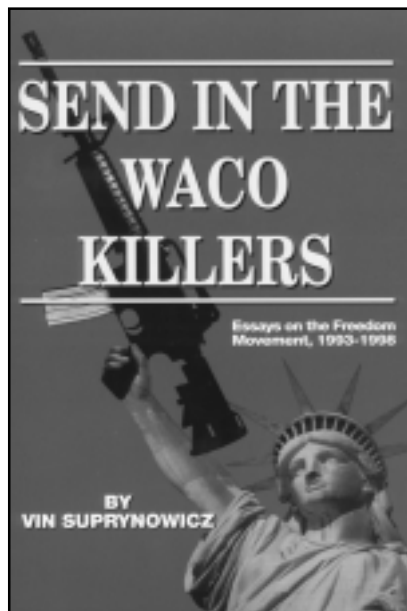
4. Remove the roux from the heat and let it cool for a minute or two, then gently stir it into the mixture in the pot.

5. Add the fish pieces to the pot and cook slowly for about 10 minutes, or until the fish is just cooked. Remove the mixture from the heat.

6. When you are ready to serve the chowder, place the pot over a medium heat, add the milk, and heat the mixture through, gently. Do not let the chowder boil.

One final word on preparing consistently great soups and chowders. Soup and chowders should never be a dumping ground for tired old ingredients that can't be used any other way. Take pride in your soups and always use the freshest ingredients available. By selecting soup ingredients with a discriminating eye, and always using good fresh stock, your soups will always be satisfying to make and eat. Δ

SEND IN THE WACO KILLERS



Three times the International Society of Newspaper Editors has included Vin Suprynowicz in their list of the 12 top weekly editorial writers in North America. For years his shoot-from-the-hip style has opened the eyes of thousands to government abuse of our liberties. In this book, Send in the Waco Killers, he blends material taken from his syndicated column with new commentary to give the reader a detailed, reporter's-eye-view of how the rights and freedoms of Americans are being subverted.

He uses factual accounts from the daily news to show how the Feds use the drug war, the public schools, jury rights, property rights, the IRS, gun control, and anti-militia hysteria to increase its power and control over us. He details how agents of the ATF and FBI have routinely lied, how they use paid informants to infiltrate Constitutionally-protected militia groups, then fabricate evidence to get arrests and discredit them.

Had he lived 225 years ago he'd have written a book to detail how King George III and Parliament have tried to enslave us but, sadly, this book is about how our government today is depriving us of our freedoms and ruining the lives of thousands without changing even one word of our Constitution.

If you read no other book this year, read Send in the Waco Killers. Just keep your blood pressure medication handy. 506 pages, trade paperback, \$21.95 + \$3 S&H.

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There's money in wild mushrooms — but only if you know what you're doing

By Tom Mysiewicz

There could be big bucks in wild mushrooms on your back 40. However, the few articles I've seen about making your fortune in wild mushrooms are, to put it mildly, sadly out of date or just plain mistaken. For instance, they tell you how Matsutake or Pine Mushrooms (*Tricholoma magnivalarie*) sell for \$300/lb. for the Number 1 grade. The price hasn't been that high since 1992. In fact, it averaged about \$8/lb. and went as low as \$4/lb. this past season (possibly because the Red Army in China shipped some two million pounds to Japan in September 1997).

You can make money in wild mushrooms, but only rarely will you be able to make substantial money. And it's a different ballgame from what it was five years ago. For one thing, there are 500-1000 hard-core Cambodian and Laotian pickers that, based on what I've seen this year, will gladly keep picking even at 75-cents per pound. Many of these individuals are on some form of public assistance and, quite frankly, view mushroom money as some spending cash rather than their sole means of support.

As a homesteader, you first need to determine what your goals are.

Mushrooms as a primary income source

Do you need a main source of income? If so, you'll want to forego picking most times (except when prices are high.) If the price paid by wild mushroom buyers is 50% or better of the wholesale price, which you can determine by calling around to fresh produce markets and produce buyers, you may be better off picking and leaving the

transportation, marketing, and collection headaches to the big boys. In recent years, however, the gap between what pickers are paid and the price paid at the wholesale level has gotten to 200% or more. This means that your best opportunities could be in marketing.

Start out within a 200-mile radius of your homestead. Contact gourmet restaurants, gourmet shops, and fresh produce markets. Offer them a good deal on whatever quality wild mushrooms are in season. Initially, you can pick the mushrooms to help absorb the costs of starting a business relationship. Try to get paid in cash up

front or, if the business is established, take a purchase order with as short a payment period as possible (say 10-20 days net).

Once you have some established customers, you can begin purchasing direct from other pickers and market their products as well, and you can purchase and ship from other areas when the mushroom bloom moves on. (The author will be glad to help you find suppliers if demand outstrips your supply). It's best to try and deliver the mushrooms in person at first so if the buyers have any complaints about the quality you'll know sooner rather than later. Bugs, fungus infestations, and soggy mushrooms are generally not looked kindly upon. Be sure to keep mushrooms cool with ventilation, such as that provided by plastic mushroom baskets or leeches. Start out small at first. When you learn what the mushrooms can and cannot take (and this varies by species) you'll be more comfortable using air freight and other methods.

If you're marketing dried mushrooms (see sidebar) you can often visit restaurants' back doors and sell direct-



A typical mushroom buyer with ready cash in hand. Steve, who buys by Oregon's Sixes River for a Portland company, is responsible in that he uses an electronic scale. Basket is tared before weighing mushrooms.



The author sold three of seven baskets of hedgehogs shown here. After severe Pacific storms, it was a slow day for the buyer and many "shroomers" had a hard time getting into mushrooms.

ly to the head chef. The good thing about driers is that they can keep for up to two years if properly prepared and kept dry (a sealed plastic bag and food-grade silica gel pack help).

Farmers' markets are yet another way to market wild mushrooms directly to the public. Several individuals make a living doing this in Southern California twice weekly and driving up to Oregon to buy mushrooms from pickers in between.

Other Ideas I've heard about, but have not tried commercially, are canning, pickling, and smoking wild mushrooms for the gourmet market. Check with your local food-safety officials to determine if any special licenses or permits are required.

Supplemental income from wild mushrooms

If you're looking for some extra cash and not a main income source, picking wild mushrooms and selling them for cash to mushroom buyers is probably your best way to go. But don't do it all the time or you will lose rather than make money.

Be sure to keep your accounting pencil handy. I think a figure of 32-cents/mile is about right for calculating repair, fuel and insurance costs for your vehicle. So if you have to drive a total of 100 miles round trip to pick and sell, you will have a fixed cost of \$32. Partners can help defray this cost. Don't be tempted to underestimate repairs. Mushrooming puts wear and tear on a vehicle that's hard to equal.

Find out the price being paid by the buyers and determine what you can pick—10, 20, 40, or even the accomplished 100 pounds per day. At \$2/lb., you would have to be able to pick about 40 lb./day to make picking worthwhile. Pay attention to local price trends and speak to other pickers about previous days' prices.

In dealing with buyers, you'll want to do and watch out for the following:

- **Prices.** High prices paid on Friday that are halved on Saturday when all the weekend pickers have rushed out to pick. Monday through Wednesday are usually the best days to sell. Avoid picking before major holidays as the big mushroom companies don't want to sit on stock that might spoil.
- **Inaccurate scales.** Get yourself a reasonably accurate digital scale and pre-weigh your product before selling to a buyer. I'm not saying there is dishonesty but, let's face it, in-the-field scales (especially the spring variety) get banged around and can be off by quite a bit. Remember that the typical mushroom basket weighs a bit over one pound, and you need to tare so that the scale reads "0" when an empty basket is on it.
- **Grading.** With many mushrooms, grade can make a big difference in what you are paid. Always take back rejected or lowgrade mushrooms just in case the buyer is tempted to believe that some mushrooms can always be regraded "later." With King Boletes (*Boletusedulis*) and Matsutake watch out for dirty knives. Buyers cutting mushrooms to look for worms (which make the mushroom worth 50 cents/lb. instead of \$8-plus) sometimes accidentally leave worm-like marks. I always take back "wormies" to put in new spots or to eat after soaking in salt water.



*Cutting Black Trumpets (*Craterellus fallax*) from a mossy patch. Leaving "root" balls in the ground helps preserve patch for future years.*

- **Buyer hype.** I've been in places where I've barely made enough to pay my gas money out of the miserable place, but when I hear buyers talk I have to ask myself if I hadn't been asleep in the greatest mushroom spot ever. There is only one way to find out if a spot will pay and that is to go there and see for yourself. Obviously, buyers want as many pickers as possible because they get paid by the pound they buy. In places like La Grande, one frequently sees 3000 to 4000 pickers bringing in 10 lb./day each—poverty wages—while buyers speak glowingly of 40,000-lb. day.
- **Selling.** Selling to the same buyer without checking prices. Often, when you are new, a buyer will pay you extra by skipping his commission. If you do not pay attention and assume you are always getting the high price, you may find that you've given back several times the original bonus. Tell your buyer up front that you expect to get the going price. A good buyer will even pay you extra if he has to go higher in price later in the day, after you have sold.

Caution signs to look out for: buyers running out of baskets, buyers running out of money, buyers closing early or not opening and buyers on quotas. These are all reliable signs that a market is topping out and a price drop is at hand. Don't be caught hanging on to several days worth of mushrooms (which you'll sometimes want to do when prices are rising) in this environment.

Finding buyers

Where can you find wild-mushroom buyers? On the West Coast, they'll be found in Willits, Calif. (Matsutake, Black Trumpets and Hedgehogs from Dec. through February); Ft. Bragg, Calif. (same); Crescent City, Calif. (same plus King Boletes, Yellow Chanterelles and Yellowfoot Chanterelles from September through March); Coos Bay, Ore. (same plus Lobsters); Florence, Oregon (same); Astoria, Oregon (same); Shelton, Wash. (Yellow Chanterelle and Matsutake from August through Sept.); and, Forks, Wash. (same).

Heading inland and south, you can find buyers at Randle, Wash. (Yellow Chanterelle and Matsutake, Aug. through Oct.); Portland, Ore. (see below); Eugene, Ore. (see below); Sisters, Ore. (King Boletes in May-June, Matsutake from Sept. through Oct.); and La Grande and Ukiah, Ore. (Morels in April through June, King Boletes through Summer).

Three major mushroom buyers who can tell you where their buyers are and quote current prices, as well as buying direct, are:

(1) Cascade Mushroom Co., 223 SE 3rd Ave., Portland, OR 97214, (503) 233-5881, Contact: Matthew Briggs.

(2) Smith's Forest Fresh Products, 4716 NE 97th Ave., Portland, OR 97220, (503) 254-0164, Contact: Arlee Smith.

(3) Pacific Mushrooms Inc., 2606 Roosevelt Blvd., Eugene, OR 97402, (541) 688-5645, Contact: John Barnes. Δ

Identifying, picking, and drying major commercial wild mushroom species

If you've never picked wild mushrooms before, stop here. You should first get yourself a decent mushroom guide such as that published by the National Audubon Society. Next, get together with an experienced mushroom picker or buyer and actually look at the mushrooms you plan to pick. After you have picked some, bring them back and double check. With species such as morels and chanterelles, any professional chef should be able to help you with a positive I.D. Other good resources are local mushroom clubs and mycological societies. Frequently, these sponsor field and collecting trips.

Please note that the descriptions given here are for general information and should not be relied on for a conclusive identification, in lieu of the advice given above.

Of the more than 5000 wild mushroom species found in North America, only a few percent are poisonous.

The **Matsutake** or **Pine** (*Tricholoma magnivalarie*) is found from Hyder, Alaska down through South America. It frequents firs and pines at high altitudes and tan oaks at lower elevations. Randle, Washington, Crescent Lake, Oregon, and Willits, California, are some of the most productive areas from September through January. This mushroom is white in color with a brownish fluff on top of some specimens. The number 1 grade is a tight bud with no gills showing and the veil connecting the cap and stem unbroken. The mushroom smells like cinnamon and is quite aromatic.

As the mushroom grows above ground level and gets a small break in the veil, the grade declines to number 2. Less than a 50% break is a number 3. Flags are number 4 and 5 grades. Prices have ranged from \$500 to \$4/lb. for number 1 grade mushrooms, but price activity in recent years and growing input from China and North Korea may mean prices will stay below \$50/lb. level for the foreseeable future.

The **Morel** (*Morchella* family) is a good starting point. It looks like an



A healthy Lobster is sometimes harder to find than you might think. Even though bright red or orange they often grow under moss for a considerable period and can sometimes only be seen looking uphill.

oval brain on a smooth stem that is shorter than the head. It is hollow inside and resembles a sponge. Burnsite morels are found in abundance in some areas in which there was a fire the previous year. In the West, morels

are often found in firs, madrone, and poison oak. In the Midwest and East, look in dead or diseased elms, ash, oak and maple groves. Prices (those paid to pickers) usually start out in late March at \$10 to \$15/lb. and quickly drop if supplies increase. By May, prices often fall to \$1-2/lb. before rebounding later in summer.

King Bolete (*Boletus edulis*) often follows the morel in late April through July (and in late fall on the coast). This mushroom also has no gills but a white sponge-like underside that later turns yellow as the mushroom opens. The cap is dome-shaped and is reddish, tan, or potato colored. The stem is fat looking like a pot-bellied stove. The underside should not stain red, blue or black when scratched. If it does, it's not a King. Price for Kings



Some late-season Yellow Chanterelles. These are the bread-and-butter of the coastal mushroom picker.

usually starts at \$10 to \$15 for the number 1 grade and go down to the \$1 to \$3/lb. range if the season is good. This mushroom, being one of the tastiest, is a worm magnet and you will have to learn to feel for them.

A summer mushroom is the **Lobster** (*Hypomyces lactifluorum*). It is funnel shaped, bright red or orange, has no gills, and is actually an *Agaricus* or *Lactarius* species that's been colonized by a parasitic fungus. North of Coos Bay, more frequent colonizations of poisonous species occurs, and care should be taken in identification. The mushroom is also found up the Columbia River and in Washington, in the Randle area. Prices for this crisp mushroom (that tastes like seafood when dried) range from \$8 to \$10/lb. early in the season to as little as 50-cents at the peak in a good year.

The **Black Trumpet** (*Craterellus fallax*) is found from September through March under tan oaks, oaks, or other deciduous trees where they grow in large clumps among the leaves. They are sometimes hard to spot being funnel shaped, black on the outside and black to gray on the underside. Trumpets can get up to 6-inches long and are not very thick. Prices usually starts out at \$6/lb. and, for the past several years, has declined to the \$1/lb. area (where it isn't really economical to pick).

Yellow Chanterelles (*Cantharel lus-cibarius*) are a major commercial

mushroom with a big following in Europe. The bulk of the harvest takes place from August through November, with prices opening in the \$7 to \$8/lb. range, dropping to as little as 75-cents/lb. at the peak of the season, and then back up to the \$4/lb. range as the season ends. These mushrooms are found in mid-to-old-growth coniferous forests and oaks throughout the U.S. On the West Coast, they're found

as far South as L.A. where—because of the tannic acid oak stains—they're called "mud chanties." Yellows are bright yellow or orange, funnel shaped, firm, have medium gills, (that look like they were etched into clay with a pencil) smooth (solid) stems, grow in large and scattered patches, and smell pleasant. If they have wide-spaced hanging gills, are crumbly, and smell bad, they're probably false chanterelles and are poisonous.

Hedgehogs (*Dentium repandum*) are smallish tan to tan-pink mushrooms with fat stems and packed-together "tooth" undersides that look like foam. The mushroom is slightly brittle and, when crumbled, the "teeth" fall out all over like little filaments. Hedgehogs used to be considered the bread and butter of the winter mushroom picker, paying \$3 to \$4/lb., but in recent years they've frequently been as low as \$1/lb. The mushrooms are quite tasty and used as a late-season chanterelle substitute. Best picking time for "hogs" is November through February.

Other miscellaneous commercial species include the cauliflower mushroom (*Sparassis crispa*) or wood lettuce (\$2 to \$8/lb.), Candy Cap (*Lactarius fragilis*) used as a maple-syrup substitute by bakers in bad maple years (\$2 to \$4/lb) and yellow-foot chanterelle (*Cantharellus infundibuliformis*) that are found near "hogs" and usually pay \$1 to \$2/lb. Δ

Drying wild mushrooms

Drying wild mushrooms can be a way to get extra value from wild mushrooms for the homesteader, particularly when prices are low. Morels, which dry at about an 8:1 ratio sell for \$40 to \$60/lb. dry—the higher amounts paid by chefs and end users. Chanterelles and black trumpets can sell for \$20 to \$35/lb. dry and dry at about an 11:1 ratio. Lobsters and boletes can also be sliced and dried and prices vary considerably depending on quality. A limited market exists for dry Matsutake—something not worth doing except for home use or for a specialty store.

Morels should be dried whole with stems cut as short as possible to prevent rehydration. Chanterelles should be pulled apart. Lobsters and boletes should be sliced 1/8-inch thick and spread out.

Indoors, a fan can be used with room temperature at 80 degrees F. Higher heat should not be used until the mushrooms are almost dry to prevent shriveling and discoloration. A wood stove is an excellent heat source and old window screens can be used as drying racks.

Outdoors, screens can be used or a tarp (mushrooms must be turned if there is no airflow below). There should be a breeze or some air movement. A tarp or sheet should be suspended over the mushrooms to protect them from rain and direct sunlight, which can cause discoloration.

Fully dry mushrooms should sound like poker chips. Use reclosable plastic bags or a vacuum sealer if you have one. A food-grade silica gel pack will ensure that residual moisture does not spoil your driers. If you have a small diet scale, you can weigh out packages in 1-lb. increments, which will facilitate sale. Δ

LONG TERM Food Storage

By Jackie Clay

You don't have to wait for nuclear war, depression, or some other doomsday scenario to get your family and home ready for bad times. There are floods, ice storms, droughts, power outages, and other "acts of God" around our country on any given week.

So, to avoid panic and discomfort, we know it is provident and wise to stock up on those items for not only survival, but reasonable comfort and happiness, should we need to live off what we have stored in our pantry, root cellar, basement, or attic.

Remember, hard times or other emergencies seldom, if ever, give advance warning.

Now, we know we should rotate the foods we store in order to have wholesome foods to choose from. But just how long are foods actually good?

Some items at the store have a "freshness date" and it is commonly believed that after that date the products will not be good. And even preparedness companies cite a shelf life of five years in their storable foods. Then along comes some strange per-

son, such as myself, who tells a different tale. As a long-time survivalist and home canner, with nothing to lose or



Tins and sealed jars hold dry foods such as beans, peas, corn, pasta, and seeds for future gardens.

gain from telling you anything but the truth, you might listen to my experiences.

I have always kept at least a two year supply of food stored against bad times, whether it be an illness, injury, loss of a job, storm, or worse. This is a practice I learned from my parents and grandparents who lived through and learned from the Depression. Every year I home-can hundreds of jars of food, most filled with home-raised produce and meat, some with meat from hunting, some with items pur-

chased at great sales at the market throughout the year.

In one year we canned two deer, a tremendous tomato crop in another, a bumper apple crop in yet another, and so on. I always can all I am able, as in other years the crop may not be so good and the hunting may be sparse. In this way, my pantry leapfrogs, as we do not consume all of last year's canned food. So, through the years, the canned goods build and build, and despite rotating the shelves to try to use up the oldest, our supply

expands.

Likewise, other pantry supplies, bought from the stores, grows and grows as one great sale follows another.

Okay, the bottom line: Just how long will this stuff keep? Do I really have to throw it to the chickens after a year? Two years? Five years? The answer is one word.

No.

Canned goods

No matter what you read in canning books (the newer ones, of course), on labels, in magazines, and no matter

what your neighbor or friend tells you, canned foods will last nearly indefinitely.

Now, you *must* store all canned foods, including home canned foods, in a cool, dark, dry place for optimum shelf life. Storing them in hot, light conditions will sometimes result in changes in texture, color, and taste as well as hasten the breakdown of vitamins. (It is this breakdown in vitamins that most often gives the warning, which sounds so dire: *use before December 1999, etc.*)

It is true that most canned foods will lose some vitamin content. But if you've ever been hungry—I mean real hungry—you don't worry if the vitamin C in the canned tomatoes is below national standards. Besides, we figure we make up any vitamin shortfall with the fresh produce we eat nearly every day from the garden.

Storing canned foods in damp conditions, as often found in basements or root cellars, can shorten the shelf life, and sooner or later the cans and jar tops will rust, weaken, and the contents will spoil. If this is your only storage facility, be certain to use up any cans or tins that are beginning to rust before they go bad and always check such containers for mold, cloudiness, odor, or an unsealed or bulging condition. All indicate spoiled foods. Likewise, boil all vegetables or meats for 15 minutes to kill pathogens, even if not apparent. Just to be sure.

I have home-canned jars of food that are at least 20 years old, which we use from time to time. For instance the cherries we picked from Dad's orchard, which we parcel out frugally until we get our own trees bearing. These foods taste, smell, and look great, despite their age. Plenty good for an emergency situation, for sure.

Dry goods

Okay, let's move on to the more nebulous items, such as dry goods, like flours, dry milk, sugar, etc. Will



A full pantry is great insurance.

all of these store indefinitely as well? Yes and no, depending on the product. Let's start with those that have an extremely long shelf life, given good storage practices. By this I mean kept dry, sealed, and stored in a fairly cool, dry, dark location.

Beans, dry peas, wheat, and other dry grains, unprocessed, will keep in storage a long, long time. I have some beans that are more than 700 years old, and they still germinate and grow.

You know I could eat them, if I wanted to. But, of course, I don't as they are treasures from the past.

Because these grains store so long, it is best to store whole grains, including corn, and grind them as needed. For once they are ground, the shelf life decreases, often dramatically. Take whole wheat flour and corn meal for instance. Both of these products can become rancid after a period of from two weeks to a few years, because of the oils in them.

White flour from the store has been "processed," which removes the oily germ and, of course, much of the nutrition. Therefore, it will store for a much longer time than will whole wheat flour. My grandmother did not like to use fresh white flour, preferring to use older flour as it baked better.

Right now, I'm using a bin of six-year-old white flour, and it is fine. I do sift it twice to fluff it up because when it sits in the bag for a long time, it settles and packs together. Without the extra sifting, it bakes pretty solid biscuits and bread. Corn meal will usually last, unrancid, for about a year or two in a sealed glass jar.

Other than dampness, a bag of flour or grain's worst enemy is the meal moth. This little buggler is a small, nondescript greyish moth who gets into our grain and lays eggs which hatch out into flour weevils, ruining the flour in a short time. The first sign of weevils are tiny dark specks in the flour, followed by webbing in the can or jar. The moths initially come into our pantry in a bag of flour with a small tear, hole, or unglued section of bag.

Always thoroughly check all new bags of flour or meal at the store, rejecting any that have a tiny leak. Taping the hole at the store is not a cure. Buy solid bags, and immediately get them into good, airtight storage. For long term storage, I put two 25-pound sacks in a good food grade garbage bag, stick a few bay leaves in for good measure, and seal the bag with duct tape. The bay leaves dis-

courage any moths that could possibly get into the sealed plastic bag. These sacks are then either stored in a clean garbage can or sturdy cardboard box, which is also taped shut when full.

I usually freeze five-gallon pails of whole grains in case some minute friends are hitching a ride in our food. The freezing kills them before they become a problem.

It is a very good idea to buy a package of meal moth lures/traps, which attract the moths before they attack your stored flours. The cost is minimal and they do afford good protection. These traps sit discreetly on your pantry shelf, trapping any moths that happen by.

Sugars will last indefinitely. They must be kept dry and sealed to prevent hardening. When I store brown sugar, I dampen a piece of folded washcloth and place it on top of the sugar, then seal the jar. This keeps the sugar from hardening, which is a problem with brown sugar. If a bag or jar of sugar does get hard or crumbly, it is still good, although a bit inconvenient. Just warm up the sugar and add it to the liquid in the recipe to soften it.

Dry milk, dry eggs, dry margarine and butter powder, cheese powder, and powdered cheese sauce are foods that keep very well, if unopened and well sealed. I buy dry eggs, powdered cheese, margarine, orange drink mix, and many other long-storage items from a preparedness company as they are sealed in #10 cans.

I've used some of these foods that were seven-years-old and older and all were perfectly fine. And I've used dry milk from the store which was well sealed and stored for 10 years on our pantry shelf. The milk smelled and tasted normal and resulted in great pancakes, rolls, and sauces.

Home dehydrated vegetables and dehydrated vegetables purchased from preparedness companies in #10 cans make an excellent lightweight, nutritious, long-term storage item. I dehydrate everything from sliced potatoes and corn to tomatoes and peppers.



The author picks some cukes for pickles to add to the pantry.

Perfectly dried and securely sealed, they will last for years.

I buy two one-pound foil bags of granulated dry yeast at a time. One I open and pour into a jar, which is stored in the fridge. The other is stored, unopened, in the freezer compartment of the fridge. As yeast only keeps a shelf life of about a year, unrefrigerated, I rotate this yearly, using the frozen yeast to replace the one in the refrigerator at the end of the year and buying a new one for the freezer. But, in an emergency, one can always use a bit of this old yeast or even develop wild yeast to make a sourdough starter.

Salt will keep forever if stored with care.

Baking powder will keep well a long time if stored properly. In fact, the can of Rumford I'm using now was purchased five years ago and it just sits on my shelf. And if it starts to weaken, you can just add a bit more or boost it by adding warm liquid to the mix. Baking soda lasts even longer. I'm using some off the pantry shelf that is nine, count 'em, nine years old. And no one has ever whined about my cooking.

More perishable foods

How about more perishable foods? When we lived on our remote homestead in Montana's high country, we were snowed in for at least six months out of the year, so preparation was a must. We learned that we could stick frozen stick margarine in a cooler we placed in a snowbank and have it last all winter. Unfrozen but refrigerated margarine would keep for about two months, then begin to pick up odors and tastes. We learned that tubs of margarine would keep for nearly all winter in a cold spot on the floor of our pantry, but we did need to protect it from not only our cats and an occasional mouse, but from the dogs as well. Butter lasts a much shorter time, unless kept strictly frozen.

Shortening, bought and kept sealed, will last many years before going rancid. I have used some that was 7 years-old, and it was fine.

Eggs are a big joke with us. Many folks insist on "fresh" eggs, throwing out those a few weeks old. I worked part time for an egg ranch. The fresh eggs were picked up weekly, hauled to a warehouse where they were distributed to wholesale companies, who kept them around awhile before trucking them to super markets where they were finally bought. How much time elapsed? Who knows?

We raise our own chickens but before we snowmobiled our day-old chicks up the mountain one April we had to buy eggs for the winter. We found that if we bought really fresh eggs from a rancher in November, we'd have good eggs in May. I did crack them into a cup, as an occasional one would be bad.

You can waterglass your eggs, but a crock full of those eggs is nasty to reach into. Kind of like dipping into snot for breakfast eggs. It takes your appetite away and it is a bit costly.

We found that keeping the eggs boxed in the fridge or cold corner of

the pantry was sufficient to keep them all winter. All eggs to be stored should be carefully inspected for even the most minute cracks as it can allow bacteria to penetrate the egg.

Without a flock of chickens to depend on, it is a good idea to have several #10 cans of powdered eggs on hand to be available in an emergency.

Just a note: home-raised eggs, fresh from the hen, are fine unrefrigerated for many days. I've found hidden nests in the weeds with eggs that have not been sat on by the hen yet, and though they sat out in 90° weather for as much as a week, I used them, finding every one was like it was fresh from the hen.

Meats and meat substitutes

Unless your family is vegetarian, meats in storage is necessary. No, I do not mean in the freezer, as no matter what "bad times" entail, the first thing to go is the power. Lose a job, get injured, not enough to pay the power bill, storms, earthquakes, fires, floods—all can quickly zap the power. While there are steps you can take to keep a freezer from thawing out quickly, they are not enough for a long-lasting emergency.

I have home canned meat for years, and found it extremely easy, quick, and convenient. Any canning book can help you get started today. This meat, including stews, soups, sauces, fish, poultry, and wild game will keep indefinitely if properly stored in that dark, dry, cool pantry.

Want to store meat before you get that two years' supply of home-canned meat on your shelf? Just look on your supermarket shelves. There's a lot to choose from: tuna, salmon, hash, chicken, ham, sauces, beef, and even bacon. For long-term storage I try to stay away from those convenient "pop tops" with a handy pull ring. They are nice, but can easily get unsealed in the hustle and rush of an emergency. You have to handle and



Another load of canned goods for the pantry

pack them very carefully, or the weakened area that pops can be poked, unsealing them, often without a sign it has happened. Yes, our family does have Spam on the shelves of our pantry, but I handle it very carefully. Soups, stews, canned spaghetti, and so forth, purchased from the store shelves, will also last indefinitely, if kept dry to prevent rusting.

Jerky? Well, to tell the truth, few people ever dry it long enough for safe, dependable long-term storage without canning it as well. In many climates, the meat goes bad or begins to mold in as little as two weeks without refrigeration. If it is dried to a brittle stick, it will keep longer, but it is like chewing on a piece of rawhide. Indians did it, but they were much less fussy than today's urban population.

A popular meat substitute that is lightweight, nutritious, tasty, and long keeping is a product called TVP (textured vegetable protein). You probably best recognize it as the bacon-bits that aren't really bacon. We keep about 15 pounds in factory sealed #10 cans or aluminum bags in our pantry. As most recipes only need about a quarter cup, you can see these lightweight crumbles last a long time.

They come in several flavors: chicken, beef, bacon, ham, and even taco. I've found that keeping several jars of dried soup base next to the TVPs makes a nice couple. Simply adding

the flavored soup base to soup, noodles, or whatever, then tossing in the matched TVP, makes a very quick, lightweight, satisfying, and *cheap* dinner, even on the go.

Snacks for storage

Okay, I know goodies may get raised eyebrows, but they sure make an emergency less depressing. Unfortunately, potato chips and other "normal" snacks are primarily grease which turns rancid pretty quickly. But there are still a lot of snacks out there perfect for the pantry. On the top of our list is home-dried fruit. I dry about as much as I can and have gallon jars of dried apples, apple bits, peaches, peach bits, strawberries, pineapple, apricots, pears, and more. I have 10-year old dried apples in a test jar and I've pulled out a few to nibble on each year for five years now. They are a bit brown, but still very tasty. (You can bet now I'm going to try Robert Williams' dried watermelon slices too—*BHM July/August 1998*). These dried fruits can either be eaten as a great snack, added to mixes such as pancake or muffin, or rehydrated and eaten soft and juicy.

Don't have a dehydrator yet? While you shop or build, you may want to consider dried fruit from the store. While quite expensive, it is readily available and there are good choices:



Shelves full of food. l to r: dried apple slices, pickles, onion bits, tomato sauce, peaches.

apples, prunes, raisins, cranberries, strawberries, apricots, pineapple, and more. The down side is that most are heavily laden with sugar, but they are light and tasty.

Jello and instant pudding mixes are another long-term storage goody. Lasting indefinitely, they make a great snack, treat, or reward.

Dried beverages, whether they be coffee, tea, or powdered drink mixes, all store well, even in very long-term plans. It is best, as in all the other above items, to rotate your stock, because powdered drinks, especially, have a tendency to cake. Of course they are still usable, but it doesn't take much to use the old stuff as you go and replace it with new.

Nuts and sealed packages of sunflower seeds make another great storage snack. They will usually last several years, factory sealed or home canned. Otherwise, they will become as rancid as those opened holiday salted nuts. I can a variety of nuts at home, especially walnuts and pecans from friends' orchards.

Search stores and preparedness catalogs for other snacks that sound good to you. A person can always experiment (before spending money stocking up on an item) with just about any food.

MREs? For those of you who are uninitiated, MRE stands for "meals ready to eat," a meal in a pouch developed for the military, with no cooking necessary. Here I'll put myself on the firing line and say they just plain cost

too much for this frugal person. They taste fairly good—about like a TV dinner—are reasonably nutritious, are certainly fast and easy to grab and run with, but they are expensive and heavy if you have to carry them.

However, their shelf life is quite good. It is claimed that they will store for five years, but I'd suspect quite a bit longer if kept away from heat. But, for the cost of an MRE to feed one person, I can fix a meal—a real meal where you get filled up—for four people, even in the boonies.

So there you have it—the truth according to Jackie on long-term food storage. Try it yourself and find out how creative your family can be. Mine certainly is.

Just remember these tips:

- 1. Keep food cool, dark, and dry.
- 2. Make sure the food is factory or home-sealed as well as it can be.
- 3. Rotate all storage food regularly, marking the date on which you entered each item into the pantry. Use the oldest first.
- 4. Don't be afraid to experiment.
- 5. Have fun.

After all, it's a real joy and very reassuring to know that your family can get by nearly any period of bad times, eating good, nutritious food that they enjoy. Δ

Visit the *Backwoods Home Magazine* website at:

www.backwoodshome.com



SEND IN THE WACO KILLERS

Three times the International Society of Newspaper Editors has included Vin Suprynowicz in their list of the 12 top weekly editorial writers in North America. For years his shoot-from-the-hip style has opened the eyes of thousands to government abuse of our liberties. In this book, Send in the Waco Killers, he blends material taken from his syndicated column with new commentary to give the reader a detailed, reporter's-eye-view of how the rights and freedoms of Americans are being subverted.

He uses factual accounts from the daily news to show how the Feds use the drug war, the public schools, jury rights, property rights, the IRS, gun control, and anti-militia hysteria to increase its power and control over us. He details how agents of the ATF and FBI have routinely lied, how they use paid informants to infiltrate Constitutionally-protected militia groups, then fabricate evidence to get arrests and discredit them.

Had he lived 225 years ago he'd have written a book to detail how King George III and Parliament have tried to enslave us but, sadly, this book is about how our government today is depriving us of our freedoms and ruining the lives of thousands without changing even one word of our Constitution.

If you read no other book this year, read Send in the Waco Killers. Just keep your blood pressure medication handy. 506 pages, trade paperback, \$21.95 + \$3 S&H.

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Try these tasty solutions to those problem critters around the homestead

By Scott Matthews

It seems there's no end to the problems that wildlife can cause on a homestead. A fox or coyote can clean out a henhouse in just a few nights, a family of raccoons will eat or destroy every ear of sweet corn in a small patch almost overnight, groundhog holes can cripple valuable livestock, and muskrats can perforate a pond dam 'til it holds water about as well as a burlap bag.

What's a homesteader to do? He could try repellent scents, visual and audible deterrents, fences, dogs, even live trapping and relocation. Most of them work sometimes, but none of them work all the time. I once relocated the same opossum four times in two weeks. He kept returning to our henhouse and fattening up on our eggs until opossum season opened up and I found a more permanent solution to the problem.

Can't beat 'em? Eat 'em!

That's right, we ate him. These days when you say, "meat," most people automatically think of beef, pork, chicken, or fish. Not so, even as recently as the 1940s, when many families depended on wild game to supplement the garden vegetables they raised and the wild plants they foraged. As kids, my parents not only ate wild meat, they thrived on it.

Today, scientists tell us that wild game is more nutritious and lower in fat than most domestic meats.

Oh sure, as a boy growing up in Southeast Missouri, I ate lots of doves, rabbits, and squirrels that I shot while out hunting. Still it was with



some trepidation that I tried that first opossum. I admit, I thought about just tossing the carcass into the nearest gully for the buzzards, but my frugal (some would say tightwad) homesteader's mind rebelled at the idea of wasting something that I knew was edible.

Since that time, I have tried several different species of animals and many wild game recipes. I've found that, with a little care and the right recipe, just about any kind of wild game can be a tasty addition to our table fare.

Here are a few of my favorite recipes with some suggestions as to what animals to try them on.

If you're still a little reluctant to try them, just remember, the first person who tried to eat a lobster was probably thought a fool. But look what a reward he got.

General cleaning

Skin as you would any game animal. Remove the scent glands (also called kernels). These are located in the small of the back and under each foreleg of most species and are bean shaped. If they aren't there, don't worry about it. Some critters, such as beavers, muskrats, and, of course, skunks, also have scent glands in the pelvic area. Be careful not to pierce any of these glands as they are strong smelling and can ruin the taste of the meat.

Strip off all excess fat as wild game fat holds much of the "gamey" flavor so many folks dislike. Gut the critter and wash with clear, cold water, inside and out. Remove any remaining hair which may be clinging to the meat.

Then try these recipes.

Braised groundhog

This one also works well with opossum, raccoon, or muskrat.

- 1 groundhog, cut into serving pieces
- 1¼ cup flour
- 3 tsp. salt
- ½ tsp. pepper
- ¼ cup bacon grease
- 1 pound white onions, chopped or sliced as per your taste
- 3 cups water
- 6 carrots, chopped or sliced
- 1 turnip, cubed

Mix flour with 2 teaspoons of salt and pepper. Dredge meat in mixture, then brown in the bacon grease in a large, heavy kettle over high heat. Remove the meat and set aside. Brown the onions in the kettle, then add the water and stir. Put the meat back in the kettle and add the carrots, turnip, and 1 teaspoon salt. Cover and simmer until tender (about 4 hours), or cover and bake in a 325°F oven, about 40 minutes per pound.

Coyote spread

The old Alaskan trapper that gave me this recipe said he used it with beaver, fox, bobcat, sheep, moose, caribou, bear, even—"slow or cantankerous sled dogs." My wife, Annie, tried it with a huge, old coyote that I took a couple years ago. We loved it. Several of my squeamish friends tried it and refused to believe that it was coyote. They didn't have any qualms about finishing all I had, though.

game meat, cut into chunks
mayonnaise
onion, chopped

Boil the meat chunks until tender, then grind. (Annie shredded it with a fork because we didn't have a grinder at the time.) Add the mayonnaise and chopped onion and mix as you would tuna fish. We ate it on Ritz crackers and loved every bite.

As a variation, you might substitute barbecue sauce for the mayonnaise. Next time we make it I want to try mixing in a little sweet pickle relish.

Pests under pressure

You can substitute a raccoon, opossum, groundhog, or two muskrats for the beaver.

1 small to medium beaver, cut into serving-size pieces
2 Tbsp. shortening
1 tsp. paprika
4 Tbsp. brown sugar
1 tsp. minced onion
2 Tbsp. lemon juice
1 cup water
20 stuffed olives, sliced
salt

Heat the pressure cooker. Salt the pieces of game. Place meat and shortening in pressure cooker and brown the meat. Combine the next five ingredients in a small bowl. Pour over meat. Sprinkle olives on top. Place the lid on the pressure cooker and cook at 15 pounds pressure for 20 to 25 minutes, depending on toughness and size of animal. Remove the meat from cooker and thicken gravy.

Varmint stew

This is a good general recipe that works with just about any type of game animal.

4 pounds wild game, cut into 2-inch pieces
salt and pepper
garlic salt
flour
1 large onion, chopped
3 Tbsp. cooking oil
6 potatoes, quartered
6 carrots, sliced
1 can stewed tomatoes

Salt and pepper the meat and dust it with garlic salt and flour. In a large skillet, brown the onions in cooking oil. Add meat and brown, then cover with water and add tomatoes. Simmer for one hour. Add potatoes, carrots, stewed tomatoes, and a little flour to thicken it and cook for about an hour longer. These recipes may not put an end to all of your critter problems, but they may make those occasional pests on the homestead a little more bearable. In fact, you may just find yourself looking forward to them with...uh, relish. Δ

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This year brew your own holiday beer

By Larry Cywin

One of the most interesting holiday treats is home brewed beer. While homebrewing was often a hit or miss proposition in years past, modern techniques, combined with readily available high quality ingredients, makes it a much simpler and surer thing. True, it can be very complex, but it doesn't have to be.

The general brewing process is very simple. It requires a minimum of equipment, most of which is commonly available.

3-5 gallon stainless or enameled pot
6.5 gallon glass carboy
5-10 gallon food grade plastic bucket, new
6 feet ³/₈-inch inner diameter clear plastic hose
fermentation lock
rubber stopper to fit carboy, with a hole for the fermentation lock
large plastic funnel
thermometer
hydrometer
bottles (60 12-oz. returnable, 50 20-oz. with bail top, 25 champagne bottles—don't use bottles with screw tops)
caps (for returnable and champagne bottles)
capper

Most of these items are already in the house; the rest are easily bought from local stores or mail order suppliers. The ingredients are fairly simple as well.

5-6 pounds of malt extract (this can be "hopped" or plain, light, medium, or dark in color)
5 gallons of water
1-2 oz. of hops (if using plain malt)
1 packet of ale yeast
³/₄ cup of corn sugar OR 1¹/₄ cup of dried malt extract (for bottling)

The process is simplicity itself.

Method:

1. Dissolve the malt extract (or extracts) in 1¹/₂ gallons of water.
2. Bring to boil, add hops (if called for) in cheesecloth bag and boil for 60 minutes. If using hopped malt, boil 15 minutes.



Backwoods Home Magazine senior editor John Silveira and publisher Dave Duffy are hard at work preparing this issue.

3. Sanitize the carboy with a bleach solution (1-2 oz. of bleach for 5 gallons of water). Rinse.
4. Add 3 gallons of water to carboy.
5. Add the hot malt and water mixture to carboy. (Remove hops first.)
6. When temperature reaches 78 degrees or below, measure specific gravity with hydrometer.
7. Add yeast.
8. Secure stopper and fermentation lock. Be sure to put water in lock.
9. Ferment 8-14 days.
10. Bottle according to the instructions below and cap.
11. Age 10 days.
12. Enjoy your homebrew.

Be aware that the single most important issue in homebrewing is sanitation. Beer is designed to grow bacteria

(yeast), and the wrong bacteria in your beer will produce incredibly nasty tastes and odors. In this basic case, boiling the extracts and water sanitizes them, and the weak bleach solution takes care of the fermenter. There is no possibility that the wrong bug will get into the beer.

The hydrometer, used to measure specific gravity, can be puzzling. Using plain water with an SG of 1.000, this device (it looks like a thermometer) can tell you how dense your brew is. The density is caused by sugars dissolved in the liquid, and the sugar is converted to alcohol. Generally speaking, the higher the starting SG, the more alcohol the beer will end up with.

Fermentation is obvious. Foam fills the top of the carboy. Gas (mostly carbon-dioxide) bubbles merrily out through the lock. This brew will technically be an ale and, therefore, should be fermented at 60 to 75 degrees. Since there is no advantage in aging the beer at these temperatures, it is fermented for up to 14 days. You can tell that the fermentation is done by two signs. First, the air lock stops bubbling. Second, the beer begins to look dark. The darkening is caused by the yeast settling out of the beer as it finishes its work. You'll note that the beer will darken from top to bottom.

Once fermentation is done, it is time to bottle the beer. First, sanitize your bottles, plastic bucket, and six feet of hose with bleach solution. Boil the bottle caps for 15 minutes. If you use bail type bottles, sanitize the rubber seals with the bleach solution.

Once everything is sanitized, get your carboy and put it on a table or counter. You will be using gravity to siphon the beer from the carboy, so it has to be higher than the bucket. Take the corn sugar or dried malt extract, boiled in some water, and pour it in the bucket.

The corn sugar is what will feed the living yeast in your beer, providing carbonation. Never use more than a cup of corn sugar or 1 ¼ cups of dried malt extract for each 5 gallons of beer. Too much sugar can result in over-carbonation and perhaps even exploding bottles.

Take the sanitized hose and fill it with water. Make sure there are no bubbles. The beer must be exposed to as little air as possible. Cover the ends of the hose with your fingers. Place one end of the hose in your carboy. Put the other end in the bucket. Remove your finger and let the beer flow. Do not let the beer splash, or get bubbly. Drain the carboy except for the last half inch. What will remain in the carboy is a sediment made up of spent yeast and various proteins, etc. that precipitate out of the brew during ferment.

Place the bucket on a table or counter, set your hose up again, and siphon your beer into bottles. Don't splash the beer. Leave an inch of airspace at the top of the bottle. Cap the bottles and label with the type and date. Store the bottled beer in a dark quiet place, with temperatures between 55 and 70 degrees. The beer in the bottles will begin to clear in about a week, as the yeast in suspension is spent carbon-

ating the brew. Carbonation is finished in no more than 14 days.

You should be aware that homebrew has a layer of sediment on the bottom of the bottle. While it is harmless, it can make the beer look muddy if stirred up. Therefore, it is best to chill the beer (which solidifies the sediment) and serve in a glass. The results are worth the extra effort.

Spice ale

Now that you have the basics of brewing, let's look at some holiday recipes. One traditional European speciality is spiced ale. Rather than mulling the ale (heating it while adding spices), spiced ale has the flavorings present during fermentation providing a more interesting range of flavors.

3.3 pounds of light malt extract 2 pounds of dark malt extract 2 pounds of wildflower honey 2 oz. of hops—Hallertauer or Fuggles 2-4 oz. of spices (fresh ginger-grated, cinnamon, nutmeg, allspice) ale yeast corn sugar or dried malt for priming

Following the directions above, boil everything but the yeast in 2 gallons of water for 1 hour. Strain into the carboy, cool, add the yeast, lock it up, and let ferment. Prime and bottle.

Maple beer

In colonial times, maple syrup and maple sugar were common sweeteners. It was much cheaper than the imported sugar or molasses. Of course, it found its way into beer.

6 pounds malt extract (this can be light, amber, or dark) 1.5 oz. of hops (Hallertauer for lighter brews, Bullion for darker brews) 1 pint maple syrup ale yeast corn sugar or dried malt extract for priming

Boil all the ingredients for 1 hour, using half the maple syrup. Add the remaining syrup during the last minutes of the boil. Proceed as above for fermenting and bottling.

Pumpkin ale

Another colonial favorite was pumpkin. As the old song went, "We can make the liquor to sweeten our lips of pumpkin, of parsnips, of walnut-tree chips." A pumpkin beer would be especially appropriate for the holidays. However, the pumpkin requires some extra work.

6 pounds light or amber malt extract
10 oz. maple syrup
1.5 ounces of hops (Fuggles is fine)
3 pounds of processed pumpkin
7 tsp. of spices (cinnamon, nutmeg, ginger, mace)
ale yeast
corn sugar or dried malt for extract priming

Boil the malt extract, maple syrup, hops, and pumpkin for 1 hour. Add the spices in the last 10 minutes of boiling. Strain, ferment, bottle.

Cranberry ale

Cranberries are a traditional holiday food and appear on the table in many forms. Here is one more.

6.6 pounds of pale malt extract
2 pounds of honey
1.5 oz. of hops (Hallertauer is fine)
2.5 pounds of cranberries
ale yeast
corn sugar or dried malt extract for priming

Crush the cranberries, then boil for 1 hour with extract, honey, and hops. Strain carefully (cranberry seeds are very small), ferment, and bottle.

Feel free to experiment with these recipes. Spices can be added or removed. The color of the malt (pale, amber, or dark) will change the character of the beer. Adding more or less hops, or using a different variety, will effect flavor and aroma. You can leave the hops out altogether and use a hopped malt extract. This makes it much simpler and quicker, since the long boil is to extract the bittering agents from the hops. Varying the yeast will also have an impact on flavor and quality. These three variables are enough to give any brewer room to experiment. One company offers 17 ale extracts, 54 unhopped extracts, and 18 different hops. That comes to almost 17,000 possible combinations. Granted, not all of them would be pleasant, but half the fun is in the exploring.

Supplies

Supplies are easy to find. There are literally hundreds of companies supplying beer making equipment. The magazine to read is *Zymurgy*, the journal of the American Homebrewer's Association. It covers homebrewing from the very basics to the most esoteric aspects such as breeding your own yeast strains. They also list local AHA chapters and suppliers. The address is P.O. Box 1679, Boulder, CO 80306-1679. *Brew Your Own* is another homebrew magazine. While not as exhaustive as *Zymurgy*, it is still worth a

look. The address is P.O. Box 1504, Martinez, CA 94553-0504.

There are two things to keep in mind about homebrewing. First, the AHA says, "It's not rocket science, unless you want it to be." Charlie Papazian, former editor of *Zymurgy*, and author of *The New Complete Joy of Home Brewing*, says, "Relax, don't worry, have a homebrew."

Thanks, I think I will. Δ

The trouble tree

The carpenter I hired to help me restore an old farmhouse had just finished a rough first day on the job. A flat tire made him lose an hour of work, his electric saw quit and now his ancient pickup truck refused to start.

While I drove him home, he sat in stony silence. On arriving, he invited me in to meet his family. As we walked toward the front door, he paused briefly at a small tree, touching the tips of the branches with both hands.

When opening the door he underwent an amazing transformation. His tanned face was wreathed in smiles and he hugged his two small children and gave his wife a kiss. Afterward he walked me to the car. We passed the tree and my curiosity got the better of me. I asked him about what I had seen him do earlier.

"Oh, that's my trouble tree," he replied. "I know I can't help having troubles on the job, but one thing for sure, troubles don't belong in the house with my wife and the children. So I just hang them on the tree every night when I come home. Then in the morning I pick them up again."

"Funny thing is," he smiled. "when I come out in the morning to pick em up, there ain't nearly as many as I remember hanging up the night before."

— Author Unknown
(submitted by Don Fallick)

Think of it this way...

By John Silveira

Would the United States be better off if it was officially a Christian nation?

An old friend of ours, Lyle, interrupted a vacation trip up the coast and came by with his new girl friend, Laura, to see our new digs—that's the new offices of *Backwoods Home Magazine* that are now located in Gold Beach, Oregon. Laura's a beautiful woman and the four of us, Dave Duffy—that's the guy who publishes this magazine, Laura, Lyle, and I were talking politics.

You know what I mean: we were talking about what's wrong with everyone else and why don't they see things our way. Except that our way was four different ways. Dave wanted to decriminalize everything that was a victimless crime. Lyle wanted more government control. I wanted to bring back the guillotine, the rack, chain gangs, and banishment for disobedient teenagers, which elicited laughs from everyone but 14-year-old Meaghan Silveira and 16-year-old Annie Duffy, who, as they walked out of the office door, gave me looks that should have at least left me limping. But last of all, and the most difficult position to argue with, was Laura's. She said problems would be solved if this were just a Christian country.

Apparently no one cared to argue with her. I said nothing, Lyle said nothing, and Dave said only, "That sounds a little idealistic."

And, suddenly, there he was, standing in the doorway with a grin on his face, a bucket in one hand and a bag in the other. It was O.E. MacDougal, our poker-playing friend from Ventura, California.

Dave looked at him, then at the bucket and asked, "What have you got there?"

"Anyone like steamers?" Mac asked. "You mean, steamed clams?" Dave asked.

"Yeah."

Dave and I crossed the office and looked and sure enough, the bucket had a bunch of freshly dug clams.

"Where'd you get those?" I asked.

"There's a beach and an ocean about 250 yards from here."

"You got them right out there?"

"No, a little further up north."

"Congress shall make no law respecting an establishment of religion, or prohibiting the free exercise thereof..."

"How?" I asked.

He looked at me. "I used a shotgun."

Laura laughed and Mac said, "I thought you and Dave came from New England. Don't you know how you get clams?"

"I always used a .22," I said in an attempt to keep with Mac's sense of humor, but nobody laughed.

"Are those any good?" Dave asked.

"Of course they are."

"You've had 'em before?"

"I've fished, crabbed, and clammed from San Diego to Seattle and these are great. Do you guys want me to cook 'em up?"

"You didn't get very many," Dave said. "There really aren't enough for all of us there."

"That's why I bought these," he said and we looked at the bag in his other hand.

"You bought some?" Dave asked.

"There's a limit on how many you can dig but not on how many you can

buy. I'll cook 'em up if you guys want some."

Dave and I were all for it, but neither Lyle nor Laura were interested. They came over and peered into the bucket curiously, but the look on each of their faces was anything but whetted appetite.

"I love steamers," Dave said. "I haven't had any since..."

"Since you lived back in Boston?" I suggested.

He nodded.

"Are these as good as the ones on the east coast?" I asked.

"They're great," Mac said. "I have them every chance, whenever I come up here."

He took them to the corner of the office where Dave had placed a camping stove, and while he started the steamers the rest of us drifted back into our discussion. We talked for awhile and pretty soon Mac, who had his back to us, had the pot on the stove.

"I just think if this country was Christian, it would solve a lot of problems," Laura repeated.

"I don't think anyone can argue against your point of view," I said.

"Do you mean Christian by law?" Dave asked.

"Sure."

"But if you make Christianity the state religion, you're going to be making people do a lot of things they disagree with," Dave said.

"People already have to do a lot of things they don't want," she said. "And this will not only improve their behavior, it'll help save their souls."

"And it would help straighten out what's wrong with this country," Lyle said. "But until that day arrives, I think what we need is a stronger government to keep things under control."

"I just don't like the idea of pushing religion down people's throats," Dave

said. He looked across the office and asked, "What do you think, Mac?"

Mac glanced back in our direction and shrugged. He seemed more interested in how quickly his clams were cooking.

"Come on, Mac," I said, "Do you think this country would be better if it were more Christian? Say, if we made it officially a Christian country?"

"No," he replied.

Not one of us said a word for a moment and Mac continued to watch his pot.

"Why do you say that?"

Laura finally asked.

"Ohhhh..." he began and shook his head without looking back at us. "I really don't like talking about religion."

Christian founders

"But the people who founded this country wanted it to be a Christian country," she persisted.

"Had they wanted it to be a Christian country they'd have written it into the Constitution."

"But the Founding Fathers were Christians," she continued. "They even speak of God in the Declaration of Independence."

He turned around and said, "You're right, the Founding Fathers were Christian, or at least born Christian, though some, like Jefferson, were deists when they grew up."

"What's a deist?" I asked.

"It's a philosophy that embraces a moral code, but denies the interference by a god or gods in the natural laws of the universe. And you're also correct that the Declaration of Independence refers to God," he said to Laura, "though actually, the word used is Creator."

"So isn't that evidence that they wanted some religious aspects to our country?"

"Not really. The Declaration of Independence was the document that notified the King of England and

Confederation, the document that preceded the Constitution.

"And," he continued, "the Founding Fathers themselves never referred to the Declaration of Independence as a legal document. It wasn't something they would reference as the 'law of the land.' And it isn't today. Even its primary author, Thomas Jefferson, would have thought it funny if someone had referred to it in court.

"Later, when they drew up the Constitution, in 1787, they were drawing up the document that would govern the country. And, when they did, they were well aware that they were neither referencing God nor including the Declaration of Independence into the Constitution."

"So what's your point?" she asked.

"My point is that the Founding Fathers very carefully avoided including religion when they wrote and adopted the Constitution."

"But how can you be so sure that a Christian country wasn't what they wanted?" she asked.

"George Washington himself stated that the United States is in no sense a Christian nation. He said this even though it was founded by Christians."

"You know" she added, "John Adams, the man who became the second President, said the only reason our Constitution would work is because we're a Christian people."

The First Amendment

"Yes, but even if that were true, the people being Christian and the government being Christian are two different issues. Besides, those words of Washington and Adams do not constitute a legal mandate that would or wouldn't make Christianity the official religion of this country. That



English Parliament that the 13 American colonies were breaking away from England. It was not a legal document in the sense that it was a blueprint document that governs this country. For one thing, the United States was not a 'country' when the Declaration of Independence was written. They were 13 independent states. From the time the Declaration of Independence was adopted until the Constitution was ratified, these newly independent states were more akin to NATO than a country. This was true even under the Articles of

would have had to have come from the Constitution, and the Founding Fathers not only avoided including religion into the original writing of the Constitution, but a few years later, in 1791, they made a prohibition against the establishment of a state religion in the first sentence of the First Amendment: 'Congress shall make no law respecting an establishment of religion, or prohibiting the free exercise thereof...' Christians said that."

I myself am a wuss when it comes to arguing with beautiful women, but Mac stood his ground. I had to admire his guts even though I thought he was being stupid.

"But wouldn't it be better if it were Christian?" she persisted.

"Of course not."

"How can you say that?" she asked in a shocked tone. "Christianity is based on love."

"Really? Does Christianity guarantee that we'd be a better country?" he asked and turned back to the pot whose cover he lifted to examine its contents. "Spain was a Christian nation during the Inquisition; Germany was a Christian nation under Hitler; even the judges who hung the poor unfortunates in Salem in 1692 were Christians. Slave owners were Christians and those who broke the treaties with the Indians were too. Also, both the whites who lynched blacks in the South and the blacks who rioted in L.A. were mostly Christians. History is replete with examples of Christians as well as Christian countries doing the unforgivable. Simply being Christian did not make who these people were and what they did any better. Nor did it make countries, that were officially Christian, any better."

"What do you have against Christianity?" she asked.

"Nothing," he said softly. "But even if I were a priest or a minister I'd still feel the same way I do now."

"Why? Those horrible people you just mentioned simply weren't following the Bible."

The Bible and history

"Really? Consider this: the Old Testament is almost a handbook for those who want to commit genocide. For instance, we forget that after the walls of Jericho came tumbling down to Joshua's trumpets, everyone in the city was killed. That in conquering A'i the Israelites slaughtered every man woman and child they could find—12,000 in all. Then there are massacres at Azekah, Makkedah, and Libnach—where virtually all the citizens were killed. And it doesn't stop there. There's Gezer, Eglon, Debir, Hebron—city after city—dozens of cities, where the entire populace or nearly the entire populace were killed in the name of God.

Our Founding Fathers did something no one else had ever done—they institutionalized our rights apart from God and government. They did not open them to ecclesiastical or bureaucratic interpretation or license.

"After Joshua there's the killing of Canaanites, Perizzites, Philistines. And in the time of King David the killing goes on with Syrians; some 80,700 in one battle after another.

"Exodus 15:3 says 'The Lord is a man of war.' I have trouble construing the Bible as love?"

"And when we get to the New Testament, in Matthew 10:34 we can read Christ's own words: 'Think not that I am come to send peace on earth. I came not to send peace, but a sword.'

"And following the New Testament...well, where do you want to start? It was claimed that there appeared in the sky over Constantine, the first Roman Emperor to convert to Christianity, a Christian symbol with the words 'In this sign, conquer.' And conquer he did.

"In the ensuing years, there was more slaughter, but things really start to get interesting with the Crusades, starting in 1095 under Pope Urban II. One crusade after another, for two centuries, including at least one children's crusade that left thousands of children dead, raped, or sold into slavery—all conducted by Christians in the name of God.

"Then you don't have long to wait until the Inquisition. It's purpose was to stop dissension against the 'one true faith.' Jews, pagans, and even those who had differing interpretations of the Bible became targets of those who acted in the name of God. The inquisitors' interpretation of the Bible told them they not only could do this, but they were obligated to do it. People died because of it."

He checked the pot again.

"But, in the beginning," Mac continued, "the problem with the Inquisition was that you couldn't get people off their duffs to go after the heathens, the infidels, and the apostates. Then in 1208, by papal decree, it was decided that those who persecuted the infidels could also seize their property—and so the Inquisition was born."

"This sounds like civil forfeiture we now have in this country," Dave remarked.

"It was," Mac replied. "The average soldier or priest didn't care what the infidels were doing until he found out he could cash in on it. At the very least, hundreds of thousands died and the number of casualties may have run into the millions."

"All I can say is that the people who ran the Inquisition weren't very Christian," Laura said.

"Are you telling me they weren't Christians?" Mac asked.

"No, I'm saying they didn't act Christian."

"Do you think *they* felt they weren't acting Christian. Are you telling me they didn't feel that they were acting on the behalf of God?"

"I'm not saying that. I don't know what they believed."

“Well, it actually doesn’t matter what they were thinking, but it’s important to know these acts were committed in the name of religion. And, centuries later—centuries during which more mayhem was committed in the name of God and Jesus Christ—the witch hunts began.”

“You sound anti-Catholic,” Laura said.

“I’m not. I could tell tales of the Protestants, Jews, Muslims, and who knows who else, each who have taken their turns hunting down heretics and infidels, burning, flogging, strangling, or bleeding to death those who disagreed with them, and seizing their property.

“But it is interesting that even the witch hunts came about because of a papal decree that allowed the accusers, on the basis of accusation alone, to seize the property of supposed witches—usually, rich widows—and the only defense the accused had was to ‘prove’ they weren’t witches. In other words, they were presumed guilty until they ‘proved’ themselves innocent, an almost impossible task, particularly in light of the fact you had probably already confessed to witchcraft while being physically tortured. You know, many women were raped and sexually mutilated by their inquisitors.”

“I don’t want to hear about things like that,” Laura said.

“That’s okay. But the list of religious wars conducted in the name of God is frightening. The amount of terrorism perpetrated in His name is stupefying. And the amount of persecution committed in His honor is mind boggling.”

“You sound anti-religious.”

He threw a stick of butter in a dish and put it in the microwave.

“No, I’m not anti-religious at all. All I am for is the absolute separation of church and state. That’s why I agree with the Founding Fathers and I don’t want this country to accept Christianity or any other religion as the state religion.

“But, even if you were right, and I am antireligious, anti-Christian, or whatever else you could accuse me of, would it diminish the atrocities committed in the name of God? Does your believing I’m anti-anything make religious atrocities more palatable?”

“But, in the beginning,” Mac continued, “the problem with the Inquisition was that you couldn’t get people off their duffs to go after the heathens, the infidels, and the apostates. Then in 1208, by papal decree, it was decided that those who persecuted the infidels could also seize their property—and so the Inquisition was born.”

“This sounds like civil forfeiture we now have in this country,” Dave remarked.

She didn’t want to hear Mac go on with what she regarded as an attack on religion. So she asked, “Then what do you think would help straighten out this country?”

“That’s easy: an understanding by the public of what their Constitution says and really means, along with a demand on the public’s part that it be enforced. Without that, nothing, including religion, is going to save us.

Rights and freedom

“The Constitution is important because neither Christianity, nor the Bible, nor any other religion, nor any other political document I know of, places the individual first like the Constitution of the United States does. The Constitution is about limits on government; it’s about individual rights and freedom.”

“There’s freedom in the Bible,” she said.

“There’s free choice in the Bible, but not civil freedoms. If personal rights and freedom were a Christian concept, it wouldn’t have taken Christian countries until almost 1800 A.D. to finally come up with a country with individual freedoms. Not only that, but the Eastern Roman Empire would never have adopted it as the state religion. Constantine in particular would never have adopted it. He was an emperor and the Eastern Roman Empire was a dictatorship.”

“What about the Ten Commandments?” she asked. “Wouldn’t they serve as a nice basis for law?”

“I don’t take issue with the Ten Commandments, and the Ten Commandments are not unique to the Judeo-Christian ethic. Every religion has similar directives. But they are a list of proscriptions regulating an individual’s behavior. Our Constitution and the Bill of Rights are exactly the opposite. Together, they are a list of proscriptions *against* authority—temporal authority.”

“But our civil rights are God-given,” Laura said.

“If our rights are God-given, then why don’t all Christian nations have a Bill of Rights?” He didn’t wait for an answer.

“Laura, nowhere in the Bible is there any mention of freedom of speech, freedom from unreasonable search and seizures, the right to bear arms, or even the freedom of religion—in particular there’s no freedom of religion.

“What’s more, look at the biblical view of property rights. When asked about taxes, Christ takes a coin and asks the questioner whose visage is on it and, of course, it’s Caesar’s. Christ’s response is, ‘Render unto Caesar that which is Caesar’s.’”

“What’s the problem with that?” she asked.

“The problem is, a man works for pay and presumably—even though we’d assume he now owns the money he’s worked for—just because it has a

picture of a government figure on it, it still belongs to the government.”

“So?”

“The implication here is that you give the government whatever is theirs but who decides what’s theirs? Why, the government does. And, by extension, does this mean that since the money belongs to Caesar that anything we swap that money for also belongs to Caesar? Maybe not, but it would seem that way.

“And this, of course, is the same mentality our government uses to justify civil forfeiture—that is, it doesn’t believe in ‘property rights’ of the citizens anymore. Of course, they use the Orwellian argument that property doesn’t have any rights.”

“What do you mean ‘Orwellian?’” I asked.

“In his novel, 1984, George Orwell warns against the way government personnel twist the meanings of words. He refers to this practice of changing meaning as ‘newspeak.’ In this case, when we the citizens talk about property rights, we are talking about our right to have property. The bureaucrat’s and politician’s practice is to twist the meaning and say it means property has rights and, gee, everyone knows property doesn’t have rights.”

“But they can’t do that,” I said.

“They’re doing it now. That’s actually the logic they use,” he said.

Laura seemed to have dropped out of the conversation, but Mac turned to her and said, “Our Founding Fathers did something no one else had ever done—they institutionalized our rights apart from God and government. They did not open them to ecclesiastical or bureaucratic interpretation or license. They were the people’s rights, apart from all else—at least until recently. Now there is the notion we get our rights from the government or the church, or somewhere else and that’s dangerous.

“Among the results is that, by not tying the Constitution and the Bill of Rights to Christianity and by not mak-

ing the United States a Christian nation, anyone can come here and be an American: Catholics, Lutherans, Jews, Moslems, Buddhists, Vietnamese boat people, freed African slaves, English college professors; the unwanted, the unwashed, Duffy, Silveira...”

And we all laughed.

“And why do you think they want to come here? Because it is the only country in the world, the only country in all of time, where you can come and say you belong and you can become a citizen by just believing in one thing: the Constitution.

If we want to be Christians, fine. God will save our souls. But, if we want to live free, then we have to grab our rights and hold onto them for dear life because no one else is going to grab them for us. God won’t. Read the Bible. See what it says. He’s got more important things to worry about.

“In fact, once you’re in this country, you don’t even have to be an American to have the Bill of Rights apply to you. Once you’re here, on American soil, those Amendments protect you even if you’ve never been here before. Even if you have no intention of ever becoming a citizen. Even if you’re a Communist who wants to burn the flag, tear up the Bill of Rights, and enslave us all—the Bill of Rights protects you because the Founding Father’s notion was that they don’t belong to us, they belong to everybody.”

The microwave had already dinged and Mac took the dish of butter out and poured a little in a bowl for himself, then he removed the top from the pot and started taking out clams and putting them on a plate.

“Oh, now I’m going to have a religious experience,” he said looking at what he’d served himself.

Dave and I went over and helped ourselves.

“One last thing,” Mac said. “The problem with our Constitution and the Bill of Rights is that the people don’t seem to know much about them nowadays. Our own government seems to work against the Constitution and treats it as just a terrible inconvenience to doing a day’s work, and what with the way those infringements become institutionalized, it appears as if the American people are becoming used to it. It’s ironic but immigrants, because they have to read the Constitution, know more about it than most of those who are born here.”

“Yeah?” I asked as if wondering what his point was.

“Well, we’d better keep letting these people in because they’re the only ones who are going to know what the Constitution and, in particular, the Bill of Rights are and why they’re important. I’ll bet your kids, born here, don’t.”

“So, don’t think for a minute that I’m antireligious or anti-Christian in any way, Laura. If we want to be Christians, fine. God will save our souls. But, if we want to live free, then we have to grab our rights and hold onto them for dear life because no one else is going to grab them for us. God won’t. Read the Bible. See what it says. He’s got more important things to worry about.”

He sat down and started eating his clams. Laura watched intently and finally reached over and took one.

“How do you do this?” she asked.

“Take it out of its shell like this,” he said demonstrating the technique, “and dip it into the butter, and...”

“Wow,” she whispered. “These sure don’t taste like they look,” and she sat down and started eating from Mac’s plate. Δ

Here's how my family makes its diverse country living

By Patrick McMahon

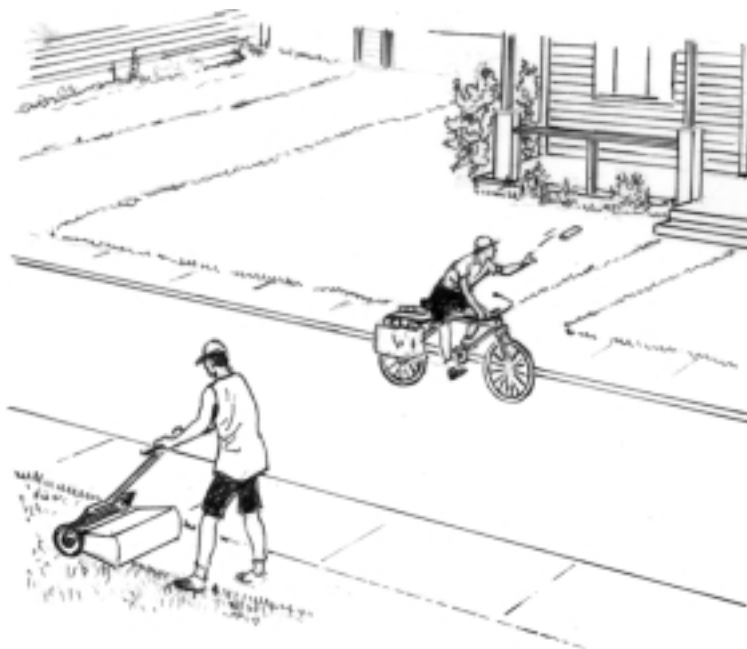
Making a living in the country can prove to be one of the most frustrating experiences for someone seeking to fulfill their dreams of self-sufficiency by moving away from heavily populated areas. I have found two things to be true about most areas that remain sparsely inhabited. First, it seems that the weather in these areas is not always the most desirable. This may account for the lack of influx of newcomers or the development of large city areas. Secondly, many of these small towns seem to be closed to outside influence. Most of the good jobs in the country are taken by people who know other people. It seems it's not what you know but who you know. One of the best ways for a newcomer to an area to gain acceptance is by owning a business.

Most of us do not arrive in our new country homes with armored cars full of money, so we may have to make it on a shoestring budget for a while, or work on several part time ventures to create a full time income. Following are a few ideas for making a country living which have worked for our family.

Periodical delivery

Just about everybody enjoys reading the newspaper occasionally, and even

tiny towns have their population that likes to receive home delivery everyday. This is a potential business opportunity. There are many newspapers and periodicals published at different times and frequencies, and they all need some method of distribution. Most daily newspapers accomplish



this through the use of motor route contractors or carriers. These are people who arrange a contract with the newspaper to buy the publication for distribution to subscribers at retail cost, and dealers receive profit from subscription sales to individuals. Motor routes are sometimes easy to come by because most newspapers are early morning distribution, which means getting out of bed anywhere from 1:30 a.m. to 5 a.m. seven days a week. Few people are willing to eliminate regular weekend time normally enjoyed by sleeping in. People in my area seem to have an aversion to driving for any length of time. This has also worked to my advantage since I enjoy driving. Another advantage is

that my work day for newspaper delivery is complete by 6:30 am, leaving the rest of the day for other work, either as a contractor or just for chores around the homestead.

Weekly profit from motor route delivery generally averages from \$150 to \$500 depending on the size of the route, number of subscribers, and dealer drops on the route. There are also other weekly newspapers, pennysavers, periodicals, and real estate magazines that contract delivery. I have even contracted for years with an independent advertising company that distributes telephone books.

There are drawbacks to delivering news publications. Most newspapers are printed seven days a week. This translates into little time off to travel or to catch up on sleep. As a contractor you do have the ability to hire contractor substitutes. This works out wonderfully if you can find someone willing to be available for the job. Another down side to this type of work is that your vehicle generally takes a beating, gaining high mileage and long running times.

Diaper service

For my family, it is necessary to conduct business in different disciplines in order to make a living. Besides working part time in a local pharmacy, my wife is owner of a cotton diaper service. In spite of the fact that we live in an area of low population, there are still plenty of babies being born, and all these babies need diapers.

With convenience a major factor in our society today, many parents are choosing disposable diapers. Others are more environmentally conscious and also feel that the natural cotton fiber of cloth diapers is better for the baby's skin. Cloth diapers are a lot of work, though, and a baby in its first year soils about 70 diapers a week.

A cotton diaper service provides convenience at about the same cost as disposable diapers. Our service provides 70 clean diapers, delivered once each week, a container, and mesh laundry bag for \$20 per week. The diapers are cleaned at a local coin-operated laundry facility. Profit from the diaper service from each customer is about \$15. Even a handful of customers provides a fair part-time income for one day of work each week.

Landscaping

My third addition to the family economy is my personal favorite. Through years of working various jobs I have gained tremendous knowledge in the field of landscaping. With this experience I have been able to make a successful part-time income for 10 years now. There are three types of people who hire landscape contractors.

The first, and probably the most reliable, are the senior citizens who need maintenance on lawns, shrubs, and gardens. Many seniors are no longer able to perform the physical tasks and are willing to hire honest, reputable people who can do the work for them.

Secondly, there are the two-income family homeowners who do not have the time or desire to do yardwork and landscaping projects, but they have the income to support hiring a contractor.

The third type of potential client is the commercial operation. All types of businesses strive to maintain a professional image. Since the landscape is the first and lasting impression, these companies almost always need to hire

qualified professional landscapers to help uphold this image.

Knowledge in the field of landscaping is readily acquired through diligent reading on the subject and hands-on experience. College courses in biology, botany, or horticulture are also very helpful additions to one's credentials. Some experience in basic bookkeeping and customer service are very handy. Costs for starting in landscaping average about \$4,000 for basic equipment, in addition to a truck. Liability insurance costs from \$800 to \$1,000 per year. As new equipment is desired it can be purchased when the need arises.

We are currently planning to expand our landscaping business into a full service nursery and garden center specializing in cold hardy perennials. Over the next five years our intent is to plant several varieties of perennials, shrubs, and trees each year. Within the next couple of years we would like to offer this nursery stock to the public directly from our 20-acre farm (located with frontage on a major highway) and also through sales of our products through the landscaping service.

Dog breeding

Finally, there is yet another addition to our homestead economy. This is dog breeding. We have an appreciation for giant breeds of dogs that were designed for certain purposes. The Saint Bernard seems to fit perfectly with our philosophy. These dogs are huge, sometimes weighing close to 200 pounds. They are also strong, capable of heavy work such as pulling carts, sleds, etc. Saint Bernards are also very affectionate and gentle with children, yet protective of their property.

One breeding pair of Saints registered with the American Kennel Club (AKC) may gross \$7,000 or more each year depending on the frequency of breeding and the number of puppies sold. Many other breeds of dog can bring in much more profit per year.

Expenses include veterinary care, accessories, registrations and licenses, shots, advertising, and large amounts of dog food.

Time is a major expense when dealing with dog families. In order to become a working part of the homestead, dogs require diligent training and family affection.

There are many outlets for purebred puppies including local newspaper advertising, out of town big city newspapers, and specialty magazines. Puppies are most often shipped by air freight to their new homes. We have begun offering personal delivery to any location within a 400-mile radius for a fee slightly more than air freight. The advantage to delivery is that the puppy is transferred directly from your hands to the new owner without the risks involved in an unsupervised transport in an airplane. We are also able to travel a bit to some interesting weekend destinations.

There are hundreds of breeds of dogs, each with a different set of traits and purposes. If you decide to breed dogs, find a breed that suits your lifestyle. Every breed sells for a different price. Giant dogs are definitely not for everyone and are not the most profitable by any means.

Obviously, making a living in the country is not the easiest of things to do. With a little creativity and the desire to work, a modest income is at your fingertips. Of course, these methods of generating income are not going to work for everyone. They have served me well, however, allowing me to live my dreams in a place where I have always wanted to be and independent from the monotony of the daily grind at a "regular day job."

Hopefully some of this information will provide the incentive for other homesteaders to assert their independence by making a living in the country on their own. Δ

Build a backwoods cat-boat — it's super-simple, inexpensive

By Rev. J.D. Hooker

If you like quick summer fishing trips, waterfowl hunting, running trotlines or trap-lines, float hunting, or any of a number of other water related outdoor activities, you already know that having some kind of boat as part of your equipment is just about a prerequisite. However, if you've priced commercially built boats lately—from the simple aluminum john boats up to one of those flashy fully loaded bass boats—you already know the prices are generally much higher than many of us are willing to pay.

At the same time, many of us who already own one or more of these manufactured watercraft aren't always so keen on loading, hauling, unloading, and reloading our boats as frequently as even a daily fishing or hunting trip might demand. But leaving a boat—even a cheap, used one—unattended at water's edge often means a missing boat, even in

“remote” areas where you wouldn't think it would happen.

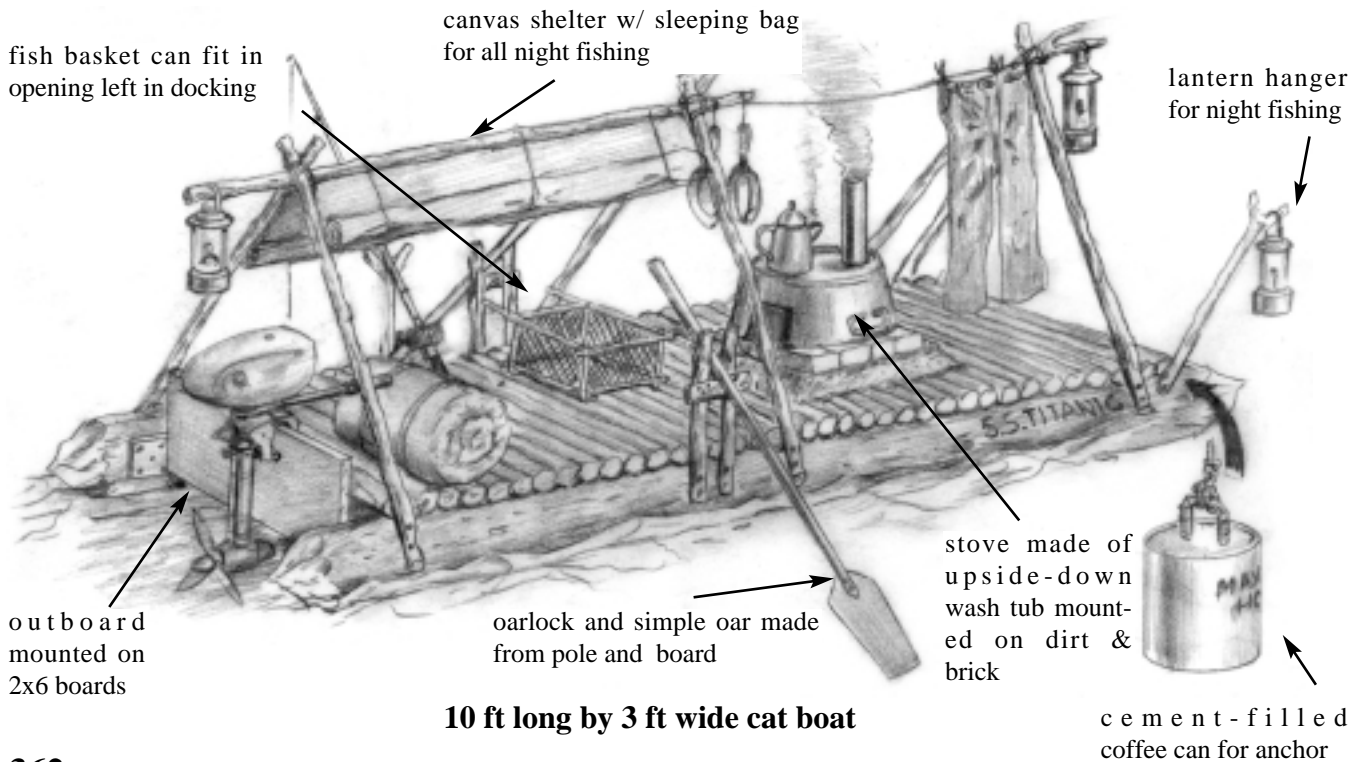
For these reasons, one of my long-time favorite watercraft is the extremely simple and ultra-inexpensive wooden cat-boat. These boats seem to have been drifting in and out of popularity since the early 18th century when they were frequently used by trappers, fishermen, waterfowlers, and others along the Ohio, Missouri, and Mississippi Rivers, as well as on many lakes.

Today, despite all the technological advances, you'll find that there are still several excellent reasons for putting together and using these simple watercraft, not the least of which is that, because of the small amount of time and material invested in it, you'll find few reasons for worrying about leaving your cat-boat unattended. In more than 25 years of using these boats, I've never had one come up missing.

Not much is needed in the way of materials to construct your own cat-boat: just a pair of 12-inch or larger diameter logs that are at least 10-foot long (for most purposes I've found 20 foot lengths ideal), a quantity of smaller 2-inch to 4-inch diameter logs about 3-feet long, and a supply of large nails. While I've found the use of a chainsaw and a regular claw hammer helpful, the only really indispensable tool for fashioning one of these boats is a sharp single-bit ax.

The illustrations show pretty plainly the method I've used for assembling several of these super-simple watercraft over the years. Depending on your own preferences and the body of water you'll be using it on, a cat-boat can be paddled, rowed (with inclusion of the optional wooden oarlocks), or even poled along if the water is shallow enough. For most of my own purposes though, I've found that mounting an inexpensive used outboard motor on a wooden mount greatly increases the craft's utility and versatility.

Though the completed boat is pretty heavy, it's also mighty maneuverable and stable.



10 ft long by 3 ft wide cat boat

Most times I find I prefer using the cat-boat as a “big water” boat, that is, on lakes, oxbows, and wide slow rivers. But I’ve also found this simple watercraft to be highly adaptable and readily modified, making it exceptionally well suited to customization for special uses.

During waterfowl season I’ll often attach brush, reeds, cattails, etc., to the sides of the boat, arching this camouflaging inwards to form a roof that provides an ideal floating hunting blind.

For night-fishing it’s even easier to nail on a couple of stout poles to hang lanterns from for added visibility.

Of course, lashing a waterproof tarp over a simple pole framework can provide dependable shelter from sun, wind, rain, or other weather. In fact, with the further addition of a lightweight canvas “tick” stuffed with straw, dead grasses, or dried leaves, I’ve often found it comfortable enough to sleep right out on the water.

Short-forked sticks can easily be nailed in place for use as rod-holders, and a few inches of clay-based soil can be firmly tamped in place over a portion of the wooden decking to allow a spot for a fire for warmth or cooking. I’ll usually also include an old metal wash-tub, cut out as shown, for use as a cooking stove.

The majority of the cat-boats I’ve built and used have served, at least part of the time, for fishing and trotlining purposes, so nearly every one of them has been fitted with a handy and easily-removable wire fish basket. Fashioned from only a few stout sticks and some galvanized poultry netting or hardware cloth, such readily fashioned “live baskets” offer yet another valuable but simple extra addition to the cat-boat.

In fact, it’s amazing to realize that such a quickly and easily constructed watercraft, made at practically no cost, can end up sporting practically all of the comforts of home should you opt to include them.

When anchoring a cat-boat for fishing, hunting, just resting, or whatever,

I’ll normally let down two anchors—one up front, and one in the rear for extra stability—on 3/8-inch nylon rope. I used to stick primarily with standard kellick anchors fashioned as illustrated from a boiled forked limb and a large rock, but for the past couple of years, I’ve taken to relying on simple anchors produced from placing a bent piece of 1/4-inch or 3/8-inch rebar, bent as shown, inside a large coffee can filled with cement.

All told, whether you’re unwilling to part with the funds needed to purchase a commercially produced watercraft or you just don’t feel like taking any extra risks with your “good” bass or speed boat, for everyday fishing, trapping, hunting, or any other rough day-to-day uses you’ll find this ruggedly dependable and well proven cat-boat to be suited to many of your backwoods needs. Δ



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Buy your country place from the government

By Dorothy Cady

While looking for your place in the country, you've probably been researching real estate books, newspaper ads, and maybe even using the Internet. You may have even considered getting land based on the country's old Homesteading Act. While the Homesteading Act has been repealed, that doesn't mean you cannot get land from the government. What it does mean, however, is that you'll have to pay for it. It is worth looking into, though, because you can get some very good deals, and have access to some properties that you simply cannot buy through a private party.

This article shows you which agencies sell real property, how it is sold, where you can get information about sales, how to buy real property from the government, how to complain if you have a problem, and how to contact the various selling agencies.

Which agencies sell real property

Not every government agency sells real property. Some Federal agencies turn over any real property they have to the General Services Administration (GSA) which sells the property for them. The Federal Property Resources Service (FPRS) of the GSA sells a significant amount of surplus Federal Government real property. The GSA is the government's largest disposer of real property, so it might be the first place you want to look.

If you are looking primarily for undeveloped land, another agency you will want to contact is the Bureau of Land Management (BLM). If you are looking to buy a farm, the Farmers Home Administration (FmHA) of the U. S. Department of Agriculture (USDA) sells this type of real property.



The Federal Deposit Insurance Corporation (FDIC) also sells real property which once belonged to failed banks. Of primary interest to the homesteader would be the FDIC's offers of undeveloped land and single-family homes.

The Department of Housing and Urban Development (HUD) has foreclosed single-family homes, townhomes, condominiums, and "fixer-uppers" available for purchase, most of which are sold for fair market value, but you can sometimes pick up a pretty good deal.

Other Federal agencies which sell single family homes, vacant land,

farms, and commercial property include the U. S. Marshals Service, the U.S. Small Business Administration (SBA), the Tennessee Valley Authority (TVA), U.S. Customs (a division of the Treasury Department), the Department of Veterans Affairs (VA), and the U. S. Army Corp of engineers.

State and some local government agencies also sell real property. For example, the state of Nevada sells state lands, as does the state of Utah, and others. Many states and government agencies even have Internet web sites where you can see what lands are currently available for sale, and where you can also get the information you need regarding the process of buying these lands.

How real property is sold

Government agencies use many different methods to sell the real properties within their possession. One of the most common methods, and often the easiest for the buyer, is the sealed bid method.

Other methods include the public auction, sealed bid auctions, spot bids, fixed price sales, negotiation, broker/individual sales, and portfolio sales. Not all of these methods are commonly used for real property, however, nor are all of these methods particularly useful to the buyer looking for a piece of real estate. The sales methods you should become familiar with if you are looking to purchase real property from the government are: sealed bid, auction, and broker/individual sale.

During the sealed-bid process, the agency wanting to sell the property may prepare a formal document called an "Invitation for Bid." This document describes the property and explains the procedure for placing a bid. Interested individuals then submit a bid on the property. When the bid-opening date occurs, the bids are read publicly, and the sale of the property is awarded to the highest bidder who correctly followed the bidding procedures. Bids which have not properly followed the bidding procedures are disqualified, even if they are the highest bid. Thus, it's important to note and follow the specific bidding instructions for any property on which you want to bid.

The main drawback to the sealed bid method is that you may find yourself outbid by only a few dollars: Thus, while you don't want to pay more for a property than it is worth or than you can afford, you must bid as high as you feel reasonably comfortable doing if you really want the property.

Auctions for real property are held the same way that auctions for personal property are held. Real property auctions are often held at the courthouse in the county in which the property is located, but can be held on the property itself, or any other place the auctioning agency deems appropriate. A real property auction works just like other auctions. On the day of the auction, people bid for the property until no higher bid is offered. The property is then sold to the highest bidder.

The main drawback to a public auction is that you can get-carried away with the spirit of the bidding process and end up paying more for the property than you would have paid for a similar piece offered by a private party. Of course, having to be present during the bid, or having to provide an authorized proxy can also be a drawback, particularly if you live any distance from where the auction is being held.

Real property is also often sold through private real estate brokers. These brokers negotiate the sale of these properties on the government's behalf, however, so make sure you are getting a good deal before you buy. The Department of Housing and Urban Development (HUD), and the Department of Veterans Affairs (VA) sell property by this method.

How do you find out about real property sales

The government advertises and promotes available properties in several ways. Most government agencies list properties for sale in advertisements in local, regional, and national papers. Specialty publications such as the Commerce business Daily also carry announcements for government property sales, as do various trade publications. Agencies also post notices in various government buildings including local post offices and county courthouses. Some government agencies also advertise property sales through radio advertisements and even local flyers. Other government agencies will put your name on a mailing list and notify you when properties are coming up for sale. (Sometimes a small fee is charged for this service.)

With the explosion of the use of the Internet, many government agencies also use various web sites to advertise available properties. Many federal as well as state agencies have their own internet home page. (See the inset on this page for a list of some useful web sites.)

Local real estate brokers have lists of properties for sale, particularly HUD and VA properties. Some local auctioneers also receive notice of upcoming government property auctions, so you may be able to get information from a local auctioneer in your area or in the area where the property you are looking for is located.

Some useful internet addresses:

Federal Deposit Insurance Corporation (FDIC), Asset Sales:

<http://www.fdic.gov/assets/index.html>

U.S. General Services Administration:

<http://www.gsa.gov/pbs/pr/prhome.htm>

Housing and Urban Development:

<http://www.hud.gov/homes.html>

Government Asset Sales: list of state links:

<http://www.financenet.gov:80/Financenet/sales/salestat.htm>

List of federal links:

<http://www.financenet.gov:80/financenet/sales/salefed.htm>

U. S. Customs auction information:

<http://www.treas.gov/auctions/customs/>

Bureau of Land Management:

<http://www.blm.gov>

Consumer Information Center:

http://www.pueblo.gsa.gov/cic_text/fed_p

State of Utah:

<http://wwwhl.state.ut.us/saleinfo.htm>

Commerce Business Daily:

<http://www.cbd.cos.com>

How to buy real property from the government

Although there are often very specific procedures you must follow in order to participate in the sale of real property by the government, here are some general guidelines you should follow.

First, before you attend a government auction or submit a sealed bid for a piece of property, do your homework. Contact the appropriate agency and find out basic information about the property and the auction. Get a copy of the "invitation for Bid" or similar document if it is available. Make sure you understand what it tells you as most sales are final.

Specifically ask when the sale or auction will take place and where, what sales method will be used, if

**Agencies you can
contact for information:**

U. S. Army Corps of Engineers
Directorate of Real Estate
20 Massachusetts Avenue NW
Washington, DC 20314-1000.

Federal Property Resources Service-D
U.S. General Services Administration
Washington, D. C. 20405
1-800-472-1313.

Tennessee Valley Authority
Surplus Sales
1101 Market St.
P.O. Box 11127
Chattanooga, TN 37401-2127
1-423-751-8331.

EG&G Dynatrend, Inc.,
U. S. Customs Service Support Div.
3702 Pender Drive, Suite 400
Fairfax, VA 22030
1-703-273-7373.

Consumer Information Center
Dept. 515B Pueblo, CO 81009

there are any special restrictions or requirements, and how payment is to be made. Although some agencies such as HUD and the VA assist the buyer with financing, most agencies expect you to pay for your purchase with a money order, certified check, or cash. If you are hoping to finance your purchase, be sure to ask if that is allowed, and how soon your lender will need to provide the agency with the full funds. Then make sure you have already qualified for the loan and received permission from the lender to make a bid for the property.

Next, visit the property. Walk its property line noting flaws or problems you may have to pay to correct. If the property has buildings on it, inspect them carefully. If appropriate, pay a professional, certified inspector to look at the property for you. Also, if there's a possibility that part or all of the property is considered to be wet lands or other protected lands for which you may have to have specific

government approval to build or live on, find this out ahead of time.

As with private property for sale by owner or through a broker, you may need permission to enter and inspect the property. If so, be sure to get that permission. You can ask the agency selling the property whether you need permission, and if so, who to get it from if it isn't them.

As part of your homework, don't jump right into the first auction or sealed bid opportunity you find. If possible, attend a few auctions to see how the process works and to get a feeling for what property in the area is worth. If you are going to be submitting a sealed bid, try to find out what similar properties have sold for at past sealed bid sales. Some government agencies will give you this information.

You should also compare the price of private property sold in the surrounding area. Any licensed real estate agent should be able to tell you what similar properties have sold for in the recent past, or you can check county records.

Finally, before bidding on property, try to find out whether it has been appraised, and if so, try to find out the amount of the appraisal. If it isn't public knowledge, try to at least find out what appraisal company or individual the agency uses to appraise their real property. You may then be able to get a hypothetical value from this agency for a property similar to that on which you wish to bid or make an offer.

If you visited these parcels, researched restrictions and other relevant information, watched the auction if one was conducted, then compared the final sales prices, you'll have a pretty good feel for the process and potential of properties. However, as with all purchases, remember the saying "caveat emptor." Be a wary buyer. Carefully check out every aspect of a property before you prepare to put up your hard earned cash to buy it.

**How to complain
if you have problems**

If you have a complaint or problem, for whatever reason, the first step is to contact the agency that sponsored the sale. Again, caveat emptor. Don't expect the agency to be sympathetic if you simply aren't happy with the property you bought after you bought it. Unless fraud or deception was involved, it was your responsibility to ensure the property was what you wanted before you participated in the sale.

On the other hand, if you found out that the price for which the property sold was less than your bid, you may have reason to question the sale. If the problem is with the sealed bid or offer you submitted, the agency may be able to tell you what it was about your bid or offer that caused it to not be accepted. Doing so isn't likely to change the sale process as sales are almost always final. However, knowing what went wrong this time may help insure it doesn't happen again.

If you were following information about a sale that you received from a non-governmental organization, and you believe it was misleading or inaccurate, you can complain to the government about it. In most cases, the government agency collects information and tracks these problems, but does not take immediate action on your behalf. The agencies are mostly interested in seeing any pattern of illegal activity, and finding out if there are any violations of Federal regulations.

Agencies to contact when you believe that fraud or illegal activity may have taken place include the Federal Trade Commission, U.S. Postal Service (if the activity involved the mails or anything sent through the mails), the state Attorney General office, state and local consumer offices, and local Better Business Bureaus.

Where to get more information

Contact these agencies for more information about real property for sale from the government.

For FmHA sales, contact the Farmers Home Administration county office in the county where the property is located. Look under Federal Government, Farmers Home Administration in the government pages of the phone book for the area. If the property you are looking for is not in the area covered by your local phone book, you often can find phone books for other cities and states at your local library.

To contact some of the other federal government agencies which sell real property, you also find the local office in the government pages of the phone book for the area in which the prop-

erty is located. Look under Federal Government, and then for the office's name such as the U. S. Army Corp of Engineers (look for Army, Corps of Engineers), U.S. Marshals Service (look for U.S. Marshals Service of the Department of Justice), or the V.A. (look for Veteran's Administration).

For V.A. and HUD properties, check with licensed real estate brokers in the area where the property is located. You can also contact HUD directly at 1-800-767-4483.

By writing to the Consumer Information Center, you can also receive a free or low-cost copies of various related booklets, and be added to the list to receive their quarterly publication of the U.S. Real Properties Sales List.

The Federal Deposit Insurance Corporation (FDIC) has three regional offices that handle real property sales depending on where the property is

located. These offices are: the Northeast Service Center, 101 E River Dr. East Hartford, CT 06108 (1-800-873-7785), the Western Service Center, 4 Park Place, Newport Beach, CA 92714 (1-800-234-0867), and the Field Operations Branch, 1910 Pacific Avenue, Dallas, TX 75201(1-800-568-9161).

For information concerning state lands available for sale, contact the Division of State Lands (or similar department) for the state in which the property is located. Also, see if the state has a web site. A search of the Internet for the state, then for "land sales" or similar topic may help you find the home page for that state. From there, look for a page containing information about real property sales.

You can also use your computer to contact the web sites also listed in the inset on page 78. Δ

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Here are a few tips on how to build bridges to neighborliness when you move to the country

By Harry Styron

One of the greatest pleasures and rewards of country life is getting to know your neighbors, to earn their trust, and to build mutually beneficial relationships, even deep bonds of friendship and community. It's a matter of building bridges from your household to other households. So don't screw it up.

I live in the Ozarks of Southwest Missouri, where in-migration has been largely responsible for the population doubling in the past 30 years. Most of the people moving in come from southern California and urban areas of the West and Midwest. Some people seem to quickly find a place in the community; others will not be accepted for a long time, often because of things that happened when they first arrived.

The changes of life which are a part of the impetus to move to a rural area are often stressful, so the migrants often aren't on their best behavior. By the time the typical El Alien decompresses enough to be considerate, he has often burned some bridges which would have been extremely convenient if left standing.

Bridge burners

Here are some of the mistakes:

Jawflap. Newcomers are often enormously frustrated with small-town school, church, and government officials. It's awfully ironic that the newcomers are so sure that whichever way something was done in whatever hell they escaped from, it was superior to the way it's done around here, where schools don't have security guards, local governments are fiscally sound (if somewhat poor), and crime rates and taxes are lower.

Usually, if the newcomer will ask questions and listen quietly to the responses, he will eventually learn how things work, whether his proposal has been attempted, and whether he's complaining to the wrong person, having inadvertently entered room 103 instead of room 101, or having accosted the county treasurer about something the county assessor is responsible for.

Understanding local politics requires years of patient study, whether you're in a city or a rural area, for few things are as subtle as the local politics. The candidate who seems to say what you want to hear is maybe seeking the support of the newcomers, because the other residents know how he treats his family and wouldn't vote for him for any reason.

Stereotyping. A newcomer will sometimes idealize about the residents, viewing them as pure and simple farmers, inbred hillfolk, mighty woodsmen, etc. Actually, they are assorted people, who represent the entire range of intelligence and character.

Longtime residents of rural areas do tend to be less emotionally effusive than TV sitcom characters. That's one of the traits that makes them good neighbors: a sense of personal privacy.

If you're in a community with a small population, keep in mind that some of the longtime residents are probably members of interrelated families. Until you have a good sense of these family relationships, which will include both feuds and friendly alliances, don't gossip.

Environmental snobbishness. The newcomer wonders why there's no municipal or county recycling center where he can take his accumulation of

catalogs, magazines, beverage containers, and plastic trash. The newcomer turns up his nose at the junk cars and piles of discarded stuff surrounding many country homes and outbuildings. Of course, there aren't many Kubota parts in those piles, but you might find any part you need for a Ford tractor, or a plumbing job.

Bridge builders

Getting along is really pretty easy. Make your kids behave. Drive considerately. If you keep your political opinions to yourself, someone might actually ask you what you think about the topic of the day, rather than tune you out every time you start ranting.

In many urban neighborhoods, the residents tend to be of similar incomes, tastes, and political leanings. In many rural areas, there is incredible diversity within and among individuals and a great but understated tolerance.

You may have one neighbor who is Republican Christian who raises marijuana and another who is an anarchist who raises poultry for Tyson. Or an opera fan with a cow-calf operation. Self-taught physicists and musical prodigies. Unbelievable ignorance among rich or poor. All living as neighbors, willing to respond to the need for help. And you may find deep, dark grudges and unsolved murders. Don't assume anything.

When you ask advice, you are showing your respect and humility, traits that make people easy to be neighbors with. Listen carefully and don't interrupt. Ask if you can assist your neighbor in doing something on his place so that you can learn how. If you present yourself well, your neighbor might lend you a hand or the tools you need.

Don't go from neighbor to neighbor, telling each what the others told you. People do the same tasks differently, depending on which tools they own, how many hands are available to help, how they learned, their experience level, etc. Just do the jobs. If the advice you received doesn't seem to work well, ask another neighbor without mentioning whose advice you tried to follow.

If you borrow a tool, take care of it. Make sure it is properly lubricated before and after you use it. Tighten loose bolts and electrical connections. If it's dull, sharpen it. Don't return it dirty or out of oil, regardless of its condition when you received it. If it breaks and you can't fix it, be honest and work something out. If you get hurt, consider that it's probably your own fault.

Helping hands

It's a damned shame that neighborliness is technically subject to the income tax, the value of traded labor and materials among proprietors of for-profit farms and hobbies being theoretically equivalent to taxable barter. But it's still possible to fly below the IRS radar.

Think about it this way. If you pay money for something, you are either paying with after-tax dollars or you are paying with pre-tax dollars for a legitimate deductible item, provided that you incur the hassle of properly documenting the transaction. So everything you pay cash for is taxed and expensive, in comparison to those things done as a matter of neighborliness.

If you live in a community where there is a tradition of helping hands, everybody benefits. While you're visiting with your neighbor, you might as well help mend a fence or pull a stump. Combine an ice cream social with putting a new floor on the host's porch.

Before you return your neighbor's trailer, for example, you might as well

put some firewood or a few bales of hay on it or something else modest and practical. Don't be extravagant; you don't want to give a gift beyond the ability of the recipient to reciprocate, just something to show your appreciation. Don't give liquor as a gift unless you are absolutely sure that it is welcomed by all adult members of the household.

Sometimes the newcomers decide to head back to the city. Perhaps they never learned how to build bridges to others, thinking always of themselves as victims. Country people know that everybody needs a helping hand now and then. Those who don't lend a hand and ask for help are victims of themselves, having missed out on the

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opportunity to live a respectful distance from the neighbors, linked by sturdy bridges. Δ

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WebTV: For under \$200, this is an economical way to get onto the Information Superhighway

By Vern Modeland

In Florida, Cheri Wallenbrock is working to get her world into some sort of order where she can consider herself at least somewhat self-reliant. The Internet figures into that, even though dollars are few and each one must count.

"I spend lots of time researching whatever topic I'm in the mood to research," she says.

"I have WebTV and love it. It's the cheapest way to get on the Internet. You don't have to know anything about computers to use it. It was a Christmas present the year before last from my brother. I've thanked him profusely."

Cheri, with her WebTV, got hooked up with kindred spirits across the country and beyond with whom she corresponds daily using her phone line plus her TV set and the WebTV box that rests upon it much like cable TV's interface.

Cheri's cyber-friends have explained to her how she didn't have to wait to grow at least some of what she wants to be sure it is organic food. They showed her how to raise things in patio containers and on window sills until the day comes when she can get access to a plot of ground to organically garden.

They showed her she could learn how to preserve foods now in the apartment where she lives. She can be building her knowledge as well as filling her pantry, for now and as a hedge against who-knows-what in the future, even if it is only a temporary shortage or hike in price.

On-line helpers

They have told her how they make compost using a dish pan or a wooden

box kept under the kitchen sink, letting earthworms convert food scraps into rich humus to feed those home-grown plants.

Her Homestead List e-mail contacts have introduced her to the economics and fine points of yard saling and dumpster diving, explaining to her that there's a gold mine in other people's castoffs that, with a little elbow grease or imagination, can further help



fill Cheri's growing list of things she'll need when it comes time she can get her dream place in the country.

They've cheered her up and cheered her on and been especially supportive when she had to suddenly go looking for another place to live.

"I send personal messages to friends and family all the time. I just click on 'Reply.' And when I'm surfing the Web, I can send interesting Web addresses to anyone I want so they too can go to the same Web addresses and see the same information.

"I keep my mother very busy reading all the links I find. She regularly tells me to stop sending her stuff for awhile. She can't keep up with me," says Cheri.

More than 1,500 miles away, on 40 acres in Colorado, Linda Jones, who

knows more than a little about computers, has WebTV too.

"My husband bought it because he can't figure out this computer. All the kids have their own accounts on it now. Just their own screen names; it's all on the same account actually," Linda says.

"It's perfect for people who want to surf (the Web) and have e-mail but don't want to learn the computer jargon and operating systems. Instead of \$1,000 and up, you are surfing and e-mailing for \$200 and under. It's also portable. You can take it with you much easier than a desktop computer."

Portable and simple

Portability along with simplicity and price are features that attracted Jim Pollard to WebTV. And he liked what he found so much he now sells them.

"You can take it with you wherever you go. And as long as a telephone line and a television set are there, you're on line. I was a 'natural bearded Santa' last year. I went to Lexington, Kentucky, for 34 days. I just took my unit with me. I stayed in an extended stay motel and hooked it up to my TV and the telephone line and the minute I turned it on my e-mail was there waiting for me."

Ninety messages at a time is about average, Pollard says. Many of the messages have to do with his other interests.

Pollard goes on to explain that he thinks the time is now to learn and practice self-sufficiency. And he takes his belief on the road to preparedness shows as well as out on the electronic highway. A recent sampling of his travel schedule included appearances at Paducah, Kentucky, Nashville, Tennessee, and Seattle, Washington,

where he talks about his beliefs and what he is doing about them. He also provides a booklet of supporting research he's gathered.

Keeping up and in touch

WebTV fits into Pollard's views as a tool for keeping up as well as keeping in touch. His 90 e-mail messages mostly come from two lists where people are tracking the Millennium bug and another concerned with survival and self-reliant living that has a Christian ethic.

On the 64 acres in southwest Kentucky that he now calls Success Ranch, purchased about five years ago, Pollard has built a 1,440-square-foot earth-sheltered house for himself and his wife. He also has recycled a 100-year-old two-room house and two outbuildings he found there. The old tin-roofed, post-and-beam house has become his office and a library for a growing collection of self-sufficiency reference books.

The property adjoins a 3,000-acre wildlife preserve and there is a small river through it with fish and beaver, he says. Pollard, at 61, has begun building a meat-and-milking herd starting with a few cows and pygmy goats. There'll be a chicken flock for more meat and eggs. And he has a vegetable and herb garden. There is a substantial wood lot and he has planted some acres in grain and other, what he calls, "practical" crops.

He's searching for the right pair of Belgian draft horses to buy and for horse-drawn implements. That is so he can reduce dependence on gasoline-powered equipment, he says.

Bought for convenience

"In my office I have WebTV and a computer. I had the computer before I got the WebTV. I got the WebTV for its convenience. And my wife can use it. She can do basically one thing with the computer and that is keep books,

but the Internet she does with the WebTV."

Pollard saw a way to make some money introducing others to WebTV. For him, selling comes easy. He has had decades of sales and marketing and people contact that began at age eight in his home town of Nashville, "knocking on doors and selling people greeting cards."

His background also includes being a pastor for several years in Kentucky, Tennessee, and south Florida.

"That was selling fire insurance," he reflects about his years in the ministry.

In Florida, he became involved in minority ministries in the inner city and as a Christian activist. That took him to the state capitol in Tallahassee where he put his powers of persuasion to work at the government level.

To sell WebTV to others, Pollard began by contacting a friend in Nashville who was a distributor for a Multi Level Marketing firm in California. This arrangement means he has no territorial sales limitations and no need to invest in and store any big inventory, he says.

Pollard introduces others to the WebTV system mainly from a booth at a few preparedness expositions around the country, through comparatively inexpensive advertising in community shopper newspapers and by word-of-mouth marketing. He hands out a home-made, computer-generated introduction, about 4 by 5-inches in size, that reads simply, "Surf the Net without a computer for less than \$150," and includes his voice and fax phone numbers and his company name—Success Ranch Marketing.

At the Expos

A preparedness show in Indianapolis, Indiana, is where *Backwoods Home Magazine* publisher Dave Duffy met Pollard.

"I sat down at his booth and used the remote and a keyboard to access my own Web page (www.backwoodshome.com) and sent my office an e-

mail," Duffy said. "I used the remote device to click between the Internet and regular TV. Once on the Internet, the commands were very user friendly; you can type using the remote or the faster keyboard accessory."

"One sale usually makes five more," Pollard observes.

A 1997 *Washington Post* newspaper article stated about 150,000 units had then been sold compared to the 15 million households it said contained an Internet-capable personal computer. WebTV claims approximately 400,000 subscribers today.

Retailers and the large chain computer and electronics stores don't push WebTV equipment because there isn't a lot of profit in it, he points out. A complete basic or "classic" WebTV system can cost under \$100 for the basic hardware. Then there is a monthly fee for Internet services.

Pollard describes his WebTV as much like a video cassette recorder in size. It comes with a wireless remote control. The WebTV box hooks to any television and to the nearest telephone service jack. A wireless remote keyboard at \$70 is an accessory. A fancier WebTV Plus receiver, for an additional couple of hundred dollars, adds more computer capability and more Internet bells and whistles. Both the basic unit or the upgraded version will also hook up to several kinds of popular computer printers. The printer is essential to retain any of what is captured from the Internet and displayed on the TV screen.

Many features

Both present WebTV models support the latest technology in e-mailing and real-time electronic "chat room" visits with others over the Internet. Both give the user on-screen program listings and guides for the TV shows, lockout features for the Internet and e-mail where children may be among the users and their use needs to be screened. There is even a phone call-waiting alerting interface feature that

A Backwoods Home Anthology

will allow switching out of web travel to answer the phone, then will go back on line and pick up exactly where you left off.

Picture-within-a-picture is another WebTV feature. That allows watching a TV show and "surfing" the web at the same time. If TV programs or commercials display one of those "www-dot-whatever" Internet addresses for more product information, the WebTV user can just click the clicker and WebTV will take him or her to that site on the Internet to see what it is all about.

Favorite Internet locations and e-mail addresses can be saved, among other ways to personalize the system.

Phone hookups for WebTV can be either through an Internet Service Provider (ISP) account if the buyer already has one or direct from WebTV Networks, Inc. Adding WebTV to an existing ISP will cost another \$9.95 to \$14.95 a month. From WebTV direct, the service is \$19.95 to \$24.95 a month. An affiliation between MCI and WebTV Networks, Inc., is even cheaper with \$14.95 a month buying unlimited access to the web if you are already an MCI user.

Simplicity seems to remain a priority in all WebTV features. The units will hunt up a new access phone number automatically when you first plug it in after a move from a town to a new town.

Software upgrades that add features or fix problems also happen without any owner attention, although the latest one has a lot of people disappointed, according to Linda Jones. WebTV users, you see, have their own network on the web to share comments and complaints. There's a news group, as it is called, at "alt.webtv".

Sell them direct

As for selling the sets, Pollard says, "I play with it. I am fortunate in that I don't have to make a sale to eat. But if you wanted to work it you could make a living at it."

"It is like a lot of things out there. That's why I've enjoyed success in direct sales. Most of the things sold in direct sales are sold because they need to be demonstrated to be sold. It's not something you'll go in and pick up off the shelf. And because of the amount it sells for, most dealers like electronic stores are not going to push it when they can sell you a \$600 to \$2,000 computer or \$800 or more television set.

"And it is a relatively new concept even though it has been around a while," says Pollard.

There is no debating the fact that, for less than \$150, WebTV seems an easy and economical way to get up to speed on the Information highway. Δ



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A Backwoods Home Anthology

The Tenth Year

***A Backwoods Home* Anthology:**

The Tenth Year

**Published by
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Introduction

A decade of *Backwoods Home Magazine*! It doesn't seem that many years ago that we came out of the chute at a dead run. Thank you, readers, for helping make us the no-nonsense self-reliance magazine that we are.

Dave Duffy
Publisher and editor

This anthology is dedicated to

*Norm and Bev Boisvert, Don Childers, John Silveira, Jan Cook, Annie Duffy,
Eric Batie, Rodney Merrill, Kurt Warner, and Tim Green*

who helped Backwoods Home Magazine start the decade.

Contents —

Issue Number 55

- ❑ *Publisher's note: Doom and gloom issue* — 14
- ❑ *My view: Countdown to freedom's Armageddon* — 15
- ❑ *With commonsense planning, you can survive hard times* — 16
- ❑ *What if the electricity goes off?* — 25
- ❑ *25 reasons to practice self-sufficiency gardening* — 35
- ❑ *Depression era gardening* — 39
- ❑ *7 mistakes of food storage* — 42
- ❑ *Storing water for an emergency* — 44
- ❑ *Staying warm* — 46
- ❑ *Ayoob on firearms: The myths of Armageddon* — 51
- ❑ *Cooking from long-term food storage* — 53
- ❑ *How to prosper in hard times* — 58
- ❑ *The irreverent joke page* — 60
- ❑ *Emergency gear for your vehicle* — 62
- ❑ *Preparing for the worst* — 64
- ❑ *Roll your own newspaper logs* — 67
- ❑ *One last thought: An essay in self-reliance* — 69

Issue Number 56

- ❑ *Publisher's note: Forget a run on the banks, we've had a run on BHM* — 74
- ❑ *My view: The real disaster in our future* — 75
- ❑ *Grow open-pollinated seeds for self-reliant gardening* — 76
- ❑ *Build an old-fashioned smokehouse* — 79
- ❑ *Keeping your food cold—Solutions to refrigeration* — 82
- ❑ *Plant a Y2K garden* — 97
- ❑ *Connecting with the pioneers through gardening and foraging* — 102
- ❑ *Ayoob on firearms: What if they break down my door?* — 107
- ❑ *Chocolate—food for the gods* — 111
- ❑ *The irreverent joke page* — 118
- ❑ *Catch more fish with this simple feeder* — 120
- ❑ *Build an ash-heated mini-greenhouse* — 122
- ❑ *Compare the nutrition in wild meats to supermarket meats* — 124

Issue Number 57

- Publisher's note: This issue is bigger, longer, fatter — 130*
- My view: At fascism's doorstep — 131*
- Cucumbers—cool is the word! — 132*

- Millennium vehicles — 138*
- The chances of global disaster — 148*
- Raising your own beef for your family — 157*
- Build a reel toilet paper holder — 162*
- Homemade candy — 164*
- For summertime baking needs build yourself an outdoor horno — 170*
- The irreverent joke page — 173*
- Ambidextrous chainsaw filing — 175*
- Remembering what grandma used — 178*
- Growing the eternal tomato — 180*
- Ayoob on firearms: Rifles, shotguns, and handguns for Y2k and beyond — 182*
- Salvaging cement blocks the easy way — 188*
- Parge the ugly out of your concrete wall — 190*
- Growing goldenseal—it's like having your own backwoods gold mine! — 192*

Issue Number 58

- Publisher's note: The Backwoods Home Magazine Panthers — 196*
- My view: Why are we bombing Serbia? — 197*
- The water system — 198*
- Fully involved — 218*
- Solar food drying — 221*
- How to use those leftovers — 225*
- Okra—not just for the south — 228*
- The irreverent joke page — 232*
- Ayoob on firearms: Home on the range with a .357 — 234*
- Cost-saving baby tips — 236*
- Think of it this way...We don't need no steenking 2nd Amendment — 239*

Issue Number 59

- Publisher's note: Win a complete set of original back issues — 246*
- My view: Should both drugs and guns be legal? — 247*
- Start your food storage on \$10 a week — 248*
- A house for an outdoor dog — 252*

- ❑ *Leaf it to old Mother Nature* — **253**
- ❑ *Harvesting and freezing apples* — **254**
- ❑ *Seven common medicinal plants* — **255**
- ❑ *Cooking from home storage with rice* — **257**
- ❑ *Raise tobacco for trade or barter in hard times* — **263**
- ❑ *Making maple syrup* — **266**
- ❑ *The solar bakery—quickbreads and cakes* — **268**
- ❑ *Teach speed reading to your children even if you can't speed read* — **270**
- ❑ *Blanching vegetables* — **276**
- ❑ *Ayoob on firearms: "Best buy" Backwoods .45* — **277**
- ❑ *Roughing it with plastic trash bags*— **279**
- ❑ *The irreverent joke page* — **281**
- ❑ *Waising wascally wabbits for din-dins* — **283**
- ❑ *The water system part 2: Tanks and pumps* — **288**
- ❑ *A salvaged oak floor for \$5* — **297**

Issue Number 60

- ❑ *Publisher's note: Complete "back issue set" winner* — **302**
- ❑ *My view: Millennium excuses and the quest for truth* — **303**
- ❑ *The good life on the Big Island* — **304**
- ❑ *How big is the solar system?* — **310**
- ❑ *Ask Jackie* — **314**
- ❑ *Ayoob on firearms: Defending your lifestyle* — **316**
- ❑ *Practical livestock for the homestead* — **318**
- ❑ *Reflecting on a life in the woods, and looking ahead* — **324**
- ❑ *Medical kits for self-reliant families* — **326**
- ❑ *Tips and tricks for the kitchen* — **331**
- ❑ *The irreverent joke page* — **337**
- ❑ *Think of it this way: The greatest American who was never President* — **339**
- ❑ *Part 3: The water system—gold and silver* — **348**
- ❑ *Try this simple slow cooker* — **356**

SPECIAL DOOM AND GLOOM ISSUE

Backwoods

Home magazine



JAN/FEB 1999

NO 55

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practical ideas for self reliant living

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Publisher's Note

Doom and gloom issue

Nifty cover huh? Not that anyone expects to get hit by an asteroid in the near future, but it'll probably sell a lot of copies of this very important issue. Why is this issue important? Because everything is getting unsettled in the world, and the potential that something bad is going to happen, such as a war or an economic collapse, is growing. At least from my perspective on things.

Many people are worried about the Y2K Bug, the computer date problem that will cause a malfunction of many important mainframe computers at the onset of the year 2000, but I don't think the Y2K Bug is the biggest threat to our future at all.

Most people seem to be overlooking the fact that a huge portion of the world has gone into severe economic decline, and that the economic decline is creeping closer and closer to the United States.

Most people have lost track of the fact that the former Soviet Union has thousands of nukes still aimed at the U.S., and that terrorists are offering big money to certain people in that poverty stricken country in an attempt to get some of those nukes for their own terrorist purposes. Did you know that Russia cannot feed itself this winter, that their economic collapse is so severe that it will almost certainly pave the way for another communist dictator to take over there?

Did you know that much of Japan's middle class, which is a main stabilizing force for any country, has been wiped out during that country's now eight-year long recession, and that the recession shows no signs of abating? Japan, by the way, is the world's second largest economy.

Did you know that the economies of countries as diverse as Indonesia, Thailand, and Canada are suffering through deep economic recessions? Even parts of Latin and South America are slipping into recession. Are we next? Probably, if you believe what world leaders have been telling us for a decade, that the world's economies are tightly interwoven these days, and that what happens on a wide scale around the world is inextricably tied to the economy of the United States.

And did you know that the last time the world experienced major economic problems, it opened the way for dictators and crackpots to lead us into a world war—World War II? Can it happen again?

More similarities than most people care to look at are shared by the conditions that preceded the 1929 economic collapse and the conditions now prevalent in the world. The 1929 U.S. stock market crash was preceded by a ferocious bull market, similar to the one we have been seeing for the

last decade in this country. "Technocrat" was a dirty name to be called after the 1929 crash because many people blamed the feverish technological boom prior to the crash as the cause of economic problems. If we crash again, will "computer-crater" or something similar be the new tag for those to be blamed.

No economist in the past 10 years has been able to explain why the U.S. stock market has risen so high, and most of them realize it is way overvalued. From 1929 to 1932 the U.S. stock market lost nearly 90 percent of its value. Is that possible again?

Whether it's the stock market, the Y2K Bug, or a terrorist act that triggers trouble in this country, I think there are enough unsettling things in our future to make this issue important. In it I hope we can show you some of the ways you can prepare yourselves for whatever may be on the way.

Are we being alarmists? No, I don't think so. Just prudent. If no doom and gloom scenario materializes, fine. Prudence is like an insurance policy; it gives you peace of mind but you hope you never have to use it. Being prepared for catastrophe is even better than an insurance policy. Not only does it give you peace of mind, but if nothing bad ever happens you get to eat all the good food you stored and play with all the nifty gadgets and knowledge you've acquired.

Jesse "The Body" Ventura

There is bright news on the horizon too. Jesse "The Body" Ventura, a Libertarian who ran under the banner of the Reform Party, was elected governor of Minnesota. He beat two well known Republicrats. Maybe there is hope for third party candidates in America after all.

New look

The new look of this magazine may shock a few people. We gave it a makeover much like a pretty lady would get one. Nothing has changed but the appearance; we're the same crusty, no nonsense, practical self-reliance publication as in the past. This issue, by the way, marks the beginning of our tenth year in business. Nifty, huh? Δ



Dave Duffy

My view

Countdown to freedom's Armageddon

As the one-year countdown to the year 2000 commences, I, like many of you, am preparing myself and my family for potential disruptions in food, electrical, water, medical, and other supplies. I am doing it in spite of the fact that I do not believe the Millennium Bug, the computer date problem that many say has the potential to cause a widespread collapse in our society's computer-dependent delivery systems, will cause as much damage as the doomsayers predict. However, the risk is significant enough that I am taking no chances with my family. Also, the risk that the world economic collapse will hit America is also great enough for me to act.

Luckily, my home is pretty self-sufficient because I practice self-reliance. I am far away from a city, have my own water source and purification system, good wood heat system, a pantry loaded with food and essential supplies, and have enough guns and ammo to handle most anything. To supplement this I am installing a photovoltaic system at my home for electricity, am increasing the size of my pantry, and am acquiring medical necessities and knowledge, among other things. I'm also getting my boat up to snuff since I live next to a great food source—the Pacific Ocean.

However, I am still worried. Not that I won't be prepared for whatever physical dangers might threaten my family, but for the political dangers that threaten them. Because the political dangers are the only likely long-term catastrophes my family and yours will experience from the onset of the millennium. Even if other problems materialize, they will be of a relatively short duration, but the political dangers, such as a major loss of freedom because the government decides to step in and "help us," will, if history is an indicator, be a long-term disaster. Political disasters, such as a major loss of freedom, tend to take generations to recover from, if ever.

That's why it's important for all of us to think about our freedom, and the tentative hold we have on it, at the same time we are planning for our physical safety for the coming millennium.

Consider the last big loss-of-freedom event in our history: the Great Depression of 1929. People gladly gave up many basic freedoms to government in hopes the government would save them. World War II saved them, but the freedoms the government took are still gone in the form of the massive welfare society we have today in which government takes, on average, 40% of our income and transfers it to someone else, and in the form of the regulatory nightmare we all live in.

What freedoms will government try and take this time? Will it use the millennium panic to clamp down on the Internet, which I believe is the most significant freedom tool in centuries, equal to the invention of the printing press? I think that's a good possibility, since government wants desperately to control the Internet and since most of us are too busy protecting ourselves against computers to be bothered about saving them. Or will it make a grab for something else?

Freedom, and the tools that make freedom possible, cannot afford many great losses. The people of America got freedom about 200 years ago, and ever since they've been letting it slip away, primarily because they've been preoccupied with protecting themselves against other perceived physical dangers. Each year politicians convince enough voters that we need new laws to protect us against something or other, and so we heap freedom-restricting laws and regulations on ourselves. Would we were as vigilant against these sinister, freedom-robbing laws as we have been against this Millennium Bug.

Does anyone remember Patrick Henry? In the early days of our country, while we were still fighting for our freedoms, he said, "Give me liberty or give me death!" That's how important freedom was to a person on the verge of securing it, in an era when few people had it. Physical safety was barely a contender in importance.

Perhaps we should consider what freedom is in the midst of our struggle for physical safety in the new millennium. Freedom is the philosophical idea put into practice by the American Revolution that holds that a person who is willing to be responsible for himself has a right to run his own life, in whatever way he pleases, so long as he doesn't harm others. Government has no say, but acts only as a policeman to prevent domestic and foreign aggression.

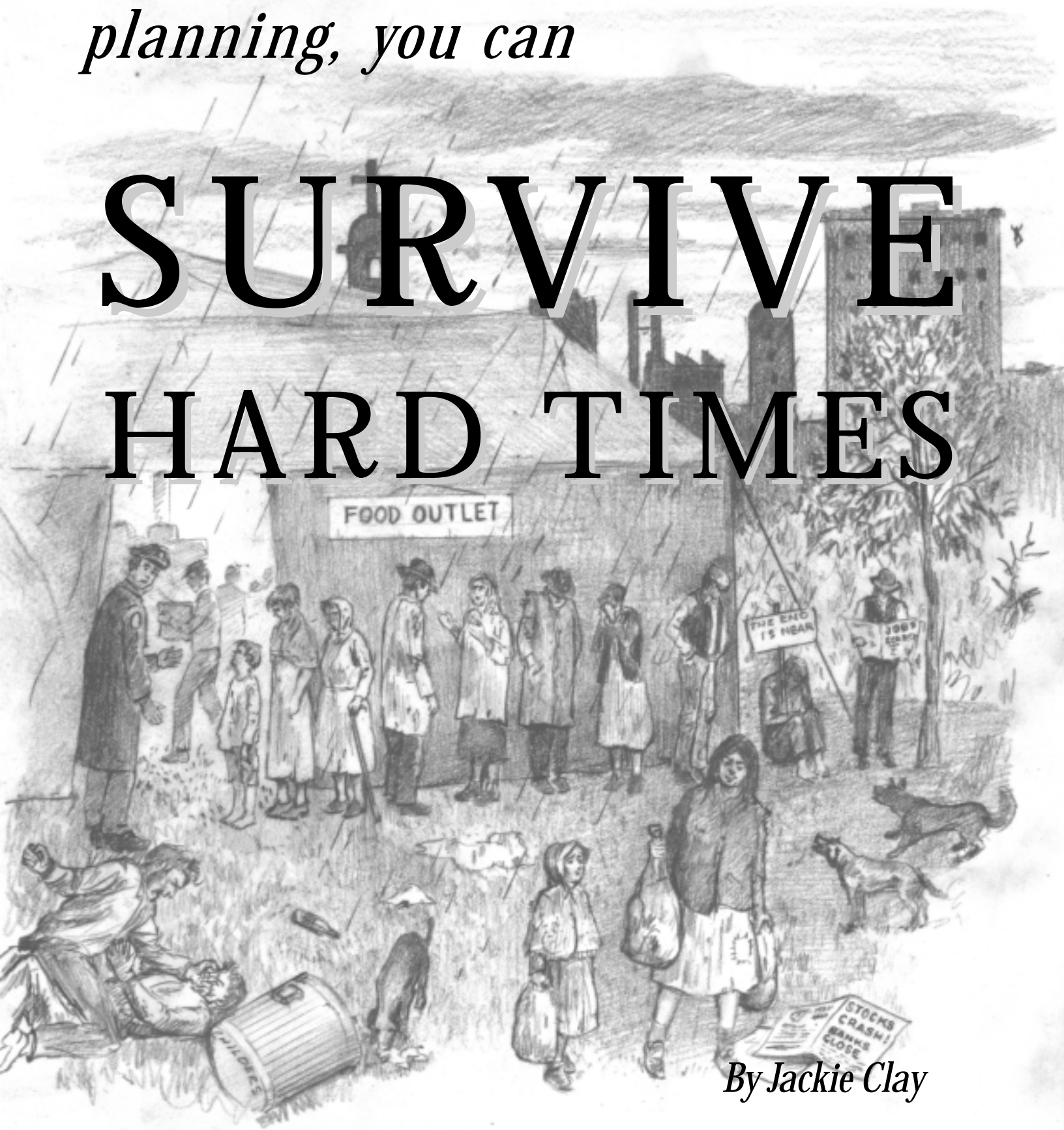
It took several millennia—since the time of Aristotle—to develop this idea, and many people including American patriots who fought off a powerful British army more than 200 years ago, gave up their physical comfort and their lives to achieve it. People prior to the American Revolution had lived under one secular and religious tyranny after another; notions of people free to pursue their own happiness and protected under the umbrella of freedom were ruthlessly crushed, just as King George tried to crush the American Revolution.

The American Revolution, with its philosophy of freedom for the individual, became the greatest political achievement in the history of mankind. And with this achievement, mankind's spirit was set free to achieve our modern civilization with all its labor-saving conveniences.

So while you and I prepare ourselves for the physical dangers that may accompany the onset of the new millennium, let's be at least as vigilant against the real danger that lies ahead: that government will make another major grab for our most valuable possession—our freedom. Δ

*With commonsense
planning, you can*

SURVIVE HARD TIMES



By Jackie Clay

Hard times are a fact of life in this world. They've been around since the earliest days of man, and they'll periodically occur again, like it or not. But they are something to prepare for, not to fear.

Today, many people are afraid that hard times are about to descend upon us because of the Y2K computer date problem, also known as the Millennium Bug. Others fear that the economic chaos occurring in Asia, parts of South America, and parts of Europe will engulf the United States, causing a Depression on the scale of the one that followed the 1929 stock market crash.

The scenario of a Y2K computer catastrophe, which self-styled experts say will begin January 1, 2000, goes like this: There will be general chaos and shutdowns of the computer-controlled delivery systems of American society. Grocery stores won't get adequate food supplies, gas stations won't get enough gas to pump, hospitals won't get enough medicines, and government computers will fail to deliver social security, pension, welfare, and other government checks.

The computer-dependent banking industry will collapse, making it impossible for you to take your money out of the bank to buy food and other necessities. Planes that are allowed to fly will be unsure of their altitude or bearing because the government software they use will have become flawed.

And the electrical grid will either collapse completely, or in huge sections, leaving millions of people without

electricity to keep food cold, their homes warm, or the lights on.

People in the cities will panic. Not only might there be widespread rioting, but the panic may well spill over into the countryside, with hordes of people searching for a way out of the catastrophe. Lawlessness and violence will rule the resulting chaos, with gangs of desperate people doing what they feel they must to help their families survive.

The scenario is even bleaker in the event the world's economic woes overtake the United States. Where the Y2K computer glitch is seen as causing severe hardship on a relatively temporary basis, an economic collapse is viewed as long-term. And it will be exacerbated because most people today live away from the land, unlike the 1930s when a significant portion of the population still understood how to grow their own food and otherwise fend for themselves.

To view this possible scenario, the experts say you have only to watch the evening television news and observe the woes of Russia where an entire nation has been cast into poverty. Or view the once mighty economic giant, Japan, whose stock market has declined 60%, or the formerly strong economies of Thailand, Indonesia, and South Korea, whose economies are down 70 to 90%. And lately South

America has joined the casualty list. These countries are harbingers of what lies ahead for the United States, the doom and gloom experts say.

For many of these countries, families cannot pay their power and phone bills, food is in short supply, and other necessities needed to make life palatable have all but disappeared. Repossessions, and families being evicted from their homes, are common.

Miscellaneous supplies to store up

- 25 pounds laundry soap
- 12 28 oz. bottles dish soap
- 73 rolls toilet paper
- sanitary napkins in sufficient quantity
- 8 gallons bleach (used for sanitation as well as laundry)
- 12 bars hand soap
- 6 24 oz. bottles shampoo
- personal products, such as toothpaste, deodorant
- chainsaw oil and other items to keep things running
- pet foods
- livestock feed
- 55 gallons kerosene for lighting
- 25 gallons Coleman fuel or other lantern fuel

Sounds bad, doesn't it? And it may or may not come true in this country. It happened before, the doom experts say, and it can happen again. And this time, they say, Americans are even less prepared than they were in the 1930s.

Whether it happens or not, or even if it only partly happens, there are steps you and I can take now to prepare for any eventuality. And it's a whole lot better to be prepared for something that may never materialize than to *not* be prepared for something that may hit in the year 2000, or next month.

This article, I hope, will help you prepare for any eventuality, whether it's the Y2K Bug, a major economic collapse, an earthquake or hurricane, or even a death in the family that brings on hard times for you personally. The steps outlined below will also insure a better quality of life if nothing every comes your way.

Finances first

While times are good, artificially or not, it's time to work extra long hours and "kill the bills." Just get out of debt. If you can't see the way to pay off your \$250,000 home, consider selling it and moving to a less expensive place. There are a lot of homes for under \$50,000 available, in most locations, if you really look hard.

Consider fixer-uppers, longer commutes from a more rural setting. If your job is so-so, consider moving to a location that has cheaper housing and living expenses. Get your home debt free, as soon as you can. A homeless family is a refugee family. Never become a refugee! Can't happen in this country? Think again. Check out the statistics for homeless people on the streets now. Sure some are addicted to drugs and alcohol, some too dysfunctional or lazy to "get a job." But a lot are just plain hardworking people who have hit tough circumstances. Don't put yourself in a position to become a refugee.

Pay off those credit cards, and put them in a top drawer. The interest is equal to that of "loan sharks" just a few years ago. A thousand dollar item can end up costing as much as three thousand, especially when you just pay the minimum each month, which is largely interest.

Get rid of all the "toys" you can: cable TV, the motor home you only use once a year, the vintage car in the garage, driven just to impress people, the new car in the garage (replace it with a good used one that you can quickly pay off), the extra vehicles you do not really need but are making monthly payments on. The vacation home could be replaced with one less expensive in a very rural location, to be used as a just-in-case retreat should urban or suburban life suddenly get too scary.

Sock away some hard cash. Yep, I sure know it's awful hard, especially for we folk who are far from well-to-do. Even a few hundred dollars, especially if in coin or paper money turned to gold, could come in very handy. Don't depend on banks. We use them, but would never, under the current economic climate, keep our savings in them. We would rather have real money where we can get it quickly...no matter what. FDIC insured? Yeah, right...when the country has more than a trillion in national debt...and no gold in sight? I don't think so.

Prepare to live simply

Begin gearing up your household to run without electricity, which also probably runs your furnace and water well (or city water). In the Detroit suburbs, Dad had his own well.

Check out local regulations before drilling though, as in some areas, it is illegal. Personally, I would not live-where there were such regulations, as it could be too dangerous should city water go out. A developed spring is an excellent source of dependable water,

as you have water pressure without needing electricity.

A wood stove can be installed in most homes, in most locations, to provide emergency heat (and cooking). Other options include solar heat/cooking, which is legal most places, and propane, which will power a wall furnace or space heater, kitchen stove, lights, and refrigerator. A 500-gallon propane tank will last a long time when gas is used frugally. Beware of stoves with electric ignition or heaters that require fans to heat. No electricity = no heat. We've used a propane fridge for years, and like it much better than an electric one. You might consider switching before you need to.

Store up fuel

Store up fuel for heating/cooking before you need it. Wood and other fuel can be stored a long time, will be cheaper before there is a great demand, and it will be easier to get. We have at least 12 cords of dry firewood in the lot, and only burn about one a year. It's nice to have...just in case. Likewise, a barrel of kerosene is good insurance against spending dark evenings. You won't be able to buy it during hard times, but it's pretty cheap now.

Have alternative lighting, whether it is kerosene lamps, Coleman lamps, or propane wall lamps. Being poor and in the dark is not a good emotional combination. And be sure to have replacement wicks, globes, and other parts...just in case. We had one drop of condensation fall on a burning Coleman lamp, popping the globe instantly...and had to do without the lamp for a month, until we could get out of our snowed-in cabin for a replacement. Now we have replacements for each lamp type.

Store up some gasoline, where local regulations allow. With life-extenders, a barrel of gas can last a long time without getting too "old" to burn well. This gasoline can be used to travel or to cut wood to keep warm.

Food storage

Have enough food stored up for at least a year, preferably two. This seems basic, but I know very few people, especially those with good jobs and “normal” incomes, who have a full pantry. With today’s disposable society, many people shop daily for what they will eat for the next day’s meals. The pantry (if they even have one) shelves are empty or filled with junk.

I have written two major articles for *Backwoods Home Magazine* for the last two issues (Issue Nos 53 and 54) about preparing your food pantry. Read them.

We keep two years’ food stored up, from wheat to home-canned foods, just in case. We know we could never turn away hungry refugees without feeding them a good meal, especially if they were our neighbors or married-children. Could you?

Medical needs

Build up an extensive medical kit. We use a large field box, which has two levels and many compartments. Get as much medical training as you can, such as EMT classes, held locally. You might not want to become an EMT, but you can learn much that will help your family in an emergency. Buy a good book or two, such as the Red Cross First Aid manual and the Merck Manual. Then stock up that medical kit.

Remember that “normal” things, such as cold medicine, may not be readily available.

Both my husband, a CNA, and I, a veterinary field technician, have extensive medical experience, so we include in our medical kit sutures and suture needles, injectable local anesthetic, an IV and IV electrolytes, epinephrine for shock due to allergies or drug reaction, a blood pressure cuff and stethoscope, plaster casting material, and more. One never knows if, and when, a doctor will be available

during bad times. Of course, if a doctor *is* available, one should never attempt to treat their own or others’ injuries or illnesses.

Other high priorities

A radio and batteries are other must-haves. This keeps you in contact with what’s going on in the world. There are several brands of solar powered radios on the market today for not a lot of money. Batteries must be replaced or recharged. We also have a weather radio to keep up on weather conditions which can affect one’s life much more when times are tough. Listening to this 9-volt radio each morning keeps us in tune to Mother Nature.

Does your family have adequate warm, sturdy clothing? If not, this is a high priority. Buy good hiking boots, jeans, and clothing that is practical, long-lasting, and warm. If you never need ‘em, they won’t take up much space in a closet. If you do, they will become essential.

How about alternate transportation...not your car or pickup? Walking is fine, but doesn’t cover many miles in a day.

Some alternatives are bicycles, ATVs, motorcycles, snowmobiles (in snow country), and horses. All take much less gas to run than a car or truck, and bicycles and horses take none at all. Remember you don’t have to use a car or truck, even though you are used to it. The Amish and other plain people have always used horses and other non-motorized vehicles for travel, and in Europe and many other countries bicycles are the norm for a lot of folks.

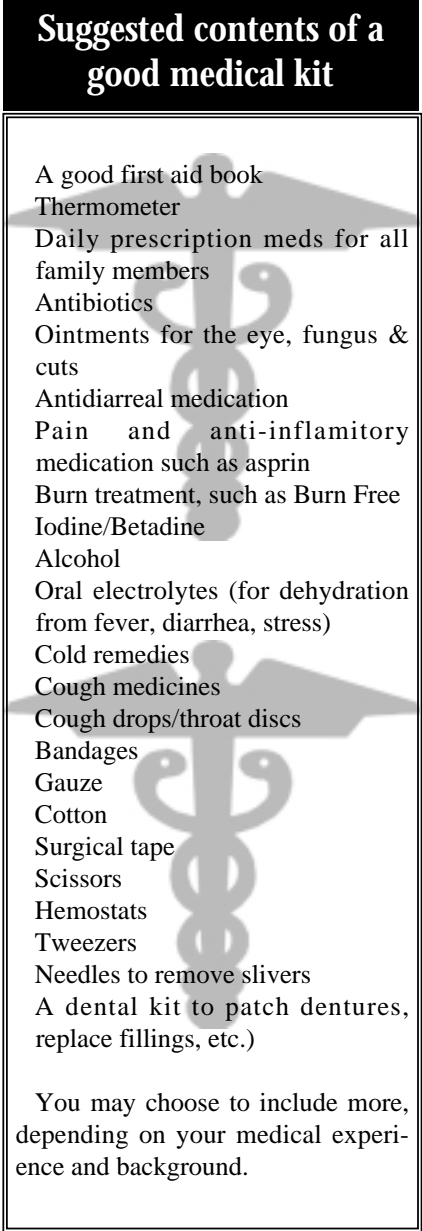
Stay-at-home emergencies

Some emergencies, such as severe ice storms, power outages, and blizzards, occur every year or so in many cold-climate areas, more frequently in other areas. This past year El Nino has contributed to widespread flooding in

areas unused to flooding, and to major storms in areas unused to major storms. All these things created emergencies that largely demand people stay where they are out of common sense.

Remember, without power, you will not have access to stores for food and supplies, banks and ATMs for cash, a flush toilet, drinking water out of the tap, your furnace fan (or heat at all, if you have a “modern” all electric home), the electric kitchen stove, gas for your car, and many other “normal” conveniences you are used to.

Suggested contents of a good medical kit



- A good first aid book
- Thermometer
- Daily prescription meds for all family members
- Antibiotics
- Ointments for the eye, fungus & cuts
- Antidiarrheal medication
- Pain and anti-inflammatory medication such as aspirin
- Burn treatment, such as Burn Free
- Iodine/Betadine
- Alcohol
- Oral electrolytes (for dehydration from fever, diarrhea, stress)
- Cold remedies
- Cough medicines
- Cough drops/throat discs
- Bandages
- Gauze
- Cotton
- Surgical tape
- Scissors
- Hemostats
- Tweezers
- Needles to remove splinters
- A dental kit to patch dentures, replace fillings, etc.)

You may choose to include more, depending on your medical experience and background.

A year's food supply for your family

This is a sample list for my family, which is a family of three. Your family needs may differ quite a bit, due to your meal preference. However, if you use this list as a base, you won't go hungry. It also allows for "company" meals. This is a realistic pantry supply to last a year comfortably. Remember to rotate your supplies, using the oldest first, replenishing as you use, in order to keep relatively fresh foodstocks. If you have a family of 4, increase the amount by 25%, a family of 6, by 50%, etc.

GRAINS

- 300 pounds of hard wheat or in combination with 150 pounds of wheat and 150 pounds of flour.
- 50 pounds of dry corn to grind for cornmeal
- 50 pounds of soft wheat
- 50 pounds white rice
- 50 pounds brown rice
- 50 pounds oatmeal
- 25 pounds of masa harina de maize (corn flour for tortillas and tamales)

LEGUMES

- 50 pounds of pinto beans
- 50 pounds of combined other beans, such as navy, kidney, etc.
- 20 pounds of split peas
- 20 pounds lentils

DAIRY

- 18 #10 cans dry milk or in combination with boxes of store-bought dry milk
- 2 #10 cans cheese powder
- 5 #10 cans dehydrated eggs
- 3 #10 cans butter or margarine

SUGAR

- 50 pounds white granulated sugar
- 10 pounds brown sugar
- 10 pounds powdered sugar

SHORTENING/OIL

- 10 3# cans shortening
- 5 48 fl. oz. bottles vegetable oil
- 2 16 fl. oz. bottles olive oil

SALT

- 10 pounds iodized table salt (used in pickling & meat preservation as well as table use)

VEGETABLES

- 104 pints of green beans
- 104 pints of sweet corn
- 104 pints of carrots
- 104 quarts of tomatoes
- 104 pints of tomato sauce
- 104 half pints tomato paste
- 104 quarts of potatoes and/or 22 pounds instant potatoes
- 26 quarts of squash or pumpkin
- 26 pints beets
- 2 #10 cans dehydrated sweet corn
- 4 #10 cans dehydrated peas
- 1 #10 can dehydrated onions
- 2 #10 cans dehydrated broccoli

FRUITS

- 52 pints peaches
- 52 pints apple sauce
- 52 pints fruit cocktail
- 52 quarts apples (includes pies, etc.)
- 52 pints pears
- 104 pints misc. fruits
- 1 #10 can raisins
- 1 #10 can dehydrated strawberries
- 2 #10 cans dehydrated apple slices
- 2 #10 cans dehydrated banana slices

PASTA

- 15 pounds spaghetti
- 6 pounds assorted noodles
- 6 pounds lasagna

MEAT

- 52 pints lean beef/venison roast
- 52 pints chicken/turkey
- 52 pints ham/fish/misc.
- 52 cans tuna
- 52 cans Spam
- 52 pints home canned hamburger for tacos, casseroles, etc.
- 1 #10 can ea. TVP (textured vegetable protein), bacon, chicken)

SEEDS

A heavy selection of garden seeds to replenish your food supply, should the period of hard times last longer than a few months. Always opt for the worst and prepare ahead.

Most garden seeds last for years, if kept dry. One notable exception is onion seed, which should be replaced yearly.

MISCELLANEOUS

- 1 pound baking soda
- 3 pounds baking powder
- 1 pound dry yeast
- spices usually used
- 25 dozen canning jar lids, wide mouth & regular
- coffee, tea, powdered drink mixes in sufficient quantity
- A grain mill to grind grains
- An Amish or other "cooking with basics" cookbook or two
- 1 gallon inexpensive pancake syrup
- An assortment of "treats", such as pickles, jams, preserves

CHECKLIST FOR STAY-AT-HOME EMERGENCIES

- Food and water for family, pets & livestock for at least 14 days; 55 gallons of fresh water will last a family of four for over seven days.
- Daily medications for family for 14 days
- Alternative heat source & fuel
- Alternative cooking source & fuel
- Alternative lighting source & fuel
- Flashlights & batteries
- Transistor, crank or solar radio
- Medical kit
- Matches
- Butane lighters
- Magnesium, flint & steel fire starter

The food in your refrigerator will slowly spoil and the food in your freezer will slowly thaw, then rot.

Luckily, there's a lot you can do to keep on top of such a situation. Number one, begin a game plan of *not* depending on electricity. Power is fine. It's handy, convenient, and easy. Just don't depend on it.

Getting along comfortably without electricity

Trade in your electric stove for a gas range that does not have electric ignition. It will work when there is no electricity. Better yet, buy a wood range for the kitchen or basement. Trade in your electric refrigerator for a gas unit. Not only will it run without power, but it keeps food much better and lasts for many more years. Have at least a back-up heating unit that does not depend on electricity to run or to power the fan. A wood stove, a propane or natural gas wall furnace, or a space heater are all more dependable than a central furnace requiring electricity to provide heat for the home.

Sanitary concerns

Build an outhouse. What? Yep, even if you live in the city, discreetly dig a hole and build a "garden shed" over it. UmHm, I know it's not "legal" in many localities, but in an emergency,

you can use it and keep your home much more sanitary and sweet smelling. No emergency? Use it for a garden shed. Remember too that urine is normally sterile and can be diluted with water and poured around trees as nitrogen-rich fertilizer. If it is totally impossible to construct an outhouse, keep urine separate and dispose of discreetly. Solids may be buried daily or you can even use a "kitty litter" box, keeping them covered after each use. Toilet paper may be bagged and burned or kept for later dumping.

Alternative lighting

Decide on what emergency lighting you will use. A lot of folks prefer to buy a generator to power their entire

home during a short to moderate power outage. We prefer not to have to depend on generators running 24 hours a day; we use one for an hour or so and then only as truly needed. Remember, gasoline or diesel fuel may be exceedingly hard to get. Don't waste it for luxury.

We have used propane wall lamps, which give good light and are cheap to run; Coleman lamps, which also give good light, but must be pumped up to pressure from time to time; and kerosene lamps. Candles can do once in a while, in a pinch, but are easily upset, and are dangerous to use.

Be sure you have a good supply of matches, as you'll need more than you think. A few butane lighters also come in handy. I also keep a flint, steel, and magnesium fire starter, just in case. The magnesium burns very hot so it will light a fire, whether your fuel is wet or dry. You can buy them at the Preparedness Expos all around the country.

Food and drink

Have enough food and emergency water stored up if you don't have an alternative water supply, such as a well with hand pump, spring, or cistern. **Never** drink *any* surface water, such as from a lake or stream, that is not either filtered with a good filter to remove contaminants such as giardia,



Moving into your survival retreat can be easy if you plan ahead.

Checklist for vehicle emergency preparedness

Jack & lug wrench
Spare tire
Shovel
Battery jumper cables
Basic tool kit
Fix-A-Flat
Oil
Lighter air pump
Gallon of drinking water

Blankets
Basic first aid kit
Flashlight
Emergency food
Candles with matches
Map
Cell phone or C.B. can be a life saver.

which causes terrific diarrhea, or boiled for five minutes after straining off the major silt. You can treat questionable water with iodine, in drop or tablet form, but personally, I think the taste is awful. I prefer boiling, cooling, then shaking the water container vigorously to re-oxygenate it, which dramatically improves the taste. **Never** drink any water from a lake or stream in or downstream from agricultural land (leaching nitrates from fertilizer) or factories/mines (heavy metals, toxic wastes), as these may escape all but the most expensive filters. Boiling will not make the water drinkable.

You can obtain water for washing and flushing the toilet from several sources: melting snow, ditches, ponds, livestock tanks, rivers, and other surface water. These will all do the job. When your water goes into an urban sewer, be sure you can “dump flush” the toilet, however, as some systems depend on pumps (electricity) to move the sewage. Check it out *before* you need to.

Vehicle emergencies

A lot of our day-to-day emergencies involve being stranded with our vehicle. A mechanical failure, a flat tire, being stuck in the snow, stuck in the mud and so on can make life miserable. We need to make it less miserable—and not life-threatening as it can sometimes be.

Vehicular emergencies are compounded by other emergencies. If you

are stranded in a blizzard, possibly because of an evacuation or civil disturbance, it can quickly lead to a life-threatening situation. You should prepare for these situations also.

It may seem basic, but always know where you are, and know the best route to take to get to where you are going. Carry and use a map.

In cities, avoid “bad” neighborhoods, even if it requires going out of your way.

Pay attention to weather conditions when you drive, and prepare accordingly. It’s shocking to us to see folks in cars during cold, unpredictable winter weather, dressed in shorts and sandals. That’s playing Russian roulette. Wear warm clothes during cold weather, or at least have them with you, including warm socks and boots.

Even in summer take some warm clothes along with you. Some evenings get downright cold in many areas, especially when there is a drizzly rain pouring all night.

If the weather is really bad, don’t drive. Seems logical, but a lot of unprepared folks set out into the teeth of a blizzard or hurricane because *nothing* is going to disturb their plans. Waiting a day or two is a lot safer. Listen to a weather radio or current weather forecast before setting out. Even a four wheel drive can run into icy roads or drifted snow and have trouble.

If you do get stuck or stranded by a mechanical failure in bad weather, stay with the vehicle. A lot of folks

lose their lives by trying to hike for help. In a vehicle, there is absence of wind, making comfortable survival much more certain. Your candle can heat the inside, warn other motorists of your presence, and attract the attention of rescuers. **But be careful!** Everything inside a vehicle burns with toxic smoke and ignites easily. Keep a down-wind window cracked to prevent carbon monoxide poisoning, especially if you run the vehicle (with the tailpipe in the clear) from time to time, to keep warm.

A plan, truck, survival pack for short-term evacuation

There are many situations where you may be suddenly called upon to evacuate your home: forest fire, hurricane, earthquake, chemical spills by truck or train, flood, or even radical emergencies such as terrorist activity or riots. To prevent panic, be prepared, much before anything of the sort happens.

We also have our favorite photo albums, important papers, and keepsakes localized for instant grabbing.

Have a “plan of action” worked out, discussed with all family members. Where you will meet? Who will carry what, and where you will go—a relative’s house, a campsite on state or federal land?

If you always keep on top of the weather, the news, and local conditions, you will have a jump-start on evacuation, allowing you to prepare beforehand and avoid panic.

Remember, **no** personal goods are worth the life of a family member. If an intense hurricane or forest fire is headed your way, make ready to leave. Wet the roofs, batten the windows, do whatever you can do. But when it’s time to evacuate, get out before the roads jam with traffic.

Have the car/truck fully gassed up and carry some reserve gas in cans....just in case. Carry not only your “grab and get” supplies, but be sure you have maps and your vehicle emergency equipment, as well. Try to

EVACUATION NEEDS

Storage food in large cooler #1	Metal spatula
Instant potatoes	Roll of duct tape
Dry milk	Small roll of wire
Canned tuna	Metal cups for family
Dehydrated eggs	Small water filter
Dry noodles	Propane stove & tanks
Flour	Flashlight & batteries
Shortening	Hatchet
TVPs	
Dry soup mixes	Medical Kit (as previously detailed)
MREs (military instant Rice meals; meals ready to eat)	
Dry beans	Sleeping Gear (in large plastic box)
Margarine powder	Sleeping bags
Dehydrated fruit	Candles & lighters
Dehydrated vegetables	Coleman lantern
Tomato powder	Unopened gallon of lantern fuel
Baking powder	Bow saw
Salt	Warm socks & jackets
Spices & condiments	10' x 12' plastic tarp
Pudding mixes	lightweight tent
Cornmeal	Radio
Instant coffee, tea, drink mixes	Rifle/shotgun and ammunition (food procurement, signaling, and family protection)
Sugar	
Kitchen box in large cooler #2	Personal backpacks
Frying pan	Warm clothes
Large pot	Emergency food
Smaller pot	Socks
Mixing bowl, steel (can double as cooking utensil)	Stocking hat
Matches & lighters	Basic fishing gear without rod
Toilet paper	Small first aid kit
Paper towels	Space blanket
Dish towel	Flashlight
Dish soap	Roll of wire & rope
Candles	Pocket knife
Dish scrubber pad	Canteen with cup
Bowls for family	Lighter
Silverware for family	A few dollars in quarters & bills

stay out of main traffic areas/jams and stay out of dangerous areas, i.e., near the path of a fire, the chemical spill, the riot, etc.

It's a good idea if every member of the family has his/her own survival pack. Even a cheap backpack containing warm clothing, food, water, a lighter, candle, first aid supplies, etc. will provide extra security if family

members become separated or if someone forgets something.

A survival retreat for long-term evacuation

All families today should have a safe place they can evacuate to should things get dangerous in their home area. This is especially true for city-dwelling people. Such possible realis-

tic scenarios as riots, often due to poverty, hunger, and anger at situations that seem to have no resolution; terrorist activity, which even the government fears is on the imminent increase in the U.S.; missile destruction of areas, which will become more possible as desperate Russians sell missile technology to terrorists; and severe economic depression or collapse, which, considering the current global economic mess, may be the most likely scenario of all.

This retreat can be called a summer home, a vacation home, hunting cabin, or whatever. Calling it a survival retreat immediately brands you as a nut-case radical. Just quietly go about your business, not making waves or attracting attention, and secure your hideaway.

This safe spot should be located at least an hour's drive from a city—two hours from a large urban area such as an L.A. or Chicago-type metropolis. A rural location is great, but a more remote place is even better. Some folks freak out at this, preferring a small rural town setting. That'll work, too, as a close small community can work together. But we've found that that is not always the case, and we prefer to keep to the boonies.

You want something with a little acreage in case you must raise all of your food. Some people claim you can raise all your family's food on a small 50 x 50-foot garden. Nope, you can not! When you must can all winter's food, raise all of your small grain and corn, and grow feed for any livestock you have (chickens, rabbits, etc)—and take into consideration weeds, drought, and predation—you will need more land, at least two acres to feed your family well.

Forget living off the land. This sounds radical for a self-reliant, wilderness-living person such as myself, but it's true. Sure, one family can survive living off the land, but when a significant portion of the nation lives off the land, the game is quickly killed off. It happened during



Survival doesn't have to mean stark times of doing without.

the homestead days all over the nation. Even Indians starved because they were forced to eat what they could scrounge up in a limited area (reservations), and there was not very much left.

It is a great idea to learn to supplement your diet with wild foods. (Supplement, not live off.) There are many wild plants that can regularly be incorporated into the daily meal plan that are not only readily available, but nutritious and tasty. A good book on the subject is Guide to Wild Foods by Christopher Nyerges, who writes frequently for *BHM* and whose book is available through the magazine. He also offers courses on wild foraging.

Experiment before you *need* to forage for dinner. Remember there are some poisonous plants that will kill you if you eat them. You need to learn the good from the bad, the edible from the tasty. Get Nyerges' book.

Your retreat needs to have non-electric capabilities (or PV power), well or spring water, wood heat, and alternative lighting, with appropriate fuel stored up in advance.

The sooner you get started the better, for you can plant an orchard, berries, and perennial vegetables, such as Jerusalem artichokes, asparagus,

etc., allowing time for them to mature to bearing age. You can also have adequate time to slowly stock up on food and other supplies, work the garden plot up very well, fence any land you need to, develop irrigation, etc.

Where should the survival retreat be located? That's largely a personal preference. We love the very remote-country: central Alaska, northern British Columbia, the Montana and Wyoming and Idaho high country. But it's certainly not for everyone. Many more folks would be happier with the plains states: Maine, Arkansas, Missouri, or Minnesota. You can still find very rural areas, far from a freeway or big city, and find it easier to raise food for the family.

And the survival retreat does *not* need to be expensive. I have personally priced many retreats, in diverse locations, nationwide, priced below \$35,000.

Choose the retreat with care, taking into consideration such things as nearness to a freeway (dangerous refugee traffic in some scenarios), nearness to a military or other strategic government location (possible missile or terrorist strike), nuclear plant (possible malfunction or terrorist strike), below a dam (possible rupture and flooding), or near any factory, chemical plant, etc.

The decision to evacuate

The decision to evacuate for long term, perhaps forever, of one's home is stressful and highly personal.

It's best to leave before a situation becomes very serious. There are several reasons for this. First, there will still probably be gasoline available. The roads will be relatively uncongested, as most people have a tendency to wait until the last moment to leave, hoping desperately that things will get better. Travelling will be less stressful and much safer. A hoard of panic stricken, angry, hopeless people,

even the "nicest" people in the city, could become dangerous.

Take a good map and trace out a route, avoiding freeway-congested areas and large cities, even if it means going miles out of the way. We would prefer to stick to backroads and minor highways. Drive this route often during normal times to familiarize yourself with it and work out any possible problems.

People today have largely become spoiled, being used to a relatively easy life (regardless of the stress of "the rat race") with all the goodies and toys. They have forgotten how to live frugally, save money, provide for their own food, keep warm, safe, and dry.

I know of one intelligent young man who went to Alaska to live off the land. He killed a moose, then later almost starved because he didn't know how to preserve the meat. It rotted.

When people suddenly lose all they have: the homes that were not paid for, the easy living, and the well paying job, they will panic, angrily demanding to remain in their past lifestyle. And angry "nice people" can get ugly.

During the last upheaval, the Great Depression, folks were much less spoiled, and for the most part they had basic living skills. Women knew how to garden, raise small livestock, make meals from scratch, make soap, sew clothes, etc. Men knew how to maintain machinery, raise crops, raise large livestock, cut firewood, etc. All, including children, knew how to work hard to survive. This is a skill greatly lost today, as are the basic living skills. And Depression-era folks had always known hard times, and they were more prepared to face them.

Our goal today should be to regain some of our independence and self-reliance, and to be prepared for any hard times in our future, whether they are slight, short lived, or more violent and long-term. Δ

What if the electricity GOES OFF?



By Michael Hackleman

Just as everyone was getting ready to throw *the* party of the century and millennium—out with the old and in with the new—someone springs Y2K on us. Power outages, banking woes, communication breakdowns, and even economic collapse are some of the predictions I've heard. There is indeed a kind of convergence happening here. The changeover to the Euro-dollar is imminent. The satellites that make up the GPS (global positioning system) network will automatically reset to zero in late 1999. Things certainly look exciting for the turn of the century.

I guess you have to walk on the planet for more than 50 years, be in a war, have a wife and children, and fight a whole bunch of issues for a long time

to know that this feels familiar. The name changes, the date shifts, but it's the same question:

Are you ready?

People generally agree that something's going to happen, yet we don't yet know the nature of the beast. It has many faces. Earthquake, fire, flood, plague, meteor strike, nuclear attack, hurricane, and tornado—all strike in the moment. Economic collapse, crop failure, famine, and nuclear winter are forces of siege that could last months, years, or decades.

From a distance, the first evidence may be a blackout or a news report. The area affected by the disaster will dictate the probability, frequency, and durations of blackouts. If the scope of the disaster is large, other services—water, natural gas, gasoline, fuels, food, and goods—will fail.

Following that will be the loss of phones, police, fire, rescue, utility, Red Cross, and government services.

It is said that crisis has two components: danger and opportunity. There is danger in a crisis—catastrophe, collapse, and chaos. There is opportunity in crisis—restoration, renewal, and revival. Preparedness doesn't mean you'll survive, but it won't contribute to your demise.

There are issues that are specific to living in a city or in the country, so I will treat each as distinct scenarios. As you discover issues that approximate ones you may experience, you will likely be drawn to research these topics in more detail.

A blackout is a likely scenario in either a short-term or long-term crisis, so that is a good place to begin.

Blackout ready

As winter storms roll in and you prepare for the effects of rain, wind, and cold, what plans can you make to handle an interruption of utility power? Most of us have experienced a blackout before. Has it been just an annoyance and inconvenience to you? Or was it disruptive to your life or business? There's not much anyone can do to prevent a utility blackout, but there are ways to mitigate its impact on your lifestyle whenever it does happen.

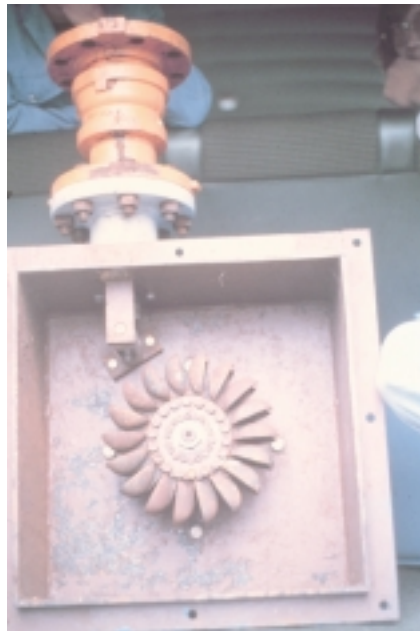
Is readiness for a blackout worthy of your consideration? Cost-cutting measures by utility companies throughout the USA have eliminated programs that protect utility lines from growing or falling trees. The new policy seems to be "fix it only if it's broken." Severe storms, then, will most certainly impact utility service. An interruption lasting one or more days is more real a possibility than ever.

The pressing question when a blackout occurs is: When will it end? Virtually anyone can put up with a few hours of interruption. Just break out the candles, don warmer clothes, and read a book or enjoy the company of a friend. The average blackout is a pop quiz. "Are you ready?" it asks. When the blackout continues, with no end in sight, the need for light, heat, water, and food grows.

What's important in the home?

There are four critical loads in a home affected by a blackout: lighting, heating, refrigeration, and the water system. More specifically:

- **Lighting.** Lighting is essential for overall safety, particularly at night. Fortunately, it need not be electric. Candles, flashlights, and kerosene lanterns are traditional lighting sources for blackouts. Preparation for a blackout requires stockpiling matches, candles, batteries, or fuel for



Even seasonal streams will supply power in the winter from units like this pelton wheel.

lanterns. Don't forget to put this stuff where you can find it in the dark!

- **Heating.** Central air heating systems, even if they use natural gas or propane, depend on electricity for the blower that will circulate the heated air. During a blackout, this system will not work. Areas with temperate climates allow most users to compensate with warmer clothing and the use of small propane or kerosene heaters. Wood stoves are also a popular alternative to central heating systems.

- **Refrigeration.** A refrigerator will keep things cool for a long time after power is interrupted. From the beginning, minimize the frequency and duration of opening its door to preserve its cool! As the blackout continues, consume the more perishable items first. Even a small stockpile of canned or freeze-dried foods will prove helpful during a blackout. Unless you've arranged for a way to heat and cook food, ensure that your supply is edible "as is," or with simple re-hydrating with water.

- **Water system.** Most community water systems are designed to work

for some time following a blackout, powered with huge standby generators. Private water systems built around streams, springs, and wells that use electric pumps will quit working as soon as the electricity goes off. The pressure tank will still deliver some water, so immediately fill handy containers (bottles, buckets, bowls, bathtub, etc.) before this supply is depleted. The standard household water heater is another source of 30-50 gallons of water. How will you handle toilet, shower, and sink during a blackout? Some forethought and planning will help with these processes during an extended blackout.

Other sources of electricity

Utility electricity available at the wall socket in a home or business is rated 120 Volts and 60-cycle AC. There are two ways to supply this same specialized power in a blackout: a standby generator and a battery-powered inverter.

The standby generator:

Where the interruption of utility power even for a few hours is critical—i.e., emergency equipment and services in businesses and hospitals—a standby generator may be used to supply power. A standby generator is an engine combined with a generator. This unit may be started manually or automatically and requires only fuel (gasoline, diesel, or propane) to operate until grid power is restored.

Homes may also use a standby generator to supply electricity during a blackout. A common arrangement is to start the backup generator from a remote control panel in the house. Some or all of the household circuitry is transferred from the utility line to the standby generator. This process is reversed when utility service is restored.

A standby generator for homes, businesses, or hospitals is usually



Dual meters are common when renewable energy systems put power back down the utility line.

rated to handle only some of the existing loads. A generator large enough to handle *all* of the loads is big and expensive to buy, maintain, and operate. A detailed analysis of existing loads should precede the installation of any standby generator. Make a load list. This is a good place to rate loads as essential or non-essential. Later, this helps identify circuits that will be left ON or shut OFF during generator operation.

In theory, the standby generator seems like the best way to handle blackouts. However, there are five reasons why it is less than an ideal solution: expense, fuel supply, peripherals, efficiency, and sound.

- It is a fairly expensive system for only occasional use. For a big chunk of time, the generator is not doing anything for you at all. Standby generators designed for long life and minimal noise are more expensive than ones operating at higher rpm (3600 rpm).

- Requires fuel to run. Either you must install a large fuel tank nearby or you'll be transporting fuel cans to and from town to feed a rather thirsty beast. Weather severe enough to require generator operation is rarely the best time to travel to refill empty gas cans.

- Needs peripheral hardware to work. Remote startup. Transfer switch. Monitoring gauges. Fuel supply. A firesafe, weatherproof installation (shed?). A battery that is ready to start the generator. Add these costs to that of the generator itself.

- It is needed for even small loads. A generator powering a few loads has a much lighter load, but gobbles (inefficiently) fuel as though it's doing more work than it is. Either way, it experiences wear.

- It is noisy. This is a security issue. A standby generator lets everyone in the area know where you are. At the same time, proximity to the generator impairs one's own hearing. Bad combination.

Despite these limitations, standby generators have their place. There is 100 times more available energy stored in a pound of gasoline than a pound of battery. In the short term and for big loads, the generator gives the biggest bang for the buck. The questions are: how big is your need and what's the duration of the blackout?

The battery-powered inverter:

Another way to make electricity like that supplied by a utility is through an inverter. An inverter is an electronic device that converts DC electricity

into AC electricity. (DC is direct current. AC is alternating current.) The result is identical to the stuff from the utilities, even cleaner.

One source of DC electricity is a battery. Thus, an inverter can transform the DC electricity from a battery into 120V, 60-cycle AC power. A battery is not truly a source of electricity. Rather, it is a means of storing the energy (in a chemical form) of the DC electricity supplied to it. The best sources of DC electricity are PV (Photo-Voltaic, or solar) modules, wind-electric machines, and small hydro-electric systems. More on this later.

A battery charger plugged into the utility line will also supply DC electricity to a battery. This is a popular idea. The batteries are charged and maintained at full readiness, and ready to substitute their energy for that of the utility for as long as they're able. The bigger the battery (bank of batteries), the longer the system can bridge the blackout.

These systems are common. Have you ever wondered why your phone works when a blackout occurs? Phones run on electricity, too. The phone company has a "standby" or backup system which switches ON automatically when utility power is interrupted. This is called an uninterruptible power system, or UPS. At the heart of the UPS system is a bank of batteries that are much like the battery in your car, except bigger and heavier. Those batteries store enough energy to run an entire complex of telephone-related equipment for many hours during a blackout. When a blackout lasts longer than that, an engine-driven generator (fueled by gasoline, diesel, or propane) is started up to handle the entire load and recharge the batteries.

Until a few years ago, a small UPS system was the primary way to avoid the loss of power to a computer during a blackout. A critical period is the time it takes to switch between utility and battery power. To avoid any glitch, early UPS systems would run

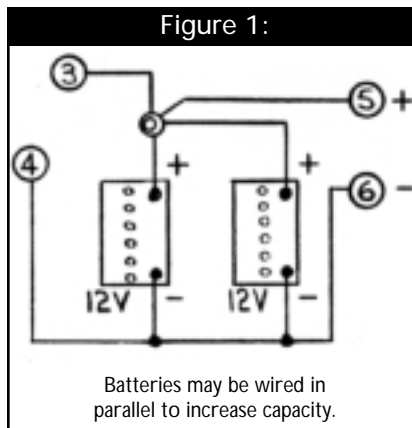
the computer's inverter from the batteries full time, while utility electricity only maintained the battery pack's charge. Better electronics have improved the purity and speed of the transition time. Today, many computers are unaffected by the transition as newer "line-tie" inverters switch from utility to battery, or back, in milliseconds.

There are many applications where a split-second transition between utility and battery power is not an issue. Or where more modest loads are dictated. Here, a simple and less expensive system—a small inverter, battery, and transfer switch—works well. The system I installed when I lived in the city was sized to power a furnace blower (and its controls), refrigerator, stereo, and four lights during an emergency. The system was installed near the main distribution box (where the fuses or breakers are located). It involved moving the wires and breakers (to which the wires are connected) into a service box I added. With a transfer switch added between the two boxes, I could shift these three circuits between utility power or the inverter's output. This is basic electrical wiring, easy for a DIY (Do-It-Yourself) homeowner or a local electrician.

How did it work? I'd give the blackout 10 minutes before I looked for the load list. It's a map that lets me move about the house, shutting off unneeded loads on the few circuits that will be switched to the inverter. (The energy stored in the battery is the lifeblood of the backup system. Don't let it bleed away needlessly!) Next, I'd shut off the main utility switch, flip the transfer switch to inverter, and turn the inverter ON.

A home UPS system

The simplest backup system is composed of two major components—a battery and an inverter. Batteries and inverters come in all shapes and sizes. Select carefully and they will serve you well.

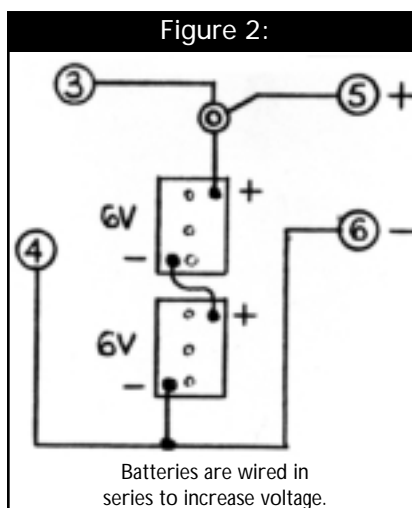


The important characteristics of a battery are voltage (V), capacity (Ah), and design cycle.

1. Voltage. Common battery voltages are 6-Volt and 12-volt (hereafter, 6V and 12V). Large battery banks will employ individual 2V cells with massive capacities.

2. Battery capacity. Battery capacity is rated in Ah (Amp-hours) or cold-cranking amps (useless for our purposes). The Ah rating is helpful in describing the amount of energy the battery can hold.

3. Design cycle. Batteries are of two types: SLI and deep cycle. (A cycle is a discharge and full recharge.) A SLI (starting-lighting-ignition) battery is used in a car to start the engine—a fairly shallow cycle—and is immediately recharged by the engine's generator. Deep cycle batteries are used in applications where the battery's energy may be nearly depleted—a deep



cycle—in use. This process will damage a SLI battery internally and eventually result in its failure.

12V vs 6V batteries

The smallest deep-cycle battery you might use for an inverter is rated 12V and 110Ah. These are used in boats, trolling motors, and RVs. At 50-70 pounds, this battery is about as much as a healthy person can carry and maneuver in a confined space. To increase the capacity of this system, you "parallel" a second battery with the first (Fig. 1). To parallel a battery (same voltage only, please!), make connections positive-to-positive and negative-to-negative for both batteries and load. The voltage will stay the same; in this case, 12V. At any time later, you can increase the system's capacity (the rate or duration of power delivery) by adding batteries of the same voltage, even if they have different capacities.

A better building block in a battery bank for inverter operation is the 6V, 220Ah battery used in golf cars. It has half the voltage, yet twice the Ah of a 12V battery of the same size and weight. So, they have the same "energy density."

To supply the 12V electricity our inverter needs, two 6V batteries are connected in series (Fig. 2) like dry cells in a flashlight, with ONE wire connecting the positive of one battery to the negative of the other. (A novice may try to connect the other two posts together, which results in a very hazardous short-circuit.) The result of the series wiring is a new, bigger battery of 12V with the remaining posts, positive and negative, connected to the system in the same way as would be any 12V battery.

Theoretically, pound for pound, two 12V batteries in parallel will equal the capacity of two 6V batteries in series. In reality, a 6V battery is tougher—thicker plates, fewer cells to water, and greater tolerance to deep cycling and cold weather—than a 12V battery,

resulting in a longer service life for almost any application.

Expect to pay \$70-85 for a 6V, deep-cycle golf car battery (or equivalent). You'll need them in pairs for inverter operation at 12V.

Inverter features and ratings

Today's inverters serve two critical functions. First and primary, they convert the battery's output (low-voltage DC) to a form that your household can use (120 or 240 volts AC, 60 cycles). Second—and most desirable for standby generator or utility interaction—is the internal battery charger option. A battery charger's operation (DC-to-AC) is simply the reverse of an inverter's operation (AC-to-DC). When combined in one box, the inverter and battery charger share (use) the same electronic hardware. In this way, utility electricity stores itself in a battery which, in a blackout, will release the energy, powering an inverter to make 120V, 60-cycle AC.

The battery and inverter must be "matched" to each other and to the loads you expect them to power. Appliances, lights, and tools are referred to as "loads." Each "load" has its own power (consumption) rating. You may have heard the term "wattage." This is an expression of the RATE at which a load uses electricity. Generally, lights and radios are small loads while refrigerators, motors, and toasters are big loads. The effect of loads is accumulative. That is, if you operate more than one load at one time, the total load is the addition of all those wattages. The power consumed by even one small light all night might be greater than that of a toaster operating for a few minutes.

In an emergency, you must reduce the loads the battery/inverter unit will power. The faster you use the energy stored in the batteries, the sooner you'll have a "second" blackout! Make sense? In a blackout, you



A solar-powered food dehydrator lessens the need for refrigeration.

become the power company, responsible for rationing both the rate and quantity of expected household needs for a specific time period.

Inverters have voltage and wattage ratings.

1. Voltage. The voltage ratings are divided into input and output. The input voltage is the DC voltage of the battery bank. Inverters exist to handle DC voltages of 12V, 24V, 32V, 48V, or 120V.

The output voltage of the inverter is the 60-cycle AC voltage. It may be 120V (commercial) or 220V (industrial), or both.

2. Wattage. Wattage ratings of inverters range from 50-4,000 Watts (4kW) or larger. What wattage works for you? Here's a handy rule-of-thumb.

a. The *minimum* wattage rating of the inverter is determined by the largest single load you expect it to power.

b. The *maximum* wattage rating of the inverter is the largest combination of loads you want it to power simultaneously.

For example, if you had loads of 50 watts, 120 watts, 220 watts, 1200 watts, and 1400 watts, the inverter rating could be as low as 1400 watts (for the biggest single load) or as high as 2940 watts (for *all* of these loads.)

High-power inverters are expensive and require more battery capacity. Smart owners balance this situation by avoiding simultaneous use of heavy loads. In this example, then, selecting a 2000-watt inverter would handle everything else if the operator avoids using the two biggest loads simultaneously.

The price tag of a small UPS system is well within the reach of many homeowners. Inverters average a dollar a watt and batteries (lead-acid type) about a dollar a pound. A battery/inverter system is virtually maintenance-free and tucks away on a shelf in the garage or carport, ready to work when the blackout comes. Fortunately, your investment in this system has a second success. It is the core of a system that enables you, when you're ready and able, to tap the renewable energy sources—solar, wind, and hydro—all around you.

A no-inverter DC system

Utility power, in the form of 120VAC, 60Hz, is very specialized power. In a blackout, you may have less need for it than you might think. It is well known that a car or truck is useful in emergencies for the radio, light, heat, and shelter it offers. Without the engine running, there is enough capacity in vehicle's 12V battery to power lights, radio, and the horn for some time. Periodic engine startup adds heat to the equation and recharges the battery, too!

Similarly, a stand-alone 12V battery pack located in the garage or home may be kept on charge (with a battery charger) until utility power fails and its stored energy is needed "as is," at 12V. This does not mean that you can power the same 120V loads as an

inverter will. The RV (recreational vehicle), automotive, and marine markets offer almost any type of appliance, motor, tool, pump, and light that will work directly from 12 volts DC. For example, several high-efficiency 12V fluorescent lights will provide 20-40 hours of welcome light from one automotive-size battery. I can think of nothing more reassuring in the darkness, particularly when a storm is raging, than the steady glow of a lamp.

How do you wire up a 12V system to be blackout-ready? For occasional use, clamp-type lamps and several lengths of extension cords may be connected together to distribute light through a dwelling. This assembly can be coiled up and put away until a blackout occurs. A more permanent solution is to dedicate an electric circuit to 12V use. Existing household circuitry rarely adapts easily to a dedicated usage (unless one is still building one's home). Here, a well-planned layout and one standard roll of Romex wire will add a 12V circuit to any home, shop, or building for lights and a radio.



Solar cookers achieve 250-350 degrees during operation.

Living beyond the grid

Most RE (renewable energy) systems are based around 6V and 12V storage batteries. The simplest RE systems use a solar module, one or two batteries, a few 12V lights, and a 12V radio. Except for the PV module, this is identical to the system

(described above) to supply power during a blackout. Becoming blackout-ready, then, is a step in the direction of becoming energy-independent.

RE systems are generally located "beyond the grid." The cost of bringing in utility service even a mile is often more expensive than investing in a system that is utility-free. RE technology has focused on being modular. This makes it simple to add more capacity, and to move and re-install the system.

There are energy sources other than PV modules worthy of your attention: wind and water. Wind-electric machines and small hydro-electric turbines are also viable energy producers. A multi-source system is smart for three reasons:

1. Seasonally, wind and water sources of energy are complementary with solar-generated power.

2. Solar, wind, and water system hardware is designed to supply low-voltage DC, particularly 12V and 24V.

3. A system designed around one source readily accommodates additional sources. The systems are more similar than different. Therefore, the battery bank, distribution and fusing panels, and monitoring equipment are

Figure 3:

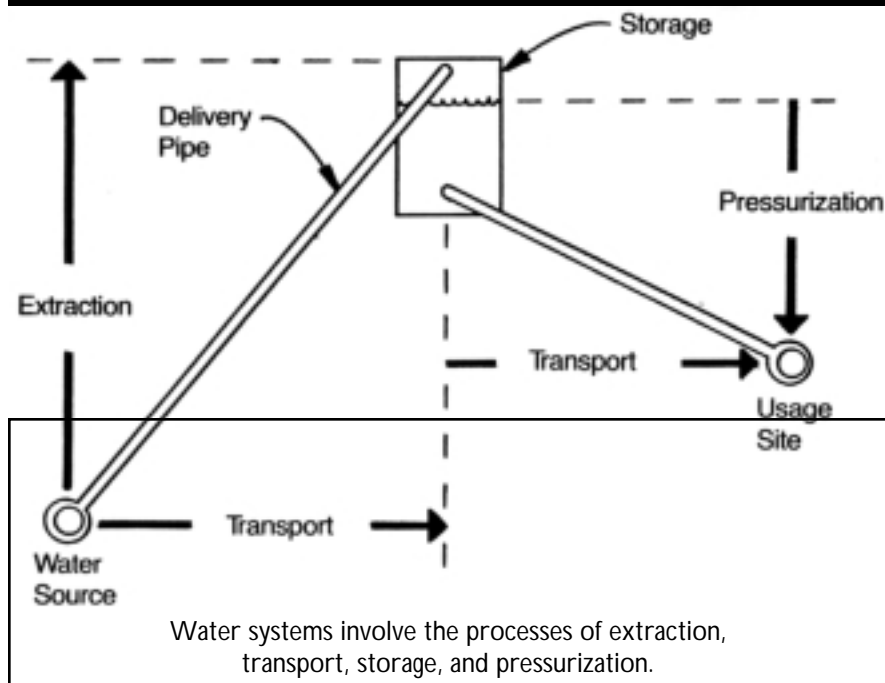
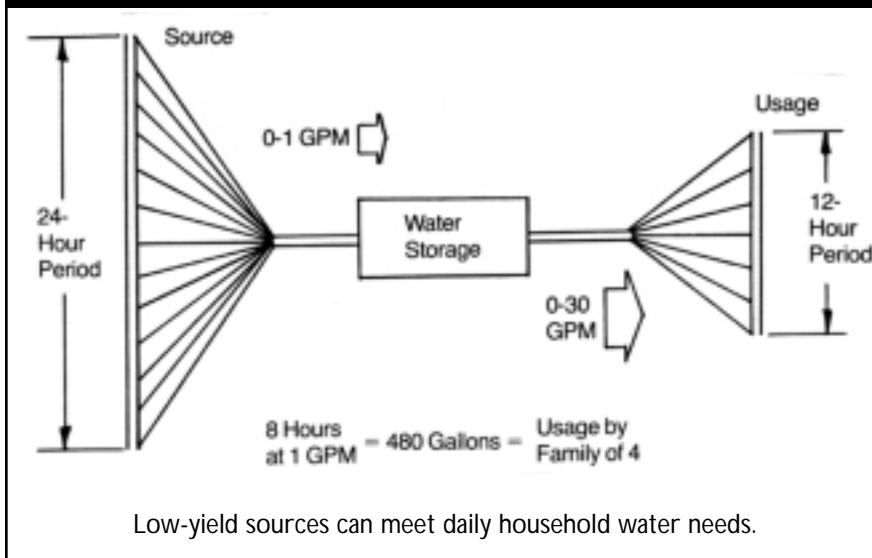


Figure 4:



virtually the same and are shared by the different sources.

Putting together a backup or RE system is also a good way to learn the basics of electricity itself (i.e., volts, amps, watts, and amp-hours). I believe this is essential if one is going to rely on electricity for anything. With this knowledge comes an appreciation for how energy moves and changes, and how it can be harnessed to fill your needs.

Beyond a blackout

Preparing for something worse or longer than a normal blackout is a frightening prospect. I avoid being overwhelmed by the sheer immensity of the topic by dividing the issues into two phases: basics and preparation.

Basics:

Basics represent the checklist of life. What does a human being need to survive, short and long term? Air, water, shelter, and food.

Air: Few think much about breathing until they can't. Remedies that take longer than three minutes are of little value. Shelters must remain tied to the atmosphere directly. If there are airborne pollutants (smoke, ash, etc.),

filters will be needed to breathe without risk of injury.

Water: Humans can live only three days without water. See that you store some or have access to it. Water is easily contaminated. Figure out a way

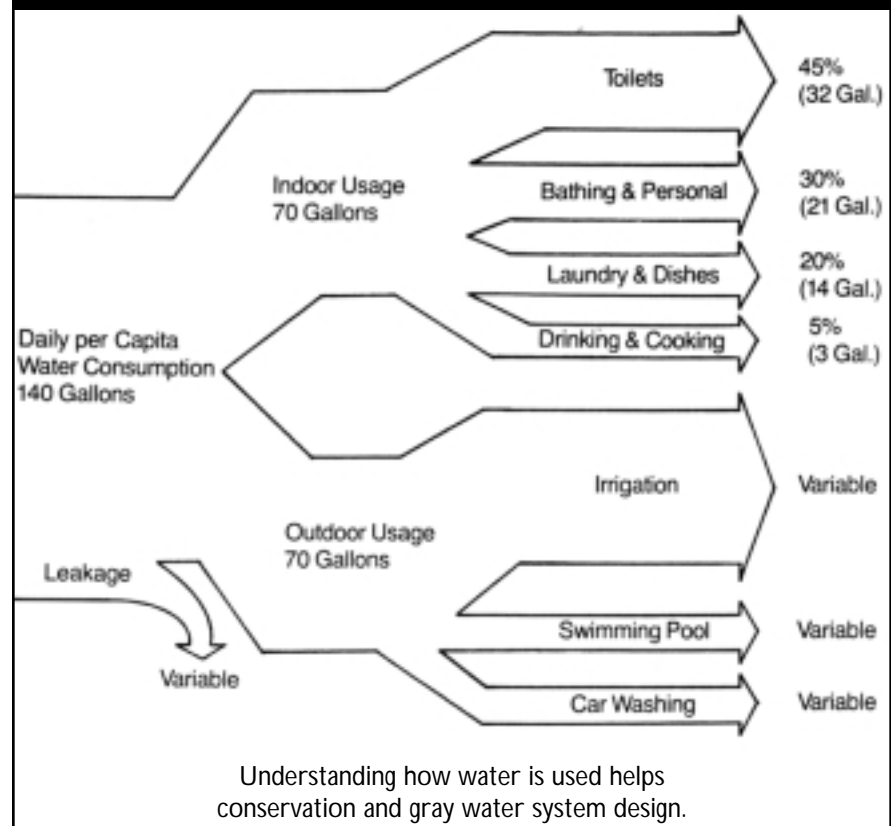
to purify it. Drink and cook with pure water or risk illness.

Shelter: Human beings are amazingly manipulative of their environment, yet remain vulnerable to it in crisis. Shelter holds back the extremes of heat and cold, offers dryness, and feels safer for sleeping.

Energy: While we manipulate energy in our home, workplace, and car on many levels every day, it is all artificially generated. When that source is lost, the first job is to conserve it, in whatever form it is available. With any prolonged interruption of transportation or utility services in crisis, stockpiles of fuels like gasoline, diesel, and kerosene will be depleted or prohibitively expensive.

Food: Humans can live about a week without food, less in cold weather and limited water. In a mild emergency, stockpiling food, even enough for 5-7 days, saves having to forage, hunt, buy, barter, or trade for it. Or worse. Hunger strips away the resolve

Figure 5:



of people unaccustomed to its grip. Foodstuffs in most cities would disappear in a few days during a real crisis.

Preparation:

As one becomes more self-reliant, there is less dependence on (or need to buy) water, electricity, food, and fuels. Transportation needs also decline, allowing you more time to live and work at home. Coincidentally, this process prepares oneself for short and long-term disasters.

Here are some additional thoughts on preparations for water, food, energy, heat, lighting, motors, electronics, communication, and transportation.

Water: In a crisis, life is water. If your shelter—home, building, garage, cabin, RV, camper, tent, tipi, tarp, or cave—is connected to the town or city supply, your backup plan is to fill everything you can as soon as you can. If you can't develop your own source, prepare some way to store water in 5-55 gallon plastic containers, or plastic, wood, or steel tanks.

If you plan to develop a water source, or already have, make certain that your system is not completely dependent on utility or generator power. The process of water usage can be broken down into four areas: extraction, transport, storage, and pressurization (Fig. 3). Treat them as separate issues to maximize the versatility of the system. A low-yield water source quickly accumulates enough water to handle a standard household (Fig. 4).

There are low-power, low-voltage, and energy-efficient alternatives to the standard submersible pump. These can be piggybacked onto existing systems or work alone. PV modules powering a 12V or 24V pump (no battery) have seriously challenged wind-powered pumps in unattended operation, like livestock watering, in the past decade. Most renewable energy systems use something similar.

Water you waste also wastes the energy invested to get the water to



This design of solar water heater exposes the tanks directly to the sun in an insulated box.

you. A more active conservation method makes multiple use of the water. A “gray-water” system often doubles the usefulness of the water supply (Fig 5). Cooking, drinking and rinsing are the purest uses. Garden, clothes washing, and toilet are secondary uses. A plan and a bit of plumbing will help with this. There are several books on gray-water systems.

Look at rainfall collection, cisterns, and pools as additional sources and storage methods.

Food: Food is one of the first concerns anyone will have in a crisis. Food issues revolve around supply, preservation, and cooking.

1. Supply is what you start with, if you don't grow your own. A stockpile, however small, is a good idea. Trading work or goods with people who farm and garden also works.

A growing space and some seed are the best investment. Learn what to do with the seeds, and how and when to use them. Greenhouses and growframes provide vital protection against the elements, insects, and foraging animals and otherwise assist with year-round growing.

2. Preservation recognizes that food must be preserved against spoilage and infestation. Standard refrigerators and freezers work when there is abundant electricity. In an RE system, they hog energy. A high-efficiency, low-voltage refrigerator is expensive, yet rugged. More importantly, it frees up an appreciable chunk of energy that would be otherwise generated, stored, and inverted—only to be wasted. There are alternatives to refrigerators—canning and dehydrating, selective harvesting, and earth storage (i.e., a root cellar). Several good designs of solar dehydrators exist. Using one or more of these techniques further reduces the load on, or the need for, a refrigerator.

3. Cooking. It takes energy to cook food, particularly grains and vegetables. How much? Of what type? Solar cookers are a good bet if you're home. A 24-hour solar-powered oven is possible. A parabolic tray of less than 100 square feet can heat natural oils in excess of 350 degrees F. (100 degrees F short of their flash point) and store a sufficient quantity to keep the oven of uniform temperature throughout a 24-hour period. Use gas or wood heat to back up this system.

Energy: Your home is probably supplied with energy in the form of electricity and natural gas. Rural homes may use wood energy and propane. These energy “sources” are converted into only a few useful forms: heat, light, mechanical motion, and sound (stereo and radio).

Heat: Heat is a cherished form of energy and the biggest load in the home. Space heating. Water heating. Cooking. Dishwashing. Clotheswashing. Both refrigerators and air conditioners are heat pumps.

Good designs of solar collectors exist to handle these heating tasks. While designing a home to use solar energy is optimal, many homes can be retrofitted to use it effectively. Thermal mass—water, concrete and rock—will store solar energy for nighttime and storms. Save wood and other fuels for really bad weather. The perceived need for air conditioning and massive heaters is a coverup for poor design, sloppy construction, and cheap materials. Good insulation is a must—floor, walls, and ceiling—to avoid heat loss in winter and heat gain in summer.

A good understanding of how heat moves (radiated, conducted, and convected) and what happens to radiated heat (transmitted, absorbed, and reflected) helps collect, contain, store, use, and release it.

Lighting: Lighting is essential for moving about at night, or in dark places. Still, night is for sleep, even in emergencies. Rest is important in survival. And sleeping saves light!

Incandescents, fluorescents, LEDs, and oil lamps all have value in lighting.

1. Incandescents, like standard household 120V bulbs and spotlights, gobble energy. Reserve their use to short durations. 12V automotive (turn signal type incandescent) bulbs are inexpensive, work directly on 12VDC, and are low-wattage. Still, use them sparingly.



This electric motorcycle is recharged daily from two solar modules.

2. Fluorescents, particularly those that are high-frequency (20KHz or above) are efficient and long lived.

3. LEDs are light-emitting diodes that operate at extremely low power. LEDs may be grouped together to increase voltage and light intensity. They're expensive but have a service life hundreds of times longer than incandescents.

4. Oil lamps will burn natural oils that may be pressed from many types of plants.

Motors: Motors convert electricity into mechanical motion. Motors power appliances in the home and tools in the shop. Pumps, fans, hair dryers, coffee grinders, juicers, turntables, tape decks, CD players, vacuum cleaners, computers, answering machines, and electric can openers use AC or DC motors.

High-wattage motors are difficult to power with low-voltage DC directly. Use an inverter or generator, as needed. Low-voltage DC motors may be substituted for AC ones under 2 HP. Or seek their 12V DC counterparts. Of course, manual tools don't need electricity to work.

Electronics: Electronic devices may be divided into two categories: high voltage and low voltage. The bigger and heavier the electronics, the more likely the need for 120V, 60-cycle AC. This includes the family stereo system, computers and peripherals, printers, television, and microwave ovens. Inverters and generators will be needed to power these units.

Light-duty electronics work around low-voltage DC, often below 12V. This includes remote phones, answering machines, portable radios, calculators, and portable CD and tape players. Look for a black module that plugs into the wall receptacle. The other end plugs into a DC input jack. DC input jacks may also be found on battery-powered units.

With a suitable DC-DC converter (or a dropping resistor), these electronic gizmos can be directly powered from a 12V car battery. (With a small modification, the jack can be re-wired to also recharge NiCads while they're in the radio.) Note the voltage printed near the jack to find the unit's voltage. Or count the number of cells (batteries) the unit contains and multiply by 1.5V to calculate the voltage. Or read the rating on the black module that plugs into the wall. This will help select the dropping resistor or converter setting.

Most electronic devices are polarity sensitive. By law, manufacturers are required to show the polarity of DC inputs, usually with a symbol. Wire the jacks and plugs accordingly.

Small 12V B&W TV sets may also prove handy, providing local coverage of a crisis. (Sorry, 12V color TVs gobble energy. Avoid using them.) These and other 12V devices often use a cigarette lighter plug (like the one that plugs into the car dash). If your vehicle doesn't have one, buy a lighter receptacle from an RV or renewables dealer. It can be clamped to the car battery posts or hardwired into the vehicle.

Communication: Details of what is happening beyond your own influence

during a crisis is useful and, perhaps, crucial. In a blackout, the AM-FM radio in a car or truck may be the only communication at your disposal. At low volume, a radio will work for many days on just the car battery. You may need to position the vehicle (and antenna) away from buildings to get good reception. The news may not be reassuring if you're expecting help, but it will help you make better guesses or decisions about what you can and can't do.

Battery-powered, multi-band radios or boomboxes that use dry cells are equally good. With rechargeable cells (i.e., with NiCads) installed, there is no end to their useful service life. The cells can be recharged from renewable energy sources or even the 12V battery in a car. Note the actual voltage, use a converter or dropping resistor, and observe polarity. At low volume (or with earphones), these radios use only a tiny amount of energy in operation.

Transceivers, ham radio sets, walkie talkies, and CB (Citizen Band) radios are all useful, particularly for communities. Understand the power requirements to ensure that you can meet them. As well, recognize that sophisticated radio gear doesn't mean more effective communication. The semiconductor junctions in transistors and chips are extremely vulnerable to EMP (electromagnetic pulses) generated at high altitudes by both nuclear weapons and meteor strikes. The more complex something is, the more there is that can go wrong with it.

Transportation: Transportation may be adversely affected by crisis. Roads blocked with debris or other vehicles, bridges out, power lines down—these are common themes in a disaster. Owning a 4WD vehicle helps but it will need fuel, oil, tires, and parts to operate.

Vehicles converted to electric propulsion have an advantage over gas engines. There are only a few sources for gasoline. An electric vehicle (EV)

is "fueled" by electricity from utility power, a standby generator, and renewable energy systems (solar, wind, or hydro). An EV has an additional advantage over vehicles with engines: it is silent in operation.

It may be easier to get around with motorcycles (noisy unless electric) and bicycles (mountain-type). Closer to home, carts, wagons, wheelbarrows, and garden carts will help with everyday work or emergencies. Again, with self-reliance, there is simply less need for transportation.

(Photos and drawings in this article came from these books by Michael Hackleman:

- Wind and Windspinners: A Nuts' & Bolts' Guide to Wind-Electric Systems
- The Homebuilt Wind-Generated Electricity Handbook
- Better Use Of: Lights, Appliances, Shop Tools, and Other Electric Loads
- At Home with Alternative Energy
- WaterWorks: An Owner Builder Guide to Rural Water Systems
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25 reasons to practice **SELF SUFFICIENCY** gardening



By Martin P. Waterman

It often amazes me that when many people think of self-sufficiency, home food production is usually the last item on their list—that is if it makes the list at all. We all tend to take certain things for granted, such as foods that are plentiful. I have had a running debate with a friend for years on what would be more important in a global meltdown or great depression. “Gold,” says he. I say food.

Regardless of the response to this question, history has taught us that in

times of crisis food becomes both a commodity and a currency. Many people are aware of this, but what few people know is that self-sufficiency in food in times of peace and prosperity is also a powerful foundation for both security and health.

Self-sufficiency gardening is much more than simply breaking your dependencies on food manufacturers, processors, and retailers. It means taking control of your nutrition, food costs, and food supply and even creates an opportunity for earning extra income. And that always makes good sense.

The skills necessary in order for your garden/landscape to be more

self-sufficient are not only easy, but you may already have many of the skills already. Unfortunately, many people think of gardening as work. One can quickly realize the benefits that can be enjoyed from having a self-sufficient garden. And it is easy to understand how those who have gardened only once are often hooked and continue this satisfying hobby throughout their lives. It reminds me of the old saying: “If you find a job you like, you will never work again.” Gardening has never been work for me. It is a joy. If you are looking for some reasons or excuses to explore self-sufficiency gardening, I have listed a few below.

1. Fresh air and exercise: Forget the gym, costly diets, and exercise machines. Gardening provides fresh air and exercise; it is a great stretching, strength-building, and aerobic exercise. At the same time, you are creating your own food security as well. How much you do depends entirely upon you. If you are out of shape, go slowly at first, and do not forget to stretch and warm up before beginning each gardening session. The exercise is not just for the body either. Nurturing plants from seeds until they give an abundance of food is both emotionally and spiritually rewarding.

2. Grow what you like: We have been conditioned to believe that all the food, selection, and quality that we will probably ever need or want can be obtained from our local supermarket. As just one example to the contrary, a “well-stocked” supermarket might carry only three or four types of tomatoes. They may have roma or paste, some vine, some cherry and maybe a large bulk or hot house variety depending on the season. All these tomatoes have been bred so that they can endure the rigors of farm-to-supermarket transportation, storage, and handling. That means skins like leather and low eating quality, and more than likely they are picked green and ripened with ethylene gas.

However, if you grow your own tomatoes, you can choose from hundreds of varieties and cultivate specifically those you prefer. I personally choose high vitamin, tasty types. Some are high-sugar cherry tomatoes that taste like candy while others are long-keepers ideally suited for storage. And they all have one thing in common: all are superior to supermarket types. The tomato is but one example but this can be applied to practically any food available at the market. And do not forget that for every fruit and vegetable found at the market, there are often hundreds of additional varieties which can be home grown.



Two new apple varieties are being grafted to this tree.

3. Healthier, tastier, produce: Fruit, vegetables, herbs, and nuts, when allowed to ripen naturally under God’s blue sky, have more nutrition and better taste. But let’s just talk about nutrition. If you listen to the news, you will know that most of our killer diseases such as heart attack, diabetes, and cancer are diet-related. And those miracle foods, antioxidants, and fresh fruit and fiber can be right at your fingertips. As for taste, high sugars are undesirable for supermarket fare as such foods are more prone to spoiling and bruising and therefore may end up as waste. You have no such problem in your own backyard. You can grow the healthiest and tastiest produce that will make supermarket fare pale in comparison.

4. Superior to supermarket: Why is this fact so hard for people to believe? Your own jams, jellies, salsas, sauces, antipastos, relishes, pastas, and other creations are usually of so much higher quality than the rubbish at the stores as to be incomparable. The reason is simple: If you buy a commercial product, they are usually working on a 10 to 20 percent food cost (or less) in order to make money.

That means that a \$3 jar of jam has only 30 cents’ worth of ingredients. The rest is profit for the farmer, manufacturer, wholesaler, retailer, taxman on all different levels, as well as the truck driver and dude who stocks the shelves. That means they make the product as cheap as they possibly can, and since they want to mass market it they err on the side of blandness. The fact of the matter is that you can make gourmet sauces and foods that will put five-star restaurants to shame and at far less cost than the supermarket.

5. Grow storage varieties: There are many varieties of fruits and vegetables that excel in storage capabilities. That means that in winter when any produce is high, you can simply go to your cold room or storage area and help yourself to apples, carrots, squash, onions, and other foods. The cost savings of such strategies can be enormous. And you are eating healthy too at a time of year when most people do not.

6. Edible landscapes: Whether it is a shade tree, a foundation plant, a hedge, a climbing vine, a perennial bed, or a ground cover, there are edible alternatives that you can grow. Forget the maple for a shade tree; try nut trees or a large apple tree. For a climbing vine, try grapes or kiwi. For a perennial bed, try a selection of herbs and edible flowers. For a hedge, try elderberries or gooseberries. For vibrant flowers in the spring, try cherries or plums. Take some time and learn all the edible plants that can give the same effects as traditional landscape plants.

7. Improve land values: Money spent on landscaping your property, even with edible plants, will add more to your home equity than work done on the home itself. I had a friend who used to buy houses and fix them up and sell them. Problem was, whether he made money or not was a hit and miss proposition. It became apparent to him that he was doing it the wrong way after he painted the entire interior

of the house and the couple purchasing it commented on how they would change the color. He realized that most homebuyers wanted to do much of the fix-up themselves to save money, especially since most of the homes he bought were entry-level units.

Then he hooked up with a landscaper, and in his next house he did not touch the building, but instead he removed all the overgrown trees, put in a picket fence, some roses, a wishing well, and some flower beds. He spent about \$3,000 and sold the house for over \$15,000 more than he bought it after commissions and expenses. Before that he was investing \$5,000 to \$10,000 on the interior and would often not make a profit. More than any other improvement, landscaping adds equity and value to your home and property.

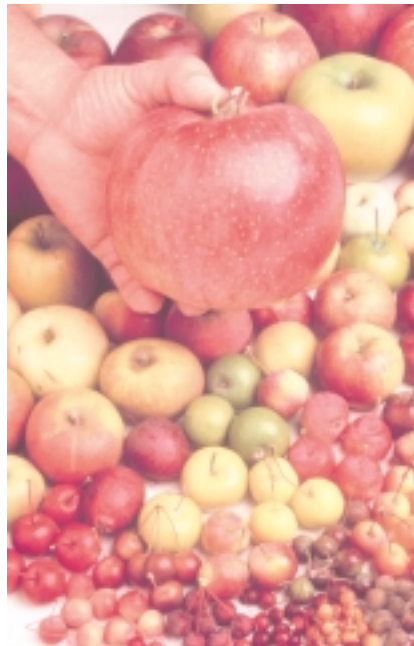
8. All-year vegetables: When you choose your own varieties you get to choose when they ripen. For instance, I have a dozen varieties of apples that ripen from late July to late October, instead of one variety ripening all at once. The last ones are the keepers for winter. By spreading out ripening times you can make sure you have fresh and healthy fruits and vegetables throughout the season. And if you use a greenhouse, you can often extend your season of harvest by several months.

9. No harmful chemicals: You have just purchased a tomato at the supermarket. Was it treated with herbicides, pesticides, and fungicides? If it is from Mexico or another country, were banned chemicals such as DDT used on it? How do you know? How can you know? If you grow your own produce, you know exactly what chemicals have and have not been used, and since most self-sufficiency growers tend to be organic, you are guaranteeing yourself safer chemical-free food.

10. Non-hybrid varieties: According to a recent editorial in *The Growing Edge Magazine*, futurists

believe that most U.S. produce will be genetically engineered by the year 2007. There are many that believe genetically altered foods could pose some health risks—including the FDA. If you are self-sufficient in food production, you can choose heirloom and other varieties that have not been genetically altered. It looks as if genetically altered foods will not have to be labeled, so in all likelihood you will never know just what you are purchasing at the market.

11. Sell your surplus: If you have an excess of food production, you can sell it or trade it. This is what many self-sufficiency growers do, and the cash that can be generated can be substantial, particularly if you are growing high-cost food items. I know an older gentleman who put two kids through college with the income from four acres of blueberries from which he had a u-pick operation. If you are into bartering, it helps to have something to trade, and foods and value-



Self-sufficiency food production means you can choose and grow the varieties you want, and the selection is fantastic. (USDA photo)

added food products always have value even in the safest of times.

12. Save by propagating: Forget the sticker shock at the new car dealership. Ever see what they are asking for potted plants and seeds? If you buy a package of tomato seeds for a couple of bucks, you are paying more for seeds, ounce for ounce, than you would pay for gold. If you start your own plants from cuttings, you can save yourself a bundle. And again, you can sell your excess plants for premium prices.

13. Use waste for animals: When you grow your own produce, you always have waste. Those peas have left mountains of vegetation behind, which is excellent for composting or feed for animals. If you grow to any extent, your waste products can help feed several farm animals and expand the scope of your self-sufficiency.

14. Equipment is cheap: The cost to practice self-sufficiency gardening is quite reasonable. For instance, a good used tiller, a rake, hoe, and shovel will allow you to provide more food than your family could ever use. And as for the tiller, you can usually hire someone to till your garden a few times per year quite inexpensively, sometimes under \$20 per hour. The point here is that self-sufficiency gardening does not require a great deal of investment in equipment.

15. Value-added products: From your garden you can grow produce to make wine, vinegar, flour, and even fuel. As you know, such products can be expensive to purchase and your savings can be substantial. The money you save can be put to other uses such as becoming more self-sufficient by paying off debts or a mortgage.

16. Grow culinary herbs: If you like to cook and make preserves, you can grow all types of herbs and spices. There is nothing in the world like fresh basil in tomato sauce or with fish, or fresh dill in a potato salad. Some fresh mint will spruce up any salad and fresh parsley is very nutritious and healthy. Chives are great in

salads, other dishes, and on potatoes. The possibilities are almost endless.

17. A juicer's paradise: I love fresh carrot and celery juice with a bit of apple and beet. I love fresh grape juice and apple juice. In fact I love all kinds of fresh fruit and vegetable juices. These are extremely healthy and there have been many books written on the benefits of juicing. People claim to have been cured from cancer and other diseases by drinking these nutrient concentrated drinks. I would grow my own fruits and vegetables solely for the purpose of being able to have my fresh and healthy juice.

18. Your own herbal teas: If you like herbal tea, pick up a copy of The Herbal Tea Garden from Storey Communications (ISBN 88266-827-7). The book covers planning and cultivating herb gardens, drying, freezing, and storing herbs, and how to make and brew your own tea blends. One of the hardest concepts of self-sufficiency gardening is for people to realize they can produce their own food products, which are far superior to those in the stores, and this includes hot beverages.

19. Grow exotic foods: There are thousands of food plants from other countries that can be grown in your garden. These berries, roots, shoots, vegetables, and herbs come from South America, China, and other areas of the world. And while these foods are staple foods in their own lands, they are relatively unknown in North America. These exotic foods are showing up in nurseries, and one good source is the Oregon Exotics Nursery in Grants Pass, Oregon (541-846-7578).

20. Your own medicine chest: Did you know that much of our medicines and pharmaceuticals come from plant materials that you could grow? There are many books on medicinal herbs and plants, and alternative medicines that can teach you which plants are safe and which ones are not, as well as preparation. Of course, if you are growing your own nutritious and healthy foods you are practicing preventive medicine, which means your likelihood of getting sick is greatly diminished.

21. Your own wood lot: If you have a few acres, you might be surprised at

how much wood you can get from your land. Certain woods such as poplar and birch are very fast growing and produce great yields. Even if your lumber is sparse, it is always there for an emergency. You can also plant trees for hardwood and softwood for your future. In a world with diminishing resources this could be a very valuable investment.

22. Your own craft supplies: If you like making your own crafts, you will be pleased to learn that there are many supplies you can grow yourself. Dried flowers, vines for basket making, natural dyes, and corn husks are just a few of the many things you can use to make your crafts to sell, or simply sell the supplies yourself.

23. A great place to gather: Gardens are great places in which to socialize and gather the family. Throw in a pond, a waterfall, a hammock, a swing, a barbecue, a path, some furniture and it can become a very peaceful place to relax, meditate, entertain, and nap.

24. Gardens are healthier than lawns: Lawns require a great deal of water, maintenance, fertilizer, and care. They waste precious resources, including petrochemicals, to power lawn mowers and weed-whackers. Gardens on the other hand produce food and, if done correctly, return valuable nutrients to the soil. Landscaping with fruit trees and bushes will help control soil erosion and can help keep your property cooler in the summer by providing shade.

25. Growing pride: Probably the most important thing that you can grow as a by-product of self-sufficiency is self-pride. You will feel pride that one of the greatest things we strive for on this planet, security, has been placed more in your own and out of the control of others.

(Martin P. Waterman is author of Self-Sufficiency Gardening, available from *Backwoods Home Magazine*.) Δ



More and more people are growing their own alternative medicine plants. Here are purple coneflowers from which Echinacea is extracted.

Depression Era

GARDENING

*By Alice Brantley Yeager
(Photos by James O. Yeager)*

No one wants to be the harbinger of bad news and no one wants to constantly hear a pessimist predict dire things for the future. However, if history repeats itself, as it usually does, sooner or later we Americans are going to be in for a bad economic slump. Take a close look at what is happening to some of the prosperous countries around the globe. Those of us who can remember the Great Depression hope the slump won't be anything like that.

Folks born after the Depression can hardly believe times could have been so tough that it took welfare programs (WPA, NRA, CCC, PWA) plus World War II to pull us out of the Depression. If a person had a job, he/she hung on to it for dear life. Wages often amounted to whatever pittance the struggling employer could pay. Forget about a minimum wage set by law. Salaries were all minimum. Even this far past the Great Depression, everyone immediately knows to what era we refer if we mention the Depression. No one thinks of an economic slump in the sixties or eighties. It was that terrible time in the thirties when banks failed and World War I veterans marched on Washington, DC.

As bad as it was, the Great Depression taught some not-to-be-forgotten lessons that could serve us well if we face another period of hard times. The Depression forced people to save and make the best of what they had. Self-reliance was a valuable lesson learned by many as they saw their wallets grow thinner. Maybe that's why some of us today have a tendency to become pack rats hoarding anything that "might be useful later." It's a carryover from what our parents taught us when it was considered sinful to waste.

Older gardeners are some of the best examples of frugality. We don't throw out tools that need new handles. Instead we buy hoe handles, shovel handles, rake handles, and so on. We only discard a tool when it is absolutely consumed by the ravages of time. Even so, we lay it to rest with pangs of guilt over not having been able to make it last a little longer. The other side of the coin is that we gardeners tend to become fond of our tools. There's the trowel that fits our hand just right or the clippers that are lightweight and so easy to use on vines and rose bushes. We keep sharpening

old hedge clippers and limb loppers and we dislike tools made in Taiwan.

During the Great Depression, as a matter of necessity, people did more food gardening than now. Home canned goods in the pantry were worth their weight in gold. (It's the same today!) Canning was an accepted summertime chore. There were no home freezers. Many people who lived where high humidity was not a prohibiting factor dried



Juice from Dorman red raspberries, as well as other berries, can be put in containers, frozen, and made into jelly at a later date.



A surplus of cherry tomatoes can be made into tomato juice.

fruits and vegetables in the sun on racks on roof tops. Racks had to be protected from roving birds and insects during the day and they had to be brought inside before nightfall to avoid dampness. Some folks made drying racks and suspended them over the kitchen range, thus avoiding the outside problems. Drying fruits and vegetables also cut down on the cost of canning supplies—jars, rings, and lids. One of our modern electric dehydrators would have been a boon to canners then—that is, to persons lucky enough to have electricity.

Seed saving was a way of cutting down on garden costs, and neighbors often traded seeds, particularly when something new came along. Nowadays many of our plants are hybrids, and seed saving is risky as the seedlings from hybrids don't produce the same as the parent plants. Seeds from the old reliable varieties will produce the same type plants over and over again. The drawback to many of the old varieties is that they are susceptible to certain blights, nematodes, etc. The hybrids have been developed to resist many of the things that plague the "tried and true." (If you're a seed saver, try putting a piece of a bay leaf in with

your seeds to repel those tiny bugs that devour seeds and seem to appear out of nowhere.)

Gardening was once learned by hands-on experience, as it was a way of life. Now, if there isn't an experienced gardener around to answer questions for the amateur, there are any number of books, magazines, videos, etc., available. Gardening is not the chore it once was when there were no mechanized aids. Nowadays there are tillers to take the place of the horse and plow, and all sorts of nifty power tools have lightened hard chores.

The time to begin dealing with economic disaster is before it happens. Heed the Boy Scout motto "Be Prepared." The cost of food is steadily increasing and most of us are spending more of our income at the supermarket than we'd like. Prices are going to continue to soar on canned goods, as the summer of 1998 was devastating to farmers in many parts of our nation and particularly across the South. Louisiana estimates that as many as 30 percent of its farmers may be forced out of the farming business as a result of more than one year of crop losses. Cattle suffered from the 1998 drought as cattlemen scouted other areas for hay to feed when normally cattle are grazing on grassy pastures. All of these disasters will eventually show up in higher prices for the consumer.

By raising much of our own produce we can offset quite a bit of our food expense. We should thank our lucky stars that our modern methods of preserving foods do not demand some of the drudgery that went along with the canning performed in kitchens of the past. Fresh surplus produce from our own gardens can be saved by canning, freezing, or drying and we can enjoy a snicker or two when we see the supermarket prices soar.

Preparation against economic hard times should begin as soon as soil can be worked. Service those rotary tillers and dig in. Garden should be situated well away from large trees and open to at least six to seven hours of sunlight per day. Where temperatures soar into the upper nineties and beyond, a little afternoon shade is desirable. Compost, well rotted barnyard fertilizer, or poultry litter should be worked into the soil and left for a few weeks to enhance the fertility of the soil.

Some gardeners prefer row planting, but many of us have converted to the raised bed method for several reasons—easy maintenance, space saving, less water, easy to harvest and replant, high yield, and so on. In our garden, we let grass grow between our beds which are four feet apart. Grass is controlled by mowing or using a string trimmer. No muddy shoes, and the grass provides comfortable walking. You'd be surprised how many vegetables can be harvested from controlled plots.

Plant the herbs and vegetables you like and will use. There's no point in taking up space with something that looks good growing but you know you won't use. Decide which vegetables work out best canned in jars and which

are better frozen or dried. For instance, we prefer to can tomatoes, but there are folks who like to slice and freeze them. Still others like to dehydrate them.

If your pantry or freezer space is limited, try dehydrating some of your harvest. Dried fruits and vegetables take up far less space than frozen or canned ones. There are several dehydrators on the market. Ours was purchased from Sears a few years ago. It has several trays and has served us well. Although the instruction booklet gives information about almost anything one is likely to harvest, the best knowledge comes from experience.

We also dehydrate fresh herbs such as sweet basil. When the leaves are dried, crumble them into tiny pieces, store them in small air tight bottles, and use the basil in spaghetti sauce, soups, gravies, etc. A number of leafy herbs may be dried—parsley, sage, rosemary, thyme, etc. Drying your own supply assures freshness.

If you are fortunate enough to have a few fruit trees, keep in mind what you are going to save monetarily by preserving your surplus. If you are unfamiliar with the cost of dried fruit, take a stroll down the grocery aisle where the packages are displayed. That should make up your mind as to what to do with your surplus. Some fruits used for desserts are better canned in light syrup in jars—i.e., pears and peaches. Where time is short and the object is jelly, the

juice from berry fruit may be frozen in airtight containers and later thawed out and made into jelly. Complete instructions for making delicious jelly may be found inside Sure-Jell packages. We prefer using commercial pectin over the old method of jelly making, as it is not so time consuming and there is less loss of juice in the process.

One should not overlook what Nature has to offer in the way of native plant yield. Dewberries, blackberries, and blueberries are usually abundant in their seasons. Mayhaws, wild plums, black cherries, grapes, muscadines—all of these make delicious jelly. In the fall there are various nuts—pecans, hickory, nuts, butternuts, etc. Nutmeats are best preserved by freezing them in airtight containers as soon as they are separated from their shells.

The possibility of an economic crisis is not to be taken lightly, as it can ruin people financially if it goes on for a long period of time. I take the optimistic view that Americans can survive almost anything if we get in touch with the soil and use common sense about other things. If we survived the Great Depression and World War II, we can survive other crises.

To those folks who are apparently married to their computers and not inclined to have rapport with a garden, I can only say that I have yet to see a computer serve a fresh tasty garden salad or some stir fried veggies. Gotcha! Δ

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7 Mistakes of Food Storage

By Vicki Tate

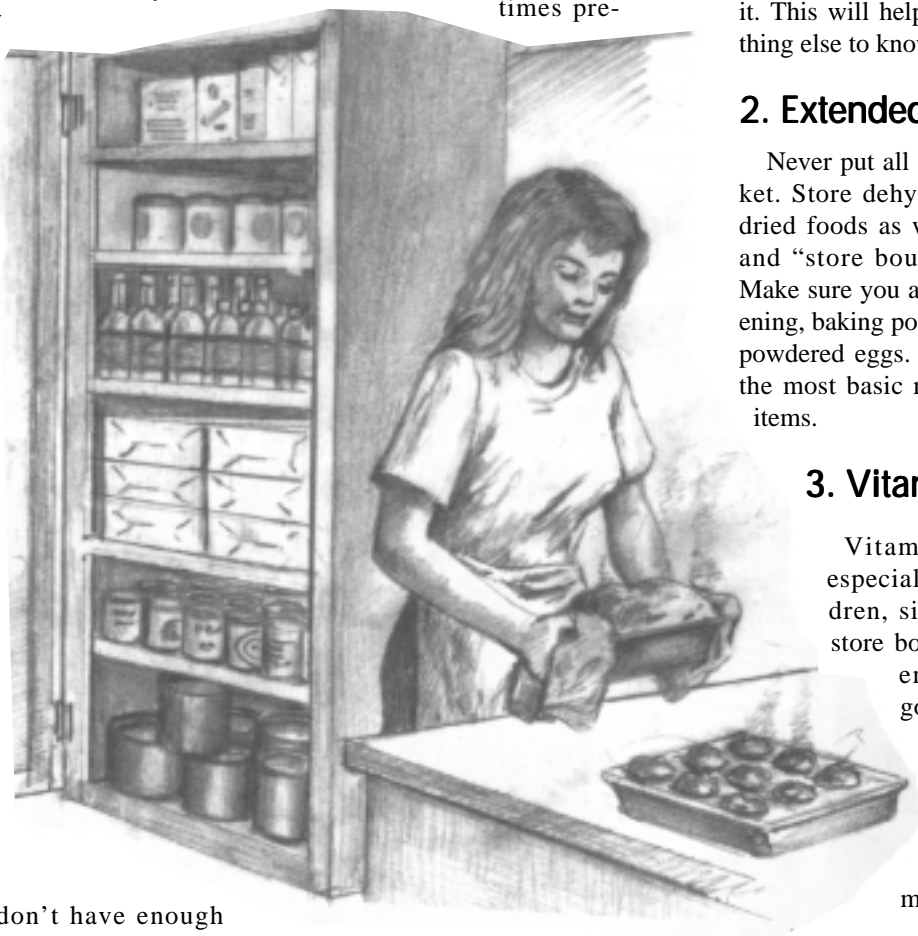
If you are going to store food, make sure that the food you store is adequate for the need you and your family anticipate. This may not be as easy as to achieve as many people think, because the facts are that most people make serious errors when storing food—errors that will come back to haunt them when the food they've stored is the only thing that stands between them and their empty, dissatisfied, bellies.

There are seven common mistakes people make when storing food. They are:

1. Variety

Most people don't have enough variety in their storage. 95% of the people I've worked with have only stored four basic items: wheat, milk, honey, and salt. Statistics show most of us won't survive on such a diet for several reasons. a) Many people are allergic to wheat and may not be aware of it until they are eating it meal

after meal. b) Wheat is too harsh for young children. They can tolerate it in small amounts but not as their main staple. c) We get tired of eating the same foods over and over and many times pre-



fer to not eat, then to sample that particular food again. This is called appetite fatigue. Young children and older people are particularly susceptible to it. Store less wheat than is generally suggested and put the difference into a variety of other grains, particularly ones your family likes to eat.

Also store a variety of beans, as this will add color, texture, and flavor. Variety is the key to a successful storage program. It is essential that you store flavorings such as tomato, bouillon, cheese, and onion.

Also, include a good supply of the spices you like to cook with. These flavorings and spices allow you to do many creative things with your grains and beans. Without them you are severely limited. One of the best suggestions I can give you is buy a good food storage cookbook, go through it, and see what your family would really eat. Notice the ingredients as you do it. This will help you more than anything else to know what items to store.

2. Extended staples

Never put all your eggs in one basket. Store dehydrated and/or freeze-dried foods as well as home canned and "store bought" canned goods. Make sure you add cooking oil, shortening, baking powder, soda, yeast, and powdered eggs. You can't cook even the most basic recipes without these items.

3. Vitamins

Vitamins are important, especially if you have children, since children do not store body reserves of nutrients as adults do. A good quality multi-vitamin and vitamin C are the most vital. Others might be added as your budget permits.

4. Quick and easy and "psychological foods"

Quick and easy foods help you through times when you are psychologically or physically unable to prepare your basic storage items. "No cook" foods such as freeze-dried are

wonderful since they require little preparation, MREs (Meal Ready to Eat), such as many preparedness outlets carry, canned goods, etc. are also very good. “Psychological foods” are the goodies—Jello, pudding, candy, etc.—you should add to your storage. These may sound frivolous, but through the years I’ve talked with many people who have lived entirely on their storage for extended periods of time. Nearly all of them say these were the most helpful items in their storage to “normalize” their situations and make it more bearable. These are especially important if you have children.

5. Balance

Time and time again I’ve seen families buy all of their wheat, then buy all of another item and so on. Don’t do that. It’s important to keep well-balanced as you build your storage. Buy several items, rather than a large quantity of one item. If something happens and you have to live on your present storage, you’ll fare much better having a one month supply of a variety of items than a year’s supply of two or three items.

6. Containers

Always store your bulk foods in food storage containers. I have seen literally tons and tons of food thrown away because they were left in sacks, where they became highly susceptible to moisture, insects, and rodents. If you are using plastic buckets make sure they are lined with a food grade plastic liner available from companies that carry packaging supplies. Never use trash can liners as these are treated with pesticides. Don’t stack them too high. In an earthquake they may topple, the lids pop open, or they may crack. A better container is the #10 tin can which most preparedness companies use when they package their foods.

7. Use your storage

In all the years I’ve worked with preparedness one of the biggest problems I’ve seen is people storing food and not knowing what to do with it. It’s vital that you and your family become familiar with the things you are storing. You need to know how to prepare these foods. This is not something you want to have to learn under stress. Your family needs to be used to eating these foods. A stressful period is not a good time to totally change your diet. Get a good food storage cookbook and learn to use these foods! It’s better to find out the mistakes you’ll make now while there’s still time to make corrections.

It’s easy to take basic food storage and add the essentials that make it tasty, and it needs to be done. As I did the research for my cookbook, Cooking with Home Storage, I wanted to include recipes that gave help to families no matter what they had stored. As I put the material together it was fascinating to discover what the pioneers ate compared to the types of things we store. If you have stored only the basics, there’s very little you can do with it. By adding even just a few things, it greatly increases your options, and the prospect of your family surviving on it. As I studied how the pioneers lived and ate, my whole feeling for food storage changed. I realized our storage is what most of the world has always lived on. If it’s put together the right way we are returning to good basic food with a few goodies thrown in.

(Vicki Tate is the author of the popular book, Cooking With Home Storage, available through *Backwoods Home Magazine*. Vicki also lectures on preparedness subjects. You can reach her by calling (435) 835-8283.) Δ

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Storing

WATER

for an emergency

By Vicki Tate

Any of us who've thought much about emergency preparedness realize that one of the most critical items to store is water. Without sufficient water to see you through an emergency that lasts more than a few days, you and your family are at great risk. You simply can't live without water.

Fourteen gallons of water per person is the suggested amount to store for a two-week emergency situation. This amount is enough for subsistence purposes only: two quarts for drinking and two quarts for cleaning and bathing purposes a day. When you consider that a person normally uses in excess of 140 gallons of water per day for drinking, bathing, laundry, dishes, watering lawns, etc., this isn't a lot of water. If you have the room to store more you will want to do so.

The easiest way to store the bulk of your water is in 55-gallon polyethylene (plastic) water drums. These can be obtained from most food storage companies or from local container companies found in the yellow pages. It is important that you use only *food grade*, good quality containers. Many

times you can get food grade containers from companies that distribute beverages or syrups. If you clean them well, they can provide a good container that costs considerably less.

One word of caution: often the taste or odor of the previous contents has leached into the plastic and over time may be reintroduced to your water. If you plan to use previously used containers, make sure that what it had in it before is something you wouldn't mind tasting or smelling in your water.

Most water containers come in 5-gallon, 15-gallon, or 55-gallon sizes. I always suggest that a family stores between two and six of these smaller containers, along with their 55-gallon drums. This is a prudent suggestion in situations where you might need to transport water in the normal course of events or in a situation where your normal water source might be disrupted, such as after an earthquake, hurricane, etc., and you might have to go to a secondary water source such as a water truck, stream, etc. to refill.

Water weighs approximately 8 pounds per gallon, so 55-gallon drums are much too heavy to handle (440 pounds), plus they are awkward. Smaller containers don't hold enough water and would require too many trips, especially if you have to go to a source on foot. Five to fifteen-gallon containers are more practical and can easily be put into a wheelbarrow or

child's wagon and wheeled to and from an area.

Two-liter pop bottles make a good container for additional water storage and cost nothing if you save them and fill them with water as you empty them. To economize many people are tempted to use empty milk jugs, but don't plan to store water in these for more than three to four months. They are biodegradable and will break down within six months. Not only may you lose your water, but if they are stored near food or other items they may damage them. Heavy containers should always be stored close to ground level and secured to prevent breakage or possible injury in the event of earthquake, etc. Be sure to store your water away from any harmful chemicals or objectionable-smelling products.

Culinary water (tap water) is what is usually stored for long term storage. If you have a clean, opaque container where the light cannot get through and your water is bacteria-free when you store it you probably don't need to treat it further. Under these conditions the water actually gets more pure as it is stored. However, for most of us there is no guarantee that our culinary water is bacteria-free, so most of us prefer to treat our water in some way as a precaution as we store it. Several methods have traditionally been used to purify water for long term water storage.

2% Tincture of iodine—To use this add 12 drops per gallon of water. Note: pregnant or nursing women or people with thyroid problems should not drink water with iodine.

Chlorine bleach—Household bleach can also be used. This should contain a 5.25% solution of sodium hypochlorite without soap additives or phosphates.

Use 1/8 teaspoon (about 5-8 drops) per gallon of water.

Most of us have used one of these methods to treat our water over the years. Both are inexpensive and are effective methods of killing bacteria. I have always preferred the iodine method myself. The one drawback, however, is that both may have negative health effects if used for long periods of time.

I was introduced to a product a couple of years ago that I now prefer to use instead because it is an excellent water purifier, but it also has many medicinal properties. It is a stabilized oxygen called Ion that is effective in killing all harmful bacteria without any of the harmful health effects associated with chlorine or iodine. For long term storage add 20 drops of Ion per gallon of water. One bottle will purify two 55-gallon drums. It is also excellent for your emergency packs (72-hour kits). It is small and light weight (2.33 oz.) but extremely effective.

Studies show that if water is bacteria-free and is stored in clean containers it will stay safe for several years. It is a good idea, however, to periodically check your water for purity and taste. And every few years it's a good idea to change it. One of the things that affects the taste of water is it "going flat." This occurs because of the oxidation that takes place as it sits. You can improve the taste by pouring the water back and forth between containers to aerate it or by beating it with a hand egg beater. You also may want to store some flavorings such as fruit drink powders, kool-aid, etc. to add to

your water if you find the taste objectionable. One of the other benefits of Ion is the oxygen remains suspended, maintaining its good taste for much longer periods of time.

Remember also that you have several sources of water already in your home that can be tapped in an emergency, such as your hot water heater, toilet tanks (don't use water from a tank that contains colored disinfectant, as it is poisonous.), water pipes, ice in the freezer, etc.

Water is relatively inexpensive to store and certainly not difficult to do, but certainly the time to store it is now. We take water for granted when things are normal, but in an emergency it becomes absolutely critical. This is an item you can't afford to overlook in your preparedness preparations. Δ



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SEND IN THE WACO KILLERS

Three times the International Society of Newspaper Editors has included Vin Suprynowicz in their list of the 12 top weekly editorial writers in North America. For years his shoot-from-the-hip style has opened the eyes of thousands to government abuse of our liberties. In this book, *Send in the Waco Killers*, he blends material taken from his syndicated column with new commentary to give the reader a detailed, reporter's-eye-view of how the rights and freedoms of Americans are being subverted.

He uses factual accounts from the daily news to show how the Feds use the drug war, the public schools, jury rights, property rights, the IRS, gun control, and anti-militia hysteria to increase its power and control over us. He details how agents of the ATF and FBI have routinely lied, how they use paid informants to infiltrate Constitutionally-protected militia groups, then fabricate evidence to get arrests and discredit them.

Had he lived 225 years ago he'd have written a book to detail how King George III and Parliament have tried to enslave us but, sadly, this book is about how our government today is depriving us of our freedoms and ruining the lives of thousands without changing even one word of our Constitution.

If you read no other book this year, read *Send in the Waco Killers*. Just keep your blood pressure medication handy. 506 pages, trade paperback, \$21.95 + \$3 S&H.

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Robert L. Williams bundles corn stalks.

It is common knowledge that among the basics needed for human existence are food, water, air, and heat. And while there is no real substitute for any of them, this article is concerned with the problem of heating your dwelling.

The particular thrust here is, in fact, how to heat in times of emergency. For example, there is a blizzard raging outside and the power lines are down. Or the long-awaited and feared computer collapse has finally hit and the devastation is worse than any of us expected. Or, more likely, you simply forgot or neglected to pay the power bill.

What do you do when you find yourself, as we did a few short months ago, in the middle of an ice storm that left us without any form of power for days on end.

You may still have your gas heat intact, but without fans that are powered by electricity how do you get the heat distributed to the rooms of your house? If you heat by a heat pump, then your whole system is down. Odds are fairly good that you also cook on an electric range. Even if the smokehouse is filled with hams and other meats, you can't cook them, if it's electric.

You may be among the people gifted with foresight, and you have a generator on hand to use for temporary electrical power. But what fuels the generator, and how long will your fuel last?

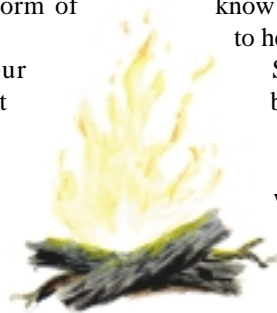
The problem you may find yourself facing is a world without any form of heat, except that which you provide for yourself. How can you keep your family warm?

Obviously, if you live in a tropical setting, heat is not a problem, but what if you live in an area where the temperatures can get down into the single digits or, worse by far, into the sub-zero areas? Below you will find

some tips, all of which we have tried and found successful, for dealing with a cold world.

The most obvious solution to your problem is to build a fire in either your fireplace or in the woodstove. But to do this you must have a supply of firewood that will not only last for a long time but which will burn well.

If you live in a backwoods environment, you may, as we do, have acres of trees waiting to be used, if necessary. Your best bets for a good fire—one that produces enough heat to keep your house or at least the area you are confined to warm enough for you to remain in a healthful environment—is a hardwood fire in a huge woodstove. We all know how drastic and tragic hypothermia can be, and you can be so far advanced in the debilitating experience before you know it that it is too late for you to help yourself.



So you don't need just a fire, but a good fire, one that will produce the maximum amount of heat. The best woods for the ideal fire may include a mixture of softer woods and hardwood.

We try to have an abundant supply of oak and hickory (two of the best of all woods for heating purposes), poplar, pine, maple, and that most neglected of all terrific heating woods, the wild cherry or fire cherry.

We are not too particular. When we start our annual wood-cutting work, we tromp through the forest and find, first of all, the trees that died standing and have already started to cure. You do not want to heat with green wood, except to mix in occasionally with the cured woods. Green wood is hard to burn until you have a good bed of coals, and it also produces a great amount of creosote, which can clog up your chimney and create a fire hazard.

Cut any hardwoods that are dead or so damaged that they cannot survive. These include sourwoods, which give off a wonderfully pleasant aroma

STAYING WARM

By
Robert L.
Williams



If you split the wood along the sides and leave the center square, you will get more hours of warmth from the wood.

while they burn, and dogwoods, which are extremely hard and last a long time in the fireplace. Most dogwoods are small enough that you do not need to split them.

We try to have a good supply of all sizes of wood, from sticks of firewood the size of my wrist up to the size of my upper arm. The larger the wood, the longer it will burn, obviously, but when you stoke the stove at night you cannot get more than a couple of chunks of large wood into the stove, and you may not have a fire in the morning. It is better to use the larger pieces and then poke in smaller pieces to fill the empty spaces.

For our stove, we open the dampers all the way until the fire is really roaring, and then we close them down all the way, and then open them half a turn. These openings allow enough air to keep the fire burning but not enough to allow the fire to consume all the wood.

For best results, cut your wood at least six months before you plan to burn it and let it air-cure. If you are caught by emergency conditions, burn the driest wood you can find. If you can't tell the dry from the green, simply lift it. The green wood is so much

heavier than the dry wood that you can tell the difference in an instant.

In addition to the wonderful heat from a fireplace or cast-iron woodstove, the added delights of such a fire is that you can cook on the stove and the cost of the wood is minimal, if you have your own trees. In that event, the only costs are for the gas and oil to run the chain saw and the fuel for the tractor you use to pull the logs from the forest.

You can, in an emergency, use a one-man bow saw to cut your firewood. This is not an easy way to get the wood, but it works, and it costs nothing except for an occasional blade. For years we cut all of our firewood with a bow saw.

You can use such a saw for smaller limbs and saplings that must be cut. I strongly recommend that you keep a chain saw and plenty of fuel on hand at all times. If you run out of gas, your saw is not much help. I also suggest that you keep an extra spark plug or two around for use in the tractor as well as in the chain saw. If you cannot get out to buy the plugs, you are again in a real jam.

Another suggestion I make over and over is not to cut the great, sound, and valuable trees. We never cut anything that is not damaged or diseased. And you may want to think twice before you cut the mid-sized trees. Why stop the growth of a small tree? This is too much like eating the piglet before it can produce some real meat.

Another suggestion: leave trees growing close to your house. You never know when an emergency will cause you to need the trees quickly. If you are ill or injured, or if time is crucial, you can step into the yard and harvest a tree much easier than you can make the trek into the deep woods.

If all of your utilities are down, a fire in the fireplace will not only provide heat but also some amount of light. While a fireplace is not economically sound in terms of how much wood is needed and how little heat,

comparatively speaking, is produced, you will be amazed at the comfort generated by the flames and, much more so, by the thick bed of coals. Do not make the mistake that many people make and shovel out the ashes as fast as they drop. Let the ashes remain. They hold a great deal of heat, and the hot coals produce far more heat than the flames do.

You will also be surprised at how much you can cook over a fireplace bed of coals. You can bake biscuits, cakes, corn bread, and loaves of wheat bread. You can cook spaghetti, soups, steaks, fish, chicken, and stews with ease.

A woodstove is far better than a fireplace for producing the most heat possible for the amount of wood used. You do not have the light produced by a fireplace (unless you have a glass door or leave the door open, and the extra ventilation causes the wood to burn faster), but you have 360-degrees of heat that will last long after the fire has gone out. One of the fine advantages of a woodstove, as mentioned earlier, is that the coals will still be hot the next morning, and all you have to do is toss in a few pieces of wood and you have an instant roaring fire.

Propane logs

One of the best substitutes for wood for the fireplace is propane gas logs. You can buy these logs for \$100 or so, and you can buy or rent a propane gas tank for \$40 or thereabouts. The great advantage of this type of heat is that it is instantly ready. All you have to do is open the fuel valve and the pilot light (I am assuming that you left the pilot light on) ignites the gas, and within ten seconds the flames are engulfing the "logs," which are made of a variety of materials. Ours are cast concrete, so they will not burn.

The heat from the propane gas comes, not from the flames as such, but from the heated logs. The logs absorb heat, and then the heat starts to radiate outward from the logs and into

the room. The logs will retain their heat long after the gas has been turned off. While I like a fireplace very much, the propane gas logs have several advantages. One of them is that the gas heat is much cleaner than wood heat. Another is that while a wood fire takes several minutes to start and then several more minutes for the hot coals to start to accumulate, the gas fire is ready immediately.

Keep in mind that you can buy propane logs that do not require venting, so you can have the propane logs and your fireplace for wood fires, at the same time.

But what if you are caught without propane gas logs or firewood when the storm, power failure, or other disaster hits? What can you do for emergency heating?

Burning newspaper logs

One instant solution is to burn old newspapers.

I can hear the objections already: newspapers don't last more than a few seconds, they burn with such a high flame that they are dangerous, the smoke pollutes, and you will spend most of your time scouring up more papers with which to feed the flames.

Read the article in this issue on heating with old newspapers. You will be surprised at how easy it is to heat a small house with the papers and how long the heat will last. The newspaper logs work best when they are mixed with real wood logs. We often use a mixture of paper logs, dry or cured hardwood, a small amount of green wood, and an equally small amount of pine or other evergreen.

Burning plastic

You will be surprised at how much heat you can get out of old plastic oil cans and empty soda pop bottles. Simply remove the metal caps from the pop bottles and put them into the fire. It is better to use this type of fuel as a supplement to a wood fire.



Small twig bundles like the one shown here will burn for three or more hours, but if the twigs are put into the stove loose, they will burn away in minutes.

If you wonder about the heat potential, keep in mind that these containers are made from plastic, and plastic is made in part from oil. Again, you may worry about pollution, but keep in mind that if you are facing a drastic emergency, it is better to pollute a little than it is to freeze or die of hypothermia.

Burning corn cobs

If you are out of everything else to burn, look around your property for other potential fuels. For example, corncobs make a wonderful fuel. Corn itself burns well, but you will probably need the kernels for food or for livestock food. There are, in fact, corn-burning stoves on the market, and they seem to work wonderfully well.

But when you have your summer garden and when you harvest your corn, just toss the cobs into a sack and let them air-dry. Once they are ready, they burn readily without much

starter, such as kindling, and they last a surprisingly long time. Keep in mind that it takes a large amount of the corncobs to keep a fire going over a period of several days.

Twig bundles

If you are in perilous shape, you can make a twig fire. The twigs can be gathered from almost any kind of tree that grows in your area. Wait until the leaves are off and then snap off the dead growth at the tips of the branches. Or, if you have evergreen trees, you can break off the twigs without needles. The major problem is that twigs burn almost as fast as newspaper.

But there is a twist here: the twist is the wire you use to compress the twigs together and then fasten with scrap wire that you can usually find around a toolshed or work area. The secret to combustion is, in a large part, air. The more air that gets to the flame, the higher and hotter the flame will burn. Shut off the air completely and the fire will die.

The trick is to regulate the amount of air that reaches the twigs. You can do this in part with the damper of your stove, and you can do the same with a fireplace damper. But if you compress the twigs, you also cut off the air supply to all but the outer twigs, and by doing so you can cause the twig "logs" to burn much longer and with a hotter flame.

If you bundle small branches (one inch or so in diameter), you can have a long-lasting fire. Bundle them as you did the twigs, but use pliers to pull the wires as tight as you can get them. A small bundle will burn for three hours or even longer if the damper is partially closed.

Weed bundles

What about burning weeds? If your garden is like mine, it is easier to find weeds than it is to find the plants. Actually, you can burn the plants as



Believe it or not, when you clean up honeysuckle or other vines, you can bundle the trash and burn it. Bundle it as you would corn cobs or other small fuel. Pull the wires extremely tight and then let the vines dry out so they will burn readily.

well. For cornstalk fires, cut the stalks into appropriate lengths and bundle them with wire as you did the twigs. Then mix them with wood or, if your wood supply is limited, burn them alone. Use your damper to keep the fire under control. The bundled cornstalks will not burn at a dangerously high flame under normal circumstances, and the damper will keep the flame as low as you want it to be.

Smaller weeds can be bundled and tightly wrapped just as if you were compacting trash. Burn these bundles just as you would the other fuels mentioned. Most property has an abundance of weedy growth, including honeysuckle, ragweed, goldenrod, broom sedge or broomsage. Vines of all sorts can be cut into short lengths and prepared for burning.

In an emergency you can burn the old buildings standing on your property. Take them down piece by piece with a crowbar and cut them into

length suitable for burning. Avoid the wood that has been coated with a lead-based paint. Most studs, lath strips, rafters, joists, and subflooring will not have been painted and can be burned without problem. You will find that much of an old house or outbuilding was constructed with a good grade of lumber—that is, if the structure is fairly old. Back in the early years of this century, the lumber was often much better than the materials you buy today, and the wood has over the years seasoned until it is as hard as it is going to get.

When you handle the wood and when you saw it, be alert for nails and staples that will cause injury to you and damage to your saw. And watch for insects that make their winter homes in the old wood. You don't want to bring a family of black widows, for example, into your house.

Whatever kind of fire you are building, be careful. Do not use kerosene, fuel oil, gasoline, or any other highly flammable products to start the fire. Stay away from charcoal lighter and other liquids that can burst into flames or explode.

Start the fire by using a scrap of wadded paper, kindling made from twigs or thinly split wood, and then add small pieces of wood to the flaming kindling. Add larger wood as the flames start to rise and consume the kindling.

Do not build a roaring fire. As a rule, the higher the flame, the lower the output of heat. The low-burning flame which is as a rule associated with denser woods (like oak and hickory) will give off greater heat, and the wood will burn much slower.

Perhaps some of the methods described here are lacking in aesthetics, but when you are left without heat, they will work well for you.

Exercise to stay warm

Some final suggestions: work, move around, remain active. The more you move, the more the blood circulates

and the more heat you generate on your own. When you become still, your heat-generating ability diminishes.

If you are confined to the house, play games or take part in activities that require some expenditure of energy. Keep the heart pumping modestly fast. You can do exercises, isometrics, aerobics, and light weight-lifting. This may be the time to start or complete some minor projects around the house.

Use a handsaw to cut out some bird houses for the next spring. Trim the windows. Rearrange furniture. Clean the house. Pet the dog or cat. Build a better mousetrap.

Plan to spend part of each day in active work periods. It is better to work 15 minutes out of each hour than it is to work for six or eight straight hours and then rest for equal amounts of time. If you work 15 minutes, it will take you at least that long to cool off, under normal circumstances. And then you will need another 15 minutes to start to feel too cool. So in essence the 15 minutes of working basically keeps you warm for nearly an hour.

Have the entire family move about. Get involved with something that is interesting and challenging. Go for walks if weather and energy levels permit. It's amazing how warm a cool house feels if you have been outdoors in the cold for a while.

Dress in layers

Dress warmly. Don't try to sit around in a short-sleeved shirt and be comfortably warm. Wear a shirt and sweater, even in the house. Keep your head covered. More heat escapes the body through the head than from any other part. You will stay warmer longer if you wear a wool cap or a hat that is made of solid fabric.

Dress in layers. Wear insulated underwear with a long-sleeved shirt over your upper body. If you are still cool, slip on a loose sweater. The key to warmth is not so much the bulk of the clothing but the trapped air inside

A Backwoods Home Anthology

it. The reason a sleeping bag works so well, in a large sense, is that your own body heat is kept inside the bag with you. Tight-fitting clothing sometimes does not permit room for trapped air.

When you go to bed, do not stay over-dressed. Once you are under the covers your own body heat will keep you warm, unless the weather is incredibly cold.

Close off rooms that do not need to be heated. If you are in dire straits, run a cord across the room and hang a blanket or quilt on it to hold the heat within a small area.

Whatever you do, do not panic when you see that you are running out of fuel. Look around your property. There is always something that you can burn.

If you can use your gas range, this might be a good time to bake the potatoes, cakes, and breads that you will want to use for a later meal. The heat from the oven will help warm the room.

Be really careful of space heaters, kerosene heaters, or auto or truck heaters. Be sure you have adequate ventilation for these types of heat. The same is true of charcoal heating.

Kerosene heaters do a fine job of heating small areas. You need to have a supply of fresh kerosene on hand (and maybe a new or spare wick). When you buy a kerosene heater, spend another buck or two and get one that automatically shuts off when it is knocked over.

Finally, keep your mind active. Work crossword puzzles or jigsaw puzzles. Start a journal. Play scrabble or card games. Remember that in summer we often hear people say, "It's not the heat, it's the humidity." Well, in winter the saying might go, "It's not the cold, it's the monotony." So keep a good book on hand, or engage in lively and interesting conversation. Who knows? You might emerge from the crisis a happier, more enriched, friendlier, more educated person. Δ

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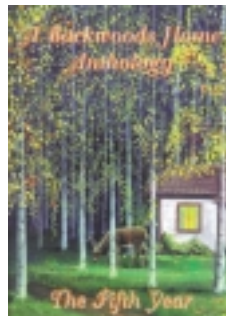
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Ayoob on Firearms:

The Myths of Armageddon

By Massad Ayoob

When people my age were young, there was a Ray Milland movie called “Panic in the Year Zero.” The premise was that nuclear war had broken out, society had broken down, and every family was on their own amongst the unleashed lawless element. It seemed plausible enough. Back then, elementary school students did nuclear bomb drills, huddling in the schoolhouse halls or under their desks, as regularly as they do fire drills today.

With the “Russian mafia” purportedly exerting more influence in the former Soviet Union than the crumbling government that remains there, and stories of missing nukes and “newly nuclear” third world countries, a nuclear holocaust seems much more likely than when it was announced that the USA had won the Cold War. “Panic in the Year Zero” may become increasingly popular at the video rental stores.

Some of my friends with more Bible study under their belts than I tell me that prophecies are coming true of phenomena that will precede the End Time and Armageddon. At the other end of the spectrum, secular engineers in the computer field tell me that they are seriously worried about “Y2K,” the predicted breakdown of a computer-dependent society when the clock turns into the next millenium and some computers shut down in confusion. Says one, “You have to remember that Government is run by computers. Paychecks and bank accounts are preserved on computers. Gasoline, heating fuel, and food are delivered by

trucks whose engines incorporate computer chips. Some of us see everything breaking down.”

Some of my gun dealer friends are telling me they’re seeing a surge of computer experts who were never into guns before coming into their shops on buying sprees. Their shopping lists, I’m told, are right out of the works of the late Mel Tappan.

When I hear all this, I start getting a little nervous myself.

In what now seems a long ago time, the guru of the survivalist movement was that same Mel Tappan. He preached an entire survivalist philosophy and lifestyle (one that relied heavily on a return to backwoods living and values) that included being armed against lawless elements of humanity no longer controlled by provisions of social order. One of his best selling books was “Survival Guns,” in which he recommended a military battle rifle, a .22, a riot shotgun, and a .45 service pistol minimum for the well prepared home, along with suitable stockpiles of ammunition. A powerful, long range rifle with telescopic sight, he noted, wouldn’t hurt either.

I won’t argue with any of that. All these guns are fun to own and shoot for recreation, as any firearms hobbyist will cheerfully attest. The shotgun, the long range rifle, and the .22 will also do noble service as hunting and pest control tools in the most peaceful backwoods life.

Might you want to swap the .45 for a 9mm pistol or .357 revolver? Tappan had no problem with the latter (he often had a Ruger .357 strapped to his wheelchair), noting that it was powerful enough to take deer for forage and would shoot plentiful .38 ammo. 9mm



Massad Ayoob

is also more popular today than .45 at out of the way country stores, Wal-Marts, etc.

Three Myths

There are some myths of survivalism that you’ll want to avoid, in any case.

Myth One: “We’ll use our guns to feed ourselves on wild game.” How many folks do you know who have enough woodcraft skill to do that now, in a time of peace with fish and wildlife commissions doing all they can to keep the game at maximum levels? Once everyone started shooting squirrels and deer for sustenance, the very finite “wild food crop” would plummet swiftly.

Myth Two: “We’ll just load up our guns and sell our bodyguard skills to farmers in return for food and shelter, kind of like the Magnificent Seven.” Yeah, right, City Boy. You’ll show up from the metropolis with your AR-15s and do a remarkably convincing imitation of a gang of extortionists running a protection racket. The bonded community you’ve visited will get together, break out their .30/30s, their .30/06s, and their AR-15s just like yours, and will make shorter work of

you and your friends than the citizens of Coffeyville, Kansas made of the Dalton Gang 106 years ago.

Myth Three: "We'll all just return to the soil and live as our great-great-grandparents lived." Um, well, there were a whole lot less of our ancestors around then than there would be hungry folks now, and the agrarian skills of the old days have survived among very few modern people. There would be limited unskilled farm labor positions available, and a whole lot of hungry city folks with soft hands. Things would get interesting.

One thing that's not a myth: the massive social breakdown that some hypothesize would turn loose some very dangerous groups of armed and bonded people. Street gangs and inner-city drug gangs. Outlaw bike gangs. Prison gangs that had escaped confinement once the penal systems broke down along with everything else. Satanist cults, who according to intelligence gathered by organized crime investigators, are more prevalent than most people realize, and are arming themselves heavily for an Armageddon that they think their side is fated to win. Will they all form farming communities? I don't think so. Except for the bikers' success in marijuana cultivation, none of these subcultures are noted for agrarian skills and tendencies.

Stock food, fuel, and ammo. Stock critical medicines you know you need and predict you might. Have trauma kits handy. Review the survivalist literature advertised in the pages of *Backwoods Home*.

In the best of all possible worlds, the Year 2000 will come and go as all New Years' have so far. People will dance in the streets in relief when that big ball drops in Times Square and all the power grids don't go out. Those who prepared for the worst will flash chagrined smiles at each other, sort of like all the people in the Fifties and Sixties who eventually turned their fallout shelters into swimming pools or fruit cellars.

November and December of 1999 will be a lousy time to start preparing for a cataclysm that a growing number of Americans are coming to expect. Those who do best will be those who've already started preparing, and those who do next best will be those who start preparing now.

And, if nothing happens and the computers and society alike continue to hum peacefully and efficiently along, those people will have developed the proud self-sufficiency and quality of life that they were looking for anyway when they opened the pages of *Backwoods Home*. Δ

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SEND IN THE WACO KILLERS

Three times the International Society of Newspaper Editors has included Vin Suprynowicz in their list of the 12 top weekly editorial writers in North America. For years his shoot-from-the-hip style has opened the eyes of thousands to government abuse of our liberties. In this book, *Send in the Waco Killers*, he blends material taken from his syndicated column with new commentary to give the reader a detailed, reporter's-eye-view of how the rights and freedoms of Americans are being subverted.

He uses factual accounts from the daily news to show how the Feds use the drug war, the public schools, jury rights, property rights, the IRS, gun control, and anti-militia hysteria to increase its power and control over us. He details how agents of the ATF and FBI have routinely lied, how they use paid informants to infiltrate Constitutionally-protected militia groups, then fabricate evidence to get arrests and discredit them.

Had he lived 225 years ago he'd have written a book to detail how King George III and Parliament have tried to enslave us but, sadly, this book is about how our government today is depriving us of our freedoms and ruining the lives of thousands without changing even one word of our Constitution.

If you read no other book this year, read *Send in the Waco Killers*. Just keep your blood pressure medication handy. 506 pages, trade paperback, \$21.95 + \$3 S&H.

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Cooking from

LONG-TERM

food storage

By Jackie Clay

All self-reliant families know they should have at least a year's worth of food and essential supplies stored up in a large pantry. Unfortunately, actually eating from long-term food storage conjures up images of consuming endless tedious, tasteless meals of boiled rice and beans. You know—"survival" food.

But this is not how my household works. If I were to serve such meals, there would be total rebellion. After all, we've had at least two years' food stored for twenty years, and we eat daily from this food. We are not martyrs, and we do not eat tasteless food in order to be "healthy." Instead, we eat three meals a day from good tasting, comforting, healthy food, much of it home-raised, home-grown or harvested from the wild.

With a little practice and imagination, any family can quickly learn to produce meals, drawn from your food storage, that draw rave reviews from family members. And you do not need to spend hours in food preparation time either.

Buying for long-term food storage

A lot of problems arise when a family purchases foods they are not used to eating, and are not especially fond of in the first place. During hard times, or in an emergency, are definitely *not* times to begin eating such "survival" food. When you're stressed out, worried, and depressed, you need a lift, not countless meals of boring, tasteless food.

Take stock of the foods your family really likes. Then build your storage pantry on these preferences. Just about anything you regularly eat can be included. One notable exception is hamburgers and cheeseburgers. You can home can hamburgers, by lightly frying tiny patties, then stacking them into wide mouth jars. I do a few, just for novelty, layered with finely chopped onion. When ready to use, reify them, adding cheese if desired. They're good, but aren't the same as the regular hamburgers the family is used to. And

there isn't an alternative to home canned hamburger available for purchase.

Have your family go through the supermarket with you and take notes as to what interests them, even if you have not cooked it before, or recently. You need variety in your long-term storage foods. Meals are like buildings. They need foundation blocks like potatoes, rice or beans, but also windows and doorways like fruits, meats, vegetables, and spices.

Choose the foods carefully, taking into consideration those you use daily or would use, if you had the time....and had no alternatives. Two frequently overlooked items are shortening/margarine and eggs. And make sure there are plenty of opportunities for "goodies," such as cookies, pies, puddings, Jello, etc.

Introducing the family to seldom-used staples

There's a definite place in a long-term storage pantry for such staples as dried beans and rice, but instead of buying all navy beans and white rice, consider that there are over a dozen varieties of beans and perhaps six varieties of rice available, each with its own unique taste, texture, appearance, and uses. In our pantry, I have many kinds of beans which we use: navy, red kidney, pinto, Anasazzi, black, and several varieties of Native American beans that we grow at home. You might include a couple of limas (which our family just does not like), cowpeas, Great Northerns, or others.

Then try a few really good recipes and gently ask all family members to try just one small serving with a meal they love.

Work your way into beans. Don't just cook up a huge pot and insist everyone eat them for a meal. You can "sneak" beans into meals by mashing cooked pintos in with taco filling, putting a few mashed beans in a layer of casserole, or into a hearty vegetable stew or soup.

Old-fashioned baked beans, complete with ham or bacon chunks, molasses and catsup will usually do the trick on a cold winter's day.

Old-fashioned baked beans

- 2 cups dry navy beans
- ¼ cup ham or bacon flavored TVPs or canned ham
- ½ cup dehydrated chopped onions
- 8 Tbsp. molasses
- 4 Tbsp. honey
- 1 Tbsp. dry mustard
- 3 Tbsp. vinegar
- ½ cup tomato sauce
- ¼ cup catsup

Sort beans, soak overnight in water enough to cover. In the morning, drain beans, discarding water. Place beans in 6-quart or larger heavy pot with 12 cups water and simmer, covered for just long enough to get beans tender (older beans require longer cooking). Drain and discard water. In a 3-quart or larger casserole, mix beans with other ingredients and bake at 350 degrees for 1½ to 2 hours, adding water if necessary to keep beans from drying out. Serve hot with fresh whole wheat bread for a comforting, hearty meal.

The same with rice. Few people like a big plate full of steamed white rice. "I don't like rice!" is the usual comment. My answer is get to know rice and all its uses.

Perhaps the easiest way to interest a family member in rice is to serve Oriental fried rice, complete with little chunks of chicken or pork. Spanish rice is another interesting way of introducing rice into a meal. The point is to introduce staples gently into meals, *before* called on to use them every day.

The use of ethnic meals is a great way to introduce a family to basics, as most less-wealthy nations have fabulous recipes, using cheaper staples as the base for meals. You can learn to do wonders with corn flour and corn meal, beans and chiles, rice, vegetables, sauces, and bits of meat, potatoes, and vegetables. I quickly learned that America is one of the few nations in the world where meat is used as the foundation of a meal. (We had adopted two older children from India and three from Korea, as well as sponsoring a family of nine from Vietnam.)

When cooking from a long-term storage pantry, learn to buy or home-can meat in smaller cans and jars. This allows one to use the meat as flavoring and texture to a meal, making a little go a long way, and not give the impression of "making do" or "surviving."

A couple of examples that we regularly use are Oriental Chicken Fried Rice and Tamale Pie. I *never* have leftovers.

Oriental chicken fried rice

- 2 cups cooked white rice, cooled
- ½ cup finely diced onions (you may substitute rehydrated dry)
- ¼ cup rehydrated freeze dried or air dried green peas
- 1 cup rehydrated shredded carrots (or fresh)
- ¼ cup oil or shortening
- 1 Tbsp. peanut butter
- ½ cup chopped cooked chicken
- 2 Tbsp. soy sauce
- 2 eggs, equivalent in dehydrated egg powder
- Spices to taste, including garlic, tumeric, hot pepper

In a large, heavy frying pan, heat oil. Add rice, onions, chicken, and carrots. Stir frequently with spatula until rice begins to lightly brown. Add peanut butter (no, it doesn't taste "weird"), soy sauce, peas, and spices. Continue stirring while flavors mix. As rice mixture appears to be done, quickly add beaten egg mixture and continue stirring with spatula until egg is cooked. Serve at once with soy sauce, sweet and sour sauce, or hot mustard sauce.

Tamale pie

- ½ cup cornmeal
- ½ cup white flour or freshly ground whole wheat flour
- ¼ cup honey or white sugar
- ¼ cup shortening
- 1 egg (equivalent in dry egg powder, rehydrated)
- 1 cup rehydrated dry milk (+ or -)
- 2 tsp. baking powder
- 1 tsp. salt
- ½ cup cooked hamburger (I use home canned) or beef TVP
- 2 cups tomato sauce
- ½ cup dry chopped onions
- ¼ cup dry chopped green peppers or chile peppers
- 2 tsp. mild chile powder
- ¼ cup dry sweet corn or ½ cup canned corn

Mix first eight ingredients well, making a medium batter (not runny or not stiff). Then in medium sized cast iron frying pan or 8 x 8 cake pan, mix the last six ingredients well, then top with cornmeal batter. Bake at 350 degrees until top turns golden brown. Serve hot with cold salsa.

Homemade pizza

Crust:

2 cups flour
½ tsp. seasoning salt
¼ cup olive oil
2 tsp. dry yeast
1 cup, plus warm water

Mix dry yeast and one cup warm water. While softening, mix other ingredients in medium bowl. Add softened yeast and enough warm water to make a soft, but not tacky, ball of dough. Work dough with hands, greased with a small bit of olive oil until elastic, then set aside in bowl, covered, for half an hour to rise. Oil baking pan with liberal olive oil, press out dough with hands. Prick dough with fork every few inches to avoid bubbles. Bake at 350 degrees until just barely done. It will not be browned but will lift easily from pan when picked up with a fork at corner.

Topping:

1 cup thick tomato sauce
1 tsp. brown sugar

Such goodies as homemade pizza are always hits at home, especially in an emergency or hard-times situation. Key ingredients, such as pepperoni and mozzarella cheese, are in few long-term storage pantries. When one has their own dairy animal, the cheese is a snap, and dry-cured pepperoni lasts for months without refrigeration under cool, dry conditions. I also have canned chunks of pepperoni and am going to try mozzarella cheese too. But without these options, pizza is still a definite “go”. Check out recipe above.

But we'll miss fried foods!

I think one of the things a family misses most, living totally from a long-term storage pantry, is simple fried foods. Now this can have an up side, as well as a down. The fewer the fried foods consumed, the better health we enjoy. But, honestly speaking, some fried foods do a lot to boost our morale during rough times.

Now, of course, if a family has their own garden, which a self-reliant family should have anyway, they will have abundant potatoes, fresh or in the cellar. If not, you can fry up a batch of canned potatoes, from time to time, or make potato patties out of leftover mashed potatoes (adding two beaten eggs to hold them together). There are also dehydrated and freeze-dried hashbrowns that are quite good.

One satisfying, simple recipe we enjoy from our pantry is fried tuna patties. This provides meat, as well as satisfying an occasional craving for “fried food.”

1 Tbsp. rehydrated green peppers
1 Tbsp. dry onion
¼ cup chopped olives
¼ cup sausage TVPs
1 tsp. oregano
¼ tsp. garlic powder
½ tsp. basil
1 cup mozzarella or
½ cup dried grated parmesan cheese

Spread tomato sauce evenly on baked crust and sprinkle brown sugar, green peppers, olives, and spices on top. Top with cheese. Bake until cheese is barely golden brown and bubbly. This is yummy, and it is much in demand at our house. As a bonus, there are many variations including making a double batch of crust, using the second dough to be formed as bread sticks, which can be brushed with tomato sauce, herbs, and sprinkled with cheese and baked at the same time as the pizza. The bread sticks, dipped in a warm herbed tomato sauce, make a great addition to the steaming pizza.

Roast beef hash is another “alternative” fried food. Unless fresh meat, either home grown or wild, is available, there will be little fried meat available.

One of the home storage pantry's best capabilities is providing quick, nutritious soups and stews at quick notice. These include those using pasta and noodles, as well as the more traditional. One of our favorites is homemade noodles, cooked with chicken broth. You can use store-bought noodles, but there is absolutely no comparison in taste or texture. And noodles are very easy to make, only taking a few minutes once you get the hang of it. Even “mistakes” are very edible.

Fried tuna patties

2 cans light tuna, drained
1 cup crushed dried bread crumbs
¼ cup dehydrated onion flakes
3 eggs, rehydrated equivalent
½ tsp. lemon pepper
flour to coat patties
oil to fry

Mix drained tuna, bread crumbs, egg, onion flakes, and lemon pepper. Divide into golf ball-sized portions, pat into patties, dip both sides in flour. Heat oil to medium heat and gently place patties into frying pan. After one side is done, turn and finish cooking. This is a quick and easy alternative to “fish sticks.”

Roast beef hash

1 pint (16 oz) canned roast beef (or wild meat)
½ cup rehydrated onion flakes
1 quart (32 oz) canned potatoes, drained well
oil to fry

Grind meat, potatoes and onion together with hand meat grinder. Heat oil to medium heat in large frying pan. Slide hash into pan, being careful not to spatter. Arrange the hash in a shallow layer, covering the bottom of the frying pan. Allow to cook, turning and stirring with spatula. Add seasonings, finish frying to preference, and serve. Popular condiments include salsa and catsup. Hash makes a satisfying one-dish meal. Leftovers are great for breakfast with scrambled eggs.

Homemade noodles in chicken broth

1½ cup flour (either freshly ground whole wheat or white)
¼ tsp. salt
2 eggs, reconstituted or fresh

Place flour in mound on board, making a nest or well in the center of the mound. Pour eggs into nest. Beat the eggs with a fork, gradually bringing the flour into the mix. Work the dough into a ball with your hands, picking up only as much flour as it takes to make a stiff, but workable ball. Knead the dough for about five minutes. It should not stick to the board. If it seems too moist, add a little more flour; if too dry, dampen your hands and knead longer.

Divide the ball into quarters. Cover three and reserve one to work with immediately. Lightly sprinkle board with flour and roll out dough, pulling it into a uniform thickness oval. Make it as thin as workable and let rest in a warm, dry place. Repeat with other three quarters.

When all dough is dry, but not stiff and brittle, roll like a jelly roll, cutting into desired thickness with a sharp knife. You can then either fluff out to separate and then carefully hang to dry or lay it flat to air dry for an hour.

Pour a quart of chicken broth (or use dry chicken granules to make a broth) into a large pot. Add diced, canned, or freeze dried chicken meat, if desired, as well as onion, carrots, and spices as wanted. Bring to a medium boil, then carefully add noodles, simmering just long enough to make them tender. The flour on the noodles provides natural thickening. You'll get raves for this simple, yet satisfying meal.

Breads

Don't forget the staff of life. Breads provide an endless base to home meals, unlike their tasteless plastic wrapped cousins from the store. On one camping trip, we made an entire meal out of a crispy, fragrant loaf of French bread, without a dab of butter.

Breads can be made of varying flours for entirely different tastes, textures, and appearances. Aside from the "normal" white flour from the store, one can, and should, grind their own grains, producing a wide, wonderful, array of fresh flours. This produces a wholesome taste that most folks have never even dreamed of.

As all grains store much longer as whole grains, it is wise to stock up on these grains and grind the flours as you need them. Some suggestions are red and golden hard wheat for bread, soft wheat for pastries, flour corn for cornmeal, hominy corn for corn flour, buckwheat for pancake flour, rye for rye and pumpernickel bread, and rice for Asian cooking.

You will find that when you are cooking solely from the long-term storage pantry under times of duress, just the milling of the flour and baking of bread will bring peace and contentment to the whole family.

While "plain" bread will probably be most often used, stretch your creativity by expanding to more "exotic" breads such as pitas, tortillas, and sweet rolls, both for taste and variety. Most use about the same simple ingredients, and with just a little variation you can create a whole spectrum of tastes and possibilities.

Basic whole wheat bread

Heat 4 cups milk (rehydrated dry or fresh). Soften 4 Tbsp. dry yeast in ¾ cup warm water. Add ¼ c. honey to warm milk, along with 1/3 cup oil or melted shortening, 2 tsp. salt, and 2 eggs.

Beat well, then as milk cools to luke warm, gently add yeast. Add about 14 c. fresh whole wheat flour, one cup at a time, mixing after each. When nearly stiff, mix with hands, incorporating just enough flour to make an elastic, workable ball of dough. Don't stop if it's sticky, and don't get it too stiff. Knead on a floured board for 10 minutes. Grease a large mixing bowl, place ball into bowl, and grease top. Pull ball out and put back in, greased top up. Cover with a warm, damp kitchen towel and let rise in warm place until about double. Knock down and let rise again. Divide into two or three loaves and place into greased bread pans. Preheat oven to 350 degrees. When loaves are nearly doubled in size, place in oven and bake for about 35 minutes until tops are golden brown. Grease tops with margarine to soften. Enjoy the best bread you've ever tasted.

One of our favorite breads is a versatile quick roll recipe. This recipe makes soft, tender dinner rolls, but also free-form breads, hamburger buns, sweet rolls, and coffee cake with little change.

Halftime spoon rolls

Dissolve 2 tsp. dry yeast in ½ cup warm water, and set aside. Combine 1/3 cup shortening, ¼ cup of sugar or honey, 1 tsp. salt with ¾ cup hot milk (reconstituted dry or fresh). Cool to lukewarm by adding ½ cup cold water. Add 1 egg (or equivalent reconstituted dry) and softened yeast. Mix in 3½ cups sifted flour. Cover in same bowl, letting rise in a warm place till doubled. Stir dough with greased spoon. With an ice cream scoop (works easiest) dip sticky batter into greased muffin tins, filling half full. Let rise and bake at 375 degrees until golden brown. Remove from oven and brush margarine on top to soften nicely. I promise raves from this one. And you can modify it easily. With the addition of just a little more flour (about ½ cup), the dough will be firm enough to handle lightly, which makes forming hamburger buns on a greased cookie sheet easy, or forming into caramel rolls, cinnamon rolls, or coffee cake.

Tips for cooking from home storage

Cooking from a long-term storage pantry is easy, basic, and very fulfilling. But it is not something one learns to do overnight. It's sort of like gardening. The time to learn to garden is *not* when the trucks stop hauling food to supermarkets and there are acute food shortages. It takes time to get into the rhythm of gardening, learning what works, what does not, and how to do the most work with the least effort.

When a person plunges into cooking solely from home storage, they are quite often frustrated by "all the hard work," the poor results from their cooking, and the lack of enthusiasm from family members. Sort of like when a new young bride begins cooking for her husband for the first time. The results are often ho-hum.

Try taking one day a week, at first, to practice cooking out of your storage pantry. Ease into it with a few of these recipes; they are easy and basic. Then expand to others, found in some of the books listed below. Mennonite, Amish, Mormon, and Seventh Day Adventist cookbooks usually provide a good start for comforting, tasty meals with basics, as these religions stress commonsense preparedness and good family eating from basic, healthy ingredients.

It's well to mention at this time that it makes good sense to develop a small garden, at least, and learn to forage for

wild foods (which are great tasting, by the way), while learning to cook meals from the food you have stored. Fresh foods are a very welcome change to dehydrated and canned, and they not only taste great, but provide extra nutrition, which could conceivably be lacking in a few long-term storage foods.

Likewise, if it is at all possible, develop your own source of fresh milk, eggs, and meat. Grandmas all over the world raised a small flock of chickens, even in town. It's funny that the U.S. is one of the few countries where this is not common today. Remember that variety is truly the spice of life; cultivate all the variety you can in your family's diet.

You'll find you get into the rhythm of this type of cooking easily. And you'll quickly develop time-saving ways of doing things. For instance, it didn't take me long to decide that if I ground a week's worth of grains I truly saved time, and cleaning of the grain mill, and I always had the grain I needed on hand conveniently.

I can honestly say that it takes only minutes longer per meal to prepare a great dining experience from my pantry than it does to rip and pry plastic wrap from something that appears to be food. And it makes the whole family feel great. We believe in *living*, not just surviving!

Suggested Reading

Amish Country Cooking by Andy & Millie Yoder

Bread Winners by Mel London

Cookin' with Home Storage by Vicki Tate

Dehydrated Food Cooking by Stan Smith

Kitchen Magic-Cooking with Common Grains by Deanna Sudweeks

Marlene's Magic with Food Storage by Marlene Peterson

The Natural Nine (Cooking with the 9 most common grains) By Lorraine D. Tyler Δ

LOTTERY

I once heard a story
About a guy with the same problems as I...
Going broke,
Imminent divorce,
No sex...
One morning he committed suicide
And they found a lottery ticket in his pocket.
That evening it won.
I doubt the story's true.
I'd have heard about it on TV.
Anchormen and talk show hosts love that kind of story.
Still, there's a briefcase in my car,
In it there's a lottery ticket,
Beside it there's a gun,
They're both waiting.

John Earl Silveira
Ojai, California

How to Prosper in Hard Times

By Robert L. Williams

Years ago Stephen Collins Foster, the Pittsburgh composer who idealized the South better, perhaps, than any other song writer, wrote a song that includes these lines: “The young folks roll on the little cabin floor, all merry, all happy, and bright; By and by hard times come a-knocking at the door....”

What will we do when hard times come a-knocking, such as those predicted as the result of a Y2K computer disaster or global economic collapse.

No one to my knowledge, and least of all this country boy, has the answers. But, as usual, I have ideas, theories, and backwoods predictions. I am, as sports analyst Billy Packer puts it, “Often wrong but never in doubt.”

My first theory is that in the coming disaster (if it comes) we must become Universalists or, at worst, generalists, unless we are part of a highly specialized group of individuals whose college or work backgrounds are so vital that they will be in constant and great demand.

A Universalist is, for purposes of this article, one who knows everything and can do anything. This, of course, is over-statement. What I mean is that we must have an astonishing array of skills and capabilities, or we must be in a profession or career that is going to be in urgent demand at all times. This latter group includes the members of medicine and health careers, food production, law enforcement, vital areas of factory production, transportation of a vital nature, and similar areas.

The vast majority of us are not in vital career areas. If the disaster hits, those people producing hula hoops

and yo-yos, message shirts, or other fad items will find that there is no demand for their products. And the support industries that supply the raw materials for these products will be in trouble. And the people who earn part or all of their income through production of ancillary goods or through transportation of these goods will also find themselves out in the cold and dark.

Here, in light of all the above, are suggestions for the potential disaster that will help us, as William Faulkner put it, “to endure and prevail.” In other words, to help us cope at worst and, at best, to prosper.

Home health care: The first area is that of home health care. With a population that has more people ages 65 and older than at any previous time in history, it is reasonable to assume that there will be age-related illnesses or physical problems that must be treated. These problems may be as simple as stiff knees and backs that prevent people from getting out of bed and moving around, or they may be as complex as the problems of terminally ill patients who are kept alive only by IV feeding. It could be someone with a broken leg who will be laid up for three months or so.

Someone must be on hand to feed, bathe, and generally care for these people. If there is a fire, a burglary, or any type of simple or complex emergency, someone must be on hand to meet the needs of the patient.

Become a writer: Oddly, when crises loom, the frills of society disappear in most areas, but they flourish in others. When people who love to travel, go out on the town, shop, dine, and attend and host parties can no longer do so, what do they do?

They stay home, watch TV, have discussions (a lost social activity in many areas), or—horrors!—they read

books. A book is relatively cheap, compared to the costs of travel or shopping. During times of severe hardship, book publishing thrives. This may be your time to start writing, either for magazines or for book companies.

What do people read in economic distress? They love to read about what they can’t be doing but wish they could: they relish the travel books. They can read the books and dream of better times, and when the better times return, they can go to the places they have dreamed and read about.

Second, the readers love mystery and romance. So write the romantic novel or the mystery novel. Or combine the two.

Other areas of popularity among readers are the how-to articles or books. People need to learn to do as much for themselves as possible, and they want to know how to do the projects and chores that have been piling up around the house.

Self-help books and articles are always in demand. People who want and need counseling but can’t afford it find great help in books that inform them how they can cope with their problems and even solve them.

Most people want to be cheered up, and humor books sell widely, as do nostalgia books. Those who can’t live in the past can at least dream about doing so.

Remember that the five basic aims of all writing are at the head, the heart, the pocket-book, the funny bone, and the ego. Stimulate the person’s thinking, touch his heart, tickle him into laughing his troubles away for a few minutes, or make him feel better about himself and you have done him a great favor. Not to mention the one you did for yourself.

The problem with writing is that paychecks are deferred for several

months at times. You need a way to generate income or the equivalent of income immediately.

Become a woodsman: Buy land where there is a wilderness or the closest you can come to a wilderness. Why? Because in the forest you will find wood for heating and building, and plant life that can meet hundreds of needs in your own life.

And you can sell firewood to those who live in the cities or towns. Don't cut your trees frivolously. Save them, because they are money in the bank. But right now a cord of firewood sells for between \$85 to \$200, depending on the type. In time of crisis that price will double and triple within a short period of time.

Become a carpenter: Check out books and study them. Learn how to cut and nail and measure. Master the fundamentals of the basic skills of home building and repair. The same people who need the firewood will likely need your skills as soon as the first problem with their dwelling appears.

Become a mechanic: Study small-engine repair: Look at the people who cannot make the simplest repairs on chain saws, lawn mowers, tractors, trucks, or other vehicles that have been a major part of their lives.

Become a painter: But paint houses, not landscapes. Paint is not merely decorative; it is a preservative. Without the protection of paint of some sort, wood will decay rapidly.

Become a handyman: Learn, if you do not already know, how to make almost any repairs around your house—or the house of your neighbors. People with a leaking roof, for instance, will pay handsomely to have it repaired. Think of other things that can go wrong with a house and that would greatly inconvenience the occupants, and learn how to fix them.

Sell produce: If you master gardening skills, you can easily produce a surplus of fresh vegetables. If the crash comes, fresh veggies might be difficult to obtain. For only pennies

you can grow tons of squash, okra, tomatoes, corn, greens of all sorts, potatoes, melons, peppers, beans, and other great additions to a family meal.

Learn basic television and radio repair: If people do not have the money to travel, they will want to be entertained at home. Be warned that television voltage can kill you in a flash, so don't start tinkering until you learn something about the work. There are books and schools that will help you get started.

Learn to take photos: Here is one of the best potential sources of income. People want and will have pictorial records of their family. They will pay generously for photos of their children (or even pets) in the various stages of their development. During the Great Depression when money was scarce, traveling photographers earned good livings by traveling around the communities and taking photos of children, families, and important events.

Remember that the person who gets the job of photographing the children individually and collectively in our schools is going to be paid a sizeable amount of money. The same is true of photographs of church members.

Don't neglect sporting and community events. If you snap the photo of Johnny as he leaps into the air to catch the pass that became the turning point of the game, Johnny's parents will pay dearly for that photo. Catch the kids at a picnic, in their childhood games, in Halloween costumes, at their birthday parties, or in school dramas and you have a source of income. Little leaguers in uniform are perfect subjects for your photos, and their mothers are perfect customers.

Farm catfish: If you have money to invest, catfish farming is one of the best sources of money and pleasure. It takes money to build the dams and stock the ponds, and it takes money to feed the fish, but once you are in business, you can harvest hundreds of pounds of catfish and sell them to any of several markets. Except for the

feeding of the fish, there really is not much upkeep to one of the farms. You don't need a huge body of water. A pond the size of the larger houses in your community will support incredible numbers of fish.

Catfish meat is delicious, and the market is energetic. The growth rate of the fish is remarkable, and their reproduction capacities are admirable.

Buy and restore houses: If you have some money to invest and want to cash in on some superb opportunities to prosper during hard times, plan to buy, move, restore, and sell houses. While you don't want to take advantage of someone else's ill fortune, you might want to use the opportunity before someone else does.

Often a house is available simply because the owners have moved to smaller quarters and can't or don't want to continue to pay the taxes and upkeep on the old house. Often you can buy these old houses for under \$1000.

The best advice we ever received was from Henry David Thoreau who told us that a man is rich in proportion to the number of things he can afford to let alone. We began our backwoods home adventure long before it was popular to do so. Since that time we have enjoyed all the bounty that the soil and the water give to us on a regular basis.

Oh, if the crunch comes, we'll feel the effects. But we think that we are in a better position to cope than most people. We invite you to come along with us. It's never too late—or too early—to start.

And if the crunch doesn't come, you have lost nothing. In fact, you have gained a world of experience and skills. You can save tons of money by doing your own repair work, and you can earn considerable amounts of money in good times and bad, if you only take the time to learn the basic skills and to market your talents and work. Δ

THE IRREVERENT JOKE PAGE

(Believing it is important for people to be able to laugh at themselves, this is a new feature in *Backwoods Home Magazine*. We invite readers to submit any jokes you'd like to share to *BHM*, P.O. Box 712, Gold Beach, OR 97444. There is no payment for jokes used.)

The local restaurant was so sure that its host was the strongest man around that they offered a standing \$1000 bet. The host would squeeze a lemon until all the juice ran into a glass, then hand the lemon to the patron. Anyone who could squeeze one more drop of juice would win the money.

Many people had tried over time (weight lifters, long-shoremen, etc.), but nobody could do it.

Then one day, this scrawny little man came in, wearing thick glasses and a polyester suit, and said in a tiny, squeaky voice, "I'd like to try the bet."

After the laughter died down, the host said, "Okay," grabbed a lemon, and squeezed away. Then he handed the wrinkled remains of the rind to the little man.

But the crowd's laughter turned to total silence as the man clenched his fist around the lemon and six drops fell into the glass.

As the crowd cheered, the host paid the \$1000, and asked the little man, "What do you do for a living? Are you a lumberjack, a weightlifter, or what?"

The man replied, "I work for the IRS."

Submitted by Bud Jarvis

Only in America do we use the word politics to describe the process so well: "Poli" in latin meaning "many" and "tics" meaning "blood-sucking creatures"

Submitted by Montey R. Eldridge

A guy wins the lottery and runs home. Upon entering the door he yells to his girlfriend,

"Pack your bags **NOW** baby; I just won the lottery!"

She responds, "Great, should I pack for the beach or mountains?"

He tells her, "I don't give a damn, just get the hell out!"

Submitted by James Mayfield

Never take life seriously.
Nobody gets out alive anyway.

Three friends die in a car accident. They go to heaven to an orientation. They are all asked, "When you are in your casket and your friends and family are mourning upon you, what would you like to hear them say about you?"

The first guy says, "I would like to hear them say that I was the greatest doctor of my time, and a great family man."

The second guy says, "I would like to hear them say that I was a wonderful husband and a school teacher, which made a huge difference in our children of tomorrow."

The last guy replies, "I would like to hear them say, "LOOK, HE'S MOVING! HE'S ALIVE!"

Submitted By James Mayfield

Men are always whining about how we women are suffocating them. Personally, I think if you can hear them whining, you're not pressing hard enough on the pillow.

A herd of buffalo can only move as fast as the slowest buffalo. When the herd is hunted it is the slowest and weakest ones at the back that are killed first. This natural selection is good for the herd as a whole, because the general speed and health of the whole group keeps improving by the regular culling of the weakest members.

In much the same way, the human brain can only operate as fast as the slowest brain cells. Excessive intake of alcohol, we all know, kills the slowest brain cells first. In this way regular consumption of beer eliminates the weaker brain cells, making the brain a faster and more efficient machine. That's why you feel smarter after a few beers.

Women's quote of the day:

"Men are like fine wine. They start out like grapes, and it's our job to stomp on them and keep them in the dark until they mature into something with which you'd like to have dinner."



Men's counter-quote of the day:

Women are like fine wine. They start out fresh, fruity, and intoxicating to the mind and then turn full-bodied with age until they go all sour and vinegary and they give you a headache."



DUMB BLONDE JOKES

Why do blondes have "TGIF" on their shoes?
- Toes go in first.

Why did the Blonde stare at a can of frozen orange juice?
- Because it said concentrate.

How can you tell when a blonde sends you a fax?
- It has a stamp on it.

Why shouldn't blondes have coffee breaks?
- It takes too long to retrain them.

How do you put a twinkle in a blonde's eye?
- Shine a flashlight in her ear.

Did you hear about the two blondes that were found frozen to death in their car at a drive-in movie theater?
- They went to see "Closed for the Winter."

COMPUTER VIRUSES

Lorena Bobbit Virus
- turns your hard disk into a 3.5 inch floppy

Tonya Harding Virus
- turns your .BAT files into lethal weapons

Oprah Winfrey Virus
- Your 200MB hard drive suddenly shrinks to 80MB, and then slowly expands to 300MB

Politically Correct Virus
- Never calls itself a "virus," but instead refers to itself as an "electronic microorganism"

Ross Perot Virus
- Activates every component on your system, just before the whole darn thing quits

Government Economist Virus
- Nothing works, but all your diagnostic software says everything is fine

Federal Bureaucrat Virus
- Divides your hard disk into hundreds of little units, each of which does practically nothing, but all of which claim to be the most important part of your computer

Freudian Virus
- Your computer becomes obsessed with its own motherboard, or becomes very jealous of your friend's hard drive.

PBS Virus
- Your computer stops every few minutes to ask for money.

Jimmy Hoffa Virus
- Your programs can never be found again.

O.J. Virus
- It claims that it did not, could not, and would not delete two of your files and vows to find the virus that did it.

Submitted by John J. Spada

REAL ADVERTISEMENTS

1. Illiterate? Write today for free help.
2. Auto Repair Service. Free pick-up and delivery. Try us once; you'll never go anywhere again.
3. Our experienced mom will care for your child. Fenced yard, meals, and smacks included.

4. Dog for sale: eats anything and is fond of children.
5. Man wanted to work in dynamite factory. Must be willing to travel.
6. Stock up and save. Limit: one.
7. 3-year old teacher needed for pre-school. Experience preferred.

EMERGENCY

GEAR FOR YOUR VEHICLE

By Jackie Clay

We've all been there: you're driving down the road and suddenly, without warning, the truck just stops. Or during the worst snow storm of the year, you hit a rough drift and slide into the ditch, miles from a living soul. Aside from that sinking feeling in the pit of your stomach, you're all alone. Helpless?

No! Sure, such scenarios are scary and inconvenient, but they don't have to be as life-threatening as they frequently are. Carrying a little emergency gear in the vehicle just makes good common sense.

And it makes just such emergencies bearable. Just as everyone knows it's sensible to carry an inflated spare tire, a jack, and lug wrench for your vehicle so it won't get stuck, carrying emergency gear for you and your family's safety and comfort makes just as much sense.

A good flashlight with fresh batteries is a must in every vehicle. We carry ours under the driver's seat and check it frequently to be sure the batteries are in good shape. Nothing is more miserable than having some sort of trouble in the night and being in the dark.

Carry as much emergency gear in your vehicle as you can conveniently. If you have the room, carry a gear box, such as we have under the shell of our pickup. It's large enough for a sleeping bag for each member of the family, a change of warm socks, a warm jacket, a small bow saw, a

small propane stove and cartridge, candles, a few butane lighters, a pan, and other gear. Most vehicles will provide room for nearly this much emergency gear in a trunk or other little used cargo space.

Every vehicle should have at least one warm blanket in it. Even during the summer. At night, or during a rain, it can get cold without the heater to run periodically.

A few warm clothes, tucked in a dust-proof bag in the trunk, can be a life-saver, especially in wet or winter weather. Be sure to have something for all members of the family.

Heat, in the form of a candle or propane stove or lantern, is a good idea. Be careful when using a candle, as they can easily be knocked over inside a vehicle, causing a flash fire of toxic fumes. But even a smallish candle can provide enough heat to keep a family from freezing to death inside a vehicle that is disabled. It will also provide light to attract the attention of

rescuers and help prevent the vehicle from being struck by passing traffic or a snowplow.

When using any form of heat, whether it be from starting the vehicle from time to time to keep warm or a candle, be sure to crack open a downwind window, preventing carbon monoxide poisoning. This odorless toxic gas has killed hundreds of stranded motorists, silently, without warning.

A means to make a fire is a must. The fire can draw attention to you if you need help, it can cook food and can keep you warm. Fire starters can range from butane lighters to wind-proof matches to a flint, magnesium, steel kit. This last is the best.

Always carry vital motor and radiator fluids, as well as a gallon jug of water in the trunk. These include anti-freeze, brake fluid, transmission fluid and, most important, motor oil. For the lack of a quart of oil, you could blow the engine. And it could be a



long walk to “civilization,” especially knowing you face a \$1500 engine job.

Stick a good shovel in the trunk. If you don't have room for a full sized shovel, cut the handle off one to fit, leaving as much of the handle as you can, or use a folding Army shovel. The new Army issue folds down to 12 inches. A shovel could save your butt if you get stuck in snow or mud.

Likewise, always carry a set of jumper cables. You can usually find someone willing to give your dead battery a jump, but he doesn't always have his own cables.

A basic tool box is essential. Simple tools, such as a couple of screwdrivers, an adjustable wrench, a pair of channel lock pliers, wire cutters, a battery terminal cleaner, hammer, electrician's tape, and duct tape can save the day. Even if you don't know much about auto mechanics, a knowledgeable passer-by may be willing to help, if he has the tools.

In this vein, be sure you have a box of assorted fuses tucked away in the glove box. Something as simple as a blown fuse may disable a vehicle. (One tip here, if you are lacking a correct sized fuse, rob a like sized fuse from something non-essential, such as the radio, replacing it when you get to a service station.)

Have drinking water with you at all times. This can be that gallon of water in the trunk, but if it is, change it from time to time, keeping it fresh. People have died from lack of water, and not always in southwestern deserts.

A fire extinguisher is a good addition to a vehicle's emergency gear. I've had a van I was driving catch fire without warning. Luckily a fire extinguisher was handy. All that burned up was the wiring under the hood. Check the fire extinguisher at least twice a year, to make sure it is charged.

Carrying a good, moderate sized first-aid kit is essential. Many of our little emergencies happen periodically. The kids skin a knee, your husband gets a steel sliver in his hand, you burn your arm checking the radiator.

Nothing earth-shattering, but, at the time, emergencies nevertheless.

Find a sturdy, flat plastic box that will fit under the seat and fill it with common sense first-aid gear: assorted adhesive strips (cuts, scrapes, blisters, etc.), eye drops, a needle and tweezers to remove slivers, antibiotic ointment, Betadine or iodine, a roll of two-inch gauze and gauze squares (sterile), burn ointment, aspirin, Tylenol, and anti-diarrheal tablets. Tailor your kit to your family's lifestyle. Make it comprehensive, but not bulky.

A little “survival” food, tucked in a bag or box in the trunk or under the seat, is a great idea. We certainly won't starve without a few meals, but I, for one, would rather have a little something to munch on than to go without. This is especially true during times of duress. This survival food can be high energy bars; small cracker and cheese or peanut butter packages; pop-top foods such as chili, stew, wieners, MREs (military meals ready to eat), dehydrated fruit slices, etc. The main thing is to choose foods that are not affected by heat/cold, will not go stale quickly, and will provide energy and satisfaction.

Now don't laugh, but toilet paper should be in every vehicle. Yep, you can do without it, but wiping on stick-sand rocks is one aspect of my Native American heritage that I don't want to return to. Besides, toilet paper can be used to start a campfire, wipe the oil stick when checking the oil, staunch minor bleeding, clean up messy kids, and blow your nose.

A transistor radio, especially one of those little ones that is both solar-powered and rechargeable with a built-in crank, would be handy to keep track of weather and/or riots. And don't forget snow chains for winter.

I'm sure, with these hints, you can think of things you'd like to include in your family's personal vehicle emergency kit. No two families are the same in their needs, but the point is to be ready for the unexpected, then relax and enjoy life. Δ

ON YOUR PERSON

On your person you should carry some or all of the following:

- means to make a fire, whether it's a butane lighter, wind-proof matches, or better yet, one of those pocket-sized magnesium and flint and steel tools such as you find sold at the Preparedness Expos.
- pocket knife or Leatherman type tool with can opener, pliers, screwdrivers, saw, tweezers, etc.
- vital medical prescriptions
- emergency money

Also wear proper footwear, not sandals. If you wear the new popular “fanny pack,” you can carry more, such as a tiny fishing kit, consisting of hooks, line, and sinker placed in a film canister. Also some granola bars, a garbage bag (raincoat), and a tiny flashlight. Some people even carry a gun in their fanny pack.

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Preparing for the worst

By Rev. J.D. Hooker

How do you prepare for a major catastrophe, one that affects almost every facet of our modern civilized existence? That's the question Dave Duffy, publisher of *BHM*, posed to me, and here are my answers.

Water is essential

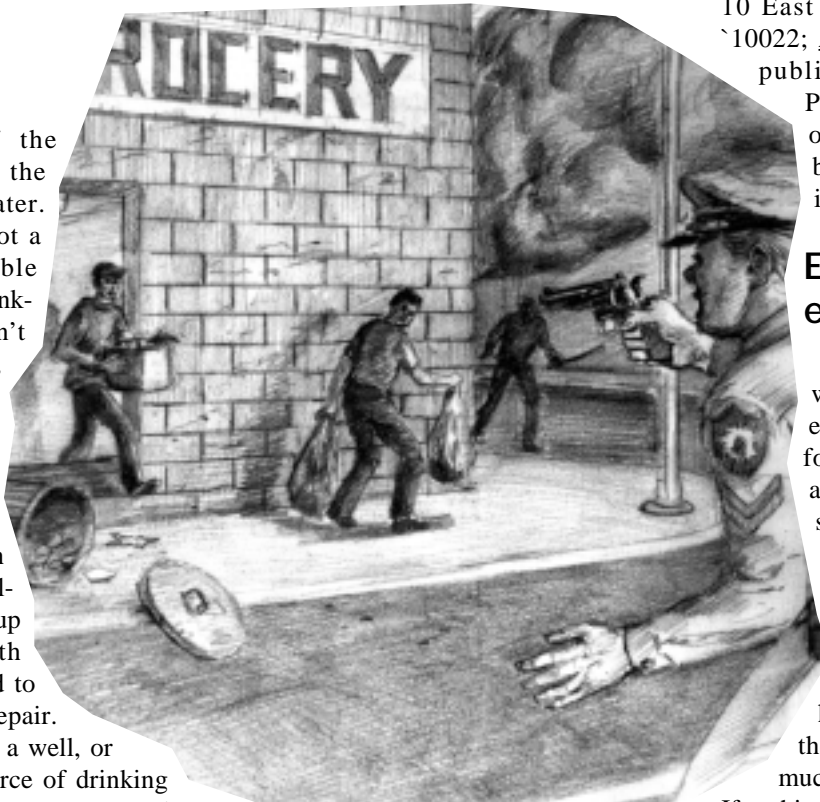
Take care of the basics first, and the most basic is water. Unless you've got a steady and reliable source of safe drinking water, you don't have anything, and any other preparations won't really help you much.

If you have a well, make certain you have a manually operated back-up pump, along with everything needed to keep it in good repair. If you don't have a well, or other reliable source of drinking water, drill one, or move to where you will have one.

Critical medicines

Next, have a serious talk with your family doctor (who is just as likely as anyone else to have his or her own worries about these matters) regarding any health concerns you might have, especially if any member of your family is on any sort of long-term maintenance prescription, like heart or

blood-pressure medication, insulin, etc. Physicians are able to order prescription medicines in bulk, at prices way lower than you could obtain them, and can locate suitable prescription drugs with long shelf lives. Besides, in talking seriously with your family's doctor, you may find your-



self making a very useful ally should your worries ever actually come to pass.

It's also always a good idea to lay up a supply of veterinary antibiotics and medications, mainly in powdered, pill, and paste form, with nothing that requires refrigeration. Also store some suture materials, needles, and so forth. These are produced to the same standards, and by the same companies, as the medicines you'll find in the drug store, and they can be pur-

chased over the counter at substantial savings at nearly any farm supply store.

Include a few good medical guidebooks in with your first-aid and "emergency" supplies. Suggested titles: *Where There Is No Doctor* and *Where There Is No Dentist*, both available from The Hesperian Foundation, P.O. Box 1692, Palo Alto, CA 94302); *The Special Forces Medical Handbook*, occasionally found at military surplus type stores; *The Essential Guide To Prescription Drugs*, published by Harper Collins, 10 East 53rd St., New York, NY 10022; *A Physician In The House*, published in 1963 by Stein Publishing House. This last one's probably out of print, but it is worth searching for in used book stores.

Extra eyeglasses

Next, most folks would do well to consider things like eyeglasses. If you've already found yourself requiring the aid of spectacles, obtaining several spare pair would seem to be an excellent idea. As would saving all of your old glasses should your prescription change, because should anything happen to your newer lenses, these would allow you to see much better than nothing at all. If nothing else, nearly every one of us will find our eyesight dimming a bit as we grow older, and putting by a few sets of relatively inexpensive non-prescription "reading" glasses can ensure that at least you'll be able to see well enough for close work.

A good rifle

The next thing that I personally feel would belong on the "must have" list of anyone seriously contemplating

surviving a total societal breakdown would be an accurate long-range center fire rifle, equipped with a really good quality fixed power scope, of at least 4X magnification. Also include a good supply of factory made ammunition, along with reloading dies, bullet molds, primers, powder, and so forth for producing more. Most folks would probably be best served in this regard by selecting one of the better military surplus sniper grade bolt action rifles. While it's become rare to find one of the American Enfields or Springfields surviving in their sniper variants in shootable condition, it usually isn't too difficult to locate one of the British SMLE T (T indicates their sniper grade) rifles, or one of the better Mauser models, in exceptionally fine condition.

For my own long distance shooting, I selected a 6.5X55 mm Swedish '96 Mauser, made by Carl Gustaf, as these are renowned for their long-range excellence. This is a long and heavy rifle, and it really isn't much fun to tote around. But with it I've found it's possible to reliably take coyotes and woodchucks at one-half mile ranges. When firing heavier bullets, this same rifle can just as reliably dispatch a large bull or similar sized animal at the same range. I understand that Swedish snipers knew these rifles were effective against soldiers at distances slightly over a mile.

Adequate food supply

Look to your food supply. Though I'm actually a Baptist, I've always admired the Mormon practice of keeping a year's supply of basic foodstuffs in reserve, and our family has always tried to follow this rule.

But you can all too easily run into problems here. A number of self-styled "experts" recommend storing things like flour or whole wheat kernels, powdered milk, sugar, and such in those air-tight five-gallon plastic buckets. We found out a long time ago that this is a pretty foolish idea. Just

try storing such edibles in similar containers, then going away on vacation for several weeks, and see how your "reserves" look on your return. We had chipmunks move in over the summer we were away, and that was the end of plastic storage containers for us. Any other sort of squirrel or rodent is equally certain to chew right through such flimsy storage containers.

Since that time we've relied solely on either metal containers (empty five-gallon lard cans, small metal garbage cans lined with heavy plastic bags, and so forth), or glass jars (such as those one and two-gallon pickle jars which are often available pretty cheaply at Delis and restaurants).

I'm sure that you'll find "experts" recommending nitrogen or carbon-dioxide (dry ice) to further protect your stored foods as well. Yet we've also found this to be unnecessary advice. Instead we've relied on the same method that our parents and grandparents always employed, which is to scatter a few dried bay leaves throughout the flour, sugar, or whatever, to both repel insect type pests and to help preserve freshness. A standard 1 3/8-ounce grocery store package has always been plenty when used to preserve a five-gallon container of flour. The only drawback that we've ever encountered in years of relying on this method is that after about five years or so, the flavor from the bay leaves will have permeated the foodstuff. It's still perfectly safe to eat, but you'll quickly find that you'll prefer making something like spice cake from your flour, rather than plain bread or biscuits.

Open-pollinated seeds

As far as I can see, there are still just a few more steps needed to ensure an uninterrupted food supply. The first would be to obtain a plentiful supply (two years worth) of open-pollinated garden seeds (if society "crashes," those hybrid varieties are gone for keeps.), leaning heavily to nutritious

foods like corn and beans, and prolific producers such as most squash varieties.

As for corn, we've grown to rely mostly on Native Seeds/SEARCH, 2509 N. Campbells Ave. #325, Tucson, AZ, 85719. Not only because they've proven to yield nearly as well in seasons of bad weather as during good years, but also because they can be ground to a fine flour-like consistency, rather than only into coarse meal.

As far as that goes, our hand-cranked "Coruna" steel burr grain mill is much handier than trying to rub the kernels between a couple of rocks. So most folks who don't already own something similar might find this to be a terrific investment as well.

In many cases raising smaller livestock, such as rabbits or poultry, can provide a plentiful meat supply. There are a lot of instances though where this can present more of an open invitation to thievery and predations than most folks could want. So you'll need to consider this pretty carefully.

Some fish hooks

You'll definitely want to stockpile a nice supply of fish hooks, line, and so forth. You'd probably do best to forget about using sport fishing methods as a means of adding to your diet. However, trotlines, set-lines, and such (which I've covered in *BHM* issue No. 40) can bring some real additions to your larder.

Fuel, saws, engines

With these things covered, most folks can sort of slow down a little and look at things like fuel (for heat, light, etc.), tools, transportation, clothing, and, where needed, defensive type firearms.

For a lot of us, wood is already our primary heating fuel, and it can be just as readily put to use for cooking purposes. But I've yet to find a two-cycle chainsaw engine that could hold

together for very long when using alcohol as a fuel, so what happens when your gasoline is gone? So you should consider acquiring an “old timey” one or two-man crosscut saw, and some regular axes. In addition, many other sorts of solid fuel have long been routinely utilized in areas where wood was scarce, including corncobs which really work great in wood-burning cookstoves.

Also, with only minor carburetor tinkering, nearly all four-cycle gasoline engines will run better on alcohol, including regular applejack whiskey. So things like pick-up trucks and rototillers could be kept running for years after the gas stations close. Parts and motor-oil might be a different story however, so you may want to put by a few cases of oil, as well as spare parts like belts, hoses, tires (even used tires), and so forth.

For many different uses, methane gas is a readily home-produced fuel as well, and *BHM* already plans on printing an article on its manufacture so you won't want to miss that. In fact, your collection of *BHM* back-issues might just be your best insurance against any long or short-term catastrophe.

Sewing supplies

Also, in addition to whatever hand tools (saws, hammers, wrenches, shovels, hoes, etc.) you feel might be required to keep your home and equipment running, it's important not to overlook sewing supplies. You know, even without any electricity, the ancient treadle powered “Singer” sewing machine used by my wife and daughters always works flawlessly. Any similar type of machine would make a terrific addition to any household.

Bikes, burros, clothes

Except in extreme cases, where longer distance travel becomes necessary, I'd shy away from most auto-

motive use. Bicycles are one really efficient means of human transportation and their care and upkeep is much simpler than car repairs. Also, their spare parts are more readily stockpiled than truck parts, and used bikes are generally very inexpensive to purchase.

If you've got enough room, and are equipped to care for them, there are a lot of instances where animals, such as burros, ponies, or horses, could also offer tremendous benefits. In addition to saddle uses, these creatures can be relied on to carry equipment, pull plows, discs, carts, and so forth. They also provide manure (both for fuel and fertilizer) and even serve sentry duty.

When it comes to clothing, there sure is an awful lot of quality used stuff on the shelves of most Salvation Army type stores. It probably is possible for just about anyone to obtain a lifetime supply of clothing, bedding, and so forth with very little cash outlay. Remember though that *BHM* regularly publishes articles on everything from making your own wooden-soled shoes and boots to raising and using your own wool. So I really don't feel this to be an issue most subscribers need to spend much time worrying over.

Defensive guns

Once someone has already obtained the long range rifle mentioned earlier, and practiced enough to become proficient in its use, I've always felt that the next thing to look into is a good quality large caliber revolver. Sure, any long gun easily beats any hand gun in performance, but you have to think to remember to carry along your rifle or shotgun, while once your handgun is securely strapped into your holster you can pretty well forget about it until you need it. And remember, whether you're dealing with starving feral dogs, armed mauraders, or whatever else, nothing is dangerous until it's close enough to hurt you.

Should your own circumstances dictate a higher level of defensive capability, it would probably be best to look towards one of the American made pump shotguns next. As I mentioned in an earlier article, there are very good reasons why most police officers reach first for their pump 12 bores when knowingly walking into dangerous situations.

There are situations, especially confrontations with several starving feral dogs, which would undoubtedly become more common after a collapse, where some sort of quick handling, rapid fire rifle is almost a must-have. Unfortunately, I have been forced to become something of an expert in this particular area, and I've found that there really aren't all that many rifles I'd be willing to bet my life on. I wouldn't plan on using anything at all other than the shorter military semi-autos, such as the SKS and the M1 carbines, or one of the tried and true lever guns made by firms like Winchester, Marlin, and Rossi, chambered for pistol caliber rounds. If I could possess only one such rifle though, I'd lean pretty strongly to the lever-action rifle, firing the same shells as my revolver. This has been a proven combination for more than a century.

Of course anyone opting to include any firearms with their gear also needs to obtain a supply of factory ammo and sufficient reloading equipment and supplies for each gauge or caliber of gun.

Now, with all of this already said, let me add one final thought: Like a whole lot of *BHM*'s other readers and contributors, our family long ago reached a degree of self-sufficiency where we don't actually need the products of the society around us. So whether or not the millennium bug, our out-of-control federal government, or anything else destroys civilization as we know it, I'm going out to work in my garden now, and after only a little preparation, it might not be such a bad idea for you to do likewise. Δ

Roll your own NEWSPAPER logs



By Robert L. Williams

Most families subscribe to at least one newspaper, and some of us receive two or more papers daily. These papers, which as a rule hold far more advertising than news, accumulate with great speed into an astonishing stack.

What do we do with these old papers? Generally, we wrap garbage in some of them, and the rest we haul off to the landfill. Years ago there were paper drives, and we could donate the old papers to a worthwhile cause. Or we could sell them. But the market ended some time ago, and for the most part the papers are nothing but a pain in the neck now. Their best use is for wrapping garbage.

Or for heating your house!

No joke: you can use old newspapers to heat your entire house, or, for a better solution, mix the old papers with logs and you get more heat and more burning time from the logs.

You have probably in the past seen ads selling machines that will roll your old papers into logs, and then you soak the logs in a fluid that will cause the rolled-up papers to stick together when you burn them.

But you can forget about the equipment. All you need is some old wire and a stack of papers.

Start by locating the wire. We use old electrical wire with the insulation stripped off. You can use baling wire,

if you have it handy, or strands from an old cable. It truly does not matter, as long as the wire is not something that will burn. You will not want to use string, for instance, or cords, or plastic ties, although some of the plastic ties have wire inside them.

Begin work by laying newspapers, one section at a time, on a work surface. You can do it on the floor, on a table, in the yard, or wherever else you have a usable surface. You can even do it on your lap, if you prefer.

One easy and painless way to make the logs is to haul a stack of papers to the den and then turn on the ball game or whatever show you like to watch. Your hands can do the log rolling while your eyes are on the television screen. I like to roll the logs while I listen to some of my CD collection.

Lay one section out and start at the end and begin rolling. Keep the roll as tight as you can as you work your way to the other end. Roll from the short side of the newspaper. If you roll the long way the logs are too long for most stoves.

When the first section is rolled, hold it tight with one hand and lay another section of the paper out with the other. Lay the small roll at the end of the first section and curl the flat section around the first roll. Now roll the section the rest of the way.

When you have finished, do the same thing with another section of the paper. Remember to keep the roll as tight as you can. The tighter you roll

the paper logs, the longer the logs will burn. The idea is to make the paper log as much like a real log as possible.

Keep in mind that the denser the wood, the longer it will burn and the greater heat it will produce. For this reason, pine will burn with a higher flame, last only a short time, and give off little heat, comparatively. On the other hand, an oak log will burn with a low flame, give off immense heat, and last a great deal longer than the pine log.

So try to roll oak logs rather than pine ones. After all, what is paper? Much if not most of it is a wood prod-



Keep adding more sections of paper and roll as tightly as you can as the log gets larger and larger.

uct, and you are simply restoring the paper to its original log form. Or you are coming as close to that goal as you can.

When you have the log the right size, hold it compressed tightly together and wrap a length of wire around one end at a point about three inches from the actual end of the paper log. Twist the wire until you have it snugged against the paper log. Then do the same thing at the other end.

When you have finished, use pliers to turn the wire twist a little tighter until the wire bites into the log. Now the log is ready to burn.

You should make logs of varying sizes. The largest logs you roll should be about a thickness that you can reach around with both hands. The smallest should be a size you can reach around with your thumb and middle finger.

The idea of the different sizes is to accommodate you as you stoke the fire at night. The best way we have found to do this is to use an oak or hickory log about six inches in diameter first. Lay this log in the center of the bed of coals. Then lay a paper log (each one of them about four inches in diameter) on either side of the middle log.

Then lay a row of paper logs across the bottom three logs. Finish off the stoking with smaller real logs on top of all the others.

When you get up in the morning, if the fire has burned down to only a few coals, lay some of the two-inch diameter paper logs on the coals and open the dampers about half-way. Then lay real logs of about a four-inch diameter on top of the paper logs.

How long will paper logs burn?

You won't believe the answer. At 3:30 p.m. I placed one paper log into the wood stove. I also put in a bundle of cornstalks and a bundle of twigs. Then I lit the cornstalks and opened the dampers enough so that the paper log would have plenty of air.

At 11 p.m. that night when I went to bed, the stove was still giving off plenty of heat. Next morning the log was nearly burned away, but there was still heat coming from the stove. That's about 16 hours of heat from one paper log and the smaller bundles.

Granted, the heat would not have been enough to warm an entire house, but if I had put in two chunks of oak firewood and another of the paper logs, we could have had plenty of heat all night in the entire house.

By the way, the temperature dropped to 20 degrees that next morning, and the basement was still warm and cozy.

Some "experts" (if there are such creatures involved with rolling paper logs) insist that you should not use the colored or slick advertisement sections of the paper. Others say that it is all right to burn the entire paper.

Personally, I'm like the late Billy Martin in the beer commercial when he says, "I feel very strongly both ways."

Actually, we do not use the slick sections. But we use all the rest of the paper—at least the black-and-white part.

We have been burning paper logs for many years now, and we have found no real disadvantages to doing so. In fact, we find that most papers are worth far more as fuel than as news.

One interesting note: the papers burn with a yellow flame. Is this a hint that there is a lot of yellow journalism in the papers? Δ

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One Last Thought:

An Essay in Self-Reliance

By Robert L. Williams

This article is the first of a long series (or, depending upon your reaction, the last in a very short series) of articles dealing with some of the finest thoughts from some of the finest thinkers in the history of this country, with an occasional foray abroad.

But lest you question whether there is a place for a batch of intellectual mishmash in a magazine whose readers are dedicated to the idea of backwoods living, keep in mind that the greatest of all the backwoods people in American history—the Mountain Men—often were voracious readers.

Yes, these toughest of all Americans, these men who faced the fiercest storms of nature and human nature, who fought a wilderness in order to live free and independent, liked to sit around a campfire in the middle of a forest filled with wild animals and at times even wilder human beings—and read Shakespeare. The man whom many people regard as the most stalwart of that band, Jim Bridger, found Shakespeare to be one of the most fascinating men he ever encountered, in reality or through his dramas.

Said another way, there is a great deal to be learned from the intellectuals, brain-strainers, professors, and philosophers. Not only is there much that can be learned, there is a great deal that should or even must be learned.

When Dave Duffy and I began our discussion of this proposed series of articles, we agreed immediately on

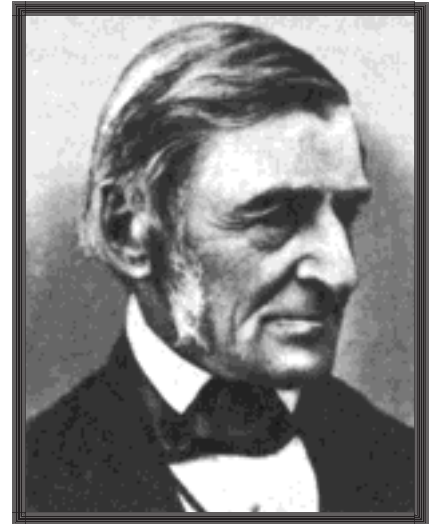
one idea: many of our fellow Americans have managed to pass their school work, but they are failing Life. Why? In many cases, the reason is that so many people have thoroughly educated one part or several parts of their minds and bodies and have totally neglected other areas.

That's where Ralph Waldo Emerson comes in. Yes, this is the same Emerson you hated in high school or in college, the old man who lived from 1803 until 1882 and managed to bore the daylights out of nearly everyone who was forced to read his rambling and interminable essays or confusing poetry.

Yet, as Emerson's friend Henry David Thoreau once observed, it is not all books that are as dull as their readers. So Dave and I thought you might find a new look at an old thinker to be worth a few minutes of your time. You might even find that the old boy had a great deal to say to the modern world.

"Whoso would be a man must be a nonconformist," Emerson wrote in his famous essay "Self-Reliance." But what did he mean by this? That we should adopt a rebellious attitude toward society, sort of like the love beads, the sandals, the long hair, and the "make-love-not war" attitude of the Hippies, who hated uniforms of any types and never realized that their own attire was as distinctive a uniform as any a policeman or military man ever wore?

No! Emerson never had any such idea in his life. Perhaps what he really means is that a real man (or real woman, of which there are millions and millions) does not set out to be



Ralph Waldo Emerson

different in order to be a real man or woman. He is different, because he or she is a real man or real woman who flatly will not allow others to dictate a life-style or philosophy to them and who will not latch onto the newest buzzword or slogan or attitude. These real people are too busy being themselves to notice or care—what others are doing.

Emerson made this point over and over. "There is a time in every man's education," Emerson wrote, "when he arrives at the conviction that envy is ignorance; that imitation is suicide...; that no kernel of nourishing good can come to him but through his toil bestowed on that plot of ground that is given him to till."

Why is imitation suicide? Because when you give your thought and action to being like another, you have surrendered your own identity, you have killed your individuality, you have slain those qualities that made you a distinctive and important person. This does not mean that you cannot adopt anything from another. Most assuredly, if you find a better outlook, a better way of doing your tasks or thinking your thoughts, by all means make these a part of your life. There is no reason for each of us to re-invent the wheel each time we want to make a cart.

Or, to paraphrase Emerson, build a better mousetrap and the world will beat a path to your door. Find a quicker, cheaper, and easier way to handle your daily chores, and you will have more time to devote to that Better Mousetrap.

But if Emerson is right, how can we justify his thinking to the hordes of undeserving welfare recipients? For starters, Ralph Waldo Emerson intelligently inserted the key words “nourishing good” in the center of his idea. Those who exist through their leeching off others never receive that kernel of nourishing good, which can come to most real men and women when they realize that they have done a job, formulated a thought, and achieved a standard through their own intellect, energy, and skills.

Or, as Emerson wrote, “A man is relieved and gay (Please! Do not read Emerson’s word in the modern distorted definition) when he has put his heart into his work and done his best...” Most of us would agree that it can be exhilarating to know that we have reached our highest level of achievement and that our work holds up under the most critical scrutiny.

Still don’t like Emerson’s writing? Not to worry. Emerson, in fact, would applaud you. As he said himself, the highest merit to great men (and women!) is that “they set at naught books and traditions. They spoke not what men thought but what they thought.”

Or, put another way, (and this is an Emerson quote also), “I hate quotations. Tell me what **you** know.” Or what you **know**. There is a difference in how we read the idea.

Be your own man, or woman, or child, or three-toed sloth. Be courageous, he says. Think your own thoughts, not the thoughts of others. But he said it much better.

“Nothing is at last sacred but the integrity of your own mind,” Emerson wrote. And he added, “No law can be sacred to me but that of my nature.” Note that he did not say he refused to

obey any law except his own: Emerson was not an anarchist. He simply said that the law would not be sacred to him.

Ever grow tired of yes-men and people who admire them? Ever wonder it appears that no one can ever be sincere for more than a few seconds at a time? Do you wonder why keeping up with the Jones boys and girls is so all-fired important?

**“Nothing is at last
sacred but the integrity
of your own mind,
No law can be sacred
to me but that
of my nature.”**

He expanded the idea greatly. He wrote, “Society everywhere is in conspiracy against the manhood of every one of its members. Society is a joint-stock company, in which the members agree...to surrender...liberty and culture...The virtue most request is conformity.”

Later he added, “For nonconformity the world whips you with its displeasure.” He argues that the truly great person is he who can in the midst of a crowd keep with perfect sweetness his or her independence. The great person need not hold a high office or have millions in his bank account: he must simply own his own life and, as much as fate will permit, be in charge of it. He or she is the person who does not become a member of the flock or the rodent in the maze that will do whatever the whims of the maze owner will dictate.

“A foolish consistency,” Emerson wrote (and notice that he does not condemn all consistency, such as driving on the same side of the road as others or using respectable language and acting in a decent and proper manner: he stresses the foolish consis-

tency) is the hobgoblin of little minds, adored by little statesmen and philosopher and divines.” He appends the notion that a great soul has simply nothing to do with consistency.

He urges us to be real, to be strong, to be dedicated, and to be ethical and self-respecting.

“Speak what you think in hard words,” he says, “and tomorrow speak what tomorrow thinks in hard words, though it contradict everything you said today. Ah, so you shall be sure to be mis-understood. Is it so bad, then, to be misunderstood? Pythagoras was misunderstood, and Socrates, and Jesus, and Luther, and Copernicus, and Galileo, and Newton, and every pure and wise spirit that ever took flesh. To be great is to be misunderstood.”

And when you told your family, friends, and associates that you wanted to return to the earth, to live in the backwoods, to live freely and independently, to be your own master and to enjoy perfect freedom from all unreasonable restrictions, they were horrified, weren’t they? Or amused at your naivete. Or impatient with another of your silly notions? Or did they merely think that you were finally losing your tenuous grip on sanity?

How many of them really supported you? If you are lucky, you had a dozen or so who thought that celebrating your own life style and value system was an admirable goal. You were likely told in so many words that your decision contradicted all that you had stood for during the past years.

Your answer? Tell them what Whitman said: “Do I contradict myself? Very well, then. I contradict myself. I am large. I contain multitudes. Or tell them what Emerson strongly implied: that any human being who doesn’t contradict himself at one time or another is either a perfect person who has all the answers, or that person has not had a sincere thought or new insight since you’ve known him. Intelligent contradiction of oneself is a sign of mental growth;

refusal to change suggests mental torpidity.

Or give them a direct quote from Emerson: "What I must do is all that concern me, not what the people think." Or, "My life is for itself and not for spectacle."

You will be told (or already have been) that your past life has not equipped you for the challenges of living in a new type of world, that you are a product of an urban culture and that you simply do not know enough about backwoods living to make it work.

I encountered the same attitudes when I took up beekeeping. I was told that I knew nothing about making honey. I replied that I did not need to know how to make honey, that I had employed thousands and thousands of experts in the business.

Emerson said it slightly differently, concerning the topic of being competent to take on a new life. "Insist on yourself," he said. "Never imitate."

In another context he wrote, "Where is the master who could have taught Shakespeare? Where is the master who could have instructed Franklin, or Washington, or Bacon, or Newton?"

In another work Emerson advanced a similar idea: "Meek young men grow up in libraries, believing it their duty to accept the views which Cicero, which Locke, which Bacon have given, forgetful that Cicero, Locke, and Bacon were only young men in libraries when they wrote these books."

The totality of the problem, as Emerson saw it, is that we are, as Dave Duffy and I agree, failing in life. "Instead of man thinking, we have the bookworm," Emerson wrote. He adds in yet another context that we have, in essence, produced a perfect finger, or eye, or ear, or elbow, but we have never produced the whole man. We have become specialists: in medicine it is too much to be a doctor who treats the entire body; we must have specialists who treat not the entire nose but only the left nostril; the new-

age mechanic can adjust a carburetor only, and the lawn man can mow only the northeast-southwest direction of our lawns.

Emerson says, "The priest becomes a form; the attorney, a statue book; the mechanic, a machine; the sailor, a rope of a ship." The rural dweller, he says, "sinks into the farmer, instead of Man on the farm."

He reminds us, painfully, that we have devised crutches but have failed to develop our muscles; we have fine watches but can no longer tell time by the sun; our notebooks impair memories; libraries overload our wit.

If he were living today, Emerson would likely agree that we have fantastic computers, the Internet, and technology that has eclipsed the growth of the past.

But we have, in far too many instances, forgotten, if we ever knew, how to solve a few simple problems. Our children who complete high school cannot fill out work applications or make change for a ten-dollar bill. We can't replace spark plugs or figure out how to construct a simple building.

Returning to the backwoods can be one of the great stepping stones to a new realization of our powers. Such a lifestyle reminds us that instant gratification is a poor substitute for slow and thorough growth. Backwoods living can (and I know it is not the only place this can happen) train us again or for the first time to see better, hear better, understand more completely, realize the fundamental truths in Nature and in human nature.

A young woman who had been married three weeks told me and my wife that something was wrong. "We don't have the relationship you two have," she told us. "It's not working."

We reminded her that we had devoted decades to each other and that she had no real reason to think she could reach our level in weeks. A teacher near us was visited by a parent who demanded that his son receive a full year's education in six weeks. The

teacher pointed out an enormous oak tree. "It took God 200 years to make that tree," he said. "He can make a squash in six weeks."

Simple living (Emerson and Wordsworth saw it as Plain Living and High Thinking) teaches us to work slowly toward great results. Kids approach me weekly and ask why they must study the past. I remind them that the only thing we can study is the past. They want me to teach them to read with speed and comprehension in a matter of hours. I tell them that reading requires physical training, just as football, baseball, and basketball do. I tell them that it is a life-long training process. They go away angry because I won't or can't help them. Other parents have told us repeatedly how lucky we have been to have such a terrific son.

Our neighbor once told such a commentator that luck had nothing to do with it. Being parents, in the highest sense of the word, had more to do with it.

We gauge our successes in terms of our backwoods life. We make no apologies and offer no explanations. Emerson speaks for us. Δ

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Go to:

www.backwoodshome.com

You can view the foregoing article, along with more than a hundred others from past issues of the magazine.

THE REAL DISASTER IN OUR FUTURE (PAGE 7)

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Home magazine

practical ideas for self reliant living

Plant a

Y2K

Garden

Chocolate-food of the Gods
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Self-reliant refrigeration
Ash-heated greenhouse
Open-pollinated seeds

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Publisher's Note

Forget a run on the banks,
we've had a run on BHM

Our last issue, the special "DOOM AND GLOOM" issue, sold out as soon as it hit the newsstands. It's the first time that has happened to this magazine. Luckily, I had anticipated it would be a popular issue so had a few thousand extra copies printed, enabling us to satisfy the requests of a barrage of phone callers, some of whom ordered 20 and 30 copies at a time—for friends and coworkers. We still have copies left if you missed it, and you can read some of the articles online at our web site: www.backwoodshome.com.

This issue we have no asteroid on the cover and no "DOOM AND GLOOM" banner, but we do have the letters, Y2K, big as doom to alert readers that our attempt to help you get ready for any future catastrophe is continuing. I've also ordered extra copies of this issue.

Which brings up a good point: How serious is the Y2K computer problem going to be? My answer may surprise many: Not very! Now that probably sounds like a blasphemous answer to a lot of Y2K vendors making a whole lot of money off the Y2K scare, and to a lot of people who just enjoy getting themselves all worked up about every doomsday train that rumbles into town. But it is my honest assessment after digesting all the literature and web sites.

There'll be some problems, sure, but the gears of American commerce will not grind to a halt, nor will supermarkets run out of food, nor gas stations out of gas. There may be some discomfort in the inner cities because people may not get their government checks for a few days, and the stock market may take a temporary hit because a lot of investors may pull their money out as a precaution, but that's about it.

The best part about all of this Y2K stuff is that people have stopped talking about the New World Order conspiracy, which is another phantom bogeyman. Not only do I think the Y2K problem is overblown, but it is diverting needed attention away from real problems, such as the potential worldwide economic collapse, the diminished state of our freedom in this country, or the imminent collapse of social security which is the subject of this issue's editorial. Next issue, John Silveira and O.E. MacDougal will try to put a lot of these disasters in perspective when they team up to discuss the odds of various catastrophes occurring.

www.backwoodshome.com

The traffic at our Internet web site is increasing rapidly. Based on last month's visits we are averaging between a

quarter and half million visitors a year. The Internet is very important for the future of this country. It is equalizing all playing fields, allowing good ideas to compete on an equal footing with bad ideas, no matter how well funded those bad ideas are. The old guard media is rapidly losing

its ability to control the news they make available to people, and publications like *Backwoods Home Magazine* are gaining a strong foothold because, thanks to the Internet, we all have a downtown store now, readily accessible to anyone. News control, such as has been practiced by the major media for years now, is becoming a thing of the past.

If you do not have an Internet connection now, make an effort to get one. New satellite phone technology will soon remove all barriers to Internet access. That is great news, because I firmly believe that the Internet will play a major role in restoring America's freedoms.

The book store

We've opened a small book store next to our main office in downtown Gold Beach, Oregon. It's at the southern tip of town, located at 29284 Ellensburg Avenue in Ireland's Plaza. We opened it simply to help defray the cost of renting the space as a storage locker for the many books we sell, and we'll open it to the public only on weekends for now, since that's the main time people get a chance to visit this area. If you're in the area please drop by and say hello. We'll even pour you a cup of coffee. If you're lucky you'll get a chance to talk politics and history with John Silveira and O. E. MacDougal, who like to hang out there. Silveira says he'll also autograph his book of poetry in person for all the pretty ladies who come by.

This is also a great little coastal town to visit. The forest creeps right down to the Pacific, squeezing Gold Beach against the ocean. The fishing, clamming, and crabbing are great, and there is plenty of spectacular rocky shoreline to explore. There are also lots of good, but inexpensive, motels to stay at, not to mention numerous campsites. Thirty miles to the south are the redwoods and not too far to the north is the largest land seal rookery in the United States. I should work for the Chamber of Commerce here. Δ



Dave Duffy

My view

The real disaster in our future

With all the talk about the various disasters looming in our future, I thought it would be a sensible idea to focus on a future disaster that is guaranteed, namely the impending collapse of the social security system and the severe consequences that collapse will have for America. All studies agree that this economic calamity will begin engulfing America about the year 2012, when my generation—the 76 million post World War II baby boomers—begin to collect social security. It has been called an economic time bomb that will spark a Generational War between workers and the retired and ultimately bring down the American economy and political system.

Although politicians of all stripes have agreed for years that something must be done, *and done now*, social security is known as the “third rail” of American politics, namely, touch it and you’ll suffer political death. So our politicians, of course, have done nothing.

Here’s the problem: Since its deceitful introduction as some sort of insurance plan in 1935, Americans have been led to believe that if they put social security taxes into the social security trust fund, they will get social security payments when they retire. Most politicians now admit that there is, in fact, no such trust fund, that the money paid into social security by workers today is immediately paid out to today’s social security recipients. What money is left over goes into the government’s general fund to pay other bills. The social security trust fund contains nothing but government IOUs called “special treasury notes.”

This government fraud worked fine as long as the number of workers kept growing, much like a pyramid scheme works fine as long as you keep getting a fresh supply of suckers. Unfortunately, the number of American workers has been shrinking relative to the number of social security recipients, due mainly to a declining birth rate and an increasing life expectancy. In 1935, for example, there were 40 workers paying into the social security system for every 1 retiree receiving benefits, but that ratio had shrunk to 16 to 1 by 1950, and today it is just over 3 to 1. It will shrink to about 2 to 1 when I retire. To help prop up this pyramid scheme, our politicians have increased social security taxes 17 times, from an original 2% to today’s 15.3% (including both employee and employer contributions).

Today more money is being paid into the social security system than has to be paid out to current social security recipients. But that will change in the year 2012 (sooner if we have a severe economic downturn) when baby boomers begin to retire. Then the government will begin paying out more than it collects. Since there is no money in the trust fund, the solution will be to 1) increase taxes again (to

about 40%), 2) cut benefits and/or raise the retirement age, 3) cut government spending.

We know from past performance that the government is unlikely to cut spending, so a combination of the first two seems likely. Workers will get taxed to death and the retired will get less and less, creating a disgruntled work force and a huge retirement population slipping into poverty.

That’s the best outcome. A more likely one, however, will be that neither workers nor retirees will stand for it. Workers will not accept paying huge taxes to support “their” retired person (2 to 1 ratio by then) with money they could be using for their own families, especially when it will be obvious by then that they themselves will get nothing from social security when they retire. The retired, on the other hand, will not accept being thrust into old age poverty. They’ll think they are owed something, and since they’ll control the vote due to their large numbers, they’ll try to force workers to pay. It’s easy to imagine destitute retirement ghettos, the emergence of a dominant underground economy, and the ultimate failure of our political system.

Here’s the solution: There *is* a solution if it is taken now. It is to privatize social security, that is, allow people to invest in the private sector the money they now are forced to pay into social security. Chile and Great Britain have already done it, we have studied them to death, and anyone who knows anything about economics agrees we should follow in their footsteps *now*, before it too late.

Chile privatized their system in 1981, and to date 95% of Chilean workers have joined it. The results have been astounding. The average Chilean worker now retires at an average of 80% of the salary he earned during his last 10 years working, which is nearly double the percentage available in the U.S. social security system. And the huge cash reserves in the fully-funded pension system fuel phenomenal business and job creation, making Chile the soundest economy in South America. Great Britain is on a similar track, with their private pension funds already worth more than all the other pension funds in Europe combined. While the rest of Europe sinks deeper into debt and doubtful futures, England is paying off her debt, and retirees—at least those 75% of Britons in the private system—can look forward to a fully-funded pension.

So why won’t politicians privatize our social security system in the face of the irrefutable evidence that it is a doomed system that will lead to disaster? That’s easy: Privatization requires guts and honesty. What can those of you counting on social security do to protect yourself against winding up destitute in retirement? Open your own Individual Retirement Account (IRA) or something similar *now*, then vote those bastards out of office.

For more information on this real disaster in our future, go to these Internet Web sites: socialsecurity.org, economicsecurity2000.org, pensionreform.org, unitedseniors.org, and heritage.org/library/categories/forpol/bg1133. Δ

Grow open-pollinated seeds for self-reliant gardening

By Jackie Clay

In the past I've grown hybrid vegetables, mostly the varieties that have been developed to produce early yields. Because of this, I was able to grow things like sweet corn in northern climates. However, from a practical point of view I am dead set against them if you intend to incorporate them into a "self-reliant" gardening plan.

While these hybrids can taste good, I've found that most have been developed for commercial traits such as ease of shipping, holding saleable color and flavor for long periods, and for ensuring the simultaneous ripening of entire fields of a vegetable to facilitate mechanical harvesting.

The one big negative is that hybrid seeds do not produce true reproductions of the mother plants. This makes buying new seed every year a necessary, expensive, and for someone who wants to become self-reliant, a dangerous practice.

Monsanto has gone one step further in developing the "Terminator Gene" in field crops, which renders the seed produced in a farmer's field sterile.

So, what happens if something unforeseen happens and we cannot afford to buy seed, or seeds just are not available when they are direly needed? The last year I grew hybrids—for market gardening—my seed bill ran over 150 dollars for three acres.

As a hard-core gardener, I believe in not only storing up at least a year's supply of food in the

pantry, but growing and saving open-pollinated seeds for future planting. This allows me to be in control of our garden.

Open-pollinated veggies

There are several common complaints about open-pollinated vegetables. The first is that they don't taste as good as hybrids. This is just plain wrong. For the last five years my family has been gathering and growing traditional, heritage varieties, largely from the Native American tribes of the U.S. and Mexico. With our family's Indian roots, we initially did this out of curiosity, but we

tasting produce. Our ancestors had cultivated these vegetables for generations for exactly that reason. But, besides taste, most have had other benefits such as productivity, tenderness, winter storage, and hardiness.

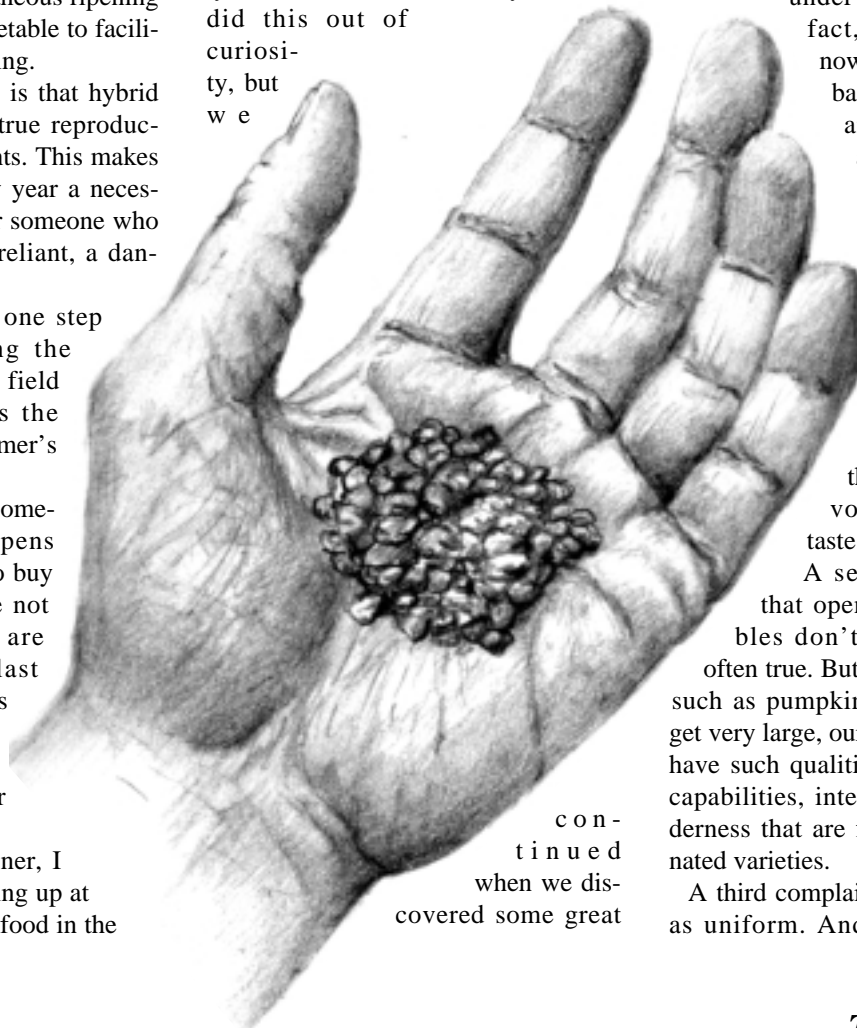
Take my Hopi Pale Grey squash as an example. Five hills of squash produced two wheelbarrows heaped full of squash that are sweet and fruity tasting. They are much better than the plain-old hubbard or butternut squash. They are not stringy, but moist and tender. And they last in storage for better than a year.

By storage, I mean minimal care, under-the-bed storage. In fact, I have three right now under our clawfoot bathtub that are a year and four months old and will taste great when we get around to eating them.

On the other hand, where some hybrids excel in sweetness and lasting ability in the fridge, they've lost such flavor traits as "corny" taste and tenderness.

A second complaint is that open-pollinated vegetables don't grow big. This is often true. But while some hybrids, such as pumpkins and tomatoes, do get very large, our family would rather have such qualities as winter storage capabilities, intense flavor, and tenderness that are found in open pollinated varieties.

A third complaint is that they aren't as uniform. And this is absolutely



continued
when we discovered some great



David, 8, samples some True Gold open-pollinated early sweet corn.

true. Open pollinated varieties are not uniform. But as a home gardener, I don't necessarily want all my broccoli to mature at once and I don't need all my squash to be exactly the same size and shape. In fact, one of the delights of growing Native American squash is that they are different, often one from it's brother on the vine, lending beauty to the oft-drab squash patch.

Saving seeds

Anyone can save their own garden seeds. Saving seeds takes very little effort and costs nothing after the first seeds are purchased. And you cannot only save your own seeds, you can pass them on to friends, relatives, and those in need.

The gift of food-bearing seeds is seldom taken lightly. Seed saving dramatically cuts gardening costs. Once you establish your own family seed bank, you will quickly notice that the cost of raising your family's food has shrunk to a tiny amount.

Growing open-pollinated varieties also allows you a vast choice in old-time traditional vegetables. You won't believe how many open-pollinated

varieties are available from both growers of family heirlooms and seed houses, nationwide. While our family limits our choices to Native American crops, you can grow all sorts of ethnic vegetables that are open-pollinated. These include African, Italian, Amish, Russian, Greek, regional U.S., and many other vegetables. Every culture has its own.

Most open-pollinated varieties were developed over generations for hardiness in hostile climates, and growing through drought, wind storms, hail, and flooding. They had to adapt, and that adaptation produced extreme hardiness.

Basics for seed savers

Vegetables come in two types. The first is annuals such as corn, beans, and peas, which you plant each year and harvest seeds from in that same year. The other is biennials like cabbage, cauliflower, onions, and beets, which you plant one year, but the seeds are not harvested until the following year.

Saving seeds from biennials takes a little more work since, in most climates, the plants to be saved for seed must be heavily mulched in the garden row or they must be stored in a root cellar over the winter so they can be replanted the following spring.

Gardeners must take care to keep their seed stock pure as some vegetables will cross-pollinate, creating a hybrid of uncertain productivity. The safest method to keep seed stock pure is to grow only one variety of each species, that is, one sweet corn, one pepper, one squash, etc. But few of us actually do this, opting for a few "cheater" strategies instead. For instance, I'll plant a flour corn with late maturity dates alongside an early sweet corn. And, as they pollinate weeks apart, both remain pure.

Remember that some vegetables, such as corn, are wind-pollinated, and will cross with the neighbors' corn or

local field corn if their pollination dates are the same.

We grow several different peppers, both sweet and chile. I get by, avoiding cross-pollination, by making little "houses" over seed plants to prevent insect and wind cross-pollination. As peppers also self-pollinate, this practice gives us pure seed from many different varieties. The peppers destined for the table and pantry are not so protected, as we do not save seed from them and the cross-pollination does not affect them the first year.

For such crops as squash, of which we grow several kinds, I choose one squash of each of the four squash families. Generally, these will not cross-pollinate, giving us a great variety of squash each year.

You can check out which crops will cross by looking at their scientific name in a seed catalog. Crops with the same name will cross. Luckily, though, many are largely self-pollinating, and minimal spacing is required to keep seed stock pure. Beans and tomatoes are two common examples of such "easy" crops.

Seeds must be mature to save. Thus, save a few cucumbers from the pickle jar, leaving them to get huge and yellow; let several peppers stay on the vine until they get red; let summer squash mature until they look like garden submarines; allow a few stalks of sweet corn to get hard and dry.

Some seed may be saved from the vegetables you harvest to eat. These include winter squash, pumpkin, watermelon, muskmelon, dry beans, and sunflower seeds.

Mold and birds are the two biggest enemies of the seedsaver. All mature seeds must be kept from molding once they are harvested. And many birds, even your own chickens and turkeys, will open and gobble very mature produce to eat both the meat and seed. Some crops, such as sunflowers and amaranth, are also very tempting to your feathered friends, so when they are bearing fruitful seeds, it's best to

slip a pillow case over them, tying it loosely around the stem.

While most seeds are simple to harvest, requiring only stripping out of the mother fruit, some, such as tomato and cucumber, require a different approach, as it is too time consuming to get the seeds separated from the pulp. With these crops, pick ripe fruits, scoop out the seed-bearing pulp into a bowl or jar, add enough warm water to cover them, and place in a warm area such as the back of your counter for a couple of days. The pulp ferments and lets go of the seeds. After this happens, carefully rinse the fermented pulp-seed mass through a colander and soon only the seeds will be left. Spread these on a cookie sheet or pie plate and let them dry in a protected warm area.

When the seeds are very dry, place them in paper envelopes, then in an airtight glass jar. I usually skip the envelopes for large seeds such as corn, beans, peas, squash, and pumpkins, but I leave the jar top off a few days in a warm, dry place to complete the drying. The tiniest bit of moisture will cause mold in your seeds, ruining them.

Seed storage life

Generally, stored seeds will last for years. I've seen charts in seed catalogs and other literature, giving minimal storage dates for seeds, such as three years for sweet corn, a year for carrots, and so on. But I've got 10-year-old sweet corn seed that germinates at 90%, and I've planted beans that were over 700 years old and they sprouted and grew well. Heck, they've found wheat seeds in Egyptian tombs and planted it and it has sprouted.

So, you should keep your stored seed as fresh as you can, using the oldest seed and replacing it with new seed, but don't worry if it gets a little old. Only onion seed is finicky, lasting for just a year or two before losing germination ability. Carrots, beets,

and parsnips can be short-storers too, lasting about two to four years.

Run a germination test

When in doubt, run your own germination tests before planting in the garden. To conduct it, sprinkle a few seeds on a wash cloth, lay it in a pie plate, and soak lightly with warm water. Keep it warm and moist until germination occurs—from two days for some varieties up to three weeks for others. If only a few seeds germinate, they are too weak and no good. If half or more germinate, plant thickly and they'll be okay. If most of them pop roots, your seed is in great shape.

If, as a self-reliant gardener, you get in the habit of raising your own seed, you will never be caught with your seed supply low. And once you start experimenting with all the neat open-pollinated varieties, you'll truly be hooked and you'll find that saving seeds from these old-time jewels is not only provident, but a lot of family fun. Our eight-year-old homeschooled son, David, can tell you a lot about cross-pollination, seed saving, and "having to" eat up a sloppy, delicious watermelon, just to get the seeds.

Sources

Abundant Life Seed Foundation,
P.O. Box 772, Port Townsend, WA
98368

Bountiful Gardens Ecology Action,
5798 Ridgewood Rd., Willits, CA
95490

Native Seeds/Search, 526 N. 4th
Ave., Tucson, AZ 85705

Seeds of Change, P.O. Box 15700,
Santa Fe, NM 87506-5700

Seed Dreams, P.O. Box 1476, Santa
Cruz, CA 95061-1476

Southern Exposure Seed Exchange,
P.O. Box 170, Earlysville, VA 22936

Suggested reading

The Garden Seed Inventory by Kent
Whealy; Saving Seeds by Marc
Rogers; Seed to See: Saving our

Vegetable Heritage by Suzanne
Ashworth Δ

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The lying I did

The lying you did
Didn't hurt as much as
The lying I did

To myself,

And the reasons you gave
For leaving
Again and again,
Though not truthful,
Were more honest than
The lies I've told myself over the
years
To keep myself from leaving you.
And the biggest lies I told
Were when I remembered
Only the good times,
Even though I knew, all along,
It was the bad times,
And the pain,
And the lies
That were real.
So I hung in,
Year after year,
Like the mother
Who will not give up a dead baby
For proper burial,
But holds onto it,
Hoping it will come back,
Until the rotting corpse in her arms
Convinces her otherwise.

John Earl Silveira
Ojai, CA

BUILD AN OLD-FASHIONED SMOKEHOUSE

for delicious meat and better storage

BY REV. J.D. HOOKER

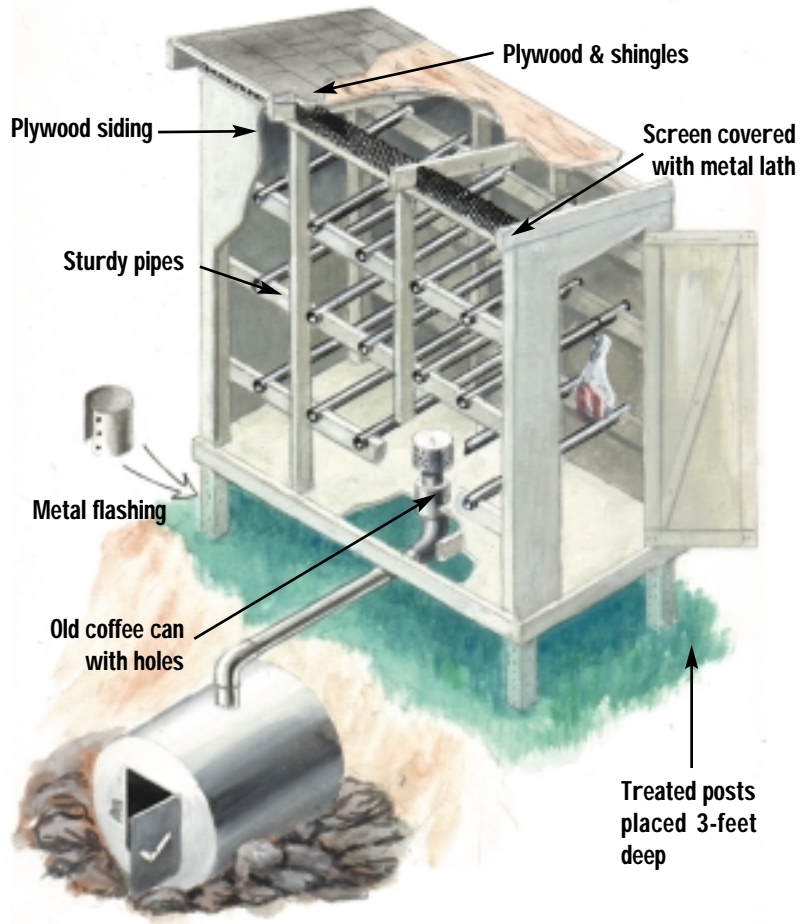
I'm not at all surprised at the large numbers of smoke cookers that I've been noticing among so many rural folks, and among many urbanites as well. Just about any sort of meat, fish, or fowl prepared using this sort of cooking method ends up tasting truly delicious.

Still, about all that you can get from these smoke cookers, or hot smokers, is flavor, as the keeping qualities of foods prepared in this manner is not enhanced at all. The only method that I know of which can lengthen the keeping qualities of such meats, while allowing you to enjoy this same unique taste, involves building a standard old-style smokehouse, and using cold-smoking methods.

Sure, many commercial meat processors still employ this style of smokehouse, yet theirs are usually huge, commercial set-ups. For the use of a single family, a simple four-foot by eight-foot shed of approximately seven feet in height will handle all of the meat preserving needs you could encounter. Such a simple smokehouse can provide you with 220 cubic feet of smoke-filled area, and it is still easily put together using standard sizes of plywood and lumber.

Once you've selected a site to erect your smokehouse (the top of a slope is ideal), begin by making corner cut-outs in your sheet of 3/4-inch plywood. As an aid in marking out where to dig the holes for setting the building's corner posts, lay this plywood flat on the ground. You'll then need to use a post hole digger to sink holes deeper than your local frost line (three feet in our area).

Next, you'll need to use a level to keep each corner post plumb as you tamp the dirt solidly back in place around them. Then measure down exactly 8 feet from the top of the tallest posts, and again use your level to keep everything "true" as you install the floor joists and 3/4-inch plywood flooring, as shown.



Converted 55-gallon drum

MATERIALS LIST:

To erect your own smokehouse in these dimensions, you can either design your own, or go by the following materials list and guidelines:

- 2 pressure-treated 4"x4"x14' (cedar, locust, or other rot-resistant wood can be substituted).
- 2 pressure-treated 4" x4"x 12'
- 5 2"x4"x10' lumber
- 18 - 2"x4"x8' lumber
- 3 - 2"x4"x12' lumber
- 7 - 4'x8' sheets of 3/8" plywood or OSB board
- 1 - 4'x8' sheet of 3/4" plywood or OSB board
- 1 roll of metal roof flashing
- 1 square worth of roofing material
- 18 4-foot long pieces of 3/4" iron gas pipe or other sturdy pipe
- 2 - T or strap type hinges
- 20 feet of 1"x 2" lumber
- several yards of heavy gauge wire
- 10 or 12 feet of 24-inch wide window screen
- 10 or 12 feet of 24-inch wide expanded metal lathe
- 12d and 7d nails, and roofing nails

Now, nail the wall studs and roof rafters in place, then cover the exterior of the walls and roof with the 3/8-inch plywood, making certain to provide a doorway. You can build it like the one illustrated, or use your own variations.

As shown in the illustration, use the 1"x2" lumber to fashion braces for the section of plywood removed for the doorway. Use the hinges to hang this in place as a door. A lock and hasp, a simple barrel bolt, a large hook and eye, or anything similar can be used to keep the door shut.

Install whatever sort of roofing material you prefer. For our family's use, I found the painted canvas type roof which I've written about in issue #39 of *BHM* ideal for this purpose.

To prevent rodents and other animal pests from climbing up and gnawing their way into your smokehouse, you'll need to cover the exposed portions of your four corner posts from the ground to the floor joists with metal flashing. The smooth surface of the flashing prevents rats, cats, and other creatures from getting any sort of a hold to climb up.

At this point, you'll want to brush on a couple of coats of non-toxic exterior paint, both inside and outside of your smokehouse. For the interior I picked a glossy white latex exterior paint. It makes scrubbing down the smokehouse interior after each use just a little easier.

Instead of using wood to fill in the spaces between the rafters, use fine window screen and metal lathe to cover each of these spaces. This will allow the smoke to slowly escape, which prevents imparting a stale, flat taste to your foods.

As shown, notch 12 pieces of 2"x4" and nail them in place along the long sides of the shed. These will support the lengths of pipe from which you will hang your food. When larger pieces of meat are to be smoked, extra

support is added with heavy gauge wire suspended from the rafters.

All that remains to be done before putting your new smokehouse into use is to provide a means of keeping the building filled with smoke. One good method for doing so is shown in the illustration. The only things you need for this method are a 55-gallon metal drum, some 6-inch stove pipe, one short section of 6-inch triple wall pipe to go through the floor, and an old three-pound or larger coffee can.

When you're ready to use this stove to provide smoke for the food in your smokehouse, you'll need to build up a hot fire of hardwood, such as hickory, oak, or ash, and allow this fire to burn down until the bottom of the barrel is filled with hot glowing coals. Once the coals are ready, shovel dampened hardwood sawdust, ground corn cobs, shredded hickory bark, or something similar over them. Keep shoveling in more of this damp (not wet) material every hour or two, as needed. It wouldn't hurt to add a small outdoor thermometer inside the door of your smokehouse, because once the original large fire has burned down, you'll never want the inside temperature to exceed 100 degrees F.

While you do need to stick with hardwoods for smoking foods, to avoid a nasty taste I recommend doing some experimenting on your own with different species of sawdust, wood chips, ground-up corn cobs, and such to determine the flavors you personally prefer. My family especially likes hickory or corn cobs for hams and bacon, a mixture of apple wood and corn cobs for beef and venison, sugar maple for waterfowl, and a mixture of hickory and beech for chicken, turkey, and upland birds such as pheasant. You may wish to give these a try for starters, adjusting the wood species to meet your own tastes.

Some meats, such as thinner cuts of lean beef and venison, will not only have their flavors greatly enhanced,

but their storage lives extended remarkably by smoking. Many other foods, especially fatty meats like pork, most fish, and many sorts of fowl, require some type of curing (usually employing salt, sugar, syrup, or some combination of these) before the meat is smoked, or its keeping qualities won't be much improved, if at all.

Before giving you a few of the curing methods that we've found especially to our liking, I probably should mention that all meats seem to spoil quickest close to the bone. For this reason, I've always boned out all of the larger pieces of meat intended for our smokehouse, and employed only dry type cures on these larger pieces, packing the "hollows" where the bones used to be with the cure mixture.

The following are some of the curing methods which our family routinely uses:

Dry cures

For Fish: Clean each fish and wash thoroughly in clear water. Make a brine mixture using 1 cup of salt per gallon of water. Soak the fish in this brine for 30 minutes to draw out any blood remaining in the fish. Then rinse very well in cold fresh water and set aside to drain. Spread a thin layer of pickling salt in the bottom of a large plastic, glass or stainless steel container. Add a single layer of fish and another thin layer of salt. Continue alternating layers of fish and salt, until the container is filled, or all of the fish has been used up. Refrigerate the container with the salted fish for 48 hours.

Rinse the fish thoroughly and scrub away any particles of salt, then hang the pieces of fish in a cool, shady spot for about four hours, until the surface is covered with a shiny "skin."

Use pieces of stiff wire, bent into an "S," to hang all of the fish on the pipes inside your smokehouse. Keep the smokehouse filled with very dense

smoke and leave the fish inside for a full five days. Remove the fish and wrap each one separately, then store in a cool, dry place.

For waterfowl: Soak the bird overnight in a seasoned brine, made by adding 3 cups pickling salt, 1 cup of brown sugar, 1 tablespoon black pepper, and 6 or 7 whole cloves per gallon of water. Then rinse well and pat dry. Rub pickling salt very heavily inside the body cavity. Place the bird on top of a thin layer of pickling salt inside a plastic, glass, or stainless steel container. Coat the outside of the bird as heavily as possible with pickling salt and refrigerate for 48 hours.

Rinse very well with cold, fresh water, then pat dry. Hang in a cool place, out of direct sunlight, for 5 hours. Then hang the bird inside the smokehouse, which is then kept full of very dense smoke for 7 days.

For hams, shoulders and bacon: For each hundred pounds of meat, mix together 2 pounds of dark brown sugar, 8 pounds of pickling salt, 2 ounces each of black and red pepper, 2 ounces of saltpeter (optional), and 1 ounce of crushed cloves. Dampen the meat well with fresh water and rub this mixture well into all sides of the meat. Place a layer of pickling salt in the bottom of a wooden or plastic barrel, then place pieces of meat on top of this layer of salt. Cover this meat with a thin layer of salt. Continue alternating layers of salt and meat until the container is full or the meat is gone. Make certain to finish with a layer of salt on top. Every six or seven days, the barrel should be unpacked, the pieces of meat rubbed again with the salt/sugar spice mixture, and then repacked using the same salt.

Using the largest piece of meat as a guide, leave the meat packed in the pickling salt for three days per pound.

At the end of the curing time, wash the meat thoroughly and hang it to dry inside the smokehouse (without using any fire or smoke) for 24 hours. Then build up the fire, and keep the smokehouse filled with dense smoke for 12

days. After smoking, wrap the meat in a double layer of cheesecloth, then in brown butcher's paper, and hang in a cool dark place to "age" for at least 3 months before using.

For beef, venison, and other red meats: Entire shoulders, whole rib or round cuts, or whole briskets, can be boned for this sort of use.

Refrigerate the meat for at least 24 hours before starting to cure. Use approximately 5 pounds of pickling salt and 2 ounces of saltpeter (optional, but without the saltpeter, your meat won't retain a fresh reddish color), per 100 pounds of meat. Place a thin layer of this mixture in the bottom of a wooden or plastic barrel, then add a layer of meat. Cover the meat with this mixture, then sprinkle on black pepper and garlic powder liberally. Add another layer of meat, treating it in the same manner. Keep alternating layers until the barrel is full, or all of the meat has been used up. After 24 hours, weigh the meat down with a wooden lid with a couple of scrubbed, heavy rocks on top.

After 60 days, remove the meat and dry each piece separately. Rub each piece heavily with a mixture of 6 parts black pepper, 5 parts coriander, 3 parts allspice, 1 part white or red pepper, and 1 part garlic powder. Refrigerate overnight.

Hang the meat inside of the "unlit" smokehouse to dry—and "set up" a little—for 24 hours before smoking. Then keep the smokehouse filled with very dense smoke for 12 days. Wrap with a double layer of cheesecloth, then a layer of butcher's paper, and hang to "age" for a couple of months before using. Once aged, roasted, and thinly sliced, venison cured and smoked in this manner tastes remarkably like deli-store pastrami.

Many other foods aside from meats can have their flavors enhanced by leaving them inside of your smokehouse for a few days. Most cheeses, especially cheddar, can be placed inside of bags made up of cheesecloth and hung inside the smokehouse for

from 2 to 4 days. For a real taste treat, pecans, almonds, cashews, hickory nuts, and many other nuts can be roasted in vegetable oil, then hung in the smokehouse to absorb the extra flavor for a day or two.

Possibly the best-tasting homemade chili powder that I've ever encountered was prepared from dried red peppers which had hung in the smokehouse for about 3 days before being ground into a flour-fine powder.

If you're interested in preserving some of your own meats, fish, game, fowl, and other foods at home, while allowing yourself a real taste treat, then building and using your own family-sized smokehouse is exactly what you're looking for.

Good eating. Δ

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Keeping your food COOL

By Michael Hackleman

Solutions to refrigeration when electricity is scarce

Many readers of this magazine live in remote settings and generate their own electricity, often through solar, hydro, wind, or generator machines, storing the electricity generated in batteries. In such a scenario the electricity produced is dear and needs to be used efficiently. Since refrigeration is a major consumer of electricity in a home, the essence of this article is efficiency. The goal: gaining the most refrigeration for the least amount of energy consumption.

Over the years, I've helped design the energy systems for a variety of places and situations, and visited many others. Invariably, I'll find a stock refrigerator squatting in some corner of the kitchen. If it's an electric one, it's obvious that the house must

have a grid (electric utility) connection. Or a large inverter. Or there's a standby generator someplace nearby. If it's a gas unit, there's a corner with a few five-gallon bottles that rotate between the gas line at home and the gas line at the nearby LP (liquefied propane) station.

Refrigerators *are* complex gizmos, and it *is* understandable that most folks don't want to mess with them. However, ranging from simple to involved, there are nearly 30 changes I can list (see opposite page) that will reduce the energy consumed by refrigeration.

Refrigerators are fairly low-wattage devices. In the standard household, they *nibble* energy whereas tools, motors, and other important electric appliances, such as stoves, water heaters, air conditioners, toasters, and blenders, gobble it up. Where's the problem? While refrigerators don't

consume energy at a very high rate, they *do* work the equivalent of an eight-hour day. In consequence, they may easily consume, in a day, week, or month, the lion's share of available electricity.

What can you do? Quite a bit.

The first thing is to understand how refrigerators work. Ever wonder how they "make" cold? Heat is absorbed in the interior (where you put the food and ice trays), transferred by a suitable refrigerant such as Freon or ammonia, and dissipated outside, usually at the back of the refrigerator (see Fig. 1).

The second thing to know is that, while "heat pumps" are generally very efficient, refrigerators are not shining examples of that fact. Can the situation be remedied? Faced with the same question a few decades back, I began an exhaustive study of the problem. It soon became clear that I was dealing with more than just poor

Things to consider when considering refrigeration

(This numbered list tracks the article)

Operation practices

1. Minimize frequency/duration of open door
2. Check the door gasket
3. Don't overload the refrigerator
4. Correctly set the dial thermostat
5. Re-examine refrigerator's contents weekly
6. Evaluate the refrigerator's size

Siting

7. Maintain clearance around refrigerator
8. Design alcoves properly
9. Consider alternative refrigerator sites

Design changes

10. Trade in frost-free units
11. Insulate the refrigerator
12. Re-locate the HDC (heat-dissipating coils)
13. Build a hybrid refrigerator/water heater
14. Use a horizontal refrigerator

Power conversion (electric)

15. Use a 110-volt AC standby generator
16. Use an inverter
17. Modify the motor-compressor unit
18. Replace the motor-compressor unit
19. Use a battery charger

Power conversion (gas)

20. Convert to the correct fuel
21. Modify for AC or DC

Purchasing a new refrigerator

22. Buy & convert an old 110-volt AC model
23. Buy an RV or PV-type unit
24. Find and buy a gas refrigerator
25. Build a solid-state refrigerator

Refrigeration alternatives

26. Build and use a root cellar
27. Learn canning for foodstuffs
28. Dehydrate your food
29. Control your food supply

design, engineering, or construction of the refrigerator. What about operator abuse? Improper siting? A mismatch between the power available versus the power required? Also, what about alternatives to the refrigerator?

In the following sections—**Operation, Siting, Design changes, Power conversion, Purchasing a new refrigerator, and Refrigeration alternatives**, I will detail the answers I found. Wherever possible, I will describe specific situations and solutions. Don't expect me to tell you exactly what to do. Your situation is unique. Ultimately, only you are qualified to identify problems and apply appropriate solutions.

Are the issues I'll discuss worth the effort of change? Obviously, much will depend on which ones you'll identify as troublesome and choose to rectify. However, some of these solutions, which were applied to a

stock refrigerator matched to a low-voltage DC wind (power) system at a remote retreat in the California Sierras in the early 80s, reduced the energy consumption from 150 kWh per month to a mere 30 kWh. Today you may purchase high-efficiency refrigerators which will match or beat these numbers.

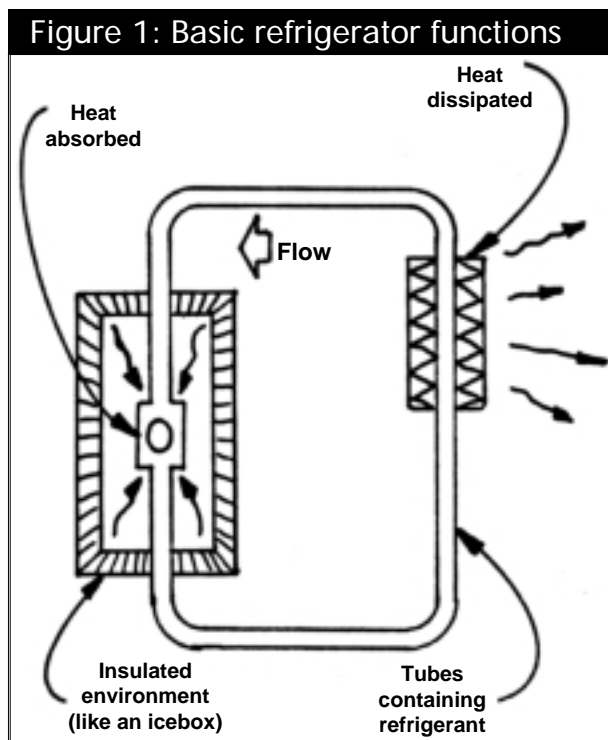
Operation practices

New refrigerators usually come with an operator's manual. A proud new owner may even read it from cover-to-cover. After that, it's put away and, eventually, lost. That's too bad. A poorly operated refrigerator is an inefficient one.

This section is devoted to proper refrigeration operation. Apply this information and you will easily *halve* your refrigerator's present consumption of energy—gas or electricity.

1. Minimize both the frequency and the duration of door opening(s). Cool air, and the energy it takes to make it, are lost every time you open the door of an upright refrigerator. Before you open the door, decide what it is you're after. And, if it's breakfast, lunch, or supper you're fixing, get everything you need at one shot; one long opening is less wasteful than item-by-item door openings which "fan" cold air out and warm air in.

2. Check the door gasket. The gasket which seals the door against the main body of the refrigerator keeps heat out and "cool" air in. How do you know whether it is, or is not, sealing? Open the door, place a sheet of paper against the face of the seat, and close the door. Does the gasket hold the piece of paper in position when you let go of it? Does it offer some resistance to your pulling the



sheet out? If not, the seal is not adequate.

Sometimes the problem is just a dirty gasket or seat face; clean both well and re-test. Or the door may be misaligned. Does it seal at the top but not at the bottom? If not, loosen the hinge bolts and have someone push the door firmly against the refrigerator body as you re-tighten them. If that doesn't work or there's no adjustment for the door hinges, you may have a warped door. Here, the only solution is to find a new refrigerator door. Or another refrigerator.

More often than not, the source of the problem is the gasket itself. After years of hot and cold, open and close, the rubber gets tired, old, brittle, and torn. This is replaceable; check with the manufacturer about a new one. If it's an old refrigerator, you may want to consult with an appliance store or a refrigeration man about a new gasket. The price is not cheap. In early 1982, a replacement gasket for our own refrigerator cost \$50. Shell it out, though; makeshift gaskets are impossible to clean and require frequent replacement.

3. *Don't overload the refrigerator.* Packing a refrigerator full of foodstuffs is an invitation to poor performance. In order to cool quickly and effectively, sufficient space must be left around the individual food containers or packages to permit heat to escape and be absorbed by the refrigerant. Also, allow foods to cool before placing them in the refrigerator; hot foods only make the refrigerator work harder and longer. If you're rushed, food will cool more quickly if the container is placed in

room temperature water in the sink for 5-10 minutes before inserting it in the refrigerator.

4. *Correctly set the dial thermostat.* Different foods have different refrigeration needs. This ranges from frozen to something just below room temperature. Recognizing this need, manufacturers provide an operator control, the dial thermostat, which will adjust the interior temperature over a 15-30 degree F temperature differential. There are numbers on the dial; they range from 1 to 10, with an 0, or "off" position. The higher the number you set, the *lower* the temperature in the refrigerator's interior.

This dial adjusts cooling by adjusting the "duty cycle" of the refrigerator. Therefore, a low (number) setting asks for mild cooling. Here, the motor-compressor unit (the device which actually performs refrigeration) is "on" infrequently and for short durations. A higher setting of the dial calls for lower temperatures. Consequently, the motor-compressor will be "on" more often, and for longer periods of time.

If you want to minimize your electric bill, it's up to you to correctly set the dial thermostat. Of course, you've no way of knowing just how low a number (how high an interior temperature) you can select which will keep things from spoiling. Or do you? The dial must be presently set to some value right now which *does* the job or you'd have turned it up higher, right? So, decrease it one number and wait a few days. If all's well, lower it by one more number. Repeat until you begin to notice that it's not doing the job as you wish it to—the time it takes to cool things, the butter's soft, etc. Then kick it back to the previous number and give it a day or two to fully recover.

5. *Re-examine the refrigerator's contents weekly.* A refrigerator doesn't *prevent* spoilage; it *delays* it. It doesn't matter what section the food occupies; even frozen foods have a very short lifespan (six months?). Sure, the food may be digestible and even palatable, but it definitely has less nutritional value, and it may taste or look funny. A periodic review is a good policy.

6. Evaluate the refrigerator's size. If your present refrigerator seems too small, clean it out and stop putting non-perishables in it. You may be surprised to find out that it *is* the right size. And, if you think your refrigerator is adequate, apply the same treatment; you may discover that it's really bigger than what you need. Don't rule out the possibility of getting a smaller one. In the long run, the energy saved will pay for the swap.

Siting

Often, very little attention is given to the siting of a refrigerator—beyond convenience, the availability of space, or the firm belief that it's got to go *somewhere* in the kitchen.

At least some consideration *should* revolve around the specific needs of the "coolworks." The coolworks is my own term for the refrigerator's

machinery—electrical and mechanical—which performs the magic act of refrigeration. More specific names are given to these component parts: motor-compressor, heat-dissipating coils, expansion valve, refrigerant and plumbing, thermostat, interior light, and electrical wiring (see Fig. 2).

In the interest of good looks, compactness, and transportability, a number of design factors have been severely compromised in domestic refrigerators. By far the most flagrant violation is the positioning of the heat-dissipating coils (or HDC). These are designed to dissipate the heat which is pumped out of the refrigerator's interior—principally through convection. Unfortunately, they're *not* aesthetically pleasing enough to put anywhere but out of sight—behind the refrigerator or below it. Siting of the refrigerator, then, may aid or impair the proper functioning of the HDC.

7. Maintain clearance around the refrigerator. Note how far the HDC project from the back of the refrigerator, and maintain at least that distance—more if you can spare it—between the HDC and the wall. This will assure an adequate passage of air past the HDC during refrigerator operation. If you pull out the refrigerator for a periodic cleaning, take care to maintain the correct distance when it's shoved back in.

For the air to get to the HDC and back out again, you must also maintain adequate clearance below and above the refrigerator. The manufacturer allows for this in the design, but space directly beneath the refrigerator can become clogged with dustballs, stray toys, and other unmentionables that are swept or have crawled under it. Sweep the space under the refrigerator. If it's too close a fit to get at from the front, make some allowance so the refrigerator may be pulled out for cleaning.

8. Design alcoves properly. Flush-fitting (recessed) refrigerators look good but prevent proper airflow

to the HDC without good design. In some instances, a strip of fancy grillwork directly below and above the refrigerator in the wall partition will assure, respectively, a good inflow and outflow of cooling air. Or, if this doesn't appeal to you, install a vent in the floor or lower wall, and another at the top of the wall *behind* the refrigerator so that waste heat exits the house. Either way, maintain the proper clearance between the back of the refrigerator (and its HDC) and the wall.

9. Consider alternative refrigerator sites. The heat pumped out of the refrigerator has to go somewhere. If your refrigerator is unmodified, that heat is dumped into whatever room it's sitting in, usually the kitchen. No big problem in winter as the extra heat is always appreciated, but unacceptable in summer. After all, it's a shame to do such a good job of insulating your home to keep out the summer's heat and get stuck with the heat that's dumped into the kitchen from the refrigerator.

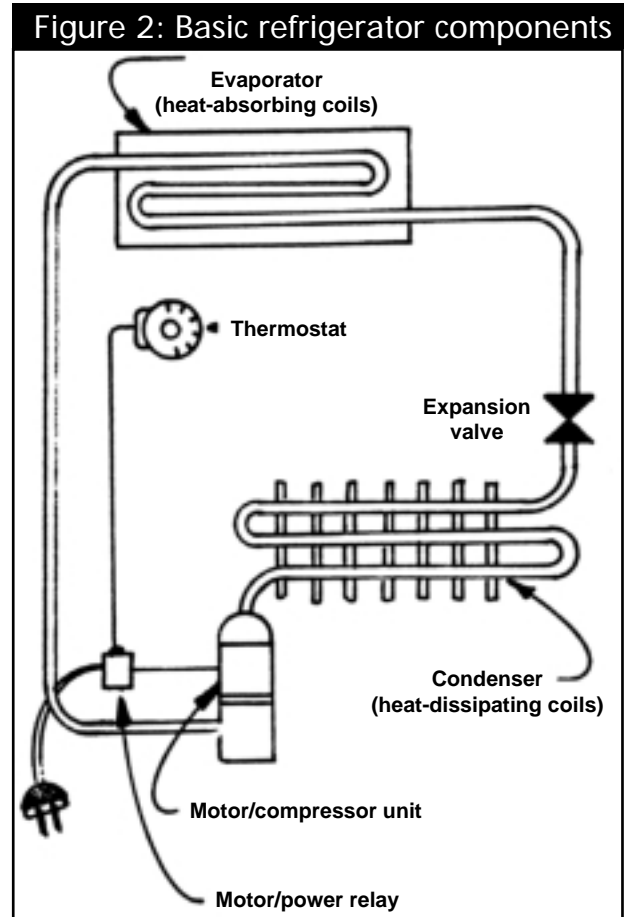
Insignificant, you say? Even the smallest upright refrigerator is working at about one-third the capacity of a 1,200-watt floor heater—for six hours in each 24-hour period. A larger refrigerator, particularly the frost-free variety, equals the output of that heater. That's a truckload of Btu (British thermal units). How do we get around this problem?

One way is to locate the refrigerator outside. Admittedly, this is rarely practiced. Unless it was sited in a cool, shady spot, it could use *more* electricity during the sum-

mer months. Remember, the larger the temperature difference between the inside and the outside of the refrigerator, the more energy it takes to keep things cool.

On the other hand, you could put the refrigerator into a cool place—a well-insulated pantry, a root cellar, etc, and *decrease* the temperature difference (between the inside and outside of the refrigerator) to aid in efficient refrigeration. This starts out as a good idea, but the HDC will increase the temperature of an enclosed space during operation. A pantry might tolerate it but it would be self-defeating in a root cellar.

One idea is to cut an opening in a north-facing wall and slightly recess the refrigerator in it. This way, you have access to its contents, but the back of the refrigerator, HDC included, dissipates its heat outside.



Design changes

Refrigerators are pretty good at what they do, but, alas, they are handicapped by design compromises. Ninety-five percent of manufactured refrigerators suffer the same disadvantages. However, look on the bright side. If most of them experience the same problems, each “solution” we find will fit almost any refrigerator. As well, most of these problems are only “delivered” ones—the way the package arrives at our house—and *not* intrinsic to the principles of refrigeration. Some are a matter of knowledge and judgement, and others require some handiwork by the owner.

10. Trade in frost-free units. Newer, so-called “modern” refrigerators incorporate a frost-free circuit. This is supposed to liberate the busy housewife from that all-too-frequent defrosting. How does it do it?

There are only two things you really need to know here. One is that it involves some heater coils in the refrigerator’s walls, and, two, it takes as much (if not more) electricity to perform this job as it does to run the motor-compressor. This is why frost-free refrigerators, in normal operation, consume 2-3 times as much electricity as refrigerators of the equivalent size consume *without* this feature.

Defeating this circuit *seemed* like a relatively straight-forward process to me. I unplugged the refrigerator, removed the back plate, disconnected the wires leading to the frost-free heater coils (noted by the handy schematic inside the back cover), replaced the plate, and plugged the refrigerator back in again. All better, yes? For five minutes maybe. Then it stopped cold. Or, more appropriately, stopped making cold. The frost-free circuit, in that refrigerator, was integral to the design and components used in the frost-free refrigerator. So, my advice is: don’t fool with it. A working frost-free refrigerator has more trade-in value than one that isn’t working. And that’s what you want to

do—trade it in. Make certain that the new one has no such feature. In the end, you use less energy at the cost of fitting an occasional defrosting into your lifestyle.

11. Insulate the refrigerator. The refrigerator is insulated from the environment. In truth, no matter how thick the insulation is, heat will pass through it, get inside, activate the thermostat and coolworks, and get pumped back out. However, the thicker the insulation, the harder it is for heat to get in and the less the refrigerator’s motor-compressor has to run. Ergo, the less energy it uses.

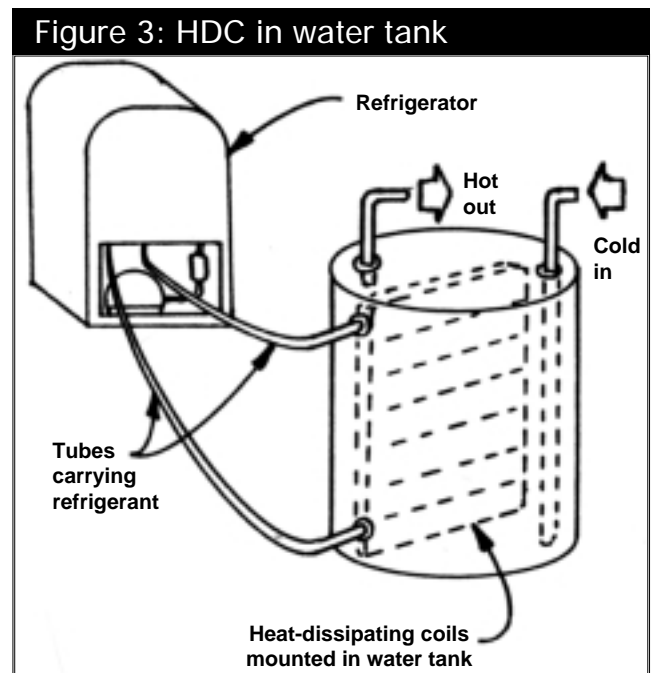
Just how much insulation should the refrigerator have? Without getting absurd, as much as we can afford—in terms of space or money. The manufacturer’s answer to this question? As little as they can get away with. Don’t be too hard on them, however. A bulky refrigerator doesn’t have as much sales appeal as a slim-and-trim one. Any amount of insulation you’re able (or willing) to add will make, on its own, a very significant contribution to the refrigerator’s efficiency. Here’s an idea, then, that has an excellent cost-benefit ratio.

If space around the refrigerator isn’t a restriction, you can use just about any type of commercial insulating material you desire. If you’re cramped for space, your best bet may be polyurethane foam sheeting; it has the highest R-value (resistance-to-heat-transfer rating) per inch of material thickness. A 2-inch thick “jacket” will give you an R-11 insulating value. If you can double it, you’re up to R-22.

The bottom, sides, and top of the refrigerator lend themselves very well to insulating in this manner. If you’re concerned about appearance, consider covering the foam with some wood-faced paneling or rough-sawn siding that is stained and sealed to match your kitchen decor.

Insulating the refrigerator door may be a problem if it’s contoured, as many are. If you can accept the challenge, cut the foam sheet to fit and attach it. Since the door is movable, the insulation must be, too. Be certain, therefore, that it will move freely for as far as the door must swing. Since there are normally no refrigerant-carrying tubes or electrical wires in the door, sheet-metal screws may be used to secure the insulated cover. Check! If there’s a light in the door or an ice-making tray, don’t risk it. Or, if it’s a hassle, don’t bother. Refrigerator doors usually have more insulation than the side walls or bottom anyway.

Construction-grade sheets of rigid polyurethane insulation are available at local lumber, building material, and hobby supply firms. Alternative insu-



lating materials are also available. If it's foam, check around for the best buy, however; prices vary from place to place. If you plan to cover the foam with paneling, cut the foam to size and tape it at the corners. There's a temptation to use sheet-metal screws to hold it to the thin metal walls of the refrigerator but you should, at all cost, refrain from drilling holes into the exterior walls. While the thin tubes carrying the refrigerant are spaced pretty far apart and the probability of hitting one is quite small, how unlucky can you afford to be.

Think of this insulation as a 'jacket,' meaning removable, if need be, in order to move or service the refrigerator. Caution: Unless you perform a modification of the refrigerator which involves the removal of the HDC (heat-dissipating coils—see #12 below) and/or the motor-compressor unit (#17 or #18 below) from the immediate vicinity of the refrigerator body, you must *not* place insulation in such a way as to interfere with the free-flowing movement of air to, from, and around these components.

12. Re-locate the HDC (heat-dissipating coils). Traditionally, the HDC are mounted behind the refrigerator, within an inch or two of the back wall. Considering the minimal amount of insulation that's crammed into the refrigerator wall, and the kind of heat the HDC can generate, this is downright irresponsible! Coupled with the problems of getting sufficient cooling air to the HDC and an almost certain interference with adding insulation to the back of the refrigerator (where it needs it the most), it makes a lot of sense to remove and altogether re-locate the HDC.

Sounds formidable, doesn't it? However, after some initial investigation, I discovered that physically separating the heat-dissipating coils from the refrigerator housing wasn't all that involved. In fact, it's done all the time. Supermarkets routinely install the motor-compressor and HDC on

top, or at the rear, of the building. Refrigerant tubing runs from these units to the freezer or refrigerated-air, food-display cases inside. It's a toss-up whether you really *need* to also separate the motor-compressor, as it's usually not all that noisy, nor does it generate that much heat. But I was advised by a refrigeration friend to keep it in close proximity to the HDC, if possible.

The actual changeover is easily accomplished if you've any handyman skills. If worse comes to worse, you can get the local refrigeration technician to do the job for you. Get a quote first; it may not be worth a couple of hundred dollars to you. And even if you do most of the work—disconnecting the motor-compressor and HDC, re-locating it, and running new refrigerant lines, etc.—you'll eventually require the services of a refrigeration technician to inspect the work, bleed the lines of air, and recharge them with the appropriate refrigerant.

All refrigeration technicians can get a system functional, but only a few can get it operating efficiently. Additional tubing lengths may require a different charge—a fine tuning—to make the changeover worthwhile. Ask the technician if he can do this. It's important.

If you move the HDC, you can now locate the refrigerator (box) inside the house, pantry, or root cellar without the normal concern for the heat the unit will give off. It won't generate any. Another major benefit of this modification is that it permits trouble-free recessing of the refrigerator in flush-fitting alcoves.

The HDC (and associated "cool-works") should be mounted outside, perhaps, on the shady side of the house. Protect it from the elements—rain, snow, etc.—and the fingers of curious children. Additionally, if you live in cold climes and there's *any* chance that the outside temperature will fall *below* the inside temperature of the refrigerator, you should "shelter" the motor-compressor

and HDC from air currents. Apparently, this condition confuses the heat pump and refrigeration may stop. Removing the fan blade from the compressor pulley (if it exists) also works. Just don't forget to replace it when the cold snap is over.

13. Build a hybrid refrigerator/water heater. What's that? It's a refrigerator which has had its HDC removed and placed in a tank of water. Why would we want to do that? Answer another question first. What are two ways to tell if a refrigerator is working correctly? First, put your hand inside; feel all that cold? And, second, snake your hand around the back of the refrigerator and feel the heat-dissipating coils. Hot, aren't they? We don't get one without the other in a heat pump. Just as its name implies, a heat pump moves heat from one place to another. But it sure is a shame to waste that heat, right? So why not put it to work?

Answer another question. Year-round, what's the one thing in the standard household that might make use of this relatively low-level (but constant) heat source? The water heater, of course!

And what happens when you put the HDC in a tank of water? Naturally, the water gets heated. So how about a refrigerator that also works as a water heater. Right away, you'll run into a problem when you try to interface a stock HDC in a water heater: the HDC is way too big. My first reaction to this dilemma was to reverse the situation. That is, size the tank to the HDC. I used a 55-gallon drum. However, at 30 psi water pressure (a gravity system, at that), the barrel bloated up like a lungfish and damn near gave me cardiac arrest. I thought it was going to explode.

I cautiously tried it the other way—sizing the HDC to the water tank, and this worked much better. Since water is so much faster than air at conducting away the heat, only a portion of the HDC's original area was needed. Quick work with a hack-

saw reduced the HDC to a long, narrow section which easily fit inside a steel tank that, hereafter, was to be a water heater (see Fig. 3).

After hearing of my modification, a refrigeration technician recommended what he thought would be a simpler process for most people. Add a small length of tubing between the compressor and HDC and insert this into the tank. Since this is the “hottest” portion of the line, it accomplishes the same end while eliminating the “chop and fit” on the HDC. I wish I’d heard that *before* I did mine.

Why didn’t I just install the smaller section of HDC in the water heater tank I was presently using? Well, besides some rudimentary problems associated with doing it *without* damaging or destroying the water heater, there’s another very important reason *not* to do this. Those heat-dissipating coils are, in fact, circulating refrigerant. Older units may still use ammonia

and newer ones have Freon. In the event of a leak, they’d end up in your water. Unpleasant, at least; dangerous, at best. Since there is no simple way to prevent a tube from leaking the stuff into your water tank, use what’s called a “double heat-exchanger” (See Fig. 4). That is, the heat-dissipating coils go into a tank filled with water and *another* coil of tubing connects directly to your hot water line. The water in the tank, then, stores the heat, transferring it to the water circulating through the coiled tubing when you want to use some. It’s a lot simpler than it sounds.

There’s one major condition attached to the hybrid refrigerator; you must use the hot water that’s produced. When the water in the tank is its coolest, the refrigerator is operating at good efficiency. This efficiency decreases as the water temperature increases. So, for some function or another, *use* that heated water.

Want some facts and figures? A medium-sized refrigerator will have a rating around 2,000 Btu/hour. At a duty cycle of 30%, this amounts to a steady 750 Btu pumped away as waste each hour or, in a 24-hour period, some 18,000 Btu. If the water in the tank housing the HDC is initially at 60 degrees F, we’d need 480 Btu for each gallon of water raised to the temperature of 120 degrees F. Assuming only 50% efficiency, we’d get 15-20 gallons of hot water each day. That’s peanuts to some folks and blessing to others. What about you?

Hotter water *is* possible, but I’d advise against anything more than 105-120 degrees F. Otherwise, the refrigera-

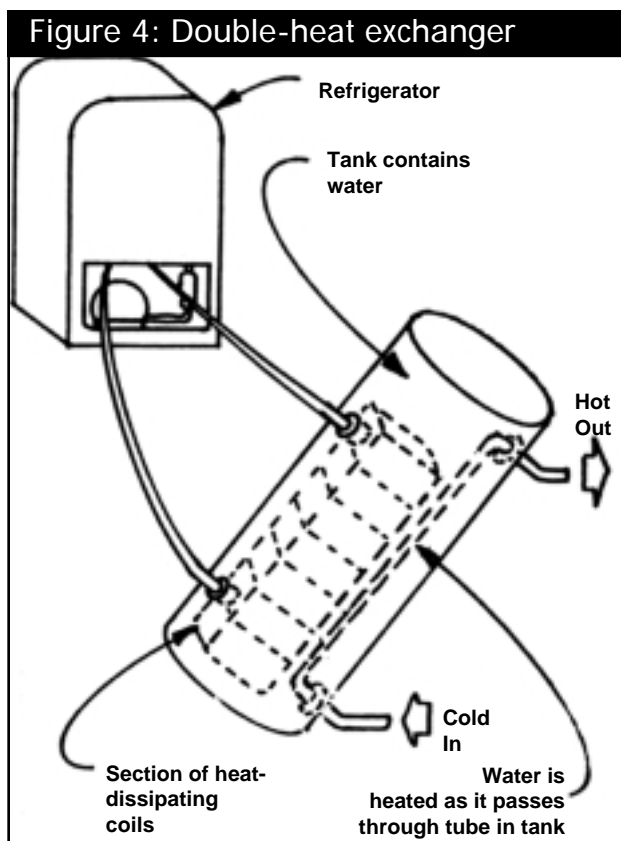
tor will be working nearly as hard as it would *without* the hybrid setup. Remember our goal: use the waste heat *and* cut down on the electricity consumed by the refrigerator.

Is the hybrid refrigerator/water heater worth the effort? For a conversion, I’d say no. There’s too much involved; too many “if’s.” For special applications and investment in future technologies, yes! The refrigerator/water heater symbiosis is a natural technology, transferring heat from an unwanted place to a welcome one. It uses heat that’s otherwise wasted and, in the process, saves the energy—electric, gas, wood, solar, etc.—consumed in water heating. Also, the efficiency of the refrigerator can increase dramatically, as water conducts heat away from the HDC faster than air. This boosts a further savings in electricity since the motor-compressor unit runs for a shorter period of time.

14. *Use a horizontal refrigerator rather than a vertical one.* This technique is used with chest-type and open supermarket freezers. Just as warmed air will rise, cooled air falls. And *very* cold air sinks like a rock. True, if there’s any kind of air movement, some of this cold air is going to “slop” out onto the floor and even absorb some of the warmer air above the freezer-case. But “horizontal” cooling works well. The same cannot be said for vertical coolers—the ones traditionally containing milk, pop, beer, etc., enclosed by sliding glass doors. Open them and cold air spills out in huge amounts. Just like with vertical refrigerators.

Why, then, are refrigerators built with vertical doors? Two basic rationales have prevailed: electricity is dirt cheap and wasting energy for convenience is okay.

An upright refrigerator is not as easily converted to work in a horizontal position. You can’t just turn your own refrigerator over on its back. First, it would soon stop working. And, how would you place food in it. I no longer



A double-heat exchanger is a safer installation.

recommend converting an upright refrigerator to a horizontal position. Too many variables and too much work for an uncertain product.

If you're ready to go this far, and can't purchase what you want, opt to build the refrigerator from scratch. This is frequently done in marine environments where the shape of a sailing ship's hull will not accommodate a box-like shape. Instead, the refrigerator's coolworks are built around a low-voltage compressor unit and a holdover plate that can be "pumped down" (made cold) inside an odd-shaped, well-insulated compartment. If the access door is on top, so much the better.

People complain about difficulties in accessing food in chest-type freezers. Resolve this issue in some way that is acceptable by everyone using it. Several lightweight trays that will hold frequently-used goods can be lifted out—in the same way many toolboxes are designed—for access to lower levels of foodstuffs.

Power conversion (electric)

The standard household refrigerator in the United States is designed to operate at the 110-Volt, 60-cycle AC (alternating current) supplied by the local utility company. Obviously, if you're not using utility electricity, the "stock" refrigerator isn't going to work "as is" with DC (direct current, as from batteries) at lower Voltages. What do you do? You either match the system to the refrigerator, or the refrigerator to the system. Here are a variety of possibilities.

15. *Use a 110-Volt AC standby generator.* Auxiliary generator units—small gas engines driving AC generators—exist for use in areas remote from utility power. Or as a backup unit whenever utility power is interrupted. Or as *the* energy source in a survival situation. Portable units, ranging in power from 1,000-6,000 watts (and higher) supply pre-

cisely the right kind of electricity needed by the standard refrigerator, eliminating any need for modification. The only pre-requisite is that the standby generator have a power rating equal to, or greater than, the refrigerator's rating.

This idea has some justification; it may take time to set up another way of powering a refrigerator and this keeps things cool in the interim. It's also great for emergencies since you're likely to require a standby generator for special power applications, i.e., radial arm saws, arc welders, etc.

Unfortunately, while the parts work well together, as a system the idea stinks. Powering a refrigerator on a continuous basis from a standby generator has little merit. A unit sized large enough to handle power tools would waste gas powering a refrigerator. Also, refrigerators are basically "demand" devices, operating intermittently throughout the day, adjusting themselves to varying food loads, external temperature variation, and operator mis-use. A once-a-day "charge" of refrigeration from a standby generator isn't going to help food stay fresh, and staggered use of the standby generator throughout the day for refrigeration alone will be a short-lived solution.

Contrary to popular opinion, standby generators are complex. Most folks don't possess the skills or knowledge to keep them on-line even if they *do* have the money to buy all the necessary spare parts. They are noisy. They are as unwelcome as mosquitoes. Mufflers will help, but they reduce—not eliminate—the noise. Also, the more effective the muffler, the more inefficiently the engine operates and, alas, the more fuel consumed per kWh of electricity.

A standby generator *does* have its place in every homestead. However, the inherent mismatch between it and the standard refrigerator (specifically) and most other electricity-consuming devices (generally) relegates its role to backing up *other*, renewable energy

sources like PV (photovoltaic), wind generators, and small-scale hydroelectric units.

16. *Use an inverter.* An inverter is a device which transforms DC (direct current, like that supplied from batteries) into 110-Volt, 60-cycle AC (alternating current, like that supplied from the utility company or standby generators). This *is* convenient; we can match a battery system to a stock refrigerator. Additionally, inverter manufacturers make models for a wide range of DC voltages. You can get a unit to work with 12-, 24-, 32-, or 110-Volt (DC) battery arrays. It's a quick fix for anyone who has battery power (smart) and a 110-Volt AC refrigerator (convenient), but lacks the time to mess around with other alternatives.

As with any "fix," there's a price-tag. The inverter does nothing to reduce the amount of electricity consumed in refrigeration. Instead, a portion of the inverter's output must be reserved for the refrigerator. Of course, it is possible to "schedule" the time the inverter is used to power the refrigerator. This inverter is special, too; only inverters designed to handle inductive (reactive) loads can be used with refrigerators. As well, the inverter must have a load-sensing feature. Without it, it will be "on" and drawing some power even when the refrigerator is "off." Finally, inverters of whatever type—rotary, electronic, etc.—are complex mechanisms. They're *not* consumer serviceable. Consequently, the final system is no longer simple nor inexpensive. Inverters which can power a refrigerator may cost 1-3 times the cost of the refrigerator itself.

But, once an owner/user evaluates the cost of that proportion of solar array, and battery and inverter capacity devoted to a 110Vac, 60-cycle refrigerator over the long term, the cost of a low-voltage, high-efficiency refrigerator (see #24 below) doesn't seem so high.

17. *Modify the motor-compressor unit.* If the power source is batteries—at 12-, 24-, 32-, or 110-Volts DC—one of the best ways to match them to a refrigerator is to remove the AC motor that drives the compressor and replace it with one of the correct DC Voltage. This is a difficult undertaking if the motor and compressor are “hermetically sealed” (built as one unit - see #18 below), but older refrigerators have a motor separated from the compressor by a belt (and pulley) or a star-coupler. If this is the case, the entire assembly should be removed from behind (and underneath) the refrigerator. Next, remove the AC motor and pull the fan blade off its shaft.

Select the DC motor carefully. It must generally match the old motor’s HP (horsepower) and RPM (revolutions per minute) ratings. DC motors have conservative ratings when compared with AC motors. For this reason, you may select a DC motor which has a HP rating 1/4th to 1/3rd smaller than the AC motor you pull off. Look for a HP tag on the AC motor. No luck? Find the motor’s wattage rating. Or multiply the Amp (A) rating by the voltage (Volts, or V) rating of the refrigerator. The resultant is wattage which, when divided by the value 750, will give an approximate HP rating. This value is usually less than 1 horsepower, and as long as 1/4 HP.

Small variations in motor RPM ratings—between the old AC motor and the new DC motor—aren’t significant. If the values are close, bolt it up. Larger variations in RPM ratings must be adjusted. Vary the ratio of pulleys in the belt-drive to achieve a match. If a star-coupler was originally used, either go to a pulley drive (and match RPM with the correct ratio of pulleys) or find a motor of correct RPM rating.

Other factors? Change the light bulb in the interior to one of the correct Voltage. Change the motor relay to its DC equivalent (see Fig. 5). Leave the old thermostat alone. It should work

fine. Now’s a good time to think about sticking the motor-compressor unit, along with the HDC (see #12 above) elsewhere (outside?). You may not have a choice. The modified motor-compressor unit may not fit back into its original refrigerator space. If you’ve cut the refrigerant lines, reconnect the lines and re-charge them with new refrigerant (or have this done). Finally, insulate the refrigerator in the area once occupied by the motor-compressor unit.

18. *Replace the motor-compressor unit with another that matches your system.* If the motor-compressor unit is the “sealed” type (where the motor and compressor are an integral, non-separable part), replace it.

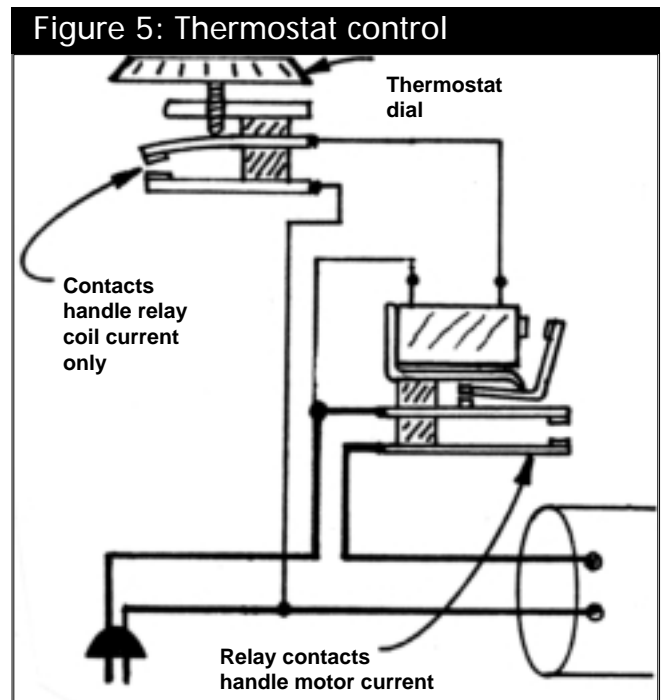
There are two ways to proceed. One is to scout around for a motor-compressor unit of equivalent rating which is separable, buy it, strip off its motor, and add one with the correct DC voltage. Get some help. A refrigeration technician will be of great assistance. Plus he or she may have a junked unit of precisely this type out in back. If the only thing wrong is a burned-out motor, what could be better? And, if you affect energy-saving modifications with your refrigerator, you may look for a motor-compressor of a lesser rating. That is, when you do it better, you don’t need a unit designed to compensate for all of those losses.

A second possibility is to replace your refrigerator’s motor-compressor unit with one designed specifically to work at lower DC voltages.

For example, 12-volt motor-compressor units exist in the RV (recreational vehicle) and PV (photovoltaic) industry. Or check out surplus outlets. A 24-volt system can make use of a military 28-volt motor-compressor. Folks using 32-volt systems, on the other hand, should check marine and railroad supply houses; many boats and trains still use this standard DC voltage. And 110-volt DC equipment (i.e., a universal motor) is readily available through many farm equipment and surplus sources.

The other components—light bulb, power relay, thermostat, etc.—in the refrigerator get the same treatment as those where a refrigerator’s motor compressor unit is only modified (see #17 above).

19. *Power the refrigerator with a battery charger.* Once a refrigerator has been converted to low-voltage DC operation (or if it’s originally designed that way), it is ready to use the energy of the sun, wind, and water all around us. Another source of energy is the battery charger—whether it is plugged



A standard thermostat can control a relay to handle any load or motor.

into the utility grid or a standby generator. A battery charger transforms 110-volt, 60-cycle AC into lower DC voltages. This is handy in an emergency.

There are two prerequisites of a battery charger for this job—the correct (final) DC voltage and a wattage rating (the product of the output voltage and output amperage) equivalent to, or greater than, the refrigerator's power rating.

Power conversion (gas)

Servel-type (gas) refrigerators are designed to accomplish refrigeration with a small gas flame as the power source. Naturally, these operate on a principle that's very different than ones equipped with a motor-compressor unit. The fuel that is used also varies. Natural gas, propane, and butane are commonplace fuels, while an occasional kerosene-fueled unit may be found.

While refrigerators based on liquified fuel are dependent on oil supply and economy, they can be a real blessing for remote sites. Add in the advantage of a high-density fuel (and a 300-gallon propane tank) and you have an attractive alternative to the electric refrigerator.

Gas refrigerators don't lend themselves very well to relocation of their heat-dissipating coils, upright-to-horizontal conversions, or hybrid (refrigerator/water heater) adaptations. This is due, in part, to the sheer number and complexity of components in the gas refrigerator. However, the owner of a gas refrigerator is not altogether restricted. After all, there are other sources of heat than a flame.

Note: The three conversions suggested in this section apply specifically to Servel refrigerators, with which the author has experience. Other makes of gas refrigerators will make use of the same principles described herein, but specific component parts and processes will vary. A copy of the master Servel Service Manual, which

covers all models, is available for \$10 from me at Box 327, Willits, CA 95490.

20. Convert the unit to the correct fuel. Since a stock Servel-type refrigerator can utilize any one of three fuels—natural gas, propane, or butane—with the change of only a few small parts, you must consider the possibility that the unit you own is *not* set up for the gas you intend to use.

If your unit operates poorly or not at all, this is immediately suspect. However, the BTU differences between these fuels can be slight enough that you could operate the refrigerator on the wrong gas and never know it. Using the wrong parts, the refrigerator will run too rich or lean, waste gas, and force more frequent refills.

How can you tell if the unit does need conversion? Easy. Conversion involves three things: the orifice (jet), the turbulator, and an adjustment (maybe). The first thing you do is locate and remove the burner assembly from the refrigerator. Next, find the jet (that's the orifice in gas lingo), unscrew it, and extract the turbulator.

Does it have one groove or two grooves? One groove is used with LP (liquified propane) and two grooves are used with natural gas (city gas line). So, if you're converting to propane, and you've got a two-groove turbulator, you need a one-groove turbulator.

Since propane is a higher-density fuel (more BTUs per cubic foot) than natural gas, it takes less propane to do the same job. Hence, the burner orifice (jet) must be replaced with one with a smaller diameter (hole). Don't jump to conclusions; even if the correct turbulator is installed, this doesn't mean that the orifice is of the correct size. And vice versa. Check it. It could be expensive (in gas and money) to assume that both were changed at the same time.

Both the turbulator and orifices for the burner assemblies of *all* makes and models of Servel refrigerators are

still available. Remarkably, the cost of both parts seldom exceeds \$5-8. Obtain them from, or through, your local LP gas office. The Servel Service Manual will prove invaluable here, since the store may not have the cross reference needed to select these components. The manual, then, will help you identify the model you own, and it contains the charts and tables to assist in selecting the correct size of the jet orifice for the fuel you're using. Then, it's a matter of cross-referencing the two.

21. Modify the gas refrigerator for AC or DC operation. The gas flame in the heater box of a Servel refrigerator generates a finite (specific) amount of heat. If you can provide the same amount of heat from any other energy source, the refrigerator will still work. And two convenient sources are 110Vac (utility, generator, or inverter) and 12V DC (batteries, solar modules, mini-hydro, and wind power).

A sealed heat coil is commercially available for use with Servel and other refrigerators (Jeff's Gas Appliance, 549 Central, Willits, CA 95490). It is available for either 110V or 12V electricity and costs about \$40. There are several wattage ratings available (depending on model numbers) with the average about 325-375 watts. That's about 3 amps at 110V and about 30 amps at 12V. I didn't know this when I wanted to experiment in "electrifying" my Servel about 25 years ago (see sidebar, Gas-to-Electric Conversion). Hence, I built both coil and control circuitry. [If you buy a 12V heater resistor, you may need a control circuit similar to mine (see Fig. 5). The contacts on most thermostats will not handle the high current at 12VDC.]

The real beauty of this setup—operating a gas refrigerator from electricity—is that it does not interfere with using gas. If you want to use gas again, simply pull out the coil and re-light the pilot. Want to go back to electric? Turn off the pilot and shove

the coil back up into the heater tube. Conversion from one to the other should require only a few minutes. A few extra notes are in order. First, don't be tempted into leaving the electric coil in the heater box during operation with gas. It won't work. Second, during gas operation, exhaust fumes are given off by the flame, and these are channeled through a vent tube to the top of the refrigerator. (The tube will vent into the room unless routed outside.) Electric heat provides *no* exhaust fumes, but the air it warms will rise and carry away some of that precious electric heat. When you use the electric coil, close off this vent. Aluminum foil will do nicely for a cover—squish it down for a tight seal. I'll leave it to you to figure out a fool-proof means of installing/removing the cover as you switch from gas to electric, and vice versa.

What if you don't think you have enough electricity to operate a gas refrigerator part time, much less full time, on electricity? I'd recommend, at least, that you buy the parts for the electric heater coil. In an emergency, even if it's only something as simple as running out of propane, you can always power your refrigerator for a while from a car battery or a 110V source.

It's better to have it (or the parts) and not need it than to need it and not have it.

Purchasing a new refrigerator

Thus far, this article assumes that you *have* a refrigerator, that you'll probably want to keep it, and that it may lend itself to the modifications you deem necessary. Nevertheless, an awkward accumulation of design deficiencies in your present unit, an inherent mismatch between available refrigeration and a low-yield energy site, or ownership of a refrigerator that is simply too large for your present needs are all good reasons to consider purchasing a new one.

If you're in the market for a new refrigerator, it's an ideal time to apply the information discussed in foregoing sections. Two goals are worth pursuing. The first is to find a refrigerator which has the *least* number of design deficiencies *you* consider important. And, secondly, get a refrigerator which has design deficiencies that *you* can change. Applying both, item by item, will help match the new unit to your unique situation with the least expenditure of time and energy on your part.

Be forewarned. You may find little "relief" in the purchase of a new, standard refrigerator. Sorry, while there may be more impetus to make energy efficient changes today, there hasn't been in the past. Manufacturers don't pay your utility bills. For this reason, "newer" stuff isn't always "better" stuff. So, if you're led to this section because of the apparent convenience of purchasing anew, instead of reworking your old unit, don't be shocked if you find yourself reconsidering the modification of your present refrigerator. It may look far more attractive after you've looked at the purchasing options.

22. Purchase and modify an old 110-volt refrigerator. A new refrigerator may, in fact, only be another refrigerator. Even if you want to convert it—say, to low-voltage DC—buying a second 110-volt AC refrigerator may be a wise choice.

Why? I can list four reasons. First, you can continue to use the refrigerator you already have. Modification comes under the heading of experimentation and that consumes time and can result in setbacks; both conflict with the everyday need for refrigeration. Second, if your pocketbook is a wee thin, a "standard" refrigerator is a lot less expensive to buy than one which is brand new, or special-built. Three, since you plan to modify the unit anyway, you don't necessarily need a *working* unit. A refrigerator with a burned-out motor-compressor unit is adequate (if you're replacing it

anyway) and *always* cheaper than one which is working. And, fourth, since 110-volt AC refrigerators are so commonplace, you've a wider range of models and sizes to choose from. Hence, it's easier to find precisely what you're looking for.

What questions do you want to ask yourself as you search for a suitable unit? Is it in good shape? Will it fit into that special place in your pantry? kitchen? root cellar? Is it a frost-free type? What problems, if any, was it experiencing when it was last used? Is the door warped? Is the gasket okay? Is it the right size (be very critical here)? Are its shelves (they're there, aren't they?) easily removed? Are the "coolworks" easily removed? Can you buy it for less than \$10? \$15? \$20? Be selective.

23. Purchase an RV- or PV-type refrigerator. With the RV (recreational vehicle) boom a few years ago, a new breed of refrigerator was born. Instead of the "scaled down" gas and electric versions found in homes, this new "type" of unit would operate from as many as *three* different energy sources: gas (propane), 110-volts AC (utility power), and 12-volts DC (car battery).

I like the idea of a refrigerator which can use two or more energy sources. However, the actual product is marred by a number of disadvantages. The first is immediately apparent. These things are *small*. Characteristically, only a few cubic feet of space is available. The second problem is that, designed for portability, the units are really compact. Hence, the HDC are positioned in a tangle of plumbing and, in the few units I've seen, it would be a nightmare to remove the coils. A third concern is lifespan. Considering the intended application of the refrigerator—for weekend and vacation use only—I wonder how the unit will hold up in continuous use. Fourth, like station wagons, anything which tries to be two or more things often compromises each one. So, the units tend to be inefficient in any spe-

cific mode. The fifth and final objection is the price. You pay top dollar for the few cubic feet of refrigeration you get.

The booming PV (photovoltaic, or solar cell) industry has also prompted special consideration for efficient refrigeration. Unlike the RV emphasis, refrigerators designed for use in PV systems *must* be efficient because very little power is available. For example, a 17-cubic foot SunFrost consumes less than 0.5 kWh per day on 12VDC. The price of the unit *seems* high—around \$1,200-1,500 depending on size. However, when you consider that this unit would take two *years* to consume the energy used by a standard refrigerator in one *month*, it's worth a second glance.

It's hard to imagine shelling out more than a thousand dollars for a refrigerator, isn't it? Still, the cost/benefit ratio of this new breed of refrigerators is quite good. (Sun Frost, P.O. Box 1101, Arcata, CA 95518. Tel: (707) 822-9095)

For anyone able and willing to make their own, well-insulated refrigerator enclosure (as in sailboats), consider purchasing the "coolworks" for one of these super-efficient refrigerators.

24. Find and buy a Servel (or other brand of gas) refrigerator. There are a lot of old gas refrigerators out there, folks. Since electric is still the rage, they're fairly inexpensive to buy. If you only wish to use them on gas, fine. Later, you might consider an electric options (see #21 above).

The biggest problem with buying a Servel is finding one that's in operating condition. Since most are stored in a barn or lying out in the weeds out back somewhere, you can't be sure they'll work until you get them home and hook them up. Sure, the pricetag may be very low. Nevertheless, buying \$25 worth of junk is still a net loss of \$25. And, since there are a *wide* range of models and sizes (I've yet to see two that were identical), don't count on using a dud for parts.

However, Servel refrigerators may still be found in good condition. Why? Because they were often replaced with electric equivalents *before* they wore out. This is also the reason why they weren't simply hauled off to the dump. So, despite their vintage, they're fairly easy to find. Running an ad is one way to find them. If you're lucky, the local refrigerator man in rural areas is likely to sell and service them, or know where some are. Look it over closely (see the sidebar, Inspecting a Servel Refrigerator) to weed out the poor candidates.

A final comment. Servel refrigerators are neat old "horses," but if you seriously don't need a gas option in a refrigerator, stay away from them. There are many modifications—relocation of the HDC, hybrid refrigerator/water heater, conversion from upright to horizontal orientation, all-around insulation, etc.—that are impossible to perform on them. If these are important to you, look at other options.

25. Build your own refrigerator using a solid-state module. An exciting newcomer to the refrigeration field is the thermoelectric cooling module. Unlike the electric or propane-based refrigerators, this does it all with transistors. No kidding! Only it's just one big, special transistor. And when you apply electricity to it, something amazing happens—one side of the module gets hot and the other side gets cold. It's a heat pump which employs the principle of the Peltier effect. You've got to see it to believe it.

The Peltier module is used in battery-powered coolers at 6 or 12 Volts DC. Power consumption is less than 50 watts. The efficiency is low—about 10-15%—about the same as PV modules. Polarity is important; if the leads are reversed, the unit will cool and heat on (respectively) opposite sides. Some models come complete with a ther-

Gas-to-electric conversion

Many years ago, I fabricated my own electric-option for my Servel. First, I wound a length of nichrome wire around an insulator. I used an old porcelain through-wall (electrical wire) insulator; this supports the nichrome wire, safely dissipates its heat, and allows one of the power leads to be run *through* the coil. Next, electrical wire power leads of an appropriate length were added. I screwed them on. I figured soldered connections would melt with the heat.

Before I installed the electric coil, I rolled a thin section of mica insulator sheet into a tube shape, and inserted it up the heater tube (in the refrigerator) in the portion normally exposed to the gas flame. Since the heater tube is metal, I wanted the mica to keep the nichrome wire from contacting and, thereby, shorting out against the tube wall. I was aware that I would interfere with heat transfer. Next, I inserted the heater coil and bent the trailing wires to help support it.

This worked but I am happy to shell out the 38 bucks for a sealed, ready-to-go heater coil that was designed for this job!

The electric heater coil may be controlled by a simple switch. Turn it on when you want refrigeration and off when everything's cold. It is possible to size the coil's wattage rating for a continuous "on," but since a refrigerator's cooling needs fluctuate considerably through any given 24-hour period, the food will alternately freeze or thaw. During gas operation, I observed that my Servel gas refrigerator was "on" an average of 20 minutes per hour, or *less*. I was unwilling to babysit my refrigerator.

Unfortunately, the thermostat already installed in the unit was designed for gas and not electric operation.

Fortunately, there is a solution. Install a standard thermostat (like those found in electric refrigerators) in your gas model and have it operate a power relay for heater coil operation (see Fig. 5). The power relay should have an efficient coil resistance for the voltage. Also, its contacts must be able to handle the DC current.

Inspecting a Servel refrigerator

When you have found an old Servel refrigerator, it's time for a closer look. Is it all there? It should have a door with a working latch and a decent gasket, trays, gas line, burner assembly, backplate, and thermostat. After you've looked at the innards and *before* you go any further, ask yourself if this unit is of the right size (capacity). If not—it's too big or too small—don't tempt yourself any further; walk away and search elsewhere.

Next, closely examine the back of the Servel, unscrewing and removing the backplates, as necessary. Ammonia is a great refrigerant but it attacks copper. For this reason, the "coolworks" will use cast iron or steel pipes and fittings. The point? If everything you see is dirty but still painted, chances are that everything's okay. However, if you see lots of rust, this may be trouble.

Unless the unit is connected to a gas line, there's no way you can know if it will still work or not. Even if the owner says it was working when it was disconnected, that does *not* mean that it will work now. I won't tell you what to do at this point; it's your money, so it's your risk. However, you might point this out to the owner; it may help to bring the price down.

Servel refrigerators, even the smaller models, are *very* heavy. A number of strong bodies and a heavy-duty handcart are indispensable when it comes to moving a purchased unit onto a truck bed. Always tape the door shut, as even a working latch can be snagged and the door can open at an inconvenient (or dangerous) moment. If it doesn't whack someone, it will probably damage itself. Also, only jack

the refrigerator from the sides, *never* from the front or back. If you can't safely tie it off (in the truck) in an upright position, lay it down on its side. Some old rug parts, blankets, even a sheet will help as it's lifted or pushed onto, or out of, a truckbed. Strap it down tight and drive slowly. Treat it as you would a rare player piano.

Once you've got it home, clean it up, locate the burner assembly, disassemble the jet, and determine whether or not it will require conversion to the gas you intend to use (see #20 above). Can't figure out where the burner assembly is? Get a service manual.

Many a Servel unit has been hauled off to the junkyard after a revival attempt has "failed" simply because the unit was not burped. Yeah, you read it right. Just like a baby—BURPED! In disuse, an ammonia bubble can get trapped in some part of the plumbing and, when re-activated, fail to dislodge. This will prevent cooling.

How do you burp a Servel? Just like a baby, of course. Well, after you've removed the trays and other loose parts, and taped the door shut. Next, lay the refrigerator on its side, and roll it up onto its top, *carefully*. A complete roll to the other side is fine if room permits, but, while it's upside down, thump it, rock it, and jar it. Work that bubble loose. Of course, if the unit has other problems, this won't help. More often than not, however, this *is* the problem and the refrigerator will work after burping it. Folks who laugh at this procedure, claiming their units didn't have the problem, don't realize they may have inadvertently "burped" their unit transporting it over the bumpy road to their place.

will prevent widespread use.

The Peltier module was interesting to me when I was looking for a way to piggyback (or hybrid) a refrigerator with a water heater (see sidebar, A hybrid refrigerator/water heater, and Fig. 6). Since water conducts heat away more about a 150 times faster than air, the module's shape is ideal for interfacing the heater and the cooler on which it is stacked. I figured the module's efficiency would be at optimum and the heat normally wasted recovered for a practical use.

The main obstacle in using solid-state modules for refrigeration is finding a source for them. Contact a company which sells the picnic-type units like Koolatron; they may sell the modules separately. In the proper environment—good insulation, small container capacity, essential cooling needs, and a knowledgeable operator—the thermoelectric cooling module is a technology searching for an application.

Refrigeration alternatives

I have gotten so caught up in the various ways of perfecting refrigeration that I have failed to realize that one of the best schemes is to reduce the *need* for it by pursuing alternatives. Anybody who uses a refrigerator seldom considers what mankind did *before* the refrigerator

mostat for unattended operation; others don't, necessitating manual on-and-off switching.

Correctly applied, each module is capable of freezing up to two cubic feet of space or providing normal refrigeration up to four cubic feet. If greater cooling capacity is needed,

additional modules may be "ganged" (paralleled) together. In fact, the 12-volt model is really two 6-volt modules in series. More cooling is available from extra modules but the power consumption also increases proportionally. It's the pricetag, at \$150-200 per module, and low efficiency that

was developed. Some may remember cutting ice from lakes, storing it in well-insulated buildings, and the daily task of transferring small chunks to the “icebox” in the house. But let’s go back still further in time.

In the pre-icebox era, how *was* food preserved? Basically, people used one or more of four techniques: root-cellar, canning, dehydration, or controlled supply. Let’s look at them one at a time.

26. Build and use a root cellar. The secret to the root cellar is that it’s tucked down into the midst of the biggest thermal flywheel we know—the earth. In a 12-hour span, air temperatures may vary as much as 100 degrees F above ground. Several feet into the earth, however, there may not occur a one-degree change. Season to season, the same in-earth spot may vary by only 10-20 degrees F.

Traditionally, root cellars are built under the house. This provides easy access and cuts down on the cost of

separate construction. Another important aspect of this design is that the house itself acts as a buffer against surface-side temperature fluctuations. One built separately from a house must be snuggled down a little further in the ground to avoid the influence of temperature variations at the cellar’s weakest boundary—it’s ceiling and entrance.

What kinds of food can be stored in a root cellar? Garden produce and grains. Vegetables have a natural protection against weather and, when ripe, may be kept for exceptionally long periods merely by keeping them cool. Most types of grain—stored in air-tight, air-evacuated (vacuum or gas-filled) containers, and kept from temperature extremes and direct sunlight—will keep almost indefinitely. It may appear that a root cellar’s main function is to protect food from the ravages of summer heat, but this isn’t true. Vegetables are just as susceptible to damage by severe cold or freezing. So, the root cellar’s moderating influence is also essential during winter months.

Grain and vegetables constitute less than 50% of the average person’s daily diet. Also, the root cellar may prove inadequate in light of the cooler temperatures required to preserve other foods—dairy and poultry products, meats, and frozen vegetables. Nevertheless, the root cellar keeps vegetables and grains out of the refrigerator and, in the process, cuts down the size of a unit needed to handle perishables.

27. Learn canning for food-stuffs. Canning involves all types of foods but focuses principally on fruits and vegetables; preserves, pick-

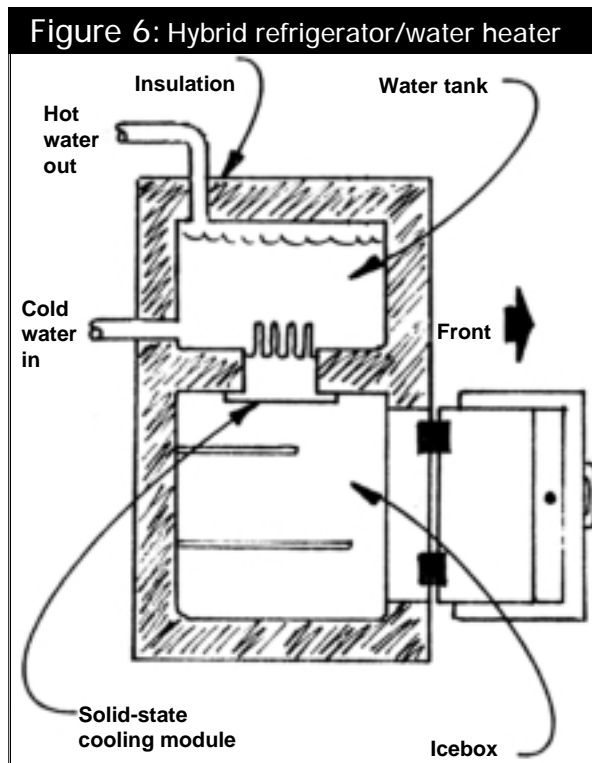
les, jams and jellies are the end product. However, meat, poultry, and seafood can also be canned. Canning requires no energy in storing the finished product, but it will require a strong heat source and the energy of your own labor to prepare. By comparison, freezing foods predominates now for its obvious advantage in convenience, but its main disadvantage is high energy consumption for the duration of the storage.

Improper processing when canning produces a toxin which causes botulism poisoning. It’s the fear of this possibility which turns prospective canners away from this food preservation technique. This is both unreasonable and unfortunate. When tried-and-proven recipes are used and other processes are followed for jar preparation, there is no danger. *Backwoods Home Magazine* has had a number of articles on canning in past issues.

28. Dehydrate your food. Another food preservation technique is dehydration. Involving low-temperature heat, freezing temperatures, or vacuum, this process drives water from foods. As a result, the final product is sealed against the normal pace of decomposition. The final product can be eaten “as is,” or reconstituted with water.

The most widely-known example of food dehydration is beef jerky. Although the process is carried out in gas or electric ovens nowadays, the original version involved stretching the thin strips of meat out on sun-baked rocks. In addition to the preparation, the cook had to stick around to fend off animals, birds, flies, and other insects lured by the delicious scent.

A person serious about using this food preservation technique could easily build a solar dryer for unattended drying of bulk quantities of fruit, produce, and meat. The popularity and high cost of dried fruits and meats should be indication enough of what you could do with any surplus dried foods from this inexpensive process.



A hybrid refrigerator/water heater built around a solid-state module.

A hybrid refrigerator/water heater

The thermo-electric cooling module (based on the Peltier effect) is capable of keeping a small, well-insulated compartment 40°F below ambient-air temperature. However, touch the "hot" side of the unit after it's been in operation for a while, and you can get burned. Why is the metal hotter than the air temperature? Even with the cooling fan, it's just time for the heat to leave the radiating fins. But, if you piggyback this module—its hot side—into a water tank (after removing the fan and other hardware) things get better (see Fig. 6). Why? Water conducts heat away nearly 150 times faster than air.

In this design, the refrigerator is at the lowest point, the water heater at the highest, and the module is inserted in a hole between them. When switched on, the module "conducts" heat from the lower side to the upper side. In the refrigerator, the cooled air falls and the (relatively) warmer air rises to be conducted out of the refrigerated space. In the tank above, the water in contact with the

module will be heated and rise, allowing cooler water to rush downward and, in turn, be heated.

The module is only capable of conducting a small number of BTUs per hour. In this application, its performance will be significantly better, yet probably not double that of air transfer. Deep insulation, particularly at the cold box/water heater junction, minimizes losses. The rate of energy transfer between refrigerator and water tank may be increased by adding more modules.

The "hot" face of the thermoelectric module is aluminum. After an indeterminate time with exposure to water, it will corrode and may become plated with minerals in the water it heats. For this reason, provide access to the modules for periodic cleaning and make use of galvanic gizmos to minimize the interaction of dissimilar metals. Since tanks of water heat from the top down, add a thermostatic switch to the tank to activate a light or buzzer when the water at the bottom of the tank starts to get warm. In other words, it's time to use that heated water. Shower time.

29. *Control and "pace" your food supply.* A controlled supply means that you keep your food alive—on the hoof or on the vine—until you're ready to use it. If it's ripe, it's ripe; if it's not eaten or preserved, the food will rot, spoil, or become unpalatable. Therefore, in a controlled supply, one staggers the ripening or aging of food so that it comes due as frequently and as reliably as a trip to the store each week.

Meat supplied from domestic animals is another issue. Unlike the relative freedom we may enjoy in picking small or large quantities of vegetables, fruits, or nuts, with animals we're stuck with irreversible "harvests." What portion of it we don't immediately consume *must* be preserved or suffer a loss to spoilage. It wasn't long before raising rabbits for food got to me, and the experience nudged me just that much closer to being a vegetarian. It was the extra effort. When we finally got to the point where there was sufficient food coming from the gardens to maintain our rabbits with-

out the outside purchase of feed, it was also easy to see that we were adding an unnecessary step. In the final analysis, then, the extra energy, water, and grain was too great to justify the meager return.

Last thoughts

A lot of ideas and techniques have been covered in the foregoing sections. While you catch your breath, may I suggest a plan for implementing some of these ideas?

- Seriously consider exactly what it is you want that requires refrigeration.
- Consider one primary and (optionally) one or more secondary power sources for refrigeration. No single source—or the equipment which converts it to useful form—is 100% reliable.
- What conversions, modifications, and replacements appeal to you? Which of these can you perform yourself? Do you have the time, energy, skills, and tools? What will the materials cost? If you need (or want) help, is

it available? What will it cost? Is it worth it? Be honest with yourself.

- Are you willing to change some operator habits? Do you need to re-site the refrigerator?

Solid answers to these questions will make other options clearer and, hopefully, subsequent decisions easier to make.

(Michael Hackleman, P.O. Box 327, Willits, CA 95490, is the author of Better Use of Alternative Energy and At Home with Alternative Energy. Currently out of print, both are available at libraries.) Δ

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Plant a

Y2K Garden

A guide to growing the best crops for coping

By Robert L. Williams

If the Millennium Bug hits hard, one of the best friends you can have is a practical garden. A key consideration in such a garden is which types of produce can be harvested and simply dumped into a root cellar or dark closet, without processing, and left there until needed.

Another consideration, are the types of crops that can be grown in a small area, side-by-side, or among other crops to save space.

Potatoes

Grow Irish potatoes. They are a rich source of complex carbohydrates, one of the essentials of a good diet.

A standard practice of many experienced gardeners is to make potato hills six feet apart in rows spaced six feet apart so they can get their garden tractors and tillers into the space between rows. But if you have a small garden space, this space between plants and rows is not only wasted but a superb breeding ground for weeds and other garden pests. If you grow Irish potatoes, there is no reason for this wasted space as the tubers usually concentrate their growth to a space 18 inches in diameter under the plants.

Between the rows and plants you can grow a variety of other vegetables. If you can spare the space, plant four rows 200 feet long. You can plant two or three eyes in each hill and the hills need not be more than 18 inches apart.

I advise resisting the temptation to grub the new potatoes too early. While these little nuggets are wonderful, remember: for each tiny potato you scratch and eat, you have eliminated the chance for the young spud to triple or quadruple in size within the next few days. Each tiny potato harvested destroys a large one.

When you dig the potatoes, store them in a cool, dry place, such as a good basement. That's all you need do. No canning or freezing or dehydrating is necessary or even recommended. However, if you do not have a good storage space, you can can potatoes in a very easy manner. Because they are non-acid, however, you need to pressure-can them to prevent botulism. And you can, if you

wish, dehydrate or dry them. But once dried, store them in a cool place in sealed containers, otherwise, temperature and humidity will rehydrate the potatoes and cause them to spoil.

Corn

Another good crop is corn. I recommend one of the old-fashioned types that can be used for what we used to call roasting ears. If you have a large garden space, plant an entire field. If you have a small space, plant corn between the Irish potato rows (and you can plant beans along side the potato rows and let the beans climb the cornstalks).

How much should you plant? You will harvest at best two or three ears from each stalk. If there are five adult members of your family, figure three meals of corn per week, so you will need one ear or its equivalent for each diner per meal. That's 15 ears per week, 60 per month, or 720 for a year. That's roughly 300 corn stalks.

Corn can be canned, dried, or frozen. Again, it is not a high-acid vegetable, so you will need to pressure it at a high level for 90 minutes or so. Usually 10 pounds of pressure will suffice, but check your canning books for details.

If you dry it, it will keep on the cob for several months unless it absorbs too much moisture. But remember, mice, rats, and squirrels love it too, so keep it protected.

You can also freeze corn, either as whole ears or as kernels cut off the cobs. But if you have a long power loss, you will need to use the corn quickly or lose it.

Beans

A crop no garden should be without is beans. There are many kinds you can grow, but pinto beans grow well in many parts of the country and they produce bountifully. The more you pick them, the more they seem to grow. You can shell beans and then let them air-dry before storing them in

bags, or you can leave them on the plants and they will dry naturally. The problem is that if you don't pick them the plants will stop producing blossoms or will at least slow down.

You can also leave the beans in their shells and dry them. A favorite way for the old-timers to shell pinto beans or peas was to put the unshelled beans or peas into a tow sack, then beat the daylight out of the sack until the dried shells were smashed and the beans were loose.

Another dandy way to dry many kinds of beans was to use a needle and thread and sew them into a long string and stretch the string from one nail to another in a spare room (near the ceiling) and let them dry on the string. Such beans, usually green beans, string beans, or half-runners were called leather-britches.

How many beans should you plant? For the big gardener, I recommend four or five 200-foot rows. Stagger the planting so that all of the beans won't be ready to pick at the same time. Make the plantings two weeks apart and as soon as one row dies out replant it. You can get two or three crops, depending upon where you live.

For the small gardener, plant the beans around the corn stalks in the potato patch. I don't mean dropping a bean between each set of two cornstalks. Plant the beans, particularly the half-runners or other climbing beans in a circle around each of the cornstalks. Let the plants climb the stalks and when it is time to pick the beans you don't have to bend over for agonizing lengths of time.

Another bonus: when the beans are growing off the ground, there is not as much rot or pest damage.

How many beans should you store? A bushel of beans in shells reduces to a small sack of shelled and dried beans, but a cupful of dried beans will expand into a nice potful of beans for a family meal. If I had a family of five, I'd plan to eat dried beans at least three times a week. This means six cupfuls of dried beans per week.



You'd be wise to have at least 25 pounds of dried beans on hand if you plan to be prepared for months of emergency.

If you eat a generous helping of dried beans and another helping of rice you have consumed enough protein to keep your body fit, healthy, energetic, and strong. You do not need any animal protein if you have your regular fix of beans and rice.

Tomatoes

Grow tomatoes. Lots of them. There are few quick meals more satisfying than a tomato sandwich with a plate of beans and an ear of corn. You can can tomatoes easily and you can freeze them. But did you realize that dehydrated tomatoes are wonderful and also easy to prepare?

You can also wrap the tomatoes in newspapers and store them in a cool, dry place. This method of storing works best if you will wait until the very last part of summer and, before the first frost of the season strikes, pick all of the green tomatoes you can find. Pick tomatoes of every shape and size because the frost will destroy any left on the vine.

Inside the house, wrap the green tomatoes, individually, in pieces of newspaper and place them in a box or other stable container and store the box in a closet or under a bed. The root cellar is a great place. They will ripen slowly and uniformly in their wrapping paper and will taste as if they were just picked.

How many tomatoes should you grow? If you have plenty of space, grow 100 plants and can them as fast as they produce. Tomatoes are high-acid and the danger of a botulism problem is minimal. Remember, you can also dehydrate them easily.

If you have little space, you can grow tomatoes in five-gallon cans or in the back corner of the lot. Set them out behind or beside the garage or car port. Grow them alongside the woodshed or utility building. Tomatoes are

loaded with nutrients and flavor, and you can use them in a variety of dishes and sauces.

Cucumbers

As space permits, grow tons of cucumbers. These delights will produce wonderfully if they have a fence to climb and grow upon and, if you don't have a fence, you can use the circular wire cages for the same effect. But if you wish, grow them in the corn patch. Let the cucumber vines run along the ground throughout the corn field. The ground cover provided by the cukes will help to hold in the moisture and to keep the weeds down.

Nature had decreed that no two plants are likely to grow in exactly the same space, so since Nature abhors a vacuum, if you do not fill the available ground space with plants, there will be weeds and you must spend a great deal of time hoeing.

Cucumbers will not keep long in a fresh state, but you can make them into pickles of all sorts. And pickles add spice to almost any meal you can serve.

Squash

Grow a dozen hills of acorn or winter squash. These plants produce in large numbers and squash will keep without freezing or canning for months and months.

Regular crookneck or yellow squash provides a quick and bountiful harvest. This squash is wonderful fried, baked, raw, in salads, or in casseroles. You can also dehydrate or can squash with good results.

How much should you grow? If space permits, set out a dozen hills and every two or three weeks start additional hills. You must have ample time to handle the profusion of squash you will harvest. Don't let it go to waste. Can it or dry it constantly. As one hill dies, start another in its place. It will produce well until frost or freezing nights.

If space is at a premium, settle for two hills and keep replanting them. Even when the hills are still producing, punch seeds into the ground under the older plant and let the new growth move toward adulthood while the older plant is fading.

Pumpkins

One plant that thrives under nearly all growing conditions is the pumpkin. You can start a row or two of string beans and when the beans begin to climb the poles or cords you have set up for them, plant pumpkins between the rows and let the vines have their own way and cover the soil in the bean patch and beyond.

You may harvest two dozen pumpkins from the patch and, while the number is small, the size may be great. Pumpkins, like acorn squash, will keep indefinitely if you will leave them in the patch until they reach full maturity then take them indoors to a cool, dry place. We hauled some of our pumpkins in an old wheelbarrow into the storage area and simply left them in the wheelbarrow. They were



Cabbage is easy to grow and easy to preserve. It will keep for weeks as it is and it will last for a year or more in the form of kraut.

all sound and terrific when we were ready to use them.

Remember you can freeze, can, or dehydrate pumpkin and it will keep well if you don't have a good storage place for the whole crop. Pumpkin is nourishing and makes an appetizing pie. You can also bake the seeds for another treat.

Carrots

A crop that requires little space but produces well is the carrot. You can chop the soil finely around the perimeter of other plants, or under corn, and sprinkle carrot seeds into the soil. Carrots require very little attention and when you harvest them you can hang them in a cool, dry place and they will keep indefinitely. Or you can freeze or dehydrate them.

Lettuce

Make an all-weather lettuce bed (and sprinkle spinach seeds in along with the lettuce) and you can harvest greenery for salads and sandwiches all year. Best of all, you need not worry about canning or preserving in any way. Let the mature plants go to seed and they will reseed the patch. A recent issue of *Backwoods Home Magazine* (#54 Nov/Dec 1998) contains an article on the all-year lettuce patch.

Greens

Other inexpensive, easy, and long-lasting crops are greens. A pinch of seeds will plant a fairly large area and you will find that the crop will germinate within three or four days and within a few more days you can start picking and eating from the garden. We usually buy rape, kale, mustard, turnip, and radish seed (and whatever else looks good at the time) and sow them all together.

When the crop is far enough along, you can pick the greens and cook these, or you can add a turnip or two and maybe pick a few of the radishes

for a special treat. Greens are filling and they are filled with vitamins.

You can use some of your corn to grind into meal and have your own supply of cornmeal for corn bread to enjoy with the dried beans and turnip greens.

Cabbage

Wherever there is a little space, set out a cabbage plant. You don't have to plant these in a patch the way it is traditionally done. You can grow one here and there, anywhere you can find the empty space. In a really efficient garden there should be very few places where the soil is visible during the height of the growing season. A cabbage plant will require about two square feet if the cabbage does well.

We have grown cabbages that are 36-inches across the huge outer leaves and weighed 12 to 15 pounds. You can keep cabbage indefinitely by putting the heads into a mesh bag or sack and hanging the sack in a cool, dry place. If you start to smell the cabbage as it becomes stronger and stronger, you can use it to make kraut, which will keep, essentially, forever.

Melons

If space permits, grow melons: watermelons, cantaloupes, honeydew melons, and others. You can eat the melons fresh or you can store them in a cool place, such as on the basement floor, for several weeks.

You can also dehydrate the melons, and they taste terrific with all the moisture removed. Check out a recent article in this magazine for details on how to dehydrate melons (#52 Jul/Aug 1998).

Wheat and rye

If you can, grow wheat or rye. Or both. You will need an area 100 feet long and 75 feet wide for a sufficient growth of wheat. You can start your wheat while it is too cold for other garden plants to grow and you will harvest the crop before you need the land for other crops.

When the wheat is mature, the plants will turn a golden brown and the seeds will be in a cluster at the top, like grass seeds. You can pull the grain by hand and later winnow it by rubbing a handful briskly to free the grain from the chaff. You can grind it in a small hand-operated grinder you can buy for



When you harvest your corn, prepare it immediately for storage. If it stands long, it will become tough. A small patch yields more than you would believe.

a fairly small amount of money. The grinders last forever under normal usage and, while you cannot grind the grain fast enough to produce enough flour to market, you can keep your own family supplied with flour for breads, gravies, pie crusts, and cakes.

Peanuts

Grow as many peanuts as you can. These tubers, which are not nuts but are in the legume or pea family, are very nutritious, and can be used in many recipes but are enjoyed most by eating them roasted, either in the shell or shelled.

It is rare to find anyone who does not like peanuts, whether in peanut brittle, as a substitute for pecans in pies, or on their own. You will need to grow a dozen rows 300 feet long if you have the space.

When you harvest the peanuts, you can pull the bush up and leave the tubers attached and haul the crop to the storage area. Later you can pick off the peanuts store these. Peanuts will keep for ages in the shell or outside it. Warning: mice, squirrels, moles, and other pests love peanuts, so you will need to keep them protected.

Soybeans

One crop that is absolutely priceless is the soybean, which grows easily and produces mightily. You can plant a modest patch (an area 100 feet long and 75 feet wide) and harvest all the beans the deer and mice leave for you.

Soybeans keep for years if they are protected in a closed container. Be sure they are well dried when you store them.

You can use soybeans to make flour, milk, and nearly anything else you want to eat. They are loaded with nourishment, taste terrific, and are versatile. One way we enjoy them is to put the beans in a pot, add plenty of water to cover them, then boil them for several minutes. After this, let the

beans remain in the hot water for an hour or so then remove and bake them for one hour at 250 degrees. We salt them to taste and eat them like the roasted peanuts.

Herbs

Finally, grow your own herbs. You need only a tiny amount of space to grow basil, rosemary, mint, thyme, and the other popular members of the herb garden. These plants will dry readily and retain their vigor and pungency for months. That does it for the crops you can grow that are easy to cultivate and preserve, as well as those that will keep for long periods of time without any preparation whatsoever. This is not an exhaustive list: obviously many favorites were omitted. If you have your own favorites, add them to the list. Delete anything to which you are allergic or sensitive. Or if you simply don't like it.

And what if, after all this work, it turns out that the Millennium Bug does not happen at all? What if there simply are no major problems?

In that case, your only problem is how to eat all of that food you have stored. And that, folks, is one of the nicest problems you will ever have. Δ

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**SEND
IN THE
WACO
KILLERS**

Three times the International Society of Newspaper Editors has included Vin Suprynowicz in their list of the 12 top weekly editorial writers in North America. For years his shoot-from-the-hip style has opened the eyes of thousands to government abuse of our liberties. In this book, *Send in the Waco Killers*, he blends material taken from his syndicated column with new commentary to give the reader a detailed, reporter's-eye-view of how the rights and freedoms of Americans are being subverted.

He uses factual accounts from the daily news to show how the Feds use the drug war, the public schools, jury rights, property rights, the IRS, gun control, and anti-militia hysteria to increase its power and control over us. He details how agents of the ATF and FBI have routinely lied, how they use paid informants to infiltrate Constitutionally-protected militia groups, then fabricate evidence to get arrests and discredit them.

Had he lived 225 years ago he'd have written a book to detail how King George III and Parliament have tried to enslave us but, sadly, this book is about how our government today is depriving us of our freedoms and ruining the lives of thousands without changing even one word of our Constitution.

If you read no other book this year, read *Send in the Waco Killers*. Just keep your blood pressure medication handy. 506 pages, trade paperback, \$21.95 + \$3 S&H.

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*By Alice Brantley Yeager
Photos by James O. Yeager*



Connecting with the pioneers

through gardening and foraging

The term “living off the land” conjures up a vision of basic freedom. We try to put a rosy image on the days when small log cabins

were the main dwellings for folks who were rebelling against what they considered government interference in their lives or who just wanted to be out on their own no matter what hardships they had to endure. Actually, the main requirements for living off the land involved more than a rosy image. It was imperative to own a few very nec-

essary items: long-barreled flintlock rifle, gun powder, lead and bullet molds, hunting knife, axe, awls for stitching moccasins, iron cooking pots, etc. Life wasn't easy. Most of the essential items had to be obtained by barter with various animal hides such as deer, as the frontier folks had no way of manufacturing those things.

If we had to garden as the backwoodsmen and their families did, we'd quickly come to respect our modern tools and take care of them. Gardens were located in the clearings where the cabins were built and were mainly worked with crude tools fashioned from improvisation and stout tree limbs. Any metal parts of tools, such as hoe blades, had to be obtained by barter. People did not have much choice of seeds—corn, beans, and squash probably being some of the more widely cultivated plants. Seed saving was of prime necessity. Fortunately, many native food plants grew abundantly—various berries, greens of many sorts, Jerusalem artichokes, cat-tails, mushrooms, ferns,

wild fruit, nuts, etc. Friendly Indians sometimes gave helpful information on the use of native plants. Otherwise, knowledge was gained on a trial and error basis.

We pass by many of our native plants today without giving them a second look. Not so with the frontier people. Wild food plants played a big part in their survival, as some of the plants were used to provide medicine, dyes, soap, and so on. For instance, from blackberry plants came berries for kitchen use and to make wine or brandy. In addition to culinary use, leaves were dried and roots were dug, cleaned, and dried for medicinal use and stored until needed as all parts of the plant are helpful in cases of diar-

rhea and dysentery. A teaspoonful of crushed dried root was mixed with a cup of boiling water, cooled, and drunk as a remedy. One or two cups per day were taken until the condition subsided. If fresh blackberries were in season, eating a large quantity of them also gave relief.

Nothing was so disheartening as to have a food garden wiped out by marauding Indians—and worse yet, the whole homestead. Today we gardeners fuss about slugs, cutworms, various plant diseases, and the neighbors' romping cats. Quite a contrast!

In yesterday's world, when the soil "played out" in a garden spot or game became scarce, the pioneering folk gathered up their possessions and

Left: Not only are tubers of the Jerusalem Artichoke delicious, but the plant has a fringe benefit. Its three-inch wide flowers are lovely to use in table bouquets.
Below: Tokyo Cross Turnips (hybrid) have become very popular with gardeners. Tops seldom attract aphids, and the roots are mild enough to use in salads.





Florida Broadleaf Mustard has a delightful tangy taste and is good raw or cooked. Easy to grow.

moved on to another area where survival was a little easier. Today we are more restricted in our desire to move and settle wherever a whim might take us. Also, we aren't in a fight for survival. (Of course, this depends on one's point of view.)

In our way we continue to live off the land, maybe not to the extent that our forefathers did, but the land is still here and how we use it is up to us. It's unusual now to procure one's meat supply by shooting a turkey or deer from the back door of a cabin. Instead we depend on our local markets, as there are plenty of suppliers making their living raising cattle, poultry, fish, and so on. As to the rest of the food entrepreneurs—well, they're called farmers if they have extensive acreage under cultivation. Those of us who like to have our own good quality food supply participate in a top rated recreation known as food gardening. We are not totally dependent on what we raise, but we do get a kind of deep satisfaction from living off our land, whether it is a small backyard garden or one that covers a half acre. Then there are those gardeners who like to eat, but don't give a hoot about vegetable gardening. They beautify the landscape with their flower pots and plots and enjoy their garden clubs. We tillers of the soil are a many faceted

group and our roots reach far back into the annals of time.

Our gardens still contain many descendants of the plants that sustained the pioneers, but plants have been greatly improved through hybridization and selective breeding. Take greens, for instance. Those of us who love greens look forward to harvesting many types of greens—mustard, turnip, sorrel, etc. The plant breeders have given us superior tasting turnip greens such as Tokyo Cross and White

Lady. Not only are the tops delicious, but the roots are of much better quality than the old types of turnips. The modern varieties can be used in salads as well as cooked.

Turnips

Fortunately, most vegetable seeds don't take up much room to transport and people immigrating from Europe to the New World often brought seeds with them. Turnips are thought to have originated in northeastern Europe, from which many immigrants came. Turnips are easy to raise during the cool part of spring and fall, and the plants produce an abundant crop of seed when they bolt with the coming of warm weather. Turnips will keep well when stored in a cool place. We have our refrigerators; some pioneers dug root cellars.

Mustard

Mustard is another plant of European origin which has become somewhat naturalized in places due to its huge crop of seeds. Not only is mustard desirable because of its tasty leaves, but the dried seeds may be used to make dry mustard. It is advisable to harvest the seed pods before they are completely dry, however, as

the seeds scatter when the dry pods split. Clipping the stems and hanging them upside down in cloth or paper bags will contain the seeds that would otherwise fall. When thoroughly dry, the pods may be "threshed" inside the bags, and pods and trash winnowed leaving seeds ready for use. An electric blender comes in handy to reduce seeds to a powder which may be stored indefinitely in airtight jars.

One of our most popular mustard plants today is Florida Broadleaf. It is easy to grow and it will winter over where winters are mild, providing tangy leaves to use during the cold season. A tasty sandwich may be made from bread spread with butter or mayonnaise with a generous filling of fresh mustard leaves.

Peppergrass

Many wild members of the mustard family gave sustenance to the early settlers. One is peppergrass (pepperweed, poor man's pepper) which may be found growing in dry soils on roadsides, fields, clearings, etc., throughout the United States and southern Canada. The leaves have a peppery taste and may be used raw or cooked. They're best when gathered before the seed pods form in early summer. The seeds are useful, however, as they have a hot spicy taste and add zest to soups, stews, or salads. Seeds may be dried in the same way as regular mustard seeds. Rubbing the dry stems between your hands is probably the best way to separate seed pods from stems. There is no need to do anything further as seeds aren't easily separated from pods. Store in airtight containers and use when desired.

I remember peppergrass from childhood during the Great Depression when a quantity would be gathered to put with other greens. It takes quite a bit of peppergrass alone to make a pot of greens. Only the tender leaves should be cooked, as the stalks are usually tough.



Sheep Sorrel (*Rumex acetosella* - Common Sorrel, Red Sorrel) has tiny clusters of reddish flowers along a tall stem. Tiny seeds are relished by ground feeding songbirds and foraging animals may devour the whole plant. 3/4-2 inch leaves are lance shaped with two lobes pointing outward near the leaf stem. Height is 6-18 inches.

Sheep sorrel

Those of us who have been fortunate enough to spend some of our early years in the country remember walking along paths where sheep sorrel grew in abundance. I have often picked a sorrel stem and savored the sour taste of both stem and arrow-shaped leaves. This is another plant that gives a good account of itself when leaves are mixed and cooked with other greens, or used in salads. In our garden we have French sorrel, the improved version of sheep sorrel. French sorrel has large leaves and is not so tedious to gather and rinse. Both native and improved varieties are perennials. The natives are found almost all over the United States.

There are so many useful native greens that it is impossible to mention them all—lamb's quarters, purslane, poke salad, plantain, dandelion, dock, and so on. Many are perennials and will come up year after year if left

undisturbed. Most can be found throughout the United States and southern Canada and some into Mexico. If you cannot go foraging for the natives, most can be grown in gardens, taking care not to let them become invasive.

Jerusalem artichoke

Some plants yield nutritious tubers and these are usually dug after the plants have gone dormant. One of the best known is the Jerusalem artichoke, long cultivated by Indians and now found almost all over the United States. Jerusalem artichokes yield small potato-like, knobby tubers with a delicious nutty flavor. When digging the tubers it is best to dig only what is needed, leaving the rest in the ground or dug and covered with earth in a convenient place close to the kitchen. Tubers keep better covered with soil than when cleaned and refrigerated. Jerusalem artichokes may be eaten raw as a snack or in salads, and they are great fried, boiled, or scalloped. Simply wash the tubers, scrub them with a vegetable brush, and cook them as you would potatoes. (No need to peel.) The “chokes” have an advantage over potatoes as they contain no starch, but rather the carbohydrate inulin, making them safe for diabetics.

We have found through experience that Jerusalem artichokes are best grown alongside a fence as the plants can reach six to eight feet in height and tend to fall over on other plants if beset by strong winds. They can be loosely tied to the fence preventing a lot of frustration and bad words. Plants will grow in multiple soils, but seem to do best in poor soil.

Wild garlic & onion

The frontiersmen were not without plants to enhance the flavor of their meat and vegetable foods. Nothing is so widespread as members of the *Allium* genus and this includes wild onions, wild garlic, leeks, and chives.

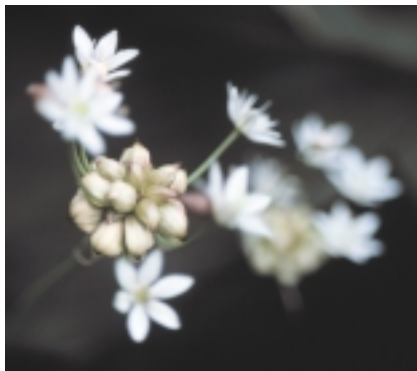


Peppergrass (*Lepidium virginicum*, one of many peppergrasses) has tiny white flowers in cross form at tips of stems. Seeds are small, round and encased in flattened papery covers with a slight notch at the top. Leaves are lance shaped and may have several small side lobes. Overall height ranges from six to thirty inches.

If in doubt of identification, use your nose, as these plants have a distinctive onion or garlic smell. All of these are easy to grow, but, like some other plants, they may try to take over a garden. As plants tend to go dormant when hot weather advances, it may be well to snip and freeze the tops when young and tender. The bulbs may be dug when dormant and spread out to dry in a shady spot. When dry, brush off dirt and store in cheesecloth bags hung in a cool room. Use when needed.

Fruits and nuts

Native fruits and nuts composed a goodly part of the pioneers' menu. Wild plum thickets produced tart fruits for jams and jellies. Other desirable wild foods were blueberries, elderberries, blackberries, dewberries, pawpaws, muscadines, wild grapes, crab apples, persimmons, hickory nuts, native pecans, butternuts, American chestnuts (now virtually



Wild garlic is easily recognized by its growth habit of sending up a stem topped by star-shaped, pinkish-white flowers surrounding a cluster of small bulblets. The plant's grass-like leaves come up in January in the South and is easily identified by its strong onion-like odor.

wiped out by chestnut blight), black walnuts, chinquapins—the list goes on and on. Many of these natives are available today, but not in the quantities found in frontier days. Due to careless loggers, city and highway expansion, clearing of land for agriculture, etc., it is not easy to find sons of the wild plants on which the pioneers depended unless one has access to large wooded or wilderness areas.

It is still possible to forage some good things from the land, but much of it is fenced or owned by people who take a dim view of others roaming around on their property. Before climbing over any fences or trespassing on open fields or woodlands, it is well to get permission from the owner.

Poke salad

Assuming all is well with the landowner, foraging for food plants is fun. In our area (southwestern Arkansas) one of the dependable native plants is poke salad. Poke is a perennial and comes up early in the spring. Some folks cut the young shoots at ground level, but this is not a good practice as cutting the main stem can destroy a plant. It's best to clip

leaves from the plant and leave the stem unharmed.

Poke leaves are easy to clean, as insects such as aphids leave poke salad alone. Just swish the leaves in some clean water to get rid of any dust particles, and parboil, that is, bring the leaves to a boil for about three minutes in a small amount of water and drain. (Use plenty of leaves as they cook down considerably.) Put in fresh water, season as you would any greens, boil until tender and that's all there is to having a delectable pot of poke salad. Pour off water and serve. You may like to top your dish of poke with some sliced hard boiled eggs.

As a plant matures, it will produce small greenish-white flowers and then berries which will turn purple-black when mature. It is well to stop harvesting leaves when the small flower heads begin to appear, as poke is also a poisonous plant when it passes a certain stage in its growth. Leaves and stems begin to turn red. Maybe this is Nature's warning sign as the plant's phytolaccic acid content increases. If you're into making ink or dyeing, the plant is still useful as the mature berries produce a nice deep royal purple color. Birds are fond of the berries and love to eat a quantity and then bomb the nearest clothesline.

Poke salad is an easy plant to raise in a garden, but it is tall growing and should be planted along a fence out of the way of shorter plants. It is a stout plant and is seldom blown over by strong winds. Just watch for poke berries in the fall on a mature plant and save some of the seed. Plant them in the spring and thin seedlings to stand about 18 inches apart. It's best to wait until the second spring before harvesting some leaves. Poke is a perennial and will serve you well once it is established. Poke does not seem to be particular as to soil, although it is found growing at its best in rich barnyard soil.

If you are interested in foraging or raising your own native plants you should either purchase a book on

native food plants or find someone who actually goes out and forages. Hands-on experience is always the best teacher. The most expensive books covering the whole United States are not necessarily the best, so browse around for a book that contains considerable information about plants in your area and gives recipes for using the good things you want to harvest.

Foraging for useful native food plants is guaranteed to open up a whole new world for you just as it did for the early settlers. It's still possible to enjoy many of the plants that served them well. Δ

SEED SOURCES

Tokyo Cross Turnip

J.W. Jung Seed Co.
335 S. High Street
Randolph, WI 53957-0001

Vermont Bean Seed Co.
Garden Lane
Fair Haven, VT 05743-0250

White Lady Turnip

Geo. W. Park Seed Co.
1 Parkton Ave.
Greenwood, SC 29647-0001

Florida Broadleaf Mustard

Vermont Bean Seed Co.

French Sorrel

Geo. W. Park Seed Co.

Jerusalem Artichoke

Vermont Bean Seed Co.
J. W. Jung Seed Co.

Gurney's Seed & Nursery Co.
110 Capital St.
Yankton, SD 57079

Ayoob on Firearms:

What if they break down my door?

The computer boffins are taking Y2K seriously. They are streaming into gun stores with open checkbooks and ordering multiple guns and large quantities of ammunition right out of Mel Tappan's classic survivalist book, Survival Weapons. Their fears are that too many computers are unprepared for the turn into the 20th century.

As of fourth quarter 1998, U.S. Government officials held out little hope of their own computers being fixed in time and there are fears of things going awry as the Millennium dawns. Best case predictions are that government agencies not only will have trouble issuing income tax demands, but may grind to a halt and stop issuing checks for welfare, social security, government pensions, and other monies that countless thousands of Americans depend on as their lifelines to survival. In a best case scenario, the relevant governmental agencies will have stockpiled and be ready to issue redeemable chits that can be accounted for the old fashioned way, in ledger books. They will have made it clear to the public that they'll make good on them so the paper will seem as "good as gold."

A worse case prediction is that deliveries of critical freight—not only foodstuffs, but fuel, since winter will be approaching its vicious peak in many parts of the country at the moment the Y2K bug is expected to attack—will be disrupted. This will cause some people to die of starvation or exposure, and cause others to become ready to kill their neighbors for food and fuel to keep that from happening.

The very worst case scenario has computer-controlled nukes going into launch mode by themselves, creating the equivalent of World War III and the kind of thermonuclear devastation that had some of our parents and grandparents building fallout shelters in the 50s and early 60s.

The doom-sayers see anarchy resulting, with ravaging, homicidal mobs not only in the streets but foraging into the hinterlands to kill rural people for their food and firewood.

I don't personally expect anything as drastic as these scenarios. On the other hand, I was nine years old and in fourth grade when I figured out that if you were an optimist, the best you could ever hope for was that things would go exactly as planned, and the rest of the time you would be bitterly disappointed. However, if you were a pessimist, the worst that would ever happen would be that things would go exactly as planned, and the rest of the time, you would be pleasantly surprised.

Official preparations

It has been said that the Royal Canadian Mounted Police have already had all their leaves cancelled for the period around New Years 2000. In the United States major police departments have already cancelled all leave not only for the period around New Year's Day 2000 AD, but for the end of the following February, when many experts expect a second "aftershock" to strike the computer world.

I am a captain with a municipal police department. I got married on December 31, 1971. My lovely bride chose that date, she told me, for tax



Massad Ayoob

reasons. No matter: New Year's Eve is my wedding anniversary. I have always been able to manipulate the schedule so I didn't have to work for my police department on New Year's Eve. Not this time. My Chief of Police has already told me that I'm to be on duty on that particular night as Y2K makes its entry. No problem. I understand why that's needed.

Nicole Veash of the London Observer blew the whistle in December of 1998 on the fact that Action 2000, the British "government's millennium bug task force," strongly suggested that all British citizens store up a two-week supply of food and other essentials well in advance of fourth-quarter 1999. Said Veash, "In an unprecedented statement indicating the level of panic in official circles, the Department of Trade and Industry-funded task force, charged with minimizing the potential damage caused by the bug, has said that contingency planning for a worst-case scenario should start as soon as possible."

Veash quoted Gwynneth Fowler, head of Action 2000, as saying: "We are talking about people having a judicious amount of surplus food in their kitchen cupboards. Anyone sensible

would plan for this. Because we don't want to see panic buying in the weeks leading up to next (1999) Christmas, consumers should think about this in advance."

I think this is prudent advice. For a long time now, I have kept cases of canned food in my basement. "Just in case." Because my family didn't especially like canned food, some of it got eaten at home but most of it wound up being donated to the homeless.

As Year Two Thousand approaches, I can tell you right now that this supply of canned food is going to stay in my basement until the threat of the Y2K bug has passed. It will stay until well past the end of February 2000 when the computer experts say the aftershock may come.

Personal preparation

Backwoods Home Magazine editor Dave Duffy is taking Y2K seriously. You'll be seeing more about it in forthcoming issues. He has asked me to set aside less urgent topics and write more on this one. "What gun does my reader want to have in his or her hand," he asked me, "when a gang of hungry marauders starts kicking down their front door?"

The answer is, one that shoots lots of powerful bullets fast and straight. Shotguns are slow to reload. I never bought into the term "assault rifle" for the semiautomatic rifles that Sarah Brady, Diane Feinstein, et al want to ban. This situation, however, could change my mind semantically. If I was faced with a charging elephant, I'd want an elephant rifle. If faced by an overwhelming assault, I'd want an "assault rifle."

The terms are academic and will become much more so if some of the predicted scenarios come to pass. A high powered semiautomatic rifle that fires lots of bullets makes enormous sense in the kind of situation that has been predicted.

The .223 (5.56mm NATO) caliber is a proven manstopper. Its recoil is

light, even though its blast is loud. If cost is no object, the AR-15 has the best human engineering. The original Colt, and the current productions of Bushmaster, DPMS, and Olympic Arms, are the best made and most reliable. They are easy to shoot from all manner of awkward positions while behind cover, and no such rifle is faster to reload in an intense firefight.

If cost *is* something of an object, you can't beat the Ruger Mini-14 for value in a semiautomatic .223 rifle. My police department issues them for road patrol, and I've learned to appreciate the Mini as a splendidly reliable tool. One of the firearms instructors on my department recently attended Clint Smith's famous Urban Rifle School. He told me afterward that he was struck by how well the superbly-reliable Mini-14 had performed in that demanding environment compared to many tricked-out custom guns that had cost several times more.

If cost is a big object, consider the SKS rifle. A 10-shot weapon in caliber 7.62X39, it won't blow as wide a hole as the extremely high velocity .223, but it can be had cheap in gun shops and at gun shows. It is as reliable as the AK-47 that replaced it as a standard military weapon in the Communist Bloc, and it is generally more accurate. However, for a number of reasons, I'd much rather have an American made .223.

Handguns

Don't, however, neglect the handgun. In times of panic, people walking around in public with rifles provoke fear. Frightened people with guns of their own tend to shoot at the source of their fear. In short, walking around with a rifle or shotgun could draw fire from panicky citizens.

Folks will still be coming to your door. Are they home invaders? Starving brigands ready to kill for food? You'll want something at hand more potent than a door key. Do you want to answer the door with a 12-

gauge or mini-14? If it's someone in trouble you'll scare them to death. If it's the cops, come to tell you they've recovered your car that you didn't realize was stolen yet, I can guarantee that as soon as they see the shotgun, things will go downhill fast.

A handgun is the ticket. Tucked into the waistband or pocket, it's out of sight and "doesn't frighten the horses." With the pistol concealed, you don't feel like Rambo going to the door. And something is always where you can reach it.

A friend of mine is a veteran cop and gunfight survivor on a West Coast police department. His Glock pistol is on his hip from when he gets dressed in the morning to when he undresses at night, on or off duty, in uniform or not. "I've responded to a lot of home invasions," he explains. "They happen quickly. You're not going to have time to run from the living room to the bedroom closet to get your shotgun."

My friend finds the eighteen 9mm rounds in his Glock 17 to be reassuring. His family and circle of friends have gotten used to him always having an exposed pistol on his hip. If that doesn't fit your lifestyle, something smaller, worn concealed, will do the job. An ankle holster is one approach. Small revolvers work best for this—Smith & Wesson, Colt, Ruger—but a few of the smaller service-grade auto pistols will survive the grit that accumulates on a gun that is carried in an ankle holster just inches above the ground. If you prefer semiautomatics, the subcompact Glock 26 and the Kel-Tec P-11 will both hide in an ankle holster with loose pants, and each is an 11-shot 9mm.

Another low-profile option is a pocket holster like the one made by Greg Kramer. It works particularly well with a light, snag-free revolver like the S&W Centennial "hammerless" series. The Airweight Model 442 weighs under a pound, and the new AirLite with titanium cylinder weighs only eleven ounces unloaded. Both are five-shot .38 Specials. You can order

a pocket holster by phone from Kramer at (800) 510-2666.

Home invasion

Why all this talk of home invasion? One concern in the police community is that home invasions are predicted to skyrocket as the Millennium gets closer. The theory is that heavy media attention to the problem will mention that runs on banks have been predicted (remember the Great Depression?). Fairly early in 1999, people will start cashing out their savings accounts and bringing the money home for fear of losing it in cyberspace when the bank's computers crash on the morning of New Year's Day 2000.

This trend will get lots of publicity. Criminals read the newspapers too, and even the illiterate ones watch TV. They will realize that a whole lot more ordinary homes are now likely to contain large, "life savings size" piles of cash.

It is for this reason that a handgun concealed on your person at home will start to make more sense than ever as these corollary downsides to the Millennium Bug continue to develop.

If you're going to carry a handgun in public, make sure you're in conformity with local law. You generally require a carry permit unless you're on your own property. There are few exceptions. The state of Vermont does not require a permit to carry a concealed handgun in public. The state of Ohio has no provision for concealed carry, but does have an affirmative defense written into the law. This means that the defendant charged with concealed carry will be acquitted if he shows that any reasonable person would have armed himself under the same circumstances. Finally, the state of California has an obscure law that authorizes citizens in times of emergency to carry a concealed handgun for protection while awaiting the arrival of police who have been summoned.



This subcompact Glock 26 holds eleven rounds of 9mm, in this case Pro-Load Tactical hollowpoint.

At least one handgun per household member who is competent and responsible to use it makes sense. Keep ample ammunition on hand. If you (and other family members) haven't been trained, this is the time to schedule the instruction. Make sure the guns are clean and in good repair. Do the same maintenance on things like generators and all the rest of your emergency "just in case" equipment.

One thing must be remembered, though: as with Hurricane Andrew, the Rodney King riots, and other things that in recent years brought decent citizens out in force with their semiautomatic weapons, the temporary absence of law enforcement won't mean an amnesty on murder. You'll still be held to account in the future for any act you commit

with the gun even in an emergency. Be certain that you're justified, even then, in levelling a gun at another human being, let alone pulling the trigger.

One way or another, society will return after even the worst case scenarios that have been predicted for Y2K. The Law, with no statute of limitation on the crime of murder, will return with it.



AirLite titanium, left, and Airweight S&W five-shot .38s work for discreet, all day pocket carry.

My own plans

It has already been determined that I'll be away from my home on the night when this happens or doesn't happen. I'll be in a police patrol car waiting, like the rest of you, to see "what happens."

In that patrol car will be my department's standard issue weapons—a 12-gauge semiautomatic shotgun and a .223 caliber semiautomatic rifle. Don't be surprised if on that particular night I also have within reach a .308 telescopic-sighted "long rifle" that will hit within less than an inch of its point of aim at 100 yards. None of these would be bad things to have at home on that particular night, either.

On that same night, each officer in our department will be a quick reach away from a .45 caliber semiautomatic department issue service pistol, with the department-mandated two (minimum) to four (maximum) spare magazines carried on the duty belt. On that night, I expect to see more "four" than "two." In any case, we have spare ammo readily available in the patrol cars: 12 gauge, .223, and .45 ACP.

While I'm away at the police department, I have no doubt that my wife and kids can handle things. The necessary supply of food, toilet paper, and everything else will already be in place. So will the guns. Anyone feloniously trying to invade the space of my wife and daughters will end up like the unfortunate invaders in the classic "Roach Motel" advertisement. You remember the slogan: "They check in, but they don't check out."

But with a little bit of luck this won't be nearly as bad as predicted. Some time in March of 2000 we'll all look a little sheepishly at each other. There will be mass donations of stock-piled food to food banks. I hope.

I love happy endings. But the history of the world is that bad things are most likely to happen to people who don't prepare for them. It's a history we all want to keep in mind as Y2K's moment of truth draws nearer. Δ

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CHOCOLATE

Food for the Gods

My mother loved chocolate. She knew and understood it just as a wine master knows and understands wine. When she made some of her old world style bittersweet hot chocolate, the aroma filled every corner of our small apartment. Other days she might make one of her many chocolate fudge recipes, cakes, pies, puddings, brownies, or some other chocolate goodies. Consistent with her nature, she shared all of these treats with neighbors, friends, family, and anyone who was lucky enough to pay us a visit.

A few weeks ago I was struck with a hard to resist urge for a cup of Nanna V's old world style hot chocolate. I started to rummage through her old suitcase full of recipes trying to find, as she used to say, "a hot chocolate formula." I found several hot chocolate recipes stuffed in a large manila envelope along with two tattered notebooks. In one notebook my mom had scrawled a bunch of her chocolate recipes, along with some interesting facts about how chocolate is made. The other notebook was full of detailed notes on candy making. There I found the secret to the dozens of elegant candies and other treats that she gave as gifts to everyone during the holidays. After a few minutes of browsing through this newfound treasure it occurred to me that there was fun to be had with this stuff. I selected a bunch of the chocolate recipes and headed for the supermarket with my three kids—Sarah, Jason, and Michael. They're a nosy bunch that never lets me go on shopping expeditions alone, especially if they suspect I'm working on some new recipes. We returned home with enough chocolate, sugar, and other related ingredients to start our own dessert shop. I didn't waste time. I whipped up a batch of hot chocolate right away.

During the following three weeks the kids and I used my mom's recipes to prepare a variety of chocolate desserts and beverages. We made cakes, brownies, pies, puddings, six chocolate drink formulas, and more fudge than I can remember.

My children are hard-nosed food critics. They even formed a food review panel to critique my recipes. Any recipe included in these columns must first get a unanimous



Richard Blunt

thumbs up from the panel. It took many serious tasting sessions, followed by a lot of lively conversation, before the panel finally gave me an accordant vote on the following three recipes.

Also, Sarah made a special request. "Hey, Dad, when you do the recipe article, tell the folks some of that cool stuff about cacao trees and how chocolate is made. Nanna V would like that." What is it about 13-year-old girls that turns fathers to mush?

The word cocoa is a modification of the Spanish word cacao. The two words are often used interchangeably, but for the trees and beans, from which we get all things chocolate, we usually use the word cacao. The cacao tree is a tropical evergreen belonging to the theobroma genus. Literally translated from Greek roots, theobroma means "drink of the gods." These delicate trees originated and continue to thrive in the hot, damp rain forest climate of the South American river valleys. Being very sensitive to light, cacao trees grow in semidarkness under the protective mantle of taller trees. These unique growing conditions exist exclusively in a band around the earth that extends 20 degrees above and below the equator.

Cacao trees were first cultivated by the Mayas around the 7th century A.D. They carried the seed north from the tropi-

NUTRITIVE AND STORAGE VALUE OF CHOCOLATE

Chocolate is a high caloric food due to its cocoa butter (a vegetable fat) content. Combine this with the sugar found in chocolate candy and you have concentrated energy in a very small package. Chocolate also contains caffeine, the same stimulant found in coffee. So, as you are assembling your disaster food supply, don't forget candy, especially chocolate.

Chocolate has long been considered a lightweight and nutritious survival food by the United States Army. Three 4-ounce chocolate bars have been a standard part of the Army's D-rations since World War II. Researchers have even found a natural way to raise the low melting point of chocolate above 105 degrees F. Minute quantities of water are added to the chocolate formula to prevent the fats from blending together. This made it possible for soldiers to carry their D-ration chocolate bars during the Gulf War.

Chocolate, when stored as cocoa powder, has a reasonably long shelf life because of its low fat content. Higher fat-containing chocolate stores very well at root cellar temperatures (48° to 55° F) or refrigerator temperatures. But hard chocolate (milk or bittersweet chocolate) can undergo "fat bloom" or "sugar bloom" in which the fat or sugar crystallizes while in storage, and develop those unappetizing light spots. Despite these spots it is still edible and retains its food value. It is also interesting that the chocolate content in milk chocolate helps to keep the milk in the chocolate from going rancid, and thereby adds to its shelf life.

Few of us would consider candy a health food but all of us have had moments when some form of candy has been beneficial to the soul. Children, especially, will benefit from a mouth watering piece of candy during stress-filled times.

cal Amazon forests to what is now Mexico. In the 16th century the Spanish planted cacao trees across South America, into Central America, and onto the Caribbean Islands. In the 17th century the Dutch transported the cacao tree to other places around the globe like Java, Sumatra, Sri Lanka, New Guinea, and the Philippines. Early in the 19th century the Portuguese planted cacao trees on an island off the west African coast. By the end of the century they were being cultivated on the African mainland along the Ivory Coast.

Today these combined tropical regions produce over two million tons of cacao beans. The finest and most sought after beans, however, are still grown in the New World.

The Maya, Toltec, and Aztec people of early Mexico prepared a hot chocolate drink of ground roasted cacao beans mixed with chili peppers and water. This popular combination of ingredients produced a very bitter, sharp tasting drink.

The first Europeans to discover the cacao bean were crew members sailing with Christopher Columbus on his fourth, and last, voyage to the New World in 1502. Columbus returned to Spain with a sack of cacao beans. Little interest, however, was shown in the bitter, sharp tasting drink that the beans produced.

Cortez and Montezuma

Seventeen years later the Spanish navigator, Hernan Cortez, sailed to the New World to plunder the West Indies. When he reached the mainland, the Aztec king, Montezuma, thinking Cortez to be a god returning to claim his lost kingdom, presented him with an abundance of treasures from the Aztec empire. This included a large amount of cacao beans. Unlike Columbus, Cortez immediately saw potential economic value in cacao. When he asked Montezuma where the treasures were, he was taken to a large stand of cacao trees. Cacao beans were the valued currency of the Aztecs. With a wealth of cacao beans in his possession, Cortez was able to trade for a fortune in gold. When Cortez returned to Spain in 1527 he brought with him a large cargo of cacao beans and a passion of his own for chocolate.

As Europeans began to colonize the New World they began planting sugar cane in Haiti and the Dominican Republic. One day someone came up with the idea of adding sugar to their chocolate drink hoping to make it more palatable. Well, the addition of sugar created an instant passion among the colonists. The infatuation with this new sweetened chocolate spread rapidly to other conquered territories and finally back to Europe. It is believed that chocolate was one of the factors that sparked the development of sugar plantations in the New World.

By the beginning of 17th century, hot chocolate gained a great deal of popularity among the wealthy Europeans. Europeans also valued chocolate for its nutritional and stimulating qualities (see sidebar). Many also believed chocolate to be an aphrodisiac and a cure for a variety of physical and mental disorders. Late in the 17th century the first ready-to-eat chocolate in solid form made its appearance in London. This new innovation became an immediate curiosity to chocolate lovers. But because of its dry crumbly texture, chocolate in this early solid form received a cool reception in Europe. However, changes for the better were on the way.

The American and French Revolutions, along with the Napoleonic Wars, brought the production and development of chocolate to a temporary halt. The return of peace in the early 1800s, followed by the Industrial Revolution, sparked important changes in the chocolate industry. Innovations by French and Dutch manufacturers improved both the taste and texture of chocolate in all forms. The improved chocolate products were supported by flourishing cacao bean production around the world. These advances paved the way to making chocolate—once a delicacy reserved only for the wealthy—an everyday treat available to all.

The cacao tree

Cacao trees bear their fruit in the form of gourd-like pods that grow directly from the tree's trunk and the base of its larger branches. Each pod contains as many as 40 almond-shaped seeds embedded in a white bittersweet pulp. There are three main varieties of cacao beans grown around the world.

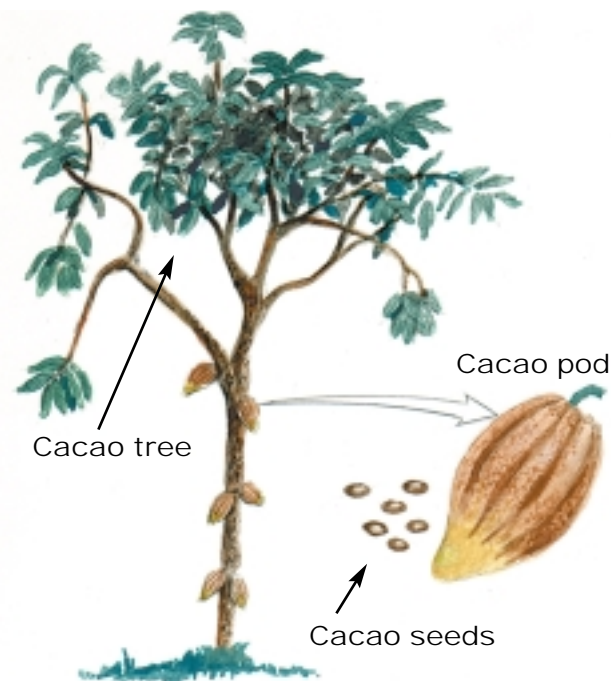
The original bean, cultivated by the Aztecs, carries the Spanish name, **criollo**, which means indigenous. This is the finest and most sought after cacao bean. It is very aromatic, with a slightly bitter flavor.

Next is the hardy, fast growing **forestero**, which means foreign in Spanish. The forestero has a very acidic aroma and a strong bitter flavor and represents over 80 percent of the world's cacao bean production. Africa is the largest producer of forestero cacao beans.

The third variety is a crossbreed between the criollo and the forestero. This variety is grown in several parts of the world and its quality depends on where it is grown. The finest of these beans are grown in Central and South America. These three main varieties have several sub varieties, each having their own characteristic flavor and aroma. Makers of the Grand Crus quality chocolates will use the finest single variety cacao bean they can find. However, the vast majority of chocolate products are made from the subtle blending of a variety of carefully chosen cacao beans.

Picking and fermentation

When cacao pods ripen they are cut from the tree by experienced pickers using razor sharp machetes. The pods are split open almost immediately and the seeds, covered by a sticky white pulp, are removed and piled into baskets. Anyone curious enough to taste one of the seeds at this point will experience a bitter, acrid taste not at all like chocolate. After being removed from the pod, the beans are allowed to ferment in the pulp. During this magical process the embryo is destroyed, preventing germination, and nearly 500 substances inside of each bean become active. The final flavor of the bean is determined during this critical process.



Depending on the variety of bean, fermentation will be allowed to continue from three days to a week. The length of the fermentation will determine the strength the bean's final flavor. The longer the fermentation, the stronger the flavor. Each variety of bean, depending on where and how it is grown, requires a carefully calculated fermentation process. For some varieties, if the fermentation is too long the seeds can develop an overly strong, acrid flavor. For other varieties, too short a fermentation will leave the bean almost flavorless.

The final destination of the beans will most often determine the fermentation process. Beans shipped to most English speaking countries will be fermented for a short period, producing a fairly mild, almost bland flavor. Cacao beans intended for French markets will undergo a longer and slower fermentation which produces a strong, full-flavored bean.

After fermentation is complete, the beans are usually sun dried for one to two weeks. They are then cleaned, sorted by size and color, packed into jute sacks, hermetically sealed, and stored in cool warehouses to await shipment. With shipping, the grower's job is usually done. Processing of the bean into chocolate is then preformed by manufacturers all over the world.

Art, science, or magic?

Preparing the dried beans for the production of chocolate and cocoa is a very sophisticated and precise process. As soon as the beans arrive at the manufacturer's factory they are fumigated and cleaned to remove any dried pulp or other matter. The beans are then roasted at a temperature ranging from 250 to 350 degrees F for thirty minutes to two hours. The roasting process sparks the many substances activated in the bean during fermentation into performing their alchemy. The slow roasting process creates subtle

browning flavors which combine with these substances to develop the familiar aroma and flavor of chocolate in each bean. The exact time and temperature of roasting is dictated by the quality and variety of the bean. Each variety of bean is usually roasted separately to insure quality results. The beans are then blended according to the manufacturer's closely guarded formula.

After roasting, the beans are broken open and the shell is separated by controlled currents of air. The inner portion of

the bean is now referred to as a nib. The nibs are ground into a thick paste, called chocolate liquor, which consists of small particles of nib suspended in an indigenous fat called cocoa butter. A second grinding is often performed to reduce the particle size of the nib to a desired range. Further processing of the nib depends on the intended product.

If cocoa powder is to be the end product, most of the cocoa butter is removed using a special press. The resulting paste is then formed into cakes and ground one more time.

Nanna V's never-fail fudge

butter, margarine, or shortening for greasing a pan
1½ cups granulated sugar
½ cup brown sugar, packed
2 oz. unsweetened baking chocolate, chopped into pieces
¼ cup unsweetened cocoa powder
⅔ cup evaporated milk
2 Tbsp. light corn syrup
2 Tbsp. unsalted butter
1 tsp. vanilla extract
½ cup pecans, broken into medium-size pieces

Method:

1. Carefully line a 9x5x3 loaf pan with a piece of aluminum foil large enough to extend over the edges of the pan. Coat the foil with butter, margarine, or vegetable shortening and set the pan aside.
 2. Coat the sides of a heavy-bottom two-quart sauce pan and set the pan aside. This simple step will prevent any sugar from sticking to the sides of the pan and causing trouble later on.
 3. In a suitably sized bowl combine the sugars, chopped baking chocolate, cocoa powder, evaporated milk, and corn syrup. Carefully stir the mixture with a wire whisk until all of the sugar is dissolved. Transfer the mixture to the heavy-bottom saucepan. Take great care not to splash any of the mixture on the sides of the pan.
 4. Over medium heat bring the mixture to a slow boil while stirring constantly. Remember, it is important to avoid splashing any of the syrup onto the sides of the pan. Now clip the candy thermometer to the side of the pan. To get an accurate reading the fudge mixture must cover the bulb of the candy thermometer while the fudge is cooking and cooling. Continue to cook and stir the fudge until the thermometer reads the desired temperature. Without removing the thermometer, take the pan from the heat, and add the butter without stirring. Let the mixture cool until the thermometer reads 110 degrees F. Depending on the ambient temperature of your kitchen the cooling will take from 45 minutes to an hour. Note: If your candy thermometer is not designed so that it will clip to the pan, throw it away and buy one that does.
 5. When the fudge has cooled to 110 degrees, add the vanilla. Now comes the tough part. Find a comfortable kitchen chair and sit down gripping the pan between your knees. Start stirring the fudge slowly with a wooden spoon to incorporate the butter. Continue stirring, as vigorously as possible until the fudge begins to lose its shine and starts to thicken. Now, quickly stir in the broken pecans. The fudge should be too thick to pour, so push the fudge into a smooth layer in the foil lined pan using your fingers. Avoid scraping the pan. Pan scrapings are usually too dry. I call Sarah, Jason, and Michael, give them each a spoon, and set the bowl on the table. The bowl is back on the counter, shiny clean, in about a minute.
 6. When the fudge is firm, in about 15 minutes or sooner, use the foil to lift it from the pan and cut it into squares. When in a hurry, I skip molding the fudge into the pan. Instead, I turn the fudge onto my marble bread board, knead it until it becomes stiff and roll it into half ounce balls.
- If you are new to candy making don't let all of the sugar syrup science stuff intimidate you. People have been making fudge for generations without knowing anything about the science behind saturated solutions. I include it because those of us who are serious about cooking want to know what is happening with our food at all times.

The resulting powder is sometimes treated with an alkaline solution to raise the pH of the powder from slightly acid to neutral. This simple process, called Dutching, darkens the cocoa, mellows its flavor, and makes it easier to mix the powder with a liquid. Of all chocolate products, cocoa powder

contains the least amount of cocoa butter—from 10 to 20 percent.

Chocolate liquor destined for production into baking chocolate or one of the many types of ready-to-eat chocolate is treated very differently from cocoa powder. Bitter

Glazed spiced mocha brownies

This brownie recipe was one of the more recent additions to my mom's list of chocolate goodies. Along with the chocolate it contains many of her lifelong favorite flavor enhancers: coffee, fresh nutmeg, almonds, and black pepper. That's right, black pepper. Even I was uncertain of how the pungent fungus-produced flavor of black pepper would blend with chocolate. Especially chocolate that is mellowed by sugar and a variety of aromatic ingredients. The uncertainty was quickly dispelled after taking my first bite from one these marvelous brownies. Since then I have made black pepper a standard flavor enhancer in many of my chocolate favorites, especially hot chocolate. This recipe really demonstrates my mother's passion for and knowledge of chocolate. There is enough chocolate in these brownies to satisfy the most diehard chocolate fans. The chocolate is enhanced with the subtle amounts of rich flavor enhancers like coffee, fresh nutmeg, and vanilla extract. Then a little black pepper and molasses is thrown in to add zip. The molasses, of course, is hiding in the brown sugar. Give these brownies a try and let me know what you think.

Ingredients:

soft shortening
5 oz. bittersweet chocolate
6½ oz. unsalted butter
1⅛ tsp. Kosher salt
½ tsp. powdered, instant espresso coffee
½ tsp. fresh ground black pepper
¼ tsp. fresh grated nutmeg
½ tsp. pure vanilla extract
1 cup dark brown sugar, firmly packed
3 large eggs
¾ cup sifted all purpose flour
1 cup pecans, broken into large pieces

Method:

1. Prepare a 12-inch square baking pan by coating the sides and bottom with soft shortening. Place a piece of waxpaper, cut to fit, on the bottom of the pan. Coat the wax paper with soft shortening, dust it with flour, and shake off the excess. Set the prepared pan aside.

2. Place the bittersweet chocolate in a double boiler over medium heat. When the chocolate is melted, stir it

with a wire whisk until it is smooth and set it aside to cool slightly.

3. Cream the butter in the large bowl of an electric mixer. Add the salt, instant coffee, black pepper, nutmeg, vanilla extract, and brown sugar. Beat the mixture until all of the ingredients are blended. Now add the eggs, one at a time, beating the mixture just enough to incorporate each egg. Scrape the bowl with a rubber spatula after incorporating each egg.

4. With the mixer on low speed, add the melted chocolate, then the flour to this mixture. Stir the bowl using a rubber spatula to get the mixture away from the sides, then continue mixing, at low speed with the electric mixer, until all ingredients are incorporated.

5. Remove the bowl from the mixer and stir in the nuts using a wooden spoon.

6. Turn the mixture into the pan, smooth the top, and bake for about 30 minutes or until a toothpick inserted into the middle of the brownie comes out slightly moist. It is critical not to overbake this brownie. Doing so will give it a dry crumbly texture.

7. Remove the brownie from the oven and let cool in the pan for 30 minutes. Then place a cake rack over the pan and invert the pan and the rack together. Remove the pan and peel off the wax paper. Turn the brownie right side up by placing another cake rack over it and inverting the whole business once again.

Ingredients for semisweet chocolate glaze:

4 oz. semisweet chocolate
2 oz. sweet butter

Method:

1. Combine the semisweet chocolate pieces with the butter in a small double boiler over medium heat. When the chocolate is melted stir the mixture with a wire whisk until it is smooth.

2. Remove the chocolate from the heat and set it in the refrigerator to cool. Stir it occasionally until it is thick enough to spread without running down the sides of the brownie.

3. Spread the glaze on the brownie with a narrow-blade spatula, and place the brownie in the refrigerator until the glaze is set.

chocolate, the type used solely for cooking, is chocolate liquor that has simply been molded into blocks without further treatment. It contains roughly 53 percent cocoa butter. Eating chocolate is further enhanced with cocoa butter, sugar, milk, vanilla, and other ingredients. The addition of these ingredients varies according to the type of chocolate being made. The three main varieties of eating chocolate are: bittersweet chocolate, sweet chocolate, and milk chocolate. Throughout the world chocolate manufacturers have their own carefully guarded secret formulas for making each of these varieties.

Ready-to-eat chocolate is also conched. Conching is a process that mellows the flavor of chocolate by evaporating excess moisture and volatile acids from the mixture. This unique process, which continues for several days, mixes the finely ground and blended chocolate at temperatures ranging from 130 to 160 degrees F while exposing it to a blast of fresh air.

Whatever the end product, and however it is made, chocolate is without a doubt one of the world's favorite foods. It is my hope that the simple, but fun recipes in this article will demonstrate for you that the cacao tree truly produces fruits deserving the title "food of the gods."

No-brain chocolate fudge

While growing up I watched my mother make tons of chocolate fudge and I don't remember ever seeing a recipe in her hand. I was convinced that even a novice candy maker like myself could make fudge. When I found what I believed to be her secret unseen recipe, I was sure that I had found a no-brain road to success. All of those years watching her breeze through batch after batch of fudge, without any difficulty, gave me a false sense of confidence. So I set my mom's instructions aside, convinced that I could make fudge as well as she did.

After my third successive failure, however, my ego was displaced with a wave of common sense. In a desperate effort to avoid complete frustration I decided to sit down and carefully read my mother's detailed notes on fudge making. When I finished reading, I clearly understood what I was doing wrong. I also, for the first time, understood the true extent of my mother's candy making talent.

Fudge, according to my mother, is a special type of candy, because it can be made in an infinite number of flavor varieties. Each variety has some subtle differences in preparation. "But remember," she would say, "regardless of the variety, fudge is only a simple candy. And candy is easily

Old-fashioned hot chocolate

This recipe was given to my mother by a Jamaican woman who lived a few blocks from us. Mrs. Wheatly and my mother were always swapping recipes. My mom's notes say the recipe is Mrs. Wheatly's version of a 19th century French recipe she brought from Jamaica. As I said earlier, the rich mocha almond aroma of this wonderful hot chocolate will fill every room of your home. Also, it is not overly sweet, so you may want to have a sugar bowl at the table for those guests with a sweet tooth.

Ingredients:

2 cups whole milk
4 oz. bittersweet chocolate, chopped into pieces
2 Tbsp. granulated sugar
1/8 tsp. Kosher salt
2 Tbsp. unsweetened, Dutch process cocoa powder
1 1/2 cups your favorite coffee, hot
1 cup light cream
1 Tbsp. pure almond extract
fresh whipped cream

Method:

1. Combine the milk and the chocolate pieces in a heavy-bottomed sauce pan over moderate heat. While stirring constantly with a wire whisk, heat the mixture until the chocolate is completely dissolved and the mixture is smooth.
 2. Stir in the sugar, salt, and cocoa powder. Bring the mixture to a simmer and add the hot coffee and the light cream. Simmer the mixture for about 5 minutes.
 3. Remove the cocoa from the heat, add the almond extract and serve immediately.
- For an extra treat add a dollop of fresh whipped cream or a marshmallow. If you dare, add a little black pepper to taste.

made simply by cooking a concentrated sugar solution to the right temperature, then controlling how you bring it back to room temperature.”

All of this sounded easy to me, until I tried it. I had to go back to my mom’s “fudge for dummies” notes for help. In short, this is what I learned:

Most fudge starts out as an 85 percent sugar syrup consisting of about a two-to-one sugar-to-liquid mixture. This is also called a saturated solution because the amount of sugar that can be dissolved in the liquid is at its limit. If any more sugar is added, even the smallest amount, it will not dissolve in this solution. But, if you now cook this mixture, much of the water evaporates, and the mixture becomes super saturated, that is, the mixture now has more sugar in solution than it should to be stable. But as long as the solution stays hot this super saturation is not a problem and the excess sugar will not precipitate out. But, as the solution starts to cool, it gradually becomes thick and sluggish. This slows the movement of the sugar molecules. Under these conditions the slightest disturbance of the mixture can cause these slow moving excess molecules to fall out of solution. This action continues until the solution is, once again, in saturated balance. Everything would probably be fine if all of these loose sugar molecules would just go away, but they don’t. They hang out in the form of large ugly crystals that can make fudge dry and ugly. Fudge that has fallen victim to the precipitation monster usually has a sawdust texture.

Nanna V would also caution: “Never make fudge on a rainy day. All of that moisture in the air gets sucked into your fudge while it is cooling and turns it soft and runny. Also, once you start beating the fudge, don’t stop until it is ready to mold into the pan. If you stop beating before the fudge is ready, those large ugly sugar crystals start forming. The only way to keep them under control is to keep stirring.”

By following the simple preparation method accompanying my mom’s recipe, you will be able to make delicious chocolate fudge every time, even if you don’t understand the science behind the whole procedure. All you need is a heavy-bottom sauce pan, a strong wooden spoon, a candy thermometer, a strong arm for stirring, and a Nanna V chocolate fudge recipe.

The candy thermometer is the easy way to determine when a sugar solution reaches the soft ball stage. Depending on the type of fudge being made, the soft ball stage will be reached when the mixture reaches a temperature from 234 to 240 degrees F. This fudge will be at soft ball stage when the candy thermometer reads 238 degrees F when the weather is warm. When the weather is cold and dry it will reach soft ball at 236 F.

In my next column I will dig further into Nanna V’s candy making notes. Making candy at home can be a rewarding family activity. Remember, all you need to make candy is water, sugar and a little know how. Δ

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THE IRREVERENT JOKE PAGE

(Believing it is important for people to be able to laugh at themselves, this is a new feature in *Backwoods Home Magazine*. We invite readers to submit any jokes you'd like to share to *BHM*, P.O. Box 712, Gold Beach, OR 97444. There is no payment for jokes used.)

In a transatlantic flight, a plane passes through a severe storm. The turbulence is awful, and things go from bad to worse when one wing is struck by lightning. One woman in particular loses it. Screaming, she stands up in front of the plane. "I'm too young to die!" she wails. Then she yells, "Well, If I am going to die, I want my last minutes on Earth to be memorable! I've had plenty of sex in my life, but no one has ever made me feel like a woman! I've had it! Is there ANYONE on the plane who can make me feel like a WOMAN?!"

For a moment there is silence. Everyone has forgotten their own peril, and they all stare riveted at the desperate woman in front of the plane. Then, a man stands up in the rear of the plane. "I can make you feel like a woman," he says. He's gorgeous-tall, built, with long, flowing black hair and jet black eyes. He starts to walk slowly walk up the aisle, unbuttoning his shirt one button at a time.

No one moves.

The woman is breathing heavily in anticipation as the stranger approaches. He removes his shirt. Muscles ripple across his chest as he reaches her, and he extends the arm holding his shirt to the trembling woman and whispers: "Iron this."

Submitted by John Allen



Everybody on earth dies and goes to heaven. God comes and says, "I want the men to make two lines. One line for the men that dominated their women on earth and the other line for the men that were dominated by their women. Also, I want all the women to go with St. Peter."
With that said and done, the next time God looked, the women were gone and there were two lines. The line of the men that were dominated by their women was 100 miles long, and in the line of men that dominated their women, there was only one man.
God got mad and said, "You men should be ashamed of yourselves. I created you in my image and you were whipped by your mates. Look at the only one of my sons that stood up and made me proud. Learn from him! Tell them my son, how did you manage to be the only one in this line?"
And the man replied, "I don't know, my wife told me to stand here."
Submitted By John Allen



Microsoft announced recently that the introduction of their new, Windows 2000 operating system will be delayed until January 1, 1901

Submitted by Don L. Fallick

A WORD GAME

The Washington Post's "Style Invitational" asked readers to take any word from the dictionary, alter it by adding, subtracting, or changing one letter, and supply a new definition. Here are the 1998 winners.

Foreplay: Any misrepresentation about yourself for the purpose of obtaining sex.

Doltergeist: A spirit that decides to haunt someplace stupid, such as your septic tank.

Sarchasm: The gulf between the author of sarcastic wit and the recipient who doesn't get it.

Shtupfather: Woody Allen.

Reintarnation: Coming back to life as a hillbilly.

Guilllozine: A magazine for executioners.

Karmageddon: It's like when everybody is sending off all of these really bad vibes, right? And then, like, the Earth explodes and it's like a serious bummer.

Dopeler effect: The tendency of stupid ideas to seem smarter when they come at you rapidly.

Intaxication: Euphoria at getting a refund from the IRS, which lasts until you realize it was your money to start with.

GUY TALK

"I'm going fishing."

Really means: "I'm going to drink myself dangerously stupid and stand by a stream with a stick in my hand while fish swim by in complete safety."

"It's a guy thing."

Really means: "There is no rational thought pattern connected with it, and you have no chance of making it logical."

"We're going to be late."

Really means: "Now I have a legitimate excuse to drive like a maniac."

"Take a break, honey, you're working too hard."

Really means: "I can't hear the game over the vacuum cleaner."

"That's interesting, dear."

Really means: "Are you still talking."

"Hey, I've got my reasons for what I'm doing."

Really means: "I sure hope I think of some reasons pretty soon."

"I can't find it."

Really means: "It didn't fall into my outstretched hands, so I'm completely clueless."

"I'm not lost. I know exactly where we are."

Really means: "I'm lost. I have no idea where we are, and no one will ever see us alive again."

"I don't need to read the instructions."

Really means: "I am perfectly capable of screwing it up without printed help."

1st Moron: "Do you know that when the Titanic sank, and all those people drowned, they were only two miles from land?"

2nd Moron: "Really? Which direction?"

1st Moron: "Straight down."

Why do they bury lawyers 50 feet underground?

Because deep down, they're really nice guys!

OFFENSIVE JOKES

Marriage Jokes:

Q: If your wife keeps coming out of the kitchen to nag you, what have you done wrong?

A: Made her chain too long.

Q: If your husband keeps stumbling around the backyard, what should you do?

A: Shoot him again.

Quotes from Hollywood:

"Now they show you how detergents take out bloodstains, a pretty violent image there. I think if you've got a T-shirt with a bloodstain all over it, maybe laundry isn't your biggest problem. Maybe you should get rid of the body before you do the wash."

— Jerry Seinfeld

"If God doesn't destroy Hollywood Boulevard, he owes Sodom and Gomorrah an apology."

— Jay Leno

"I met a new girl at a barbecue, very pretty, a blond I think. I don't know, her hair was on fire, and all she talked about was herself. You know these kinds of girls: 'I'm hot. I'm on fire. Me, me, me.' You know. 'Help me, put me out.' Come on, could we talk about me just a little bit."

— Garry Shandling

"Sometimes I think war is God's way of teaching us geography."

— Paul Rodriguez

Miscellaneous quotes:

I believe in making the world safe for children, but not our children's children, because I don't think children should be having sex.

If a kid asks where rain comes from, I think a cute thing to tell him is, "God is crying." And if he asks why God is crying, another cute thing to tell him is, "Probably because of something you did."

I can picture in my mind a world without war, a world without hate. And I can picture us attacking that world, because they'd never expect it.

If I ever get real rich, I hope I'm not mean to poor people, like I am now.

I hope after I die, people will say of me: "That guy sure owed me a lot of money."

CATCH MORE FISH WITH THIS SIMPLE FEEDER

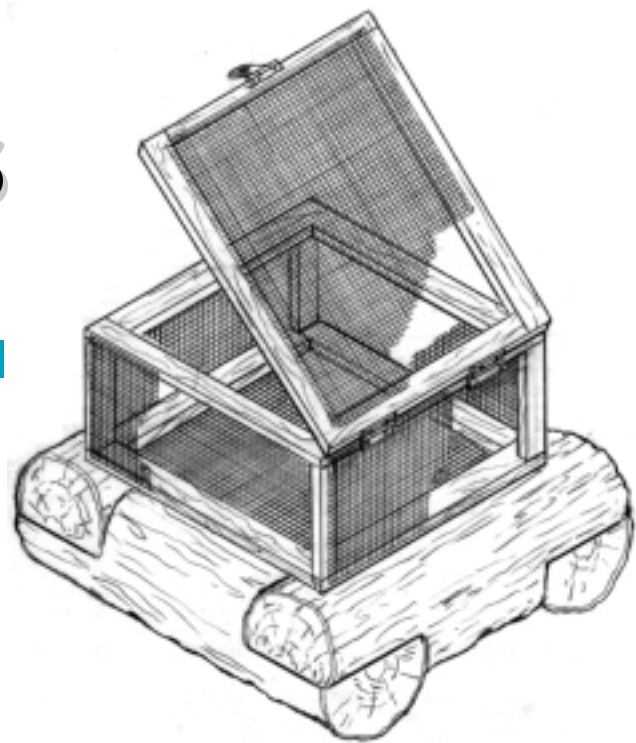
BY REV. J.D. HOOKER

Spring is almost here, and for many of us that means an incredible amount of work is waiting to be done. Garden beds have to be tilled and planted, fences mended, and everything that broke down during the winter needs to be fixed. Like most other country folk, during the spring season I get to feeling fortunate when I'm finally able to sneak in an hour or two to relax a little. In fact, no matter how busy I get, or how hard I wind up working, fishing seems to become the single uppermost thought on my mind. Any time I can manage to squeak in even a couple of "spare" hours, I'm out on the water. And my wife doesn't mind, either. Who do you think is usually fishing with me?

As difficult as sneaking in the odd hour or so for fishing, it really helps to have a place where you are guaranteed a good catch. Which is why, what my wife calls "Joe's Fishing Insurance Policy" seems to be such a great idea

The principle behind this idea is simple. Have you ever noticed how panfish seem to congregate around the docks where folks clean their catches and toss the scraps back into the water? It's very much like the manner in which truckers pile into really good highway restaurants or politicians hover around money. As long as there's some sort of cover (weed beds, drop-offs, piers, and the like) where fish can hide and find any sort of steady, easily obtained food supply, they're going to congregate.

As simple as this idea sounds, I've found that the concept seems pretty revolutionary to many people. But, from only a few short pieces of logs, a few lumber scraps, some hardware cloth, a piece of rope, and a large rock you can quickly assemble a feeder which will practically guarantee you'll always bring home nice catches. I've got two or three such fish feeders set out in fairly secluded locations on every lake and pond we fish regularly, and I long ago learned that

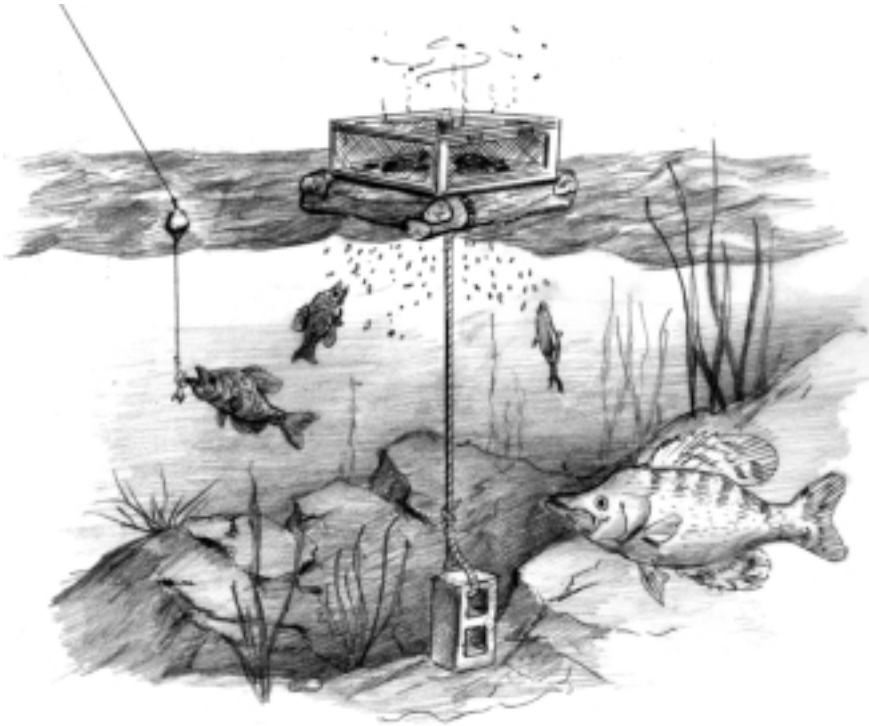


they really pay off.

To fashion one of these super-efficient fish attracters for yourself, assemble the simple box-like wooden framework illustrated above. Use whatever lumber you have handy and build this project to whatever size would seem appropriate for your own use. (The guide I learned about this from liked a 3'x4'x18" box). Next, you'll need to cover this framework with ½-inch mesh galvanized hardware cloth. You'll need to put together a mesh-covered lid like the one shown, as well, or you'll wind up feeding birds rather than the fish.

Normally I'll use roughly 8-inch diameter sections of logs, notched and nailed together as shown, to shape the raft upon which this cage-looking feeder floats. Then galvanized nails are used to affix the feeder atop the raft. A length of poly or nylon rope, long enough to reach from the lake bottom to the high water level (I'll always add a few extra feet just in case), is also needed. After attaching an old cinder-block, a few bricks, or some other anchor to one end of the rope and the feeder to the other, it is set out in a likely fishing spot and just left there.

Now, you'll need to place something which will readily attract flies inside of your fish feeder. For our first trip out each spring, I like to use any sort of meat scraps, but spoilt fruit or vegetables work well enough if such scraps aren't available. After that first



trip, fish heads and other refuse from our catches go inside the feeders.

This sort of bait doesn't actually feed, or even attract any fish. What it does do is draw flies by the thousands. While feeding on the refuse, the flies also lay their eggs. Then, quicker than seems possible, the eggs hatch into masses of crawling maggots. While as the feeder bobs around on the surface of the water, the maggots just naturally keep falling through the mesh floor and sink into the water, drawing a pretty large number of fish to feed. This means that worms and most other baits let down on a hook near this feeding station will usually produce near instant strikes.

After using fish feeders of this type for several years, we've found that generally the larger panfish will hold a little deeper than the smaller ones in the vicinity, while the bass and other larger fish striving to prey on the panfish are usually out in the peripheral areas. At times, we've also taken some pretty nice cats right off the bottom near such feeders.

With the ever present flies and other insects constantly buzzing around these feeders, hand-tied flies and other small surface-riding artificials, are normally very productive as well. Of course, you'll also find there will always be a few well-fed fish hanging around your feeders that are just a little too wily to hook. This is actually a good thing as it ensures that you're leaving plenty of nice fish to breed for fishing

trips in future years. In fact, I've found that after using such feeding stations for about four or five years, the sizes of the individual fishes in each location have increased considerably.

Whether your own fishing is done on a lake, river, pond, or wherever, I know you'll be pleased with the results should you decide on using a similar feeding station to ensure your own catches. One thing I hope you'll remember, though: since this sort of feeder all but guarantees quick and relatively easy catches, fishing near one is a really terrific way to introduce youngsters new to this sport, to the laid-back pleasures of fishing.

Now that I've finished typing this up, I think I'll go fishing.Δ

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BUILD AN ASH-HEATED MINI-GREENHOUSE

By Robert L. Williams

You don't have to be a scavenger to build this mini-greenhouse for less than five cents, but it helps.

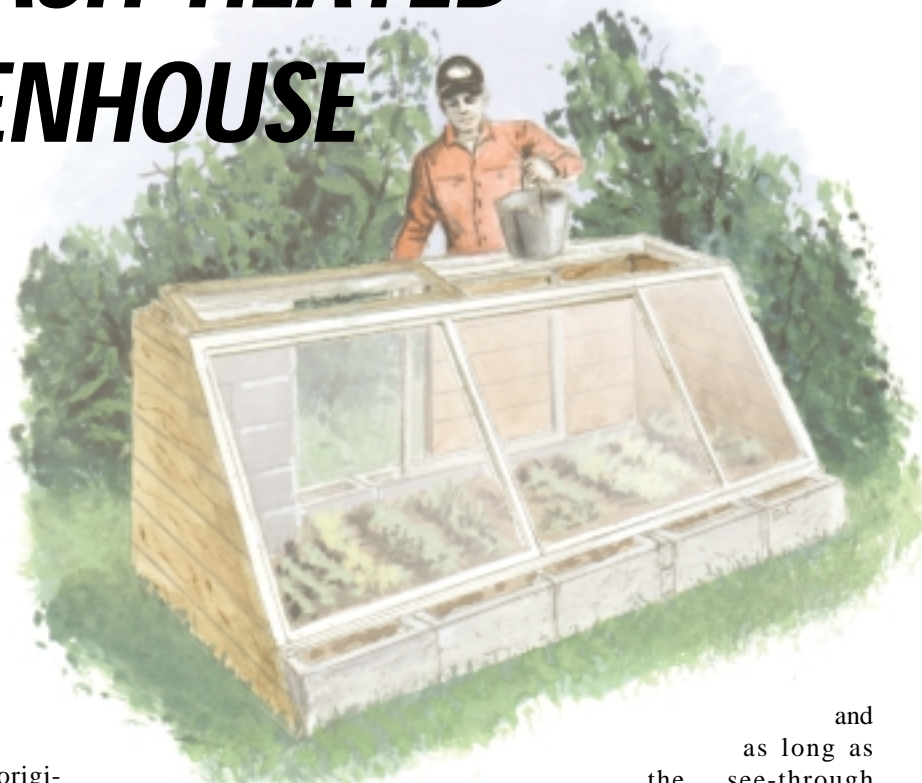
If you were to go out and buy the materials used in this mini-greenhouse, you could easily spend two or three hundred dollars.

But the whole idea is to build it for nothing. Or at least nearly nothing. Start to work by looking around your house and property for anything that can be used to hold heat in and keep cold out. You might be surprised at what you find.

You'll be even more surprised to learn how it's heated. First things first, though. Why build a tiny greenhouse? The answer is obvious: to keep your tiny and tender plants from freezing and to save money on the cost of seedlings next year at garden season.

What is a mini-greenhouse? In this case it's a cross between a cold frame and a greenhouse. The structure, if you could call it that, is heated, however, and therefore it's not a cold frame. But it's too small to be a real greenhouse.

How do you build one for nothing? Or nearly nothing? Because we never throw anything away, we always have in one of our outbuildings something that will work. In this case, we had two old storm doors that we used on an earlier house. When the house went, the doors stayed, largely because there's always a chance that such a device might be useful. Our



original intention was to use the doors on a workshop that we might one day build. We also found some doors out of an old bookcase, as well as some windows from an old building. You probably have something of the sort around. If not, you can buy some thick polyurethane or some form of plastic covering.

We salvaged or re-cycled everything in the mini-greenhouse, and I mean everything. Here's the order in which we assembled the collection of has-been stuff.

First, dig a small trench wide enough to hold a series of old concrete blocks or bricks. We used blocks for two reasons: first, we had them, and second, we wanted to fill the cores with dirt in order to have more insulation. Dig the shallow trench about five inches deep, eight inches wide (or wider, if you have 12-inch blocks),

and as long as the see-through materials to be used on the front and back. If you are using old windows, the size of the windows will determine the length of the trench.

When the trench is completed, leave loose dirt in the bottom so that you can wiggle blocks enough to seat them in order to give you a reasonably level base.

Now, when the blocks are fitted end-to-end and are basically even, fill the blocks with dirt and pack the dirt fairly tightly. Then drive a small but sturdy stake into the dirt in the cores of the end blocks.

Now construct from old scrap lumber an inverted shortened vee shape and nail it together. The finished product should look a little like the framing of a roof with a flat section. At the bottom of the frame nail a type of furring strip from one end to the other of the structure, and then on top of the strip nail a piece of wood that is at least an inch wider than the first strip.

The result should be a grooved space wide enough to let the edge of the old storm door slide down into it so that the door will be held stable.

Do the same for the back side, unless you don't plan for the back side to be exposed to direct sunlight. In that case, you can use wood, metal roofing, or anything else that will keep out the cold.

Use two strips of wood to connect the two parts of the vee-frame. These strips should be long enough for you to fit the top windows in the space. If you are using plastic sheeting, you do not need to have the flat area at all.

But we wanted to have sunlight from the east on the back side of the structure, from straight above at noon, and from the west in the afternoon.

You need very little carpentry skills to do this work, and you don't need many tools. You can use plastic to close in the ends, or you can use wood. We used some very old and nearly rotten wood that we started to burn but for some reason didn't.

When the frame is done, all you do is lay the old doors or windows in their positions and let the sun and a little help from the woodstove do the rest.

If you want to do a neater job, you can build a sort of lean-to against the foundation wall. In this way you get the heat that is absorbed by the cement blocks, and the only wood you need is for the slant from the ground level to the foundation wall.

If you want to attach the legs of your frame to the cement blocks, you can do as we did. I drilled a hole in the wood and in the end of the cement block. Then I cut a wooden dowel (from an old stick) and drove it into the hole. The fit is very tight, and the blocks give stability to the greenhouse.

How do you heat this monstrosity?

When I said everything was recycled, I meant everything. That includes the ashes we use for heating.

We placed the mini-greenhouse in the middle of one of our garden

spaces. There was a reason for that, too. In the middle of the day, actually every two days, we usually shovel out the ashes from our woodstove. The ashes always have hot coals, so we were reluctant to dump the ashes onto the garden, for fear that a spark might ignite high grass and create a tragedy. So we solved two problems. In the past we noticed that when we carried the ash bucket out and set it on a brick bed for safety's sake, the bucket would still be giving off heat two days later, even in the coldest weather.

So now, we shovel out the stove ashes in the late afternoon, and we carry the bucket to the garden space, open the door simply by leaning the storm door outward, and then we set the ash bucket on a small bricked area in the center of the mini-greenhouse.

The heat from the ash bucket keeps the tiny greenhouse warm all night, and the next day the sun warms the cement blocks and adds to the warmth. On the second night there is still heat in the ash bucket, and on the third day we can safely spread the wood ashes across the garden space. The ashes are dead by this time, and there is no danger of fire.

So we found a safe way to let our ashes cool, and at the same time we heat the mini-greenhouse at no cost. For a third benefit, we have the greenhouse handy to the garden, so that we can spread the ashes without taking extra steps.

Now, what do you grow in such a space? We start seeds for the summer garden so that when the danger of frost has passed we can have health-sized plants. We also break off tomato suckers in the early fall and root the suckers. In this way, we keep last summer's tomato plants alive during the winter and into the summer. Then we will break off more suckers and in this way keep the same tomato plants going year after year. Δ

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Compare the nutrition in wild meats to supermarket meats

By Charles A. Sanders

Most of us who hunt do so to provide meat for the table. This thought is too seldom taken into account when considering whether hunting is a valid pursuit in our “nuclear age.” Each year hunting puts, literally, hundreds of millions of pounds of lean, healthful meat in freezers, on pantry shelves, and on tables all across our country. Subsistence hunters in parts of Alaska and northern Canada still depend upon wild animals as their sole or primary food source. Even in the lower 48 states, wild meat consumption is not always just a matter of personal preference. Many individuals in rural areas provide a significant portion of the meat for the table from wild game and thereby stretch or replace dwindling food dollars. Hunters and fishers from all walks of life take to the outdoors each year to add to their larder.

In Wisconsin alone, for example, an estimated 400,000 deer were taken during a recent hunting season. They yielded, at an average dressed weight

of 100 pounds per deer, 40 million pounds of meat. In addition, the fields and waterways of the state yielded additional millions of pounds of small game animals, gamebirds, waterfowl and fish to hunters and fishers. Each of the 49 other states can boast similar numbers with their own indigenous species providing comparable quantities of meat for hunters in their states.

As a result, the use of wild meat can and does contribute to the health and well-being of North American families.

It should come as no surprise that our primitive forebears ate wild meat regularly. Further, evidence suggests that modern man is wise in his imitation of some of those primitive dietary habits.

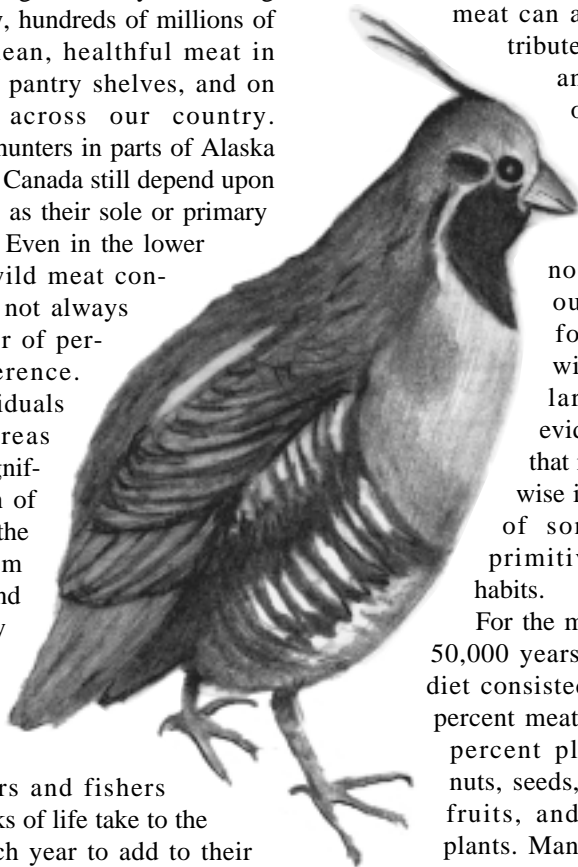
For the most of the last 50,000 years or so, man’s diet consisted of about 34 percent meat and about 65 percent plants such as nuts, seeds, roots, tubers, fruits, and leafy green plants. Man was a hunter and gatherer.

Agriculture came along much more recently. Cultivated grains were not introduced to the diet until about 10,000 years ago and dairy products

came into use only in the last 6,000 years or so. In other words, primitive man not only subsisted but thrived on a diet based on only two of the basic food groups considered today to be essential to good health. In fact, he managed to get an average daily intake of about 1,500 mg of calcium, without consuming any dairy products at all. That level is at least 50 percent greater than is usually recommended for us today. Early man did have one thing in his favor, however. The *quality* of his food was significantly better than that of today. Contributing to that difference is the fact that wild meat is nutritionally superior to the meat from domestic animals.

It only makes sense. Wild meat is some of the most healthful which we can consume. No domestic animals are more humanely raised than the wild animals which roam our fields and forests. It is naturally lean and flavored by the wide variety of high quality natural foods instinctively chosen by the animals, and is not subjected to the hormones or chemical additives found in so many commercially raised meats. Wild animals also get plenty of exercise in both hunting for their own food and trying to escape predators which would devour them.

Farm animals, on the other hand, are force-fed synthetic feed mixtures designed to put on weight. They are also confined to small areas where they can’t get enough exercise. For these reasons, primitive man ate meat which was only about four percent fat, compared to our traditional beef, which is up to 30 percent body fat. A high fat intake has been linked to



increased risks of both heart disease and cancer. Incidentally, primitive man himself was only about four percent body fat. He consumed very little fat, absolutely no junk food, and got plenty of exercise just trying to catch his dinner.

Another important difference is that wild game contains a substance called E.P.A., whereas domestic animals do not. E.P.A. (eicosapentaenoic acid) is a protective fatty acid which improves the flow characteristics of blood. It acts as a sort of natural antifreeze to keep the fluids and organs of wild animals from becoming stiff in even the most frigid weather. Not surprisingly, the colder the climate, the more E.P.A. wild game contains. It is even found in higher concentrations in their legs and hooves—which make contact with the snow and cold ground—than in their torsos. Scientists are just now discovering that E.P.A. in the human diet can be a protective factor against heart attacks, atherosclerosis (hardening of the arteries), and certain forms of arthritis.

Nutritionally, wild meats compare very favorably with domestically raised meats. In many cases, some nutritive values exceed those of similar domestic counterparts.

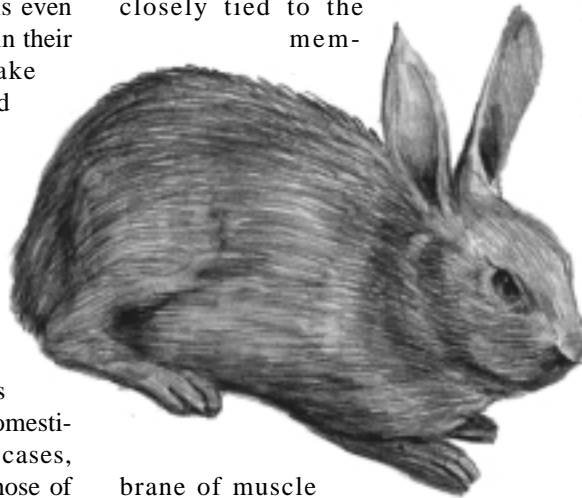
Generally speaking, nutritional information on wild game species is less comprehensive than on more commonly consumed meats. Two areas of current interest are cholesterol and fat content in foods, especially in “red” meat.

Most game meats, except bear and raccoon, are relatively low in fat. With a few exceptions, cholesterol values are similar among meat, poultry, fish and game. While antelope, caribou, venison, wild rabbit, and veal tend to have slightly higher cholesterol content than other meats, they should not be put at a nutritional disadvantage since they are lower in total fat than some other meats.

Remember, current dietary recommendations advise Americans to reduce total fat and saturated fat in the diet and to limit daily dietary cholesterol. Trimmed 3.5 oz. portions of game products as listed in the accompanying table can easily be included in meals consistent with those recommendations.

If the hunter or a family member has heart problems, he or she will benefit from knowing the cholesterol and fat content of what they bring home.

A concerned consumer needs to first understand that cholesterol is an integral part of the cell membrane of animals and so the cholesterol content of meat is actually more closely tied to the mem-



brane of muscle cells than to the fat content of the muscle. This means, as a rule of thumb, that game meat tends to have the same amount of cholesterol as beef or pork. However, since game gets more exercise, game meat has considerably less fat than domestic meat.

Hunters also like the organ meats. They should keep in mind that the cholesterol of heart muscle is 275 mg/100 g of tissue but is low in fat. Liver is, of course, a rich source of cholesterol at 450 mg/100g. The extent of worry about these figures should be balanced with how often these organ meats are eaten. If liver and onions is eaten once or twice a year, then a moderate portion should not cause problems.

In the accompanying table, you can see how wild meats from fish, birds, and animals compare to many domestic livestock species in supplying many of the basic nutrients essential to our health and vitality.

In reviewing the table, note that the fat content of domestic animals is, on the average, nearly four times as much for the wild ones. Notice also that domestic duck has only about 70 percent of the protein but 350 percent of the fat of wild duck. Diet and exercise are the obvious factors responsible for these differences.

Note that wild game provides, on the average, 200 percent of the calcium, 240 percent of the iron and over 300 percent of the vitamin B-2 found in domestic meats. Wild duck has over 200 percent of the calcium, over 350 percent of the iron, 170 percent of the vitamin B-1 and over 350 percent of the vitamin B-2 found in domestic duck.

In any recipe, most wild meat can be readily substituted for meat from the supermarket or butcher shop. If the game is killed quickly, dressed properly, and handled carefully, there is no good reason for anyone not to enjoy the taste of wild meat. One important tip to preserving the nutritional value and flavor of fish and wild game is to be careful to never overcook it.

The more you experiment with different types of wild game in your cooking, and the more creative you are in the seasoning you try, the more comfortable and accomplished you will become at cooking wild fare.

Simply put, using wild animals for food, as well as for hides, furs, and other articles involves personal choices. Whether we choose to hunt and use wild meat is up to us. But it remains a valid and important part of our country and the lives of millions of people. Δ

NUTRITIVE VALUE OF WILD GAME (3.5 oz. portions)

Species	Calories	Fat (%)	Chol. (mg)	Protein (%)	Calcium (mg)	Iron (mg)	Sodium (mg)	Zinc (mg)	B-1
Antelope Pronghorn	148	2.67	113	29.45	4	4.2	54	1.68	na
Bear, Black	259	13.39	na	32.42	5	10.73	na	na	.16
Bear, Polar	na	3.3	na	25	17	6.1	na	na	.023
Bear, Brown/Grizzly	259	na	na	32.42	.5	10.73	na	na	.16
Beaver	166	5.45	na	29	26	5.8	46	na	.08
Beef	158	26	69	26	11	3.1	na	na	.07
Beef, ground, lean	264	na	75	17.69	8	1.77	69	3.86	.05
Buffalo	146	2.42	45	28.44	na	na	na	na	na
Caribou	167	4.42	109	29.77	22	6.17	60	5.26	.67
Chicken, domestic	140	8.2	58	28	15	1.6	na	na	.06
Deer, Mule	151	3.19	85	30.21	10	4.47	54	2.75	.23
Deer, Sitka, raw	117	na	18	21.5	7	2.9	na	na	.2
Deer, Whitetailed	153	3.19	113	30.21	10	4.47	54	2.75	.23
Duck, domestic	na	7.8	na	21	12	1.3	na	na	.1
Duck, Mallard	154	2	143	29	26	4.8	na	na	.17
Duck, breast	123	na	na	20	na	4.5	na	na	na
Elk	146	1.9	73	30.19	5	3.63	61	3.16	na
Goat	143	3.03	75	27.1	17	3.73	86	5.27	na
Goose, Canada	171	39	105	na	na	na	na	na	na
Goose, Snow	na	2.2	na	29	26	4.8	na	na	.23
Goose, Snow, breast	130	na	142	23	na	na	na	na	na
Graying, Arctic	93	na	57.6	20.5	.35	1	81	na	.07
Grouse, Sharp-tail	108	na	105	24	na	4.8	na	na	na
Horse	175	6.05	68	28.14	8	5.03	55	3.82	na
Lamb	na	27	na	25	11	1.4	na	na	.13
Moose	134	.97	78	29.27	6	4.22	69	3.68	.02
Muskrat	234	na	na	30.09	36	na	95	na	na
Opossum	221	10.2	na	30.2	na	na	na	na	na
Pheasant	149	6	49	24	na	1.2	na	na	na
Pheasant, breast	116	na	52	26	na	1.2	na	na	na
Pike, Northern	88	na	na	18.3	na	.6	na	na	na
Porcupine	na	1.1	na	24	23	5.2	na	na	.14
Pork	165	27	71	20	10	2.9	na	na	.5
Ptarmigan, raw	128	na	20	24.8	na	6.2	na	na	.25

Quail	134	na	na	22	na	4.5	na	na	na
Quail, breast	123	na	na	23	na	2.3	na	na	na
Rabbit, wild	173	3.51	77	33.02	18	1.6	45	na	.06
Rabbit, domestic	154	6.31	64	22.78	15	1.78	37	1.78	na
Raccoon	255	14.5	na	29.2	na	na	na	na	na
Reindeer, raw	127	na	16	21.8	16	5.3	na	na	.33
Salmon, King, dried	428	na	139	51	28	2	139	na	.15
Salmon, King, cooked	214	na	65	23.3	39	2	62	.56,	026
Salmon, King, canned	150	na	na	23.2	60	1.8	na	na	.01
Salmon, Pink, cooked	149	na	na	25.56	na	.99	86	.71	na
Salmon, Coho, cooked	185	na	49	27.36	na	.89	59	.52	na
Salmon, Red, cooked	216	na	87	27.31	7	.55	66	.51	.215
Scoter, White-winged	90	na	na	20.2	8	na	na	na	na
Seal, Ringed	150	3.9	90	28.4	5	19.6	110.1	na	.14
Seal, dried	243	na	na	46	19	35.1	na	na	.174
Smelt, dried	361	na	na	59.3	na	na	na	na	.01
Squirrel	149	3.65	83	24.13	2	5.34	94	na	na
Trout, Dolly Varden	100	na	53	19.7	13	1.3	102	na	.05
Turkey, domestic	146	15	60	31	7.8	1.8	na	na	.04
Turkey, Wild	158	11	58	na	na	na	na	na	na
Turkey, Wild, breast	121	na	55	26	na	na	na	na	na
Walrus	200	na	80	19.2	18	9.4	na	na	.18
Walrus, dried	267	na	na	57	na	43	na	na	.21
Whitefish, dried	412	na	284	69	65	.9	na	na	.06



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Publisher's Note

This issue is bigger, longer, fatter

This issue is 20 pages longer than usual, which makes it the fattest magazine we've ever had. About 10 of the 20 new pages are advertising, as companies are increasingly trying to tap into the economic mini-boom that the growing concern over the Y2K computer problem has created. Many of our advertisers report that their sales have doubled and tripled. China Diesel, which only a few years ago had a handful of employees, now has 60 to service the growing demand for their engines. Bob McBroom, the owner of Kansas Wind Power, told me he wants to hold off advertising for a while because he can't keep up with the orders. "The phone just rings all day and I don't even answer it anymore," he said.

Expos and shows growing

It's all pretty amazing to me. Even the Preparedness Expos, which have always been lively, are having to hire bigger halls to accommodate the huge crowds looking for self-reliance information and products. And new Y2K Expos and Readiness Shows are popping up all over the country. We're scheduled to be at shows in Philadelphia, Tampa, Detroit, Kansas City, St. Louis, Nashville, Dallas, Oklahoma City, Denver, Phoenix, San Jose, Portland, and Seattle. And we're not doing all the shows by a long shot. We've listed most of the major shows at our web site (www.backwoodshome.com), but if you intend to attend one you should contact the show organizers directly to make sure a date or a city has not changed.

Reprinted "Doom and Gloom Issue"

For the first time in our 10-year history, we have reprinted an issue—our January/February (No. 55) "Special Doom and Gloom Issue." It sold off the newsstand in four days, and we had many requests for multiple copies of the issue, up to 30, 40, and 50 copies from some people. If you want a copy, you can have one for our back issue price of \$5. Just call us toll free at 800-835-2418, or send a check to us at P.O. Box 712, Gold Beach, OR 97444.

Product reviews

This issue also has our first product review in a long time (page 57). We'll do product reviews when we can find the qualified people to do them. If you'd like to submit a product for review, call first to see if we can handle it.

Finally, a new anthology

We've finally gotten a new anthology together. It's our Sixth Year Anthology and it will sell for the same price as the others—\$16.95, which includes postage and handling. Size is the same too: 8.5 x 11 inches, 384 pages. The ad on page 14 gives some details.



Issue no. 55 has been reprinted. See the ad on page 93 to order.

More "books for sale" pages

You may notice that this issue has two new pages of books for sale—pages 55 and 56. The books on page 56 are "how-to," but the books on page 55 essentially explain points of Libertarian philosophy as it pertains to important issues of our time. The key editors of this magazine, including myself, are Libertarian. The platform of the Libertarian Party is the U.S. Constitution, as written and interpreted by our Founding Fathers. These books are eye-openers and will probably give intellectual ammunition to most of the readers of this magazine, who, I believe, are Libertarians at heart.

Web site

Our Web site continues to grow. We're over a million visitors per year, based on last month's figures. The average stay per visitor is about 15 minutes, which is very high for a web site.

Cranberry ale

Austin England brought by several bottles of his home-brewed cranberry ale the other day, and it's among the best home-brew I've ever had. On a scale of 1 to 10, I'm giving it an 8, as did Jean L'Heureux. Silveira and Mark Cogan each gave it a 7. If you'd like your home brew rated, drop some by and we'll do a product review. We're very qualified here: I'm all Irish, Cogan's half, and Silveira's a drunk Portagee—Irish from his mouth to his liver. L'Heureux is a Frenchman but we let him try the beer anyway.

My view

At fascism's doorstep

Fascism and socialism are the political philosophies that hold that the state should control a country's means of producing wealth. Where socialism seizes the money-producing industries outright, fascism leaves much of the private sector intact but tightly controls it through government management. Otherwise there's barely a nickel's worth of difference between the two political systems. Germany and Italy were the prime fascist states during World War II, and communist countries like China, Cuba, and the former Soviet Union are the modern socialist states. These states always come to ruin, because state control of people's lives is an unworkable idea. It goes against human nature, and, historically, fascism and socialism have only been maintained by government force, until the enslaved and impoverished people rebel and bring down the government.

Despite fascism's and socialism's disastrous records, which includes not just the financial ruin of the countries that adopted them but a legacy of imprisonment and murder of millions of the citizens of the unfortunate countries, the appeal of these unworkable systems is still strong in many countries, including this one. If you want a bold new example, just take a look at President Clinton's proposal to *save* social security in America, and witness the response—or rather, the lack of outrage—from Democrats and Republicans in the U.S. Congress.

Under the guise of trying to *save* social security, which accounts for nearly 22% of all federal spending, President Clinton has proposed that a large portion of social security trust fund money be invested by the government into the stock market to earn a greater return for future retirees. His proposal is a bastardization of financial studies that conclude that social security recipients would be far better off if the social security system were privatized, so that participants, instead of investing money into a system that nearly everyone agrees cannot survive as presently structured, were allowed to invest their social security tax dollars into the private sector. Among the many compelling reasons cited by these studies: The private sector has earned 8% in real money over the past 75 years (including the Depression years), while the government's social security has earned 2%—not in real money but in government IOUs.

Clinton's proposal, however, would allow the government, not social security participants, to invest the money in the stock market, thus maintaining government ownership and control over the funds. Due to the large sums involved—about \$650 billion—it would give government direct management control over nearly every major American business in America, opening the door to political

pressures about how those companies do business. As has already been demonstrated by some state and county pension funds that already invest in the stock market, politics will replace sound financial management as the criterion for investment. For example, environmental companies would get lots of government investment, while tobacco companies and others who do not toe the party line would get nothing. The result would be the undermining of sound financial investment with the political-expediency of investing public money into socially desirable businesses.

Incredibly, few congressmen are calling this proposal for what it is, namely, a barely veiled attempt by opportunistic politicians to subvert America's free enterprise system, which is the foundation upon which this country is built.

The Clinton plan would capitalize on Americans' fears that the social security system is on the verge of bankruptcy, that the social security trust fund has only government IOUs in it, and that their social security retirement money is no more secure than a White House intern in the oval office. These fears are all well-founded, because social security is going broke and action needs to be taken to save it. But Clinton's solution is not an attempt to save social security, but an attempt to inject major government control into the American economy.

Just as he attempted to nationalize one fifth of the nation's economy under the pretense of health care reform, Clinton now is attempting to put government control over American business under the guise of *saving* social security. Alarm sirens should be going off inside the heads of all freedom-loving Americans. It would mean the greatest increase in federal power since the introduction of the income tax; not even Roosevelt, at the height of the New Deal, proposed government control of American industry.

Truly privatizing social security by allowing participants to invest in 401K and IRA type accounts in the private sector would not only *save* social security by dramatically increasing participants' future retirement benefits, but it would increase the country's economic growth by making more money available for investment. However, letting the government invest the money in the stock market would strangle the private sector with government control, just as government has strangled it in other state-controlled economies. Saving social security would then become a moot point, because the economy will have been ruined, taking social security along with it.

Opportunists like Clinton and his fellow Republicrats are not interested in meaningful reform. They are interested in seizing the panic of the moment to further their own misguided socialist view of America's future. Don't let them! If Clinton can sneak this dirty trick past a gullible public and through a Congress that lacks the guts to stand up to this would-be dictator, then the American system will fall without a shot being fired. This sinister proposal places America at fascism's doorstep. Δ



CUCUMBERS

COOL IS THE WORD!

By Alice Brantley Yeager (Photos By James O. Yeager)

Have you noticed how the word “cool” has taken on an entirely different meaning than what Webster has defined? As far as temperature is concerned, the dictionary sticks to a middle-of-the-road definition—“neither warm nor very cold.” Children in particular tend to use the slang meaning and classify everything as “cool” that produces a favorable reaction with them—new clothing, rock stars, a favorite teacher, a teenage idol, and so on.

In the gardening world we apply the word to only one vegetable and that’s the cucumber. We don’t say beans, egg-

plants, okra, etc., are “cool.” Only the cucumber has the distinction of being “cool.” On a warm day prove this for yourself by cutting into a freshly picked cucumber. Cool!

As a further testimonial to cucumbers, they’re “good for you.” Some folks, including youngsters, hate that expression, but there’s no denying that cucumbers contain certain nutritional benefits. They have goodly amounts of calcium, phosphorus, and potassium and, as a fringe benefit, they contain the enzyme erepsin which helps digest proteins. To obtain the best food value, they should be eaten raw, but who can resist them in pickled form? (See the sweet lime and the sour pickle recipes.)

Oriental cooks often use cucumbers in their cooked dishes just as we use other vegetables such as beans, squash, etc. However we Americans tend to confine our main culinary use of fresh cucumbers to salads. That’s what we want when summer surrounds us and we’re looking for something cool. Tasty hot casseroles are great for winter days, but not when temperatures reach into the nineties.

Like any vegetable, the best cucumbers are going to be homegrown in one’s own garden. Harvested fresh from the vine, cukes are going to have more flavor than those supermarket varieties trucked in from hundreds of miles away. Always keep in mind that

Left: Before using pesticides, remember that we have friends in the garden.

the farther produce has to travel, the more nutrients and taste are lost.

Cucumbers are among the easiest vegetables for a gardener to grow. The vines require a soil with pH 6.0-8.0 which is compatible with most gardens. Soil should be moderately rich—sandy loam if possible. These plants do not do well in heavy soils that tend to hold water. If ground is poor and short of humus, some well decayed manure or compost should be worked into it a few weeks ahead of planting time. If one has to resort to commercial fertilizer, a side dressing of a tablespoon of 5-10-10 per plant when vines are starting to run will be beneficial. However don't be surprised if your cucumbers have a tendency toward bitterness when a commercial fertilizer is used.

Remember not to be too eager to plant cucumbers when a few warm days in early spring fool us into thinking cold weather has gone. It takes awhile for soil to warm up and for weather to really settle down. If planted too early, chances are the young seedlings will be chilled, growth will be stunted, and you may as well start over. Because of short growing seasons some gardeners start their plants indoors in peat pots and transfer them to their outside location when conditions are right. (One should always avoid disturbing the roots of cucumber transplants as they are highly subject to root shock.) Where there is a long summer season such as in our Zone 8, it is less troublesome to plant seeds directly into the garden soil, usually a couple of weeks after Easter.

Seeds should be planted not over an inch deep in sandy soil and a half inch in loamy soil. Space seeds about 6 inches apart with a view to thinning seedlings to stand 10-12 inches apart. (Cucumber seeds can usually be counted on to have a very good rate of germination.) Thinning should be done when plants are beginning to crowd each other but before they put out tendrils. Trying to thin plants that have



Standard varieties of cucumbers have both male and female flowers. Male flowers will drop off, but behind each female flower will be a tiny fruit.

begun to run and attach themselves to others requires the patience of Job.

Location is important to successful growing, as cucumber vines like plenty of sunshine and good drainage. Shady conditions are a no-no. With sufficient moisture and an organic mulch when hot weather comes on, vines can be encouraged to bear over a major part of the summer. Thirsty vines will begin to bear poor quality fruit with a stunted

appearance. One shouldn't expect juicy, picture-perfect cukes if Nature shuts off its water supply and the gardener develops a lazy streak.

Our preferred method of growing cucumbers is on a fence-wire support between posts. This promotes an easy way to handle the vines when weeding, harvesting, or watering. Vines take to wire supports as soon as the first tendril

comes into contact with the wire. From then on, we just tuck in stray runners.

Years ago, when a sizable garden was a must for large families and ranked right up there with keeping milch cows and hogs, cucumber seeds were, for the most part, planted in “hills.” The vines rambled everywhere and weeding was almost impossible. A good downpour could coat the cukes with dirt making a thorough cleaning necessary before the fruit could be used. I am convinced hunting the fruits and picking them on ground level gave vent to the expression, “My aching back!”

Grown on an upright support, it is easy to see the cucumbers and keep track of their size, particularly if one is growing them for a specific purpose such as small pickles. Also, long types do not curl and twist in shape as they do when growing flat on the ground. Another drawback to ground level is

that it makes the fruit easy prey for sowbugs, snails, terrapins, etc. These interlopers know a good thing when they see it.

Young plants must be kept free of weeds and grass. Soil should be lightly cultivated to break up any hard crusts that may form when soil dries out after heavy rains. As soon as vines are tall enough to begin climbing their support, mulching with organic matter (leaves, grass clippings, pine needles, etc.), will make cultivation unnecessary. Mulch attracts and shelters diligent workers called earthworms and they are worth their weight in gold to gardeners.

Cucumber vines, like other garden plants, are subject to certain diseases—powdery mildews, mosaic virus, bacterial wilt, and anthracnose. These all seem to be more prevalent in one area than another and also worse at times. If a gardener has severe problems with one

or more of these, I strongly advise planting disease resistant varieties of cukes and religiously rotating the cucumber space each year. County extension agents should have the latest information on controls.

A number of pests zero in on cucumber plants so it is well to keep a sharp lookout for them. Young plants are subject to cutworms. Those fat culprits usually do their dirty work at night or on very cloudy days. They rest during daylight hours underneath small clods of earth or debris and begin feasting on tender plants at night. A telltale sign of cutworms is finding plants cut off at the base or just above the soil line. I dislike using poison in a garden, but, if the infestation is severe and you are losing a number of vegetable plants, it may be well to very lightly sprinkle 10 percent Sevin dust around the base of your plants. If there is only a loss of a plant



A nice basket of Sweet Slice Hybrids ready for pickling or enjoying fresh



Grown on support, cucumbers can be found and harvested easily.

here and there, you can find the evildoers by turning up a bit of the soil in the vicinity where plants have been attacked.

Other pests mainly include squash bugs, spotted cucumber beetles, and striped cucumber beetles. If they don't show up in great numbers, hand picking will get them. If they seem to be out of control, however, a light dusting of Sevin dust may be necessary. This is where a small dust gun comes in handy. However, always keep in mind that you may do more harm than good using a pesticide as you can do in some beneficial insects without even knowing it. For instance, there are a number of small pollinating bees and wasps, as well as honey bees, that we hardly notice but that can be killed by the use of pesticides. No organic gardener wants to execute the good guys.

There are many varieties of cucumbers to suit every appetite—bush, standard, burpless, and so on. The bush types are ideal for folks with limited space as they may be grown either in large pots on a patio or in the ground. Burpless cukes are favorites as they tend to produce no after effects when eaten. Standard and burpless types give the best yields, require more space, and are generally grown in average size gardens.

Do not be discouraged if vines start off producing a number of flowers and no fruit. Standard varieties are monoecious (have both male and female flowers). The male flowers will drop off. Behind the female flowers there will be a tiny cucumber which will develop into the desired fruit. There are gynoecious cucumbers, too, that have only female flowers, but both types need pollination. Slicemaster Select Hybrid is a gynoecious type and is a good producer.

No cucumbers should be allowed to ripen on the vines as this will definitely slow down or end the crop. Fruits should be picked at least every other day. When refrigerated they will keep for several days depending on the variety, some being better keepers than others.

Sweet Slice Hybrid, a standard variety, is one of our favorites. It is a prolific performer and has very uniform fruits. They may be used for small pickles when 2-3 inches long, for lengthwise sliced pickles when 4-6 inches long, and for sliced pickles when over 6 inches. This is a burpless cuke—crisp, thin-skinned with very good flavor and no trace of bitterness at any stage. Vines have good disease resistance making it a nice choice for home gardens.

There are lots of varieties of cucumbers to be grown, but usually only one or two commercial types are seen in the supermarkets unless we are lucky enough to have access to some ethnic markets. Therefore it's up to the home gardeners to get acquainted with some of the "different" cucumbers. These can include Armenian, Suvo Long, Lemon, Gherkin, Tamra, etc.

Armenian cucumbers are very long, often called "yard longs" and should be

SEED SOURCES

SWEET SLICE HYBRID

Vermont Bean Seed Co.

Garden Lane

Fair Haven, CT 05743-0250

J. W. Jung Seed Co.

335 S. High Street

Randolph, WI 53957-0001

Park Seed Co.

1 Parkton Avenue

Greenwood, SC 29647-0001

TAMRA

Shepherd's Garden Seeds

30 Irene Street

Torrington, CN 06790-6658

ARMENIAN

Gurney's Seed & Nursery Co.

110 Capital Street

Yankton, SD 57079

SUYO LONG

Pinetree Garden Seeds

Box 300

Gloucester, ME 04260

LEMON

Park Seed Co.

Gurney's

GHERKINS

Pinetree Garden Seeds

Most seed companies carry a number of bush or patio varieties.

Sour pickles

This recipe will remind you of the days when a nickel would buy a mouth puckering, delightful pickle that would last all day. Maybe these wonderful culinary specialties still exist somewhere, but, until you can find them, here's a recipe to help out. Generally, the nickel pickles were made from fairly large cucumbers about 4-5 inches long and served from oak barrels or large glass jars. Times have changed. We recommend using smaller cucumbers so as to be able to pack more of them into pint or quart jars, or, when ready to can, slice the cucumbers lengthwise into quarters.

Remember Rome wasn't built in a day and the same applies to anything requiring a brining process. Don't be discouraged by the time element. Keep your eye on the goal, which, in this case, is delicious sour pickles.

STEP 1: Wash about $\frac{3}{4}$ peck of fresh cucumbers in cool water being careful not to damage the skins. Weigh and put them in a clean scalded crock. Cover with a 10% brine solution made by dissolving 1 cup dairy or pickling salt in 2 quarts of water. (An egg will float in a 10% brine.) To keep cucumbers from floating, weight them down with a fruit jar of water placed on top of a clean heavy plate. Drape a thin kitchen towel over the crock. About 12 hours later or over night add 1-cup salt for each 5 lbs. cucumbers. Put the salt on the plate so it will gradually dissolve and not suddenly sink to the bottom creating too much brine intensity at one spot. During this curing process, if at all possible, try to maintain a temperature of 80-85F. This helps control brine strength.

STEP 2: Keep film removed during fermentation as film can promote spoilage. At week's end and thereafter for 4-5 weeks, add $\frac{1}{4}$ cup salt, always placing it on the plate. Fermentation usually lasts about a month. Bubbles will cease and no more salt is required. Cucumbers are now "cured." Keep in the brine until you're ready to make pickles.

STEP 3: About 3 weeks before the anticipated pickle making, prepare the following solution for each 6 quarts of cucumbers.

Vinegar solution

- 1 gallon vinegar (clear or apple cider)
- 2 cups sugar
- $\frac{1}{2}$ oz. whole allspice
- $\frac{1}{2}$ oz. whole cloves
- 1 stick cinnamon
- 1 piece mace

Place all spices in a clean cloth bag. Bring all of the above to a boil and simmer 15 minutes. Cool, cover, and set aside for 3 weeks before removing spice bag. Keep bag for further use. When dealing with anything acidic, such as vinegar, always use stainless steel or graniteware vessels. Never use iron, copper, aluminum, or galvanized.

STEP 4: When ready to begin the pickling process, bring 1 gallon of the vinegar solution to a boil. Add one-fourth of cucumbers and boil 2 minutes. Likewise with other 3 portions. Be careful not to boil until soft. Put cucumbers in clean crock, cover with the hot vinegar and add the spice bag. Cover top of crock with plastic wrap securely held in place to exclude outside air. Let stand in a cool place 6 weeks. Remove spice bag in 3 weeks.

STEP 5: FINALLY it's time to can the pickles. Pack pickles in sterilized jars and cover with vinegar solution. Adjust lids and process in simmering water bath (180F) 10 minutes. Remove jars and complete seals. Set aside and cover with a light towel until cool. Admire your pickles for several days before beginning to use them. During this time, the flavor actually improves.

Some old cooks layered clean grape leaves in the brine with their cucumbers. This stopped the growth of enzymes that could cause cucumbers to soften. Leaves were discarded when the pickling process was started.

grown on a fence or trellis to insure long straight fruit. They have a ribbed skin but need no peeling. Their light green color is outstanding in salads.

Armenians are burpless with a mild, delicious flavor. Quality is diminished if fruits are allowed to fully mature, so they should be picked before they reach

that stage. Suvo Long is not one of our favorites although it does have some merit. It is long and slender growing to about 15-17 inches and is burpless.

Cucumber boats

Fresh, medium size cucumbers. Prepare as many as needed for the salad lovers.

Wash cucumbers thoroughly, dry and slice off bottoms lengthwise so they will sit straight on serving plate. Scoop out about one-half inch of the center lengthwise of each cucumber and put pulp in a mixing bowl. (Cucumbers now resemble boats.) Mix pulp with mayonnaise, finely chopped celery, green onions, radishes, ripe olives—anything that suits your fancy. Maybe you'd like to add some tiny cooked shrimp, tuna, etc., and perhaps you'd like to put in some special seasonings. Just remember to let the cucumber taste come through. Garnish with sprigs of parsley, watercress, or maybe some cherry tomatoes.

Sweet lime pickles

STEP 1: 7 lbs. or 1 peck medium-large cucumbers. Wash in cool water to remove dust, etc. Slice in ¼-inch rounds and place in large crock or churn. Cover with solution of 2 cups household (powdered) lime to 2 gallons cold water. Leave to soak for 24 hours in cool place. Occasionally stir gently to keep lime in suspension as it will have a tendency to settle.

STEP 2: Drain cucumbers and rinse well. Soak in clear cool water for 3 hours.

STEP 3: Drain and cover with the following mixture:

10 cups sugar
1 Tbsp. salt
10 cups apple cider vinegar
1 tsp. mixed pickle spices
1 tsp. celery seed
1 tsp. whole cloves

If you like a peppery pickle, also put in 1 teaspoon red pepper flakes. Soak overnight.

STEP 4: Using the Step 3 solution, boil cucumbers in stainless steel or graniteware pots (Do not use aluminum.) about 30 minutes or until cucumbers begin to take on a clear appearance instead of white.

STEP 5: Pack slices into hot sterilized jars. Cover with hot solution and seal.

Cucumbers - plain and simple

Although cucumbers are used in many salads, the way I first became acquainted with cukes was plain and simple. My father, who came from Tennessee, used to bring in some cucumbers from his garden, wash them and prepare a very satisfying side dish to go with other food. He peeled the cukes if they had tough skins, but not if they were young and tender. Then he sliced them crosswise in thin slices and put them in a bowl with some sliced white onions and poured some table vinegar over them. Some ground black pepper was added and the dish set aside for a few hours until mealtime. Simple and very good.

Flavor is very sweet and seeds are small, but skin is quite ridged and spiny.

Lemon cucumbers are undoubtedly named "lemon" because of their appearance and not their flavor as they have a sweet cucumber taste and good crisp texture for pickling or salads. Some folks like to eat them as they would a crisp apple. They need to be picked young before they become tough-skinned.

Gherkins are usually very heavy bearers of small, oblong, burr-like fruits that are good for making small pickles. They are not recommended for slicing and eating fresh.

Tamra is an excellent cucumber for the home garden and you'll probably

never see it in a market as it is too delicate to endure a long haul. It is great for eating right off the vine and has a mild delicious taste. In our 1998 garden the vines showed remarkable resistance to viruses and mildew, bearing throughout some of the worst gardening weather we have endured in years. The season started out with too much rain. Then came the drought and high humidity when temperatures soared into the lower 100s and stayed there. It takes a stout plant to stand all of that.

Cucumbers have been pickled with garlic, hot pepper, brown sugar, and all manner of spices to give them varied flavors and textures. Everyone has his/her own favorite pickling recipe—

hot dills, sweet pickles, 14-day pickles, bread and butter pickles, mustard pickles, and on and on. Back "in the good old days," there were large glass jars full of big sour *nickel pickles* sitting on the grocer's counter. That was when a nickel was worth a nickel. One of those piquant, spirited pickles wrapped in wax paper for holding in hand could be enjoyed all day—kinda like an all-day sucker.

So, if gardening is your cup of tea and you'd like to raise some really outstanding cucumbers, try some of the home garden varieties. You might just come to be known as the coolest gardener around. Δ



MILLENNIUM VEHICLES

By Michael Hackleman

A major failing of transportation worldwide is that 99.9% of vehicles on farms, street, and freeways work on **one** energy source: liquid fuels. In any disaster—small or large, local or global, short-term or long-term—this puts simple transportation at risk. Will your local gas station have a supply of fuel? Is there electricity to pump it from the tanks? Wouldn't it be nice to own a vehicle that didn't depend on gasoline, diesel fuel, or propane to operate? Actually, there is: the electric vehicle. It runs on the electricity from batteries. And, in the absence of utility power and standby generators, the batteries can be charged directly from the sun, wind, and water all around us.

My own awakening to the benefits of electric vehicles (EV) began in the mid-1970s. I was building a research center and wanted it and my home to be self-reliant. I began the search for an alternative to my gasoline-powered car and truck. At first, I investigated alternative fuels. Methane (biogas). CNG (compressed natural gas). Alcohol. Hydrogen.

During this process I discovered an ugly truth about internal combustion engine (ICE) technology. The engine itself was a bottleneck, wasting an average of 70-90% of the energy of **any** fuel it consumed as it did its work.

My research also revealed that, in 1900, steam cars and electric cars had dominated the roads. An electric-powered vehicle? I daydreamed about



Solar panels recharge an electric motorcycle miles from grid power.

The electric OX

I found the original chassis for Ox, an industrial vehicle, abandoned in a Goodwill resale yard in Orange County, California, in 1972. It looked awful. A closer inspection revealed good tires, a 1-1/2 HP series motor and gearbox, and a solid frame. It had six 6V deep cycle batteries below the flatbed. I bought it, coaxed it up into a flatbed truck, and drove it home.

I tried for a month to revitalize the batteries (understanding very little about sulfation at that point). They gassed so badly during charge that eventually a spark blew one of them up and I traded them in for a new set.

While I was undecided about what I wanted to do with this vehicle, its ungainly front end wasn't part of any scheme. I set about with a torch to cut it off. Once done, I was surprised

at how much weight I had just shaved off the vehicle. Suddenly, I had a very spry electric!

I had fantasized great things for this EV. In the end, the reality of what I did have soaked in. Instead of adapting it to be a street machine, I worked within its constraints to build something for use around the farm. I bolted in a new front seat and rigged up a tiller for steering. I welded together a front assembly to protect the passenger and driver, and the steering, brake and accelerator linkages. I named it Ox.

Ox plugged directly into our wind-machine(s) whenever it was not in use. This helped it maintain a high state-of-charge. A monthly water and hydrometer check, equalizing charge, and battery washdown was the only care it got. It was a happy feeling to drive around the farm on wind-watts.

Eventually, I restored an old 220-watt vibrator-type inverter for use in Ox. It supplied 110Vac (60-cycle) directly from Ox's 36V battery bank for soldering irons, power tools, and even my typewriter.





Wind-generated electricity was used to recharge Ox.

plugging a car into one of my wind-electric machines. A few months later, this dream came true with Ox, my first EV. I was driving on wind-watts! I had found an alternative to the ICE car and gasoline.

What is an EV?

An EV is a vehicle that has an electric motor instead of an engine and a battery pack instead of a fuel tank. How does it work? A battery pack, consisting of between 8 and 16 deep-cycle, lead-acid batteries, feeds electricity to a motor connected to the vehicle's transmission. The accelerator pedal cable is attached to an electronic speed control, similar in size and function to a light-dimmer switch. This unit efficiently and quietly controls both the power and speed of the motor and the vehicle. Taking the foot off the accelerator permits the vehicle to coast. Or, if your controller has "regen," the vehicle will slow down at the same time it reclaims some of the vehicle's momentum as electricity, recharging the battery in the vehicle. This feature is important in hilly terrain.

Since 1972, I have converted and scratch built dozens of electric vehicles. Conversions are vehicles where

the engine and related hardware—fuel, cooling and exhaust systems—are removed and replaced with an electric motor, batteries, and charger. Scratchbuilts are lightweight vehicles that are designed with EV propulsion systems. These and other EVs are described in detail in two books I've written on the subject.

EVs designed for the highway and freeway have battery packs that are generally too big to be recharged daily by modest renewable energy (RE) systems. There are exceptions. This article will focus on EVs that are useful for work and transportation that may be recharged from the sun, wind, and water of smaller RE systems.

The electric Ox

My first EV was a revived industrial electric vehicle that I transformed into a farm vehicle. It was simply a golf cart with a flatbed. Its 36-Volt battery pack was a close match for use with my farm's 32-Volt, wind-generated electricity.

For seven years, Ox was our farm's workhorse vehicle. It traversed every kind of terrain. Its 1.5 horsepower series motor would kick in the torque to tackle the steepest grade or the softest ground. The heavy duty FNR (forward-neutral-reverse) switch and the accelerator pedal were the only operator controls. No meters or other instrumentation were ever installed. The original six-position series-resistance (non-electronic) controller proved adequate for our needs.

The greatest discovery with Ox was that an EV is also a portable power station. Accordingly, I rigged up a receptacle box on Ox's side. Wherever I went, I could plug in a variety of 32V tools—a drill, cutoff saw, welder, etc. Eventually, an inverter added 110Vac capability to the mix. I spent whole afternoons typing away out in a meadow with Ox parked silently nearby, supplying the power for the electric typewriter. I wrote big pieces of several of my

books out there. When I sold my farm, Ox stayed to give the same service to the new owner.

My fondest memory of my 10-year adventure in farm living outside of Mariposa, California is the way that Ox and my windmachines complemented the silence of the land that surrounded our home.

Virtually any golf car or cart is a good starting point for a vehicle of this type. These are quickly abandoned by golf courses or industry when cosmetically damaged or beyond a certain service life. Good sleuthing or "wanted" ads will help ferret them out. Inspect the vehicle's motor and gearbox first. Next, check out the controller, and steering and brake systems. At least, they should have all the parts! Tires are replaceable, but expensive and a hassle. If it's been sitting for a while, figure that the vehicle's batteries are scrap. Your first offer should be to remove it for the labor of hauling away garbage. If you can't get it for less than \$50 bucks, continue looking. If it's not operable, you're the one who's taking the risk.

An electric Mule

One of the slickest EV conversions I've seen involved an ATV (all terrain vehicle) on a 67-acre organic farm outside of Hilo, on the big island of Hawaii. Harry MacDonald wanted a work vehicle that would haul compost, deliver machinery for maintenance without breaking up the fragile turf, and emit no exhaust. To this end, Harry engaged Tom Carpenter to convert a 2WD Kawasaki 500 Mule to electric propulsion.

The Mule's steady work is hauling compost around the farm on dirt and gravel roads and slick turf. It also routinely transports mowers and weedwackers to work areas. Tom rigged the Mule's system to power tools at remote sites directly (with an inverter), avoiding the use of an engine-generator. The silent ac power was an instant success. Remarkably,

An Electric Mule

In the first step of converting a Kawasaki 2WD Mule to electric propulsion, Tom Carpenter removed the engine, transmission, and engine-related components. A 3/8-inch aluminum motor mount was welded together and bolted to the original engine mounting holes. A 6HP Advanced DC series motor was coupled to the locking differential (internal 6:1 ratio) with a 1:1 ratio of timing belt pulleys.

The potbox for the Curtis 1205-201 controller (36-48V, 350A) was connected through the existing throttle cable to the footpedal. Forward and reverse are handled through the stock (mechanical) linkage. A DC contactor was selected for keyswitch operation, and a DC-DC converter handles 12VDC (aux) loads. A dual main circuit breaker was added to isolate the battery pack from the vehicle for servicing. With a wet climate in mind, Tom installed the controller, contactor, pot box, meter shunts, and a 12VDC fuse strip inside a plastic Carlon box. An outdoor timer box, mounted under the front seat, housed the circuit breaker near the driver.

There was room for six batteries in the Mule, five in the rear and one under the single front seat. Would the batteries be 6V or 12V? Since the vehicle was intended for farm work, rather than recreational or street use, Tom opted for 6V batteries, for a pack voltage of 36V.

Sealed, absorbed-glass mat, deep-cycle batteries were selected for the Mule. Used in wheelchairs and other motive power applications, the Concorde 6V batteries weigh 68 lbs each, are rated at 180Ah (20-hour rate), and use lug terminals. To support the five batteries, Tom fashioned an aluminum frame from 1-1/4 inch aluminum angle and popriveted it together. The sixth battery of the pack

is mounted on the metal floor just under the front seat.

Far from utility lines, the Mule is charged by solar power. Initially, it was designed to recharge from several solar "stations" sited throughout the land.

Each station is composed of a dual-axis solar array (15 Solec S100s), a battery pack (24VDC, 1,400Ah capacity), and an inverter (Trace 4024 sine-wave 4kW, 120Vac). A K&W charger (120Vac input, 24VDC output) was purchased to recharge the Mule's batteries.

A subsequent expansion of the Mule's role revealed an alternate charging system. A new building was planned. Normally, the Mule would lug a 5000-watt generator to a work-site when power tools were needed. Instead, Tom tried out an idea, rigging the Mule as the power source. He attached a quick-release plug to a Trace inverter (36VDC input, 120Vac output) to tie into the battery pack.

Since the Mule would be sitting all day at the building site, Tom also installed three 100-watt Solec panels on the Mule's roll bar assembly. A Heliotrope CC20 charge controller was added to protect the batteries from overcharge. The silent ac power was an instant success, with the meager solar input keeping pace with the intermittent high-power consumption from tools.

At any time, the Mule's driver can scan the dashboard-mounted ammeter and voltmeter to check



battery condition. A cycle computer (VELO) was added to watch vehicle speed, distance, and time. It also recorded the maximum speed and accumulated distance. The magnetic sensor was glued to the left rear wheel, the magnetic pickup was secured to a brake line, and the computer was calibrated to the tire's circumference.

What did it all cost? The basic conversion kit (\$2,160), battery pack (\$600), DC-DC converter (\$190), and miscellaneous hardware and aluminum angle (\$250) totaled \$3,200. Add to this 30 hours of Tom's time. And this was a prototype!



A gearbelt delivers motor power to the stock transmission, eliminating the less efficient infinite ratio drive unit.

Electric-assist bicycle

The ZAP (zero air pollution) kit is available for people who wish to purchase an electric-assist option for their bicycle (see Sources). Do-it-yourselfers with metal and tool working skills can build their own. Components for an electric-assist bicycle (EAB) will have these general specifications.

Motor: 12Vdc, PM (permanent magnet), 2700-3500 rpm, demag current max greater than 20-25 Amps, 3-4 lbs weight. Mounts to frame behind and below seat.

Controller: A high-current DPDT relay, slaved to a 2-position toggle switch, selects 12V (slow) or 24V (fast) to the motor by configuring the battery pack into paralleled (12V) or series (24V) wiring. Downhill regen braking works in 12V position. A GO (push) button connects pack to motor, and is released during slow-fast selection. The addition of a switch, microswitch, and additional relays adds two dynamic braking rates (resistor and short).

Battery Pack: Two 12V batteries (lead-acid, nickel-cadmium, or nickel-metal hydride) make up the battery

pack. At 10-15Ah each, the pack will weight 10-20 pounds.

Drivetrain: V-belt, cogbelt, or chain. At 25 mph, a 26-inch wheel is turning at 325 rpm. The stock spoke-pulley is 14 inches in diameter. With a 1.5-2 inch pulley on the motor, a 7-9 to one ratio will result. An 8-12 tooth cog on the motor and an 80-120 tooth gearbelt rim pulley will also complete the EAB drivetrain.

Additional components include the wiring harness, fuses, molex connec-

tors (aid in motor and battery removal), battery charger connector, circuit breaker (rated to protect the motor from demag currents), and a Voltmeter (a simple multimeter will suffice).

What does it cost? Motor: surplus, \$15-25. Battery: 17 Ah (\$62) or 33 Ah (\$71); purchase batteries locally to save shipping costs. Relay: DPDT, 50-amp rated (\$25); avoid using solenoids with high-current coils. Molex connector set: \$10. Misc switches, wires: \$10. Spoke-wheel pulley: no current source.



the 6-Amp charge rate from solar panels installed on the Mule's roll bar kept the battery pack topped off despite the constant drain of power tools through the workday. Drivers got into the habit of always parking the Mule in the sun. While the farm has several solar stations of larger size, Tom realized after four months of continuous operation that the Mule had never been plugged into even one of the solar stations!

The Mule's performance was also a surprise. In a trial run, Tom went 35 miles at an average speed of 13.8 mph, with the top speed (downhill) reaching 27 mph. Adding two more batteries (bringing the pack up to 48VDC) brought the Mule's average

speed up to 17 mph for the same distance of 35 miles.

ATV's like the Mule are useful around the farm or homestead for transportation or hauling materials, produce, and compost. Since the cost of repairing or replacing the engine and drivetrain (damaged or destroyed through abuse) is prohibitive, many ATVs go into an early retirement. This is a boon for anyone who would like to convert one to electric propulsion. (Carefully inspect any such find. Damage to the suspension, steering, or chassis can also be expensive.)

There are three problems with ATVs: limited space, a high CG (center of gravity), and a short wheelbase. If the batteries can be mounted low,

the vehicle's CG will prove more stable.

Electric-assist bike

The bicycle is the most efficient machine ever developed for transporting people about. I had been working with EVs for more than 15 years before I witnessed a human-powered vehicle (HPV) competition. This and the Gossamer series of human-powered aircraft awaken me to the true power and potential of HPVs combined with electric propulsion. Understandably, I had dismissed bicycle technology as being too light to carry much in the way of batteries. No

The Hawk

The idea to build an electric motorcycle came to Ely Schless in the middle of an engine rebuild for his primary racing bike, a 650 cc, 1988 Honda Hawk. The engine needed \$1,500 worth of work. Ely had already lightened the motorcycle for racing, stripping 100 pounds from the original 400 pound curb weight. Suddenly, he wanted a “non-oil” entity. I wanted an electric. Ely affixed a matching “S” in front of the HAWK to originate the catchy name for his conversion. He custom-fit the 6 HP series motor, sealed lead-acid batteries, and the electronic controller into the Hawk frame, drivetrain, and throttle controls.

The result was a user-friendly machine. People who have never driven a motorcycle seem willing to try the Hawk. Remember, there’s no noise, no smell, no clutch, and no possibility of “stalling” the engine. Everyone gets it right the first time.

What did the Hawk cost Ely Schless? \$140 each for 4 chargers, \$120 each for 4 batteries, \$450 for the motor, and \$500 for the con-

troller. Ely works his own well-equipped machine shop, so everything needed for this conversion cost him only the materials.



Right: This select motorcycle is easily charged from a few solar modules and only twenty-five cents worth from the grid.

one came up to me and said, “So what?”

In bike circles, a favorite discussion is the “accumulator.” Bicyclists hate to stop at intersections because braking a bicycle throws away the energy of momentum gained from leg muscles and rudely dissipated as heat in the brakes. The accumulator, then, is a technique of storing the bicycle’s momentum and using it for takeoff.

What if the accumulator is a battery pack? A small electric motor can be added to a bicycle to assist the pedal effort. Even the simplest circuitry (no electronic controller) with a PM (permanent magnet) motor will produce regenerative braking if desired. The ZAP—a popular kit for adding a

motor and battery pack to a bicycle—uses precisely this technique. The battery pack acts like an accumulator. The motor reclaims 30-50% of the momentum of bicycle and rider by converting it into electricity, routing it to the battery.

In the electric-assist bicycle (EAB), the electric motor is small and the human effort still reigns supreme. The EAB’s operator, then, gets help with acceleration, cruising, hillclimbing, and braking. Any attempt to operate the EAB without pedal effort will quickly drain the small battery pack. My own experience suggests that many bicyclists will find a well-designed EAB a pleasure to operate.

The basic EAB is composed of a small PM (permanent magnet) motor, a 12-24V battery pack, a fixed-ratio drivetrain, and a control unit. It includes mounting brackets and hardware, a wiring harness, and a battery charger. Installed, the electric-assist option could add 12-22 pounds to the bicycle’s weight. The amount of battery capacity (short vs long range) accounts for the weight variance. Watch out! A combined motor and battery weight greater than 25 pounds seems to severely compromise pedal-only input and dictate the addition of better suspension. Circuits for regenerative and dynamic braking should be added to help brake the additional weight. Electronic motor control is

generally not recommended for an EAB. Commercial units are expensive (\$175-225) and do NOT include regenerative braking.

Since the drivetrain is a fixed ratio in the EAB, the motor must be “geared” for the desired operational speed. Ask yourself, “How fast do I want to go?” When geared for high-end work, the EAB will accelerate slowly and gobble power on startup if there is no significant pedal input. It is generally better to design for low-end work, such as hill-climbing. This will also make for better “braking” in downhill grades.

Many designs exist to transfer the motor power into bicycle propulsion. Hub, tire drive, rim-pulley, and spoke-pulley are examples. None of these designs interact directly with the bicycle’s stock chainworks (pedal, chain, sprocket, and idler system).

There are several reasons why it is **not** a good idea to mix electric propulsion with the existing chainworks. First, most bicycles use a “free-wheeling” rear wheel. This allows power to flow only one way: from the pedals to the wheel to the road. A ratchet inside the hub between the axle and the wheel performs this job, engaging in one direction, but slipping in the other. When you stop pedaling, the pedals and chainworks stop, while the wheels keep on turning.

Free-wheeling has the obvious benefit of maintaining efficiency. More importantly, however, it keeps the road and wheel from powering the chainworks. If the road and wheel could power the pedals through the chainworks, the pedals would never stop rotating while the bike was in motion. At high speeds, this could be nasty. Integrating the electric motor into the existing chainworks would partially defeat this feature, allowing both the wheel and the pedals to be powered by electric drive.

There’s a second problem when the motor drive is interfaced with the existing chainworks—the finished system loses the ability to employ

regenerative or dynamic braking. Since a free-wheeling rear wheel will not “power the pedals,” it also will not transfer momentum into the motor via the chain! Ergo, no regenerative or dynamic braking.

The preferred methods of motor connection—tire drive or a separate pulley drive—operate independently of the bicycle’s free-wheeling hub. Each transfers power directly to the tire or the wheel on the “pavement side” of the wheel axle. Thus, they work in parallel with (but independent of) the stock chainworks, while powering the vehicle or recovering power during braking.

You may want to retain the option of quickly converting your electric runabout back into a standard bicycle. Motor mounts, battery holders, and all wiring are best installed permanently. Quick-release bolts or fasteners should ease the removal of motor, battery pack, and controller when non-electric operation is desired, or to prevent theft. If these fasteners are padlocks, you’ve now got a security system.

There is an optimum weight for the electric-assist bicycle. Twenty-five (25) pounds seems to be the upper limit of hardware—motor, battery pack, controller, and wiring. Above this amount, pedal-only operation is difficult and additional suspension is required.

Allow 3 lbs of motor and 2 lbs of controller for the EAB. Limit the battery pack to 15-20 lbs. A 12-Volt, 25-Ah NiCd or NMH (Nickel-Metal-



Four 12V sealed lead-acid batteries just fit under the tank in the Hawk.

Hydride) battery pack will weigh approximately 18 lbs.

In California, a motor-driven bicycle is easy to register (license) and requires no insurance. A helmet may not be required for an EAB, but its operator should wear one.

Single-gear and 3-speed bicycles typically make poor EABs. Ten-speed mountain bicycles seem to be the norm. This isn’t a hard and fast rule; just an observation. Lots of gear choices help the rider “match” the motor’s effort, particularly during hill-climbing.

Shawk

A good example of a straight conversion of a motorcycle to electric propulsion is the Shawk. Designed and built by Ely Schless, the Shawk

A street machine

Based on my experiences with lightweight EVs, I have the following recommendations for a high-performance, long-range street machine.

Design for a 1300-lb running weight (includes 175-lb driver. Add passenger weight). Use a 120V pack. For example, using the 27TMH series, the 10 batteries will weigh 720 lbs. This leaves a body and frame weight of 405 lbs to stay within design limits.

Fit an all-weather, aerodynamic shell. Sketch it in some detail. All components will need to fit inside. The canopy-roof should remove for touring. Integrate a roll-bar into the rear bulkhead support. A high-threshold door for ingress and egress on one side will give a sporty access but maintain overall, lightweight structural support.

Position the driver and passenger in tandem-offset seating above the battery pack. This ensures good visibility for the driver. The high profile helps other people see this vehicle, too. This design positions the battery weight low, center, and forward for

stability. This “stacked” arrangement minimizes vehicle width and length.

Consider an exchangeable battery pack. The pack can be split into two identical, 360-lb “modules” of 60V each. These may be saddlepacks or extend, side by side, across the width of the vehicle. A community service center can be built to maintain the packs, leasing them (yearly) to owners for home charging, and exchanging the packs when extended range of the vehicles.

A 10 HP series motor and electronic controller would make up the propulsion package. A 4:1 (fixed) gearbelt drive will power the vehicle

to 60 mph, but ensure good low-end performance. Electric reverse and regen braking should be included.

The vehicle can be arranged as a standard 4-wheeled EV or as a motorbike (3-wheels). In the 4-wheeled configuration, the FRW (front-to-rear weight) ratio is 1:1, with the rear wheels driven through a simple lawnmower (seated type) differential. In the 3-wheeled layout, the two front wheels are both steered and powered. Maintain a FRW (front-to-rear) ratio of 4:1 for good stability. With this low a vehicle weight, the rear wheel supports too little weight for good traction during acceleration or regen braking, hence the preference for front-wheel drive.



Right: The Speedster II is a good runabout.

started life as a Honda Hawk. Ely brought his experience as a racing motorcycle mechanic and competent machinist to the project. It was needed. In the space normally occupied by the engine, transmission, gas tank, and exhaust pipes, Ely cleverly adapted the small space to hold four (4) batteries, the motor, and controller.

With virtually no background experience in EVs, Ely got it all right the first time. The novice EV designer might think the Shawk’s system undersized with a 4½ HP motor and only 48 Volts of battery pack. However, the motor is a series type,

ensuring high torque at zero RPM. It’s enough to move 550 pounds of bike and rider off the line with gusto. The PMC controller will channel 350 Amps to the motor if the batteries are able to deliver it. At 35Ah, the pack is light on energy density (duration) but easily delivers the high current (power density) to meet the motor demands. If you do the math, this combination of motor, controller, and drivetrain is able to deliver as much torque as an 18 HP engine.

Ely was test driving the Shawk when I first met him. Several months later, I test drove the Shawk for

myself. It felt perfectly natural to get on, turn on the key, and power it into the street. When fully charged, the batteries will let you chirp the tires. Acceleration is brisk—all the way up to its 40 mph cruise speed. More modest acceleration will ensure a range of 15 miles.

The single-ratio, gearbelt drive of the Shawk strips the motorcycle of its intimidation to the novice. In addition to the lack of vibration and engine sound, there are no gears to shift and no clutch to operate. The motor cannot be stalled. Even at speed, sounds from the environment can be heard through

the helmet, a feature I found particularly endearing. The Shawk leaves a silent wake.

I was able to borrow the Shawk while I was doing the layout for my last EV book in a remote area of Oregon. I rode it daily to explore the back country. It was recharged from two solar modules.

Do-it-yourself'ers with the confidence to tackle the conversion of a motorcycle to electric propulsion should check out motorcycle wrecking yards in larger towns and cities for candidate vehicles. Or run an ad, offering a sum (25 bucks? 50 bucks?) for that dusty motorcycle stashed away in a garage somewhere. Some parent may want an old project motorcycle to quietly disappear. Be discriminating. You don't want to do a restoration. Also, as with an ATV, there's limited space in a motorcycle frame for batteries and motor. A small motorcycle using a 1 HP PM motor (\$200) and controller (\$200) will only need two 12V, deep-cycle batteries to make a good road or off-road machine.

Electric speedster

In the hope of building a competitive entry in the solar car races in 1990, Michael Leeds of Santa Cruz, California built a three-wheel test mule using off-the-shelf and affordable components and lead-acid batteries. The Speedster is an excellent example of the benefit of thinking light. With only six 12V batteries (72V of battery pack), a 4.5 HP series motor, and a single-ratio rear drive, the 600-lb speedster is "brisk" from a standstill and quickly reaches a 50 mph top speed. With the help of Dick Rahders, the vehicle created a new class of highway-legal EV in California, too.

The Speedster was a great demonstrator and a delight to experience, but it lacked room for a passenger. To let someone experience it, then, meant letting them drive it. The Speedster's

quiet elegance disguised its powerful acceleration, as many a novice discovered. Also, with its frame and suspension designed for solar racing, the Speedster was quickly becoming "thrashed" with street use and the antics of a large number of inexperienced drivers. The vehicle was fun, but it was clearly dangerous to use on the street. While the overall ergonometry of the vehicle was intuitive, it bump-steered (took another line when it hit a bump) because the steering system was worn. The Speedster lacked reverse (gear), real suspension and stable mirrors, and had no rollbar. Clearly, a major overhaul would be needed.

With these conditions in mind, I put together a project proposal to transform the Speedster for a new mission in life: safe for the street and able to carry a passenger. The proposal was accepted and, over the course of several months, the Speedster II evolved.

I had these observations and made these changes:

Rear Wheel Assembly: The moped rear wheel assembly was too small for a vehicle this fast and heavy. Frequent tire blowouts, a noticeable lean in turns, and the easy burn outs from a standstill suggested that something stronger was needed. I adapted a larger, huskier wheel/tire/rim from an Auranthetic motorcycle. The wider wheel could be run at lower tire pressure, softening up the otherwise unsuspended rear end. Also, the smaller overall diameter of the wheel decreased the drive ratio, too, minimizing the tire-spinning.

Front Suspension: The parallel A-arms (front wheel support) were designed for that of a solar racer, and too small for street use. The vehicle "bump-steered." Increasing wheel castor eliminated some of this. Nevertheless, front wheel alignment constantly changed with use as the undersized components bent and flexed. (Replacement of these components was not funded.) I installed larger front spring-shocks. The old ones

were almost fully compressed for drivers weighing over 150 lbs. This relieved some of the stress on the lighter suspension components.

Rear seat: A rear seat was installed, providing a means to give rides to children and adults in an educational setting. The seatback was designed to pivot forward and lay flat against the seat bottom. This gave access to the battery charger and charging extension cord. It also improved the aerodynamics when no passenger was aboard and increased the cargo-carrying ability.

Battery Pack: The original 24C3 batteries were worn out. These were replaced with more robust 27TMH Trojan batteries and divided into two saddle packs. Mounted on (and secured to) extensions off the frame on either side, this arrangement created the rear passenger space. A plastic cover, removable for maintenance, was installed over each pack to keep curious fingers away from battery terminals.

Steering Support: The upper support for the vehicle's steering post—weakened and sloppy from the loads imposed on it—was replaced with a new one and structurally reinforced. A lock was installed on the lower steering support to keep the arm from popping out (as it did occasionally, turning a casual cruise into a steering adventure!).

Control panel: A control panel was built and positioned for better driver visibility and reach. Switches like run, horn, headlights, and turnsignals, originally mounted in the steering post upper support, were re-mounted on an aluminum panel. A reversing switch was added, all switches got labels, and indicator lights were added for nighttime operation.

Emergency brake: An emergency brake, adapted from a 280ZX, was installed and connected to the rear wheel brake assembly.

Roll bar: A roll bar, fashioned from 2-inch muffler tubing, was added

to the vehicle. (Ugh. Stronger tubing is called for.)

Reversing circuit: An electrical reverse “gear” was added. I took a low-budget approach, using four 12V starter contactors, to reverse the field winding relative to the armature winding. This is essentially a double-pole, double-throw operation. (Another mistake. This was more time-consuming, and less safe and reliable, than if I had just budgeted for the \$175 to purchase and install a true reversing contactor.)

Miscellaneous: The vehicle was rewired, and many components relocated. I recessed and shock-mounted the headlight assembly to avoid the frequent damage it had sustained when the vehicle front end would tap something. The turn signals and brake light were made operational. I installed motorcycle tires on the front end. The front seat was redesigned for better ingress/egress and better back support. The charger was installed onboard. The hydraulic brake cylinder was overhauled and the disc brakes adjusted.

Wiring Diagram: Once I completed the vehicle rewiring, I drew up a complete wiring diagram for the vehicle from my sketches. I also drafted a system schematic. These would aid mechanics or electricians in future troubleshooting and repair.

Operations manual: I also put together an Operator’s Manual for the Speedster, listing location and function of all vehicle components. Besides helping the novice operator understand vehicle features, this manual is a good place to give appropriate warnings about the limits of vehicle operations.

Register, License, Insure: The Speedster is street and highway legal. Because it is a three-wheeler, it falls into the general classification of a motorcycle. (It is in a new class that is bigger than a motorized bicycle.) Like any motorcycle, it is expensive to have comprehensive or collision cov-

erage, unless a high deductible is taken. A relatively inexpensive insurance rate provides good liability coverage.

Helmet: The motorcycle classification means wearing a helmet. The roll bar and seat belt offset the need for a helmet but—the law is the law. Without engine noise, it is easier to hear other traffic even with a helmet.

Overall, the Speedster is a good draft of a street machine. However, the existing vehicle design was too lightweight in its basic construction to consider further improvement without major design changes. What’s the next evolutionary step? A scratchbuilt street machine (see sidebar). I estimate that a stronger vehicle would cost \$5K in parts and \$6K in labor (150 hours at \$40/hr) to construct.

SOURCES

Michael Hackleman, PO Box 327, Willits, CA 95490. Send SASE for publications list.

The New Electric Vehicles: A Clean and Quiet Revolution, Michael Hackleman, Home Power Publishing, 272 pages, \$25. Available from address above. The vehicles in this article are partial excerpts from this book.

Burden’s Surplus Center, 1000 W. “O” St., Lincoln, NB 68501. This is the old standby catalog if you want anything mechanical, hydraulic, electrical, and electronic. Switches, motors, generators, meters, relays, contactors, wire, vehicle accessories, pumps, blowers, lights, indicators, etc. Good prices. Just make certain you understand all the parameters for the devices listed.

C & H Sales Co., P.O. Box 5356, Pasadena, CA 91107-0356. This is a surplus catalog with particularly good deals on motors, NiCad batteries, miscellaneous meters, switches, lights, and blowers.

Comet Industries, 358 NW “F” St., Richmond, IN 47374. Source for a lightweight (7 lb) differential that will handle up to 20HP, for under \$50. Δ

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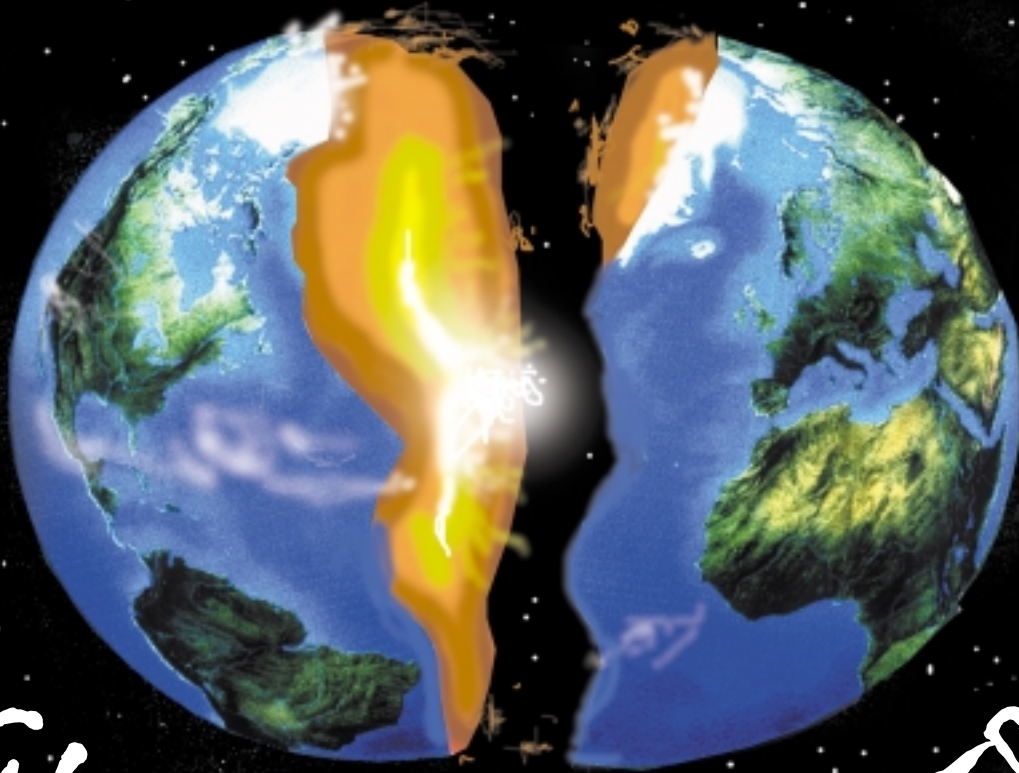
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The chances of



GLOBAL DISASTER

By John Silveira

We were preparing the current issue and the office hummed as it always does during deadline. Dave Duffy, the fellow who publishes this magazine, explained to our new artist what he wanted in a drawing; Mark Cogan, the fellow who does layout and has been changing the look of the magazine, was setting the cover; I was reading yet another submission fraught with predictions of dire catastrophes that lay in wait for us.

Off in the corner sat O.E. MacDougal, hunter, fisher, and poker player extraordinaire, looking like a bum in his tattered jeans and sweat-shirt with his feet propped up on a desk as he disassembled a fishing reel he'd picked up at a local garage sale. He'd come up from southern California for another visit and to do some fishing before the steelhead run ended.

I don't know what to make of the doom and gloom scenarios that come in the mail from various writers. I'm not sure I'm really qualified to evaluate them. I was reading one such article and stopped for a few moments to watch Mac fiddle with the gears inside the reel.

Y2K

Suddenly I asked, "Mac, what do you think of this Y2K thing?"

He looked at me curiously and I realized I hadn't asked the question right.

"What kind of effects do you think it's going to have?" I asked.

"It's already having effects. People are rewriting and redesigning software, replacing computer chips..."

"I mean, do you expect it to be a disaster or, as some people put it, do you expect it to bring about 'the end of the world as we know it?'"

He shook his head. "I think it's a tempest in a teapot. I don't think most people are going to have their lives



John Silveira

seriously disrupted by it. I believe at worst its effects will be about the same as what we'd have with a really bad winter. There'll be inconveniences and there will even be some fatalities attributed to it, just like a bad winter. There may even be power outages here and there, but nothing long lasting, and I don't expect most people to be affected by it very much or for very long. There will be production problems as some companies have short-term trouble getting supplies, but it won't be anything we haven't seen before that was caused by strikes or bad weather. And, in the meantime, there will be patches and work-arounds to solve the problems that do arise."

"Aren't you the optimist," I said.

"Many large businesses were 'Y2K compliant,' to some extent, before the end of 1998 and the ones that aren't are getting there. Wall Street already is; the New York Stock Exchange ran its tests sometime before the summer of '98."

"What about the government," I started to say. "I've heard..."

"Government is in trouble, but government's not part of the production

of wealth in this country. It's a consumer—and not a very efficient consumer at that. So if they have trouble collecting and spending money, we may actually benefit. The usual government victims—the poor and others dependent on government—may be hurt temporarily, but they're not part of the production of wealth either. If you'll recall, when the government 'shut down' a few years ago, during the confrontation between the Republican-controlled Congress and the White House, the economy didn't notice it a bit."

"Companies, on the other hand, are run by guys who want to ensure a profit, so many corporations are not only working to solve the Y2K problems that might arise, they're preparing to lay in a few weeks of inventory, just in case there are disruptions in supply. That in itself will ensure most production will continue while the problems that do arise with the supply system are dealt with."

"You certainly don't have a doomsday attitude," Dave said. I hadn't realized he was listening.

"Overall, life will just go on and it'll fade into history like the influenza epidemic of 1918 and 1919," Mac added.

The 1918 influenza

"What's an epidemic got to do with anything?" I asked.

"I was trying to compare it to another major disaster out of this century that didn't have lasting effects. That epidemic was worse than anything I expect the Y2K bug to be; businesses were temporarily shut down and, in some companies, key employees died. But civilization went on."

"I've heard of that epidemic," Mark said. He'd stopped working on his computer and turned to face Mac.

"In absolute numbers it was the biggest epidemic in history," Mac continued. "More people died of it than died in all of World War I. It also killed more people than any other

plague in history, including the Black Death that was the scourge of Europe. There were 30 million or more deaths in a year, including more than half a million in the United States where the epidemic began. That amounted to more than one and a half percent of the entire earth's population dead in about 12 months. And death came quickly. Many got the flu one day and two days later they were gone.

"Only World War II accounted for more deaths than the epidemic of 1918-19. Yet, life went on. Business went on. It didn't cause the stock market to crash or civilization to falter despite it being one of the greatest catastrophes in history."

"What's your point?" Dave asked.

"That major disasters don't necessarily have far-reaching effects, and I think Y2K is among them."

"Do you think there are preparations people should make for Y2K?" I asked. "Just in case?" I added.

"Anyone who's living a self-reliant lifestyle has a pretty good chance of surviving most of what life throws at us, including Y2K and even if it amounts to more than I think it will."

"So you're saying, prepare yourself with a self-reliant lifestyle and you can survive just about anything," I said.

"I'm not saying it'll guarantee survival, but it gives you your best chances."

Categorizing disasters

"What do you think the chances are of someone's life being seriously disrupted by a catastrophe?"

"Pretty good. When taken individually, any one disaster may be unlikely, but life is full of things that can go wrong, and when you add together all of them it's likely that one or more will disrupt your life—eventually. But for most of these disasters, the preparation will be the same whether they're personal, local, national, or global."

"Why do you separate disasters into different categories?" Dave asked.

"It makes sense to."

"Can you give us examples of each type?"

"Sure. But keep in mind that at each level there's bound to be some overlap. For example, a terrorist attack with a nuclear device would be a local event with national and global consequences."

"Okay," Dave said.

"Then let's start with the personal level. There are long-term sicknesses like cancer, heart disease, or injury;

"Mount Tambora...erupted in 1815 and is the greatest single volcanic event in recorded history. Its explosion threw so much material into the atmosphere that...it changed the climate of the entire planet. 1816 became known as 'the year without summer' and that year it snowed in June in the United States and Europe."

loss of your job; a death in the family; lawsuits; and stuff like that. If you've saved money, laid in food, and generally live a self-reliant lifestyle, you should be able to survive these. Maybe not comfortably, but you can save yourself from ruin, and life will go on.

"On the local level there are hurricanes, tornados, blizzards, earthquakes, forest fires, tsunamis, and urban riots, among other things, that can come and go. If you're not killed outright, a self-reliant lifestyle can ensure you come through any of these unscathed unless you're directly in the path of flood waters or a tornado or such."

"I understand," I said. "Food, water, toilet paper, a way to keep warm, a way to protect yourself..."

"A medical kit, a battery or solar powered radio..." Mac added.

"Yeah," I said, "stuff like that would help you through."

"It's the stuff you guys write about," he said.

"But you can't wait for a disaster to become self-reliant," Dave said.

"That's right," Mac said. "And, if you're prepared for those first two kinds of disasters, I think it's about all that's needed for Y2K."

"And on a national level?" Dave asked.

"On the national level there's political upheaval, revolution, recession, depression, etc. But being prepared for these things gets a little more ticklish. For one thing, you may have to prepare for the long haul. For another, a lot of people around you are going to be hurting, and if things really go down the tube for a long period, there's always the chance that your neighbors or, more likely, the authorities, will come to your house and take what you have."

"What's the defense against that?" I asked. "Guns?"

"You're not going to hold off the local police, the National Guard, or even a bunch of hungry neighbors for very long. Although I think you should have guns, your best defense is isolation, particularly in a small community where the people live self-reliant lifestyles anyway."

"I wouldn't want to be living in L.A. when the food ran out," Dave said.

"I wouldn't want to be close to any urban environment," Mac said. "Particularly if it became known that I'd taken steps to take care of myself and that I had a full pantry."

"What about globally?" I asked.

"Ahhh...", Mac said and a smile crossed his face. "It's at the global level where things start to get interesting—start getting to be fun. Why worry about California slipping into the ocean when you can dwell on the end of the world?"

"What do you mean?" I asked.

"Everybody loves a good disaster scenario. Look at all the calamities coming down the pike; it's a doom-sayers delight. Y2K predictions started in 1997 and continue through the

turn of the century, though with each significant date that passes, nothing really significant has happened. But we've got some good ones this year—like April 1st, when New York state, Canada, and Japan start their fiscal years 2000; July 1st, when 46 other states do the same thing; and October 1st, when the Federal Government does. The watershed date is supposed to be January 1, 2000, but we're told there are dates to watch out for that reach to at least the year 2004."

"And you still think that in all probability it's going to be no worse than a bad winter."

"I may be wrong, but that's what I think."

Dave and I looked at each other.

"But," Mac continued, "if you want something to worry about, consider this, on May 5, 2000, there'll be a lining up of the planets and civilization will be destroyed by worldwide earthquakes and volcanos."

"Is that really going to happen?" I asked incredulously.

"The lining up of the planets? Not really. The end of the world? Not this way. But there are plenty of people cashing in on it. In fact, if it weren't for Y2K you'd be hearing a lot more about it.

"But Y2K is everybody's dream catastrophe. It transcends political, religious, and economic boundaries. Conservative and liberal, believer and heretic, rich and poor love this one. The only people who don't believe in it are Hollywooders."

"Why not them?"

"When is a comet going to hit the earth? When is a plague going to wipe out a major portion of humanity? When are aliens going to take over the world? Each could happen anytime. So, you make a movie and you can show it for years. But Y2K is date-oriented. No one will buy post-2000 rights to a Y2K flick if it fizzles."

"So, that's it for global catastrophes?" Dave asked.

Global warming

"Oh, no, there are even more spectacular global calamities for those who want to worry. Global warming is one. This is the environmentalists' favorite global catastrophe. The scenario is that somewhere in the next century global warming will reach a fever pitch and we'll have flooding of all the coastal cities, the American heartland will turn into a desert, and most of the earth's species will become extinct.

"If the world really is heating up—and there's no clear evidence that it is—there is no clear evidence that a warmer earth would be a bad thing. We know that in the past the world has been warmer than it is right now and survived just fine. But none of this stops us from worrying about it."

"What's the real danger?" I asked.

Nuclear war

"If you're not scared by global warming, there's global annihilation through nuclear war. Even with the Cold War over, all it would take would be a few major political upheavals and who knows what the Russians or Chinese might do next? Why, just get some nut in the White House and we may start World War III ourselves. But we don't have to discuss the effects of nuclear war. We had that tune played for us for 50 years and if you didn't hear it then, I'm not going to sing it to you now."

"What else is there?" Dave asked.

Worldwide plague

"More intriguing is the possibility of a worldwide plague. It may be that the only reason Europeans got a foothold in the New World was because plagues of smallpox, measles, tuberculosis, and other Old World diseases, to which Europeans had some resistance, spread like wildfire through populations that had no resistance. It's unlikely that Cortez and a band of a

...the latest interpretation of the geological evidence now says that an ice age will probably come like a punch. Apparently, when the last glacial period started, lakes in Europe froze from top to bottom in less than three years and the islands that make up the United Kingdom and Ireland were covered with ice over 100-feet thick in less than a century.

few hundred men defeated the entire Aztec Empire. More likely, the entire population on two continents fell victim to catastrophic plagues that ran rampant, and the Europeans stepped in to fill the vacuum."

"Is there historic evidence to support that?" Dave asked.

"Yes."

"So, by inference, it could happen again, but this time the whole world would be subject to it," Dave said.

"Today," Mac said, "we may be faced by germs and viruses that are mutating and, at the same time, becoming resistant to antibiotics. Virulent microbes, natural or engineered, could even be unleashed in a terrorist attack or during a war between Third World countries. Biological weapons containing anthrax, smallpox, bubonic plague, and the like have been called the 'poor man's atom bomb.'

"Imagine a plague that sweeps the world like the Influenza Epidemic of 1918-19, but spreads faster and kills the infected more quickly—and there are no antibiotics, no vaccines. Influenza, AIDS, and many other historically common diseases—or even more exotic microbes such as the ebola virus, which is 50-90 percent fatal—are candidates for a plague of biblical proportions if they mutated in just the right way and got a chance to spread. With today's rapid air travel, a worldwide plague could spread before we knew what hit us."

"Is there a danger of the virus that caused the epidemic in 1918 and '19 coming back?" Dave asked.

"No one knows. But there's concern about it. Recently scientists exhumed bodies of some of the victims of that epidemic so they could study the DNA of the virus."

"Why?" Dave asked.

"They're hoping they can find a clue as to what made it so deadly, what it would take to make a vaccine against it, and perhaps even get a clue as to whether today's viruses are mutating in that direction."

"Is there any way someone can prepare for a plague?" I asked.

"Isolation in a rural community would help, and the more isolated, the better. But it's not a guarantee."

"Do you think it's going to happen?" Dave asked.

"There's just a probability that it can. But it would be hazardous to venture a guess just what that probability is."

"Is this the end of the global threats?" I asked.

Volcanism

"I'm just getting warmed up," he said, and Mark laughed again. "A more immediate concern is a massive eruption of a volcano that changes the earth's climate."

"That sounds improbable," Mark said. "Where's the evidence that that can happen?"

"Mount Tambora, which is on the Indonesian island of Sumbawa, erupted in 1815 and is the greatest single volcanic event in recorded history. Its explosion threw so much material into the atmosphere that as it spread around the world it changed the climate of the entire planet. 1816 became known as 'the year without summer' and that year it snowed in June in the United States and Europe. Crops failed, there was starvation, people lost their farms, and it touched off the wave of emigration that led to the settlement of what is now the American

Midwest. In the meantime, hundreds of thousands more starved around the world.

"There's also geological evidence of even more massive eruptions in the past. Two million years ago, eruptions in what is now Yellowstone Park expelled as much as 30 times what Tambora did. An eruption like that today would bring modern agriculture to its knees, and hundreds of millions—perhaps billions—would starve to death.

"Crater Lake, here in Oregon, which graces the pages of many calendars, rests atop Mt. Mazama. The six-mile wide crater, which forms the lake, was created some 6,600 years ago in one massive eruption.

"The fossil remains of an entire herd of bison was recently found in Nebraska, some 1,500 miles from Mt. Mazama, and some scientists believe that the entire herd was quick frozen by the gasses and debris from Mt. Mazama that rose to the edge of space, then fell to earth half a continent away and froze the herd to death before burying their carcasses under ash."

"You're kidding," Mark said.

"It's just a theory but it shows the incredible power scientists believe volcanos can unleash, and an eruption of that size today would be a civilization-altering event."

"How often do volcanos like that erupt?" Dave asked.

"Volcanos like Tambora are thought to happen once every thousand years or so. The ones like those in Yellowstone about every 10,000 to 100,000 years. The larger the eruptions, the less frequently they happen. But the next one may be right around the corner."

A new Ice Age

"Well, is that it for disasters?" Mark asked.

"No. There's another that may be a real concern for civilization because scientists think *it's going to happen,*

In absolute numbers [the influenza epidemic of 1918-19] was the biggest epidemic in history...More people died of it than died in all of World War I. It also killed more people than any other plague in history, including the Black Death that was the scourge of Europe.

but they haven't the foggiest idea as to whether it'll start tomorrow or 10,000 years from now."

"What's that?" Dave asked.

"The commencement of another ice age."

"An ice age? Are you crazy?" I asked.

"I'll bet not one person in fifty realizes that many scientists feel we're living in a glacial age. There have been something like eight ice ages—climatologists call them glaciations—in just the last three quarters of a million years. In that time, a good portion of the northern and southern hemispheres were covered with ice for 70 to 100 thousand years. Between each of these glaciations there's a warm period of 10 to 20 thousand years before a new one starts. We're in one of those warm periods, now, but unless someone can come up with a reason why there will never be another one, we're due for the next one and it may start tomorrow. Then again, it may be centuries, or maybe we may never see another one again—no one knows. But I think it's safe to bet another one's coming and civilization will have to deal with it."

"What causes them?" I asked.

"No one knows, though there's no shortage of theories including perturbations in the earth's orbit as it goes around the sun, changes in ocean currents, space debris blocking sunlight, volcanic ash blocking sunlight...the list just goes on and on.

"But the bad news is that years ago, it was assumed that the beginning of an ice age, as well as its end, hap-

About every 10 years bodies about 30 feet wide hit the earth. Most of them fall into the ocean...and some of them release as much or more energy than a Hiroshima-sized nuclear bomb.

pened over centuries so that if one started now, we'd have generations to prepare. But the latest interpretation of the geological evidence now says that an ice age will probably come like a punch. Apparently, when the last glacial period started, lakes in Europe froze from top to bottom in less than three years and the islands that make up the United Kingdom and Ireland were covered with ice over 100-foot thick in less than a century.

"To compound the mystery, available evidence says the glaciations end as abruptly as they begin and the last one may have ended in as little as three or four years."

"How fast would we have to react if an ice age started now?" Mark asked.

"If glaciation begins as fast as it appears they do, snowfall will accumulate faster than it can melt, piling up in thick sheets that will turn to ice under the compression of the snow that accumulates on top. Within 20 years ice sheets will cover a great deal of North America, northern Europe, and Asia."

"That's where the industrial countries are," Dave said.

"That's right. Eventually the ice sheets will be over a mile thick, burying all the northern cities. And when they begin to move, they'll sweep away everything in their paths."

"Listen to this guy," Mark laughed, "he's a regular doomsday machine."

Mac smiled again. "These most recent ice ages aren't even the worst that can happen. If we go through what the world went through 570 million years ago, when glaciers covered the earth as far south as the equator, almost every trace of civilization

would disappear and conceivably mankind with it."

Cosmic impact

"Is that the worst catastrophe we can expect, Mr. Doomsday?" Mark asked, and Mac laughed.

"No, the new favorite of almost everybody, and I'm among them, is collision with a celestial body."

"You mean comets and asteroids?" I asked.

"Yes. On the scale of disasters, these are the granddaddies, the ones that could really end the world. But, if it's any consolation, there's probably nothing to worry about for at least 18 months."

"What's so significant about 18 months?" Dave asked.

"There are two types of cosmic bodies that are candidates for such a catastrophe," Mac said, "asteroids and comets. We know the orbits of all the earth-crossing asteroids—the astronomers call them Apollo objects—as well as the orbits of the short-period comets—the ones that reappear frequently."

"What do you mean, 'cross the earth's orbit?'" Dave asked.

"I mean that the earth moves in an orbit around the sun and so do the other bodies in the solar system, and if another object's orbit intersects ours, it's possible that one day it'll collide with us."

"But because we know their orbits, we know that none of the really big asteroids or any of the short-period comets are threats to us in the foreseeable future. Long period comets are another matter. They're the ones that we see so infrequently, or have never seen before, so we don't know when or where they're going to sweep through the solar system."

"If we had five years of warning that one of these was going to hit the earth, there's probably nothing we could do about it. Not now, anyway. In a few decades that will probably change. But we wouldn't have five years,

because we can't even detect them until they're about 18 months out. So, if we saw one today, we'd just be doomed."

I don't know what kind of expression I wore when I heard this, but Dave and Mark took a look at me and laughed.

"But in those movies, *Deep Impact* and *Armageddon*, they send the Space Shuttle up and intercept them," I said.

"That's the movies. I doubt real life would resemble them in any way."

"But it's worse than that. There are comets and asteroids that are essentially invisible. The comets we see, we see because each time they drop back deep into the solar system the heat of the sun evaporates frozen gasses off them. That's how the tail of a comet is formed and it's all we actually see when we see one—we don't see the comet itself. But how many passes can a comet make before all the gasses have evaporated and it becomes invisible to us? If one without a tail was coming, we just wouldn't see it until, maybe, a few days before it hit. Maybe not even then. There's no way we could make preparations for that."

"Worse yet, there are asteroids whose orbits keep them between us and the sun all of the time. They're called Aten asteroids and, because of the glare of the sun, we can't see them. If one of them came close enough to Venus to have its orbit disturbed, it could be earth bound and we'd never see it until it was coming through the atmosphere. According to astronomers there are probably more than 150 of these that are a half mile wide or larger, and there's another 50,000 or so that are bigger than a football field."

"I'm confused," I said. "Is there anything to worry about or not?"

"There's always stuff to worry about." Mac said.

"I love this stuff," Mark said and he looked at me and snickered again.

"You're sick," I said and all three of them laughed.

“But really,” I asked Mac, “what are the real concerns and what’s just smoke?”

The realities

He let out a long breath. “Let’s get rid of some of the easy ones first,” he said. “First of all, on May 5, 2000 the planets are not really going to all line up in a row like billiard balls in some macabre cosmic pool table trick, though that’s the way artists want to draw it. Eight of the planets, including the earth, will be in the same quadrant around the sun but not in a line. Second, even if they were lined up perfectly there isn’t a physicist or mathematician who’s done the math who has concluded that there’s even a remote danger from the combined gravitational tugging. These predictions of terrestrial disasters that result from some configuration of the planets have been with us for centuries. The earliest ones I remember were when I was a kid and there were predictions of worldwide earthquakes, worldwide tidal waves, and that California was going to fall into the ocean. It didn’t happen. If I’m going to worry about it, I’m going to wait until the guys at CalTech tell me to worry, not when some astrologer, soothsayer, or new-ager tells me to, and the guys at CalTech aren’t alarmed at all.

“Next disaster: we’re going to know about Y2K real soon. It’ll be boom or bust. And while admitting that I may be wrong, my personal prediction is that the biggest calamity out of this is that, when nothing happens, the doomsayers will have to go out and get real jobs. Of course, some of them are so talented that they’ll always find a new catastrophe to sell.

“And concerning the ice age, I think that one will happen again. But we know so little about what causes them that there’s no way to predict when one’s going to start. If it happens, it’ll just catch us by surprise.

“I wouldn’t want to be living in L.A. when the food ran out,” Dave said.

“I wouldn’t want to be close to any urban environment,” Mac said.

Size matters

“As far as asteroids and comets go, there are millions and millions of them no bigger than boulders and some enter the earth’s atmosphere as meteors and never reach the ground. Our concern is with the larger ones.

“There are at least 250 that have diameters of 60 miles or more including the two largest, Ceres, which has a diameter of 581 miles, and Pallas, which is 332 miles in diameter. If any one of those were to hit the earth, not even bugs and bacteria would survive.”

“Do those ever hit?” I asked.

“The moon, Mercury, Venus, Mars, and most of the satellites of the outer planets all bear evidence of past impacts by bodies, any one of which would end the human race if one of similar size were to hit the earth now.”

“Are the big ones the only ones that are dangerous?” Dave asked.

“When talking about these objects it’s important to distinguish between objects made of stone and metal, like the asteroids and burnt out comets, and those that are primarily frozen gasses and water.

“If we consider the first kind—the stone and metal ones—every year an average of one small asteroid or comet, exploding with the force of a 100-kiloton bomb or greater, explodes in our atmosphere. Most of them are so far out at sea, or are so high in the atmosphere, that they aren’t observed by civilization.

“About every 10 years bodies about 30 feet wide hit the earth. Most of them fall into the ocean—because there is so much ocean—and some of them release as much or more energy than a Hiroshima-sized nuclear bomb.

“A body 300 feet across has about 1,000 times more mass than one that’s 30 feet across. The largest nuclear device ever detonated, one by the Soviets, was a 54-megaton device; a 300-foot object would probably have twice the explosive force of such a bomb. Big, but still just a local event.

“The Tunguska event, which was an asteroid or comet hitting in Siberia in 1908, is one of the most recent events in which a large cosmic body hit the earth. Relatively speaking, it wasn’t really a significant event in the earth’s history and it was without global consequences. It was probably 200-feet across and hit the atmosphere and exploded before reaching the ground. The explosion was like an airburst of a 20 to 100-megaton hydrogen bomb. In other words, it was at least 1,000 times as powerful as the atomic bomb dropped on Hiroshima. Such an object would be catastrophic if it hit over a major city. Literally millions would die instantly.

“Objects as big across as a football field, and on upwards to a half mile across, probably hit about once every 5,000 years. An object that big would leave a significant crater—probably two miles across—and cause massive destruction for miles around, but its effects would still be primarily local.

“But once you reach the upper end of those size bodies, say a half mile across, you’re talking about objects that would destroy most countries and cause short-term changes in the world’s climate.

“Of the asteroids that cross the earth’s orbit, the Apollo asteroids, there have been a little more than 100 identified that are over a half mile wide, and it’s estimated that there are probably another thousand we haven’t seen yet.”

“And a really huge one could,” Dave said.

“Objects a half mile across or larger probably hit every 300,000 years. Now we are talking about an object that would kick so much dust into the air that their effects would be felt all

over the world. With the dust cutting down the amount of sun reaching the earth's surface, there would be crop failures of biblical proportions and billions would die of starvation.

"Astronomers estimate that mile-wide asteroids hit the earth every million years or so. If one hit today, it would disrupt weather on a worldwide basis. Civilization wouldn't end, but it would be sent reeling for years, if not decades.

"Such a body hitting the ocean would create tidal waves that would wipe out all coastal cities bordering that ocean.

"However, the same sized objects, if they are comets composed mostly of water and frozen gasses, are not likely to even reach the surface. They'll break up in a massive explosion. The damage they do will be mostly local, like detonation of a huge hydrogen bomb at high altitude.

"An object larger than 2.5 miles across probably hits about every 10 to 30 million years. In such an event the world's agricultural base would be so severely shaken that at least a quarter of humanity would die within a year and perhaps half of us would die before the climate returned to 'normal.'"

The end of civilization

"How big was the one that wiped out the dinosaurs?" Dave asked.

"That's one to write home about. It was probably about six-miles across."

"What would happen if one of those big ones hit?" Dave asked.

"The end would come like this: One second the skies are blue, the birds are singing, children are playing, lovers embracing, people are doing their jobs...and the next day civilization is over."

"But how?"

"First, the local explosion would annihilate everything nearby and there would be a shock wave that would radiate out killing everything for hundreds of miles. Fire storms would

radiate out for as much as 500 miles. Then there would be an enormous amount of material that would be blasted into the air and it would come down all over the earth creating a global firestorm. On top of that, the energy released may raise most of the earth's surface temperature to oven-like temperatures.

"However, some paleontologists and geologists think volcanism, not cosmic impact, may have led to the demise of the dinosaurs. And there's evidence that the Deccan Traps in India, which are the result of some of the largest volcanic outpourings of magna in the earth's history, were responsible for changing the earth's climate so much that the Cretaceous extinctions occurred. Similarly, at the end of the Permian, 250 million years ago, 96 percent of all species became extinct when the Siberian Traps were formed by even greater volcanism. And, in part, the scientists who believe it was volcanic eruptions may be right.

"But those who back the impact theory believe that shock waves traveling through the earth may also spur widespread volcanic activity. And coupled with this is that the explosion at the impact site would throw so much dust up into the atmosphere that this dust would girdle the earth and plunge it into darkness. Temperatures would fall and photosynthesis would stop. Seeds would make it through such an event, so the world would soon be repopulated by the same plants. And quite a bit of sea life would make it, but it's likely that no land animal larger than a cat survived the event that killed the dinosaurs, so there's no reason to believe that any would now—with the exception of some humans. But even that's not certain. Somehow, some birds made it through, and some amphibious creature such as alligators and crocodiles made it too. Crocs and gators may have made it because their food requirements are lower as they are cold blooded, and because they could

scavenge on the bodies of the dead, but I'm not sure if anyone has a clue as to how birds did it.

"Such an object hitting today would end civilization. Conceivably no one would survive. Though, then again, there are so many people, and we are spread out so widely around the planet, that some might pull through and emerge into a post-collision world in which the world would be a virtual desert."

"How would you expect humans to survive what killed the dinosaurs?" Dave asked.

"No dinosaur put up canned goods, laid in sacks of grain, or ensured a viable water supply. If any organism can make it through a few months, maybe a year or so, they have a chance. Some people could conceivably make it."

"Where would be the best place to live in anticipation of something like that?" Dave asked.

Mac looked at the ceiling for a few seconds. He looked back at Dave. "I don't know. I'd say a small community. But it would depend heavily on where the object hit. I wouldn't want to be too close to any ocean because of tidal waves. There would be worldwide earthquakes and worldwide tidal waves, perhaps even volcanic activity would be accelerated by a large collision. But...I wouldn't know how to pick a place."

"So it's a threat," I said.

"Some scientists feel that within our lifetimes there's roughly a 1 in 10,000 chance that a cosmic body that would bring about worldwide crop failures and end civilization can occur. So the likelihood of an impact in the near future is extremely remote, but, if it happens it is quite possible mankind will become extinct.

"But my guess is, if civilization can last another century, with the current rate of technological progress, one day any asteroids or comets that pose a threat to us will be detected and dealt with. Barring a technological implosion, the kind some back to earth-

types want, it is only for the the next few decades that we're at risk.

"Are these estimates of possible impacts accurate?" Dave asked.

"I don't know because every time a new estimate is made of how frequently large bodies collide with the earth and release energy in the nuclear bomb range, the estimated frequency goes up."

"Why?" I asked.

"More data is discovered."

"So," Dave said, "if I asked you these same questions five years from now, you'd probably paint a bleaker picture."

"Good chance of it."

"I'm sure of that," Mark laughed.

Mathematical odds

"So what is the mathematical probability that a major event will disrupt our lives?" Dave asked.

"To make an estimate, you have to decide what time range you want to consider: the next year, the next decade, the rest of your life—however long that is.

"You've also got to decide what scenarios you want to include. If you're including things on a personal level, it's almost certain that your life is going to be disrupted before you die.

"If you're including local catastrophes, it depends on where you live. For example, you're not going to worry about tidal waves in Nebraska or blizzards in Hawaii, and though earthquakes can occur in Boston, they're more frequent in L.A.

"Every place has its dangers, you just have to assess them. But it's probably reasonable to assume that no matter where you live to 75 years of age, you'll probably see at least one local event like a big earthquake, a major hurricane, or flooding like the midwest had a few years ago, and many people will see several."

"Then let's take the big ones," Dave said. "What are the chances that someone's life will be disrupted by global calamity? Can you figure that?"

"We can guess at it. First we have to decide what to include, what period of time we're considering, and then we have to ascribe a probability of each causing a problem."

"Figure the next 40 years," Dave said.

Mac took a piece of paper and made a list. For a few minutes we tried to come up with the probability of each event on his list happening. Among our figure was our guess of a 1 in 6 chance of a deadly epidemic and 1 in 25 chance of a climate altering volcano. Mac also included

another event we hadn't discussed: global economic depression. Then he figured the probability of each event **not** happening. In other words if Y2K had a .05 chance of happening, it had a .95 chance of not happening. On the other hand, he said there was a zero chance of the planets lining up and causing a disruption, therefore, the chance of it not happening was certainty, or 1. (See the table.) Then he multiplied all the chances of these things not happening and subtracted that answer from 1 and what was left was the chance that at least one of the events would happen in the next 40 years.

"With the guesses we've taken, the chances that at least one thing will disrupt our lives, on a global scale, over the next 40 years is about 45 percent. In other words, it's close to a 50-50 chance that hard times are in store for us at some time in the next 40 years."

"That's a lot more pessimistic than I would have said," Mark said.

"Me too," Dave joined.

They looked at me. "It's probably optimistic as far as John's concerned, Dave said and we all laughed including me.

Table of catastrophes

Event	Probability of disruption	Probability of not happening
Y2K	.05	.95
Planets lining up	0	1
Global warming	.1	.9
Nuclear war	.1	.9
Plague	.167	.833
Volcanism	.04	.96
Ice age	.006	.994
Cosmic impact	.005	.995
Global depression	.1	.9

Employing a standard method used in the mathematics of probability, Mac multiplied the figures in the last column together and got 0.547742996, which he rounded to 0.55-or 55%. Subtracting that from 100% left a 45% chance of at least one catastrophic event occurring in the next 40 years.

"You can vary these estimates and recalculate the overall chances," Mac said, "but don't be surprised if your answers look grim, no matter what. They probably reflect reality because in the 20th century alone we had a plague, a global depression, and the worst war ever fought. Though you may be faulted for it, it's reasonable to expect more disasters in the future."

"And self-reliance is a reasonable alternative," Dave said.

"And we've got a deadline to meet," Mark said.

"And I'm going fishing," Mac said as he reassembled the fishing reel.

And I turned around and started my column. Δ

You can read other John Silveira conversations with O.E. MacDougal online at the Backwoods Home Magazine website.

www.backwoodshome.com



Raising your own beef for your family

By Charles Sanders

For most homesteaders, the raising of livestock plays a crucial role in the home based economy. The types of livestock which you choose to include on your own place may be determined by your climate, the size of the homestead, food sources available, the available market (if you choose to sell some animals), and just your personal preference. It is sometimes argued that you can buy all of your meat—beef, chicken, pork, lamb, rabbit, etc.—far cheaper than you can raise it. While this may be true when speaking in terms of money alone, other factors must be considered when referring to meat raised for homestead use.

These days, red meat in general, and beef in particular, is continually

maligned as one of the greatest detriments to our health and well-being. I'm here to tell you that you can raise some mighty tasty and nutritious beef on your own place, and do so without a lot of the fat and chemicals which lace most commercially raised beef. Our own beef is raised mainly on grass and hay, with little grain or supplement. Free access to trace mineral and high-magnesium blocks, water, and pasture all help to turn out fine beef, much leaner than “store-bought” and at a competitive cost.

As one might expect, the first thing to consider when comparing home-raised versus store-bought meat is quality. Home-raised meat is born, raised, and processed with one thing in mind and that is to be used as food for the family. Generally speaking, commercially raised

livestock is also raised with one thing in mind, that being to produce the most marketable product in the quickest time at the lowest cost and highest profit to the producer. Somewhere in there, quality has to suffer. Those of us who raise our own meat know what is going into it in the way of feed and additives. While many of us occasionally must fall back on an application of medication, etc. to restore or maintain the health of an animal, we know that no massive doses of hormones or steroids have been pumped into our future dinner entrees.

Another factor worth serious consideration is this. In the event of a serious emergency—economic or otherwise—the livestock raiser would have a valuable potential food source available. Obviously, we cannot place such

reliance on our supermarkets or grocers. In hard times, grocery shelves and meat counters would likely be quickly depleted of their stock, leaving bewildered and dependent customers wondering what to do next.

If you have children in your family, the value and importance of having livestock on the homestead cannot be underestimated. Youngsters learn much by having animals around. The responsibility of having feeding to do, hay to help get in, manure to load into the spreader, and similar chores help a young person build self esteem and a good work ethic. A child can sense and build upon the feeling of contribution and importance in the family. He will learn that there are things which are expected of him and that his efforts are a valuable part of the family life. In doing this, we are helping to shape our youngsters into productive and responsible adults who are not afraid to work.

Children also learn the no-nonsense life-death cycle of animals which God put on earth for man to use wisely. A youngster growing up on a homestead which raises animals for food has no doubt about where his food comes from. Unlike many of his city-raised counterparts, he will develop a direct appreciation and respect for the life cycle of meat animals. Countless numbers of young people have learned the "facts of life" while observing animals on the farm and homestead. Many have even assisted parents in helping struggling animals in the miracle of birth. These youngsters, and their adults, develop a true respect for life and better understand the God-given miracles involved.

When getting into the cattle business, this may seem sort of obvious, but you should keep in mind the fact that cattle are BIG! An old beef cow can easily reach 1000-1200 pounds. Even the normally docile old animals can accidentally step on your foot, and if you get them excited or scared, they can seriously hurt or kill a person.

Our own experience with cattle has been interesting and educational, if not

extremely profitable from a dollars and cents point of view. Cattle on most small places can do little more than keep the place from growing up in weeds and providing butchering beef for yourselves and for sale. Small landholders should not expect to get rich on cattle. This thought is echoed by our veterinarian, who has stated to me that he doesn't see many small family herds of six or so cows with calves, make a real profit. But he adds, "A small herd like this will pay the property taxes and keep the pastures trimmed down."

In fact, it is possible to sell a few fat calves, young steers, or butchering beef and make the program pay for itself and perhaps pay the property taxes as well. In addition, they can help keep your place from growing up around your ears. Over the years, we have had cows, bulls, calves and steers. Having raised bucket calves and having kept cows with calves, I have developed some educated opinions about the two methods of raising beef.

Cattle breeds

What type of cattle do you want? First, there are basically two general types of cattle: dairy and beef types. Among the common dairy breeds are Jersey, Guernsey, Brown Swiss, and Holstein. Popular beef breeds include Angus, Hereford, as well as the more exotic Limousine, Semintal, Charolais, Saler, and a whole pasture full of other breeds. Dual-purpose breeds such as Milking Shorthorns exist, but are not really common anymore. They do offer possibilities for the homesteader, however.

Both beef and dairy cattle have been carefully bred over time to do the best at what they were bred to do, whether it is produce milk or meat. The dairy breeds are biologically and physically made up to produce milk. That is to say, they are bred to convert feed to milk and do not have the heavily muscled body that the stocky beef breeds have. The beef breeds do best at con-

verting feed into a meaty, heavily muscled carcass.

This is not to say that dairy calves cannot and should not be raised for beef. Countless ones have. Many a Jersey bull calf has been raised to become steaks and roasts. Often, however, when a homesteader breeds back the family milk cow to freshen, he chooses an Angus bull or other suitable smaller beef breed. This results in a renewed milk source and a good calf more suited to raising for meat since it will exhibit many of its Angus parent's characteristics. Breeding the Jersey cow to a smaller framed type bull will help ensure that the smaller cow will have an easy birthing.

I have been around cattle for many years, but had not raised what we refer to as "bucket calves" or "bottle calves." We started into this project by purchasing seven Holstein bottle calves from a local dairyman. In a dairy operation, the male calves are removed from the herd, whereas the heifer calves are kept and raised as milking herd replacements. At the time we bought ours, the going price in our area was about \$125 each. It is interesting to note that this past season, some of the neighboring dairy farmers were getting no more than \$30 a head. Some were actually giving them away after not getting bids for them at the local sale barn. They are usually sold as day-olds or at a few days old.

The folks we got ours from were very helpful and wanted to keep the calves for a full week to make sure they got off to a good start. They monitored them for scours—diarrhea which can kill a new calf in a matter of 24 hours or so if not treated. The week also allowed the calves to receive some new milk from the mother cow. That colostrum, the first rich milk, is important to the calves as it contains many of the anti-bodies and bacteria needed by the new calf to get off to a good start. Those same anti-bodies and bacteria help to prevent the scours mentioned above.

Our bull calves were raised on bottles with calf starter formula, adding some



Our boys feed a Holstein “bucket calf.” The bucket is specially made for calf feeding and has a large rubber nipple attached.

dry feed at a few weeks of age, and weaned off the formula entirely at about 10-12 weeks. The calf starter is available at any livestock supply store. The dry feed was custom blended at the local mill. The formula is nothing magical, just a blend of 500 lb. of ground corn, 50 lb. of calf supplement, 25 lb. of molasses feed, and 2 lb. of salt. This is a good basic growing ration. Once the animals reach about five or six hundred pounds, we switch from calf supplement to steer supplement; otherwise the formula is the same. Make sure that weaned calves have clean water available at all times. A large steer or cow will need about 12 gallons of fresh water per day.

Medical problems were not serious during these early weeks. A couple of the calves had a bout with scours, but with some simple medications they came out of it all right. If a young calf does get scours, it is imperative to get them off the calf formula and get some fluid and electrolyte replacement into them. We did learn that in a pinch, powdered Gatorade can serve as good an electrolyte replacement as the stuff that comes from the vet. It is mixed with water and given just like the stuff from the vet. Your own vet can advise

you on any potential problems which might be specific to your area.

We did not castrate the animals until they reached about 500 pounds. Our local veterinarian convinced us on this. He explained that the testes of the bull calves serve as natural hormone implants and cause the calf to grow faster during those first several months. Once they reached about 500 pounds, the vet was summoned and the calves were dehorned and castrated. This procedure is briefly painful, and the dehorning is somewhat bloody, but in a day or so, the event is seemingly forgotten and the animals are back to their routine. If you have purchased polled or hornless breeds of cattle, then obviously you will omit the dehorning procedure. Dehorning is not actually necessary, but it does help to prevent accidental injuries to the other cattle or to humans. The dehorned animals sell a little better on the market, as well. As for converting bull calves into steers, I recommend “cutting” as the best method. Other methods such as banding and clamping are effective if done properly, but this one is sure-fire. I also consider it healthier for the animal.

Since Holstein cattle are bred to produce milk and not beef, they seem to

spend the first year just developing their frame. Not until the second season do they seem to start to bulk up much. Even then, Holsteins don't put on the muscle that the beef breeds do. They eventually do fill out well, however. On the other hand, Holstein beef is a rival to any in taste and texture. These big cattle do indeed produce some very tasty steaks, roasts, and burger.

As interesting and educational as raising the bucket calves was, I really prefer to just let the old cow raise the calf. Therefore, we currently have only beef-breed cows and calves on our place. These are good Angus-Hereford cross cows bred to an Angus-Saler bull. Some may ask about birthing or birthing problems. We have had dozens of calves born on our place, and I can think of only one loss. Just a few weeks ago, I was cutting firewood in a woodlot above one of our pastures and watched one of the old cows give birth. I have helped with a birthing or two, but even then, I don't think I was really needed. As this is written, we have four new calves and should be getting a couple more any day. Problems are normally few with an arrangement like this, for in most cases, the cow is much better at raising the calf than a person is.

Hay

You will need to provide a source of hay for your animals. In most areas, most of us are able to allow the animals to graze during the summer months. In winter, however, hay must be provided. Here is a basic question: What is hay? Hay is simply grass that has been cut and cured for later use as food for animals. It is stored loose, in small square bales or in large round bales. Hay prices vary widely across the country. Around here, it is usually sold by the bale. In the west, hay is normally sold by the ton. Small square bales weighing about 50-75 pounds will normally run from \$1.00 to \$1.50 for mixed grass hay. Alfalfa can run up to \$3.00-5.00 per bale. Large bales come in many different sizes according to the make and

size of baler turning them out. The farmer can usually let you know the equivalent in square bales and base the price accordingly. As for loose hay, I can tell you that it is simply a lot of work. I don't know of anyone putting up loose hay other than the neighboring Amish farmers. Even many of them are switching to ground driven square balers pulled by their teams of husky horses.

Some time ago, I heard this question: Is hay the same as straw? No. Hay is an irreplaceable food source for our grazing animals, especially in winter. Straw is a by-product of the grain harvesting process. It is the stem and leaves of a grain stalk that is left behind after the seeds have been removed from the seed head by the harvesting equipment. Straw has no nutritive value; however, it is valuable as a bedding material. Wheat straw is the most common type of straw, but any of the cereal grains such as oats, barley, rye, etc. can yield good straw after harvesting.

A mature cow will need roughly a third to one-half a bale of hay per day during the winter or if on a site where pasture is not available. As I mentioned, we feed hay only during the winter, along with a bit of mixed grain feed.

Fencing

Good fences are necessary to keep cattle in. A cow or steer grazing indiscriminately through the neighborhood may or may not incur the wrath of the neighbors. But why take the chance? Chances are it wouldn't make you or the cattle too popular.

If using standard fencing, I recommend sturdy woven wire on stout posts. Woven wire comes in different heights, but I'd recommend the 39-inch. When putting up the woven fencing, allow a couple of inches extra at the bottom and top. After it is erected, stretch and add a strand of barbed wire on the bottom and the top along the entire length. Cattle will really stretch to get to tasty plants outside their fenced area. These



This holder was made from scrap wood and hardware. Feeding four hungry calves at one time can get pretty lively. Hang on!

strands of barbed wire will convince them not to stretch under or over the top of the woven wire and will save you much in the way of maintenance and repair.

Some sections of our fence is barbed wire only. I prefer to use four strands of barbed wire, but three will suffice in a pinch. If you can, use four. It just makes a tighter fence.

Electric fence will work in most cases. It also offers the option of being easily moveable to fresh pastures. Once the cattle are trained to recognize its ability to cause discomfort, you should have no problem. The so-called training is nothing more than simply allowing them to bump or brush the fence while grazing. We used a single strand of electrified barbed wire on one pasture, and it kept in four large steers without a single problem or escape.

Pasture

On good pasture, a couple of acres will maintain one animal. Naturally, in drier climates, more acreage per head is needed. Plant varieties for pasture vary from region to region. Local farmers and ranchers, as well as your local Agricultural Extension Service, can recommend types for your area. It is best if

you can rotate the animals out of one pasture and into another from time to time. This practice allows the pasture to rejuvenate its plant growth and allows any parasites to die off.

Shelter

Cattle need a draft-free yet not airtight shelter. I used to think that was a contradiction. However, realize that a good shed with three sides closed in and the open side facing out of the prevailing wind makes a good shelter. Do not make the shelter airtight. Cattle give off a lot of moisture, and if it cannot escape all kinds of health problems in your animals will result.

Shelter for your animals doesn't have to be anything fancy but it does need to be sturdy. These big animals stomping around can knock a lot of things loose if not secure.

Marketing your beef

Our Holsteins were kept for two full growing seasons. Five of the steers were trucked to the Louisville livestock market where they brought a pretty fair price. The other two were kept for later sale to friends. We were paid at the market price on the day they were taken

to slaughter. We could have easily advertised and gotten a higher price, but we were selling to friends, so the market price suited us.

Right now, we have beef-breed cattle running on our place—some Angus-Hereford crosses. They pretty well take care of themselves during the summer months and require just the normal feeding and watering during the winter. The Angus bloodlines mean smaller calves and easier births. Crossing the two types of cattle gives a good, vigorous animal with a solid, desirable shape and meaty carcass.

Another real possibility for the small farmer/homesteader is to sell to a select market. By raising your beef organically, that is with clean natural feeds and no additives or hormones, you will be ending up with a premium product which can command a high price if marketed properly. If, for example, you live near a medium to large urban center, people will be happy to pay more for your lean, farm raised beef. A small, inexpensive advertisement in the local newspaper or at a nearby health food store or co-op will usually result in all the customers you want. This will require diligence on the part of the raiser to assure that his stock receives the natural, additive-free feed which produces the higher priced beef.

Maybe you want to market locally. Even farmers and other country folks do not raise much of their own food these days. Advertise in the local paper and you will be surprised at the folks who are interested in buying good beef. If you have your own beef processed at a local meat processor, then you can offer to haul your customer's animal at the same time as an added sales pull. You will be able to get at least the going market price and usually a bit higher. You will be able to ask around at the local meat processor, farmers, and others who have a good idea what you can get for beef. If you can guarantee that your beef is "additive-free" or "organically raised," then you can get a better price yet. Just the fact that your beef is raised on a small homestead and not in

a "beef factory" feedlot means a lot in the way of producing clean, low- or non-medicated, additive-free beef. Our own beef is fed only grass and hay, with a smattering of grain during the winter months. We never confine our beef animal prior to slaughter for the purpose of "pouring the grain into it." In my experience, this does produce heavier cattle sooner, although I'm not sure the profit outweighs the cost of the extra grain. It also produces beef with a lot more fat on it throughout the meat. This "marbling," while desirable for "gourmet" cuts, is not really healthful. Our grass-fattened beef does us nicely, thank you.

So, if you are interested in picking up a calf or two to raise for your own use and possibly to sell to family or friends, then raising bottle calves may be the thing. Perhaps you would rather buy a mature bred cow or a cow and calf. Consider your alternatives and your resources to help decide the operation which is best suited for you. Whether you raise just one animal for your own consumption, or half a dozen to sell, you will be amply rewarded for your efforts.

For more information, look for these books. Some of them may be out of print, but patient and diligent searching have helped me add them to my shelf.

The Family Cow, by Dirk van Loon, Garden Way Publishing; Raising a Calf for Beef, by Phyllis Hobson, Garden Way Publishing; A Veterinary Guide for Animal Owners, by D.C. Spaulding, D.V.M., Rodale Press; The Stockman's Handbook, by M. E. Ensminger, Interstate Publishers; The Cow Economy, by Merrill and Joann Grohman, Coburn Farm Press. Δ

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SEND IN THE WACO KILLERS

Three times the International Society of Newspaper Editors has included Vin Suprynowicz in their list of the 12 top weekly editorial writers in North America. For years his shoot-from-the-hip style has opened the eyes of thousands to government abuse of our liberties. In this book, Send in the Waco Killers, he blends material taken from his syndicated column with new commentary to give the reader a detailed, reporter's-eye-view of how the rights and freedoms of Americans are being subverted.

He uses factual accounts from the daily news to show how the Feds use the drug war, the public schools, jury rights, property rights, the IRS, gun control, and anti-militia hysteria to increase its power and control over us. He details how agents of the ATF and FBI have routinely lied, how they use paid informants to infiltrate Constitutionally-protected militia groups, then fabricate evidence to get arrests and discredit them.

Had he lived 225 years ago he'd have written a book to detail how King George III and Parliament have tried to enslave us but, sadly, this book is about how our government today is depriving us of our freedoms and ruining the lives of thousands without changing even one word of our Constitution.

If you read no other book this year, read Send in the Waco Killers. Just keep your blood pressure medication handy. 506 pages, trade paperback, \$21.95 + \$3 S&H.

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1-800-835-2418

Build a REEL toilet paper holder

BY D.J. FERDINAND

The cabin was made from small logs in stockade fashion. Each upright log ended in a tenon that fitted into a socket on the bigger sill log. The only nails used were holding the split shingles of the roof. The floor was made from rough sawn Douglas fir and the only part of the three room house that was not cedar.

It was a lovely and snug home on an excellent trout lake in northern California and it was all mine for the next seven days.

The outhouse stood 50 yards to the north in a grove of pines and was constructed in the same manner as the main house. Beside the outhouse a steel drum on a wooden tower provided water for hand washing. Very civilized.

What really caught my eye in this most comfortable privy was the holder

for the roll of toilet tissue. It was in the shape of a fishing reel, and the tissue peeled off its drum like line during the run of a big trout. It was made of fir, and varnished. The knob on the reel handle was made from a piece of cow horn.

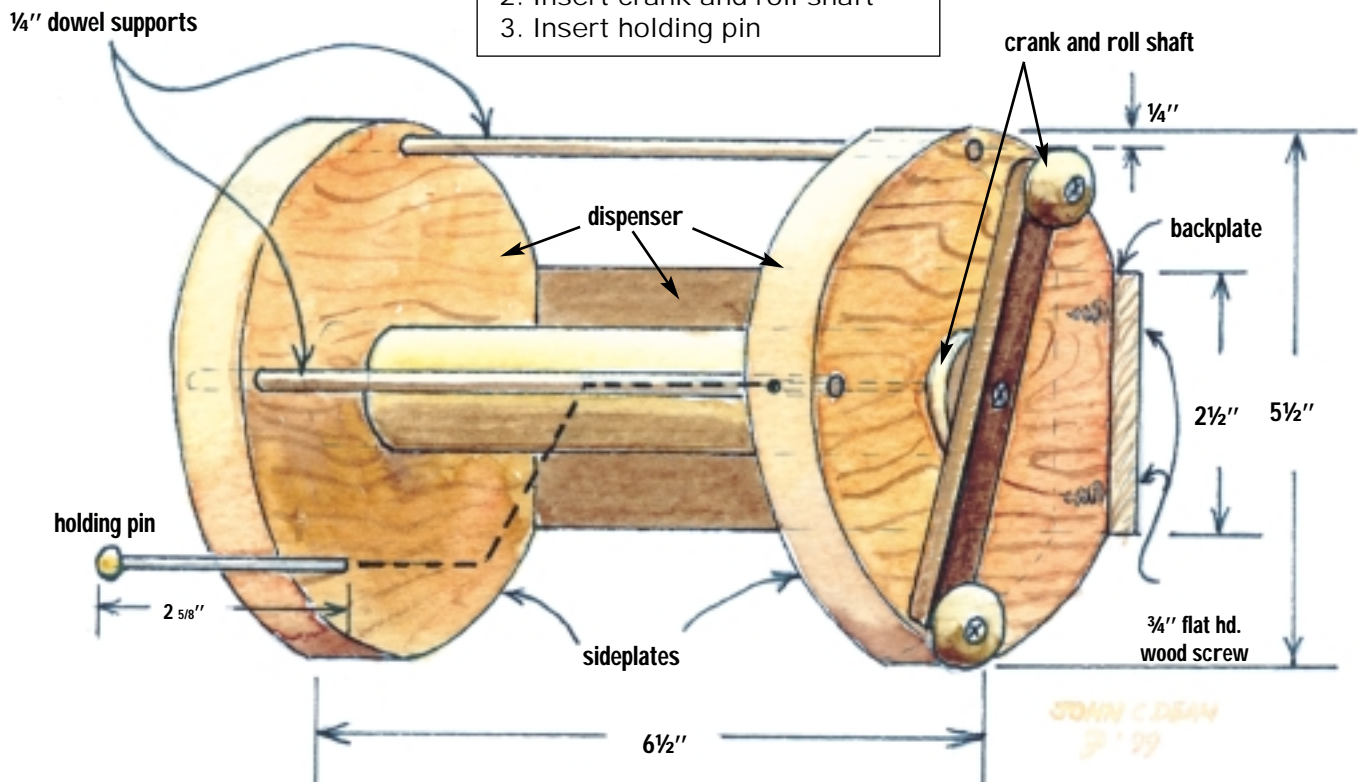
It was love at first sight. I made a few sketches and resolved to make one as soon as I got back to my workshop. (See illustration.)

All parts were made with stock lumber. The side plates are cut from one by six clear dry fir. Their outside edges can be rounded to a 1/4-inch radius with a router or left with a sanded edge. I used inch and a quarter dowel stock for the tissue roll spool; a hole saw made a perfect fit in the side plates.

The knob on the reel handle was made from a piece of small deer antler on my original. I am sure that any craft store would have a large selection of wooden beads that would work fine. The drawing shows beads made from the centers of the hole saw cuts. I like using a hole saw for this reason. I glued the plugs to a short length of 1/4-inch dowel and chucked the dowel in a hand drill. As the plug spun in the drill I applied it to the surface of a disk sander. Careful rotation of the drill rounded the plugs into perfect beads.

3 PIECE ASSEMBLY

1. Mount dispenser (holder)
2. Insert crank and roll shaft
3. Insert holding pin



DETAILED SUBASSEMBLY INSTRUCTIONS

Holder:

- cut side plates from 1" x 6" clear dry fir into 5½" diameter circles
- drill out centers 1¼ diameter circles for shaft assembly
- cut 2½" arc off each circle to flatten back edge for base plate attachment
- drill ¼" diameter holes through side plates at top and front ¼" from the outside edges for dowel support attachment
- cut 2½" x 6½" x ¾" base plate from the plate from ¾" stock
- cut ¼" dowels to 6½" lengths for dowel support
- drill pilot holes through back plate for screw/glue attachment of back plate to side plates (approx. 1/8" diameter for ¾" #8 flathd. wood screw attachment and 3/16" for heavier mounting screws of dispenser assembly to wall)
- apply glue & insert ¼" x 6½" support dowels between side plates
- glue back plate to flat spot on side plate edges and secure with ¾" #8 flathd. screws 2 each per side
- finish holder assembly as desired for matching your decor

Crank and roll assembly:

- cut 1¼" dowel to 6½" length for roll shaft
- cut ¼" x 5" x ¾" crank from hardwood scrap
- drill center of crank for ¾" #8 flathd. screw attachment of crank to shaft and secure with screw
- drill knobs and secure to crank at each end with 1" #8 flathd. wood screws

Holding pin assembly:

- cut 2½" length pin from 1/16" coat hanger wire
- glue wire 1/8" into wooden bead
- place crank and roll assembly into holder and drill 5/32" pilot hole in edge of holder 2 3/8" deep penetrating roll ¼" to enable pin insertion

I drilled a hole in the edge of the reel handle side plate that penetrated ¼ inch into the tissue roll dowel. A wire pin from a coat hanger keeps the dowel from migrating out of the reel as the tissue roll is pulled. A wooden bead makes a handy grip for the pin.

The reel can be painted, oiled or varnished. Any good wood finish will suffice. The holder is mounted on the wall by a pair of screws through the back plate.

This is one of those projects that use up small pieces of stock that usually go into the wood stove. Any wood can be used but a nice piece of hardwood such as on the handle crank is very attractive.

It is a fixture that will be appreciated by anyone who loves to fish. My original was left with a fishing friend who admired it so much that I had to give it to him. I have made at least a dozen since then. Δ

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HOMEMADE

CANDY

My mom didn't like commercial candy. "Most of that store-bought candy is too expensive or tastes like chemicals," was her rather pointed opinion. Instead of buying store-bought she made a variety of simple homemade candies that she stored in three large hand blown glass jars. These jars sat on an old cherry wood drop leaf table in our living room. Most of my friends knew about these jars and had an unreserved love for them.

The thing I enjoyed most about these wonderful candies was that I got to help to make most of them. To me, they were more than just a sugary treat. When mom made candy, a carnival-like spirit prevailed in our house. It was her way of backing away from her busy work schedule to have some fun and to also spend some quality time with me.

A hundred years ago most candy was made at home. Making it was a simple process enjoyed by the entire family. Chocolate-covered fruits and nuts, caramels, fudge, penuche, pralines, peanut brittle, gum drops, candied fruit peel, and salt water taffy are only a few of a wide variety of candy delights that can still be made at home today.

I invite you to join me in three of my mom's favorite candy-making adventures. First I'll discuss a few candy-making basics, describing along the way the three basic confectionery candy groups: crystalline, noncrystalline, and gels and pastes. Once you understand the basics, you too will discover that home candy-making is easy, fun, and a great family activity.

My recipe review committee, consisting of my three children, Sarah, Jason and Michael, had a great time at these candy-making sessions. Not only did they help make the candy, they shared each variety with their friends and schoolmates, and they kept careful records of who liked what and who didn't. Sarah shared a batch of chocolate flavored southern pralines with the cast of her middle school play and became an instant star. Jason took two pounds of homemade peanut brittle to his soccer clinic a couple of weeks ago and teammates and coaches ate it so fast that



Richard Blunt

they forgot to give him a piece. He too became an instant star.

Most of the ingredients for making candy are shelf stable and are basic inventory items in a home storage food supply. Even less stable items, like cream and butter, can be substituted with reconstituted milk powder or vegetable shortening when necessary. These substitutions will produce finished candies that have only minor differences in taste and texture.

Candy basics

A simple definition of candy-making is the heating of a sugar solution, to cook off the liquid, until a desired degree of sugar concentration is achieved, then controlling how it is cooled back to room temperature. The exact way this is done varies according to the type of candy you're making and produces many of the different flavors and textures found in candies.

When making crystalline candies, such as fudge, pralines, penuche, and fondant, controlling the size of the sugar crystals while cooling the mixture is vital. A smooth and creamy texture is the bench-mark of a first class crystalline candy. Sugar crystals measuring only about .0005 inches are

required to produce this texture. Fudge and praline mixtures are complex crystalline candies because they contain milk solids and fat crystals as well as sugar crystals. The finished texture of these candies depends on how much water is left in the syrup after cooking, how the syrup is handled during the cooling process; and how uniformly the cooled syrup is beaten prior to its formation. Crystalline candies are cooked until the syrup is about an 85 percent sugar concentrate. This concentration is reached when the temperature on a candy thermometer reaches 235 to 240 degrees F, or soft ball stage. Fudge mixtures are cooled to about 110 degrees and beaten for an extended period with a wood spoon until they reach the right texture.

Praline mixtures are allowed to cool to about 150 degrees and beaten for a short period of time with a wooden spoon. The cooking, cooling, and beating, when properly completed, produce candies with a smooth, creamy texture. On the other hand, if the syrup is cooked too long and becomes too concentrated the resulting candy will be dry and crumbly. If the syrup is not cooked long enough it will not set and it remains runny.

Making crystalline candies on a rainy day or a day when the humidity is high is not a good idea because the syrup absorbs moisture from the atmosphere during cooling and the candy won't set properly. How crystalline candies are assembled prior to cooking, and treated immediately after cooking, also plays a vital role in the final texture of the product.

When sugar syrups are concentrated, they become saturated. This means that the solution contains as much dissolved sugar as it possibly can and if any more sugar is added it won't dissolve. This condition doesn't usually present a problem while the syrup is still hot because hot syrups tend to keep the extra molecules moving freely. But when the syrup starts to cool it becomes "supersaturated," that is, it is now holding too much sugar. If the solution is agitated during this cooling process, or an undissolved sugar crystal falls into the solution, a chain reaction could result in which the excess sugar molecules start attaching to one another, creating large ugly crystals which start to settle out. The result is candy that is grainy. Beating crystalline candies with a wooden spoon when the undisturbed syrup is cooled starts a controlled formation of very small crystals. The proper assembling, cooking, cooling, and beating of crystalline mixtures results in fudges, pralines, and fondants that are smooth, creamy, and delicious.

Home candy-makers also use ingredients such as corn syrup, cream of tartar, and glycerine to aid in the proper formation of sugar crystals. The candies can be made without such ingredients, but the results will suffer.

Noncrystalline candies, such as brittles, caramels, and taffy, contain about the same ingredients. Taffy and caramels have approximately the same moisture content as fudge and, similarly, are made with some butter and milk solids. But despite the similar moisture content, they are made noncrystalline by rapid cooling and the addition of larger amounts of a doctored sugar, such as corn syrup. These subtle, but significant, changes in formula and production procedure produce a candy very different from fudge. The rapid cooling and lack of beating produce a chewy solid made up of a random mixture of sugar and water molecules containing fat globules and milk particles. The distinctive flavor of caramels comes from the browning reactions of milk proteins and lactose and the caramelization of lactose. Caramelization is an extensive chemical reaction caused when any sugar is subjected to heat for a prolonged period causing its individual molecules to break apart. This reaction imparts a distinctive flavor to the candy. The flavor becomes progressively stronger as the syrup cooks.

Taffies are essentially caramels made from a more concentrated syrup, which gives them a firmer texture. Taffies are also "pulled" to incorporate air into the candy. This fun process gives taffies a chewy texture and light color.

Brittles are made by boiling the sugar syrup long enough so that the resulting candy will have only about a 1 to 2 percent moisture content. The syrup is then cooled rapidly, without beating, before sugar crystals have a chance to form. The prolonged cooking gives brittles a pronounced caramel flavor, a brittle texture, and a dark brown color. Baking soda is added to brittle syrup to somewhat neutralize the acid environment created by prolonged cooking. It also contributes to the flavor, as well as adding carbon dioxide which gives the candy a light crunchy texture.

Gels and pastes are the third major group of confectionery candies. They are made by mixing a sugar syrup with starch, gelatin, or a plant gum, such as pectin, and allowing the mixture to solidify into a compact, chewy jelly. Some favorites in this category are gum drops, jelly beans, and licorice. These candies have a finished moisture content of about 15 percent, achieved by cooking the syrup to soft ball stage—about 235 degrees.



Salt water taffy

My son, Michael, was the hit of his class on Valentine's Day when his classmates found out that the delicious, red, vanilla-flavored taffy he passed around was made with a little bit of love, and a lot of muscle work, in his own kitchen. When we visited my mother, one of Michael's favorite pastimes was digging the waxed paper wrapped pieces of salt water taffy out of the big glass jar that sat on the old drop leaf table. To make it easy for Michael to reach the candy, my mother would place her foot stool next to the table. Since his first visit with my mom, salt water taffy has been one of Michael's favorite candies and an easy choice of candy to share with his classmates, especially since he helped make it using Nanna V's recipe.

Ingredients:

shortening	2 cups granulated sugar
1 cup light corn syrup	1 Tbsp. corn starch
1¼ cups water	1 tsp. pure glycerin (optional)
1½ tsp. Kosher salt	2 Tbsp. butter
5 or 6 drops oil based flavoring (peppermint, rum, vanilla nut, etc.)	
Powdered food coloring, just enough to get the color you want (optional)	

Method:

1. Generously coat a large cookie sheet with shortening and set it aside.
2. In a stainless steel bowl combine the sugar, corn syrup, corn starch, water, glycerin, and salt and stir to mix. Carefully pour this mixture into a heavy-bottom 1½-quart sauce pan that has been coated with shortening. Try not to splash any of the mixture on the sides of the pan. Bring this mixture to a slow boil. Loosely cover the pan and let the mixture cook for 2 minutes.
3. Remove the cover, place the candy thermometer in the syrup so that the bulb is immersed completely but not touching the bottom of the pan. Continue to cook the mixture without stirring until the candy thermometer registers 260 degrees. Remove the pan from the heat and carefully stir the butter, flavoring, and coloring into the syrup.
4. Pour the taffy into the prepared cookie sheet and let it cool to the point that it can be easily handled. Turn the taffy with a greased spatula after 4 or 5 minutes. This will speed the cooling process. The taffy should be ready for pulling in about 15 minutes.
5. When the taffy is cool enough to handle, line up one or two helpers, have them coat their hands liberally with shortening and hand them each a ball of the cooled taffy. Instruct each helper to start pulling, folding, and twisting the taffy, in that order, until it turns a light creamy color and becomes difficult to pull.
6. Divide the taffy into four balls and pull or roll each ball into a strand about ½-inch thick. Cut the strands into pieces with scissors that have been coated with shortening. Wrap the pieces in squares of waxed paper and twist the ends of the papers. Put the candy in a jar.

Sugar syrup basics

For success with any candy it is essential that you know how to cook the basic syrup to the proper temperature and accurately determine when it is done. When cooking any sugar syrup it should boil at a moderate, steady rate over the entire surface. To achieve this you must know how to set your range burner to the proper temperature. You can teach yourself this by performing a simple exercise. In a heavy bottomed 1½-quart sauce pan combine two cups of granulated sugar and one cup of water. Gently stir the mixture to incorporate the sugar with the water. Place this mixture over medium heat, stirring constantly, until all of the sugar is dissolved and the mixture comes to a slow boil. Try to avoid splashing any of the syrup on the sides of the pan. Adjust the heat so that the syrup boils at a slow, steady rate. Clip your candy thermometer to the side of the pan, making sure

Salt water taffy got its name because it was apparently invented, in the 1880s, at a seaside resort in Atlantic City, New Jersey, as a confection to sell to tourists, and the name stuck. Contrary to what many believe, it contains no more salt than other candies and the salt it does contain is not sea salt.

that the bulb is immersed in the syrup but not touching the bottom.

While the syrup is cooking, fill a squat water glass with cold water. Keep an eye on the candy thermometer. When the temperature of the syrup reaches 235 degrees, remove some of the mixture with a teaspoon and drop it into the glass of cold water. Remove the cooled syrup with your fingers. It should form a ball when it hits the water. When you remove this ball from the water it should immediately flatten on your finger without pressure, but will not run off

Southern chocolate pralines

When my daughter, Sarah, discovered that my mom had a praline recipe, she insisted on making it and including it in this article.

"Why this recipe," I asked.

"Don't you remember the candy that Andy and his wife, Bunnie, gave me as a special treat when I was little."

"Not really," I replied.

She sighed, rolled her eyes, and smiled. After that routine, I usually do anything she asks. "Don't you remember how I used to stand on the stool at the kitchen window, in the afternoon, waiting for Andy to come home from work. When he arrived, I would run out the door to give him a hug, and he would pick me up."

That part of the story I do remember. The poor guy had no choice but to pick her up. It was impossible for him to walk with a 20-pound little girl wrapped around his leg.

My only comment was, "Why did Andy and Bunnie give you special candy? I never got any."

"Well dad, I don't think you were as cute as I was."

She took the pralines to her school play rehearsal, and once again, I didn't get any.

This recipe makes about 36 pralines. If for some reason you want more candy than this, make two separate batches. Don't attempt to increase the size of the recipe. Here is why: pralines are a close cousin to fudge, and require beating with a wooden spoon in order to form a proper crystalline structure. Like fudge, there is only a short window of time, after beating, before the candy sets up and becomes stiff. Unlike fudge, pralines are formed into individual candies, instead of a large sheet. If the batch is too large you won't have enough time to form all of the candies. Also, don't try to make this candy on a rainy day, or on any day that the humidity is high. If you do, you will run a high risk of the candies not setting up properly and remaining soft and runny.

Ingredients:

shortening	3 cups (about 7 ounces) pecan halves
2 cups light brown sugar, firmly packed	1 cup granulated sugar
1 cup light cream	3 Tbsp. unsalted butter
4 to 5 drops oil-based vanilla flavoring	1 oz. unsweetened baking chocolate, chopped or shredded

Method:

1. Line a large cookie sheet with wax paper and set it aside.
2. Spread the pecans in a single layer on another large cookie sheet and roast them in a pre-heated 325-degree oven for 10 minutes. Set the nuts aside.
3. Combine the sugars and light cream in a clean stainless steel bowl and stir until all of the ingredients are well mixed. Carefully pour this mixture into a heavy bottomed 2-quart sauce pan that has been liberally coated on the inside with shortening. Avoid splashing any of the mixture on the sides of the pan.
4. Place the pan over medium heat, and bring the mixture to a slow boil while stirring constantly to prevent scorching. When the mixture is boiling evenly and at a constant rate, clip the candy thermometer to the pan. Make sure that the bulb of the thermometer is completely immersed in the syrup without touching the bottom. Continue to cook the mixture over medium-low heat, stirring occasionally, until the thermometer registers 236 degrees.
5. Remove the pan from the heat, add the butter, vanilla flavor, and shredded chocolate without stirring. Allow the mixture to cool to 150 degrees.
6. Remove the candy thermometer and add the roasted pecan halves. Stir the mixture vigorously with a wooden spoon until it starts to thicken, but remains glossy.
7. Working quickly, drop individual candies onto the wax paper lined cookie sheet. Do this using two clean teaspoons, one to scoop the candy from the pot, and the other to push the candy onto the baking sheet. Let cool, then place in an airtight container.

Pralines will keep for several days when covered tightly and stored in a cool place.



Old-fashioned peanut brittle

I first made peanut brittle with my mom when I was 10-years-old. Ever since it has been my favorite candy. When made from scratch, the tender crunch and rich caramel nut flavor of this marvelous, easy to prepare candy has no equal. My son Jason and I had planned to make this candy together a few weeks ago. Unfortunately, the northeast got whacked with a late winter snowstorm and I had to go to work to handle an unexpected emergency. Jason was not happy.

My wife, Tricia, came to the rescue. "Give me the recipe, and I'll help him make it."

I asked her if she'd ever made it before.

"No, but if it's as easy as you say, I shouldn't have a problem."

Jason's sad face was instantly transformed to a happy smile. When I returned home, the peanut brittle was done.

Tricia's only comment was, "Cooking the syrup to such a high temperature takes a long time, but Jason and I still had a lot of fun talking about the various chemical reactions taking place as the syrup cooked."

Jason's indoor soccer team helped him test the quality of the candy. He passed the can of brittle around to all of his teammates. When the can got back to him, it was empty. Need I say more?

Tip: Do not use an aluminum pan with this recipe. Prolonged cooking of the syrup creates an acid environment in the syrup, a condition that can cause aluminum to corrode.

Ingredients:

shortening	1½ cups granulated sugar
½ cup light brown sugar	1 cup light corn syrup
½ cup water	1½ tsp. baking soda, sifted
¼ cup butter (do not substitute margarine)	
3 cups unsalted peanuts (raw nuts are suggested, but regular roasted peanuts will work, also)	
1/8 tsp. oil-based vanilla flavoring	

Method:

1. Coat two large baking sheets with shortening and set them aside.
2. In a clean stainless steel bowl combine the sugars, corn syrup, water, and butter. Stir until the sugars are incorporated with the water and corn syrup. Carefully pour the mixture into a 2-quart heavy-bottom stainless steel sauce pan. Place the pan over medium heat, clip the candy thermometer in place, and cook the syrup until the thermometer reads 275 degrees. Stir in the nuts.
3. Continue cooking over medium low heat, stirring occasionally, until the thermometer reads 295 degrees. Remove the pan from the heat. After removing the thermometer, add the vanilla, then quickly sprinkle the sifted baking soda over the mixture while stirring constantly.
4. Immediately pour the mixture onto the two baking sheets. When the candy is completely cooled, break it into pieces. Store tightly covered in a cool place.

your finger. This is called the soft ball stage. The syrup will remain in the soft ball stage until it reaches about 245 degrees. At 245 degrees remove the same amount as before, and drop it into a fresh glass of cold water. When the resulting ball is removed from the water, it will hold its shape for a few seconds, but will flatten as it reaches room temperature. This is called the firm ball stage. When the syrup reaches 250 degrees, or hard ball stage, the resulting ball will hold its shape when removed from the cold water, and resist flattening under pressure. At 270 degrees, the syrup will separate into hard but pliable threads when dropped into the cold water. This is called the soft crack stage. The final stage is the hard crack stage, and this occurs when the syrup reaches about 295 degrees. When dropped into the cold water, the syrup will separate into hard threads that

snap easily. At this stage almost all of the water has been cooked from the syrup. For most folks performing this exercise just once, successfully, is all the practice necessary.

The exercise will take about an hour and will teach you how sugar syrups perform at various temperatures. You will also get a good idea of how much time you have to set aside in the kitchen to properly perform this critical step in candy-making.

You have now moved from novice candy-maker to journeyman. After you have worked your way through Nanna V's three simple candy formulas, you will be a pro. Before we move on, I would like to share some advice on the subject of kitchen safety. Concentrated sugar syrups are extremely dangerous and viscous liquids when hot. If hot sugar syrup comes in contact with bare skin, it will stick

like glue and cause serious burns. Please watch yourself and your children when a sugar syrup is on the stove.

Special equipment

If making candy at home is a new interest, very little special equipment is required. If you find, after trying the simple recipes I have included here, that you enjoy candy-making, you can move on to making some of those classic candies that require more time commitment, knowledge, and special equipment. But to prepare my mom's three candy formulas the only special equipment you will need is a good candy thermometer that will clip to the syrup pan. The rest of the equipment is not special to most kitchens. You will need: one heavy-bottomed 1½-quart sauce pan, one heavy-bottomed 2-quart sauce pan, two standard size cookie sheets, and a heavy wooden spoon.

Special ingredients

In the beginning special ingredients are also kept to a minimum. To color and flavor candy, I use powdered or oil-

based food coloring and flavoring. Sugar syrups are carefully cooked to remove a specific amount of moisture. Standard food colors and flavorings, like the ones found in the supermarket, are water-based. Adding these water-based coloring and flavoring agents to a cooked syrup can significantly alter its water content. This can have a damaging effect on the finished candy. Oil-based or powdered flavorings and coloring agents can be purchased at most candy shops that sell candy-making equipment. If you can't find a candy shop that sells candy-making equipment in your part of the world, get on the Web and do a search titled, "candy-making." You can order them by mail. My mom used pure glycerin in her salt water taffy formula as an additional guard against crystallization and to help keep the taffy elastic. I have successfully made taffy with and without it, so I list it in the formula as an optional ingredient. You can buy pure glycerin at your local drug store.

Well, let's make these three candy recipes and put some of these basics to the test. Δ

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For summertime baking needs build yourself an outdoor horno

BY REV. J.D. HOOKER

My family has always been big on birthdays and holidays—including Thanksgiving, Christmas, Memorial Day, Fourth of July, New Years, and so on. Every holiday is a major event at our house and always includes plenty of good eating. Whether you're talking about birthday cakes, Thanksgiving turkey, a Christmas goose, or pies and cakes for July Fourth, there's more than the normal amount of baking going on around here.

For the winter time holidays that extra baking is a welcome aid for keeping the chill out of the house. But when the warm weather holidays show up, all that extra heat from the oven doesn't seem nearly as pleasant anymore.

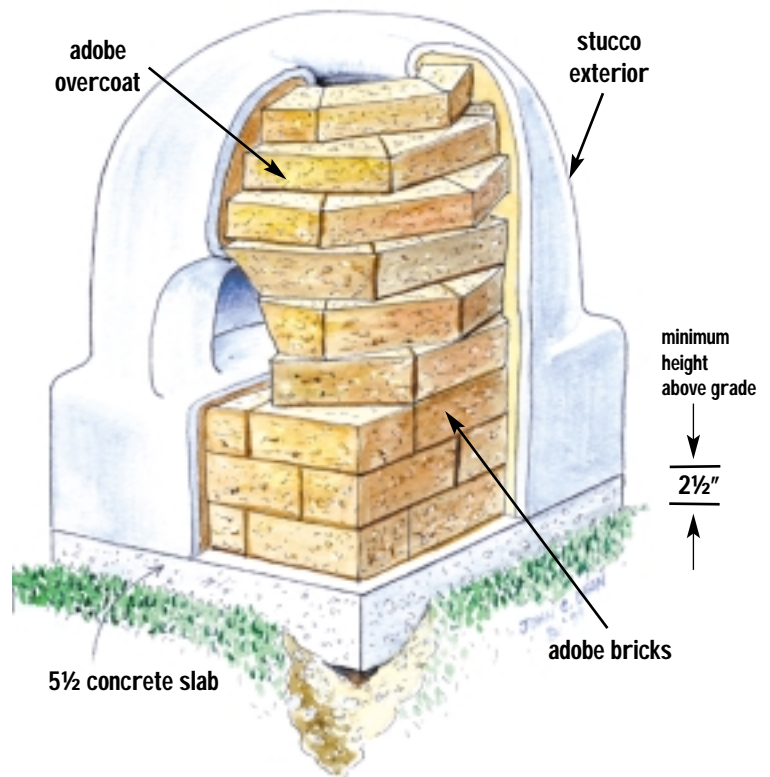
A few years back I walked into our kitchen to see how my wife and daughters were coming along with their preparations for the Fourth of July holiday. Though the outdoor temperature was up over 90°, stepping inside the kitchen was like walking into a solid wall of heat. I didn't think it could have been much hotter inside of the oven itself. I decided right then to do something about that.

Years earlier, I'd built a large outdoor fieldstone barbecue, so there already wasn't too much stovetop type cooking during the summer months. A space beside this barbecue seemed like the most logical location for an outdoor oven, and that's where I decided to build it.

Remembering the large outdoor adobe ovens I'd seen in use in northern Mexico and our southwestern states, I decided to build something similar for our use. But even though I know quite a bit about making adobe mud bricks, I really hadn't too much of an idea of how to go about building one of those clay ovens. Today, I'm still not sure I did everything (or even anything) correctly. But the adobe type oven I built does work, and it works very well.

I know that even in wet climates adobe buildings can last for centuries, if their base is kept dry, the roof is kept in repair, and they're kept painted to repel moisture. So the first thing I did was to shovel away the sod from the three-foot by three-foot area where I intended to build. Then I formed up the edges with 2x6s and mixed up my own concrete to pour sort of a floating slab base.

Next, I used some 1x4 lumber to fashion molds, as shown, for shaping the adobe bricks. Though I sized the molds to fashion bricks measuring 6-inches wide, 12-inches long,



and 4-inches thick, any size you deem appropriate for your own uses would work equally well.

Beneath the layer of topsoil, the underlying subsoil in our area is made up of heavy limestone clay which is ideal for fashioning adobe. In areas with other soil types, I'd recommend incorporating about 15 or 20% Portland cement into the mixture. I ran two bales of old straw through the shredder I'd fashioned from a power lawn mower (covered in Issue No. 44, Mar/Apr 1997) to mix in with the clay for making adobe.

In front of our house, my wife had already picked a spot where she intended to add a new flower bed. An awful lot of compost and such would need to be added here if she really wanted to grow much of anything, and the soil I removed I could use to make the adobe. So I shoveled away the sod and the thin (maybe 3 inches) layer of top soil from the 3-foot by 12-foot section she'd indicated, after which I ran our rototiller back and forth over the spot several times

until the underlying clay was very finely broken up. I then spread chopped straw over the area and used the tiller again to mix it in well.

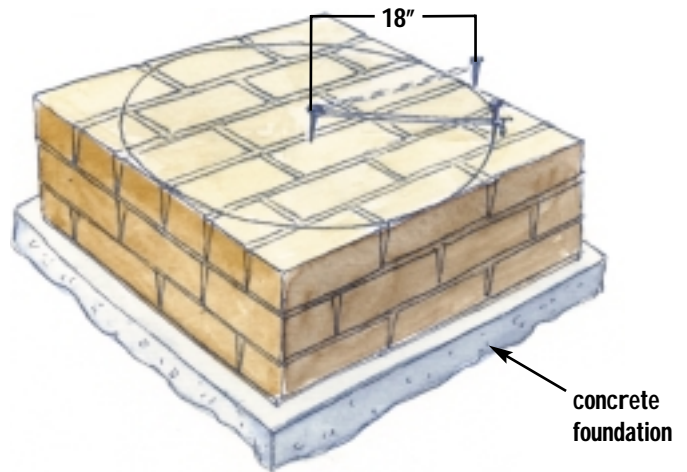
Now I used the garden hose to add water, while continuing to mix things together with the tiller, until the mixture reached a consistency that resembled "Play Dough." This damp adobe mixture was then shoveled into the molds, and the tops struck off evenly with a scrap of board. Afterwards the still soft bricks were very carefully removed from the molds and set in a sunny spot to dry out.

A week later, I covered the concrete pad with a triple layer of these dried adobe bricks. As shown in the illustration, a circle with an 18-inch radius was then scratched out on the top layer, with a 12-inch wide door opening also marked out. Following the scribed line, the first layer of adobe brick was laid in place. In the illustrations you can see how these bricks were trimmed to fit together (I used a worn out keyhole saw for this), Two more layers of adobe brick were set in place (as shown) in the same manner. I then used my hands to smear a layer of wet adobe over the entire inside of this lower portion to smooth the oven's interior nicely.

Now three more layers of adobe brick were added, one layer at a time with the inside portion of each brick carefully trimmed to shape, and with each layer tapering in towards the middle as shown. A smooth finish layer of wet adobe was smeared over the interior side of these layers as well. I then smeared a 1-inch thick layer of wet adobe as smoothly as I could over the outside of the oven as well.

For weatherproofing purposes, I then mixed up a sort of stucco at a ratio of one shovelful each of Portland cement and masonry cement to nine shovelfuls of sand. Using a regular concrete finishing trowel, I spread about a 3/8-inch thick coating of this cement mixture over the exterior of the whole thing, including the base. The next afternoon I brushed on a couple of coats of white house paint.

A couple of months later, I erected sort of a small roofed open air pavilion like structure over the entire oven-

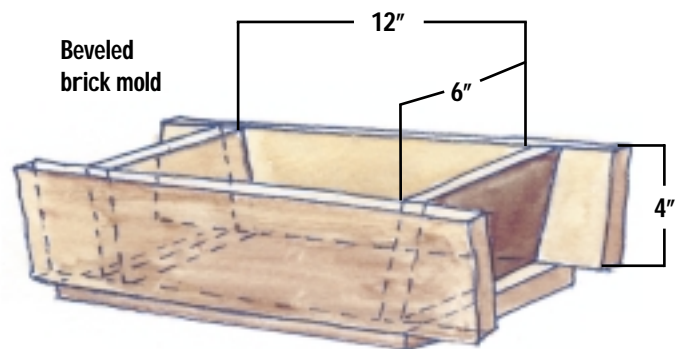
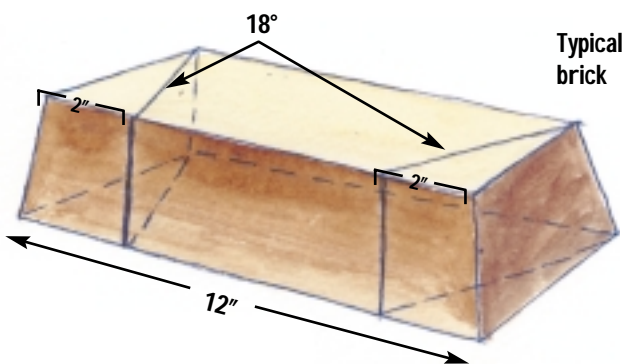


barbecue area. This was only partially for further weather protection. Mostly it was at my wife's insistence. She wanted to be certain that she could use her oven comfortably, even during inclement weather. I guess I must have done something right.

Though slightly different from using the gas or electric indoor ovens most of us have grown used to, baking in one of these adobe hornos couldn't get much simpler. Usually my wife and daughters will prepare everything they want to bake first thing in the morning then they fill the entire oven with dried corn cobs or chunks of wood, and light them.

Once the fire has burned itself all the way out, the ashes are carefully (it's **hot** inside the oven) swept out. A pair of adobe bricks are then used to cover the top opening, the food is placed inside, and the door is then blocked shut with a couple more adobe bricks.

It's mostly only the timing that takes a little getting used to. Each one of these clay ovens really is an individual creation and takes familiarity to use. This style of oven does hold in the heat for a long time, but each time you open it up to check on things, it cools a trifle quicker; and the



Cut bricks 2" from each edge toward opposite edge to bevel bricks for mounting in a circle for the 4th, 5th, and 6th layers. Increase the bevel progressively for the 7th, 8th, and 9th layers to dome the top of the stove.

Azore Island Easter Bread

Ingredients:

2 pkgs. active dry yeast	¼ cup warm water	1/3 cup warm milk
1¼ cups white sugar	6¾ cups sifted white flour	½ tsp. salt
1 cup melted butter	9 large eggs	

Mix together yeast, water, milk, sugar, and 1 cup flour and set aside in a warm place for 20 minutes or so. Add the salt, 3 more cups of the flour, butter, and eggs, and mix well. Keeping your hands well covered with flour, knead the remaining flour into the mix. This is a very sticky dough, so knead carefully. Place the dough inside of a well greased bowl, cover with a clean cloth and set aside in a warm place. Allow the dough to rise until doubled in size (about 1½ hours).

Punch the dough down and divide in half. Place each half in a greased 1½ quart baking dish or loaf pan, and cover with a clean cloth. Allow to rise until doubled in size again (usually less than an hour). Place the loaves inside of the oven and cover the door. These loaves are also done when nicely browned and hollow sounding when tapped with your fingers. Check them after 1 hour, and if not finished check every 15 minutes until done.

My wife and I like this one with a little butter melted on top, while our daughters prefer it topped with honey, and our grandkids actually like it best once it's become just a little dried out and they break it up into little pieces in a bowl, add milk, and eat it like breakfast cereal.

Traditional Adobe Oven Style Bread

Ingredients:

2 pkgs. active dry yeast	1¾ cups warm water
1 tsp. salt	3 Tbsp. white sugar
5¾ cups sifted white flour	4 Tbsp. melted butter or fat

Mix together the yeast, warm water, salt, sugar, and 1 cup of the flour; set aside in a warm place for 15-20 minutes. Stir in 2 more cups of flour and the melted shortening. Now stir in as much of the remaining flour as possible and then knead in the remainder. Continue kneading for an additional 5 minutes. Place the dough inside of a large well greased bowl and set aside in a warm place to rise, until doubled in size (about 1½ hours). Punch the dough down, divide in half, and place each half in a lightly greased bowl, cover with a clean cloth, and again set aside to rise until doubled in size (about ¾ hour). Carefully turn each loaf out onto a well greased baking sheet and brush the tops lightly with warm water. Close up the loaves inside the oven and check after 45 minutes. Loaves are well browned and sound hollow when tapped with your fingers when done. If baking isn't finished, recheck every 15 minutes until the loaves are done.

quicker it cools the longer the baking time. Once you've grown accustomed to your individual horno, however, you'll find that it actually doesn't seem much—if any—different from using a standard mass-produced appliance.

You know, aside from just your normal *BHM* reader's bent towards self sufficiency, constructing such a simple, yet enduring and reliable baking oven doesn't sound like such a bad idea for any of the folks worrying over this Y2K thing and other concerns either. Similar adobe ovens were used for at least a couple thousand years before gas or electric ovens were ever dreamed of, so you couldn't care less if the supplies of fuel or power are interrupted.

Be that as it may, should you decide on fashioning your own outdoor adobe horno, you might want to try the recipes I've included to help you become familiar with it. Both are

pretty forgiving about temperature and timing variations, so are especially easy for beginners.

The first recipe is one variety of the type of bread traditionally baked in the adobe ovens of our southwest. It's also one of our family's favorite wintertime breads and goes really well with stews, chowders, chilies, and similar one dish winter meals.

The second apparently originated in Portugal and was something that my mother learned to bake while my father was stationed in the Azores Islands for a short time during the Korean War. In the Azores this sweet bread is traditionally served during the Easter holidays, though in our family it's become something of a staple at every holiday gathering. Δ

THE IRREVERENT JOKE PAGE

(Believing it is important for people to be able to laugh at themselves, this is a new feature in *Backwoods Home Magazine*. We invite readers to submit any jokes you'd like to share to *BHM*, P.O. Box 712, Gold Beach, OR 97444. There is no payment for jokes used.)

In light of the rising frequency of human/grizzly bear confrontations, the Montana Department of Fish and Game is advising hikers, hunters, and fishermen to take extra precautions and be alert for bears while in the field. "We advise that outdoorsmen wear small bells on their clothing so as not to startle bears that aren't expecting them, and to carry pepper spray with them in case of an encounter."

It is also a good idea to watch out for fresh signs of bear activity. Outdoorsmen should recognize the difference between black bear and grizzly bear droppings. Black bear droppings are smaller and contain lots of berries and fur. Grizzly bear droppings have little bells in it and smell like pepper.

Submitted by Catherine Smith

POSSIBLE BUMPER STICKERS

Ax me about Ebonics

Honk if you've never seen an Uzi fired from a car window

Did you know they took the word gullible out of the dictionary?

A young man was walking along the side of a road when he noticed a most unusual funeral procession approaching the nearby cemetery. A long black hearse was followed by another long black hearse about 50 feet back. Behind the second hearse was a solitary man walking a pit bull on a leash. Behind the man walking the pit bull were 200 men walking single file. The young man couldn't stand the curiosity. He approached the man walking the dog and said, respectfully, "Sir, I know it is a bad time to disturb you but I've never seen a funeral like this. Whose funeral is it?" The man replied, "Well, that first hearse is for my wife." The young man asked, "What happened to her?" The man replied, "My dog bit her and she died." The young man inquired further, "Well, who is in the second hearse?" The man answered, "My mother-in-law. She was trying to help my wife when the dog turned and bit her and she died." A poignant and thoughtful moment of silence passes between the two men and then the young man asked, "Sir, could I borrow that dog?" The man replied, "Get in line."

Submitted by John Allen

Don't be sexist - broads hate that

If you lived in your car, you'd be home by now.

You're a feminist? Isn't that cute!

REASONS WHY IT IS GREAT TO BE A WOMAN

1. Free movies.
2. Free lunches.
3. Free dinners.
4. Free drinks.
5. You can cry without pretending there's something in your contact.
6. You actually get extra points for sitting on your butt and watching sports.
7. You don't have to fart to amuse yourself.
8. You and your friends don't have to get totally wasted in order to share your feelings.
9. You can sue for sexual harassment.
10. You never have to punch a hole through anything with your fist.
11. You'll probably never see someone you know while peeing in an alley.
12. You can talk to people of the opposite sex without having to picture them naked.
13. You'll never have to blow 2 months salary on anything.
14. You can dress yourself.
15. When you take off your shoes, nobody passes out.

FLYING BLIND

(Submitted By John Allen)

One day at a busy airport, the passengers on a commercial airline are seated, waiting for the cockpit crew to show up so they can get underway. The pilot and the copilot finally appear in the rear of the plane and begin walking up to the cockpit through the center aisle. Both appear to be blind. The pilot is using a white cane, bumping into passengers left and right as he stumbles down the aisle, and the copilot is using a guide dog. Both have their eyes covered with huge sunglasses. At first the passengers do not react, thinking that it must be some sort of practical joke. However, after a few minutes, the engines start revving and the airplane starts moving down the runway.

The passengers look at each other with some uneasiness, whispering among themselves and looking at the stewardesses for reassurance. Then the plane starts accelerating rapidly and people begin panicking. Some passengers are praying, and as the plane gets closer to the end of the runway the voices are getting more and more hysterical. Finally, when the plane has less than 20 feet of runway left, there is a sudden change in the pitch of the shouts as everyone screams at once, and at the very last moment the airplane lifts off and is airborne.

Up in the cockpit, the copilot breathes a sigh of relief and turns to the pilot, "You know, one of these days the passengers aren't going to scream and we are going to get killed!"

As a senior citizen was driving down the freeway, his car phone rang. Answering, he heard his wife's voice urgently warning him, "Herman, I just heard on the news that there's a car going the wrong way on 280. Please be careful!"

"Hell," said Herman, "It's not just one car. It's hundreds on them!"

Family game: Tic Tac Toe, or as they call it in Ireland, circles and signatures.

QUOTES OF THE FAMOUS

Suppose you were an idiot..And suppose you were a member of Congress..But I repeat myself -- **Mark Twain**

I worry that the person who thought up Muzak may be thinking up something else. -- **Lily Tomlin**

Bigamy is having one wife too many. Monogamy is the same. -- **Oscar Wilde**

MEMORY LOSS

An elderly husband and wife noticed that they were beginning to forget many little things around the house. They were afraid that this could be dangerous, as one of them may accidentally forget to turn off the stove and thus cause a fire. So they decided to go see their physician to get some help. Their physician told them that many people their age find it useful to write themselves little notes as reminders. The elderly couple thought this sounded wonderful, and they left the doctor's office very pleased with the advice.

When they got home, the wife said, "Dear, will you please go into the kitchen and get me a dish of ice cream? And why don't you write that down so you don't forget?"

"Nonsense," said the husband, "I can remember a dish of ice cream!"

"Well," said the wife, "I'd also like some strawberries on it. You better write that down, because I know you will forget."

"Don't be silly," replied the husband. "A dish of ice cream and some strawberries. I can remember that!"

"OK, dear, but I'd like you to put some whipped cream on top. Now you'd really better write this down. You'll forget," said the wife.

"Come now, my memory's not all that bad," said the husband. "No problem—a dish of ice cream with strawberries and whipped cream."

With that the husband shut the kitchen door behind him. The wife could hear him getting out pots and pans, and making some noise inconsistent with preparing a dish of ice cream, strawberries, and whipped cream.

He emerged from the kitchen about 15 minutes later. Walking over to his wife, he presented her with a plate of bacon and eggs. The wife took one look at the plate, glanced up at her husband and said, "Hey, where's my toast?"

A man spoke frantically into the phone: "My wife is pregnant and contractions are only two minutes apart!" "Is this her first child?" the doctor asked. "No, you idiot!" the man shouted. "This is her husband!"

Fire investigators on Maui have determined the cause of a blaze that destroyed a \$127,000 home last month—a short in the homeowner's newly installed fire prevention alarm system. "This is even worse than last year," said the distraught homeowner, "when someone broke in and stole my new security system..."

AMBIDEXTROUS chainsaw filing

By Thomas Brewer

I am not ambidextrous. My wife, Judith, uses chopsticks with either hand or even both hands at once. She is ambidextrous. I can barely write with my right hand, much less my left. Even so, I use this ambidextrous method of sharpening my chainsaw, and can sharpen the chain in 10 minutes or less without removing the chain from the saw, while using only a chainsaw file and a homemade stand.

Here are the secrets to sharpening a saw without weird filing jigs, fixtures, or other expensive and time consuming mechanical aids.

Basic principles

1. It is essential to look at what you are doing. You cannot, as I used to do, put the saw on the ground, kneel on the handle, and file away on the saw teeth and expect them to become sharp by the grace of a higher power. The homemade stand, shown in the illustrations, is designed to be used on a bench. It will place the saw chain where you can see what is happening to the teeth while you sharpen. The stand will also allow you to assume a comfortable position while you work on the saw. If you use reading glasses, put them on when you sharpen.

2. Orient the bar vertically. This is the most important purpose of the homemade stand. When the bar is vertical, gravity is your friend, and you can easily control the file position in the throat of the tooth. If you attempt

to file the chain with the bar in a horizontal position, gravity drags the file downward into the throat, and you will miss the cutting edge entirely. Orienting the bar vertically is so important that once you learn this technique, you will henceforth lean the saw vertically upwards against a tree if the saw needs an emergency sharpening in the woods where the stand is not available.

3. Adjust the chain tension prior to sharpening. This will pull the teeth into the bar and prevent them from flopping back and forth while you sharpen. This will make your filing faster and far more precise.

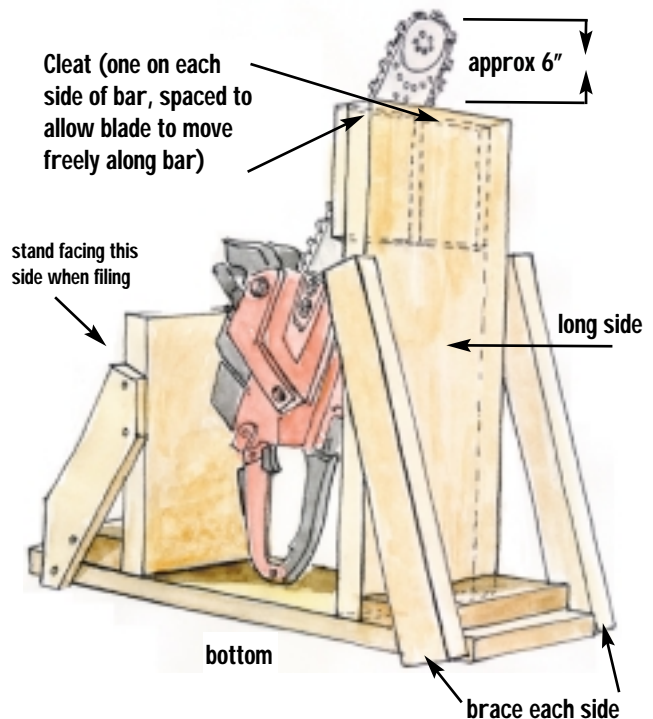
4. Wear gloves while sharpening. When sharpening, you will grab the bar with one hand to stabilize it, and your other hand, which is doing the filing, will frequently be driven into the chain. Gloves make sharpening a much more safe and comfortable enterprise.

5. Keep a block of carpenter's chalk in your chainsaw toolbox. When sharpening, use this to mark your starting point on the chain. It can be remarkably difficult to figure out when you have finished sharpening without this mark. You will also prob-

ably use the chalk to lay out cuts when you are using the saw.

6. When you begin to sharpen, allow the file to contact the tooth only in the forward (cutting) direction. Dragging the file back through the tooth will shorten file life considerably, will result in a poor tooth profile, and is at odds with the principle of watching what you are doing. After each tooth is finished, dust the filings out of the file teeth by brushing it across your pant leg. (I assume you are wearing work clothes if you are out there filing a chain saw). The file cuts more smoothly if it doesn't have to jump over filings that are stuck on the file surface.

7. Sharpen the saw frequently. Once every one or two tank fillings is about



right. If you sharpen at this interval, the saw will always be a pleasure to use and sharpening will go quickly. If you hit a rock, you might as well give it up and go sharpen the saw. A dull saw tends to wear the bar unevenly, so keeping the saw sharp will extend the bar life.

The homemade stand

The stand is nailed up from a few scraps of wood to loosely hold the saw in a vertical position. Make it of a size to hold your saw. The long vertical side should fall six inches or so below the top of the bar when the saw is placed in the stand. The two cleats on the long side of the stand that constrain the saw in the side to side direction are important. In order to position them, place the saw in the stand with the blade upright and mark the saw chain on either side where it contacts the long side of the stand. Leave a gap between the cleats that is wide enough to easily clear the saw teeth as you advance the chain to expose new teeth for sharpening.

Sharpening

Make sure that the saw's off-on switch is turned off. It isn't very likely that the saw could kick back while you are handling the chain, but I suppose it is possible. If the saw is electric, it should certainly be unplugged.

Place the stand on a bench that is at a height so that the teeth in the center of the bar are at about eye level. Different chains require different file diameters so be sure that you have the correct file. I probably don't need to mention that chain saw files are designed specifically for sharpening saw blades and are not the same as ordinary round files. For your first try, use a new file if you have one. This will show you how a good file should cut so that you will eventually know when to replace it. When the file is worn out, you can feel and also hear that it is not biting into the tooth mate-

rial, and it won't produce much in the way of filings.

Now to sharpen: Look at the saw teeth. You will notice, on newer chains, a diagonal line scribed across the rear part of the top outside surface of the tooth. The finished tooth profile as seen from the top of the tooth should be parallel to this line. If your saw chain does not have these scribed markings, you should draw lines across the back of the saw stand at the correct angle, and use these lines to guide your filing angle.

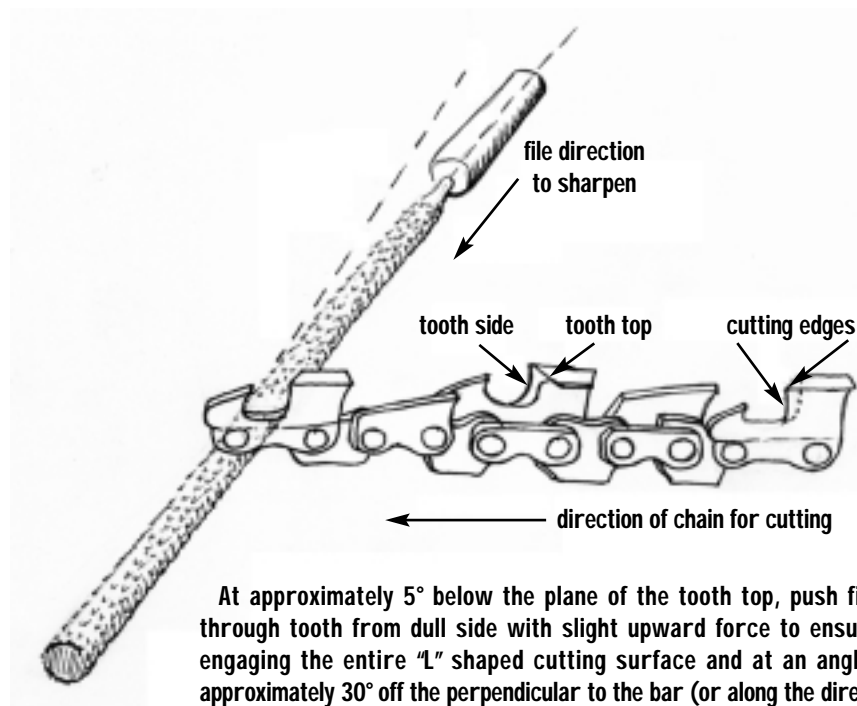
Stand in front of the short side of the stand so that you can see the teeth ascending on the top side of the bar. Pick a tooth that slopes upward to the left and mark it with chalk. You will sharpen this tooth first, and then sharpen all the similar teeth while advancing the chain through one full revolution. Then you will sharpen all the teeth with the opposite slope while advancing the chain through a second revolution.

Grasp the saw by the top of the bar with your left hand, and brace it firmly against the top of the stand and the

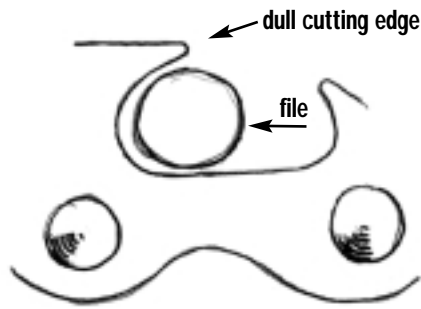
right hand cleat. With your right hand, sharpen the tooth that you previously marked.

Unless the blade is rock damaged, sharpening a chain in good condition should take about four file strokes per tooth. Take your first stroke and watch what happens to the cutting edge of the tooth. The file must travel in a straight line that is parallel to the scribed line on the tooth. You must also pull the file slightly toward the cutting edge (which is toward you) to assure that the cutting edge rather than the bottom of the tooth throat is filed. If things are going well, you will see a slight "wire edge" form on the cutting edge which is the last fragment of metal breaking off when the tooth becomes sharp. When the tooth is finished, the entire cutting edge will be straight, parallel to the scribed line, and sharp enough to peel a chip off the top of your fingernail.

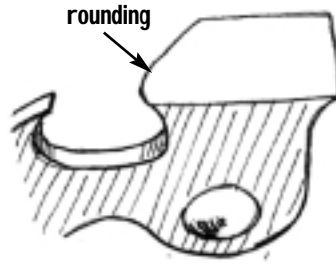
Now comes the ambidextrous part: When the left-upward sloping teeth are finished, it is time to repeat the process for the right-upward sloping teeth. The best way to do these



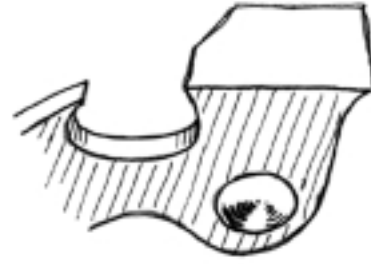
At approximately 5° below the plane of the tooth top, push file through tooth from dull side with slight upward force to ensure engaging the entire "L" shaped cutting surface and at an angle approximately 30° off the perpendicular to the bar (or along the direction of the scribed guide mark if provided).



A downward force on the file leaves cutting edge dull



Rocking the file up and down around 5° rounds the tooth edge



Below 5° the tooth is flattened

teeth is to merely switch hands. Grasp the top of the saw blade with your right hand, and file with the left. This allows you to remain in a position directly in front of the saw where you can see what is happening to the tooth. Although I am strongly right-handed, I found this very easy to do the first time that I tried it, and now, the left-handed teeth actually seem to go faster than the right-handed ones.

This is a fast process. If your chain has 40 teeth, and you use 4 file strokes per tooth, sharpening requires only 160 file strokes.

Problems

If filing does not make the cutting edge parallel to the scribed line, it means that the file is not parallel to the scribed line. If you are rocking the file up and down (vertically), the cutting edge will become rounded. If the file is tipped front-to-back, the cutting edge will not remain parallel to the scribed line even though the file appears to be at the proper angle. (See the illustrations.)

Attempt to file the same amount off of each tooth. Count the number of strokes that you use and file the same number on each tooth. After a number of sharpenings, some of the teeth may become noticeably shorter than the others. To fix this, try to use fewer file strokes on these teeth for several sharpenings until the others catch up. If you wish to really true up the blade, you should locate and sharpen the

smallest tooth, mark off its length on a scrap of wood, and use this as a gauge to file the remaining teeth.

If the saw has become rock damaged: Rock damage usually damages all the teeth on one side of the chain. Because of the way that I hold my saw when cutting near the ground, this usually seems to be the right handed teeth. The effect is usually to knock the point off all these teeth. To sharpen a rock damaged blade, I sharpen the blade using 10 or 12 file strokes per tooth, being especially careful to maintain the file alignment. This much filing may not completely restore the point on the tooth; however, the blade will usually cut reasonably well if the cutting edge is sharp. If the blade does not cut well, I sharpen it again and try it. I have never had to sharpen it more than twice. After a few more filings, the tooth point will be restored.

Rakers: Rakers are the projections that stick up between adjacent teeth to clear chips from the cut. Since the tops of the teeth slope backwards slightly, continued sharpening may drop the teeth so low that the blade rides on the rakers in the cut. This may prevent the teeth from biting even though they are perfectly sharp. If your saw chain has been filed a number of times and has reached a point where it just doesn't seem to cut well, the rakers may be at fault.

Blade manufacturers sell filing guides for raker filing to drop the rakers the correct distance below the

teeth. This is a simple metal channel that sits on top of the teeth. The raker to be filed protrudes through a hole in the channel, and it is filed with a flat file until it is flush with the top of the channel. I usually file the rakers three or four times during the life of the blade using one of these guides.

Do not over-do raker filing. If the rakers are too low, the saw "grabs," becomes difficult to control when starting a cut, and is much more prone to kick back—a definitely dangerous condition. If you file the rakers too low, it will probably take several teeth filings before the teeth are low enough to correct the condition. Some one who knows more about chain saws than I do has told me that he never files the rakers because of the kick back problem. He feels that a really sharp blade will work even if the rakers are too high.

Try this method. Especially try using the saw stand. You will find that you can sharpen your saw with great confidence when you can actually see what is happening to the teeth. Inspect your current blade. You may discover that the teeth are all sharpened at odd angles and have irregular lengths. You will be able to true them up very quickly using the saw stand and a fresh file.

One of these days I'm going to show Judith how to do this and then I will really have a sharp saw. Δ

Remembering what grandma used

By Marjorie Burris

My grandmother, Mary Etta Dillman Graham, was one of those frontier women who took life as it came; extremely practical, resourceful and inventive, she was always, always ready to help other women. True to her time and her own modest nature, she never spoke in mixed company about those things pertaining just to women, but she has been dead for over 47 years so she can't reprimand me now for telling publicly what I learned from her. I think. I hope.

Grandma was born April 3, 1860, just before the Civil War. She died February 13, 1952, almost 92 years old. She married my grandfather, John Graham, in December of 1881. They were married for 61 years.

For 30 years, from 1890 to 1920, she served as the only midwife to the women of rural Clay County, in Southern Illinois, up until her brother's son, Howard Dillman, her nephew and my second cousin, graduated from medical school and came home to be the beloved country doctor. Even then, for the first five years of his practice, Cousin Howard asked Grandma to accompany him on his home deliveries, to teach him, to teach the new mothers, and to be her usual comfort to all. Howard later said Grandma taught him more about "birthin' babies" and the care of new mothers than he ever learned in medical school. In fact, she was his inspiration to become a doctor. And out of the 11 girl cousins in the family, four became registered nurses, me included. We all say we wanted to become nurses because of grandma's example.

In the days before disposable sanitary napkins, grandma made what she called "personal pads" out of old, soft, all-cotton material—sheets, towels, well used baby diapers—anything that could be spared. She never used new material; she was too thrifty for that. The pads were about 4 inches wide, 12 inches long, and had 10 or 12 layers stitched together. They had long cotton tails sewn on each end. The tails were drawn up and looped and either pinned or tied over a soft belt worn around the waist. And they were **not** thrown away after use. They and baby diapers, which were not disposable, either, were treated alike.

Immediately after use, they were rinsed in clean water, wrung out by hand, then put in a pail with more clean water and left to soak overnight. The next day, they were scrubbed



on a scrub board in hot soapy water and rinsed well in more clean water. Then they were dumped into the oval-shaped copper wash boiler set on the old black wood-burning cook stove and boiled for one hour—no less time; occasionally they were stirred with the "dipping stick" which had previously been a broom stick. After boiling, they were dipped out, rinsed again in cool, clean water and wrung out as dry as can be done by hand.

Then in the summertime they were hung out on the clothes line to dry in a sunny spot. In the winter they were hung on a clothesline strung permanently behind that cook stove. Whether outside or inside, they were discretely covered by a baby diaper or a bath towel. Grandma didn't want some loud, shrill, childish voice asking, "What do you use those funny looking things for?"

When times were hard, and they usually were back then in rural Illinois, many new mothers simply did not have many linens to spare for personal pads so grandma would make a pad shell instead of using several thicknesses of material. She would stuff the shell with soft, dried grass or large, dried leaves.

One time when she and I were pulling a row of new carrots in the garden, I saw her look thoughtfully at the lacy tops as she slid them through her fingers. That evening I noticed bundles of carrot tops drying on that ever present clothesline behind the cook stove, and the next day she used those tops to stuff some new pads she was making. After use, the stuffing

was pulled out, dried, and burned and the shell was washed and boiled as usual.

Grandma never had a course in microbiology, but she knew that boiling and burning were inexpensive ways to kill most disease-causing germs.

She was very proud of the fact that none of the babies she cared for had diaper rash, and the new mothers did not become infected if they followed her instructions. And it was hard work to keep clean in those days. Most farms in the late 1890s and the early 1900s had no electricity; water had to be pulled up from a well with a bucket, carried into the house, and heated on a wood-burning cook stove.

After use, it had to be carried back outside and dumped far from the house. Water is heavy and it took a lot of it. Grandma never permitted her patients to use hard work as an excuse for not keeping clean. She did not say that cleanliness was next to godliness, but she did stress that cleanliness was essential for wellness and well-being.

Grandmother could not even imagine some of the modern equipment used in today's hospitals for delivering babies, but 100 years ago she could turn an ordinary farm kitchen into a more than adequate delivery room. Some of her "old-timey" adaptations were so sensible that they could still be practical in a home delivery today. I think I can share some of her ideas best by telling about the first time Howard and I worked together in the delivery room.

In the summer of 1952, I came home fresh from nurse's training to work in the small hospital the county had completed only the year before. By this time most of the women of the area were coming to the hospital to have their babies. Grandma had passed away that spring, but Howard was still in practice and he was the attending doctor for the majority of the deliveries.

One night, in preparation for an upcoming delivery, as was the custom, I started wiping down all the delivery room furniture with a disinfectant solution. Howard stuck his head in the delivery room door to let me know he was there, and I heard him gasp. Turning, I saw him staring at me with tears in his eye, "Oh, Marjorie, you look so much like your grandmother used to, I'll probably reminisce all night long about our early days delivering babies together. Do you mind?" Mind? I was delighted. His comparison that night between the then and the now have stayed with me all these years.

Grandma always prepared the farm kitchen for a delivery much like I was doing now. She wiped the kitchen table and all the furniture with clean, soapy water, and directed the rest of the farm family to wash all the dishes and scrub the floor. Everything that was not to be used in the delivery was to be put away or taken out of the room. I put the obstetric instruments in the autoclave; she put them in the copper wash boiler on the cook stove and boiled them. I poured sterile water into a sterile basin for cooling the instruments. She had boiled a large pot of water and set it off the stove to cool so it would be ready to cool the instruments. I handed Howard a

sterile paper gown. She had first put her own home made oil-cloth apron around Howard's neck, then covered that with a big-bibbed cloth apron that had been washed, boiled, ironed, wrapped in a sheet, and baked in the oven. I draped the delivery room table with sterile paper sheets. She covered the kitchen table with a clean oil-cloth, then spread the sheet she had baked the apron in over the table. I scooted a rolling stool over by the delivery table for Howard to sit on. If the family had one, she brought in the piano stool from the parlor. Otherwise, she placed a kitchen chair nearby the table. I put the little baby clothes in a warmer in the instrument room off the delivery room; she put them in the warmer on top of the cook stove.

When our patient was wheeled into the delivery room, she looked at Howard and me and smiled, "The nurse told me you cousins were working together for the first time tonight. Did you know that I was one of the last babies Mrs. Graham delivered before Dr. Dillman came to town?" We didn't.

Howard and I saluted one another across the room. We had a legacy to keep that night. Everything went well. We delivered a sweet little boy. And, yes, we both felt grandma's presence through it all. Δ

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Growing the **ETERNAL TOMATO**

James O. Yeager photo

By Leonard Trebor

It's an old story to longtime gardeners (and a new story to novices): each spring you buy some superb tomato plants, set them out on May 1 (or thereabouts), then you mulch, water, and spray until about July 4 (depending upon the part of the country in which you live) when you pick your first real beauties of the season.

The plants then thrive for the remainder of the summer. But, about the end of August, they begin to wilt and die. The event is always marked with a tinge of nostalgia as you wonder if you will ever see such wonderful tomatoes again.

Of course, there is always next season, but you can never be sure if the new plants will come close to equalling the old ones. The new strains may not

be to your liking, or there may be a problem with the plant's ability to resist wilt or cold weather. You wish you could keep the old plants forever.

Actually, there is an easy way to keep your tomato plants alive forever. You can grow and enjoy the Eternal Tomato by investing just a few minutes and spending a few extra cents. In the bargain you will have the earliest and best plants in your area the next season.

Suckering

Many old-time gardeners know about the process called suckering. This calls for you to break a stem or two from your tomato plants and plant them. Don't worry about your plants because breaking off the suckers doesn't hurt them. In fact, they'll grow a lot better without them.

Here's how to do it: Examine your healthy and strong plants. Look for

stems and limbs that look like the forks of a slingshot. The only difference is that growing from the exact center of the fork there will be a shoot, called a sucker, that looks healthy and vigorous—and it is because it is using more than its rightful share of the nutrients of the plant. Break off the sucker by holding it one inch from the point where it joins the fork of the plant. Bend it forward, then backward. The stem will snap off cleanly, unlike other stems of the plant which will snap and then cling by a few fibers if you attempt to break them away.

The suckers you break off should be no more than one foot in length. When you have the sucker in hand, push the stem end into a jiffy pot or some other small container that's filled with potting soil. Push the end three or so inches into the soil and use your fingers to pack soil tightly around the stem.



1. Locate the suckers that grow on a straight stem from between two strong tomato branches. 2. Grasp the sucker near its base, about an inch from where the three growths come together. Just snap the sucker loose. 3. Stick the broken end of the stem into the potting soil and pack the soil tightly around the stem.

Do eight or ten of the suckers if you have room for them. Water them generously, but do not have the stems standing in water. Set the containers in an old tray or inside an aluminum pan. Leave them where they will get abundant sunshine.

Within five or so days, the stems will put out roots and, in a few weeks, you will have an independent plant that is ready to produce tomatoes.

When is the proper time to start sucker plants? You can do it whenever you wish, as long as the parent plant is good and strong.

When you start your tomato plants in the early summer or late spring, you can set out a dozen or so plants. Then two or three weeks later you can break off a dozen or two suckers from the 12 plants.

Set these new plants out and, in two to four weeks, you can break suckers off these plants, as well as from the first sucker plants and the parent plants. In short, start with 10 or 12 plants and by mid-summer you will have a hundred plants, all the children of the parent plants, coming at no cost whatever, except for the potting soil.

And you don't even need potting soil. It simply helps get the plants off to a good start. However, if you wish, you can break off the suckers and stick the stems directly into good, loose soil and

they will take root there if you see they are watered well.

During the summer you can eat the fresh tomatoes and sell, barter, or can the surplus. In our family of three, we like to have two quarts of canned tomatoes per week, so we can about 100 quarts each year. This gives us plenty of base for spaghetti sauce, soups, and other dishes.

At the end of the season you can pick all the green tomatoes, wrap them individually in newspaper, and, in the middle of winter when you unwrap them, they will be a delightful shade of ripeness.

At the end of the season, snap off more suckers and start these in small containers. If you build a small greenhouse, you can keep the plants through the winter.

As the tomatoes grow larger and larger, you can transplant them to larger containers. You may want to use five-gallon or smaller containers. One-gallon cans also work well.

The greenhouse will keep the plants alive on cold nights, and if you open the doors on warm days the wind or the insects still on the wing will pollinate the blossoms, and you can grow

your own fresh tomatoes even when there is snow on the ground.

The following spring, move the plants back outdoors and, if you wish, you can transplant them again, this time into the soil of the garden. Then the process starts all over again. Δ



SEX and sins in the cemetery

By John Silveira

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Ayoob on Firearms:

Rifles, shotguns, and handguns for Y2K and beyond

You bought it for a worst case scenario. If that doesn't come to pass, you'll still own it. I'm talking about rifles, shotguns, and handguns that'll get you through bad times and good.

What happens in the event that Y2K comes and goes and society doesn't fall on its face, even if it stumbles a bit. Are you going to feel as stupid as people did in the Fifties and Sixties with fallout shelters they never needed? People get antsy about preparing for something that might never come.

Realistic preparations

Consider this approach: Prepare yourself with things you can use if society doesn't break down.

Experienced rural people have known for a very long time that having a generator just makes good sense. I'd be surprised if there's a hospital in the land that isn't outfitted with generators in case the power goes out for some reason besides a computer bug shutting down a too "techno-dependent" society. Even if society doesn't break down, the water system might, and what does stored tap-water cost you, anyway? Societal collapse notwithstanding, if you have room to store it, isn't it just practical to buy staple foods, toilet paper, sanitary napkins, et al in bulk and stockpile them, saving money compared to the usual urban "wait 'til we run out and then buy as needed" paradigm?

So it is with the guns. Let's look at some rifles that would be awfully good to have on hand if the doomsayers of Y2K turn out to be right...and

would be good to have on hand anyway.

.308 rifles

Springfield M1A. As currently produced, this is a splendidly-made example of the M-14 rifle, a design that goes back roughly half a century and is essentially an improved WW II M-1 Garand. With up to 20-round magazines still readily and legally available, it fires the 7.62mm NATO/.308 Winchester cartridge. Ammo is abundant. The rifle is utterly reliable.

The M-14 was constructed for a projected battlefield in which it was thought that the hedgerow fighting and house to house combat of the European Theater would be the small arms battle plan of the future. This is remarkably close to defending a home against armed invaders on foot or in



Massad Ayoob

cars and trucks in a "post-Armageddon" scenario.

No Armageddon? No problem! A five-round magazine makes this accurate, reliable autoloader an excellent hunting rifle in rugged country. More than a decade ago, in Namibia, I used a sniper grade M1A Springfield to shoot a springbok at 350 yards. The local rules said "no semiautomatics," so I used the gun without a magazine as a single shot with just the one round in the chamber. Ben Mozrall,



This 7.62 NATO HK91 has served the author for 20 years without malfunction.



An Olympic Arms match-grade ultra-lite AR-15 upper mated with a Colt lower and fitted with C-More electronic dot sight. It's great for recreational shooting and formidable for home defense. It weighs less than 6.5 lb and belongs to Ayoob's youngest daughter, Justine Lauren.

then head of the New Hampshire State Police SWAT team, shot a 1.5-inch group with this same rifle at 200 yards. In a weak moment, I sold it with its exquisite Leupold scope to John Groom. Later I came to my senses and bought a stainless Match Grade Springfield Armory M1A to replace it. Target shooters, be advised that this is the rifle that kicks butt in national class High Power competition. The prices are excellent these days. An added feel-good bonus: no American gun manufacturer has been more vocal about individual citizens' Second Amendment rights than Springfield Armory.

Other fine .308 "battle rifles" include the European **FN SLR** and **HK91**. In the score of years I've owned it, I can proudly say my Heckler and Koch HK91 has never malfunctioned.

.223 rifles

With ammo readily available, the 5.56mm NATO/.223 Remington round will get you through the darkest of human conflict nights. It's the choice of not only the entire US mili-

tary, but most of the cops. If I was going into battle, I'd want the superb ergonomics (speed reloading, ambidextrous use around cover in any configuration, fine balance) of the **AR-15**. For my own needs, the short, handy, super accurate **Steyr AUG** is a personal favorite, but I bought mine back when the price was reasonable. For a "best buy" today that's still user-friendly, you can't beat the **Ruger Mini-14**, which, in stainless steel, is the mainstay of this magazine's publisher, Dave Duffy, and it's senior editor, John Silveira.

No end of the world? No sweat! The .223 is still ideal for "back porch to garden and beyond" sniping of local animals who figured you planted your garden for them instead of you. With light, high velocity hollowpoints, such a rifle is still a devastating manstopper for home defense, offering light recoil with high hit potential on multiple targets at close range under stress in short time frames. And .223s are always fun for recreational plinking, which is what my youngest has used hers for (**Olympic Arms AR-15** with C-More red dot electronic sight) since she was twelve.

7.62 X 39 auto rifles

This ComBloc cartridge, Kalashnikov's updating of the first (German, WW II) assault rifles, approaches the classic American .30/30 hunting round in effectiveness when used with a soft-point hunting bullet. There are essentially three popular choices. A semiautomatic version of Kalashnikov's own **AK-47** will indeed work through mud or blood or crap or flood, but it won't be terribly accurate. Good for close fighting, not great for recreational use at significant distance. Ruger's Mini-14 in this caliber is known as the **Mini-30**, and with hunting-legal five-round magazines standard (and longer magazines available "aftermarket") makes more sense as "Y2K insurance for now, and a lightweight, light-kicking deer rifle for later." Finally, there's my own choice in this caliber, the **SKS**. This old ComBloc beast is at least twice as accurate as the AK-47, rivaling the Mini and the AR. It's as ruggedly reliable as the AK, generally has a better trigger, and 10 shots instead of a bigger magazine is its only shortcoming. They're cheaper than dirt, as gun prices go, even now. I prefer the well-made commercial Norinco guns from China, and the Russian Paratrooper versions, because they both have short stocks that work well for petite females, or for adult men in heavy cold-weather coats. The same softnose hunting ammo you'd use in a Mini-30 can make the SKS a useful "farm gun" once any perceived societal crisis has passed.

I don't care for AK rifles much. Factory magazines of 20- and 30-round capacity for the Mini-30 are limited to cops under current law. For an ordinary law-abiding citizen getting started, I'm not sure you can beat the cost effectiveness of the SKS. I won one in a match, gave it to my oldest kid, and then bought an identical SKS for my youngest. In the best of all worlds, I'll have died of old age and each of my daughters will have an

SKS, ammo, and accessories secured safely in their homes for their kids, far in the future.

.22 rifles

Survivalist guru Mel Tappan said you should have it. Gun experts say you should have it to teach marksmanship to your kids and other new shooters. Fast and in-the-eye-socket accurate, the gun we're talking about is a top-quality autoloading .22 rifle. The ammo is cheap, and so light it's portable. A box of 50 rounds of .22 Long Rifle is the size of a small survival ration of wooden matches.

For accuracy, reliability, and cost effectiveness, you can't beat the time-proven **Ruger 10/22**. I hate to sound like a PR man for Ruger, but that's just how it is. There are more after-market accessories (folding stocks, match-grade barrels, extended quick-change magazines, etc) available for the 10/22 than for any other .22 rifle. A close second on my list would be the **Marlin Model 77**. Over a million of these neat little rifles have been made. They're accurate, they're reliable, and the only reason I don't rate them over the Ruger is that you can't readily get extended quick-change magazines for all of them. (Most Marlins have tubular magazines, which are comparatively slow to reload.)

I enjoyed my 10/22s and my Marlin 77 before anyone heard of Y2K. I'll enjoy them once it's over. When that's all history, an accurate .22 caliber semiautomatic rifle will still pick the squirrels off your bird-feeder, still zap the woodchuck in your backyard garden from your kitchen window, and still put a 50-grain bullet through the rapist's eye and into his brain as he breaks through the bedroom door.

Other rifles

"Other rifles" is a world to cover, and I want to keep this short. Sure, a lever action .30/30 will get you through the night, but it's slow to reload in an emergency involving high-volume shooting. Yeah, the Lee Enfield .303 Jungle Carbine was the best bolt-action battle rifle of its time and not a bad deer rifle even today. Yes, the Steyr-Mannlicher rendition of Jeff Cooper's Scout Rifle is superbly crafted. Liked mine, sold it anyway. These are bolt-action rifles. When you show me how I can get off five shots in one second with a bolt gun at "down the hall distance" like I can with a semiautomatic, enlighten me, OK? Until then, a gun that would do to protect one's innocent family against many-to-one lethal odds needs to be semiautomatic as far as I'm concerned, and for purposes of this article, the topic is worst case scenario

family defense guns that can be useful later. If the emphasis seems to be on later, I apologize, but we can't ignore realistically-perceived short term needs now.

Shotguns

The shotgun is a versatile firearm. But is it the ideal defense gun for a worst case Y2K scenario...or even for the best of times?

Los Angeles cops used to call it "the tube." Westerners called it "the scattergun." A whole lot of folks have called it the single most versatile of all hand-held firearms, and within its limitations, they may be right.

The "shotgun" is so named because when you drop its hammer on the ammo it was primarily designed for, it expels a cloud of pellets known as "shot." There is birdshot, a great number of tiny pellets, suitable for killing light-bodied creatures like the fowl of the air. There is buckshot, fewer pellets but each larger and heavier, which at close range act like so many old-fashioned, non-expanding pistol bullets striking all at once. These are designed to kill deer at short ranges, and other animals in the 130 to 300 pound range, animals like...oh, Hell, you figure it out. Finally, there are shotgun slugs, which turn what was once known as a "fowling piece" into .70-plus caliber rapid firing heavy rifles in close quarters.

You use fine birdshot to shoot "upland birds." You shoot heavier, coarser birdshot for "waterfowl," ducks and geese that you'll have to shoot at longer range through heavier feathers and body mass if they are to come down from their migration routes to grace your table. Buckshot ("double-ought," as it's known historically) sends nine .33 caliber pellets from the muzzle of a 12-gauge shotgun at once. It's roughly the same as shooting something nine times in the same millisecond with a .32 caliber automatic pistol and old-fashioned ammunition. Cops use it when they



Two of the best defensive shotguns available today. Top, Remington 870 pump; bottom, Mossberg 9200A1 auto. Folding stocks shown are handy but not essential.

anticipate close-range gunfights, and African hunters used 00 Buck when going in close on wounded lions and leopards in the thickets. Finally, the 12-gauge rifled slug—an ounce of lead almost 3/4-inch in diameter, flying at 1100 to 1600 feet per second—is not only the close range “shotgun deer load of choice,” but is what some professional hunters in Alaska and elsewhere resort to when they have to go into the underbrush after wounded grizzly bears. It is also the ammunition the NYPD Stakeout Squad switched to after a few shootings where even the deadly “double-ought buckshot” didn’t put their armed opponents down fast enough.

Good news with shotguns

Obviously, the shotgun is versatile. So are its design options. You can get a single barrel (too slow for anything more serious than sport, but cheap). You can get a double barrel, anywhere from \$200 for a second-hand Stevens 311 that will get you through the night, to six figures (yes, you read it right, over \$100,000) for a super-grade shotgun custom made in Europe. Or, you can get a functional pump-action shotgun (Mossberg or Remington Express) for around \$300 or less. A semiautomatic shotgun will start a bit higher than a pump.

Bad news with shotguns

When the strength is versatility, the weakness will generally be found in specialty. The history of the human experience seems to be that whatever works half-ass well for everything will be found specifically deficient in something. So it is with shotguns.

So, what we’re talking about here are shotguns that might be bought by someone anticipating a worst-case scenario after a Y2K or similar societal breakdown. One study of LAPD

use of (12-gauge pump) shotguns in actual gunfights indicated a 58% hit potential. That means out of every two shots fired in anger, slightly more than one was likely to put one or more 00 buckshot pellets into the opponent. If we translate that to a multiple-opponent gunfight scenario, it tells us right up front that a one-or two- or even three-shot gun will give us a limited future against multiple opponents.

This tells us that for defensive purposes, we need a baseline of a “magazine-fed shotgun,” which will hold an absolute minimum of four shotgun shells in its reservoir, and if time allows the defender to load the gun all the way up, with one more shell in the firing chamber, a minimum of five shells capacity. **Important note:** There is **no** magazine-fed shotgun made today to this writer’s knowledge which incorporates a firing pin safety. This means that **any** shotgun kept for emergency defense purposes needs to be stored with its firing chamber empty, so that it cannot accidentally discharge if dropped or struck on either end.

What not to look for

Don’t tell me that your shotgun is cool for every distance because it has interchangeable chokes. You won’t have time to change the chokes in the moment it takes you to transition from your first opponent at your doorway to the one 40 yards away in the parking lot who is aiming his stolen rifle at you.

Don’t tell me that your shotgun is emergency versatile as opposed to situationally versatile because it can shoot birdshot, and buckshot, and slugs and all the rest. The versatility requires time for you to load the right shells into the magazine! That time may present itself to a police SWAT team that has the suspect in the crosshairs of multiple gunsights. It won’t be there when you have to quickly change gears between perpetrator A on the front doorstep and per-

petrator B, also armed with a rifle, way out there at the barn.

Don’t tell me you load your shotgun with birdshot for home defense because, “It will blow away a bad guy, but it won’t shoot through the walls and hurt the kids.” A whole bunch of us have put our fists through the kind of sheetrock walls that separate our bedrooms, but none of us was ever able to put our fists through the opponents we punched in the stomach, as hard as we tried. If it will go into your opponent enough to blow away his internal organs, it will go through the wall and endanger your children too. If it won’t go through the sheetrock your fist can go through, don’t count on it to keep a homicidal antagonist you hit dead-center with it from killing your babies.

I’m sorry if that takes away something you were counting on, but somebody had to tell you in time.

Recommended shotguns

Your defensive shotgun should be a pump action or a semiautomatic. For professionals who keeps their guns clean—and know how to break them down to do that—I strongly recommend the semiautomatic. For people who tend to neglect their equipment, I would most strongly recommend the pump gun.

There are damn few semiautomatic shotguns that will cycle 100% with light loads, medium loads, full power loads, and Magnum loads, no matter what you may have read in gun magazines. I have been to “gun writer seminars” where the hosting gun companies fed us up to the gills with shrimp and booze and paid for our nice hotel rooms, and some of my colleagues wrote great things about the guns that malfunctioned when we all tested them. I wrote the truth. That’s why I’m not invited to some of those seminars anymore, but my duty is to you, not to the gunmakers.



Mel Tappan's "survivalist's choice" pistol, a Colt .45 automatic, remains a very sound alternative, especially for those trained in its use. It's a potent manstopper even with the round-nose "GI ball" ammo shown.

When in doubt, buy a **Remington Model 870 Express** or a **Mossberg 590** pump gun as first choice, a **Mossberg Model 500** as close second choice. If you want a 12-gauge autoloader, buy a **Remington Model 11-87** or a **Benelli Super-90** or a **Mossberg Jungle Gun**. I say this not as the gunwriter who supped at the tables of the manufacturers—actually, I am that, I'm just not speaking as such.

I speak now as the full-time firearms instructor who sees what works and what doesn't, 20 to 40 students per combat shotgun training session who hose buckets of buckshot downrange at high speed and find weak points in their guns that people who shoot light trap and skeet loads never discover.

Any of the above-recommended guns will serve you well in an emergency. In the lighter-kicking 20 gauge, spewing 20 .25 caliber buckshot pellets per pull of the trigger, I'd recommend the **Remington semiautomatic Model 1100**, especially the lightweight LT-20 model with short stock that fits smaller people better and causes no shortcomings to those with taller stature or longer arms.

When Y2K is history, I hope we'll all feel embarrassed by having stockpiled guns and all the rest as a statement of our distrust of our fellow man. When that happy "nothing happened" ending comes to pass, the shotguns discussed above will still be worthwhile tools for home defense, bird-shooting for the table, and other tasks that accrue at the "backwoods home."

Handguns

Let's look at handguns for Y2K and beyond. A single gun has to be multi-purpose:

- Accurate enough to kill an animal some distance away for food.
- Powerful enough to stop a threat coming in on you quickly.
- Holding enough ammunition to allow you to shoot fast and straight and, if necessary, reload quickly and shoot fast and straight some more.
- And, when you don't worry about "Y2K panic in the streets" any longer, a gun that will still serve you well for recreational shooting, home and personal defense, and for the chores that

firearms have historically performed at rural homesteads.

Single action frontier style revolvers and single shot pistols and derringers are out. Not enough firepower.

.22s have a place in a survival kit for shooting small game for subsistence, and the ammo is certainly cheap and easy to carry in volume. You have to determine what you're most likely to need to shoot. .22s are cool for squirrels. In the anti-personnel function, however, they have proven effective for only two classes of people: highly trained Israeli intelligence operatives and Mafia assassins. Both seem to have the knack of getting behind the opponent and shooting him through the base of the skull. If this doesn't seem a likely scenario for your needs, then as useful as a low-powered .22 handgun is around the rural home, you can do better for an all-around handgun whose purposes include emergency defense.

.38 Special/.357 magnum revolvers

The .38 revolver won't take the longer, more powerful Magnum cartridge of the same diameter, but a .357 Magnum revolver will fire shorter .38 Special cartridges. Unless there's a compellingly necessary cost saving, in guns of the same size buy the .357 and you'll have a better chance of resupply if the future is such that ammo becomes scarce. The small ones shoot only five rounds, a few of the new bigger models hold seven or eight, but for the most part a .38 or .357 revolver will be a six-shooter. Have some speedloaders handy, of the proper size for that particular revolver, and you can learn to quickly reload six shots at once in less than six seconds.

These guns are sturdy and reliable. If all the gunsmiths were going to disappear, I'd choose the built-to-last-forever **Ruger**. The **Colt**, **Smith & Wesson**, and **Taurus** brands are all good choices, too.

.45 semiautomatic

Survivalist guru Mel Tappan recommended this gun, specifically the **Colt Government Model** or one of the other 1911A1 variations, as that pistol was known when it served the US military for most of this century. All good-quality .45 ammo is powerful enough to trust in a fight, though the hollowpoints work a lot better and are less likely to shoot through the bad guy and hit a good guy. Many of our readers were trained on this gun in their military past. The gun you are most trained with is the one you'll fight best with, and when you are judged later for your actions, being trained with the gun you used is a plus. This is an advantage for the service revolver mentioned above if you were trained with one in a former life as a cop or security professional.

If you like the .45's power but don't like the necessary "cocked and locked" carry mode for the 1911 gun, you can get any of several modern double action .45 automatics. These require a long, heavy, intentional pull of the trigger to fire. **S&W**, **SIG**, and **Ruger** are all good. I'll be wearing a Ruger .45 automatic, issued by my police department, at the moment the 20th Century turns into the 21st, and I'll be comfortable with it. These guns have worked great for us. The **Glock** is another very reliable modern .45 automatic. In fact, it's been my experience that the .45 caliber versions are the most accurate pistols Glock makes.

9mm semiautomatic

Tappan didn't like this caliber, but that's because in his time most of the 9mm ammo available was impotent in terms of quickly stopping aggressive threats. Things are different today. You can get loads like the Triton Hi-Vel I carry in my own 9mms. A standard 115 grain hollowpoint will leave a 9mm's muzzle at 1100-something feet per second. The Illinois State

Police "hot load" (so hot they won't sell it to the general public) sends the same bullet out of their **Smith & Wesson 9mm** autos at 1300 feet per second. The Triton Hi-Vel is rated at 1325 feet per second from short barrel pistols, and I recently chronographed it at more than 1450 feet per second out of the almost 5-inch barrel of one of my Berettas. This is ".357 Magnum country" in terms of potency. A pistol with 16 rounds of this 9mm, weighing the same as an eight-shot .45, is no contest for me: I'd go with the hot-loaded 9mm every time. (If you can't find Triton locally, we stock it at my place. Call toll-free (800) 624-9049 for catalog and ordering info. You'll need to mail or fax an ID card proving that you're at least 21.)

Alas, the 9mm choice presumes always being able to get the best ammo. A 9mm is very "cartridge dependent:" standard full metal jacket ("ball") ammo in that caliber is impotent for fighting determined opponents. If you may have to get ammo "where-ever," go .45. If you have enough ammo stockpiled for your needs, hot 9mm has an edge.

Many readers have been trained with the Beretta M9, known in commercial circles as the **Beretta Model 92**, which the US military adopted over a decade ago. Again, the gun you're trained and proven with is the gun to have. I know one guy who taught at Fort Benning whose "Y2K preparedness kit" includes two Beretta 9mms, one for each hip, in the same kind of holsters whose use he taught to soldiers.

The Beretta is a fine 9mm fighting pistol, but the **Glock**, the **SIG**, the Smith & Wesson, the old **Browning** and many others would also deliver noble service. With 9mm, remember, the trick is having enough of the right ammo on hand.

Points to consider. You'll hear or read people saying that you should have the Beretta 9mm because you can interchange ammo and magazines with military personnel. The same

argument used to come forth for having the 1911 .45. Excuse me, but I think someone has seen one too many reruns of "Night of the Living Dead." If you really think cops and soldiers are going to share their ammo with private citizens they don't know during a crisis, I would like to talk to you about buying some oceanfront property in Kansas City. The Beretta 9mm and Colt .45 are fine guns, but buy them for good reasons, not stupid ones. The same is true insofar as the thought that you should have a .38 or .357 like the cops had before, or a .40 caliber pistol like so many cops have now. The police aren't likely to share with you either.

Training

Don't just buy the handgun, train with it! The handgun is the most difficult of firearms to learn to shoot quickly and accurately. Scumbag criminals in gunfights (as opposed to murderers standing on top of their helpless victims) only hit the good guys they shoot at with 15% of their shots or less. Cops minimally trained in marksmanship will go 17% to 35% in hit potential. The cops on well-trained departments—a skill level I truly believe you can reach in home study—will go to 40% or better hit ratio per shot in real-world gunfights. The highly trained SWAT officers and graduates of private academies approach or exceed 80% hit potential with handguns in actual shootouts.

So get training and practice. Δ

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Salvaging CEMENT BLOCKS

the easy way

BY BILL LEONARD

There are millions of dollars worth of old concrete blocks all over the country, and they are ready for the garbage dump. You can get these blocks, hundreds of them at a whack, at a terrific price—in many cases free by merely salvaging them.

Next time you see an old shell of a building that has been burned or which has collapsed because of rot or storm damage, ask the owner what he will pay you to clear away the cement block walls so that the land can be used for something positive instead of serving as a home for vermin.

Odds are the owner will not fall for this line, but if he does, you have a super stack of building blocks at no cost, and you'll get paid to salvage them. Otherwise, he will probably accept an offer to let you clear away the shell in exchange for the blocks.

Remember, however: many building codes do not permit you to use used blocks as load-bearing walls in a residence. But you can in all likelihood use them in storage or outbuildings, tool sheds, and the like.

We built a tractor shed and a host of other outbuildings from used blocks, and we have been totally satisfied with them.

Here's how to salvage building blocks. Start at the top, unless there are extenuating circumstances. Begin by clearing away all the debris around the walls, then set up a ladder or scaffold alongside the wall.

If the wall is already broken, you can start in the center of the broken area. If the wall is solid, you will have to break the first block in order to get a work space cleared.

Don't worry about the first block. Use a heavy hammer and tap gently until the block either breaks into pieces or the mortar joints break. In the second event, you can save the block. You can also save most of the



1. When you start in the middle of a course, you can try to use the crowbar as shown above to break the blocks loose. Depending upon the kind of mortar used, you may be successful immediately.
2. Often the blocks will separate under gentle but increasingly firm pressure. When this happens, you can simply lift the blocks out as the mortar joints are broken.
3. Apply pressure at all points. In this course we went to the course below and started to break mortar and bed joints.

remaining blocks, although you can expect one or two to break in the salvaging process.

There are three or four basic ways to remove the blocks without breaking them. Try a chisel and crowbar first. Place the point of the chisel under one corner of the block and strike the end of the chisel with a hammer. Wear safety glasses, because the mortar dust and chips will fly in all directions. Wear gloves, too, as the mortar chips can cut your fingers or hands.

When you have chipped out a small opening, insert the point of a crowbar and pry by pushing down on the other end. Depending on how the mortar was mixed, the block will usually pop loose quickly and easily. Continue this process along the entire top course of the wall.

When you free a block, take care how you throw it to the ground. The blocks have great compression strength, but they are extremely fragile and will break if you drop them from a height onto a hard surface, such as well-packed soil.

You can also attack from the side of the blocks by using the hammer and chisel on the mortar joint that forms the "bed" or the bottom of the block. If there is a great deal of sand or lime in the mortar, the bond often breaks easily.

You can also use the end of a timber, such as a 4-x-4, as a sort of battering ram. Instead of battering the block, however, you thump it gently but solidly until the bond breaks.

Yet another way is to stand so that you can bend over the center of the wall, so that you can see straight down into it. The ribs of the block are not aligned, so there will be a bonding effect. Rest the fulcrum part of the crowbar on the rib nearest the block to be removed. Then push down on the curved end of the crowbar until the point of the other end presses against the end of the block to be removed.

Apply gentle pressure downward until the mortar joints break. A little

more pressure and the blocks pop loose.

Working in the manner listed above, you can take down an entire wall of a basement or house within a day or so. Keep in mind that you can salvage at least 30 blocks in an hour. If you had to pay \$2 or more each for the blocks, you can see how much you are actually earning for your work.

When you get the blocks home, it's time to start the cleaning process. This can be a very difficult or very easy job, depending upon the type of mortar used.

Try the easy way first. Use a chisel or the blade of an old and essentially worthless screwdriver. Place the point against the place where the mortar joins the block. Your best bet is a place where the mortar joint has cracked and broken. Tap the screwdriver or chisel gently and the mortar will often pop loose cleanly.

If the mortar is particularly stubborn, use a rock hammer on it. If you don't have a rock hammer, borrow or buy one. As much as you are saving on the blocks, you can afford the hammer.

Use the point to chop away at the mortar. Sometimes you will succeed only in pulverizing the mortar, but that's fine. All you are interested in is getting the mortar off the blocks.

The work can be discouragingly slow, but remember that you need not remove every vestige of mortar. Keep at it and, when you are finished, you will have a treasury of building materials that cost you nothing. Δ

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Parge the **UGLY** out of your CONCRETE WALL

BY BILL LEONARD

You can say a great deal in favor of cement block (or, if you prefer, concrete block) building. It's fairly fast, reasonably easy, particularly in small projects, and incredibly cheap if you are willing to scrounge a little and salvage the block.

But one thing you can't say about the traditional concrete blocks is that they are pretty. In fact, cement blocks,

unless you buy some of the decorative ones or paint the regular ones, can be, and often are, as ugly as a mud fence.

But, some of you are asking, what on earth is parging. Or you may prefer the "pargeting" spelling. It doesn't matter whether you pronounce it par-jay or parj. But for those of you who do not know, parging is simply the act of mixing a batch of mortar, then applying it to a wall of some sort. In this article that wall is the foundation

of a house, but you can do it for anything else you want covered.

You may also think of parging as applying a form of stucco to a wall. In fact, stucco, by definition in the modern sense, is mixing portland cement, lime, and water and applying it onto a wall for decorative purposes. In another context stucco is a fine plaster used to cover a wall.

What we are talking about here is covering ugly cement blocks so



1. Use a gloved hand to push the sand around the screen until the fine particles fall through the mesh and the larger particles are left on the screen. Discard the large particles. **2.** Use a trowel to smear the parget material over the surface of the dampened cement blocks. Lap over the final part of the wet mortar each time you apply another trowel-ful of mortar. **3.** Use a wet trowel to smooth the still damp surface. The thinner the mortar, the easier it is to get a smooth surface. You will be amazed at the difference that parging makes on the surface of the blocks and on the general appearance of the house.

they will have a more aesthetically pleasing look.

Here's a simple way to mix the plaster or stucco. Start with an 80-pound bag of portland cement, 70 pounds of masonry sand, an appropriate amount of water, and ambition. Now here's how you can cut your expenses slightly. Instead of buying the masonry sand, you can use sand dug from a creek bed or from alongside a country road.

Now you are ready to sift the sand, which should be dry when you start. We use an old screen that is fit for nothing else. We place the screen over a mortar pan (you can also use a wheelbarrow, plywood box, or whatever else will hold the mixture). Pour a small amount (10 pounds or so) onto the screen, then shake the screen gently back and forth until all the fine sand is sifted into the mortar box. You can also use your hand (if you wear gloves you save wear and tear on your flesh) and rub the sand back and forth until only the coarser materials are left. When you have a 70-pound batch of sifted sand, you are ready to dump in half a bag of the portland cement.

Rest assured that there is no magic in getting the weights or volumes down to the grain or the macro-ounce. If you are close, it will work pretty well. Mix by using a garden hoe and shovel, if you need one, until the sand and cement are well mixed.

Now add water. Start with a small amount and rake the mixture back and forth until the water is absorbed. Add more and more water and keep mixing until the mixture will absorb no more liquid. The final consistency should be such that if you turn the hoe blade to a diagonal position and pull it through the mixture, the cement should barely hold its form. In fact, you may want to add water (for the final work, at least) until the consistency is even more liquid.

To apply the mixture, you will need a hose with a nozzle on it (or you can use a small container for the purpose—this to be explained shortly)

and a trowel or two. If you will be covering huge spaces, you will cover more wall faster with a huge trowel. If you plan to do small and close work, where neatness is the most important consideration, use a small trowel.

When the mixture is ready, lay down some drop cloths (or, as we did, some old cardboard boxes laid edge to edge and pushed up against the wall). If you are working in an area where neatness is not a consideration, such as the wall of the underground part of a foundation wall where back-filling will occur later, you need not be too concerned about some dropped mortar.

When you are ready, spray a mist of water (or use a small bucket and splash water on the area to be parged) so that you have a small amount of dampness on the wall. Why? The explanation that is usually offered is that mortar forms a bond as moisture inside the blocks is pulled out as the moisture from the mortar is also pulled inward. If there is no moisture in the blocks, all the moisture from the mortar will be sucked into the blocks, leaving the mortar dry and crumbly before it can set fully.

Start at one corner or other boundary or limit of the wall. Be sure to wet the trowel before you start, just as you wet the mortar pan, the hoe, and the shovel before you begin the mixing. Hold the trowel upside down, scoop it into the mortar, and "load up" the backside of the trowel. Hold the trowel low, if you are starting at the bottom, and smear the mortar upward and finish the arc in front of your body and at a point two to three feet higher than the point where you started.

The next arc should overlap the previous, so there are no places left uncovered. As you apply the mortar, press inward with gentle pressure to force the mortar into the pores of the blocks.

If you did not sift your sand well (and some of the sand you buy at hardware stores has not been sifted properly) you will feel small pieces of

gravel rolling under the trowel, and you can see the path of the gravel because it leaves a small path through the mortar—an unsightly trail, at that.

If you are applying a scratch coat, you need not worry about keeping the surface smooth. If, however, the first coat is also the last coat, you will want a smooth surface. To achieve this smooth appearance, apply a thicker coat of mortar, then apply a thinner coat on top of the first application. You can even omit the second coat and simply dip your trowel into a bucket of water then smooth the parged surface with the dripping trowel.

Around windows, doors, and other interruptions in the wall line you need to use either a small trowel or great care and a steady hand. Mortar smears on unwanted surfaces should be cleaned before the mortar dries.

When you remove the drop cloth (or cardboard boxes) you will need to fill in the tiny spaces where the floor protector met the wall. For best results, work in small sections, wetting the smaller area then covering it before moving to another area and repeating the process.

Don't let the outside or fringe area of the first section dry before you lap it with fresh mortar. When you must stop for the night or for long periods of time, try to complete work to a corner or other wall interruption.

It is good to work under cloudy weather on hot days. If the temperature is extremely high, stop and spray or mist the covering of the wall periodically to prevent too-fast drying.

When you have finished work, or when you plan to stop for more than a half hour or so, rinse the shovel, trowel, and hoe to clean away all mortar. Clean the mortar box at the end of the day.

Be sure to take a picture of the area before and after the parget work. You'll be amazed at the appearance of the work area. Δ

Growing GOLDENSEAL

It's like having your own backwoods gold mine!

By Rev. J.D. Hooker

After some serious reflecting on recent market prices, and taking into consideration the most profitable types of marketable plants, along with suitability to our area and soil and the amount of labor involved, my wife and I decided to take up growing goldenseal as one of our primary cash crops. Back in 1900, a \$10,000 per acre, per year profit was possible growing this crop. Today, goldenseal root has been selling pretty steadily at around \$30 per pound for sometime, which isn't drastically different than the price offered for cultivated ginseng. The herb portion, which can be pretty abundant, has been selling for around \$3 a pound.

We decided to start with a half acre. I hope you'll bear in mind that raising goldenseal (or ginseng, or any other high-dollar herb crop) is not any sort of super-easy get-rich-quick scheme. But neither is it as complicated or difficult as many folks imagine. Once all of the initial start up work and expenses are out of the way, raising goldenseal represents nothing more than a relatively labor intensive, but very high profit, cash crop.

While growing requirements for goldenseal are pretty close to those of ginseng, goldenseal is a much more "forgiving" crop in many ways. It can stand up to, and improve with, moder-

ate fertilizer use (especially well rotted manure), where ginseng loses value when fertilized. We also considered the fact that the goldenseal herb (the above ground portion of the plant) can be harvested and sold every year, while the roots are still growing in both size and value. With ginseng, you're looking at a single harvest of roots once every three years or so.

A native of the deep woods, goldenseal's growing requirements are fairly strict. That is where all of your initial investments, and serious labor come into play. This crop requires well-drained, soft, friable soil of moderate fertility and medium pH. The soil needs to be kept fairly damp, but never soggy. Fairly dense shade is also needed for these plants to grow, as prolonged exposure to direct sunlight scorches and kills the plants quickly. They don't compete well with weeds or other plants, either.

With all of these requirements in mind, we decided that we'd probably do best by striving to mimic the methods used by the high-volume, high-profit commercial growers.

The first order of business was to build up some well-closed-in and well-drained raised beds. A good friend of mine owns a fiberglass fabricating and repair business down in Ft. Wayne. From him we obtained a free supply of used fiberglass bucket-truck booms, which were used to enclose the sides of the raised beds. Logs, lumber, rocks, cinderblocks, stacked pieces of broken concrete, and many other materials would have worked just as well, but we couldn't beat the price.



Next, we used a rototiller to mix large quantities of shredded leaves, rotted sawdust, composted grass clippings, and modest amounts of manure into the soil. We buried a section of perforated black plastic drain tile about a foot deep, right down the center of each raised bed, to ensure excellent drainage. We ordered a supply of goldenseal rootlets from Dalton Rorer for planting stock, then started putting up our shade structures. We kept re-rototilling these beds once a week to kill off any weeds that germinated prior to our planting.

While many sorts of naturally rot resistant wood (catalpa, osage, cedar) would have worked as well, we found slightly warped pressure treated landscaping timbers very inexpensively on sale at the nearby lumber yard. We used these as the uprights. We set one end of each timber into a posthole dug about two feet deep into the ground, then firmly packed the soil back into place around it.

Our next step was to enclose the east, west, and south sides, as well as the roof of the structure with some sort of shade-producing material. In many areas of Wisconsin it's common to see "Sang Sheds" with coverings fashioned of spaced plaster lathes, snow fencing, or thin saplings in a modified corn-crib manner. In our area, though, there is a hardwood sawmill with plenty of leftover "slabwood," and a hardwood molding manufacturer with large quantities of long strips of hardwood scrap, both of which are available free for the loading and hauling. Several pickup loads of this free "waste" material proved ideal for our purposes.

We used galvanized 7d nails to attach these strips, leaving about a one-inch space between them, which resulted in a nicely shaded interior.

Since we'd decided to begin initially by preparing half an acre, it could have been easy for us to have invested a few thousand dollars in these preparations. Instead, by utilizing so many readily available free materials, we cut

our out-of-pocket expenses by about 98%.

Once the goldenseal rootlets arrived, we packed them in dampened sand for 24 hours before planting. We planted them with the tops about an inch below the surface of the soil, spaced six inches apart, in rows eight inches apart. Most came up nicely within three weeks of planting. They may even give us a harvestable herb crop this year. With a mid-June planting date, that seems pretty good to me. After that, we can expect to harvest the herb portion of these plants near the end of the next two or three growing seasons, while at the same time providing ourselves with some seed for more plantings.

During the next years, new plants will keep popping up by themselves as the root network spreads out, until each shed is completely covered with bedding goldenseal. In the fall, once the growing season is over and the tops have died back, we will carefully dig up the roots with a spading fork. Then, after a careful washing, they'll be well dried in a shaded spot and prepared for shipment to the buyers.

At present, our plans are to plant an equally sized area each of the next three years. Hopefully, some will be with self-provided seed. We should be assured of having both a very valuable root crop and a reasonably profitable herb crop to market each year.

Even more so than with a vegetable garden, weed control—both through hand cultivation and through the use of rotted sawdust, shredded leaves, and other mulches—is a high priority with this crop, as is the occasional and judicious application of a fungicide when required. We've been using Daconil by Ortho. The damp and dark growing conditions that goldenseal requires naturally creates fungus problems. The over application of fungicide can create problems of its own, though, so use some caution and moderation here. Δ

RESOURCES

The following is a list of some of the markets and suppliers who I've found to be most helpful:

SEEDS AND/OR ROOTLETS FOR SALE:

Hsu's Ginseng Enterprises, P.O. Box 509, Wausau, WI 54402

Shumacher Enterprises, 1006 Hickory Street, Marathon, WI 54448

Ginseng, Flag Pond, TN 37657

The Homestead, 72799 Old 21, Kimbolton, OH 43749

Roots "O" Gold, Box 92, Le Center, MN 56057

White Crane Trading, 426 First Street, Jersey City, NJ 07302

Dalton Rorer, 6850 Hwy. 593, Calhoun, KY 42327

Heartland Herbs, 113 Whiteside, Columbia, IL 62236

Ankur Enterprises, 221 N. 152nd Ave, Marathon, WI 54448

HERB AND ROOT MARKETS:

Sharp's Roots and Herbs, 1409 Frank Phillips Blvd, Bartlesville, OK 74003

Hsu's Ginseng Enterprises (above)

Wilcox Natural Products, P.O. Box 391, Boone, NC 28607

Buncan's Fur, Hide and Root Company, 3080 Ramp Creek Rd, Bloomington, IN 47401

Culp's Root and Fur Company, 210 Hubbard, Great Bend, KS 67530

Dave Hicks, P.O. Box 90 Granville, NY 12832

Madison's, Box 116, 660 Water Street, Canneaut Lake, PA 16316

Roots "O" Gold (above)

White Crane Trading, 426 First Street, Jersey City, NJ 07302

Brake's Roots and Herbs, P.O. Box 443, Erin, TN 37061

Gruver's Trading Post, Rd#2 Box 218, Mayport, PA 16240

Lam Pun Partnership, 2906 St. Lawrence Ave, Reading, PA 19606

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Backwoods

July/Aug 1999

No 58

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Baby tips

Woman firefighter

The 2nd Amendment

THE HOME
WATER
SYSTEM



Publisher's Note

Win a complete set of original back issues

If you're interested in owning a complete set (at least up to this issue) of original back issues of *Backwoods Home Magazine*, we've initiated a drawing to give you the chance. We dug up a few complete sets that we had been saving for the next deep space probe and decided to give them away instead to a subscriber who has a three-year or better subscription.

If you have a current three-year or better subscription, you are eligible, or if you get a new three-year or better subscription you are eligible. The first drawing will be held July 15. We'll probably run the contest for the next several issues. Estimated value of the complete set is between \$290 (based on our back issue retail price of \$5 per issue) and \$10,000 (based on pie in the sky). The issues are in just-off-the-press condition.

Longer articles

We've always run some pretty long articles, especially by writers such as John Silveira and Richard Blunt, but this issue has the longest article we've ever printed—Michael Hackleman's 20-pager beginning on page 8. And it's only the first of two parts. Please let us know what you think of these in-depth articles. They obviously limit the number and variety of articles we can have in an issue, but they give us the ability to treat a particular subject in greater depth.

New bookstore hours

Our bookstore is now open six days a week, Monday through Saturday, from 9 am to 5 pm. We're not open Sunday. It's located at 29304 Ellensburg Ave., Gold Beach, Oregon. If you are coming to town for a visit, don't speed. The fuzz really enforces the 20 mph school zone near our office, the 30 mph speed zone in the rest of town, and the 55 mph zone on the highway.

Readers Forum

The Readers Forum on our web page (www.backwoodshome.com) is now the second most visited section of the site. There are dozens of conversations going on at the same time, and I've learned quite a bit from them. We couldn't begin to cover the wide variety of topics discussed on the Readers Forum. If you have a question about anything to do with self reliance, try asking it on the Readers Forum and



The Backwoods Home Magazine Panthers

you'll get a lot of answers. Many questions spark a debate that goes on for days.

Backwoods Home Magazine Panthers

We've sponsored our first athletic team—the *Backwoods Home Magazine Panthers*, or as my son, Robby, who is a team member, calls them—the *Backwoods Home Magazine Pancers*. This is a T-ball team, that is, the kids, ranging in age from 4 to 7, hit the ball off a plastic "T" at home plate. Every kid gets to bat each inning, and they don't keep score. Sounds boring to us big kids, but if you've never seen a T-ball game, you've missed one of life's greatest and funniest events.

Our thanks to the volunteer coaches, Greg Black and Holly Chase, for teaching the kids how to run the bases, bat, and pay attention to what's going on. It's no easy chore to keep these youngsters focused on such a complicated game, especially when there are so many daisies growing in the outfield, and so many moms and friends to wave at on the sidelines.

Sixth year anthology

We've added our new sixth year anthology to our "Best Book Deal Ever" special on page 3. That comes out to \$11.66 per anthology, which is a pretty low price. We currently have plenty of anthologies in stock.

My view

Why are we bombing Serbia?

Officially, the bombing of Serbia goes on for humanitarian reasons. In those words I hear the eerie echo of a news report from Peter Arnett, now of CNN, when he was a correspondent during the Vietnam conflict. Back then he reported that an unidentified Army officer explained to him that his unit had “destroyed the village in order to save it.”

But perhaps we are backing off the humanitarianism a bit. Recently the President amended his stance. He said the Balkans are where one world war started and we are there to prevent another. The Rhodes Scholar must have skipped class the day they taught what precipitated the Great War. It was started by outsiders who believed the strife that has existed in the Balkans for centuries was their business, so they chose to get involved. We are now following in their footsteps.

If Clinton seeks parallels to the World Wars, the bombing of the Chinese embassy in Belgrade is similar to the sinking of the Lusitania, an incident that helped drag the United States into WWI; the use of our latest hi-tech weapons against a country that can barely defend itself must remind those old enough to remember of the Germans testing their weapons in Spain before they set out to conquer the world in 1939. But neither Clinton nor his advisors are stupid. They probably know these things better than I do.

So why then are we really really bombing Serbia? No one I know buys the party line, not even loyal Clinton supporters. I took a small poll among my acquaintances and asked what they think. Here are the most common responses:

- to deflect attention from China’s pilfering of nuclear secrets, a charge that would already have toppled this administration if the press wasn’t so friendly to it.
- to draw attention away from Clinton’s philandering and possible criminal behavior with women.
- to quell the fears of the military-industrial complex that is afraid that unless it is exercised from time to time, it will be downsized.
- to appease the Muslims since we seem to always side with the Jews or Christians in any confrontation and, let’s face it, Muslims control most of the world’s oil.
- to create a legacy for a President who seems destined to have his name linked to a girl named Monica, a tobacco stick, and a stained dress.

None I questioned think we are there for humanitarian reasons or to avert WWII.

On a broader scale, national polls show the bombing is not popular with the American people. Almost half of all of Americans feel the air strikes are a failure, and 40 percent oppose getting involved in a ground war.

But despite the fact there is no broad public support for the bombing, there will be no Vietnam-style protests to end it. Students don’t have a vested interest this time. Because there is no draft, their lives will not be interrupted for this or any other war in which the United States has no business. It’s part of the reason we now have a professional military—to take the man on the street out of our military adventures. It’s the one enduring lesson Washington learned from Vietnam.

On the other hand, just as the American press had initially gobbled up the Washington line at the beginning of the Vietnam War (it was their guy in the White House who escalated that “conflict”), they are now swallowing the line that this is a “good war.” Will thousands have to die in the Balkans before the media has its epiphany and realizes this is just another bad war, started for vague moral reasons?

The consequences

If it is our new national policy to interfere in ethnic and racial rivalries, after Kosovo we can bomb Northern Ireland, Tibet, Iran, and half a dozen African countries. We can bomb Turkey, one of our NATO allies, for its slaughter of Kurds and Armenians and its invasion of Cyprus to expel the Greeks living there. We can turn the weapons of the 21st Century on every South American country for the sake of the native populations. Then China for human rights abuses. Then ourselves for forcing the Indians onto reservations. Let the bombs fall.

I know the Administration is telling us “we have right on our side.” But make no mistake, to the Serbs the United States and NATO are no more than interventionists and terrorists. And though today there may seem to be no risk from our interfering in the internal struggles of other countries, I predict one day some Serbian, Iraqi, or other “patriot” will strike back. Anthrax released from a plane over an American or European city or a black-market tactical nuclear device set off in some truck will be just payback for our foreign adventures. We can then share the experience of having one of our cities reduced to ashes or our streets littered with the dying and dead of a biological bomb, just as we have burned other cities and left the dead and dying in the streets of countries where we had no business.

Can we stop this carnage? My guess is we can’t. The problem is that we have yet another President immersing us in yet another unwinnable “war,” and Clinton can’t find a way out without embarrassing himself. Thousands are now going to have to die at U.S. (our) hands so we (Clinton) can save face, just as millions died in Vietnam while first Johnson, then Nixon, floundered around trying not to damage themselves politically.

In the meantime, the inhabitants of the Balkans will go on killing each other long after we leave until they reach a solution on their own. Δ

— John Silveira



The
WATER
SYSTEM

By Michael Hackleman

(This is the first of a two-part series)

Urban-dwellers rarely concern themselves with a water system. Getting water in a home or an apartment is usually a phone call, some paperwork, and a monthly bill away. In this case, the water is simply turned on by the local water company. Or it's already on, and only the name is changed for billing purposes. Rural dwellers may experience a similar process if the habitat is located in a water district, or a water system has already been developed and is fully operational.

What awaits the proud owner of an undeveloped piece of land? If you've got utility electricity available, the local chamber of commerce will probably point you at the local well drilling company. Thereafter, you need have no more to do with the process of developing a water system than writing checks for the hardware

and labor. If the raw land lies too far beyond the utility grid, you will go through the throes of information hunting and a myriad of confusing decisions that may or may not result in a satisfactory water system.

Left out in all of these scenarios is any real thought process that will result in a well designed water system. There are functions, processes, and materials in every system. Today, where utility power is available, there is a distinct prejudice toward the demand system, i.e., one using a submersible pump. Once informed, many people will choose a store system, i.e., one using a piston pump and tank. Which is better and why?

What sets the well-designed water system apart from others? Ease of use? Versatility? Functionalism? Efficient use of water and energy? The hallmark of a well-designed system is simple: it cannot be improved upon. You might find its equal but you can't find its better.

The lifeblood of a water system is the water itself. If it is to sustain you and perform the uses you will put it to, the water source must be carefully selected lest it become a source of concern. Water found in nature is "wild." Transforming it into a form that will satisfactorily do the things we ask of it requires energy. This is the system's heart. The system's energy source must also be selected so that the two, water and energy, merge in a hard-working symbiotic partnership that will demonstrate again and again how wise it was to expend the effort toward this end. Let's look at sources of water, sources of energy, and the components involved in processing water itself.

SOURCES OF WATER

There are many potential sources of water for use in the rural water system (Fig. 1). Among the more promising sources are streams, springs, ponds,

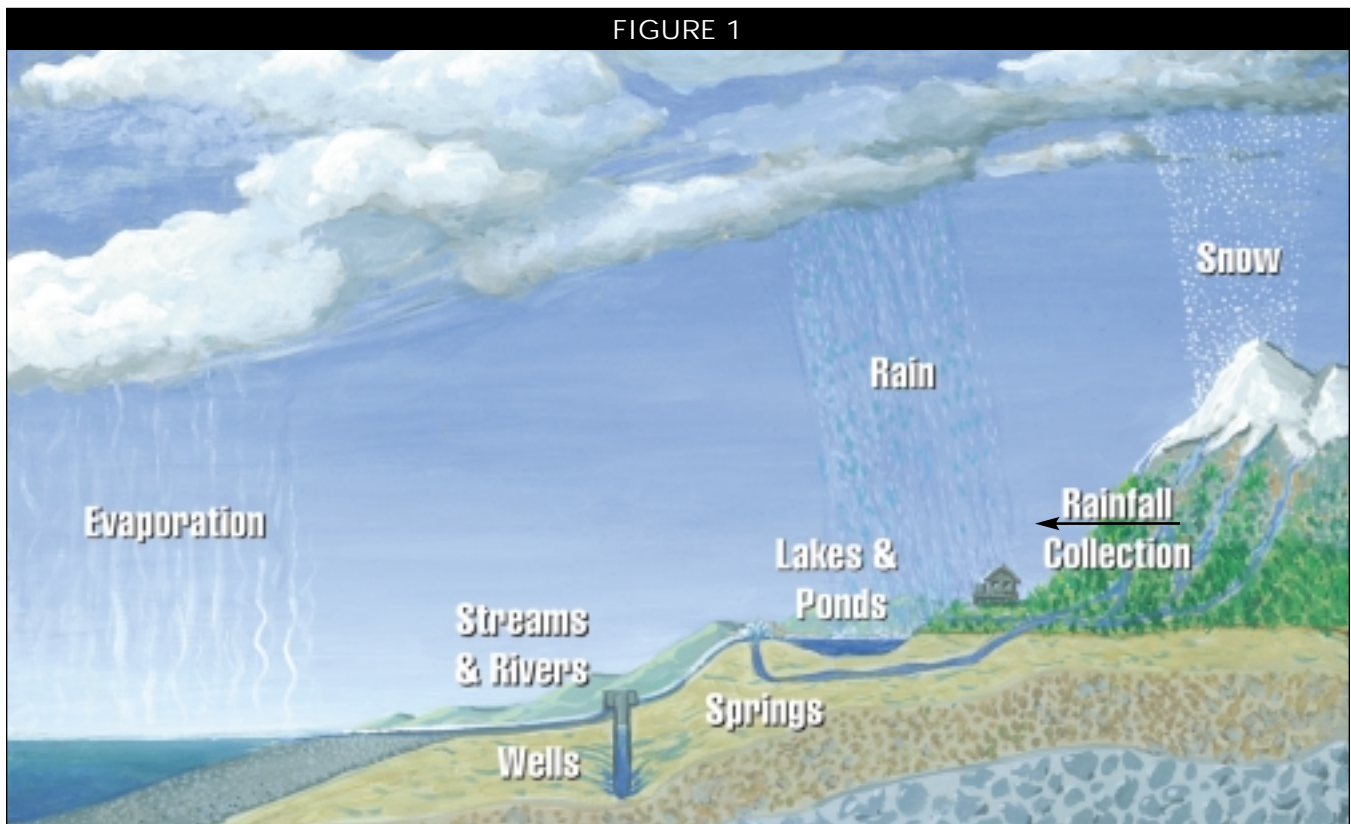


FIGURE 1

There are many potential sources of water.

FIGURE 2



A shallow well may be dug with a backhoe.

and wells. It is even possible to collect the falling rain.

Access is everything. Right off, some of these potential sources may be eliminated from the list; you either have them or you don't. Some sources can only be listed as "probables," particularly if there's no visual evidence of their presence. The extremes are interesting. It would be just as rare to find a piece of property that boasted all of these sources as one where none of them existed. So it's safe to start with the assumption that there is at least one source available to any piece of land and a strong possibility of more than one.

Each source of water is unique. But if it is to find a place as the source of water for a water system, it must pass a test. It's not difficult to list some of the questions we would be likely to ask of it. However, let's first look at some of the characteristics of each source that both define it and help distinguish it from the other sources.

Rivers and streams: Rivers and streams represent a good source of water. Streams tend to vary more in

flow rates, helping shed immediate rainfall, whereas rivers typically display a delayed runoff of rain and are fed by a seasonal release of water locked in snowcaps or glaciers.

All rivers have their birth as streams and creeks, so size is the basic difference between a stream and a river. The sheer number of streams needed to supply one river indicates the higher probability of finding a stream on a piece of land than a river.

Springs: Springs are magical water flows from the ground, in a trickle or a copious flow of unusual clarity and purity. The actual source of the water varies. It may be the reemergence of a stream that has gone underground. Quite often a seasonal stream is only a portion of an underground run of water that, because of sheer capacity, sometimes shows itself aboveground as overflow. Springs may also be the result of a tear in the fabric of the water table itself, when internal pressure "bleeds off" the excess water. In particularly dry regions, the water in some springs may come from a very great depth.

Lakes and ponds: The flow of water in a river or stream may be temporarily interrupted by large depressions in the ground which must be filled before the journey is again resumed. If it's a big depression, we call it a lake; a smaller one is simply a pond.

Sometimes a lake or, more frequently, a pond is not supplied just by a stream or river. In fact, it may receive a major portion of its water from a spring. There are a number of ways to determine whether this is the case. If a pond is one of several water sources available to you, you may want to defer some decisions until you've positively established the pond's true source of water.

Shallow wells: So far the discussion has centered on natural water sources (although it is possible to build a lake or pond). However, if the water is not so readily accessible, a

shallow well is one way to get at it, particularly if you know it is just below ground level. And while a shallow well can be dug with machinery, it also can be hand dug. Traditionally, a shallow well may be 3 to 4 feet in diameter (**Fig. 2**). Because of the extreme danger to the digger in the event of a cave-in, these wells are limited to a maximum depth of 25 to 30 feet.

Deep well: A deep well may be needed to reach groundwater. The range extends, for our purposes, from 25 feet to several hundreds of feet. Wells to several thousands of feet are not uncommon, but at the going rate few private individuals could afford to drill to such depths.

The diameter of the hole that's drilled to reach water is as varied as the depths to which one might need to drill to reach water. Naturally, the larger the hole, the higher the cost. But while small and large holes alike can reach water, the difficulty of extracting it (or housing the equipment designed to do this) increases significantly as the diameter drops below 6 inches. A compromise is indicated. It will be easier to find the optimum diameter once a water-extraction system is selected and size of the equipment available from local well-drillers is determined.

Rainfall: Precipitation initially supplies the water for streams, rivers, lakes, ponds, springs, and wells. However, in whatever form—rain, snow, hail, sleet, or condensation—rainfall is a potential source of water in itself.

A clue to the means whereby rainfall can be tapped as a water source is supplied by nature. Streams and rivers, at the persistent urging of gravity, channel the runoff from rainfall to lower elevations. Damming one of these sluices is, in effect, a means of rainfall collection. Another crude but inexpensive way to duplicate this effect is to dig a trench across a slope in the path

of runoff, terminating the lower side in some type of storage.

Serious collectors of rainfall are both practical and innovative, merely channeling rain shed by rooftops and their edge-mounted gutters into storage such as a cistern for later use. A surprisingly small amount of roof area will yield thousands of gallons of very clean water each year (**Fig. 3**). Rainfall measurements are taken by a number of agencies and records extend back for fifty years or more. Using these figures and allowing for a 20 to 30 percent loss due to splashing, overflow, and initial washdown of the rooftop, a remarkably accurate determination of capacity may be assessed for any rooftop.

Combining sources: There is a strong tendency in the United States for individuals to establish one strong source of water at a particular site and, damn the expense, set up the entire water system around it. This approach to water-system design is understandable. However, many areas don't experience such hardy water sources. And where they exist, the supply diminishes as populations expand and the use of water increases.

Given the diminishing availability of pure water sources, the notion of "one source, one system" becomes both foolish and dangerous. It's foolish because most situations have access to at least two water sources. It's dangerous because single-source systems are inherently vulnerable to the possibility, however remote, that the source will dry up. Even a temporary stoppage can be trouble for a system that has made no provisions for such an event.

Evaluating sources

Each source of water has inherent qualities and limitations. Decide which is an advantage or disadvantage to you.

Access: Access implies on-site presence. While much may be hidden

from the eyes, if you don't have it, you don't have it. Relative to streams, ponds, and springs, a walk of the land will quickly reveal whether they're there or not. If they are, list them as probables. The same goes for any source that is intermittent, such as seasonal streams. However, don't confuse "don't know" with "definitely not." For most properties, the evaluation of this single criterion access will cut the list of possible water sources in half.

Ease of development: On a scale of one to ten, make a preliminary evaluation of the relative ease or difficulty of developing any probable water sources. In a way, this is an availability rating. If you can walk right over and scoop it up, it gets a high rating. If you don't know, give it a question mark.

Water and the law: Access to, and availability of, water is not equivalent to the legal right to use it. Just because a stream flows through your property does not mean that you can take any of it for any purpose you wish. In some instances it may be permissible to take the water for household use or for a small garden, while other usages such as irrigation of fields, watering of livestock, and power production may be prohibited. In some places, this may even apply to a spring that starts on your own but that passes over the property line.

Legal use of water is defined as "riparian," "appropriative," or both. The first acknowledges the need to share water, and the second is "first come, first served." It's beyond the scope of this article to cover all of the possibilities in sufficient detail. But it's up to you to fend for yourself. Water rights are not always clearly designated in the property deed, nor are they automatically part of the title search that commences once a property is in escrow. Little wonder, then, that people buy a piece of land only to discover sometime after the sale that their right to the water on their land is

FIGURE 3: Net yield of water for cisterns per square foot of catchment area

Minimum annual rainfall (inches)	Water yield per sq. ft.* (gallons)
10	4.2
15	6.3
20	8.3
25	10.5
30	12.5
35	14.6
40	16.7
45	18.8
50	20.8

* Adjusted for 30% water loss due to leakage, splash, roof washdown, and evaporation

Rooftop rain collection is used worldwide.

restricted or prohibited. For this reason, any property that has an unusual abundance of water that has not been developed should be treated as suspect in this matter. If you want to make some use of the water, make its legal use part of your conditions of sale, or keep on looking.

Contamination: All surface waters are subject to pollution. Airborne pollutants brought down by the rain. Fecal matter from animal stock, camper owners, and improperly installed and maintained septic systems. Minerals washed from tailings (the material left over from mining operations). Logging. Roads. Landscaping projects. And others. The probability of contamination is higher with each passing mile.

Lakes and ponds are in the same predicament as the rivers and streams that feed them. However, unlike their nomadic cousins, their still waters are not always able to pass the problem on downstream somewhere. Instead, the suspended material precipitates and coats the bottom. Left undisturbed, the polluted material is quickly covered by other suspended material. However, if the inrush of water feeding the pond or lake normally stirs up

the sedimentary layers, watch out. Those who harvest the rich silt from seasonal ponds should take note. They may get much more than they bargain for.

Springs and wells are least affected by contamination, even though their water percolates down through the soil from the surface. The soil itself is an excellent filter. In fact, the water doesn't have to go very far at all. With some soil types, a few feet is sufficient to remove most of the contaminants. For this reason, water from springs and wells is some of the purest available. However, this water is also exposed to mineral deposits, and other substances. Their concentration in the water may exceed levels acceptable for human consumption.

Collected rainfall is also quite pure. The first few minutes of rainfall should purge the air through which it passes of contaminants. Furthermore, this same water will flush the actual collection system (a rooftop?) of any other particulates. But, while this

source altogether bypasses the type of exposure experienced by streams, rivers, ponds, lakes, springs, and wells, it is also devoid of the beneficial trace elements found in these sources. If used as the only source of drinking water, its sterility actually could be unhealthy.

These are relative indicators. Until proved otherwise, water from any source should be considered suspect and tested. If need be, it should be treated for the presence and relative concentration of a host of elements, minerals, pollutants, and bacteria.

Any source of water exposed to the open air may also be contaminated by nuclear fallout. Whether it's from testing or an actual war or the failure of a nearby nuclear power plant, the effect is the same. Naturally, rivers, lakes, streams, and ponds are easily contaminated by fallout. Again, springs and wells are the least affected. However, a big part of this is "cover." An open spring box, open storage of well water, and a rooftop system for rain-

fall collection defeats the natural protection of these sources from contamination.

Proximity to usage: A potential water source should be rated according to its distance from the point where the water is needed. This evaluation assumes that the building site has already been established. If it has not, pick some "possibilities" and evaluate the potential sources accordingly. Precise distances are not required. A simple comparison between two or more sources is sufficient for now. In the final analysis, it's conceivable that developing a less accessible source closer at hand may be preferable to the cost or relative difficulty of transporting water from a readily available water source.

Elevation: The elevation of each water source relative to the usage site should be noted. It takes energy to move water. If the water can move itself via gravity flow, all the better. So, higher ratings go to sources that are higher than the usage site. This is

SIDEBAR A: MEASURING A WATER SOURCE'S CAPACITY

Measuring capacity is rarely a difficult task. However, such a measurement represents an instantaneous reading. Measure it later—by the hour, day, week, month, half year, or year—and you're likely to come up with as many different values as the actual number of readings taken. Why?

Simply stated, capacity varies. Rainfall, snowpack, seasons, drought, or unusually wet periods influence capacity. So do earthquakes, evaporation, seepage, increased usage, and higher population densities. No water source is exempt from the effects of some of these conditions. Minor fluctuations are of no concern. The variance in the readings one will obtain from any one source over a period of

time, however, is evidence enough that we're not talking about insignificant differences.

If we took the readings at regular intervals over the span of a year, we'd know both the minimum and maximum values of capacity. A fail-safe tactic then, is to build your system based on the lowest figure obtained. Another tack—basing your system on a capacity figure halfway between the minimum and maximum readings—makes more sense, but it introduces an element of risk. Voluntary conservation may be needed during the drier portions of the year. A saner and safer course might be to select a rating closer to the minimum and between one fourth and one third the maximum.

It is impractical to wait long enough to take readings over a peri-

od of a year just to obtain figures and then extrapolate a reasonable design capacity. A faster means of obtaining a sound answer is to discover exactly what factors are responsible for the variance in the capacity of any water source. This has a fourfold effect. One, it helps select the best time to take the reading. Two, it indicates what can affect the accuracy of the reading. Three, it permits adjustment of the reading to a figure useful in system design. And four, it indicates what can affect the specific source(s) you use. This assures a quick response to a crisis and implementation of conservation techniques or alternate water sources. It beats waiting until the effect is felt and it's too late. A fish has no exclusive claim to being stranded high and dry.

relative. A high-elevation water source that is too far away, is not in line of sight, or is traversed with gullies or other inhospitable terrain is less appealing. Approximate these elevations above or below the level of the usage site.

Capacity: Any water source has a capacity. This refers to the maximum amount of water it will deliver under any condition. It's usually described in some convenient term such as gallons per minute (gpm) or gallons per hour (gph). Depending on the source in question, there is always some means of approximating or measuring the source's capacity (**Sidebar A**). Let's look at the factors that may affect the capacity of the water source. This includes the measurement, usage, evaporation, seasonal variation, rainfall, and other factors.

The measurement. Always choose as large a time frame as permissible—anything timed in seconds, or portions thereof, includes a larger degree of possible error than something timed for half a minute or more. Then, no matter what pains you took to do it right, repeat the measurement. An accurate reading is a repeatable one.

Usage. A variance in capacity may be attributable to a variance in the use of the water. How many times have you heard someone claim that there's less water available during the summer than in the middle of winter? There are other factors that affect this, but one that's frequently forgotten is that there's a greater need for water in the summer for cool showers, the watering of orchards and gardens and such than in winter. This doesn't constitute a real change in capacity, but it sure feels like one.

An influx of new residents in the immediate vicinity will inevitably bring about a greater usage of water, decreasing the supply of some sources. Or there may be very little change. Even a new well or spring development nearby will not necessar-

SIDEBAR B: LOSSES DUE TO EVAPORATION

Under the worst possible conditions—very dry air, lots of wind, a hot and sunny day—the amount of water lost to evaporation is actually measurable. To see this, find a pond and stick a ruler in the mud. Take a reading in the morning of a high-evaporation day and another that evening. I've measured a ¼-inch loss in one day strictly from evaporation. (This test assumes that no other water is being taken from the pond.) With a big pond, it adds up quickly. For example, with a circular pond 50 feet across, a ¼-inch drop adds up to 306 gallons lost per day. That's 2,140 gallons a week—in one month, 9200 gallons sucked up by evaporation. It doesn't take many months to dry up a pond at that rate.

ily tap your own supply. At worst, the water table may drop and a stream dry up. Depending on the types of water rights in your area, you may or may not be able to do something about it. More drilled wells in the immediate area will inevitably lower the water table further, and your well could dry up. Unfortunately, subsurface water is not nearly so well protected in a legal sense as streams or rivers may be. The difficulty of proving that any specific well is responsible for the loss of others is obvious.

If you are still in the developing stage, this might be a case against a spring or well development. Is there a potential for a lot of new wells or a few high-consuming wells (as for industry or business) in the vicinity in the years ahead? Naturally, the smaller the parcel of land, the higher the probability of some effect from a neighboring well near the property line. Sitting snugly in the middle of even a piddling forty acres is buffer enough against interference in most instances.

Evaporation. Water left standing in the open will be sucked up by the air as water vapor. This is called evaporation. The rate at which water evaporates depends on the dryness of the air, the temperature of the ambient air and water, the amount of water exposed (the surface area), and the amount of air movement (wind speed). If this is the source for a water system or the storage for water taken

from other sources, evaporation must be taken into account in estimating its capacity (**Sidebar B**).

Water standing in spring boxes, wells, covered tanks, or cisterns (closed reservoirs) also experiences some losses due to evaporation. However, since less air is in contact with the water under these conditions, smaller losses are incurred.

Spring and stream-fed ponds and reservoirs may show little capacity variance due to evaporation losses, as these may be offset by input. On the other hand, ponds or reservoirs that are filled by a seasonal stream must hold their own against losses other than normal use, such as evaporation or seepage. In these cases, evaporation becomes a critical factor.

There's little one can do about evaporation from an existing pond. A new pond, on the other hand, can be designed to minimize losses. Start with the pond's shape. It should be relatively deep in proportion to its surface area. Retaining the volume but halving the surface area will halve the evaporation losses.

A second tactic is to site the pond out of the direct rays of the sun. Taking advantage of shade trees or natural shading from hills will help. Know the sun's path through the sky during the summer months. If natural shade is not available, build it. If it's too expensive to shade the reservoir altogether, erect a structure that will

shade the water for at least a portion of the day.

If nothing else, knowing the effect of evaporation should indicate the futility in simply damming up a section of a creek in the merry belief that this is an automatic guarantee of water through the hot summer. And, as the levels sink, you won't be lured into an assumption that it's "seeping away" and throw more money into solving that problem. Of course, you could be losing water both ways—to evaporation and seepage—but each inflicts losses that no conservation techniques will dent.

Seasonal variation. A dry creekbed in the middle of summer may be a raging stream during winter. Measuring the level of water in a well will invariably lead to higher readings in the dead of winter than those taken in the fall. That comes as no surprise to most people. Winter may bring cold and misery, but it also brings precipitation. In the form of sleet, rain, hail, or snow, it's still water. And as the water makes its way over and into the land, the water table rises, the creeks begin to flow or flow more profusely, and ponds fill.

Any measurement of capacity must take into account the season in which it's taken. A water system designed around a reading taken at the end of summer is never going to want for water. A system based on a reading in the spring of the year may find itself in trouble by summer's end.

How much difference will exist between the two readings? Unfortunately, it's too situational to generalize. The capacity rating used for system design will probably be something below the average of these two readings.

Fortunately, we don't always have to be exact with these figures. It is helpful to have some numbers for system design, but we must not lose sight of the fact that capacity does vary. Inevitably that means that sometimes there will be too much water and at

other times too little. A good system can easily handle the rare instances where there's too little source capacity. It's a versatile system that is able to make use of the instances where there's "extra" water.

One limitation of end-of-summer capacity measurements is that the source may have just temporarily run out of water. An otherwise good source of water may be hidden. Don't be put off by a really low reading. Besides the fact that it's the reliability of the source that's important, take some consolation in the fact that the reading you've obtained probably represents the lowest it will ever be.

Rainfall. While winter is normally characterized by an abundance of water and summer by a lack of it, rainfall occurs in varying amounts throughout the year. So rainfall at other than seasonal times is a bonus and its absence a penalty to some water sources. Few water sources will note a measurable difference in capacity from a light rain, even if it's over a period of several days. If the rain is heavy, however brief it may be, the ground may not absorb it rapidly enough and runoff will occur. In this event, even seasonal streams may flow and ponds will fill.

This event should be treated solely as a bonus to a system—if it's able to capture it. This bonus will permit an extra ration to the garden and a long shower for yourself. However, no system should be designed around such a chance occurrence. Accordingly, whenever a measurement of capacity is taken after any such freak event, the reading must be adjusted accordingly.

Cloudbursts and heavy rainfall runoff may be considered for their water potential, in addition to a system's own reliable water source, if they occur often but aren't predictable enough to depend on. Here the gain must be weighed against the cost of establishing some means of collection, and possibly storage, of the runoff.

Since heavy runoff is characterized by turbidity (suspended particles like silt, organic materials, etc.), a secondary storage setup is recommended, even if it's only temporary. This recognizes that while filters to eliminate water turbidity do exist, the best overall means of controlling this condition is to let the water "pool." Once immobilized, the suspended particles will simply settle to the bottom of the holding tank.

Springs and wells are unlikely to experience any immediate increase in capacity due to rainfall. If the rainfall is short-lived and comes down hard, there will be no increase, since the water will escape along the surface. A long, slow rainfall will raise the water table, but it will take time for the water to reach it through the earth. Any measurements from either a spring or well that are taken a few days to a few weeks after a long, steady rainfall may affect a capacity measurement. The reading should be adjusted accordingly.

Other factors. Other factors will affect either capacity or our measurement of it—earth tremors, leaks in the system, etc. The intermittent nature of any wildly fluctuating water source motivates people to seek other, more reliable sources. But in the cost/benefit ratio taking into account such factors as dollars, time, skills, knowledge, reliability, simplicity don't rule out extensive or occasional use of variable capacity sources. No source is a guaranteed, long-term thing.

Fortunately, anything that might affect capacity only influences some of the potential water sources at any given site. Therefore a multiple source water supply is preferable to one seemingly strong source. If nothing else, permit options in the final design and sketch out a few details for connecting up to an alternative source should you need to. A preplanned course of action in an emergency is a whole lot better than merely reacting to the situation.

Specific uses: We'd all prefer to have grade AA water or better, but with the sources available to us that may not be possible. Water purification beyond some token filtering is costly, complex, and difficult to maintain, and should always be avoided. Too often a water source that's only slightly tainted is crossed off the list in favor of one that delivers purer water at a significantly higher cost in development, transportation, or complexity.

A large part of the difficulty in this thought stems from a tradition lumping all of our water uses together as needful of the same level of water purity. That is, we demand drinking water quality in the toilet!

Understandably, we will want a high level of purity in water used for drinking, cooking, dishwashing, bathing, and some gardening. Other needs—agricultural, watering stock animals, washing clothes, treating sewage, watering lawns, washing cars, storage in case of fire, and so on, do not require perfect water. The two groups overlap and may even be separated into other “shades” of water purity. Only the ready availability of pure water has prevented more extensive implementation of “graywater” systems.

Other than the cultural stigma attached to graywater use, the main objection to multiple uses of water has been the need for duplication of pipe runs and sufficient planning to ensure that the various levels of water do not unwittingly merge. For existing systems requiring retrofits, the objection is valid. However, for new systems the cost of the extra material and designwork is very competitive with the higher need for water and the energy required to pump it from supply to use. Since pure water sources are decreasing and the cost of energy is increasing, a system that favors low water use (characteristic of multiple use systems) also uses less energy.

Cost: So many of us have taken water for granted so long that when it

comes time to shell out some money for a water system, we're shocked at the cost—we might be talking about thousands of dollars! Striving to keep the costs to a minimum is natural, and any system should be cost effective. However, it's unwise to concentrate too long or heavily on cost right away. Otherwise, we end up letting this factor lead us through the myriad of decisions, and down the line we end up paying for it in some other way. Maybe the ultimate cost will be too high in intangibles—dissatisfaction, for example, or time and worry, adjustments in lifestyle, a lack of versatility in the system. Sometimes, though, we're talking about hard cash repairs, refits, modifications for every little new thing that's added to the system, extraordinary maintenance, the cost of consumable materials such as filters and chemicals, those monthly energy bills, etc. Rarely do our troubles stem from ignorance; too often, we know these things exist. If we had the power really to minimize them as effectively as we're able to convince ourselves of their supposedly minimal effect, we'd have something.

Good design can significantly reduce the impact of the initial cash outlay for a system. For example, an honest appraisal of what's needed right now and what can wait until later gets things going with a reduced cash outflow. Planned “add on” always costs less than modifications that weren't anticipated from the start. Another merit of this approach is that it permits a “weathering” of the system. Changes do occur, so the water system you design may have a different feel once you start living on your land a year from now. People change, situations change, and both affect the system. A wise course of action takes that into account. Design it, build the portion you can afford, and build in sufficient leeway for changes as they're needed or when you will have the money. You get what you pay for. Remember: the bitterness of poor

quality is remembered long after the sweetness of low cost is forgotten.

ENERGY SOURCES

As with anything that has weight, if we want to move water from one place to another we must use energy to do it. Individual water systems have individual energy needs. Very few are lucky enough to require “no” energy, and some are unlucky enough to require energy at every step—extraction, transport, pressurization, and storage. Water that required one or more of these steps to be converted from standing water into useful form for household or farm use is said to be processed.

Let's look at the variety of energy sources that may be set to work processing water.

Gravity: Whenever and wherever water is high enough to let gravity do all the work, let it. Sometimes, even when it isn't high enough, it pays to go out of your way to give it this potential for the benefits it yields over the energy expended in the effort. More on this later.

Human muscle power: Water may be processed by human power. This takes two forms. One is through use of the bucket, where a person scoops up the water and walks from the water source to the point of usage. At the rate most families use water today, this would prove labor intensive. However, the idea has some merit, and should not be rejected outright. The initial investment is small (one bucket) and the exercise alone should keep anyone fit.

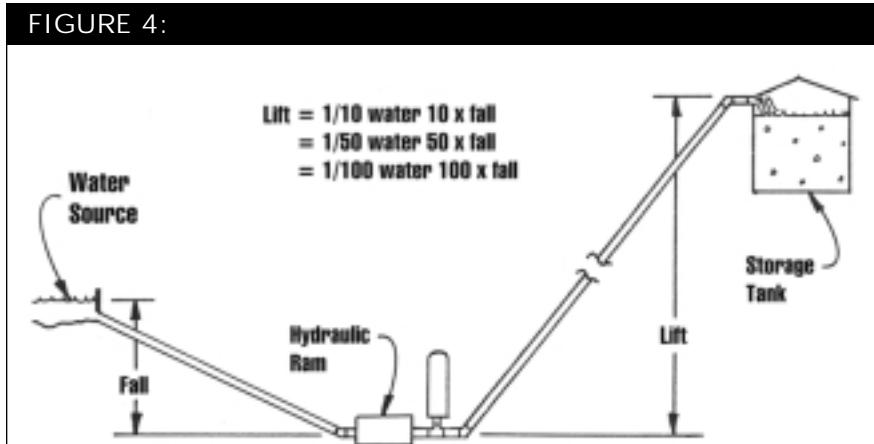
Human power can also transport water through the use of a pump. The hand operated pump standard has been around for a long time, and it's guaranteed to give you strong arm muscles along with the water. A variation on the theme is a pedal-powered water pump. Legs are more powerful than arms, and through suitable linkage the leg muscles may be put to work

pumping water. Admittedly, for all that pedaling the scenery doesn't change much, but at 100 gallons to the "mile," who's complaining?

Animal power: Prior to the use of fossil fuels, physical labor beyond the capacity of the ordinary man or woman was done by beasts of burden such as horses, oxen, or goats. This is still a good possibility for pumping water wherever any of these animals have been reintroduced to the farm or homestead. However, considering the amount of feed these critters can consume, centering any water system totally around animal power is a doubtful possibility.

Fossil fuels: Another popular energy source for processing water is fossil fuels. Initially only oil was available. Its use was limited to centralized facilities where oil burning turbines drove generators, producing electricity that was, in turn, transported over wires to the usage site. Once there, the electricity could power electric motors that would supply the needed mechanical motion to operate pumps of various types. Fossil fuels in the guise of utility-supplied electricity are probably the number one source of energy for water systems in the U.S.A. today. High density fuels—propane, diesel, kerosene, and gasoline—derived from fossil fuels may also be purchased for engines powering onsite water processing equipment. However, the cost and noise factors usually limit this usage to backup systems for use only during emergencies when the primary system isn't functioning.

Waterpower: Moving water is also an energy source, whether it's a river or a waterfall. Either way, this energy may be captured by a variety of novel mechanical or electrical devices. In turn, these will pump a portion of this water (or water from another water source) to places far away or higher up anywhere the water would not flow of its own accord.



The hydraulic ram is a water-powered water pump.

The simplest device available is the hydraulic ram (**Fig. 4**), which uses the energy of water to pump a small portion of the water to a higher point. Theoretically, the hydraulic ram will pump 1/10 of the water 10 times as high as the waterfall, 1/100 of the water 100 times as high, and so on. Pump inefficiencies reduce this amount somewhat. If a landowner has access to a river but either has no legal right to use any of its water or chooses not to, the dual-acting hydraulic ram is useful. It uses the energy of the river's water to pump water from another source such as a spring or well to the appropriate place.

Waterwheels and turbines will also pump water directly. More often, however, they are connected to other devices that supply mechanical energy or, in the case of generators, electrical energy.

Natural gas: The decomposition of organic materials under certain environmental conditions produces natural gas. At the utility company level, this gas is often processed to produce propane, which has a higher energy yield per cubic foot than natural gas and is easier to liquefy.

Back on the farm, natural gas may be produced from animal or agricultural waste in a digester. Methane (CH₄) is the desired end product, but it is produced in company with other

gases and substances. In this mix, it's called bio-gas. Detectable amounts of bio-gas may be produced from a remarkably small amount of organic material. For application in a water system, sufficient bio-gas must be produced to power a small internal combustion engine. This in turn can operate a water-pumping mechanism or produce the electricity to power a motor that will drive a pump. This requires an enormous amount of animal or agricultural waste. Nevertheless, where the right conditions exist, the production of bio-gas is a viable alternative to on-site energy sources for small, engine-driven water pumping functions.

Wind power: Another major source of energy for water processing systems is the wind. Here, one of several types of wind machines extracts the wind's energy and converts it into the mechanical motion needed to work a water pump. If there's a problem with this setup, another type of wind machine can be used to produce electricity to power a motor connected to a water pump. As far back in recorded history as you'd care to go, wind has been harnessed to pump water. In some areas the wind is both constant and strong enough to guarantee water processing around the clock, but this is rare. Any system that uses the wind's energy for water extraction and

transport must be equipped with sufficient storage to satisfy demand during periods of low or no wind.

In the 1800s there was a definite need for water pumping in very remote areas for livestock and agriculture. To meet this need, private companies developed wind machines that were simple, rugged, and virtually maintenance-free. Even the later introduction of electrically powered motors and oil, kerosene, or gasoline engines could not stem this industry. After the initial investment, there is no further operational cost with a wind machine. Closer to the farmhouse, these wind machines did yield to the high capacity electrical pumps. The mere presence of the old towers and windmachines today is proof enough that the farmer or rancher wasn't inclined to let them go altogether. Even in disuse, these reliable machines are hard to part with.

Selecting energy source

Each potential energy source—gravity, muscle power (human or animal), fossil fuels, natural gas, water, or wind—should be evaluated in terms of energy needs, reliability, availability, access, independence, complexity, and cost (initial and ongoing). If you have no prejudice in the matter, this becomes a straightforward process of elimination, followed by a simple choice if more than one source emerges unscathed. If you do have preferences (most of us do), this process may help you select a secondary, or backup, energy source. Is that necessary? Judge for yourself.

Energy needs: A prime factor in selecting an energy source is its ability to handle our system's needs in processing water. Irrespective of how much that amounts to, you want to keep this to a minimum. A system's need for energy is ongoing. Since energy in any form costs something,

both dollars and "sense" dictate using as little as possible.

Now is as good a time as any to introduce the Concept of TANSTAAFL. That's short for "There ain't no such thing as a free lunch." Don't expect something for nothing. No energy source is free. What about gravity? True, gravity is everywhere. Yet, if the water source on the property is too low relative to the usage site, you can't put gravity to work unless you first expend some other form of energy to lift the water high enough for gravity to take over. If your site doesn't permit you to take direct advantage of gravitational energy, one fact emerges: you have a lot more energy sources to choose from if you can keep the system's energy requirements very low. Water pumping wind machines, for example, will suffice even in areas of very low wind. They're designed to operate at low wind speeds. This advantage is lost in energy intensive systems, as would be the case with muscle power, methane, and small scale waterpower developments. All too quickly, energy sources available onsite are lost in the "big energy" shuffle.

Reliability: Reliability is, first and foremost, not having to worry about the system. Open a faucet and you should get water. If the storage tank is low, either it is filled automatically or, through a monitor, you are informed when refilling is needed. Reliability is also continuance. Everything wears out sooner or later, but frequent breakdowns are a symptom of a problem.

Reliability doesn't just happen. If this factor isn't built into the system in both its design and equipment, it's doubtful that it will be exhibited during operation. How do you design for reliability? That's easy—follow the kiss principle: Keep It Simple, Silly! A system is no better than its smallest or weakest part. If you skimp on any aspect of the system, it's going to get you.

Reliability is increased as the number of energy conversions and transfers involved between the prime mover (energy source) and the application decreases.

Let's compare two systems. In System A, a water pumping wind machine converts the wind's energy to mechanical energy (rotary motion) and then into a reciprocating action (up and down motion) which, via a long rod, works the water pump. This amounts to one energy conversion and two simple energy transfers. In System B, the water system is based on a submersible pump powered with utility supplied electricity. How many steps are involved? Since most of this electricity comes from oil or coal burning power plants, the coal or oil must be found, extracted, processed, transported to the power plant, and burned. The resultant heat produces steam, which drives turbines coupled to electrical generators. The manufactured electricity travels through power lines to your land, where it drives an electric motor which in turn operates a pump. That's six energy conversions and four energy transfers.

Now, I ask you which system, A or B, is likely to be more reliable?

Availability: Availability has a time frame. What has been available in the past and is now may not be available in the future. Many people don't like to think about that—it smacks of doomsday—but there's no avoiding it. The world is running out of oil, natural gas, and coal. The experts may not agree on when our supplies of these natural resources will be exhausted, but it will happen. This is the time of plenty, and chances are pretty good that it won't happen in our lifetime. However, long before the fuels run out, the ripples of the shortage will make themselves felt.

Independence: An offshoot of availability is a personal decision involving independence. However gregarious we are, most of us would like to gain control of our individual

lives. The convenience of utility supplied electricity, then, might be shunned for the independence to be gained by using available on-site energy sources to which no meters are attached.

Independence comes when you take on the responsibility for the system—its maintenance, correct operation, and at least minor repairs.

Complexity: The connection between reliability and complexity has already been established. Complex systems seem easier to operate than simple ones. Why? Essentially, automation takes the burden of decision making away from the human user. Given the sheer number of factors at work, to choose the correct response for any given set of circumstances requires an extensive monitoring and control setup.

There's nothing inherently evil about complexity. Any increase in vulnerability arising from the number of parts is easily offset if the owner/operator understands how it's all supposed to work. Supposedly, then, it's easy to troubleshoot and isolate malfunctioning components. This makes the individual an integral part of the system.

The alternative is to set up a simple system and retain the decision making aspect yourself. Certainly the fewer the component parts, the less there is to go wrong. I prefer this approach because it keeps me in touch with my system. A side effect of this involvement is that I'm apt to notice a problem that can be fixed before it results in a breakdown or requires the replacement of an expensive component.

Cost: It's sometimes difficult to separate the energy costs from the system costs. For example, the use of some variable, intermittent, or low yield energy source demands a provision for water storage (tank, cisterns, etc.). However, there are other reasons that might prompt an individual to use a storage system. Or to install a much

larger size than what's required for simple utilization of the energy source itself. Without getting into actual dollars and cents, we can establish a few associations. One concerns the initial cost versus the ongoing cost. Utilizing available on-site energy sources such as wind energy and water energy seems at first prohibitively expensive. All the money is up front. By comparison, a utility powered submersible setup comes with a lower initial price tag. However, there's a string attached. It all runs on specialized energy that must be purchased in monthly installments. The "string" is suddenly an umbilical cord. Water systems based on renewable (independent) energy generate their payoff in dollars saved through the years.

It was an enlightening experience to rebuild my water pumping windmachine and be told that the last time the company made a major change in the design was 1933! What does this have to do with costs? If you're to spend hard earned dollars on equipment, it's nice to get built-in quality, ruggedness, and craftsmanship. Even several generations ago, the workmanship was superb. Manufacturing dollars spent on equipment of an older design go into materials. Newer equipment must pay off tooling, designwork, and advertising to inform the public that the product exists.

Multiple energy sources: Just as it's good to have more than one water source, it's good to have more than one energy source.

Any energy source or service can suffer a temporary interruption. How well the system will fare during this period is a matter of design and luck. Minimizing the "luck" part is, of course, desirable. Systems that apply all of their energy to processing water in such a way that it may thereafter assume energy-free (gravity) flow and pressurization are prepared for such eventualities. Some owners may find the price tag for this brand of security a little steep.

An alternative is the system that utilizes two or more energy sources. While either may be interrupted at any time, the probability that they would both disappear simultaneously is mighty low. Add a third energy source and you can bet your nest egg that you'll have at least one of the three sources operational at any given moment.

Contemplating the use of two energy sources when you haven't even picked one may seem a bit much at this point. No problem. Pick one, design the system around it, and install it. Use it that way for a while. Keep thinking about that alternative, though. Which is the right one may not really become clear until later anyway.

The only important thing you should do before installing a water system is keep your options open. For example, it's always nice to avoid duplicating any more of the equipment than is necessary. Knowing beforehand what additional source might be used will help you select equipment that may also accommodate the other energy source when (or if) it's added. Forethought will at least identify where the systems can be joined. Even if the "mate-up" plumbing is not installed initially, you can keep this area of pipe accessible and otherwise unencumbered for it later. If two energy sources are intended, why not select one that's free, provided you have the equipment to harness it? I can understand a system that has a gasoline-fueled standby generator backing up a utility electricity-powered submersible pump. I can better appreciate a submersible setup with a wind energy backup. A focus here is the word "backup." If the wind machine doesn't supply a major portion of the system's energy needs during the year, at least it didn't cost anything, other than the initial expense of hardware. The same cannot be said for the standby generator. Besides, why rule out the possibility of a pleasant surprise? Wind machines often pay

their own way. If it produces more than 50 percent of the energy needed, you can then say that the utility-supplied energy is the “backup” for your water system.

WATER PROCESSING

The water source and the site where the water is used are frequently separated by some distance. Even if they aren't, having water at the usage site does not automatically guarantee water flow from faucets, spray from showers, or a full toilet bowl. If we want this capability, then the water must be “processed” into useful form. Processing water involves as many as four functions (**Fig. 5** and **Sidebar C**). The standard utility-powered water system based around the submersible pump performs these functions simultaneously. While this is convenient, it is also wasteful and inappropriate. Each function is distinct. A good water system acknowledges the differences in functions and accommodates their virtues individually. The exploration of these four processes is best revealed by arranging them in a differ-

SIDEBAR C: THE FOUR FUNCTIONS OF WATER PROCESSING

Water processing involves four functions:

Extraction is the vertical movement of water. On an X-Y axis, this is the Y component and it represents lift. Extracting water from a well and pumping water up a hill are examples of extraction.

Transport is the horizontal movement of water. On an X-Y axis, this

is the X component and it represents the way pipes will route water from a well to a tank or usage.

Storage is the accumulation of water. This may be in a well, a tank, or a pond.

Pressurization is the factor that ensures that water will flow out of a faucet with sufficient volume to be useful.

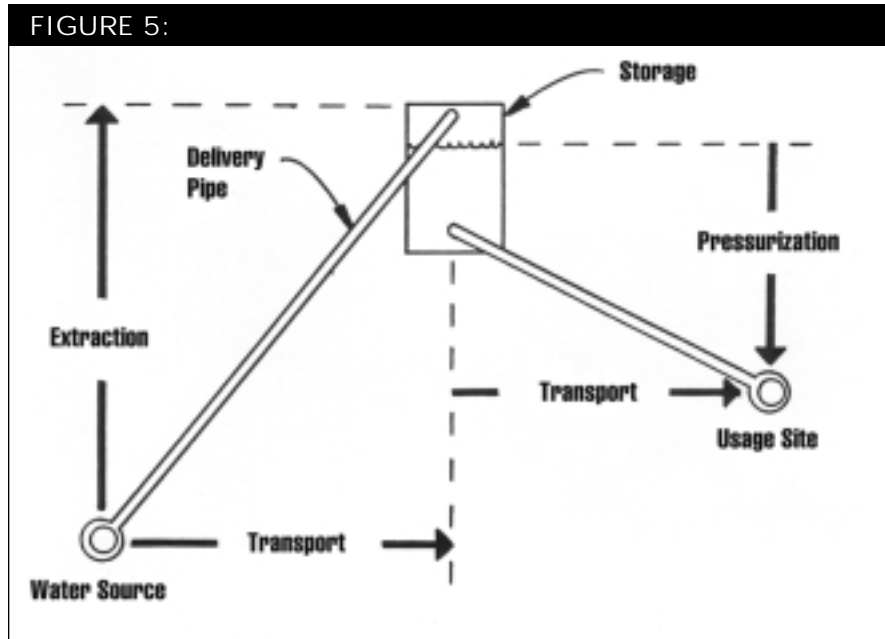
ent order: transport, pressurization, storage, and extraction.

Water transport

Pipe comes in a variety of sizes (to handle varying flow rates), standard lengths (to keep it manageable), and materials. Pipe made from copper, steel, or plastic is readily available. All types of pipe can be cut to any desired length or, through the use of couplers, extended to any dimension over the length of one standard section. Depending on the type of pipe

used, the sections are joined by screwing, gluing, or soldering.

Pipe can do everything that a channel or ditch can do and then some. For example, pipe can easily transport water down sharp inclines. Moreover, by attaching the appropriate fitting—a valve—the water flow may be stopped. The real uniqueness of pipe is that its use is essential to the delivery of water to a usage site that is above the water source. Transporting water horizontally does not require much energy. Even in a gravitational system, less than one degree of slope will permit water movement in a channel or pipe without further assistance. In fact, even in a perfectly horizontal pipe or channel, water will flow until it's all at the same level in the pipe. So there's demonstrably not much resistance on the part of water to flow. Once flowing, it wants to continue flowing, too. If any energy is consumed in transporting water horizontally, it is only to overcome the resistance of the channel or pipe itself.



Processing water may be divided into four functions.

Water pressurization

Water pressure is essential. If you have it, water gushes out of faucets. If the pressure is weak, the water trickles. Without some pressurization, no water flows. Pressure has some interesting properties and may be measured (**Sidebar D**).

SIDEBAR D. PROPERTIES OF PRESSURE AND ITS MEASUREMENT

1. Pressure is not related to the length of pipe or to the angle of the pipe. Instead, pressure is directly related to the vertical distance between the level of water and the point of measurement. This is the depth of the water. In water systems, this distance is called the "head." Head is measured in feet.

2. Pressure is linear and directly proportional to the depth or head.

3. Water is virtually incompressible. That means that while you can pressurize it, this doesn't reduce its volume. Water is very different from air in this respect.

4. Pressure is not related to an amount of water—the number of gallons—but, again, only to the depth of water in any combination of vessels and pipes.

5. Since pressure is a force and force can be measured, we can measure pressure. First let's establish the units we'd use. A common

one is pounds per square inch, or psi. Metric fans will describe pressure in terms of kilograms per square centimeter or square meter: ksc or ksm. Hereafter, we'll stick with psi.

6. A really accurate instrument will measure the water pressure at a depth of one foot at .433 psi. At two feet, that's .866 psi. That also means we'd get 1 psi at a depth of 2.4 feet. A depth of 10 feet would measure 4.33 psi and thirty feet of depth would be roughly 13 psi.

7. That water has a pressure of .433 psi per foot of depth can be verified by converting the weight of one cubic foot of water (62.4 pounds) to that weight per square inch at its bottom. Since there are 144 square inches in a square foot, dividing 62.4 pounds of water by 144 square inches yields .433 pounds per square inch.

Static vs dynamic pressure:

With pressure, we have flow at varying rates. Without it, sprinklers and nozzles won't work. Some washing machines won't operate satisfactorily if there's little or insufficient pressure.

How much pressure are we talking about? Ask a dozen people that question and you're likely to get a dozen different answers. However, they'd range between 25 and 60 psi. Can we narrow it down? Yes the standard is 30-35 psi. The suggestion of this standard is that this amount of pressure provides acceptable pressure in your system. Before you accept that as your standard, I'd like to tell you a story. When I had land in the Sierras, I could only manage to place a tank on a hillside that gave me 30 feet of gravity flow water, or a piddling 13 psi. Still, when I turned on a faucet, the water would blast out. By using larger pipe (1 1/2") in the ground coming down the hill, I had little pipe

loss, and 13 psi seemed like 50 psi in other systems.

In a culture where electricity is cheap and pipe is expensive, small pipes are generally used in water systems. At high flow rates, this results in horrible pressure losses. To compensate, high pressure pumps are used. The trouble starts when people naively install the same size of plumbing in their low pressure system. With such high pressure losses, there's no performance. Only by installing larger pipes can high flow rates and satisfactory pressure be sustained.

Pressurizing pumps: Irrespective of the energy source, the hardware that accomplishes both water transport and pressurization in lieu of gravity is the force pump. It's also called a pressure pump, water pump, or lift pump. By whatever name, it exerts a force that will push water along through a pipe.

Transporting water is neither difficult nor energy intensive because it moves water perpendicular to the force of gravity. Only resistance of the pipe itself will fight this effort. However, transporting water is actually a byproduct of the process of pressurizing the water. It takes a very strong force pump to push the water very hard and fast. When the pump's sole function is to pressurize and transport water, I'll refer to it as a pressurizing pump.

A pressurizing pump can be quite small, uses little energy, and doesn't cost very much. One with a working pressure of 30 psi and a pumping capacity of 10 gpm (gallons per minute), enough for most household uses, would cost under \$100 and sometimes half that amount.

Water storage

As squirrels put away nuts for the winter, one should tuck away some water for a time of greater need. Some water sources, notably ponds and lakes, automatically include the provision of storage. Streams and rivers use the storage of snowpack. Springs and wells have their water stored in the ground.

Artificial water storage buffers the source's inherent capacity against the widely varying flow rates characteristic of any water usage. The actual storage technique used—pond, lake, reservoir, cistern, tank, etc.—is situational. There are many reasons why someone might use water storage (of whatever type). Water storage could gobble up a good chunk of the money allotted for a water system. It's not unusual to find water storage as an integral part of some system that doesn't need it. It may be included for the practical and versatile features it exhibits.

Water storage is useful for normal usage, source variance, energy availability, gravity flow, gravity pressur-

ization, fire fighting, blackouts, and other emergency situations.

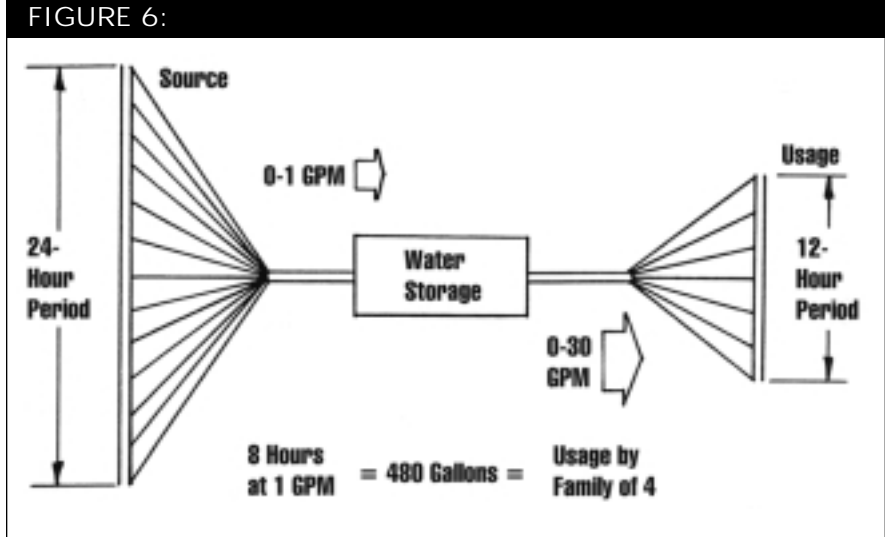
Normal usage: If the highest rate of usage exceeds the capacity of the source, there's a problem. Without storage, the user must avoid higher than capacity flow rates and all things that need them for proper operation. Or develop another water source with sufficient capacity to handle the highest usage rate. With storage, however, the water source is able to provision the system against high usage rates. Pumping "low and long" from source to storage enables water usage to be "high and short" as needed.

This is a neat trick. Through proper applications of storage techniques, even a water source with an extraordinarily small capacity may be useful (**Fig. 6**). However, this does not increase the source's capacity. In the end, the ledger must balance. The total usage of water in gallons in a 24-hour period cannot exceed the source's capacity to store that much water during the same time period.

Source variance: The ability of storage to handle the variances in the capacity of the source, in addition to the fluctuations of usage, depends largely on the water source itself. Some are less susceptible to variance than others.

Most systems need only concern themselves with building a small reserve. But somewhere harks the possibility that the highest use may occur simultaneously with the lowest capacity. Ergo, no water. If this is about to occur, however, it's easy enough simply to exercise some basic conservation to ride out the crisis. In many ways that makes more sense than trying to conceive of every eventuality, designing the system accordingly, and having to foot the bill for all that protection.

Gravity flow: Even if the water source is not located at an elevation higher than the usage points it may be possible to site water storage there. If the terrain is cooperative, this may



A low capacity source yields a good store of water over time.

involve a hillside location. If it's all flatland or your usage site is located at the highest point, this advantage may be weighed against the cost of slightly elevating, say, a storage tank to achieve gravity flow. This would not necessarily eliminate the need to pressurize the water for some uses. Still, the extra five to ten feet of head (over direct delivery to usage) would not represent any real burden for the pump that must extract and transport the water to storage. Additional uses such as gardening and watering livestock might well be served with this pressurized water, thus eliminating the need for a pump large enough to pressurize all the water.

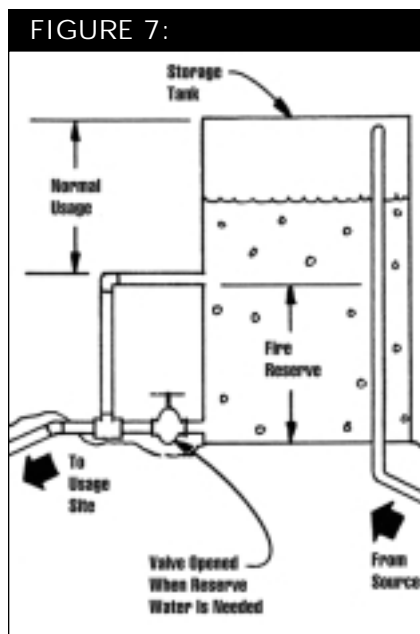
Gravity pressurization: Landowners with a water source high above the usage site will benefit from natural (gravity) pressurization of water. By storing water, everyone can be a winner. No matter how far down the hill or under the ground the water may be, we can always lift it higher than the usage site to a storage site situated to allow gravity pressurization. Where a system has gravity transport and pressurization, the only energy required will be that applied to extraction and, perhaps, some transport. A demand system installed in identical circumstances must extract, transport,

and pressurize water at the highest usage rate. This requires energy use at high rates and large pipe to avoid pressure loss at the higher flow.

The store system, on the other hand, lets the position of the tank handle peak usage needs high flow rates, pressurization, etc. At the same time, it permits low energy extraction of water through (possibly) smaller pipe. Or the utilization of energy sources that are low yield in nature. The additional energy required to boost the water the extra distance to storage (to take advantage of gravity pressurization) should be considered. At such a low rate of flow, it's not likely to be significant.

Beware. The potential for the store system in this situation is exciting but, alas, not always realizable. Don't ignore the relevant factors and impose a system on a situation that is not a good match.

Fire fighting: A rural home or farm does not enjoy the same availability of water as the city. It is often supplied by individual wells or springs. Even if fire trucks can respond quickly enough to be effective, there are no convenient hydrants to which they may attach hoses. Accordingly, many fire trucks are designed to carry their own supply of



Simple plumbing ensures ample water for emergency needs.

water. Obviously the aid they render is minimal if the fire is not completely doused before they run out of water.

Water storage is fire insurance. Where the system design has sited water storage for both gravity transport and gravity pressurization, hoses and sprinkler systems will still be functional when electric power is lost during a fire. Even a system normally in need of electricity for water transport and pressurization from storage may be saved. Several measures may be taken to accomplish this task when utility power fails. In any instance, the presence of stored water assures the replenishment of a fire truck's dry tanks. Even if the fire fighters can't use your fittings, they usually have the equipment to draw water from your tank through a hose they carry for just that purpose.

It is of little use to anyone with a storage tank if the aforementioned fire occurs at a time when the tank is low or empty. Keeping a tank topped off all the time, however, is neither practical nor always possible. This is particularly true in systems that use a wind

machine for pumping water or pump from low yield water sources. How about designating a certain portion of the tank (one half? one fourth?) as a reserve for fire fighting only? A simple plumbing modification (see Fig. 7) will handle normal usage. In the event of a fire the valve is opened and the water reserve is now available.

Blackouts: In the event of a power failure the inability to use the toilet, shower, or kitchen faucet is a nuisance. Since gravity is unaffected by such failures, any water system based on gravity pressurization functions normally in a blackout. Every system using pressurizing pumps for stored water may also be safeguarded from this effect by hooking up a battery to a 12V pressurization pump.

Other emergencies: Other events may interrupt the normal operation of a water system. Normal maintenance, i.e., lubrication and replacement of chemicals and filters and component failure can render the system inactive for a time. Cataclysmic events such as freak storms and earthquakes can incapacitate any system. Those equipped with storage, however, can supply their owners with enough time to cope with other pressing matters and set up some alternative pumping if required. As with fires, without implementing an actual reserve capacity in the storage system, there's no guarantee that you'll have a full or partially full tank when an emergency occurs. Don't leave this to luck! Through either automatic functioning or an audible or visual indicator, a reserve capacity should be protected against being drained off in normal, everyday usage.

Types of storage: Storage can take many forms. First of all, it may be readily available, as a nearby pond or lake. With the right kind of terrain, ponds or lakes may be made to take advantage of the presence of streams, rivers, or springs. Wherever there's little hope of channeling surface water into these depressions, a man-made

pond may be scraped out of the earth. Another type of storage is the reservoir. It may be earthen or have its sides and bottom lined with concrete. Generally, a reservoir is an uncovered, concrete-lined storage container.

The same factors that limit the use of ponds and lakes as sources of water apply to their use as storage systems. Reservoirs suffer from the same limitations, so I will not consider them any further for primary water storage. Any one of the three may faithfully serve as secondary water storage. It is somewhat annoying in water scarce areas to see a sudden shower yield a small flood. All that water going to waste! With secondary storage, a system may take advantage of a freak rain shower without having to depend upon it. The water captured in this manner may be used wherever needed.

The remaining three storage systems—the well, tank, and cistern—are all good candidates for primary water storage. (**Sidebar E**)

Characteristics of storage: Some other good but not so obvious characteristics of storage will manifest themselves at some point. In the interest of saving you some time and money, let's look at open versus closed tanks.

Closed tanks. "Closed" tanks are sealed against the atmosphere. They're also referred to as pneumatic, or pressure, tanks. They're small—most don't exceed a 100-gallon volume—and are intended primarily to aid in water pressurization. Though found in any system where the water is pressurized (except gravity), they are most useful in the "demand" water system. Contrary to popular opinion, pressure tanks are not really intended to store water. If so, they would do a bad job; a 100-gallon tank can hold only about 15 gallons of water under pressure. The rest of the space is for compressed air. A pressure tank should never be con-

SIDEBAR E: PRIMARY WATER STORAGE

There are three candidates for storing water: in-well, tank, and cistern.

1. In-well. Due to the characteristics of wells, once water is struck at some depth, the water level may rise significantly. For example, in my own well in the Sierras, water was struck at 125 feet and immediately rose to within 40 feet of the surface! Attempting to find a larger capacity (the well had tested at 4½ gpm), we drilled the well to 150 feet before we stopped. Since the deep-well cylinder we installed sits at a 125-foot depth, we have 85 feet of “storage” in the well (125 feet minus 40 feet). For a hole 6 inches in diameter, that’s approximately 1.5 gallons of water per foot. For 85 feet, this represents 128 gallons of storage water.

In a way, this was free. We had to drill to 125 feet in order to hit water in the first place. However, had we hit water at 40 feet, we probably would not have drilled more than 25 feet farther. Why? At \$10 per foot of drilled well, the in-well storage capacity is costing over 6 dollars per gallon! We had already decided to site the storage tank for both gravity flow and gravity pressurization. Therefore, the “siting” of the in-well storage was not a matter of preference and is, in fact, in the wrong place!

In-well storage has its place. In a “demand” water system, in-well storage serves as a buffer against

higher-than-capacity usage while assuring that the inlet to the pump is, at all times, submerged. Low-capacity wells may need to be drilled extra deep to prevent draw-down-the distance the water level drops during normal pumping—from exposing the pump inlet. However, at the lower pumping rates characteristic of stored water systems, drawdown is seldom a problem.

2. Tank storage. Water may be stored in tanks made of wood, metal, concrete, or plastic. Plastic and some types of metal tanks can be delivered to the property ready for use. Of course, this is more expensive than building tanks or cisterns on the site. This relatively higher cost of storage may be justified in light of the convenience and the built-in protection against contamination (relative to the cistern).

3. Cistern storage. A cistern is normally classified as underground water storage. Since tanks, reservoirs, and cisterns overlap somewhat in definition, we will define a cistern to be a non-portable concrete tank that is built on-site, is buried or partially buried (using the earth to help support its walls and bottom), and is completely covered (which distinguishes it from a reservoir). By this definition, little or no sunlight reaches the water in a cistern. With proper screening the water is not accessible to anything larger than a gnat except through an access hatch.

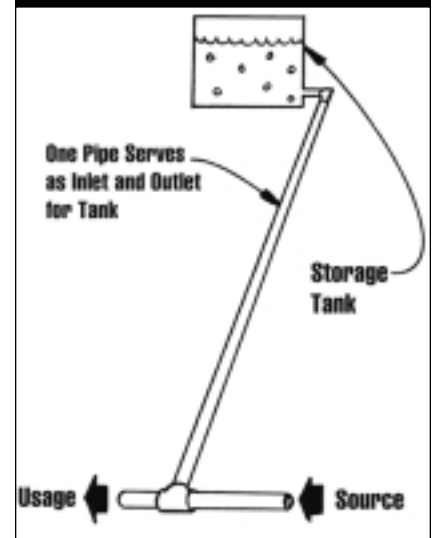
fused with a tank designed to store water.

Open tanks. Tanks that serve only to store water are usually “open” to the atmosphere. This category includes cisterns or steel tanks because, in fact, they’re only covered, not sealed against atmospheric pressure. A tank that stores water should

always be equipped with a vent pipe, which permits free movement of air into and out of the tank as the water level falls and rises.

Tanks that are completely buried in the ground are most susceptible to air-flow blockage, but it’s an easy situation to remedy—a vent pipe may be attached at either the input or the out-

FIGURE 8:



A tank may share the same pipe for inlet and outlet.

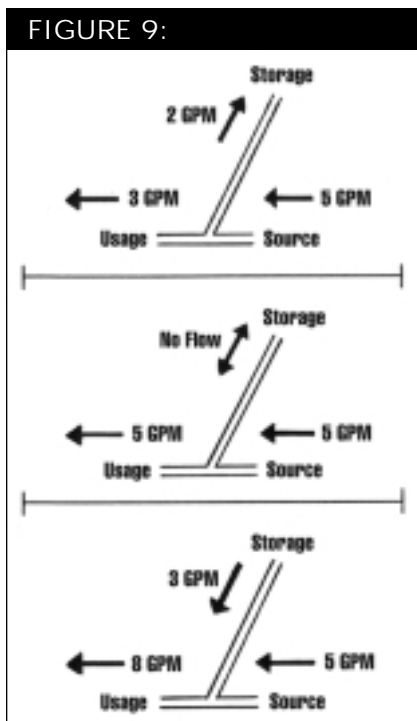
put pipe. Luckily, this can double as an overflow pipe. Since some systems may normally route tank overflow to some other use, i.e., gardens, orchards, pools, and other tanks, it may be wise to isolate the two functions so that there’s no risk of blockage.

Tank plumbing. Typically, a tank (hereafter also meant to include cisterns and reservoirs) has the inlet pipe at the top and the outlet pipe at the bottom. This follows from the days when wind-powered water pumping extracted the water from wells and transferred it directly to storage. However, insofar as pressure is related to the depth and not the quantity of water, it will make no difference to the pumping (and extraction) equipment if the water inlet to the tank is located at the bottom instead of the top. Either way, the water gets to the storage tank. It’s actually easier to pump water into the bottom of the tank. At low tank levels there’s a few feet less head for the lift pump to push against. As the tank approaches its maximum level, this difference is negligible.

One distinct advantage of locating the inlet pipe at the base of the tank may be for the inlet and outlet to share

the same pipe. This is very situational but it avoids duplication and cuts pipe costs in half. Where there is a potential for gravity flow (pressurization), this little trick cuts in half the length of pipe needed to do the job (Fig. 8). The idea of combining the inlet and outlet causes some confusion about operation. What happens when water is being used at the same time water is being extracted and transferred to storage? How can the water flow up and down the common pipe at the same time?

The answer is simple. It doesn't. When the supply rate from the source is greater than the usage rate, all of the usage water comes directly from the supply (Fig. 9). The remainder of the supply water is pumped to storage. When the supply rate is lower than the usage rate, all of the supply water goes toward usage and the remainder comes from storage. As confusing as it may seem, the water knows what to do. Variation in supply or usage



Water always knows which way to go in a variable flow.

SIDEBAR F: THREE TECHNIQUES OF EXTRACTING WATER

There are three techniques of extracting water: hauling, induction, and pushing.

1. Hauling. Hauling implies capturing, lifting, and dumping the water for immediate or eventual use. This includes techniques such as buckets pulled up by ropes, the use of a mechanical lever (the hand-cranked winch over an open well), or a mechanical conveyance system. For anything other than very small water needs or small distances, this method tends to be labor-intensive. It may be practical if a renewable source of energy, such as water or wind power, is available.

2. Induction. Water may be extracted by induction, or suction, which utilizes the natural forces of both gravity and atmospheric pressure in producing a vacuum (Fig. 12). If you evacuate the air from a pipe with its lower end submerged in water, atmospheric pressure will push the water up the pipe. This is similar to sucking soda through a straw. The better the vacuum, the higher the water will rise.

Extracting water by suction is limited to the amount of force exerted by atmospheric pressure. At sea level this amounts to a limit of 32 (vertical) feet for a perfect vacuum. Since we can't generate a perfect vacuum, the practical limits of suction are about 25 feet. With each thousand feet above sea level, this

value decreases by another foot. At 7,000 feet, then, the practical value of suction is about 18 feet (25 feet minus 7 feet).

Elevating water by suction is limited to the type of pump that is able to generate a vacuum or is able to hold its "prime." The smallest air leak in the pipe will nullify the lifting of water by suction.

One offshoot of extraction by induction is the siphon. Most of us, at one time or another, have had to use a siphon hose (otherwise known as an Oklahoma credit card) to extract gasoline from a car's tank. Those who have tried this and failed are usually in violation of one very important rule of the siphon: once started, the outlet of the hose (or pipe) must be lower than the level of fluid at the source. Also, if the fluid level drops below the pipe's inlet, air will enter the system and stop the siphoning effect. To avoid constant priming, a faucet may be added. This will limit the extraction flow rate to something less than the source's own capacity.

3. Pushing. Most water systems use the "push" technique for extracting water. Here, pumps collect the water and force it upward. If the pump's outlet is open to the air, you get a fountain. Confine the forced water to the inside of a pipe, and the water will rise upward to some higher point in the pipe.

rates produces no detectable or undesirable effects.

There is one potential problem in using the common pipe idea: the lift pump in the system may "leak." This would allow backflow out of the storage tank when not in operation. Theoretically, it doesn't but experience says otherwise. Pumps wear and their seals may leak. If the pipe that

connects the source to storage enters the tank at the top, the only water "lost" back into the well is that which is in the delivery pipe. Where the inlet pipe is situated at the bottom of the tank, the loss could be all of the water in the tank. There is a simple solution to this problem—a check valve. Use a gravity type (not a spring type) check valve. In placing it at the outlet from

the well, you ensure that no water will be lost back into the well from pipe or tank. At fifteen to twenty dollars in cost, the check value is cheap insurance against backflow.

Tank Cleanout. The tank outlet is rarely located in the very bottom of the tank. Indeed, it is about 6 to 12 inches up the side. Why? Operate the system for a while, then drain the tank and you'll have the answer! The polite name for all of that gunk and muck coating the bottom of the tank is sediment. How did it get there? An open tank or a poorly covered one will always allow dirt, leaves, insects, lizards, and mice into the water system. Also, the incoming water may carry its own sediment, held in suspension. In the tranquil waters of the tank, this will precipitate out. Some minerals in the water itself will, upon contact with air, precipitate out in a storage tank. Locating the outlet up the side of the tank a wee bit, then, will always result in this accumulated debris.

Whatever the source, provide some means of ridding yourself of this accumulated debris. The simplest setup is to install a cleanout plug in the lowest part of the tank. Then, when it's time, you drain the tank. Better yet, let it drain through normal usage after shutting down the refilling system. Then, remove the plug. If the tank bottom isn't designed to drain like a bathtub or isn't tilted to ensure removal of all refuse littering the bottom, remove the plug while the water level in the tank is still high. This will flush out the debris.

While this technique works, I prefer an additional feature in a storage tank access. With reservoirs and open top tanks this is already provided. Covered or buried tanks should include an access hatch. If you can squeeze your body into the tank, you can be absolutely certain the bottom is clean. A bonus is a visual confirmation that the sediment level is getting a bit thick. There are other advantages

SIDEBAR G: PUMPING CAPACITY

In a water system the precise capacity of any pump may be established by asking three questions.

1. How much water must we lift?
2. How high do we want to lift it?
3. How fast do we want to lift it?

The relationship between these three factors—how much, how high, and how fast—may be equated to another standard: horsepower. One horsepower equals 33,000 foot-pounds per minute. If 33,000 pounds is lifted one foot in one minute's time, one horsepower has been demonstrated. If one pound is lifted 33,000 feet in one minute's time, that's also 1 horsepower. If 330 pounds is lifted 100 feet in one minute, that's still 1 horsepower's worth of work. In working with water, we're used to dealing with gallons, so let's convert the formula.

One gallon weighs 8.33 pounds. 33,000 foot-pounds per minute divided by 8.33 pounds will lift 3,962 gallons of water a vertical distance of 1 foot.

If we do it in one minute's time, it only consumes 1 horsepower. If we round off this figure to an even 4,000 gallons of water per minute per foot and change nothing else, then 1 horsepower will lift:

400 gpm through a head of 10 feet.

40 gpm through a head of 100 feet.

4 gpm through a head of 1,000 feet.

For flow rates in the 4 gpm range, it won't take much horsepower to lift water some pretty hefty distances.

Beware! These figures represent water horsepower only. No allowance has been made for any losses. These figures assume frictionless pipe, a 100 percent pump efficiency, and a perfect conversion of the energy (from whatever source) into the mechanical motion required by the pump mechanism.

In most instances, we must multiply the calculated water horsepower by at least a factor of two or three to compensate for pump efficiency, gas engine inefficiency, and pipe losses.

in having some access wall scrubbing, checking on water turbidity, water level detection, help in removing accumulated debris, and repainting of the interior walls. Access demands control. A hatch with a child proof locking mechanism is the minimal requirement.

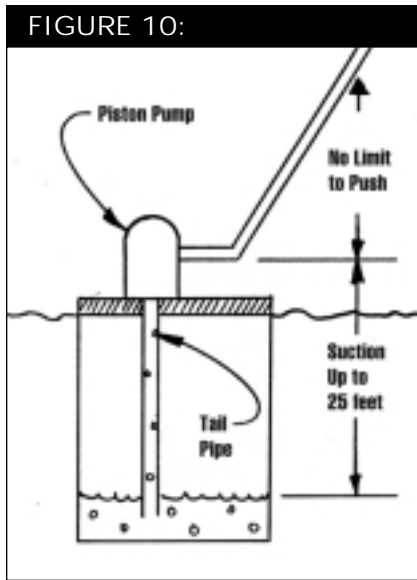
Overflow. Any type of pump used to store water in an open tank is said to be pumping into an "open head." Therefore if the water leaving storage does not keep up with the water coming in, the storage tank may overflow. This is not such a serious event, but it can be messy. Can it be avoided? Yes—prevention is one possibility. It requires, among other things, some means of detecting the presence of overflow. Better yet,

put unintentional overflow to some practical use.

Sizing storage: The amount of normal usage, source capacity variance, energy availability, emergency needs, favorable terrain all affect the sizing of water storage. How much is needed? You're one step closer to the answer once you've sketched the preliminary design and selected primary and secondary water and energy sources.

Water extraction

While it's handy to have the water source on the same level as or above the usage point, many people are not so fortunate. When the water is at the

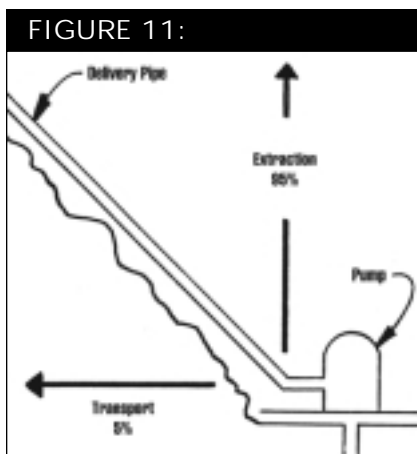


Suction allows water to be drawn up into a pump.

bottom of a hill or at the bottom of a well, the water must be extracted.

There are basically three ways to extract water: hauling, induction, or pushing (**Sidebar F**).

Some types of force pumps combine several of these extraction techniques in normal operation. For example, the shallow well pump is mounted as high as 25 feet above a water source. In operation, it sucks water up through its inlet pipe and then pushes it to a much higher elevation (**Fig. 10**). Another force pump, the deep well piston pump, is technically able to use



Transport of water uses less energy than extraction.

all three extraction techniques—suction, lift, and push—in one cycle of its operation. Other types of pumps (jet and centrifugal) use only one extraction technique under the best of conditions.

The lift pump: As previously defined, extracting water is distinguished from both transporting and pressurizing water in that it involves only the vertical component of water processing—moving water straight up. A pump that will force water upward may be called a lift pump to help distinguish it from a pressurizing pump. That’s important, because for all practical purposes you couldn’t tell them apart—they’re both force pumps. In real life, a pressurizing pump will lift water and a lift pump will pressurize water. However, a pressurizing pump’s principal job is to pressurize water for use. Transporting it is simply a byproduct. On the other hand, a lift pump’s purpose is to extract water. This may be to get it out of the well (a purely upward motion) or up a hill. It will probably include some horizontal transport as well (**Fig. 11**).

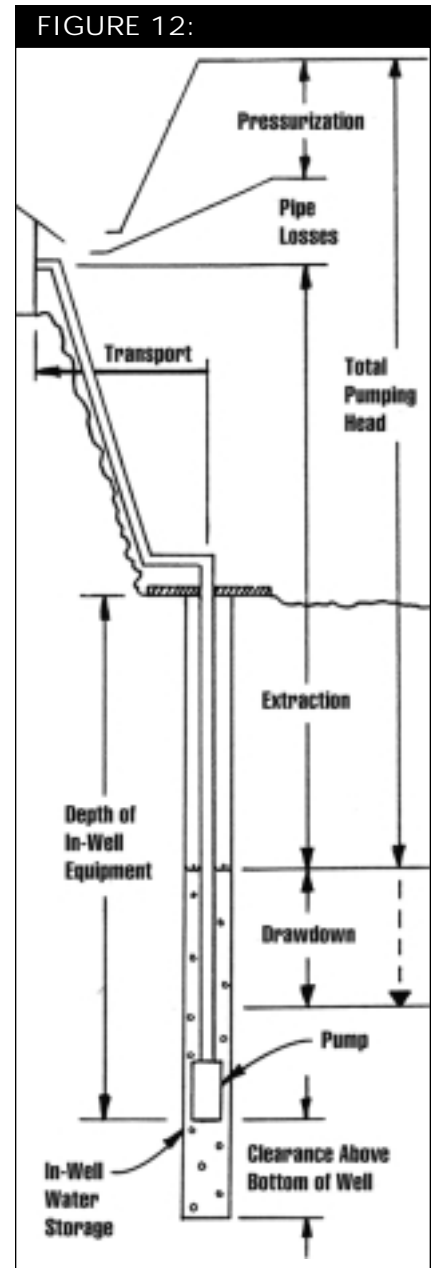
There are pumps that do all three things—extract and transport and pressurize. As we shall soon see, the requirements of these pumps are quite different from those of pumps that work simply to extract water.

A pressurizing pump fights only pipe resistance. A lift pump must fight pipe resistance and gravity. A lift pump, therefore, must pump harder and faster to overcome the opposition. But how much pressure do we need to fight gravity?

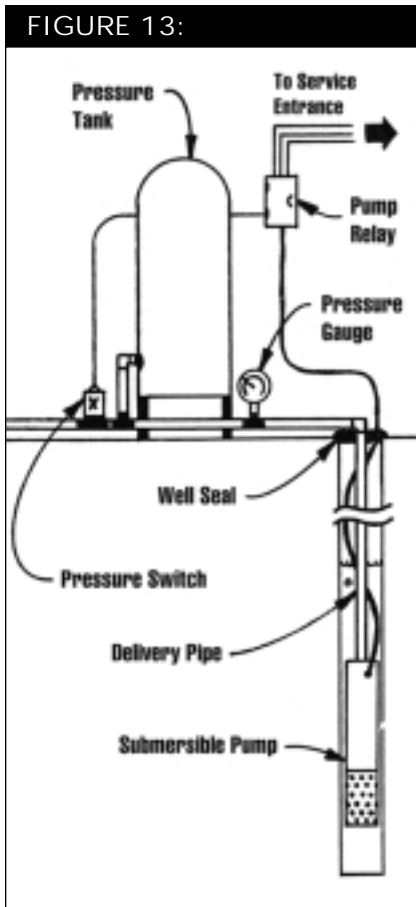
One of the two major ratings of any lift pump is how much pressure it will develop. For each foot of height that we want to raise water, we will need a pump pressure of .433 psi. A 10-foot raise requires 4.33 psi. A 100-foot raise requires 43.3 psi.

Pumps don’t just “make” pressure. A pump produces pressure at some particular rate of flow. Use it in differ-

ent situations and within limits, it will supply different rates of flow. In a way, we can say that it trades off pressure for flow rates. The higher the pressure (the head) into which it must pump, the less the flow. So, in addition to the pressure needed to combat gravity and losses, all pumps must add service pressurization (**Fig. 12**).



The dynamics of water processing.



Standard components of the demand-type system.

Water horsepower: A really good way to get a feel for the dynamic state of water extraction is to look at the energy requirements. Lifting water is akin to lifting weights. Depending on your muscular build, you could lift a small weight from the floor to a point over your head in a certain period of time. Lifting a larger weight through the same distance would probably take you longer. The range of weights is unimportant. The essence here is that each of us has a built-in capacity for work. The same goes for pumps. They have design limits. It doesn't matter what type of energy source is connected, they can still only handle a specific work capacity. And as in human weight lifting, we're working with three

things: weight, distance, and time (Sidebar G).

Water extraction and energy: It takes energy to extract water. Let's review the issues:

1. For any flow rate, we need a certain amount of energy to push the water against both gravity and pipe resistance. Double that flow rate and the energy required is double the original value plus the additional energy required to combat the fourfold increase in pipe resistance.

2. If higher flow rates result in higher energy requirements and increased pipe resistance, that also means that lower flow rates will need less energy and suffer lessened pressure losses.

3. It is true that if we pump water at a smaller flow rate, we must also pump longer to get the same total amount of water to the same elevation.

Extracting water quickly prohibits the use of some energy sources which simply cannot produce energy at a high rate. Systems capable of producing energy in smaller amounts can get all of the water to the desired elevation but will simply require more time. The effect of pipe resistance is almost eradicated at lesser flow rates, so slow pumping has a greater overall efficiency for the water pumped. Only with a well installation is the lift pump pushing water straight up. If, instead, it pushes the water through a pipe up a hillside at some angle of slope, a horizontal component or transport is also involved.

Final comments: Even though I have separated the functions of water processing into extraction, transport, storage, and pressurization, the two basic types of water system—demand and store—frequently combine these functions in operation.

The demand system is inactive except when water is required. Then, when the system turns on, one pump does everything—extraction, transport, and pressurization (Fig. 13). While it may be convenient, it is inefficient since the pump requires a rate

of energy usage that represents the largest rate of water flow (in gpm) needed in the system. Even at very small flow rates, then, the pump uses energy at a rate that may be 5-10 times the amount required to handle the specific need.

The store system separates the functions that are necessary at the water source from those required at the usage site (Fig. 12). In this setup, extraction and transport of water from the source may be tailored to source capacity without ignoring the widely varying needs—pressure and flow rates—of the usage point. The buffer that performs this minor miracle is storage. If storage can be sited high enough above the usage site to make gravity pressurization possible, the extraction head is only slightly increased. If storage is too low for gravity pressurization, a small pressurizing pump may be added. Either way, the overall energy needs and efficiency of a store system is a fraction of that required for a demand system.

Preview: In the next issue of *Backwoods Home Magazine*, we will look more closely at the variety of tanks that may be used in a water system, the ratings and installation of pumps, water system accessories, and examples of both the demand type and store type water systems.

(Michael Hackleman is the author of seven books on do-it-yourself renewable energy topics. For a current publications list, send an SASE to P.O. Box 327, Willits, CA 95490.) Δ

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FULLY INVOLVED

By Diana Morgan

A strident tone blasts me from sleep. I catch the words “fully involved” first time around. Where the heck are my glasses? Oh, God, I can’t find my glasses. Panic. Fumble the light on, knocking my specs to the floor. I’m getting too old for this middle-of-the-night stuff. The dispatcher’s monotone repeats itself and this time I get the details of what and where. I yank on yesterday’s clothes, always left by the side of the bed.

I hate structure fires. Hot dirty things that gobble up someone’s memories and dreams. Sometimes the people themselves. The really bad times.

A hurried stop in the bathroom—last chance I’ll get for five or six hours—and I pound down the stairs, finger combing my hair. The rest of the house sleeps on and only the dog raises one bleary eyelid at me as I tromp through the kitchen throwing on lights and grabbing keys.

The car fails to start on the first crank. Calm down, you’re racing like a rookie. I sit back in the seat, force the adrenaline rush down, and try again. This time the engine catches. I reach out and jab the plug for the red light into the empty cigarette lighter socket, snap the seat belt, and slam into reverse.

A mile from the scene the smoke becomes visible. There’s horrible beauty in a house afire. On clear cold nights the smoke rises straight up in a broad multi-hued column. Pink, gold, even green swirls

through the black and gray. A palette devised by a schizophrenic artist intent upon painting his worst nightmares. Something Stephen King would dream up.

Damn! Damn! Hell! Definitely hell. I realize I'm slamming my fist against the steering wheel and stop. This one's a real cooker. Flames, visible even above the trees, lick at the smoke, chasing it higher. No water flowing yet either. Not if I can see flames from here.

You can tell if the others who got there before you have started knocking down a fire because the color washes out of smoke as water turns to steam.

Thick oily black smoke roiling up is always a bad sign. Means something nasty is burning. Burning fast and hot. Hydrocarbons. Hazardous materials. Something other than good clean wood. Not much wood in houses any more. Synthetic materials that give off toxic gases when they burn. Gases that kill firefighters.

I experience the heat, so intense it stabs through the closed car as I drive past looking for a place to park. Can't see a thing. Fire's too bright and the darkness too dark. Afraid I'll pull into a ditch and become another casualty the others have to deal with.

I haul off my shoes and coat, struggling into bulky gear and rubber boots designed more for protection than movement. A final grab at helmet and gloves and I clump off in search of my captain and instructions.

The fire ground is like a scene from Faust. Shadows dancing in the reflected flames are brought to stark life by the sudden flare of halogen lamps abruptly lit. Figures scamper to-and-fro between trucks and burning building. Uncharged hoses snake everywhere in the tumult. The noise is painful. Officers shout orders to the troops amid the crack-

le of portable radios and ravening flames. Engines grind to a deafening roar as the pumps engage. To an observer it would appear as chaos gone mad; but there's an order here, known only to the participants.

Not much of a crew here yet so the captain puts me on a hoseline with another veteran of these sad wars. There won't be any interior attack on this one. We can't get near the inferno to get inside. Hose clamped to my hip, I struggle to keep standing as dirty black water runs over the ice underfoot. Back and forth, back and forth we aim the stream of water, a hundred pounds of pressure's worth, at the gorging enemy. He runs his greedy fingers up walls and licks a slaving tongue through the holes he's chewed. A window explodes from heat and pressure and we duck the flying shards.

A fire uses up oxygen at an alarming rate, replacing itself with toxic gases and smoke. These gases become superheated increasing the pressure inside the building. Eventually this pressure will blow out windows or doors and the renewed burst of oxygen will ignite the fire with explosive results. A house in backdraft readiness will puff smoke in and out through any available cracks around windows and doors, a sure clue to trained firefighters that death awaits the unwary.

A house on fire roars like a demented hurricane, a howling rumble interspersed with the cackle of sparks and the hiss of steam. At first the heat, a thousand degrees and more, drives us back, but we slowly knock the enemy down, our puny stream spitting in the face of the blaze.

The hose abruptly goes limp and the fire jumps up in glee to gobble a door and waggle his tongue at us. We shout and gesture though,

knowing our comrades back at the pumper are scrambling to get the water flowing again. We've been there at fires past, aware of the unavoidable glitches. We bitch anyway, venting our frustration while the fire regains his lost ground.

The hose surges to life, nearly knocking me down, and we resume the monotonous back and forth stream of watery bullets. We tango forward and back with the fire for what seems like hours and probably is. First he advances, and then we bend him backward over the bulk of the devastated house. Eventually, the captain raps me on the helmet to get my attention and hand signals to shut down our hose.

Hot and sweaty, our faces grayed with soot, we trudge towards the ladies' auxiliary for sandwiches and a drink. Coffee? Water? Gatorade or soda? I gratefully accept a diet soda and pull open my coat. Steam rushes off my chest, my own perspiration turned to vapor by the heat.

The auxiliary ladies look at me and shake their heads. They'll never understand why I want to be on my side and not theirs. All they see is a woman, no longer young, who opts for the grinding dirty drudgery of firefighting. They'd rather minister to the fighters than the fire and can't comprehend that I do it because I'm terrified of fire. I need to do battle with it. A few have asked me and my answer confuses them.

I rub my arm across my face, smearing the grime. I know I look a mess, hair never properly combed now flattened by my helmet. I'm too tired to care. I sink down onto the cold back step of the rescue truck, knowing the job is only half done.

Exhausted firefighters don breathing apparatus and venture into the ruined house. On a search and destroy mission, they tear down any remaining inside walls where the

enemy may still be hiding and waiting for his chance to continue the rampage. Too old to be allowed to do inside work, I switch from firefighter to EMT.

I help refill air bottles as my fellows stagger from the building, dirtier still, alarm bells ringing a few minute's worth of air left in their tanks. I check them for heat exhaustion and smoke inhalation. They test positive when the whites of blood-shot eyes go gray and flushed skin feels dry. If they pass I load them up with a fresh bottle and send them back.

Most firefighters have to be restrained from returning to a burning building too many times. The mix of adrenaline, oxygen deprivation, and exhaustion blurs common sense and breeds madness. The EMT staff is there to make sure this idiocy doesn't result in tragedy. One reason most senior officers don't fight fires is that someone needs to keep a clear head.

A shrill shout. Firefighter down. A beam has fallen on someone. They've got to get him out before his air supply is gone. I stand by the rescue truck, twitching nervously, going over in my mind what I'll need off the truck. I grab a shell-shocked compatriot and pile him up with splints and a backboard. Given a purpose he pulls out of the hole he retreated into and follows me toward the building.

I meet another EMT as he emerges from the wreckage. Wordlessly he grabs the backboard and charges back inside. Soon they all come out with our fallen comrade. He moans and tosses on the hard narrow board, trying to tear his facemask off. I reach down and gently remove it for him. His air pack has already been taken off and, still attached to the mask, is carried beside him.

I try to calm the man I've known and worked beside for years while I run my hands all over him feeling

for broken bones and deformities. He winces a couple of times, complains of back pain and sore knees, and begins to breathe more normally. The heavy timber hit his air pack, knocking him to the floor and pinning him there. He's lucky,

The ambulance picks its way through the covey of fire trucks and I reluctantly turn my friend over to the paramedics outlining his possible injuries. They immediately start an IV and check him all over once more. I find their arrogance vaguely insulting, and watch helplessly as they speed off with the firefighter on board.

Fire finally out, weary and running on fumes, we pack up hose and air bottles and shut down the lights. Back at the station we've got three or four more hours of toil ahead of us. Filthy hoses have to be washed down and hung to dry. Clean hose must be loaded onto empty trucks in case, God forbid, we should have another fire somewhere soon. The self-contained breathing apparatus has to be put back in service, filling air bottles yet again and disinfecting masks.

We drag along on leaded feet until the chores are at last finished and we can drive home to shower and fall in bed. Or head out again to work, stale and stupid, unready for whatever the day demands.

The reasons why brave and foolish souls voluntarily rush into burning buildings are obscure. To prove we're still alive? The addictive adrenaline rush? A gigantic desire to do good in the community? A monumental hubris that shouts "invincible?" If you asked us "why?" most couldn't give you an answer. Nothing that makes sense to anyone, including ourselves. The explanation's too complex, too personal, too visceral for those who haven't done it to understand, and the rest of us don't need to. Δ



SEND IN THE WACO KILLERS

Three times the International Society of Newspaper Editors has included Vin Suprynowicz in their list of the 12 top weekly editorial writers in North America. For years his shoot-from-the-hip style has opened the eyes of thousands to government abuse of our liberties. In this book, *Send in the Waco Killers*, he blends material taken from his syndicated column with new commentary to give the reader a detailed, reporter's-eye-view of how the rights and freedoms of Americans are being subverted.

He uses factual accounts from the daily news to show how the Feds use the drug war, the public schools, jury rights, property rights, the IRS, gun control, and anti-militia hysteria to increase its power and control over us. He details how agents of the ATF and FBI have routinely lied, how they use paid informants to infiltrate Constitutionally-protected militia groups, then fabricate evidence to get arrests and discredit them.

Had he lived 225 years ago he'd have written a book to detail how King George III and Parliament have tried to enslave us but, sadly, this book is about how our government today is depriving us of our freedoms and ruining the lives of thousands without changing even one word of our Constitution.

If you read no other book this year, read *Send in the Waco Killers*. Just keep your blood pressure medication handy. 506 pages, trade paperback, \$21.95 + \$3 S&H.

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FOOD DRYING

By Marcella Shaffer

The oldest known method of food preservation is drying food using the heat from the sun. Unfortunately it has become the least used as freezers and pressure canners have taken its place.

While these methods of food preservation are certainly effective, they have drawbacks when compared to solar food drying.

Freezing is quick and easy but requires purchasing an expensive freezer if you don't already own one. It also requires electricity (or other form of energy) to operate. Unless you are "off-the-grid," a power outage can result in food loss.

Canning food requires more work than freezing but is generally unaffected by power outages. The initial expense of getting started can be substantial if you have to purchase the

canner itself and related items like jars, lids, etc., and new lids must be purchased each year. Also, a source of energy is required, (electric, wood, gas, propane, etc.) while preserving, and canned food requires a lot of storage space.

Preserving food by solar drying requires no energy except the heat of the sun. Dried food also requires no energy to maintain it while stored. Related expenses are practically nothing, and little storage space is required. Drying food is easy to do and doesn't require any special skills or equipment.

Dried food is excellent for hiking and camping because of its light weight and compact size. Several days rations can easily be placed in a backpack or your pockets. Best of all, dried food is delicious and nutritious.

Solar drying basics

Dried food is preserved by its moisture content, or rather the lack of it. It is always better to have food overly dry than not dry enough. Mold, due to inadequate drying, is the main cause of food spoilage while stored.

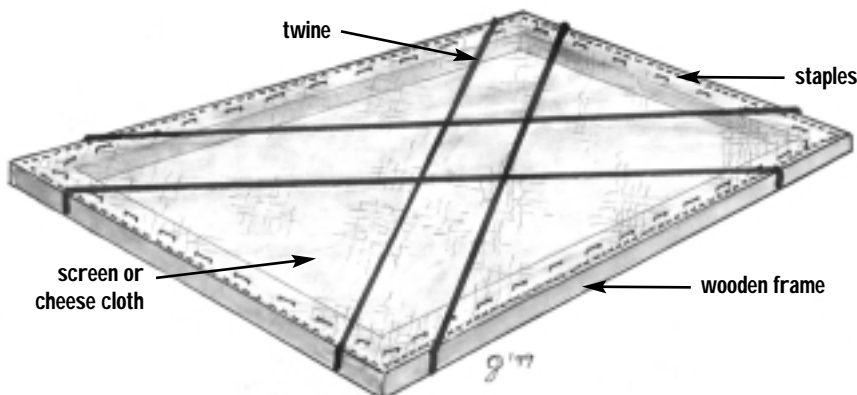
Climate can affect solar drying. The ideal climate is one with low humidity and bright, strong sunshine. If you live in a humid or rainy area you may wish to dry foods with a dehydrator or in the oven. While drying in this manner will require some form of energy, the other benefits of dried food will still be available to you.

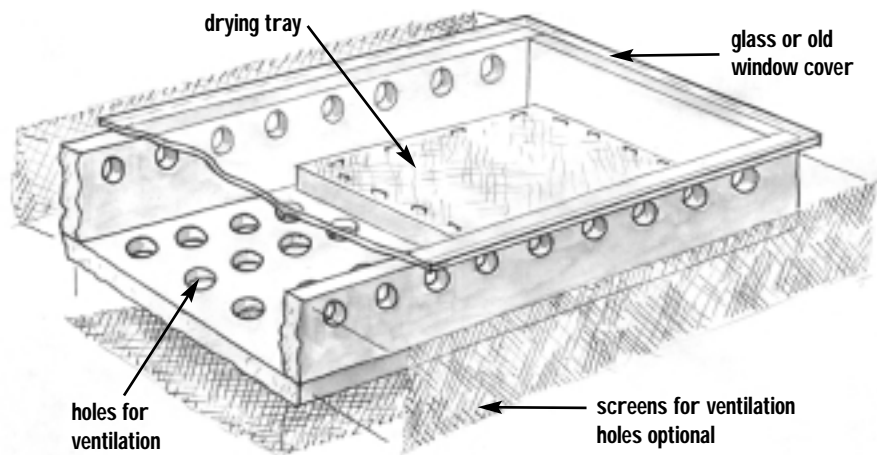
Do not dry your food outside in an area with a lot of traffic or air pollution. Contamination is possible from airborne emissions.

After food is prepared for drying, spread it in a single layer (pieces not touching) on drying trays and place in a sunny spot which permits good air circulation. Turn food daily. Dry strong-flavored or odored foods by themselves.

Drying trays can be made by simply using a frame and covering it with cheesecloth or plastic screen. Stretch tightly and fasten on the back with staples or tacks. A string can be placed across the back for reinforcement to prevent sagging (See illustration).

Do not use metal screen unless you cover it with cheese cloth. It may con-





taminate or ruin your food. Window frames, window screens, door frames, or discarded screen doors all make good drying trays. Set the tray on rocks or pieces of wood to permit air circulation from all sides. If insects are a problem while drying, loosely drape cheesecloth or other such fabric over the drying food. Arrange it so it does not touch food or it may stick.

To intensify the heat from the sun, an old window or piece of glass, can be placed above the food on the drying rack, allowing several inches of space for air circulation.

A simple solar dryer can be built from scrap material and an old win-

dow. Build a box similar to a gardening cold frame and cover with a piece of glass or plastic. Ventilation holes can be covered with screen to control insects if you wish. If the temperature inside gets too high (over 135-140 degrees F) provide more ventilation by raising the glass top a few inches.

Selecting a warm spot, like a heat reflecting driveway or roof-top, can help also.

Bring your trays inside at night or if rain threatens. Finish drying in the oven or over your heating stove if necessary.

Variables like your particular locality and climate, humidity, heat, and the food itself can affect the length of time it takes for food to dry, so it is impossible to give specifics. The following guidelines offer some dryness indications for particular foods.

Harvest your fruits and vegetables when they are at the peak of flavor. It is better if they are slightly immature than overly ripe.

Never place dried food which is still warm directly into the storage containers. Always let it cool completely first.

Fruits

Wash and dry fruit. Peel if desired and slice thinly. Apples, peaches, and other fruits may darken when exposed to air. This is caused by oxidation which can damage flavor and vitamin

content. To prevent oxidation you can dip the fruit slices in a preserving solution. One solution is a salt water dip which is made by adding six tablespoons of pickling salt to one gallon of water. Soak for two to three minutes, then drain. Pat dry. Another solution is two tablespoons of ascorbic acid powder to one quart of lukewarm water. Soak, drain, and dry as above. Commercial fruit preservatives can also be purchased for this purpose.

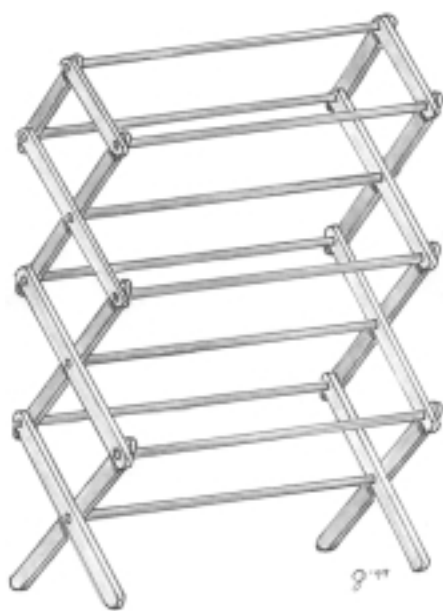
Fruits are dry when somewhere between leathery and brittle. Drying times are affected by a number of factors, so experience and common sense are the best guides. After sun drying fruit it needs to be "equalized." Remove from trays and place in a bowl inside the house. Several times per day, for one week, stir the fruit pieces. This will allow any moisture from pieces that are not totally dry to be transferred to those which are overly dry.

Another way to equalize dried fruit is to place it in a paper bag after removing from drying trays. Fold over the top of the bag and hang from the clothesline. Shake gently several times a day for two days.

Fruit leathers

Overripe fruit can be used to make fruit leathers and is actually better than fruit which is at its peak. To prepare fruit for leathers, rinse then turn into puree by grinding, putting through a food mill, or mashing with a potato masher. Remove peels, pits, and seeds. Add fruit juice if necessary until it is of a consistency that will pour. If the fruit is too runny, thicken by cooking over low heat to evaporate water or add a thickener, such as wheat or oat bran.

Sweetening or spices can be added if you choose. Begin by adding only one to two spoons of sweetener since many totally ripe fruits need nothing more. If you are making leathers from light colored fruits such as apples or peaches, heat to almost boiling before



beginning to dry. This will help prevent browning.

Fruits can also be combined. Some good combinations are cherries and rhubarb and strawberries and rhubarb. All of the small berries like raspberries, blackberries, and mulberries go well together.

Line a cookie sheet or tray with plastic (don't use wax paper or foil) or coat with a non-stick vegetable spray or cooking oil. Pour the puree in and spread evenly by tilting the tray or sheet back and forth to spread it out. The thinner and more consistent the thickness, the better and quicker it will dry. One-eighth of an inch thick works well. If it is too thick it may spoil before drying, and if not consistent it will not dry evenly.

When top side is dry, remove from backing and turn over. Let the other side dry. Cut into squares or strips and roll up. Leather which is slightly sticky to touch will keep for about four to six weeks. Leather which is completely dried will keep longer but may be too brittle to roll.

Store leather in airtight containers with plastic wrap or paper between them to prevent sticking. Leather can be used as snacks or dissolved in water and used in any recipe calling for fruit.

GUIDELINES FOR FRUITS AND VEGETABLES

Food	Preparation	Dryness test
Apples, pears, peaches	Wash, core, and peel. Cut into ¼" slices or rings.	Leathery with no moisture when cut
Apricots, plums	Wash, halve and pit. "Pop" backs.	Leathery and pliable with no moisture when cut
Bananas, rhubarb	Peel, slice in thin rounds.	Brittle
Berries	Sort, wash, and remove stems.	Brittle and hard
Cherries, grapes	Sort and wash. Pit cherries.	Slightly sticky, like raisins
Asparagus tips	Wash, blanch 3 minutes.	Leathery to brittle
Beans, cabbage, peppers	Wash, chop into small pieces. Blanch 4 minutes.	Brittle
Broccoli, cauliflower	Wash, trim, and chop. Blanch 3 minutes.	Brittle
Carrots	Wash, cut into slices. Blanch 3 minutes.	Dry and brittle
Corn	Husk, trim, cut off cob.	Dry and brittle
Mushrooms	Wash, sort, and slice ¼" thick.	Dry and brittle
Onions	Remove outer skin, then chop.	Brittle
Peas	Shell and sort. Blanch 3 min.	Brittle
Squash, zucchini	Wash, peel, remove seeds. Blanch 2 minutes.	Leathery and tough
Tomatoes	Scald, chill, and peel. Slice into quarters.	Leathery and tough

Vegetables

Vegetables, like fruits, should be harvested at their peak of flavor. Wash to remove dirt, then prepare for drying by peeling, slicing, etc., as desired.

Controversy abounds over blanching vegetables before drying. Some insist on it, while others feel it is not necessary and successfully preserve without it. To blanch vegetables, steam them over boiling water until they are heated throughout and look translucent when cut with a knife. Remove from steamer and cool immediately with cold running water or plunging into a pan of ice water. Drain, then pat dry with cloth or towel.

Spread on drying trays, as with fruits, and dry in the sun. Most vegetables are dry when they are brittle and will shatter when struck. Slices will snap when bent.

Storing dried food

Often fruit, even when dry, will stick together when stored. A tasty way to help prevent this is by "dusting" before storing. Powdered sugar, spices, or powdered oats can be used as "dust." Place it in a bag then add fruit and shake to coat the pieces. Dusting fruit leather or placing pieces of paper between the rolls will prevent them from sticking.

Almost anything can be used as a storage container, as long as it has a tight fitting lid. Recycled jars or other containers work well, as well as storage bags or canning jars. If using a metal lid, place a piece of paper between the food and lid. Light causes oxidation, so store the dried food in a dark place or put the containers inside paper bags or a cardboard box to block light. Keep in a cool place.

Storing in small batches is wise. In the event one piece is not dry, it will not ruin the entire batch. Check weekly for signs of mold for the first several weeks. Label the food before storing.

Simple and tasty jerky

- 3 lb. meat
- 2/3 tsp. garlic powder
- 2/3 tsp. pepper
- 2 tsp. onion powder
- 1/2 c. soy sauce
- 3/4 c. Worcestershire sauce

Soak meat for 24 hours in this marinade, then dry as directed.

Using dried foods

Add dried vegetables to soups or stews. The liquid will “re-hydrate” them while cooking. They can also be used in casseroles, sauces like spaghetti, and in nearly any recipe requiring vegetables.

Fruits can be eaten as they are for snacks. They can also be “re-hydrated” by soaking or cooking in juice. The warmer the liquid, the quicker the fruit will soak it up. Use dried fruits to stew, in baking, jams, sauces, or for syrups.

Dried foods will keep a minimum of six months in storage under the proper conditions.

Drying meat

Most USDA publications and home economists discourage drying as a means of preserving meat. While canning and freezing is the safest means of preserving meat, drying has been done successfully for centuries. This is another controversy that you will have to decide for yourself.

Jerky is the most common type of dried meat. Nearly any type of meat can be made into jerky as long as it is parasite-free. Meat which has been frozen, then thaws (as in a power outage), can be made into jerky.

Begin by trimming off any fat or connective tissue. Remove the bone. Cut into strips one-half inch thick or less. You can parboil at this time if you wish, but it is not necessary.

The next step is to soak the meat in a seasoned brine. There are many different recipes for this brine or marinade.

The easiest brine is one pound of pickling salt in one gallon water. Some folks prefer a more seasoned brine of spices, Worcestershire sauce, sugar, etc. Experiment to find your favorite. Soak the meat in the brine for 24 hours, then rinse and dry. You can also rub the seasoning in by hand, then wait a few hours and dry. Keep meat cool while it is absorbing the seasoning.

Meat is dried like fruit and vegetables. Hang the strips on racks or drape over sticks in an area with good air flow that receives full sunlight. A fire can be built nearby to give the meat a smoked taste and speed drying time if you wish.

Protect from insects with cheese cloth or other such fabric. A recycled “accordian” type clothes dryer works wonderfully for a drying rack. Since it is mobile, it can be moved close to the fire or brought inside at night so the meat can finish drying. It can also be cleaned with hot soapy water after use.

Meat is ready for storage when it is completely dry. It should be somewhat flexible but brittle enough to break when it is bent in half. Store like dried fruit or vegetables.

Jerky can be eaten as is or re-hydrated by simmering in broth or water. It can be added to soups, stews, etc. Δ

Fruit compote

- 1 pkg (3/4 lbs.) prunes
- 1 pkg (3/4 lbs.) apricots
- 1 lg #2 can pineapple chunks, drained, reserving liquid
- 3/4 c sherry wine (any red wine will do)
- 1 can cherry or apple pie filling

Wash prunes and apricots in warm water. (Can use any variety of dried fruit.) Drain water. Layer fruit in bottom of 9" casserole. Spread pineapple chunks over fruit. Pour 3/4 cup of the reserved pineapple liquid over fruit. Pour wine on top. Spread pie filling. Bake uncovered at 350 degrees for 1 hour.

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How to use those **LEFTOVERS**

By Marjorie Burris

Congratulations! You've worked hard and have enough food stored away to feed your family, possibly for a year or more. Now, go to your store room, pick up every fourth container of food, open it, and throw the food away.

"What are you thinking?" you ask, "I wouldn't do that!" No, maybe you wouldn't throw away the food all at one time, but if you throw away leftovers a little at a time, the loss is just the same. And that old adage, "Waste not, want not," could very well be more than just a trite saying if a disaster should strike.

Although leftover is often thought of as not one, but two, four letter words, it is possible with a little thought and planning to turn a leftover into a delicious meal. In fact, a good way to save time and energy is to "cook ahead," that is, to cook enough at one time so you will have leftovers for another meal. This is especially helpful when you know you are going to have a busy day and won't have much time for cooking, or if you are tired at the end of a day and cooking is the last thing you want to do. You can even cook ahead when you know you are going to have company so that you will have less time in the kitchen and more time to visit after they arrive.

Some basic rules

1. Store leftovers properly. We all know it is necessary to cool foods quickly and keep them cool so that bacteria do not multiply rapidly. But keeping air out of the food is almost as important as keeping it cool.

Foods set in uncovered dishes in the refrigerator either take on the flavors of other foods or spoil very quickly because air molds settle onto them. Dishes covered with aluminum foil or a stretch wrap are not very air tight, either, and food stored that way in the refrigerator does not keep as well as food stored in containers with tight lids. Stretch wrap seals around the edges, but it is air permeable. Have you ever covered a dish of cantaloupe with stretch wrap or foil only to open the refrigerator a few hours later and been met with a blast of unpleasant melon-scented air? Just think what that does to the rest of the food in the refrigerator. No wonder leftovers have a bad name. The mingling of flavors in the refrigerator doesn't help leftovers a bit.

There are many good storage dishes with tight lids on the market; most of them are expensive, but they are a good investment because they do a good job and they last for years. Of course, some of my best storage dishes are the plastic tubs that butter, margarine, ice cream, and cottage cheese are sold in. These containers are made of food grade plastic, have tight lids, and last a long time. And they cost only pennies because their cost is included in the price of the food that is sold in them. Glass jars are excellent for storing foods provided the

lids fit tightly. Another plus for a glass jar—you can readily see what is in it.

Store foods in as small a container as possible to limit the amount of air getting inside. And, if you use part of the food out of a dish, transfer the remainder into a clean container using one that is just barely large enough to hold the food. Residual food on the sides of a large container dries out and spoils faster than foods packed tightly into a dish. Also, if you warm some leftovers and have part of the warmed food left over, don't put the warmed food back in the container with the other food that was not warmed. Even though you cool the whole dish quickly, the slight rise in temperature in the entire dish will give an "off" taste to the food and can hasten souring.

2. Use leftovers quickly. Leftovers are more appetizing if they are used before they begin to taste stale. A good rule of thumb is to use the food within four days of being cooked. Some



Clam Chowder

1 cup mashed potatoes
3 cups milk
6 Tbsp. flour
1 Tbsp. dried parsley flakes
1 Tbsp. butter
1 ten oz. can baby clams, juice and all
dash paprika
salt to taste

In a saucepan, dissolve the flour in a small amount of the milk. Stir in the rest of the milk and the mashed potatoes. Cook over medium heat, stirring occasionally, until thickened and smooth. Add seasonings, butter, and clams. Heat thoroughly. If you like a thicker chowder, use more flour.

foods will keep a little longer, and there are a few foods that don't keep well quite that long, but four days is usually a good timetable.

And, if you alternate meals of leftovers with other foods, the family isn't so likely to become burned out and balk at eating another meal of the same thing. My family doesn't mind two meals in a row of the same foods, but three meals in a row is a bit much for them to take.

3. Give leftovers a new life. Although some foods are good simply warmed up as they are, you can often turn a leftover into a completely new dish. I like the saying *Celestial Seasonings* has printed on one of its cups: "Bread and water can so easily be toast and tea." This saying can be applied to life situations as well as food; I take it as a challenge for either living or cooking.

Look at the dish of leftovers and start by asking, "What recipe calls for something similar to what I have here?" Rice, beans, noodles, gravies, and sauces, and cooked vegetables, especially mashed potatoes, are easy to use because they are the basic ingredients in many casseroles and soups. I've found mashed potatoes so versatile that I always cook extra mashed potatoes just to have some on hand; we like them made into pota-

Sandwich spread

This sandwich spread recipe has been in our family for at least three generations, and it is always greeted with enthusiasm when it is served:

1 cup ground cooked meat (beef, ham, pork, chicken, or turkey)
2 hard boiled eggs, mashed with a fork
1/2 cup grated cheddar or swiss cheese
1 heaping Tbsp. sweet pickle relish mayonnaise, salad dressing, or tart yogurt to moisten.

Mix all well, salt to taste. Good on bread or crackers.

to pancakes, potato salad, potato soup, or as a topping for a hamburger and green bean casserole. But our favorite left-over mashed potato dish is clam chowder.

Incidentally, some canned seafood such as shrimp, clams, tuna, and salmon is a good addition to the long-term storage pantry; an occasional seafood dish can add extra nutrition as well as perk up a hum-drum meal.

Leftover beef stew is a natural for a pot pie later. Simply dice the meat and vegetables, heat with leftover brown gravy, turn into a baking dish, top with a flaky pie crust or biscuits, and bake until golden. You don't realize you are eating leftovers.

Of course, most leftover meats make good sandwiches when they are simply sliced. But you can add a little zip to cold meat by making it into a sandwich spread as well as stretching a small amount of meat to feed more people.

Gravy, either brown or white, never goes to waste at our house. Brown gravy makes an excellent sauce for a noodle casserole, especially when it is thinned with a can of cream of mushroom soup. Leftover white gravy made with sausage makes one of our favorite dishes.

When I have a small amount of meat, I like to stretch it by chopping or shredding it and simmering it in a bar-b-que

White gravy casserole

1 cup leftover white sausage gravy
1/2 cup milk
1 cup leftover cooked zucchini and carrots, drained

Mix all ingredients, turn into a baking dish. Top with crushed cracker crumbs, potato chips, or hard bread crumbs. Bake 350 degrees until bubbly, about 20 minutes.

sauce or salsa. When I use bar-b-que sauce, I serve the meat on a bun; when I use salsa, we wrap the meat with re-fried beans in a flour tortilla. No thoughts at all about this being leftovers.

Leftover cooked cereals such as oatmeal or wheat go easily into a bread dough or muffin recipe or they can be used as a thickening for a casserole. Bread can always be used, even if it gets hard. We like slices of "day old" bread spread with butter, sprinkled with a sugar-cinnamon mix, put on a cookie sheet, and toasted in the oven. I keep a jar of sugar-cinnamon made up all the

Bread pudding

2 cups cubed dry bread
4 cups milk, scalded
1 Tbsp. butter
1/4 tsp. salt
3/4 cup sugar
4 eggs, beaten
1 tsp. vanilla
1/2 cup raisins
nutmeg

Use the butter to grease a two-quart baking dish. Beat the eggs in the dish. Set aside. Scald the milk in a sauce pan. Soak the bread in the hot milk, add salt, sugar, vanilla, and raisins. Pour over eggs in baking dish, stir lightly. Sprinkle generously with nutmeg. Bake 350 degrees until firm, about 50 minutes. Cover tightly the last 10 minutes if it starts to get too brown on top. This will puff up, then settle back down in the dish. Good hot or cold.

Dog food

1 quart leftovers - whatever
1 envelope dry yeast
1 ½ cups oatmeal
1 cup dry beans-mixed is good,
but whatever you have the most of

Put leftovers in a large pot and cover with water. Bring to a boil, add yeast, oatmeal, and beans and simmer two hours until the beans are soft. Add more water, if needed. Refrigerate or freeze. Remember, too, even a dog can get tired of leftover leftovers.

time; we like five parts sugar to one part cinnamon. French toast is better when it is made with bread that is not too soft.

Homemade croutons are easy; simply butter or oil slices of bread, then sprinkle with a mix of your favorite spices or garlic salt. Cut into cubes and toast in a pan in the oven, stirring occasionally. Better than store-bought, by far, and uses lots of leftover bread. And the old standby, bread crumbs for toppings or for breading fish or meat to fry, can be made by putting the hard bread in a plastic bag and rolling over it with a rolling pin until the crumbs are as fine as you like. Mix the crumbs with spices for added flavor. My husband's favorite bread recipe is bread pudding; I don't think he even realizes I make it in order to use my "starting to go stale" bread. He often asks me to make it for him.

Even with the best of intentions, though, there are a few times when you just can't face what is leftover in the refrigerator; that's when you make dog food, providing, of course, the food has not soured or molded. That goes in the compost as the very last resort.

Make the most of your food store by using your leftovers. Not only will you feel good about being thrifty, but you can become very inventive with your recipes, and that too gives a feeling of satisfaction. Δ

The Tenth Year

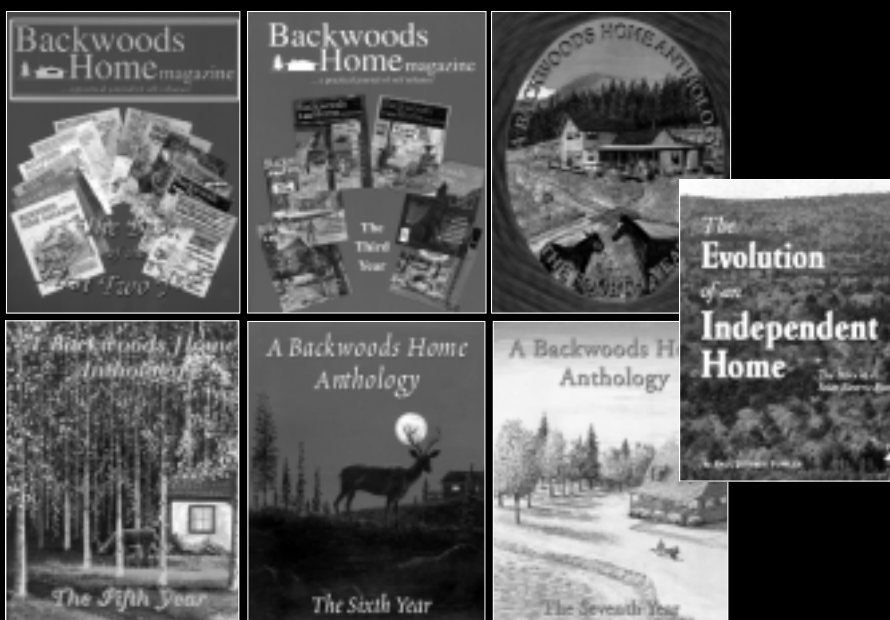
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OKRA



not just for the south

*By Alice Yeager
(Photos By James O. Yeager)*

No one is quite sure about how okra seeds came to this country. Okra is of African origin and the seeds could have come in by the slave trade in the late 1600's or they might have been brought in by traders from Mediterranean ports. One thing is certain. Someone did a big favor for succeeding generations—folks like you and me who like good food that's not hard to prepare. Okra, or "gumbo", is one of those versatile vegetables that may be enjoyed in many ways—boiled, battered and fried, in soups and stews, pickled or used generously in that famous dish known as Louisiana gumbo.

This member of the Mallow Family, known officially as *Hibiscus esculentus*, can also serve as a tall background plant in a flower garden as its yellow blossoms are beautiful in themselves. Sad to say, like most hibiscus flowers, the blooms only last one day and they aren't listed under the heading of "cut flowers."

Okra has other uses. Roasted seeds can be ground and used as a coffee sub-

stitute and it is said that the mucilaginous nature of okra can be helpful to some folks suffering from stomach ulcers. If a flower arranger is looking for something unique for a dried arrangement, a few mature dried pods of okra from the garden may be just what is needed to give a special touch.

Behind each okra blossom develops a small green pod that grows to edible size within two or three days depending on variety. These immature pods are what we gardeners harvest for culinary use. Pods should be gathered at their tender best as the longer they remain on the plants, the more fiber build-up they will have. Pods of the older varieties of okra such as Clemson Spineless and Cow Horn can be allowed to grow to 7-9 inches before becoming tough. The newer hybrid pods seem to reach their best texture at not over 5 inches. If some pods do get beyond the tender stage, the seeds may be removed and used in soups, etc., like peas, and the fibrous part dropped in the compost pile.

Although okra is ideally suited for southern gardens, it may also be successfully grown above the Mason-Dixon line and points west if a few simple precautions are taken.

Okra is a heat lover and thrives under summer conditions. Seeds should never be planted until the ground warms up and chilly weather is no longer a threat. However seeds may be started indoors in peat pots and transferred to the garden when the time is right. This makes it possible to have okra in gardens where summer is considerably shorter than in the South. I have observed okra growing and producing well as far north as Worthington, Ohio (next door to Columbus).

Okra likes a sunny spot in well drained, moderately rich soil. Location should be prepared several weeks ahead of planting time by digging in compost, well rotted barnyard manure, chicken litter, or any organic substance that will enrich the spot. Okra requires soil with pH 6.0-8.0 which is consistent with the needs of most vegetable plants. Be careful of an excess of nitrogen in the soil as that will cause more leaf production and less pods. If you're not sure about your soil pH, it might be well to inquire about taking soil samples to your county extension agent for analysis.

In Zone 8 we have a long growing season. Our last average frost date in spring is about March 15 and the first fall date is around October 15. Therefore it is more practical for us to



Okra's hibiscus type blooms brighten the garden. This is the Jade variety, high-yielding with tender pods and a semi-dwarf plant. Developed by the University of Arkansas.

wait until the ground has warmed up and then plant okra seeds directly into the soil rather than transplant. Seeds are planted about ½-inch deep and sown thinly. When seedlings appear and are a few inches high, we thin the plants to stand about 12-14 inches apart. In our raised bed garden we like to grow dwarf

varieties of okra as they require less space than the standard types.

In southwest Arkansas we can almost always count on a summer drought, so many of us resort to a heavy mulch of organic matter (straw, pine needles, grass clippings, etc.) to help conserve moisture. A light mulch is put down

when plants are 4-5 inches high and more mulch added as they grow. The mulch also cancels the need to cultivate as it keeps the soil loose and pliable and encourages earthworms. When the going gets rough, okra plants need a good ground soaking about twice a week. We accomplish this by using a small sprinkler set at low pressure so that water isn't wasted by being slung outside the beds. As said, okra is a heat lover and plants will start a downward trend when days begin to shorten and nights cool off toward the end of summer.

There are several ways to preserve okra for future use. One of the easiest is to freeze cut pods in water. This seems to retain the color better. Simply discard stern ends and slice clean pods crosswise in one fourth inch rounds, put them in freezer bags and fill with water allowing some room for expansion. Lay the packets flat on cookie sheets or heavy cardboard in the freezer. Remove from cookie sheets and stack when frozen. Whenever okra is needed for cooking, drop a packet in some warm water to thaw or remove the okra from the packet and place directly in the soup, etc.

Blanching okra is almost a no-no, as okra being of a mucilaginous nature does not take kindly to blanching. Some folks condemn okra without giving it a chance. "Too slimy," they say. These folks are not in the know. Simply put in a tablespoon of vinegar when cooking the okra and the "slime" disappears. One of the simplest and tastiest ways to prepare okra fresh from the garden is to boil whole pods until tender in enough water to cover. Drain and serve hot with a sprinkling of black pepper and small pats of butter or oleo.

For those who want to eat healthy, okra contains a goodly amount of Vitamin A and potassium and is low in calories. Like anything else, calories can go up with whatever is added to the okra.

There are a nurrber of okra varieties available from seed companies. It is safe



Fresh vegetables from the garden enhance the flavor of a pot of gumbo.

to save seed from the standard types, but seed from hybrid plants will almost always vary from the original plants.

Annie Oakley, a hybrid, produces large spineless pods and has been a favorite of many gardeners for a number of years. Not only does it do well in the South, but it is also recommended for the North.

Hybrid Cajun Delight is a relative newcomer and a heavy producer. It has done well in our garden and is said to succeed in the North. Hybrid varieties usually start blooming a week or so ahead of the older types of okra, but weather conditions can play a big part in determining when plants begin to yield.

Lee okra is a spineless dwarf okra and one that we like to plant in our raised beds as it is a space-saver. We have always had a good yield from Lee and its flavor is superb.

Jade is a semi-dwarf plant with a high yield and was developed by the University of Arkansas. We have had good luck with Jade and have found that it continues to bear its tender pods until late in the season.

For folks who like color in the garden, Burgundy is a variety that produces deep red pods besides having the burgundy color distributed throughout the stems and leaves. This okra requires a bit more room than some of the others but gives a good yield. Too bad the pods don't retain their color when cooked, but they turn green like the other okras.

This year we're trying a new okra called Green Best Hybrid. It is advertised as having small leaves and being suitable for close planting. We'll see if Green Best can outdo Lee and Jade.

For the most part, we seldom encounter any trouble with raising okra although okra is subject to verticillium and fusarium wilts. We rotate our crops each year and that seems to be the best preventive. Stinkbugs will occasionally suck juice from a pod causing it to malform. Rather than use a pesticide, we just destroy stinkbugs when we find them.

In praising okra as being downright desirable and delicious, I feel I must be honest and also list the downside to okra. (I can hear a skeptic say,

"Lookout here it comes. It causes your hair to fall out or something.")

Let me hasten to say the drawback is in the harvesting. Beware of varieties not listed as spineless. Even so, notice that this term refers to the pods and not the whole plant. I have yet to deal with an okra plant that did not have tiny almost invisible spines on stalks and leaves. Coming in contact with the spines can lead to a burning, itching and unpleasant sensation wherever one's skin touches the plant. To be on the safe side when gathering okra, it is best to wear long sleeves and gloves or be extremely careful to avoid brushing against foliage or stems. Fortunately the unpleasantness can be relieved by washing vigorously with soap and warm water.

Having Louisiana as a neighboring state has its advantages as its wonderful cuisine, particularly from southern Louisiana, has inspired many of us to prepare vegetables in ways that we might not have thought of doing on our own. My mother, now deceased, was born in Catahoula Parish and my husband, James, was born in the town of Amelia in Assumption Parish. We

Louisiana Gumbo

Ingredients:

- 1 large dressed frying chicken, including giblets & neck
- 1½ cups of flour for dredging
- ½ tsp. black pepper
- 1½ lb. okra cut crosswise, ¼" rounds
- 2 large tomatoes, chopped
- 2 medium bell peppers, chopped
- 1 large onion
- 1 large garlic clove, minced
- 3 Tbsp. flour, unbleached
- 3 qts. hot (not boiling) water
- 3 large bay leaves
- 1 lb. fresh shrimp, peeled and deveined
- 1 pint raw oysters and juice
- 1 Tbsp. filé
- hot rice

STEP 1: Dredge chicken with flour and pepper. In iron skillet fry until brown in enough good grade cooking oil to keep from sticking. Remove from skillet and set aside in large pot equipped with lid. Reserve chicken oil to be used as needed in rest of cooking.

STEP 2: Combine okra, tomatoes, bell pepper, onion and garlic and fry in just enough chicken oil to prevent sticking. When almost done, put in pot with chicken.

STEP 3: Make what is known as a roux (a base for gravy) by combining 5 Tbsp. of reserved chicken oil with 3 Tbsp. flour in a large iron skillet. Stir constantly over medium heat until roux turns dark brown. Be careful not to burn it! (Dark brown is one thing, but burned is another.) Gradually stir water into roux a little at a time. Add pepper and bay leaves and simmer about 5 minutes stirring when necessary to prevent sticking. Pour over chicken and vegetable mixture, bring to a boil and simmer about 30 minutes.

STEP 4: Add shrimp and oysters to simmering mixture in pot and continue to cook about 15 minutes. Add filé after gumbo has been removed from fire and has ceased to bubble. Do not boil after filé has been added as gumbo will have a tendency to be stringy. Many cooks put a bottle of filé on the table and let guests add their own. In case you are not familiar with filé, it is made from dried sassafras leaves and is usually available in fish markets or wherever gourmet supplies are sold. A small bottle will last a long time.

STEP 5: Serve gumbo over hot rice in large flat type soup bowls. Prepare your rice while the gumbo is cooking and use either long-cooking unpolished rice or brown rice for good flavor. Be sure to have enough rice ready as folks are almost sure to ask for seconds.

This recipe will serve 6-8 persons depending on salad, drinks, etc., served with it.

have a number of relatives in Louisiana so we can count ourselves among the fortunate. James's Aunt Katie Graves, who is now gone, used to make gumbo as only a person from lower Louisiana can make it. (See recipe.) Of course, one of the main ingredients was okra.

If you're not acquainted with the wonderful culinary offspring of the Cajun Country known as gumbo, don't remain a stranger to it. A big steaming pot of gumbo waiting to be served over bowls of hot rice is enough to make you kick the slats right out of your cradle! Δ

Filé

If you'd like to make your own filé it is easy to do if you have access to sassafras trees. These trees are widely distributed over the eastern half of the United States as far west as East Texas and north to southern Ontario.

Simply take a quantity of the fresh green leaves and dry them as you would any green leaf herb. When the leaves have reached a crisp stage, put them in a blender and reduce them to a powder. They are now known as filé. Store in an airtight container. Filé will keep indefinitely.

SEED SOURCES

COW HORN

Southern Exposure Seed Exchange
P.O. Box 170
Earlsville, VA 22936

ANNIE OAKLEY

Pinetree Garden Seeds
Box 300
Gloucester, ME 04260

Gurney's Seed & Nursery Co.

110 Capital St.
Yankton, SD 57079

Henry Field's Seed & Nursery Co.

415 N. Burnett
Shenandoah, IA 51602

HYBRID CAJUN DELIGHT

Park Seed
1 Parkton Ave.
Greenwood, SC 29647-0001

LEE

Henry Field's Seed & Nursery

JADE

Southern Exposure Seed Exchange

BURGUNDY

Gurney's Seed & Nursery Co.
Southern Exposure Seed Exchange
Park Seed

GREEN BEST

Pinetree Garden Seeds
Park Seed

THE IRREVERENT JOKE PAGE

(Believing it is important for people to be able to laugh at themselves, this is a new feature in *Backwoods Home Magazine*. We invite readers to submit any jokes you'd like to share to *BHM*, P.O. Box 712, Gold Beach, OR 97444. There is no payment for jokes used.)

A Swiss guy, looking for directions, pulls up at a bus stop where two Englishmen are waiting. "Entschuldigung, koennen Sie Deutsch sprechen?" he says. The two Englishmen just stare at him.

"Excusez-moi, parlez vous francais?" The two continue to stare. "Parlare Italiano?" No response, "Hablan ustedes Espanol?" Still nothing. The Swiss guy drives off, extremely disgusted.

The first Englishman turns to the second and says, "Y'know, maybe we should learn a foreign language..."

"Why?" says the other, "That bloke knew four languages, and it didn't do him any good."

Obituary-The sad passing of Pop N. Fresh
Veteran Pillsbury spokesman Pop. N. Fresh died yesterday of a severe yeast infection. He was 71. Fresh was buried in one of the largest funeral ceremonies in recent years. Dozens of celebrities turned out including Mrs. Butterworth, the California Raisins, Hungry Jack, Betty Crocker, and the Hostess Twinkies. The graveside was piled high with flours as longtime friend Aunt Jemima delivered the eulogy, describing Fresh as a man who "never knew how much he was kneaded."
Fresh rose quickly in business, but later in life his career was filled with many turnovers. He was not considered a very smart cookie, wasting much of his dough on half-baked schemes. Still, even as a crusty old man he was a roll model for millions. Fresh is survived by his second wife. They have two children and one in the oven. The funeral was held at 3:50 for about 20 minutes.

Two men were sitting next to each other at a bar. After a while, one guy looks at the other and says, "I can't help but think, from listening to you, that you are from Ireland."

The other guy responds proudly, "Yes, I am!"

The first guy says, "So am I! And where about Ireland might you be?"

The other guy answers, "I'm from Dublin, I am."

The first guy responds, "Sure and begora and am I! And what street you live on in Dublin?"

The other guy says, "A lovely little area it was, I lived on McCleary Street in the old central part of town."

The first guy says, "Faith & it's a small world, so did I! And to what school would you have been going?"

The other guy answers, "Well now, I went to St. Mary's of course."

The first guy gets really excited and says, "And so did I. Tell me, what year did you graduate?"

The other guy answers, "We'll now, I graduated in 1964."

The first guy exclaims, "the Good Lord must be smiling down upon us! I hardly believe our good luck winding up in the same bar tonight. Can you believe it? I graduated from St. Mary's in 1964 my own self."

About this time, another guy walks into the bar, sits down and orders a beer. The bartender walks over shaking his head and mutters, "It's going to be a long night. The Murphy twins are drunk again."

Submitted by Ted Holt

LEARN CHINESE IN 5 MINUTES

Are you harboring a fugitive?
See me A.S.A. P.
Stupid Man
Small Horse
Did you go to the beach?
I bumped into a coffee table.
I think you need a facelift.
I thought you were on a diet?
Do you know the lyrics to the Macarena?
You are not bright.
I got this for free.
I am not guilty.
They have arrived.
Stay out of sight.
Your body odor is offensive.

Hu Yu Hai Ding
Kum Hia Nao
Dum Gai
Tai Ni Po Ni
Wai Yu So Tan?
Ai Bang Mai Ni
Chin Tu Fat
Wai Yu Mun Ching?
Wai Yu Sing Dum Song?
Yu So Dum
Ai No Pei
Wai Hang Mi?
Hai Dei Kum
Lei Lo
Yu stin ki pu.

A devoted wife had spent her entire life taking care of her husband. Now he was slipping in and out of a coma for several months, yet she stayed by his bedside ever single day. When he came to, he mentioned to her to come nearer.

As she sat by him, he said, "You know what? You have been with me through all the bad times. When I got fired, you were there to support me. When my business failed, you were there. When I got shot, you were by my side. When we lost the house, you gave me support. When my health started failing, you were still by my side..."

You know what?

"What dear?" She asks gently.

"I think you bring me bad luck."

Submitted by Bud Jarvis

CLASSIFIED ADS

The following were actually taken from recent classified ads in newspapers. (You can't make this stuff up.)

1 MAN, 7 WOMAN HOT TUB--\$850/offer

2 WIRE MESH BUTCHERING GLOVES
1-5 finger, 1-3 finger, PAIR: \$15

COWS, CALVES NEVER BRED
ALSO 1 GAY BULL FOR SALE

FREE PUPPIES:
PART COCKER SPANIEL
PART SNEAKY NEIGHBOR'S DOG

NORDIC TRACK \$300
HARDLY USED
CALL CHUBBIE

NICE PARACHUTE:
NEVER OPENED - USED ONCE
SLIGHTLY STAINED

FREE KITTENS: READY TO EAT.

YO MAMA IS SO FAT THAT...

When she was diagnosed with the flesh eating disease the doctor gave her 13 yrs to live.

She puts mayonnaise on aspirin.

Her cereal bowl came with a lifeguard.

All the restaurants in town have signs that say: "Maximum Occupancy: 240 Patrons OR Yo Mama."

When she ran away, they had to use all four sides of the milk carton.

When she gets in an elevator, it HAS to go down.

She could sell shade.

Her blood type is Ragu.

When she goes to a restaurant, she doesn't get a menu, she gets an estimate.

When she turns around, people throw her a welcome back party.

When she dances she makes the band skip.

WHY PARENTS GET GRAY

The boss of a big company needed to call one of his employees about an urgent problem with one of the main computers. He dialed the employee's home phone number and was greeted with a child's whispered, "Hello?"

Feeling put out at the inconvenience of having to talk to a youngster the boss asked, "Is your Daddy home?"

"Yes," whispered the small voice.

"May I talk with him?" the man asked.

To his surprise the small voice whispered, "No."

Wanting to talk with an adult, the boss asked, "Is your Mommy there?"

"Yes," came the answer.

"May I talk with her?"

Again the small voice whispered, "No."

Knowing that it was not likely that a young child would be left home alone, the boss decided he would just leave a message with the person who should be there watching over the child.

"Is there anyone there besides you?" he asked the child.

"Yes," whispered the child, "A policeman." Wondering what a cop would be doing at his employee's home, the boss asked "May I speak with the policeman?"

"No, he's busy," whispered the child.

"Busy doing what?" asked the boss.

"Talking to Daddy and Mommy and the Fireman," came the whispered answer.

Growing concerned and even worried as he heard what sounded like a helicopter through the ear piece on the phone the boss asked, "What is that noise?"

"A hello-copper," answered the whispering voice.

"What is going on there?" asked the boss, now alarmed.

In an awed whispering voice the child answered, "The search team just landed the hello-copper."

Alarmed, concerned, and more than just a little frustrated, the boss asked, "Why are they there?"

Still whispering, the young voice replied along with a muffled giggle: "They're looking for me."

An accountant, a lawyer and a cowboy were standing side-by-side using a urinal. The accountant finished, zipped up and started washing and literally scrubbing his hands.. clear up to his elbows...he used about 20 paper towels before he finished.

He turned to the other two men and commented, "I graduated from the University of Michigan and they taught us to be clean."

The lawyer finished, zipped up quickly and wet the tips of his fingers, grabbed one paper towel and commented, "I graduated from the University of California and they taught us to be environmentally conscious."

The cowboy zipped up and as he was walking out the door said, "I graduated from the University of Texas and they taught us not to pee on our hands."

Ayoob on Firearms:

Home on the range with a .357

I've written in the past that my own choice for an all around backwoods handgun that you can have with you at all times and will get the most jobs done is the .44 Magnum. However, in many areas the bear-bustin' power of the .44 Mag isn't needed, and a lot of people aren't comfortable with its brutal recoil. If that's the case, the .357 Magnum sixgun may be the best choice.

Introduced by Smith & Wesson (revolver) and Winchester (ammo) in 1935, the .357 Magnum has become hugely popular since and is now offered by virtually all revolver manufacturers and ammo companies.

Many people with rural values prefer the frontier-style single action revolver, such as the hugely popular Ruger Blackhawk. These cowboy guns harken back to frontier times and ways. For hunting or pest control, there will always be time for the necessary thumb-cocking of the hammer, and for the necessary one shell at a time loading and unloading through the single action sixgun's side gate on the right of the frame.

True all around work, however, encompasses defensive use. In the fall of 1998, Tennessee state senator Tommy Burks was murdered by gunfire at his hog farm in Cookeville, TN. A handgun readily accessible at the hip and competently wielded in self defense could have prevented that tragedy. The defensive mission makes a double action revolver with a swingout cylinder the logical choice. A single push on the ejector rod dumps out all the spent cases at once, and a nine-dollar speedloader lets you reload six at once very quickly, or load the gun at maximum speed from

a standing start if your safety protocols are such that you keep your firearm unloaded. In a close range emergency, the gun can be fired "double action" with a single long, heavy pull of the trigger being all that's necessary for each shot, or the hammer can be thumb-cocked for the light, easy trigger pull that most beginners find conducive to slow but precisely accurate shot placement, as in small game hunting.

The .357 Magnum cartridge is the same dimensions as the .38 Special but a tenth of an inch longer in the casing. This prevents powerful Magnum rounds, which fire at 33,000 to over 40,000 pounds per square inch pressure, from blowing up old .38 Special revolvers that don't have modern steels or heat treating. This means that while you can't fit a .357 Magnum cartridge into a .38 Special revolver, a .357 Magnum revolver can take both that cartridge and the .38 Special. This gives some really broad versatility options.

.38 Special snake-shot produced by CCI can take the worry out of being close in places where the serpents are poisonous. (I can tell you from personal experience that they vaporize scorpions, too.) The mildest conventional loads are the incredibly accurate .38 Special 148-grain mid-range wadcutters. This is the perfect ammo for using your .357 to teach kids or other new shooters how to hit with a handgun and handle one safely. They're also accurate enough to score head shots on squirrels at bird-feeder distance and rabbits at in-the-garden distance. This destroys no meat, allowing the creatures that once ripped off you and your birds to now contribute to the family stewpot.



Massad Ayoob

The police load for the .38 Special in the first part of the century, with an easy-kicking 158-grain round nose lead bullet, wasn't worth crap as a manstopper but it's a humane killer on small animals at close range. Because its almost pointy bullet goes through flesh like an icepick, it's ideal for dispatching animals in traps, since it does minimal damage to pelts.

For home or personal defense use by people who haven't yet grown comfortable controlling Magnum recoil, the best choice is a 158-grain all lead semi wadcutter .38 Special +P hollowpoint. Remington, Federal, Winchester, and CCI all produce such ammo. It had a great record in the service revolvers of Chicago, St. Louis, and Metro-Dade Police, and those of the FBI and the RCMP.

For defense against human beings, the best of the Magnum loads by far is the 125-grain semijacketed hollowpoint .357 cartridge, produced by all the big manufacturers. It became legendary as a manstopper. Multiple studies (the ongoing work of former Detroit homicide detective Evan Marshall, and the survey done by police chief Richard Fairburn done in cooperation with the Police Marksman Association) indicate that the 125-grain .357 Magnum is more likely to

stop a gunfight with one solid hit than any other handgun cartridge in common use. Even the .44 Magnum tends to blast through erect bipeds, spending much of its greater power after exiting the body.

For deer hunting, a heavier, slower expanding bullet is better. The inexpensive "generic" American Eagle 158-grain softnose .357 from Federal cartridge wouldn't be a bad choice, and it's hell for accurate. My 8-inch barrel Colt Python will group it into 2.5 inches at 100 yards from a sand-bag benchrest. Most experts feel anything bigger than a small deer is too big for a .357, though moose and bear have been killed with the cartridge. I concur, it's too small. I've killed deer and wild sheep with the .357, but went to the .44 Magnum for outdoorsmanship when I found it killed quicker and cleaner with hits in the chest than the .357 Magnum.

Still, the .357 is a good all-around camp or farm gun. I recently spent a couple of weeks on a rural firearms training complex that included a Christmas tree farm and a large family garden that small local white-tails had taken as their personal salad bar. En route to the facility, I had shot the National Police Service Revolver Championship in Jackson, MS (missed winning by ten points, dammit) and I still had with me the gun I'd used there, a Colt Python .357 with 4-inch barrel that I had carried on police patrol long ago.

The Python is an exquisitely accurate revolver, and both the .38 Special and the .357 Magnum are inherently accurate cartridges. No veggie-marauding Bambi prompted this one out of its holster during those two weeks, but it rode my belt from dawn to dusk, and it was a reassuring presence on dark nights in that remote place.

My host found it no problem to hit a man-size silhouette target six shots out of six with the Magnum loads from this Python, at a hundred yards from a two-hand prone position. A week after

I returned home, I found myself dropping by an NRA Hunter Silhouette pistol match on the same complex where I was now teaching a class. While my students watched a video, I shot the event with the 4-inch Python and Federal 125-grain Magnum hollowpoints, and was able to nail seven out of ten of the miniature ram targets—about the size of small terriers—at a hundred meters. That's probably more accuracy than we have a right to ask of a police service type revolver with a relatively short barrel.

Unless you've got really big bears in the backyard, the versatile .357 Magnum revolver will get you through the night at your backwoods home. Δ

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SEND IN THE WACO KILLERS

Three times the International Society of Newspaper Editors has included Vin Suprynowicz in their list of the 12 top weekly editorial writers in North America. For years his shoot-from-the-hip style has opened the eyes of thousands to government abuse of our liberties. In this book, *Send in the Waco Killers*, he blends material taken from his syndicated column with new commentary to give the reader a detailed, reporter's-eye-view of how the rights and freedoms of Americans are being subverted.

He uses factual accounts from the daily news to show how the Feds use the drug war, the public schools, jury rights, property rights, the IRS, gun control, and anti-militia hysteria to increase its power and control over us. He details how agents of the ATF and FBI have routinely lied, how they use paid informants to infiltrate Constitutionally-protected militia groups, then fabricate evidence to get arrests and discredit them.

Had he lived 225 years ago he'd have written a book to detail how King George III and Parliament have tried to enslave us but, sadly, this book is about how our government today is depriving us of our freedoms and ruining the lives of thousands without changing even one word of our Constitution.

If you read no other book this year, read *Send in the Waco Killers*. Just keep your blood pressure medication handy. 506 pages, trade paperback, \$21.95 + \$3 S&H.

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Cost-saving BABY TIPS

By C.M. Hudman



Until I had a child myself I never understood the power they had to suck money directly from the wallet. Oh sure, I had read horror stories in nationally acclaimed magazines that stated the total cost of raising a child nears a million dollars, but this couldn't possibly be credible. How could it be? Children actually need very little outside of a loving family warmth and food. My grandmother and her mother didn't have a problem, yet women of my generation have to work 40 hours or more just to support one little tyke. Armed with a long list of necessary items I headed out on a mission—a mission to enable me to stay home with my child, if only for a few years.

The first and probably most empowering step towards cutting costs was realizing that 90 percent of the baby market was made up of acquired needs. Jars of baby food never lined my shelves, it was just as quick and easy to mash up the meat I was eating. As for formula, nothing tops breast milk. Soon I began talking

to friends, family, and grandparents and it didn't take me long to learn about the abundance of alternative products and used items.

Forcing myself to adhere to a strict budget I found some fantastic money saving solutions. Give them a try for yourself.

Baby bath: As a first-time mom I was very timid when it came to handling a slippery little newborn. I remember eyeing the plastic baby tubs until my mother-in-law folded a towel in the kitchen sink, then ran a couple inches of water in it. After that, I was able to bath my daughter with confidence.



Baby powder: Many baby powder companies boast about the power of cornstarch. Try substituting 100% natural cornstarch for baby powder. Cornstarch works as effectively and is a whole lot cheaper. Look near the baking soda in your local supermarket. I buy mine in a box.

You will find that most powder bottles are not made to be recycled. The

lids are not removable. I recycled a large plastic spice container (4-5 oz. size). It can be easily filled and is a great size for diaper bags. As always, when recycling, clean the container thoroughly before using.

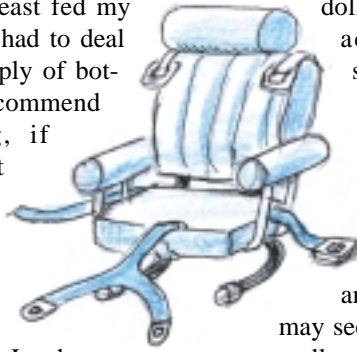


Baby oil: Read the ingredients on your baby oil label. The "favorite" brand name lists mineral oil and fragrance. Replace with mineral oil and forego the fragrance, saving money. Refill or switch the lid from a used baby oil bottle to get the slow pour spout.

Blankets: They're everywhere. I was shocked at the abundance of used baby blankets and quilts in the thrift stores and at garage sales. Buying used is the only way to go. Always wash in hot water to kill germs.

I also made a couple car blankets with sale-bought polar fleece. About a yard and a half makes a good sized, durable travel blanket. The edges can be serged or stitched with a piece of blanket ribbon on the ends.

Bottles: I breast fed my child so I never had to deal with a large supply of bottles. I highly recommend breast feeding, if only for a short time. Ask your doctor to give you information or to give you a contact number for the La Leche



League. The savings is not only found in formula costs but many studies show that breast fed infants are healthier. If you should choose to bottle-feed, sterilize used bottles and replace nipples for safety purposes.

Car Seat: Never compromise on safety here to save money. My daughter has always had a proper car seat and used it. This however does not mean I paid full price for every one of them. Car seats are flooding the used market. Your job as a parent and consumer is to check out the safety of the car seat you find. When buying a used car seat be sure to refer to recall lists to make sure it is safe. Keep the list in your glove compartment for quick reference on the road and use it while garage sale shopping. A car seat recall list can be obtained through the local maternity ward or childbirth classes. Don't hesitate to call the companies yourself after you get a car seat home. They will be happy to inform you of recalls and obtaining replacement straps (all frayed straps should be replaced). I encourage you to have the car seat available when you call so you can read off model numbers and provide an accurate description. To find the toll free number to any company call 1-800-555-1212 to get the toll free directory.

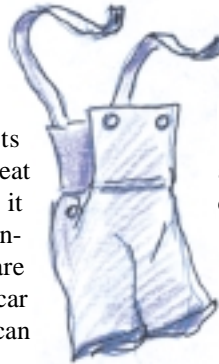
Most car seats I came across were dirty. I bought the one my daughter uses now for only a dollar because it was so dirty. Try cleaning really dirty car seats with carpet cleaner and a scrub brush. A friend owns the same car seat, paid almost a hundred

dollars new, and my used find is actually in better shape. It shocks most when I tell the price I paid for it. After I scrubbed it up with some organic carpet cleaner it looked fantastic.

Checking recall lists and cleaning a used car seat may seem like an awful lot but it really adds up to a matter of minutes. Once you find out you are pregnant keep an eye out for a car seat. Ask around. The savings can be remarkable.

Clothing: I got sucked into this money drain along with other new moms. Please, take some advice from someone who has been there. Limit your baby's closet to necessary items only and you will save hundreds of dollars. I understand the lust to buy some adorable outfits, but when you start wasting money the true needs of your child suffer. Wouldn't that 20 bucks be better invested in a college fund or a savings bond?

Search the thrift stores, garage sales, and consignment shops. Once you discover the great clothes for dirt-cheap prices you'll never go back to retail ripoffs. My daughter was dressed in brand name clothing for literally pennies on the dollar. She looked great. Used clothing is recycling at its best. No wasted packaging or store bags. Pass the tradition on to others by donating clean clothing, especially warm winter clothing, to orphanages



or women's shelters. There is an incredible need for these items. Take your children along to show them how truly blessed your family is.

Crib: Babies spend a lot of unsupervised time in the crib, so safety is important. Your local child birth classes or maternity ward will be able to tell you the safety checks you should perform on every crib, new or used. Don't assume you have to buy new. Just be alert to dangers and never compromise on safety.

Diapers: Replace pricey disposable diapers with cloth diapers. Even with added washing and drying, the savings adds up to a hefty amount. The initial cost of cloth diapers can be avoided if you encourage family and friends with the words that you would prefer cloth diapers to frilly gifts.

Try sewing up your own cloth diapers out of absorbent flannel, with Velcro closures and fun patterns, and you may find yourself the envy of your local mother's club.

Diaper Bag: My answer to the diaper bag dilemma was a backpack. It was perfect for trips and fit conveniently on my back when I shopped. With a baby on one hip, the last thing needed is a diaper bag sliding down the other shoulder. I still use the L. L. Bean backpack I found for two dollars at a garage sale and my child is over four-years-old now and looks none the worse for wear.

There are many options and designs available in today's backpacks. You may choose a simplistic design or one with added compartments. Whatever you pick, spend a little more money and buy from a company that offers a lifetime warranty. A backpack is never outgrown and is continually useable, so be smart and pass up on the cheap plastic baby bags.

Diaper Rash Solutions: If diaper rash should occur simply let your baby's bottom dry out. Clean, rinse,



and dry your little one then let your baby run wild, diaper free. To “nip it in the butt,” as you might say, use a hair dryer (warm setting) sweeping back and forth to dry out moisture from your baby’s bottom. I never had problem with diaper rash because I took this action at the first sign of a rash. It cured up every rash wonderfully.

Diaper Rash Ointment: A simple homemade diaper rash cream that works better than store-bought is an equal mixture of corn starch and petroleum jelly. It creates a smooth silky cream. Try it and you will never go back to overpriced chemical brands. It is also easier to wipe clean than store brands. I mixed this ointment up for many friends who love it and can’t believe how little it costs compared to anything brand named.

High chair: I bought a used high chair for seven dollars and sold it two years later for twenty-one at a consignment shop. This shows that taking good care of your items will pay off in the future. Go ahead use it for free.

Immunizations: When enrolling my daughter into preschool, her teacher let me in on a great saving tip. The county public health department gives immunization shots for a couple dollars verses the outrageous amount the hospitals charge. Call your county’s public health agency to get the details.

Shoes: \$30 baby sneakers are an acquired need. There is no reason for a three-month-old to wear shoes. Hold off on buying shoes until your toddler is walking.

Soap: Use a mild soap for baby’s skin instead of baby wash. It lasts longer, there is less packaging, and works just as well. Switch the whole family over to a bargain-brand baby shampoo or use a very small amount of regular shampoo on your baby.

Stroller: Stained, used strollers can be salvaged by simply scrubbing with a strong stain removal solution and a good cleaning. A good potent paste made up of dishwasher deter-

gent, color safe bleach, and water is one of the most effective cleaners on protein type stains that plague the used children’s products market. Simply soak, then rinse clean in the shower or power wash with the hose in the front yard.

Swing: The best baby gift I received was a hand-me-down swing from a friend. I kept it in great condition and handed it down myself. Don’t hesitate to give and accept valuable used items because you think a new item will “show” better at the shower. It’s often the practical gifts given by veteran moms that save the day.

Wipes: Buy a bunch of cheap washcloths to use for this specific purpose. Before messy changes, wet down a couple for quick, easy cleanup. Throw in the bucket with your cloth diapers and wash in the same load. For a baby on the go keep wet washcloths in a plastic baggies. They work so well I still carry a couple for my three-year-old.

Homemade wipes can be made by cutting a roll of thick paper towels (Bounty works well) in half. Remove the cardboard roll and place in a recycled airtight round container. Add a tablespoon of Baby Magic baby soap, two tablespoons of baby oil, and two cups of water. Shake and allow the mixture to soak up into the towels, invert the container if necessary. Pull the towels from the center. Δ

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Think of it this way...

We don't need no steenking 2nd Amendment

By John Silveira

I usually get up to the magazine from southern California in plenty of time for the bimonthly deadline. Not this issue. I was late and way behind. But getting up here late doesn't lessen my workload; it just stretches out the number of hours I have to work each day. There's less time to relax, visit, or spend with friends. That said, three of us, Dave Duffy, O.E. MacDougal, and I went shooting anyway and depreciated a huge amount of ammunition on a hillside up behind Duffy's house. Duffy, of course, is the fellow who publishes this magazine. Mac is Dave's poker-playing friend from the old days.

After a hard day of knocking down cans and collecting brass, we got back to the office and discovered that Dave's old college buddy, Bill, had stopped by. Dave and Bill began talking about old times, but the phone rang and took Dave out of the conversation.

I, in the meantime, had disassembled my rifle and there were pieces in my lap and some on my desk. Mac was off in the corner reading a copy of the last issue of BHM.

"What are you doing with that?" Bill asked.

I looked up. He was talking to me. I looked down in my lap at the gun parts I had there. "I'm cleaning it," I said.

"What do you need it for?" he asked.

"I don't usually clean them but..."

"No, not why do you need to clean it, why do you need a gun?"

"Why do I need it?"

"Yes."

"I want it," I said.

"But why do you need one?" he persisted.

"Need one?" I asked again, not understanding his question. "I don't follow you."

"How many guns do you have?"

"You mean 'own' or how many did I bring up with me?"

My question seemed to put him off.

"How many do you own?" he asked in a voice that was tinged with exasperation. "How many guns do you have here, there, and everywhere?"

I thought a minute. "About a dozen."

He screwed up his face. "What do you need 12 guns for? If you need a gun, one should be enough."

"Enough for what?"

"What do you need a gun for?"

The meaning of the 2nd Amendment

He was back to that. "I don't know where this is going. I don't even understand your question," I said. "I don't have to need a gun to own one any more than I need a CD player or a couch to own one of those. The 2nd Amendment says I can have them. It doesn't say I have to show a need and it doesn't limit the number I can own."

Bill shook his head. "So, you're one of those."



John Silveira

Dave finished his call and turned to us as he hung up and said, "Bill, what do you mean by needing a gun?"

"The 2nd Amendment isn't about you guys owning guns," Bill said. "It's about the state having guns. It says you're only allowed guns if you're part of the militia and I don't see any of you guys with uniforms. The 2nd Amendment is about the National Guard."

"I don't think that's what it means," Dave said.

"It says it right in the amendment. It's for the militia. You can even ask Mac," he said and pumped his thumb back to the corner where Mac was quietly reading. "I'll bet even he agrees with me."

I think Bill was baiting Mac. He and Mac had had a lively discussion about our rights the last time Bill was here about two years ago (Issue No. 44 March/April 1997). But Mac didn't look up. He just kept reading.

Dave got out of his seat and pulled down the almanac from the bookcase and flipped through the pages. Then he began to read, "A well regulated Militia, being necessary to the security of a free State, the right of the people to keep and bear Arms, shall not be infringed."

"See," Bill said. "It's about having a well regulated militia. Militia—that's military. It's not about you."

“Well, a whole bunch of people think it’s about individual gun ownership,” Dave said.

“But it’s not. Read the amendment again. It’s about the militia. It’s only you gun nuts who think it’s about you.”

I shrugged. The wording of the 2nd Amendment has always bothered me.

But Dave looked off into the corner to where Mac was still reading. “What do you think?” he asked.

Mac just looked at us and smiled, then went back to his magazine.

“See,” Bill said. “Even he knows it’s about the National Guard, not you guys.”

“The National Guard didn’t exist when the 2nd Amendment was written. It came into existence over a century later,” Mac said without looking up and he continued to read.

“What?” Dave asked.

“I said the 2nd Amendment isn’t about the National Guard. The Bill of Rights was adopted in 1791. The act that created the National Guard wasn’t enacted until 1903.”

“Well, you know what I mean,” Bill said. “It’s to allow the states to have state police and things like that.”

Mac continued to read.

“Is that true?” I asked.

Mac looked up when he realized I was talking to him.

“You mean was it for the state police and such?” he asked me.

“Yes,” I replied.

“No.”

Bill smiled. “Mac, it says right there in black and white—Dave just read it to us—that it’s to ensure we have a well regulated militia.”

I looked expectantly to Mac who seemed to be getting impatient because he really was trying to read. “Could you give us a little input into this?” I asked him.

“I can tell you that when the Founding Fathers used the word militia, it meant something different to them than what it means to us now,” and he continued reading.

“Is that all you’ve got to say?” I asked.

He looked at me, then back at his magazine. He knew we weren’t going to let him stay out of this and he reluctantly closed it.

What is the militia?

Now that I had him I asked, “What’s this about how the guys who founded this country used the word militia?”

“You’ve got to understand what the militia is,” he said. “In May of 1792, five months after the adoption of the 2nd Amendment, the Militia Act was passed. That act distinguished between the enrolled militia and the organized militia. Before the passing of that act, there was only the enrolled militia, which was the body of all able-bodied men between the ages of 17 and 44, inclusively, and it is that militia to which the 2nd Amendment refers. It couldn’t refer to the organized militia because it didn’t exist yet. The 2nd Amendment was to ensure that this body of citizens is armed and that’s why the Founding Fathers thought to place it in the Bill of Rights. Legally, both militias still exist.”

“Are you saying I’m in some militia?” Bill asked derisively.

“By law, you were. I would guess that, by now, you’re over that age.”

“So, you’re also saying only people between 17 and 44 are allowed guns, right?”

“No,” Mac replied. “That’s just the ages of the body of men constituting the militia. The amendment says the people can both keep and bear arms. It’s usually been construed to mean all the people.”

“I don’t believe you.”

Mac shrugged, reopened his magazine and resumed reading.

“What don’t you believe?” I asked.

“Anything. First, I don’t believe that I’m part of any militia or ever was. Second, I don’t believe that the 2nd Amendment refers to the people at

large and not the army or some other state or federal organization.”

“I still don’t get this thing about the organized and the enrolled militia?” Dave said.

Mac put the magazine down again. He shook his head and muttered something about fishing in Alaska from now on. He got up

out of his chair and walked out the door. Through the window we could see him in the parking lot fishing around in the trunk of his car until he finally pulled something out. It was a tattered black briefcase. He carried it back into the office and put it on the desk next to his magazine. He opened the briefcase and took out a sheaf of papers and fanned through them.

“I was looking up some stuff on the 2nd Amendment for a lawyer friend I play poker with down south,” he said, meaning southern California, “and I still have some of the papers.”

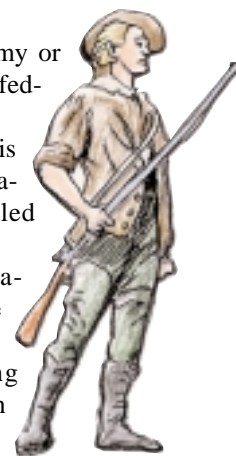
He stopped fanning them.

“Here are copies of the Militia Act,” he said and held them out to Bill. “They explain what the militia meant to the Founding Fathers. They also show that the 2nd Amendment came before Federal law created the organized militia and provide evidence that what they referred to as the enrolled militia—the body of citizens—were allowed to arm themselves.”

Bill waved them away. “All that happened 200 years ago,” Bill said. “Militia means something else today. It means the military.”

“No, the law hasn’t changed,” Mac said. “But even if we decide the word means something new to us, you can’t use the new definition to change the intent of the Amendment.”

“That’s your opinion and you’re entitled to it. But times have changed



and we need new interpretations of the words and of the Constitution.”

“It’s not just my opinion,” Mac said. “The Supreme Court has ruled that the words in the Constitution mean what the Founding Fathers said they meant, and we can’t go changing or amending the Constitution by giving new meanings or new shades of meaning to the words. And, if you think about it, it makes sense; otherwise, our rights really mean nothing. Congress or any other governing body can deny you the right to free speech, freedom of religion, a trial by jury, or whatever else it wanted just by claiming the words now have a new meaning. An oppressive government could change the Constitution without ever having to go through the bothersome ritual of submitting it to us, the people, for our approval. And, in the end, the Constitution and, in particular, the Bill of Rights are there for our protection, not for the benefit of the government or those who run it.”

“Well, I don’t buy into these definitions you have of militia and such,” Bill said. “I don’t believe the 2nd Amendment gives John or anyone else the right to privately own guns. I think your interpretation is just a well-presented opinion and that the 2nd Amendment really refers to the powers given to the states.”

Why we don’t need the 2nd Amendment

Mac shrugged. “That’s okay. Even if you’re right and the 2nd Amendment refers only to the National Guard, the state police, or some other uniformed military or police organization we’d still have the right to keep and bear arms. We don’t need the 2nd Amendment.”

“What?” Bill yipped. “If the 2nd Amendment is about the states, and not the individual, you don’t have the right to own guns.”

“Yes we do,” Mac said.

“Wait a minute,” Dave said, “How do you figure we’d still have the right to have guns? Without the 2nd Amendment we’re lost.”

Bill was laughing, “Yeah, how do you come up with that?”

“Because the Founding Fathers believed we had that right. They spoke about it and wrote about it. And that’s enough.”

Bill laughed harder. “That’ll look good in court: ‘I can carry a gun because some guy who’s been dead for 200 years said I can. Here, let me show you the note he gave me. It’s in the form of a permission slip. Can I get a hall pass, too?’”

Dave laughed at what Bill said, but Mac didn’t seem in the least perturbed.

“I think Dave and Bill are right,” I said. “The whole question of gun rights hinges on what the 2nd Amendment means. If it means the right to bear arms belongs to the states, then it means you and I don’t have any right to individual gun ownership.”

“Well, let’s start with this,” Mac said. “Can you find anything in the 2nd Amendment, or any other part of the Constitution, that says the individual can’t have arms?”

“What’s that got to do with it?” Bill asked.

“That’s not an answer. Just keep in mind my question is not whether you think the Constitution allows individuals to carry guns but whether or not there’s anything in it that says they can’t?”

“Anyone can answer it, but the question is really directed at Bill.”

There was a long pause while we all thought about that. I don’t know where Mac was taking this, but it smelled suspiciously like a trap and I’m sure Bill felt that way, too.

Mac waited patiently.

“I don’t think so,” Dave finally said.

I agreed, too, but Bill still didn’t say anything.

Natural Rights

“And do you also understand that the Bill of Rights is not the source of our rights. It’s not even a complete list of our rights.”

“What are you talking about?” I asked.

“Mac’s losing it,” Bill said and threw his arms up.

“I’m asking you if you understand that we do not get our rights from the Bill of Rights.”

“Of course we do,” Bill said. “That’s why they wrote the Bill of Rights.”

“I’ve got to agree with Bill,” I said.

Dave said nothing. He seemed to be thinking.

“I’m saying this because the Founding Fathers did not believe we got our rights from the Bill of Rights. Nor did they believe they came about as a result of being American, Christian, of European decent, or white. They believed everyone had these rights even if they lived in Europe, China, or the moon. They called them Natural Rights. Where these rights were not allowed, they believed they still existed but were denied.”

“You should be writing fiction,” Bill said.

“Well, it’s a question as to whether or not our rights exist apart from government,” Mac said. “Let me ask you this,” he said to Bill. “In a country where children have no civil rights, do they still have a right not to be molested? Do women in countries where they have a second-citizen status have the right not to be abused by their husbands, even if the government won’t protect them?”

Bill didn’t answer.

“Then is it too much of a stretch for you to understand that the Founding Fathers believed everyone has the right to free speech, freedom of religion, the right to fair trials...?” His voice trailed off.

Bill still wouldn’t answer.

“In other words,” Dave said, “it’s a question as to whether the rights of the citizens in China are at the pleasure of the government or if they have them but are being denied, or if the Jews had basic human rights in Germany even if Hitler didn’t let them exercise them?”

“Yes. All I want to know is if that’s hard for you to see.” He looked at Bill who was still silent.

“Then I see what you’re saying,” Dave said, “But I’m not sure how it relates to the 2nd Amendment.”

Bill still said nothing—but neither did I.

“Take it a step further. If the government passed a law tomorrow that said we didn’t have the right to free speech, or the right to free worship, or freedom of the press, would those rights no longer exist, or would they be simply denied? If the Constitution is amended depriving us of our rights, do those rights cease to exist?”

“What’s the answer?” Dave asked Mac.

“The answer, according to the guys who set up this country, is yes, we would still have those rights. We’re just being denied them. Because of that, it’s the way we have to look at the Constitution.”

Bill rubbed his nose.

Dave said, “Okay, I never thought of it that way, but I’ll buy into it for a moment.”

“It may be,” Mac said, “that in reality, rights are a figment of our imagination. But the Founding Fathers believed they existed and that’s how this country was set up. Rights are something that come with being human. The Founders never believed we got them from the government. If and when the United States goes away, the rights will still be there.”

Why a Bill of Rights?

“Then why have a Bill of Rights?” Bill asked. The question was posed as a challenge.

“You’re not the first person to ask that. Men like Alexander Hamilton asked it. He and many others thought having a Bill of rights was dangerous.”

“Dangerous,” Bill laughed. “How could it be dangerous?”

“They were afraid that the existence of a Bill of Rights as a part of our Constitution implied that the government not only had the right to change them, but that any rights not listed there were fair game for the government to deny. And, as a matter of fact, that’s exactly what has happened. The government seems to have set itself up to be an interpreter of our rights; it acts as if it is also the source of our rights, and whatever rights weren’t mentioned in the Bill of Rights, the government has seen fit to declare exist only at its discretion.”

“Then how do we know what our rights are in court?” Bill asked.

“Have you ever read the Bill of Rights?” Mac asked. I think he was tired; there was no humor in his voice. “Specifically, have you ever read the 9th and 10th Amendments?”

Bill smiled and shook his head. “I never thought it was important to memorize them.”

“It’s important to understand what they say and know why they are written the way they are because they tie in with how the Founding Fathers viewed our rights and how they expected us to view them.

“They were put there to quell the fears of men like Hamilton who were afraid that any rights not mentioned in the Bill of Rights would be usurped by the government. The 9th says:

The enumeration in the Constitution, of certain rights, shall not be construed to deny or disparage others retained by the people.

“This means that any rights not mentioned in the Bill of Rights are not to be denied to the people.

“The 10th says:

The powers not delegated to the United States by the Constitution, nor

prohibited by it to the States, are reserved to the States respectively, or to the people.

“So any powers not specifically given to the Federal government are not powers it can usurp.

“So it’s enough to show the Founding Fathers thought we had a right for it to fall under the protection of the 9th or 10th Amendment. This means that the Founders didn’t even have to specify we have the right to free speech, religion, jury trials, or anything else. To understand what they felt our rights were, all you had to do was show what they said our rights are. Any rights in the first eight Amendments are just redundant with what the Founding Fathers considered Natural Rights.

Bill rolled his eyes.

“Then why do we have a Bill of Rights?” I asked.

“Because even though Hamilton and others feared having one, most of the Founding Fathers were sure that without one the government would eventually take all of our rights.”

“Just getting off the gun issue for the moment,” Dave quickly asked, “are there actually rights not mentioned in the Constitution that you’d say we’ve been denied?”

“Sure. The Founding Fathers felt we had a right to unrestricted travel. So, now we have driver’s licenses, automobile registrations, and passports. They also felt we had property rights, so Civil Forfeiture or Civil Seizure laws, now exercised by the Feds and the states, are actually illegal under both the 9th and 10th Amendment.

“And,” he continued, “if the Congress or even the Supreme Court decides the 2nd Amendment only refers to formal military organizations, we still have the right to keep and bear arms, because the Founding Fathers considered it a natural right. And if you don’t believe it, read what the Founding Fathers said in their papers, their letters, and their debates in both Congress and the state legislatures.”

He pulled more papers from his briefcase and started going through them.

"You know," he said, "weapons have always been important. In Greece, Rome, and even under Anglo-Saxon law, when slaves were freed, part of the ceremony included placing a weapon in the man's hand. It was symbolic of the man's new rank."

What the Founders said

He paused as he looked through the papers. "Here's one, and I quote:

Arms in the hands of individual citizens may be used at individual discretion...in private self-defense.

"That was said by **John Adams** in A Defense Of The Constitution.

"Here's another one:

The Constitution shall never be construed to prevent the people of the United States who are peaceable citizens from keeping their own arms.

"That was said by **Samuel Adams**, John Adams' second or third cousin, during Massachusetts' U.S. Constitution ratification convention in 1788."

"This is all bull," Bill said.

Mac looked up, then he started to put the papers back in the briefcase.

"No, I want to hear more of this," Dave said. "What else have you got there?" Dave asked, and Mac began going through the papers again.

"If you really want to hear what they had to say, here are a few by Jefferson:

The strongest reason for the people to retain the right to keep and bear arms is, as a last resort, to protect themselves against tyranny in Government.

"And here's another by him:

No free man shall ever be debarred the use of arms.

"He wrote this as part of the proposed Virginia Constitution, in 1776.

Personal protection

"And here's one more. It's Jefferson quoting **Cesare Beccaria**—a Milanese criminologist whom he admired who was also his contemporary—in On Crimes and Punishment:

Laws that forbid the carrying of arms...disarm only those who are neither inclined nor determined to commit crimes...Such laws make things worse for the assaulted and better for the assailants; they serve rather to encourage than to prevent homicides, for an unarmed man may be attacked with greater confidence than an armed man.

"I think it's pretty clear that Jefferson felt we had the right to keep and bear arms for both personal protection and as a safeguard against tyranny."

Bill went and poured himself some coffee and acted, for all the world, as if he wasn't listening anymore.

Mac shuffled through a few more papers. "Here's one by **Thomas Paine** that comes from his Thoughts On Defensive War written in 1775:

Arms discourage and keep the invader and plunderer in awe, and preserve order in the world as well as property. Horrid mischief would ensue were the law-abiding deprived of the use of them.

"And here's one from **Georgy Boy**:

Firearms stand next in importance to the Constitution itself. They are the American people's liberty teeth and keystone under independence. From the hour the Pilgrims landed, to the present day, events, occurrences, and tendencies prove that to ensure peace, security and happiness, the rifle and pistol are equally indispensable. The very atmosphere of firearms everywhere restrains evil interference—they deserve a place of honor with all that's good.

"Who's Georgy Boy?" I asked.

"**George Washington**. That was from a speech he made to Congress

on..." He looked at the paper again. "...January 7, 1790.

"But that's not the only quote from him. In response to a proposal for gun registration he said:

Absolutely not. If the people are armed and the federalists do not know where the arms are, there can never be an oppressive government.

"I think that's pretty clear." He lowered the pages and looked at Dave. "More?"

"Do you have more?"

He went through more of his papers. "Here's one of my favorites:

To disarm the people; that it was the best and most effectual way to enslave them.

"That was by **George Mason** when the Constitution was being debated."

"And who, may I ask, was George Mason?" Bill asked. "It sounds like you're bringing in the second string now."

"He's the most underrated and unsung of all the Founding Fathers. Jefferson drew on him when composing the Declaration of Independence; his doctrine of inalienable rights was not only the basis for the Virginia Bill of Rights in 1776, but other states used them as the models for their own Bill of Rights, and James Madison drew upon them freely while composing the Bill of Rights for the United States.

"Even though a Southerner, Mason recognized the evils of slavery and the fact that slaves were entitled to the same rights as the rest of humanity. He also feared the Constitution because it didn't do a better job of limiting the powers of the Federal government. He believed local government should be strong and the Federal government kept weak. He firmly believed in the power, the rights, and the integrity of the individual."

"Never heard of him," Bill said.

"I'm not surprised. But you're not alone because most people haven't."

“Why’s that?” Dave asked.

“He suffered bad health and had all kinds of family problems, so he never attained any office outside of Virginia—other than his membership to the Constitutional Convention in Philadelphia. But he was the most vocal of the Founders on individual rights, and the other Founding Fathers recognized him as a force to be reckoned with. Without him, I can guarantee you that the United States would not be as free as it is now.

“You guys should do an article on him,” he said to Dave.

Dave quickly wrote something on his notepad, then glanced at me.

Defense against tyranny

Mac continued to go through his papers. “Here’s a quote by **Elbridge Gerry**, a representative to Congress from Massachusetts during the debates over the Bill of Rights. He’s also the man for whom gerrymandering is named because, as governor of Massachusetts, he tried to rig districts to favor his party. In this quote he was specifically referring to what we now call the 2nd Amendment:

What, Sir, is the use of a militia? It is to prevent the establishment of a standing army, the bane of liberty...Whenever Governments mean to invade the rights and liberties of the people, they always attempt to destroy the militia, in order to raise an army upon their ruins.

“That should also give you insight as to how the Founders defined the militia and why they thought it was important.”

“Okay, I’ve heard enough,” Bill said.

“Me too,” Dave added.

“There’s one more,” Mac said. “It’s kind of a long one, but it’s by **James Madison**, the guy who wrote the Constitution and actually put together the Bill of Rights.”

“Okay, go ahead,” Dave said.

The highest number to which a standing army can be carried in any country does not exceed one hundredth part of the souls, or one twenty-fifth part of the number able to bear arms. This portion would not yield, in the United States, an army of more than twenty-five or thirty thousand men. To these would be opposed a militia amounting to near half a million citizens with arms in their hands, officered by men chosen from among themselves, fighting for their common liberties and united and conducted by governments possessing their affections and confidence. It may well be doubted whether a militia thus circumstanced could ever be conquered by such a proportion of regular troops. Besides the advantage of being armed, it forms a barrier against the enterprises of ambition, more insurmountable than any which a simple government of any form can admit of. The governments of Europe are afraid to trust the people with arms. If they did, the people would surely shake off the yoke of tyranny, as America did. Let us not insult the free and gallant citizens of America with the suspicion that they would be less able to defend the rights of which they would be in actual possession than the debased subjects of arbitrary power would be to rescue theirs from the hands of their oppressors.

“I kind of like that one,” Dave said.

“So do I,” Mac said.

“I’ve got more, but I think that’s enough. But I think you can see how the Founding Fathers felt about the right of individuals to have weapons. In fact, this whole debate over the right to arms is a recent one. In the last century, Americans would have been as amazed to find their right to have weapons a subject of debate as they would to have found their right to free speech or religion debated. There

was no question to them, or to the Founders, that the right to keep and bear arms was one of the most fundamental—perhaps the most fundamental—of all civil rights.”

“Are any of the Founders on record saying they don’t believe individuals should have guns?” Dave asked.

“None I know of—and I’ve actually looked for some.

“Do you know of any, Bill?” he asked.

Bill didn’t reply. Again, I thought he was acting as if he wasn’t listening.

The phone rang again and someone called across the office to tell Dave it was an advertiser, so he took the call.

Mac put his papers back into the briefcase and picked up his magazine and started to look for his place.

Bill had even lost interest in the conversation. And it was time for me to get back to work. As I said, I was way behind. I took a last look at the gun parts to ensure they were clean, and I began to reassemble the rifle.

But I turned back to Mac for a moment and asked, “The lawyer friend you found this information for...were you giving him legal advice, doing research for him, or what?”

“I was winning a bet,” he said.

“What were the stakes?”

“A six-pack of beer.”

“That seems like a paltry sum to have gone through all this research for.”

“We’re going to drink it in Florida,” he said.

“Oh,” I replied and continued to reassemble the gun. Δ

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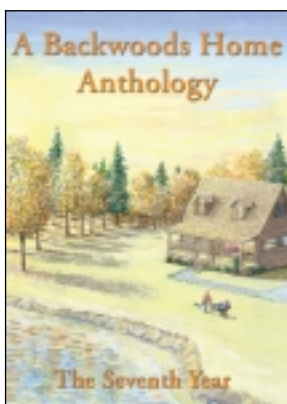
Publisher's Note

Win a complete set of original back issues

The winner of our first giveaway of a complete set of original back issues is the Dover Public Library in Dover, Ohio. We'll continue to draw names from among our three-year or longer subscribers for the next several issues and give the person whose name is drawn a set of the issues. The next drawing will be September 15. And to comply with one of the more screwed-up laws in this country, I must also add: No purchase necessary. While I'm at it, let me also add: All bureaucrats and politicians are morons.

7th year anthology

Our 7th year anthology will be coming off the press shortly. We've packaged it together with our other anthologies in an ad on page 3. You can buy it separately at the usual anthology price of \$16.95, which includes shipping.



Cover price change

The cover price of newsstand copies of the magazine has gone up to \$4.95 for the U.S., \$6.50 for Canada. The subscription price is unchanged. The newsstand price reflects the extra cost of doing business on the newsstand.

Water article and books pages

Michael Hackleman's "home water system" article, which began as a two-part article last issue, is now a three-part article with the second part appearing on page 70 of this issue. We broke the article up a bit more in response to some readers' complaints that it crowded out too many of the shorter articles we normally carry.

We also shrunk the books pages from 10 to 5 pages by cutting a few books and reducing the image size of others. This will also allow us to squeeze in more articles.

Who wants to sell anthologies?

The sale of our anthologies has been so successful for us that we thought we'd give all the mom and pop stores out there a chance to sell them. If you are interested, please call Ron Graham at (541) 247-8900.

Online columns by Duffy and Silveira

The *BHM* web site (www.backwoodshome.com) features a section that carries a lot of excellent political commentary columns written by good writers who have a sound grasp of the important issues of our time. Most of the columns would not be found in your local newspaper. John Silveira and I have been getting so mad lately at the direction the country seems to be going in that we decided to join this online group of columnists and begin writing about a column each week. If you're on the Internet, check them out.

Are we a survivalist magazine?

The other day Massad Ayoob, our gun columnist, told me he was testifying as an expert witness in court when the attorney questioning him waved a copy of *Backwoods Home Magazine* in his face and demanded he explain his association "with this survivalist magazine." Mas said he'll write a future column on it for us, probably for next issue.

I'm not sure what a survivalist magazine is, or if we are one or not. Survivalist has become one of those buzz words that the mass media has made sound ominous. But it's nice to be noticed anyway. The lawyer probably read some of the lawyer jokes on our Irreverent Jokes page, and got ticked.

Search for extraterrestrial life

Speaking of aliens, here at the *BHM* office we're looking for extraterrestrial intelligence. Employees are running a screensaver on their office and home computers that analyzes data from the world's biggest radio telescope at Arecibo, Puerto Rico. The screensaver looks for patterns in the random radio noise that permeates the universe. If patterns are found, they may be signs of intelligent life. On most of our office computers, the analysis is performed only when our computers are idle. But because our layout artist, Mark Cogan, has a very fast computer, he runs the analysis all day in the background.

We are only a few of more than 600,000 people in 205 countries participating in this effort. You can join us by visiting <http://setiathome.ssl.berkeley.edu/> and downloading the screensaver and the packets of information to be analyzed. There's a remote chance that your computer may be the first to find signs of an extraterrestrial civilization.

In the meantime, we have our new artist, John Dean, looking for signs of intelligent life around the office. We'll report on both searches in a future issue. Δ

My view

Should both drugs and guns be legal?

Answering the question of “Should drugs be legal?” is like answering the question of “Should guns be legal?” Whoever answers either question steps onto a minefield of passionate opposition—from conservatives if you say yes to drugs, and from liberals if you say yes to guns. That’s why it’s easier to recognize that both questions are really part of a much larger and more important question: Should government be controlled? And the answer to that question, as well as the other two, is yes.

The illegalization of drugs gives government the *excuse* to trample our rights, under the guise of protecting us and our children from their effects, and the illegalization of guns will give government the *ability* to totally trample our rights because we would have no defense against it.

What has the illegalization of drugs accomplished?

- Prisons are overcrowded with drug offenders sentenced under mandatory sentencing laws while violent offenders go free to make room. The result is the U.S. now has the highest incarceration rate in the world, made up mainly of people who have never committed a violent crime—pretty incredible for a “free” country.
- There is increased corruption in our police and judicial systems due to the large amount of money available for payoffs. The poorer you are the more likely you are to go to jail; monied drug lords with their high-priced lawyers have little to fear from the law.
- Millions of Americans who suffer from chronic pain go undermedicated because doctors are afraid to prescribe pain killers for fear of being investigated (a number have already been sent to prison) by a drug enforcement agency. A U.S. health agency has called the suffering of these patients a national disgrace.
- Seizure of property from citizens who have not been found guilty of any crime has gone sky-high, thanks to drug laws that give police the power to seize property *suspected* of being involved in a crime. It’s up to the owner to *prove* his property is innocent. Orwellian?
- The War on Drugs is a repeat of Prohibition in the ‘30s. The amount of drugs consumed in America has not gone down appreciably, but the price of them has gone way up, making them even more attractive to sell.

What will the illegalization of guns accomplish?

- This is the classic history lesson of our century. Like all the communist and fascist states that outlawed guns before turning against their own people, we will be powerless to resist our government should it turn against us. And judging from our government’s conduct in its War on Drugs, it already has.

What about the arguments against making drugs legal and keeping guns legal? Both are essentially the same: drugs and guns lead to the destruction of our children, the former through destroying their physical and mental well being and the latter through killing them outright.

Both arguments play on the public’s desire to protect their children at all costs. Those who would keep drugs illegal would imprison our children rather than have them take drugs, and those who would make guns illegal would expose our children to the potential enslavement of a government turned tyrannical rather than let them be endangered by guns. (Another story is the fact that Justice Department statistics show that guns are used by private citizens to prevent violent crimes far more often than they are used to commit crimes, but the stories behind those statistics never make it into the newspapers. I wonder why?)

People in government, especially the cadre of bureaucrats who think they know best how we should run our lives, find these excuses convenient to hide behind. The illegalization of drugs has given our government the excuse it needs to stop us on the street and make a warrantless search of our person, to invade our home on the suspicion we may be using drugs, and to send our children to prison for their own good. The illegalization of guns would allow the government to go even further because we would have no way to resist police in what appears to be our emerging police state.

I am the father of four children and here’s what I think of the government and their conservative and liberal supporters who want to protect my children against drugs and guns: Leave my children alone. They are my concern, not yours. I would rather they ran the risk of experimenting with drugs than have some government agent send them to prison to be gang raped by hard core criminals. And I would rather they risked being gunshot than have them live out their lives as servants to a tyrannical government without any chance to restore their freedom through armed resistance.

Drugs and guns may be bad if used badly, but an all powerful Government is much worse. The illegalization of drugs may have sounded like a good idea in theory once, but it has given Government far too much power over us. And the proposed illegalization of guns may sound like a good idea in theory to some because it is supposed to help keep our children safe, but in reality it will take away our last and ultimate defense against government. And like our Founding Fathers I would rather live free with some peril than live as the protected slave of government.

The question is this: Do we want a powerful government that can come into our homes or stop us on the street at will and arrest us on the suspicion we may be guilty of a crime, that can seize our property on the suspicion it is guilty, and that sends our children to prison for their own good? Or do we want a government that dares not trample on our rights guaranteed in our Constitution?

If the latter, then both drugs and guns must be legal. Δ

— Dave Duffy

Start your food storage on \$10 a week

BY ALAN T. HAGAN

If Old Mother Hubbard had had a food storage program before she went to her cupboard her poor dog would have gotten his bone. Given the fact that her cupboard was bare it was probably because she didn't have the wherewithal to fill it. Finding the resources to put food by against troubled times is a common problem, but it is solvable, even for those of us on tight budgets. In fact, over the long term, the food storage program you start now will save you money. It is like starting a savings account. You earn interest through greater savings in your grocery budget.

Despite what many believe, you don't have to spend large amounts of money on specially packaged foods to put away a sizable food store. You certainly can do this if you like, but what you're doing is trading money (and a good deal of it) to save effort and time. Turn that equation around and you can save a lot of money if you're willing to spend a bit more time and effort to get what you want.

Depending on what you decide is important to you, everything you will need for a complete food storage program can be had from your local grocer and, perhaps, some other local businesses.



Preparing for what?

Before buying anything you should sit down at the kitchen table with paper and pencil because you have some decision making to do. Ideally, everyone who'll be depending on the food storage should be at the table as well, but the person who will be responsible for the program can do it alone, if necessary.

Your first decision to make is "what are you storing food for?" What situations and circumstances do you think might occur which would cause you to need your food stores and prevent you from easily being able to get more? Make a list of everything that occurs to you which you think has some significant probability of happening. Just jot them all down as they come to you

and then on another sheet reorder them according to how likely you think they are to occur. While you are doing this, make a note beside each one of whether or not you will have some means of cooking or preparing food should it come about. You'd really hate to have stored away hundreds of pounds of food only to find yourself with no way to make it into a meal. This process is called "scenario planning."

Once you have your list, write next to each scenario the length of time you feel it might last. Chances are, the situations that will concern you most are weather related and some of the more common man-made disasters, but may also cover long term unemployment, Y2K (the millennium computer bug), severe economic depression, war or civil insurrection, or threats even more exotic (cometary impacts, anyone?).

Now that you have a list of probable scenarios and the length of time you think each may last, you are ready to plot the course of your program. Plan your food purchases to meet the needs of the shortest duration scenarios on your list first. As you accomplish each goal set your sights on the next longest and work towards covering that one. In this way you are steadily preparing for one scenario after another while making progress towards your ultimate goal of meeting the needs of your longest lasting concerns.

How do I pay for it?

Right off the bat, I want to say where you should not get the money to pay for your food storage and that is by running up debt. This means that you should not put your food purchases on credit cards. The money lost to credit card interest rates is self-defeating in the long run and will just get you further into a problem rather than getting you out of it. If you are the type who can and does pay off their credit card purchases every month when the bill comes due, then using

FOODSTUFF	QUANTITY/PRICE	FOODSTUFF	QUANTITY/PRICE
white rice	5 lbs./\$1.79 10 lbs./\$3.45 20 lbs./\$6.90	pinto beans	2 lbs./\$1.00 10 lbs./\$4.49
Tang (makes six quarts)	21 oz./\$2.99	all purpose flour	10 lbs./\$2.10 5 lbs./\$1.19
white sugar	5 lbs./\$1.99	vegetable shortening	5 lbs./\$2.39
powdered milk	25.6 ozs./\$4.39 (8qts@3.2oz./qt.) 64 ozs./\$9.99 (20qts@3.2 oz./qt.)	canned tuna	6 oz. can/50¢
canned carrots	14.5 oz. can/50¢	canned spinach	13.5 oz. can/69¢
canned pumpkin	15 oz. can/\$1.09	canned turnip, kale, mustard or collard greens	14 oz. can/50¢

one might be a real convenience; otherwise it's a temptation to be avoided.

Fortunately, the financial outlay need not be so great that you must spend your children's college fund or sacrifice your retirement account. With a little forethought and research it might be so little as to represent the family foregoing one restaurant meal a month or renting a video to watch at home rather than paying full admission to see a first run film at the theater.

As a matter of fact, unless you are compelled by special circumstances to do otherwise, you are better off to not spend a lot of money at first. Like many other long term projects, there is a learning curve involved with building a good food storage program. Your initial purchases will most likely be small while you're learning more about what you need to do. In this way you are less likely to make expensive mistakes that will have to be corrected later.

If you can afford to spare as little as ten dollars a week then you can make a solid beginning in putting food by against time of need. Just today I made a trip to one of my larger local supermarkets, Albertson's, and wrote down a few prices. (See table.)

Rice, flour, beans, milk, sugar, shortening, Tang, canned greens, car-

rots, pumpkin, and tuna will make for a pretty bland diet, but for only \$40 and a month's time it will give you a solid start on a good program. In the second month you can begin to expand the variety of foods in your program.

The specific types and amounts of food I've listed are not meant as rigid rules, but as illustrations of what can be done. Your personal tastes and the circumstances of the scenarios you'll be planning for are what should determine your specific purchases. It is important to only purchase those foods you are presently already eating or are willing to learn to eat starting as soon as you purchase it. Otherwise, there will be the temptation to leave it in its container and not use it. This is bad planning because it leads to failure to rotate the foods out in a timely fashion as they age or lose nutritional content and palatability. By not using the foods in your storage program you also do not get the experience of how to make them into tasty, attractive meals your family will want to eat. This will leave you at a severe disadvantage when the crunch comes and what's in your larder is all you're going to get.

As I cover each purchase I'll give some considerations you should think about such as: If you don't foresee

having a way to bake bread, then buying a lot of flour might not make much sense, but you might make flat breads instead or learn to do your baking in a Dutch oven. If some of your short term plans call for removing to another location on short notice, then the food for that part of your planning needs to be of a type that can be eaten with little preparation or cooking being required. If safe water will be in short supply, then foods that require a lot of it to prepare them might not be a good idea.

The foods that I have chosen all have excellent storage characteristics for the short to medium term, up to about two years. Detailed information and instructions on storing foods may be found in my [Prudent Food Storage FAQ](#). If you have Internet access you may download a copy free from the Providence Cooperative web site at <http://www.providenceco-op.com> or from one of the host sites that also carry it. Many of them may be found by searching on the term “prudent food storage” using most any search engine.

The first week

Your first \$10 storage food purchase buys 10 pounds of rice, 2 pounds of beans, a jar of Tang, and 5 pounds of vegetable shortening. The 17 cents change is carried over into the next week.

This amount of rice and beans gives a ratio of 5:1, a perfectly acceptable essential amino acid balance (commonly called “making a complete protein”) for most healthy adults. An extra \$3.45 expenditure will double the amount of rice and another \$3.49 will buy five times the amount of beans. Purchasing the rice and beans first means you have food that can be made edible with no other foods having to be added to them and needing no preparation other than boiling. If cooking fuel is short, split peas, lentils, and black eyed peas cook

quickly. Pre-soaking and/or pressure cooking is even more economical.

The Tang orange drink provides 100% of the US RDA vitamin C requirement in every 8 oz. glass (6 qts. = 24 8-ounce glasses), lesser amounts of other important nutrients such as vitamin A as well as some sweet taste since we have not yet bought anything else with sugar in it. Vitamins A, C, and D are the major nutrients typically lacking in most storage foods. Don’t assume that any drink mix or canned juice has vitamin C in it. Read the nutritional facts label on the side closely to see what the manufacturer claims it contains. An appalling number of juice products, even some canned citrus juices, claim no vitamin C content at all.

The last purchase is the can of vegetable shortening. Fat is actually a necessary nutritional component even if we do tend to eat too much of it in the present day U.S. The shortening allows you to make foods such as biscuits, fry breads, refried beans, pancakes, fried rice and pan breads, and contributes flavor. In a survival diet, fat is an important source of vital calories. This is an important consideration for small children, pregnant women, the elderly, and the ill who might otherwise have trouble eating enough bulky beans, rice, etc., to gain sufficient calories to stave off weight loss and possible malnutrition.

The second week

Your second \$10 nets you 20 pounds of all purpose white flour, 5 pounds of granulated white sugar, 3 cans of carrots, and 3 cans of spinach. The 24 cents left over is carried over into the next week.

You now can make bread to give some variety to your rice and bean diet. If you don’t have any store-bought yeast to raise your bread, you can do what your pioneer forebearers did and learn to make “sourdoughs” to leaven it. If you have a grain mill or can acquire one then you may be able

to find a local source of whole grains at a reasonable price to supplement or replace the white flour. The sugar allows you to make sweet breads, puddings from the flour or rice, adds calories, and greatly contributes to taste.

Of all the canned vegetables to be had from the grocer the dark green and the orange vegetables give the most nutritional value for the money. Canned greens such as turnip, mustard, collards, spinach, and kale range in value from 50-110% of the RDA of the important nutrient vitamin A (in the form of carotene) per half-cup serving. Many of them also include a fair amount of calcium and vitamin C as well. The carrots have 100% RDA of Vitamin A per half-cup.

The third week

The third ten spot buys you the 64 oz. box of dry milk. The slim remaining penny is carried over into the next week.

Sixty-four ounces of non-fat dry milk will make 20 quarts of skim milk to provide essential amino acids, necessary calcium, along with vitamin D (30% of the RDA of calcium and 25% of vitamin D per 8 oz. glass of reconstituted milk). Unlike fresh liquid milk, the dry powder is shelf stable and can be stored for long periods of time. It may be drunk as straight milk or used to enhance dishes made from the ingredients purchased in the other weeks. Dry milk can also be used to make excellent yogurt and even non-fat cheese.

The fourth week

Your last purchase of the first month’s cycle brings in 10 cans of tuna, 2 cans of pumpkin, and 5 cans of turnip, mustard, kale or collard greens. The remaining 32 cents is added to the surplus from the prior weeks, now totaling 74 cents.

Although the grain, beans, and milk provide all necessary amino acids, most of us will rebel at a purely vegetarian diet, so at least a little meat

three or four days out of a week can go a long way towards making matters tolerable. Other canned meats can be substituted, but as a general rule tuna is leanest and cheapest per ounce. Beware of paying canned meat prices for fillers like pasta, rice, or potatoes. They can be added much more cheaply after the fact rather than buying them already in the can with the meat.

The pumpkin (plain solid pack, not pie filling) can be used like any winter squash, carrots, or sweet potatoes and carries a tremendous amount of vitamin A in the form of carotene (300% of the RDA per half-cup). A friend of mine has developed a pumpkin biscuit that I've grown quite fond of. It makes a good baked dish and is very versatile in casseroles, soufflés, puddings, and as either a sweet or savory vegetable. There's more to pumpkin than pies.

The 74 cents left over seems trivial but it will buy 2 1-pound cartons of iodized table salt, or yeast to make bread with, or baking soda for leavening and other uses, or a small can of pepper to season food. You can also hold it over to combine into the next month's surplus.

The purchasing cycle could be repeated month to month until you reach the amounts you desire, or varied to broaden the selection in your cupboard.

If you can afford to use the economies of scale that making larger bulk purchases gives you, then the price per pound of the foods you buy will drop considerably. By taking advantage of sales, bulk food outlets, warehouse groceries such as Sam's Club and Costco, local restaurant and institutional food suppliers, or ethnic grocers (Asian, Hispanic, etc.) you will do considerably better than what I've outlined above.

If you have the time and resources available to you, much of the fruit and vegetable portion of your storage program can be economically acquired by growing it yourself. Not only do you get wholesome food, but by putting it up yourself you get exactly what you

want in the way that you want it. If being frugal is of paramount importance though, growing your own will need some careful analysis to be certain you're not spending more in time, labor, and equipment than the value of the food will make up for. This is especially true when it comes to food preservation, but you can at least partially offset this by choosing appropriate preservation methods. Pressure canning requires quite a bit of expensive startup equipment (canner, jars, lids, rings, etc.) which may make the operation uneconomical. However, if you dry the food instead you can often do this at a much lower cost.

One area of home preservation that generally will be worthwhile to do yourself is canned meats. Beef, pork, and chicken often go on sale and can be had for quite reasonable prices, so even with the price of the jars and equipment necessary to process it, home canned meat will usually be cheaper per pound than any commercially canned meat of equivalent quality.

There are two cardinal rules of successful food storage: The first is store what you eat and eat what you store. The second is to rotate, Rotate, ROTATE! Follow them always, keep a watchful eye on your local grocer's offerings, and be willing to make a moderate investment of time and effort. Do this and you'll have a successful food storage program that your family will look forward to eating in good times or bad without sacrificing your financial well being to get it. Δ

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A HOUSE FOR AN OUTDOOR DOG

BY TOM R. KOVACH

Dogs are highly social animals and like being around humans when they are given plenty of attention and are well cared for. And sometimes, for various reasons, or due to certain situations, the dog or dogs must be kept outside. If that is the case, a proper shelter is very important. Some building and animal supply companies carry adequate, readymade doghouses. But if you're handy with a saw and hammer, and take some pride in doing your own work, here are some tips on what you should take into consideration when building a dog house.

- Not all dogs are suited to outdoor living. Even with a high quality doghouse which meets every requirement of the law, old dogs, puppies, small breeds, and short haired breeds will be severely stressed...even to the point of death...by living outdoors in extremely cold weather. If you do choose to keep a dog outdoors in cold climates, select one of the large, heavy-coated breeds like huskies or malamutes. These dogs thrive in cold weather.

The best doghouse in the world won't keep your pet comfortable if it's not properly bedded. Straw, hay, cedar shavings, or blankets can all be used for bedding, but frequent changes of bedding are necessary to make sure your pet has a clean and dry place to sleep.

- Think small when deciding on the dimensions of your dog's house so that the heat from its body will warm it in cold weather. You need to make allowances for a growing puppy, of course, but an adult dog needs just enough room so that it can sit without bumping its head, turn around and lie down comfortably.

- Proper placement of the doghouse is also important. The door should face away from prevailing winds and, if possible, the house should be placed on the sheltered side (east or southeast) of your house or garage.

- A flap should be placed over the door for extra protection.

An outdoor dog should be conditioned to the weather gradually, starting in early fall. Then stick to keeping him outdoors. It's hard on him to snooze in your warm living room all day and then be put out at night.

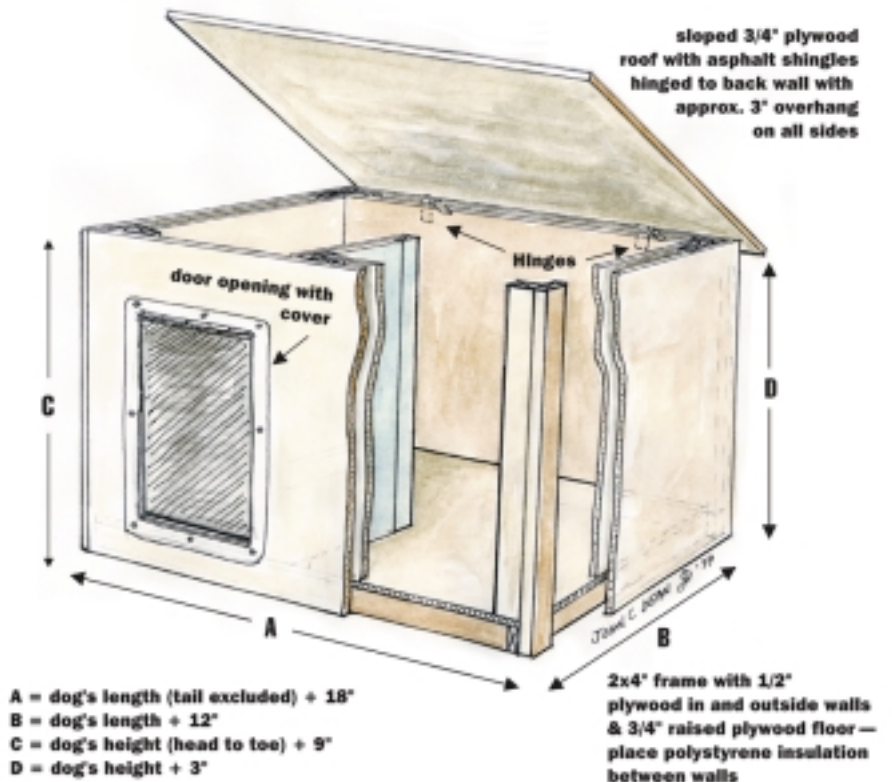
If your outdoor dog needs to be confined for whatever reason, a fenced yard is best. But a "wire run" made by snapping a lead to an overhead cable stretched between two posts or trees will also allow a dog some freedom. Be certain the dog is not tied anywhere where it could hang itself...it does happen.

- Your outdoor dog needs shade available all day long during warm weather...and, of course, a constant supply of fresh water.

- Be sure that construction materials for your doghouse are free of toxic materials, especially for a chewing puppy.

And don't forget that your dog loves and craves your attention...even when it's cold outside and you'd rather be in by the fire. A neglected dog is often a problem dog and may develop such bad habits as barking, chewing, and digging.

Here are some doghouse plans. This sort of shelter can be built fairly inexpensively. Δ



Leaf it to old Mother Nature

By Jim Mcpherson

For most gardeners fall signals the start of winter, a time when tools are put away and you dream about next season's crops. I look at things differently. For me the fall signals the start of one of Mother Nature's great gifts, a gift that means you can guarantee the long-term fertility of your vegetable plot. When those leaves start to fall, I just can't wait to get them gathered in and stashed away.

Walk through any woods and you can't help but notice the thick blanket of fallen leaves. This blanket of leaves plays a vital part in maintaining the high fertility of the woodland, and you can't do better than try to reproduce these conditions in your vegetable plot.

How is it done? It's easy to make your own highly nutritious mulch. All it takes is the effort of collecting fallen leaves and leaving the rest to Mother Nature.

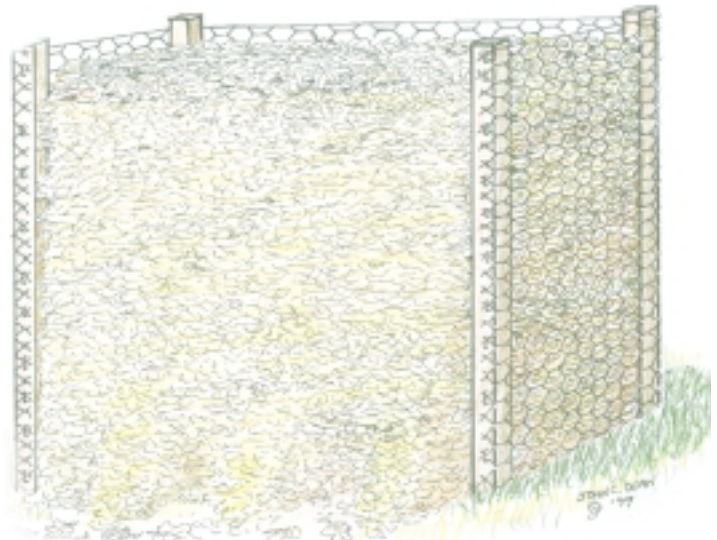
If you have dry soil that suffers from drought, leaf mold will improve its water capacity. If your soil is heavy, leaf mold will open it up allowing worms to do their work. I don't know of any soil that cannot be improved by the application of mulch of leaf mold.

Making leaf mold is just about the easiest job in the garden; all you need

is plenty of fallen leaves and a lot of patience. Only use fallen leaves from deciduous trees, not evergreens. Leaf mold production is much easier than compost-making because you don't need lime or activator. A leaf mold heap does not heat up like a compost heap so beware of adding weed seeds, as they will not be killed by the process.

To construct a leaf mold heap choose, if possible, an out of the way sheltered corner of your plot and knock four stakes into the ground, each three feet apart, to make a three-foot square. Leave about three feet of each stake sticking out of the ground, then staple chicken wire to the posts on three sides of the enclosure. Next fill your wired enclosure with fallen leaves and tread them in firmly. If the leaves are dry, give them a good soaking to encourage the fungi that carry out the decomposition process.

The leaf mold compost should be ready in about a year. If you are in a hurry, production time can be reduced to about six months by mixing grass



cuttings in with your fallen leaves. A mixture of three parts leaves to one part grass cuttings will be about right. Alternatively, a couple of quarts of urine will have the same effect. If you cannot collect enough leaves from your own garden to meet your leaf mold needs, consider asking your parks department. Play your cards right and they will even deliver for you. Or why not always keep a large plastic bag or two in your car, ready to scrounge your own leaves when the opportunity presents itself. Δ

COMPARING THE NUTRIENTS

Source	Nitrogen	Phosphate	Potash
Oakleaf	1.3%	0.1%	0.2%
Peat	1.4%	0.2%	0.2%
Compost	1.2%	0.4%	0.8%
Well-rotted manure	0.7%	0.2%	0.3%

Comparing its nutrient content with other sources of organic matter, it can be seen that leaf mold's nitrogen content is an impressive 1.3%. It has a higher content than farmyard manure. Most of the nitrogen is locked away in the form of tannins and is released into the soil in small amounts over a number of years, providing a reservoir of fertility.

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Harvesting and freezing apples

By Tom R. Kovach

Here are some tips on harvesting and freezing your apples. Apples should be free of bruises, cuts, and punctures. Remember, apples are 84% water and they produce an increased amount of carbon dioxide as they ripen. During ripening, apples can change their color, soften, and become sweeter.

When harvesting apples, remember that they should be picked before they ripen. It is important to know the appropriate harvest dates for your apple varieties.

Apples picked too early will shrivel. They also may not ripen appropriately after harvest. Apples picked too late may have a decreased shelf life due to flesh browning and breakdown.

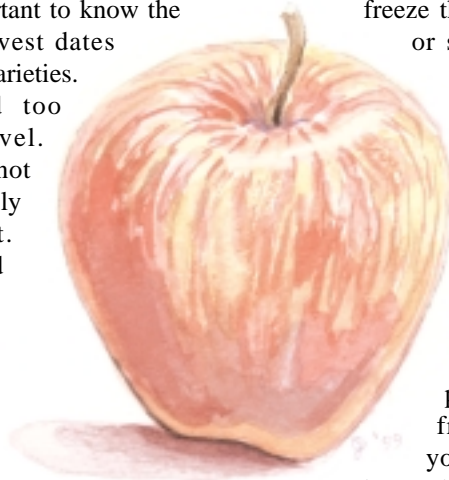
If you plan to freeze apples, make sure you are using apples that are firm, crisp, and ripe. They should be free of bruises and decay. Avoid freezing apples that have a mealy texture such as the Delicious variety. Apple varieties suitable for pie and sauce are good candidates for freezing.

If you are planning on freezing a large amount of apples, consider making a test batch to see how well the variety freezes. Once apples are frozen, thaw them and boil the slices for a few minutes. If they stay firm, you have a good freezing apple.

One and a quarter pounds or 4 to 5 fresh apples makes a pint of frozen

slices. To prepare your apples for freezing, wash them in cold water, peel and cut them into quarters, then remove the core portion and cut them into pie slices.

To prevent browning, slice your apples into an ascorbic acid mixture. Several options of ascorbic acid mixtures are available in the canning section of most grocery stores. Make sure you follow the package directions or use ½ teaspoon Vitamin C crystals per quart of cold water. After you have soaked the apples in the ascorbic acid solution, drain them well and freeze them using a dry pack or sugar syrup freezing method.



Dry pack freezing:

This involves freezing individual slices on a cookie sheet. When they're solidly frozen, remove the slices with a spatula and pack in freezer plastic bags or plastic freezer containers. If you're planning to use

the apples in a pie, place the sliced apples, sugar, and spice mixture into an aluminum pie plate and wrap with heavy foil. When you're ready to bake your pie, you can pop the frozen apple pie mixture out of the plate and slip directly into the crust. Bake the completed apple pie for 400 degrees F for 15 minutes, then reduce the heat to 375 degrees F for 30 to 45 minutes and finish baking the pie until the crust is golden brown and apple mixture is bubbling.

Sugar syrup freezing: Apple slices can be frozen in unsweetened apple juice or in a sugar syrup. Make a syrup using 2 cups of sugar to 4 cups of water. Add ½ teaspoon ascorbic

acid crystals (Vitamin C) to the sugar-syrup mixture to prevent browning. Pour ½ to ¾ cup of cold syrup over each pint of apple slices. Leave ½ to one inch headspace in the freezer container to allow for expansion during freezing. Seal containers, label, and freeze.

Skin-on freezing: Apples can be frozen whole with the skins on. Wash the whole apples, drain, core, and dry. Place them in freezer bags and freeze. When you are ready to use them, run cold water over each frozen apple just before peeling. Apples frozen whole can be used for pie, applesauce, or other recipes which call for cooked apples. Δ



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Seven common medicinal plants

By Marcella Shaffer

Many self-reliant people rely on natural treatments and remedies whenever possible. While there are hundreds of recognized medicinal herbs and plants, many grow only in a specific area or require extensive preparation before using. The following seven plants are commonly found all over the United States. They are simple to prepare and use and, most importantly, are effective.

In primitive circumstances, medicinal plants are usually utilized in three ways: as a tea, a poultice, or raw. When preparing a tea, the part of the plant to be used is gently simmered in water over low flame to release its active ingredients. If the tea is to be ingested, adding honey or other flavorings will make it more palatable.

When preparing a poultice, soak the leaves in a small amount of hot water. While still warm, apply the leaves directly to the affected area and cover with a clean cloth. Change the poultice several times.

When using the plant raw, if possible rinse the leaves to remove any dust or debris. Bruising the leaves before using them will aid in releasing the active ingredients.

One very important consideration: Unless you are positive of the plant's identity, do not eat it or use it! A botanical field guide is an excellent source to use when identifying plants in the wild if you are in question of a plant's identity.

Amaranth, "*Amaranthus retroflexus*" (or pig weed), is a common plant which grows nearly everywhere. It is found in fields, vacant lots, meadows, and even in some gardens and lawns. It grows from two to three feet

tall with the root and lower part of the stalk being a reddish color. The leaves are green with purple on the under side.

The leaves of amaranth are used for their astringent properties in treating cuts or scrapes. When applied as a poultice, they promote healing and reduce the chance of infection. When taken internally as a tea, amaranth leaves reduce the discomfort of diarrhea.

Comfrey, "*Symphytum officinale*," is a large plant which grows in a clump, often reaching three feet in height.

It has wide, light green leaves which have a "fuzzy" appearance on the underside. Comfrey is usually a cultivated plant, but due to its invasive growing habits, have naturalized and now grows wild in many areas.

Comfrey is an excellent cell proliferator which helps the body repair tissue damaged by injury, cuts, or over-exertion. Use as a poultice on wounds, bruises, and sprains. Comfrey leaves can also be used raw by placing them directly on the injured area and wrapping with a bandage to hold them in place.

I can personally attest to the effectiveness of comfrey. I have used it on



Yarrow, "*Achillea millefolium*."

both "two and four-legged animals" as a treatment for cuts and lacerations.

Elder, "*Sambucus caprifoliaceae*," is a tall growing shrub, usually found along rivers and creeks throughout the United States. While the berries can be eaten raw or processed into jams or juice, the flowers and leaves are used for healing purposes. The tiny, white flowers, which grow in flat clusters, are made into an ingested tea. It is used for all sorts of phlegm-associated



Left: Elder, "*Sambucus caprifoliaceae*," not yet blooming. Above: Comfrey, "*Symphytum officinale*."



Amaranth, "*Amaranthus retroflexus*," leaves are oval shaped and veined. The dense flowers are green.



Mallow, "*Malva parviflora*," leaves are roundish and cupped. Pale pink flowers grow along the stem, turning to small round fruits with maturity.



Broadleaf Plantain, "*Platago major*."



Narrowleaf Plantain, "*Platago lanceolata*."

ailments and also to reduce fever and aches associated with colds. The leaves can be made into a tea and used to cleanse abrasions and wounds, or used as a poultice.

Honeysuckle, "*Lonicera japonica*," is a commonly found plant which grows as a vine, often reaching 50 feet in height. It grows wild as well as cultivated. It has tubular flowers which grow in clusters on the tips of the branches. The flowers can be either red or orange and yellow, depending on the species. Use the flowers as a

treatment for feverish colds and flu in the form of an ingested tea.

Mallow, "*Malva parviflora*," also known as cheese weed, is another plant commonly found in "weed patches." It grows to three feet tall and has roundish, cupped leaves. The flowers grow along the branches with the fruit developing from the flowers.

A tea is made from its leaves and gargled as a sore throat remedy.

Plantain, "*Platago major*" and "*Platago lanceolata*," is usually considered a weed. It is found in all parts of the United States. The leaves grow from a base and are usually six to eight inches long. The seed stalks also spike from the base and reach a height of twelve inches.

The cooked leaves of plantain are used as a poultice to relieve pain and itching from bee stings and insect bites. They also have antiseptic properties and can be used to cleanse wounds and abrasions. This is another plant I can verify the effectiveness of.

Yarrow, "*Achillea millefolium*," grows to two and half feet tall and is covered with soft hairs. Its fluffy appearance belies its strong odor. It blooms with small white flowers in a flat cluster. Yarrow is usually found in

partially wooded areas or along the edges of forests.

Press the leaves into a wound to stop bleeding and help alleviate the pain. A leaf inserted in the nostrils will help to stop a nosebleed as well. Δ

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Cooking from home storage with rice

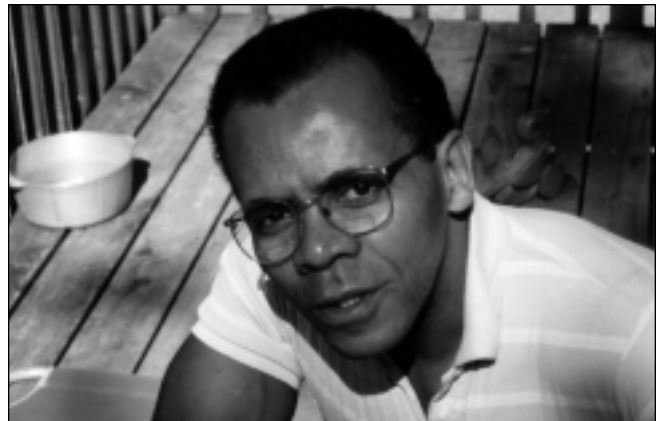
Most of the long-shelf-life foods you put into your food storage are good to eat, easy to cook, reasonably priced, nutritious, easily digested, non-allergenic, low in both cholesterol and sodium, and should be high on your everyday shopping list. But there's one food that beats the rest. This extraordinary and versatile food can reduce your reliance on expensive and hard to store protein foods, like meat, and can be used in soups, salads, and main-dish casseroles. You may be surprised when I tell you that this gastronomical wonder is regular white rice. It is the preferred food of nearly half of the world's population and is considered to be one of the world's two most important food crops, the other being wheat. Let's take a fresh look at this marvelous grain and perhaps learn something about its origins, its life cycle, and what it really has to offer us as a primary food in our home storage.

A short history of rice

Rice is a grass similar to wheat, oats, and barley that became a food source to early humans when they first taught themselves to cook. It proved to be an extraordinarily adaptable grain, and its cultivation probably began in many different places at different times. Wild rices, taking footholds in numerous habitats, evolved specific characteristics to ensure its survival in those habitats. Also, as humans began to migrate, they brought their favorite rice with them, often into areas where growing conditions were not suited for the particular rice variety they brought. But people proved to be adaptable, as well as creative, and they again quickly began to develop the art of selective farming, an art that included the effective breeding of adaptable rice varieties, along with making manageable changes in the growing environment to help these rices thrive.

There are about 25 species of rice, but we only cultivate and eat one. Yet, that one species provides the thousands of cultivated rice varieties we grow today.

I first took a serious interest in rice during the Green Revolution of the 1970s. At that time, experts believed the original cultivation of rice occurred in northern Thailand and Vietnam, based on archeological finds of rice grains dated back to 3500 BC. Recently, however, carbon-14 measurements have placed the earliest cultivation of rice in central China, south of Shanghai. These rice remains have been dated back almost 6000 years. By around 500 BC rice was being grown in large parts of India, China, Indochina, the Philippines, Indonesia, and Malaysia. By about 200 BC it was present in Japan and the Middle East. The Greeks and



Richard Blunt

Romans took no serious interest in rice. They regarded it as an expensive and impractical medicine to be used only by rich food faddists who could secure it from India.

However, by the middle of the 12th century we know that rice had made its way to Europe. At that time bubonic plague had killed off about one third of the work force in Europe. With the manpower shortfall, lower yields of staple crops, like wheat and barley, were being harvested. Rice, a high yielding and energy-giving crop that required less labor than other crops, was imported to fill the void. By the middle of the 18th century, rice was being imported in large enough quantities to England to be considered an ordinary table staple.

Just how and when rice finally made it to North America is a matter of conjecture. Some say that rice seeds were taken across from Africa on slave ships. Between 1620 and 1647 unsuccessful attempts were made to plant rice in Virginia and North Carolina. Finally, in the 1690s, rice imported from Madagascar was successfully planted in the swamplands of South Carolina. These mosquito infested fields were tended by slaves brought from West Africa where rice farming was well established. When the Civil War freed the slaves, the affluent culture created by growing and exporting millions of tons of Carolina Gold rice came to an end. But rice made a comeback, and today Arkansas, California, Louisiana, Texas, and Mississippi grow and market most of the rice in this country.

Types of rice

Since the early 1900s botanists have debated just how to classify the endless varieties and subspecies of cultivated rice, but they have not reached universal agreement. In 1928

The term “Green Revolution” describes the highly publicized development and distribution of modern agricultural technology during the 1960s and 1970s. During this period, high yielding cultivars of various crops, but in particular rice, were distributed from technologically advanced countries to major agricultural areas around the world. For example, the International Rice Research Institute, founded in the Philippines, introduced high-yielding, disease-resistant varieties of rice to tropical Asia. The program was so successful that Indonesia, one of the world's perennial rice importers, became self sufficient and started exporting large quantities of rice by the early 1980s. This unexpected turn around caused other rice exporting countries problems as the market price of rice crashed around the world.

a Japanese scientist lumped all these varieties into two groups: long grain, non-sticky rice called **indica** and short grain sticky rice called **japonica**. Since then there has been a third classification added—the long grain sticky varieties

called **javanica**. What makes a rice sticky or non-sticky is the proportion of starch molecules that each grain contains. All cereal grains contain two types of starch molecules: amylose and amylopectin. Amylose starch molecules are more loosely constructed and bond easily with water molecules. This makes the rice sticky. Amylopectin starch molecules are compact in structure, a characteristic that prevents them from easily bonding with water molecules and results in nonsticky rice. All rices contain both types of starch strung together in long molecular chains. Japonica and javanica rice varieties are higher in amylose starch than indica rices and are, consequently, sticky.

Does it need all that water to grow?

Because of man, cultivated rice has evolved over the millennia from a non-water dwelling genus into a water-loving species that now needs a lot of water to really thrive. Some say that water provides a thermal blanket to protect the crop

Baked aromatic rice

This is, in my opinion, one of the most elegant yet simple ways to prepare aromatic rice. The delightful flavor and aroma of this kind of rice is not smothered with unnecessary flavor enhancers, and nothing is added to alter the delicate texture of the rice. If you live in an area that has specialty food stores that sell aromatic rice, like Basmati, I suggest that you buy the best quality rice they have to offer. One of the finest Basmati rices is Dehra Dun, grown in Northern India. It has long white grains and develops a wonderful aroma when cooked the way that I will describe to you. If you can't find imported Basmati rice, the American variety will work well. American Basmati, however, does not have the same intense aroma of the imported variety.

Ingredients:

2 cups long grain Basmati rice	4 Tbsp. unsalted butter
cold water to rinse and soak the rice	1 Tbsp. virgin olive oil
1 tsp. kosher salt	Kosher salt, to taste
4 qts. water	fresh ground black pepper, to taste

Method:

1. Preheat the oven to 350 degrees F.
2. Place the rice in a large bowl and fill the bowl with cold water. Rub the rice between your fingers to remove the surface starch from the grains. Carefully change the water and repeat the rinsing until the water is clear. Drain off and discard the water.
3. Place the rice in a smaller bowl with one quart of fresh cold water. Let the rice soak in this water for at least 30 minutes. Drain and discard the water.
4. Combine the salt with the four quarts of water (that's right, four quarts) and bring it to a boil over medium-high heat. Add the rice and stir the mixture to ensure that the rice does not stick to the bottom of the pot.
5. Cook the rice until the grains are cooked $\frac{3}{4}$ of the way through. When you remove a grain from the pot and bite into it, it should be fully cooked on the outside and slightly crunchy on the inside. This should take about 10 minutes.
6. Immediately drain the rice and rinse with warm water.
7. In a small, heavy-bottomed sauce pan, over low heat, melt the butter with the olive oil. Season this mixture to taste, with salt and fresh ground black pepper. The more black pepper you add, the more flavor this rice will have.
8. Place the rice in a non-stick baking pan and evenly drizzle the melted butter and olive oil on top of the rice. Cover the pan tightly with aluminum foil and bake in the oven for 15 to 20 minutes.
9. Remove from the oven and let rest for five minutes before serving.

against temperature extremes. Others say that the water in flooded fields serves to drown weeds that would otherwise compete with the rice seedlings.

A healthy rice paddy can best be described as a complex ecological system, like an aquarium. The water helps to maintain a proper balance of beneficial bacteria and complementary microorganisms. This natural balance is maintained by proper management of the irrigation system, because a field is only flooded for part of the growing season.

In healthy irrigated fields the water is changed several times during the growing season. But rice is incredibly adaptable and certain varieties have thrived in stagnant water. The main difference between rain-fed rice and irrigated rice is that rain-fed rice will, at best, produce only one crop a year. A properly managed irrigated rice paddy will produce two or three, and farmers around the world take advantage of this.

Types of rice and how to use them

In this country there are three types of rice readily available on the retail market: long grain, medium grain, and short grain. Long grain is by far the most popular and the most versatile. It is sold in several different forms. Reviewing all varieties of long grain, medium grain, and short grain rices is beyond the scope of this short article. So

I will focus on the long grain varieties and describe how you are likely to find them in a typical grocery store.

Long grain brown rice: This rice undergoes minimal processing. During the milling process only the outer husk is removed leaving the bran layers intact. It is then heat treated to prevent the bran oils from going rancid in storage. Despite this treatment, brown rice still has a shorter shelf life than polished white rice. But under refrigeration brown rice will keep for more than six months.

Parboiled or converted rice: Parboiling rice is a process that began in India over 2000 years ago. Basically, after the rice is threshed from the stock, it is soaked in water for several hours, then steamed for a few minutes. It is then dried and milled in the usual way. One great advantage of this process is that a percentage of the nutrients contained in the bran are pushed into the starchy endosperm. This prevents them from being lost when the rice is further processed and polished. The process imparts a slightly yellowish color to the uncooked grain. It also requires more water and more time to cook than regular white rice. The term "converted," which is used to mean parboiled, is a registered trademark for Uncle Ben's rice.

For rice storage, converted rice is probably the best there is because it stays stable longer during storage and it will withstand a wider variety of cooking techniques without turning to mush.

No-fail boiled rice

I often listen to people who are excellent cooks complain about how difficult it is for them to cook rice. Some of them have become so intimidated that they avoid rice completely. This is a shame, because cooking rice is less complicated than cooking other starches like pasta and potatoes. When you cook pasta and potatoes it is necessary to constantly test them during the latter stages of the cooking process. One great advantage of cooking rice is that, with few exceptions, it is predictable. Using the proper amount of liquid, cooking the rice in a heavy bottom sauce pan, and keeping your eye on the clock is the no-fail formula for cooking rice. I will prove it to you with the following. This recipe makes three cups of perfectly cooked long or medium grain white rice. The medium grain will be a little softer than the long grain. I don't use any butter or margarine when I boil rice because I can't see any advantage to adding it during the cooking process. I do add a variety of embellishments after the rice is cooked. These include: butter, Parmesan cheese, fresh ground black pepper, olive oil, ground nuts, chopped apples, and chopped fresh chili peppers. Let your imagination be your guide. Who said boiled rice was dull food?

Ingredients:

1 cup long grain white rice
½ tsp. kosher salt
1¾ cups cold water

Method:

1. Place the rice, salt, and water in a heavy-bottom sauce pan and cover tightly, and bring the mixture to a boil over medium heat.
2. When steam starts escaping from the cover, turn the heat to very low. Do not remove the cover.
3. Cook the rice for exactly 20 minutes on low heat, then remove the pan from the burner. Do not remove the cover.
4. Let the rice stand, undisturbed, for another 20 minutes. Remove the cover and lightly fluff the rice with a fork.

Spider rice casserole

If you have a sturdy gas or charcoal grill and a cast iron Dutch oven with a cast iron lid, you can make this whole thing right on the grill. But I suggest you try it first on your range top where you have more control of the heat. My friend, Howard, sears the chicken on skewers over a bonfire, assembles the remainder of the ingredients in his spider kettle, and places the whole thing in the fire for about 45 minutes and it comes out perfect every time. I have not had the courage to attempt this yet. Some day. Some day.

Special Equipment: 1 five-quart or larger cast iron Dutch oven.

Ingredients:

6 skinless chicken thighs	4 whole cloves	1 cup of canned low fat chicken stock
½ tsp. kosher salt	4 whole green cardamom pods	¾ cup of your favorite ale or beer, room temperature and flat
¼ tsp. fresh ground black pepper	1 three-inch stick cinnamon	Kosher salt to taste
3 Tbsp. peanut oil or other light vegetable oil	¼ tsp. whole cumin seeds	½ tsp. fresh ground black pepper
1 cup diced yellow onion	1 1/3 cups long grain brown rice	
2 cloves fresh garlic, minced	1 10-ounce can diced tomatoes with chili peppers (Or-Tel brand is best)	
1 Tbsp. fresh ginger, minced		

Garnish:

2 Tbsp. fresh cilantro, chopped	¼ cup toasted sliced almonds
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Method:

1. Combine the salt and pepper and rub this mixture onto the washed chicken.
2. Heat the oil in the Dutch oven over medium heat, then add the chicken in a single layer and fry until the chicken is browned on both sides and cooked about two thirds of the way through. Remove the chicken from the pan and set it aside.
3. Add the onions to the pan and cook over medium heat until they are lightly browned. Add the garlic, ginger, whole cloves, cardamom seed, stick cinnamon, and cumin seed. Cook the mixture while stirring constantly for about two minutes.
4. Add the brown rice and stir the mixture for one minute.
5. Add the tomatoes, chicken stock, beer, salt and pepper to taste, increase the heat to medium high, and bring the mixture to a boil. Return the chicken to the pot and put the cover in place. When the mixture begins to boil again, reduce the heat to low and cook the casserole for exactly one hour.
6. Remove the pot from the heat and let the casserole rest, with the cover in place, for 15 minutes.
7. Before serving, sprinkle the chopped cilantro and toasted almonds evenly over the casserole

The reason whole spices are used in this recipe is that under cooking conditions the flavors are slowly released into the casserole. You can try to find them and pick them out before serving the meal, but I just let people do it themselves from their own plates.

Regular enriched white rice: This is fully milled long grain rice. The bran layer has been removed and the rice has been polished. The rice is then coated with a soluble coating that is enriched with iron, niacin, and thiamin. This rice is whiter than parboiled rice before it is cooked. It also cooks faster and with less water.

Precooked rice: This is simply rice that has been cooked until it is ready to eat, then dried and packaged. Personally, I would rather cook my own rice than pay someone else an inflated price to cook it for me. The small amount of time saved isn't worth the price.

Boil-in-the-bag rice: Again this is only designed to be a time saver and is sold at an inflated price. Boil-in-the-bag is

usually parboiled rice packed in a muslin-type bag, probably for the sole purpose of keeping it from sticking to the pot. It is not for me. We can all learn to cook bulk rice without it sticking to the pot.

The following classes of rice are called aromatic long grain rice:

Basmati: This is a long grain highly aromatic rice that is imported from Punjab India in the foothills of the Himalayas. The individual grains of this rice are longer and thinner than other varieties of long grain rice. I use it when I make pilafs, curries, and biryanis. Biryanis are elaborately layered Basmati rice and meat or vegetable casseroles enhanced with a subtle mixture of exotic fragrant spices.

Fajita rice

This recipe is designed for folks that have limited access to refrigeration and must rely on shelf stable and root cellar foods for their cooking needs. I must say that all fajita seasonings are not created equal. Of the brands listed below, I like the Ortega best. The Old El Paso contains a lot of chile pepper flakes which makes the casserole too spicy. The Taco Bell, and the Chi-Chi's, on the other hand, don't have enough flavor to make the casserole interesting. My daughter, Sarah, was adding my homemade hot sauce to the Taco Bell version.

Special Equipment: 1 five-quart cast iron Dutch oven

Ingredients:

3 Tbsp. virgin olive oil	3 cups chicken stock
2 medium yellow onions, diced medium	1 14 oz. can of pinto beans, drained
2 cloves fresh garlic, minced	1/3 cup canned or bottled roasted peppers, diced medium
1 1/2 cups long grain parboiled (converted) rice	
1 pkg. fajita seasoning (Ortega, Taco Bell, Old El Paso, Chi-Chi's etc.)	

Method:

1. Heat the olive oil in the Dutch oven over medium heat. Add the diced onions and cook until they are lightly browned.
2. Add the garlic and cook for one minute, stirring constantly, then stir in the rice.
3. Stir the Fajita seasoning into the chicken stock and add this mixture to the pot. Increase the heat to medium high. Bring the mixture to a boil, then add the drained pinto beans and the diced roasted peppers.
4. When the mixture again returns to a boil, put the lid on the pot, adjust the heat to low, and cook the mixture for 20 minutes or until all of the liquid is absorbed. Remove the pot from the heat and serve as soon as possible.

This is one rice that I feel should also be cooked as simply as possible and enjoyed without any other flavoring.

Thai fragrant or jasmine: Another aromatic rice, but imported from Thailand. It is one of those slightly sticky long grain rices that retains its delicious taste and aroma when served cold.

Texmati: This is a hybrid American rice grown in Texas. It is a cross between Indian Basmati and regular long grain white rice.

Jasmati: An American grown Jasmine rice. Not as fragrant as the Thai version.

Storing and using rice

Rice is a hardy grain that will keep almost indefinitely in the original package if stored in a cool, dry place. Once opened it should be transferred to an airtight container before returning it to the shelf. However, because of the oil content in the bran, brown rice has only about a six month shelf life when properly stored in the original unopened container. Once opened, brown rice should be refrigerated in an airtight container. All cooked rice can be kept for about a week when refrigerated. If frozen in an airtight container, it can be kept for about six months. When aromatic rice is stored, it slowly loses its aroma, so it makes a poor storage rice.

Is rice really healthful food? You bet it is. First it contains no bad cholesterol or extrinsic sugar. Extrinsic sugar is the major culprit in tooth decay. Rice is about 80 percent starch which is processed slowly and constantly by the body to deliver a steady stream of energy to the muscles. When we eat the starch, it passes quickly through the stomach and into the small intestine where it is broken down into simple molecules of glucose. Glucose molecules, in turn, pass through the intestine into the blood stream and offer themselves to the muscles as fuel in the form of glycogen. It takes rice starch about 24 hours to pass through the system in this fashion, thereby delivering a steady medium term supply of energy.

One cup of either cooked brown or enriched white rice also contains the following approximate daily requirements of B complex vitamins: Thiamin (vitamin B-1)—30 percent, Riboflavin (vitamin B-2)—about 2 percent, Niacin (vitamin B-3)—10 to 20 percent depending on the type of rice, Pyridoxine (vitamin B-6)—about 6 percent, Folic Acid—about 2 to 8 percent depending on the rice.

Brown rice delivers a higher percentage of these vitamins than white rice. Adults require eight amino acids in their diet to maintain healthy bones, blood, and tissue. One cup of cooked brown rice will provide about 6 percent of this daily requirement. Rice also contains useful amounts of several essential minerals including phosphorus, zinc, seleni-

um, copper, and iodine. One cup of cooked brown rice will provide approximately 7 percent of your daily requirements for fiber. But all rice also contains what nutritionists call resistant starch. Resistant starch is created when rice starch molecules are squeezed so tight during the cooking process that they become indigestible and pass through the system to form bulk in the colon. About 80 percent of the fiber found in rice is said to be resistant starch which means that all rice contains more fiber than we think.

The recipes

I have put together four simple recipes, each using a different type of rice. The first two are formulas designed to demonstrate just how rice can be cooked and served with a minimum of fuss and still be an interesting complement to any meal. The last two are casseroles I learned to make while surf fishing on Cape Cod with five of the heartiest men that I have ever known. The Spider Rice casserole was designed to be cooked over an open fire in a real neat looking three-legged cast iron pot called a spider. The legs allow the cook to put the pot right into the hot coals. The man who taught me this recipe would often make enough of this dish to feed 10 hungry fishermen.

The fajita rice is a meatless dish made almost exclusively with shelf-stable items. This dish is a classic example of how it is possible to prepare gourmet food using storage

ingredients and spending a minimum amount of time in the kitchen.

Rice is an integral part of many cuisines. It is hard to find a cookbook without an interesting rice recipe in it. Look in your own library and I am sure you will find more rice recipes to suit your personal tastes for cooking rice from your home storage. Δ

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Raise Tobacco

for trade or barter in hard times

By Rev. J.D. Hooker

Preparing for a crisis involves many things: storable foods, alternative power sources, dependable water supplies, medicines, guns, ammo, and such are readily available for now and this particular magazine has printed enough information on living and maintaining a self-sufficient lifestyle that every reader should already know at least the basics about preparing for nearly any crisis.

So probably the next most important thing we need to consider would be how we'd continue to manage should such crisis become an ongoing situation. If the worst happens, what options will we have available when it finally comes time to replenish or replace some vital item or other? Suppose you've just hammered in your very last nail, but the hardware store and lumber yard have both been closed for months. What can you do? What do you possess that someone else would be happy to trade for, and that you can afford to barter away? To put yourself more in demand, what can you have for

barter that no one else around you has considered?

One worthy answer that comes to my mind (possibly because of the cloud of rich burley smoke swirling from my pipe as I sit here writing this) is tobacco. Whether the person you're attempting to trade with is actually a nicotine addict or someone raising sheep that have developed a severe worm infestation, a supply of tobacco gives you negotiating power in a barter situation.

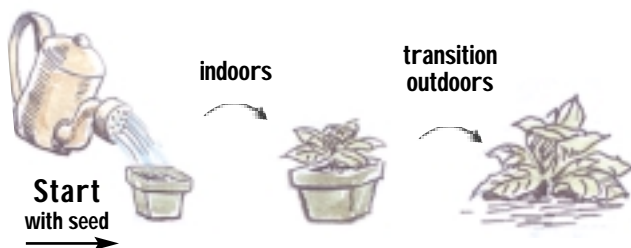
Some readers will recall an article I wrote on raising tobacco in Issue #38 (March/April 1996). At that time I was writing about raising tobacco for your personal use. Its many uses include medicinal remedies. Here I'll talk about providing yourself with a substitute for cash in bad times.

One difference I need to point out from the start is that while confirmed pipe smokers, like I, relish the wide range of tastes provided by growing the varieties available from Native Seeds/SEARCH that I mentioned in that earlier article, the vast majority of smokers puff away on cigarettes, not pipes or even cigars, and need a really consistent flavor.

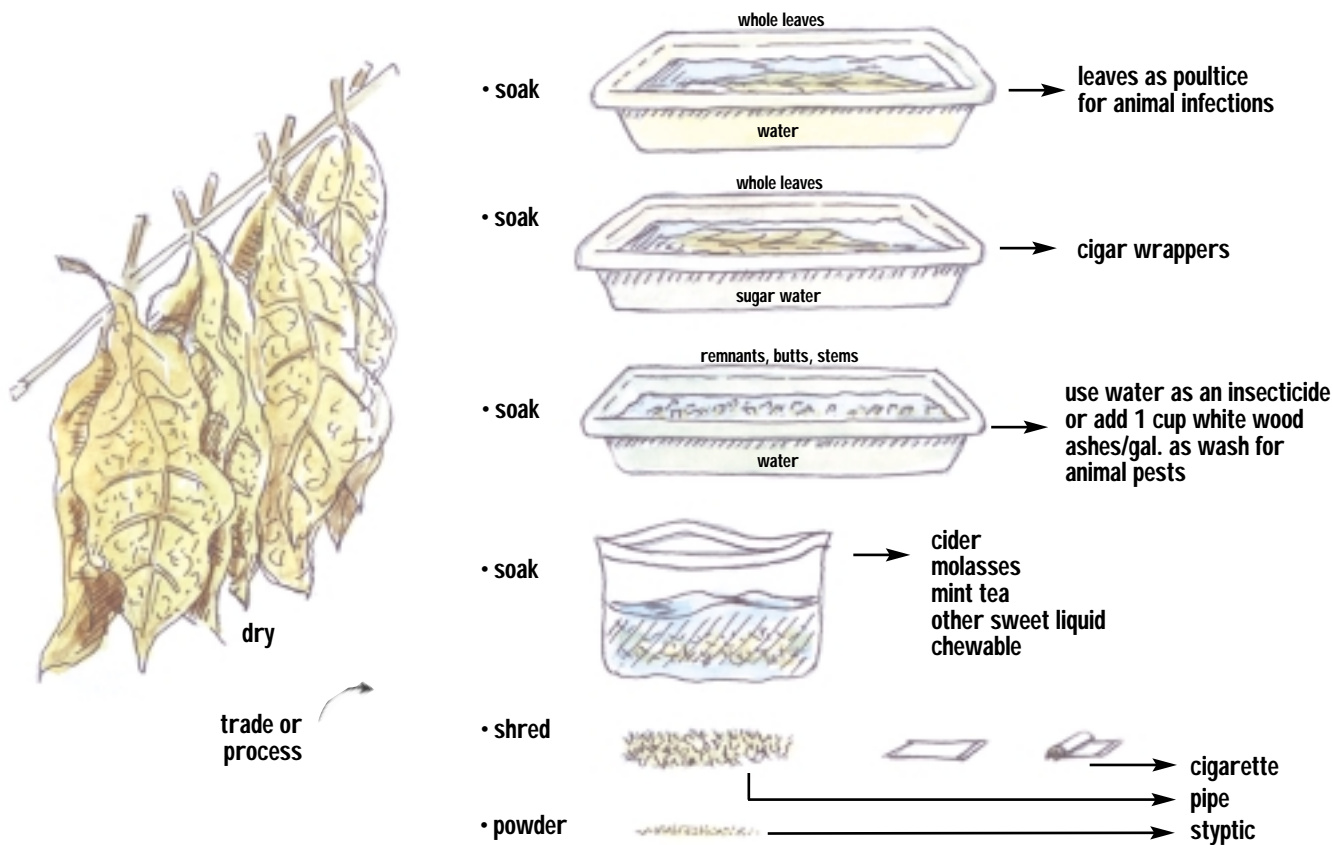
At the same time, when thinking of trade

value you'll need to consider quantity and ease of production as well. For this reason I recommend that most folks stick to raising white burley tobacco. I found seeds available for this variety from Gurney's Seed and Nursery Co., 110 Capitol St., Yankton, SD, 57079. Their Spring '99 catalog now lists this seed for \$3.69 for 1/32 oz. This is an easy variety of tobacco to grow and is probably the easiest to cure. It is also open-pollinated, producing capacious quantities of seeds for future plantings.

This past growing season we started some of this seed in one of the manure heated hot-beds I covered in an earlier *BHM* issue (Issue #53, Sept/Oct 1998) and some just on window ledges inside of the house, with equally good results. We used empty egg cartons instead of planting flats, filling these with a mixture of roughly equal portions of sand, well rotted compost, and garden soil. These seeds are very nearly as fine as dust, so I used tweezers to place the seeds just barely under the soil's surface.



plants 3ft. apart in rows 4 ft. apart



About seven or eight weeks prior to your area's final frost date seems to be the ideal time for starting these seeds indoors. Treat them just like you would tomato seedlings (which in fact are a close relative), being sure they remain warm and receive regular waterings and plenty of sunlight. Once outdoor planting time approaches, you need to harden these seedlings off in the same manner as tomato starts, gradually exposing them to lengthening periods of outdoor weather before setting them outdoors in their growing area.

When setting the diminutive little tobacco seedlings into the soil, it seems mighty wasteful of space to set them out three-feet apart, in rows four-feet apart. But once this variety stretches out and reaches its full height of five to eight feet, with many leaves measuring 18 to 25-inches long, things can start looking pretty crowded even with such liberal plant spacing. Cultivating to control weeds, regular waterings,

and weekly feedings of weak manure tea will help this crop produce to its full potential.

Don't bother with clipping off the flowers or the seed-heads as you need to with many other tobacco varieties; you can just let white burley produce all the seed it's capable of. Simply harvest the leaves individually as each one starts to die off and turn yellowish. Actually, in most cases, if you just string the leaves together on a cord (we use braided fishing line) and hang them indoors to dry thoroughly, most smokers will be sufficiently pleased with your product. When dried in an area where it's protected from direct sunlight, this variety ends up with a mild taste that's reminiscent of both cigarette and cigar smoke.

Should you expect your primary trading partners to be cigarette smokers (most likely the case), you'll want to dry most of your tobacco a bit quicker. We found that if you hang up the leaves in

the manner just explained, but only until they've turned a nice yellow color, then use heat (an oven or a food dehydrator) to finish drying the leaves out quickly, the taste of the end product was pretty well indistinguishable from commercial cigarettes.

While simply shredding or rubbing these dried leaves to produce a roll-your-own type of tobacco will provide you with a barter staple, most tobacco shops carry simple and inexpensive cigarette rolling machines which turn out a nicely finished product (especially interesting should you happen to be a cigarette smoker yourself). I did a little experimenting this past summer and found that using dried corn shucks, which have been cut to shape with one edge "gummed" using any sort of thick syrup (corn syrup, maple syrup, and simple sugar syrup all worked), along with one of these rolling machines, I could make a perfect substitute for ciga-

rettes rolled with commercially made rolling papers.

Should you have any interest in producing cigars for use as trade goods, a friend of mine who grew up raising tobacco as a cash crop showed me one method for making them and it works quite well.

Once the strung leaves are nearly dried, take them down and sort them, reserving the very best whole leaves for use as wrappers. Allow the wrapper leaves to soak in sugar water, watered down molasses, or some similar weak sweetener, until softened up. While these are soaking, use scissors to cut the other leaves lengthwise into very narrow shreds, discarding the thick center veins. Now use the whole softened leaves like giant sized rolling papers to hold the shredded filler tobacco together like a cigar. Bind each individual cigar tightly with cord until the wrapper has dried out very thoroughly, after which the sugar that's soaked into the wrapper will bind everything together nicely.

Another close friend who chews tobacco found this white burley to be perfectly acceptable after proper preparation. Once the leaves have been strung on a cord and dried completely, he crushes them with his hands and places them inside an airtight container. A ziplock plastic bag works well. Now he'll add just enough molasses, apple cider, heavily sweetened mint tea, or other sweet and flavorful liquid or syrup to moisten the tobacco. After it's been sealed up inside the container for a few more days to absorb the liquid, he says the results are equal to anything he's ever obtained from the store.

For smoking in my old briar pipe, I simply let the leaves dry slowly in a humid spot. Then I just keep them whole and tear enough off of a leaf to stuff my pipe as needed. I'm fairly certain that most other pipe smokers will be equally pleased with this method.

For several years we've also been using tobacco as a reliable livestock wormer. We've experienced good results. For

many years tobacco was the only stock wormer available and it worked very well. Feeding goats and other grazing animals about an ounce a month seems to keep them parasite free; stalks, stems, and leftovers all work equally well.

Aside from its value as a vermifuge, tobacco has always had a couple of other important medicinal uses as well. It has been used to treat minor livestock injuries, shaving nicks, or other relatively minor cuts and abrasions. Finely powdered tobacco makes one of the finest styptics or blood stop powders available, stopping minor bleeding immediately while preventing infection. In a similar manner, because of its natural anti-infective properties, we've found that a poultice of dampened tobacco leaves works wonders for cleaning infected wounds on animals. In our nation's early years, tobacco was so highly regarded for these attributes alone that a tobacco pouch was pretty well thought of as a basic first aid kit all by itself.

At present, several commercially available insecticides use tobacco, or one or more of its derivatives, as their active ingredient. Like many other gardeners, we've found that a mild tea steeped from tobacco stems, stalks, and wastes is exceptionally effective for eliminating insect pests from vegetables, bushes, and fruit trees. For our own use we dump about two ounces of tobacco into a 55-gallon plastic drum, fill the drum about two-thirds full with water, and allow this mixture to sit for several days. We then use a pump sprayer to apply this homebrewed insecticide wherever it's needed.

Several other gardening folks we know simply toss all of the cigar and cigarette butts they can collect into a container. They then add water and allow the mixture to set for a day or two before straining out the liquid and applying it in a similar manner. The two methods seem to be equally effective.

By adding about a cup of sifted white wood ashes to a gallon of this insecti-

cide, an effective flea, tick, and lice-killing wash is created for use against those irritating blood sucking pests on dogs and livestock.

Considering how inexpensive the initial cost of white burley seed, along with how easily the tobacco is grown and prepared, and all of the uses for the final product, you can see just how valuable a trading commodity tobacco can be. Δ

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Making maple syrup

By Marcella Shaffer

The art of making maple syrup is generally attributed to the Native Americans. Early settlers arriving in America learned the skill from them. They then went on to improve on the Native American's techniques by creating devices for tapping and collecting the maple tree's sap. These same basic devices and techniques are still used in America today to produce the maple syrup that we enjoy on our pancakes and waffles.

Anyone with access to maple trees, a few tools and equipment, and some basic how-to can make this delicious syrup. If you have never tasted pure maple syrup, you are in for a wonderful experience. In addition to its use as a topping for breakfast foods, maple syrup can also be made into toppings for ice cream and pastries, treats for the kids, or, in a pinch, a source of sweetening.

Selecting a tree

You can use the sap from nearly any of the maple varieties, but the **sugar maple**, *Acer saccharum*, produces the best sap and is the one most commonly tapped. The **black maple** is sometimes used, as is the **Norway maple**. **Sweet maple** trees are native to primarily the northeastern part of the United States, extending north into Canada and west to Minnesota. Although you will be doing the actual tapping in late winter and early spring, summertime is the easiest time to identify the maples. If you are unsure of a variety, have an experienced person identify them for you or use a botanical manual. Mark the tree so you can identify it later when the leaves have fallen.

The tree you select for tapping should not be less than 10-inches in diameter. Smaller trees will not yield well and they may be injured. The greater the diameter of the tree and the spread of limbs, the more sap the tree will produce. A large tree can support two taps.

If you are tapping a tree that has been previously tapped, do not use the same spot. Place the new tap several inches to the side and ten inches above or below. This will permit old taps to heal.

Tools and equipment

Most of the tools you will need for tapping you probably already have. These are: drill, hammer, buckets for collecting sap, and a drill bit. The bit you use should be a little smaller than the spout you will use. Most commercial spouts require a $\frac{7}{16}$ -inch diameter hole.

Equipment for tapping can be purchased (see sources) or you can improvise your own. The first and most important thing you will need is a spout, also called a spile. You can purchase them ready-made for around two dollars each. You can also make your own from a piece of metal tubing or hollowed out wood. The spout should be 3- to 3½-inches long.

You will also need a container to catch the sap. A coffee can and lid with a homemade metal bail or a pail works well. If you choose to use a pail, devise some sort of lid to keep debris, bugs, rain, or snow out. Sap bags and buckets designed especially for this purpose can be purchased. A sap bag is a washable, reusable plastic container designed to prevent contamination of the sap while it is being collected. They hold about two gallons of sap and are usually used with a special spout which holds them to the tree.

Tapping

Tap your maple tree in late winter or early spring. The best time is freezing nights with sunny days in the 40° to 50° F temperature range. If the temperature turns cold, the flow of sap will stop. It will resume, however, when the temperature turns warm again. You can get some sap at other times, but the spring run is the most productive and produces the best syrup. The sugar content is highest in the spring, flavor is at its peak, and the colder nights help to inhibit the growth of bacteria. Some feel there is less chance of damage to the tree when done at this time of the year.

Make your tap on the south or west side of the tree for greatest production. A later tap can be made on the north side after the sap starts running on that side. Begin by drilling a hole 1½- to 2-inches deep at a slightly upward angle. Locate the hole approximately two to five feet above the ground for easiest access.

As soon as the hole is drilled, hammer in the spout. Use light taps to avoid splitting the bark and damaging the spout. A damaged spout or split bark will result in a leaking tap. Attach or hang your clean catch container.

During a good run, your catch container will need to be emptied as often as several times per day, depending on its size. Always empty daily however. Simply pour the container into a larger pail for storing or transporting to the site where the syrup will be made. Store the collected sap in a covered container in a cool place outside. Freezing does not harm the collected sap. If the weather turns warm you will need to process it.

Stop collecting sap when you have enough. It takes approximately 30 gallons of sap to make one gallon of

syrup. This is why pure maple syrup is so expensive. You should also stop collecting if the sap stops flowing, or if the tree begins to bud. If the sap turns yellow, this is a sign the tree is getting ready to bud. To stop collecting, simply remove the spigot or spile. The hole will seal itself over in a few weeks. An application of tree wound sealer may be applied if you wish.

Making syrup

Syrup can be made inside your home, but due to the tremendous amount of moisture you will be introducing into the air and the sticky residue, it is better done outside or in a shed, outbuilding, etc. (I learned this the hard way when everything became sticky and the wallpaper fell off my kitchen walls.) Traditionally the boiling down of sap was done in a large kettle suspended from a tripod over a fire. Any source of heat will work, however, as long as it is capable of producing heat for a long time. It takes about five hours to boil down five gallons of sap into syrup.

For the boiling down you will need: a long handle stirring spoon, a candy thermometer, a means of straining the syrup after boiling, and a kettle for boiling the sap. The kettle should have a large heating surface and hold at least a gallon of sap.

Begin by straining or skimming the sap to remove any bark, bugs, etc. Fill the kettle about two-thirds full and bring to a boil. Since unprocessed sap is mostly water, it will boil at nearly the same temperature water does at your particular elevation. (You may want to check this in advance if you don't already know.) As the water evaporates, the temperature will slowly rise. When it is six to seven degrees higher than boiling point of water, the syrup is done.

During the first half of the boiling process, the sap can be left unattended. After this point, however, the sap will need to be watched to see that it doesn't boil over or scorch. Foam will

rise to the top which will need to be skimmed off. As the sap nears completion, you may want to bring it inside and finish on your kitchen range to better control the heat and prevent scorching. If you let your syrup boil too long and become too dense, it will develop rock-like sugar crystals on the bottom of the jar during storage.

Before bottling, you will need to strain the syrup. A kitchen strainer lined with a paper coffee filter works good. This final straining will remove any remaining debris and the sand-like deposits which is found in all sap.

Preserving and storage

Canning in Mason jars is the best means of longtime syrup storage. If you do not wish to can it, or have only a small amount, it can be refrigerated.

To can maple syrup, reheat after straining to near the boiling point, then pour into hot, sterilized pint jars. Have the lids hot and sterilized also. Fill to within one-half inch of the top and put on the lid. You can also use paraffin wax for a lid as in jelly making.

Store in a cool place away from direct light. Use your homemade maple syrup like you would any commercially made syrup. The maple taste will be more pronounced than what you are probably accustomed to since many "maple" syrups are corn syrup with maple flavoring added.

Recipes

Some tasty variations you may wish to try are:

½ c. maple syrup
1/8 c. of butter
½ c. light honey

Heat over a low flame until the butter melts. Serve warm on pancakes or waffles. This appeals especially to honey lovers.

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A topping for ice cream or pastries can be made by combining equal parts of maple syrup or corn syrup in a saucepan. Heat over low flame until boiling, stirring to prevent sticking. Add walnut pieces and simmer until it is of the desired consistency. This topping can also be canned using standard methods and processing in a boiling water bath for 15 minutes.

As a treat for the kids you can make maple sugar candy. Heat the syrup until it reaches a temperature 33° F hotter than boiling water. Watch carefully to avoid scorching. Cool to 150° F, stirring until crystals form. Pour into greased molds. Δ

SOURCES

Lehman's
P.O. Box 321
Kidron, OH 44636

G.H. Grimm Co.
P.O. Box 130
Rutland, VT 05072

The solar bakery— quickbreads and cakes

By Jennifer Stein Barker

I have been cooking with the sun for five years now, and find it a wonderful way to take advantage of summer's delightful weather and spend more time outside. My favorite recipes are those which I can toss together and place in the solar cooker, then run off to the garden (perhaps with a timer clipped to my pocket) and work until it's time to check my bread or cake. In winter, I cook on a woodstove, so summer brings a taste of freedom with no fire to build or fuel to consider.

It's nice to have snacking foods and lunchbox goodies always handy for hungry homestead workers. I like my family's snacks to be nutritious and substantial. That way, they do double duty as "real food." Having nutritious

snacks available for midmorning and afternoon helps people avoid overeating at regular mealtimes.

Quickbreads and cakes are wonderful ways to take advantage of carefree solar cookery. Multi-reflector commercial cookers like the Solar Chef and Sun Oven, or homemade SunStar cardboard box cookers, will work best for baking because they approximate the temperatures and baking times of conventional ovens. Of course, the sunnier the day and the better your oven's focus on the sun, the better results you will have.

Quickbreads and cakes do not have very much water mass in them and they will come up to baking temperature quickly. You must put them in a preheated cooker because rising dough must be cooked or it will fall again. Watch your preheating of the

cooker carefully, because an empty solar cooker will quickly get hot enough to smoke the finish off the inside. It is the mass of food inside which controls the temperature. A small jar of water will be enough to moderate the temperature in a preheating oven. A rock or brick placed to heat in the empty cooker will provide mass to help hold the heat whenever you open the door to put food in and it will help provide bottom heat to your baked goods.

Keep track of the temperature in your solar cooker. Put an oven thermometer inside it where you can see it without opening the door. Preheat the cooker to 300-400 degrees F. Being precise isn't necessary because as soon as you put your loaf or cake in the oven, the temperature will fall to 300 degrees or less. Don't worry;

Buttermilk spice cake

I have a friend who used to bring a piece of this cake in every single one of his sack lunches, and I just had to ask for the recipe. Of course, it's a little different now...

Makes an 8X8-inch cake of 12 pieces:

1¼ cups whole wheat pastry flour	¼ teaspoon grated nutmeg	¾ cup boiling water
1 teaspoon baking soda	¼ cup buttermilk powder	⅓ cup coarsely chopped walnuts
½ teaspoon cinnamon	⅓ cup oil	
½ teaspoon allspice	½ cup honey	
	1 egg	

Preheat the solar cooker with 1 cup of water in it. Bring the water to a boil, and have ready for the recipe. Lightly oil an 8X8-inch square cake pan, and line it with bakers paper if you wish.

Sift together the flour, soda, baking powder, cinnamon, allspice, nutmeg, and buttermilk powder. Put the mixture back into the sifter and set aside. In a medium bowl, beat together the oil, honey and egg until very frothy. Sift in the flour mixture in 4 installments, beating well after each (if you are using a hand rotary beater, you may have to stir the last one in with a spoon). Add the boiling water and beat for 1 minute. Fold in the chopped nuts, and pour the mixture into the prepared pan.

Bake until the cake tests done. Remove the cake whole (if you have used the paper), or cool in the pan 10 minutes, then cut into 12 pieces and remove to a rack to cool. Cool thoroughly before storing in an airtight container in a cool place.

Conventional kitchen instructions: Bake in a preheated 350-degree oven for 40 to 45 minutes.

Rhubarb buttermilk cake

Rhubarb needs no added moisture to make a cake, so to get great flavor, I use powdered buttermilk (available at health food stores or in the powdered milk section of the grocery).

Makes one 8X8-inch cake of 16 pieces:

1/3 cup finely chopped walnuts	1/4 cup buttermilk powder	1/3 cup honey
1 1/3 cups whole wheat pastry flour	3 cups diced rhubarb	1 teaspoon vanilla
1/2 teaspoon baking soda	1 egg	
	1 tablespoon oil	

Preheat the solar cooker and lightly oil an 8X8-inch square cake pan. Sprinkle about half the chopped nuts over the bottom of the pan, and set aside.

Measure the flour, baking soda and buttermilk powder into a medium bowl. Stir until well blended. Dice the rhubarb 1/4 to 1/2-inch (to your taste, it does not need to be perfectly regular). Toss the rhubarb with the dry ingredients and set aside.

Measure 1/3 cup honey, and add the oil, egg and vanilla to it right in the measuring cup. Stir together well, then scrape it out over the rhubarb mixture. Toss and stir until ingredients are thoroughly moistened. The mixture will be stiff.

Spoon the mixture into the pan, being careful to distribute evenly over the nuts without disturbing them. Push down and smooth over the top. Sprinkle the remaining nuts over the top, and bake in solar cooker until the cake tests done.

Let rest in the pan 10 minutes to cool, then slice into 16 pieces and remove the pieces to a rack with a spatula. Serve warm, or let cool thoroughly and then store in an airtight container. This resists becoming soggy, but it is best eaten the first or second day (refrigerate after the first day).

Conventional kitchen instructions: Bake in a preheated 350-degree oven for 35 to 40 minutes, until the cake tests done.

quickbreads and cakes will cook just fine. Turn the cooker as frequently as you can to focus on the sun. Cooking time may only be about 15 to 20 percent longer than in a conventional oven. When your bread or cake looks done, open the cooker and check it. If it isn't quite, then five minutes more will usually do the job.

Solar cookers have a limit to how much food can be put in them at once and still bake properly. This varies with the size and design of the cooker. Two loaves of bread are too much for most cookers. One standard loaf will usually do just fine, and remember: even if the sun goes behind a cloud, and your loaf turns out flat-topped, it will still taste just as good.

I use dark-coated tin pans for baking breads and cakes. If the pan doesn't fit in your cooker one way, turn it a quarter-turn and try it another way. Make sure the pan fits and the cooker is set up for it before getting the cooker preheated and the dough or batter in the pan. Your granite-ware may also be used as a baking pan. Δ

Fresh apple bread

This sweet and tender quickbread goes wonderfully in a lunchbox. Use all-purpose whole wheat flour, or a 50-50 blend of bread and pastry flour. If you prefer muffins, this recipe will make a dozen regular muffins.

Makes a 5X9-inch loaf:

2 cups whole wheat flour (see above)	1 teaspoon cinnamon	1/2 cup honey
1 teaspoon baking powder	1 1/2 cups finely chopped apple	1 egg
1 teaspoon baking soda	1/2 cup chopped walnuts	1/2 cup milk
	1/4 cup oil	

Set your solar cooker out to preheat. Prepare a 5X9-inch loaf pan by oiling it lightly.

Sift the flour, baking powder, soda and cinnamon together into a medium bowl. Add the chopped apples and nuts, and toss to coat. In a small bowl, whisk together the oil, honey, egg and milk. Add the wet ingredients to the dry and stir just until all ingredients are moistened. Do not worry about any small lumps.

Bake in the solar cooker until the loaf is golden on top and tests done. Cool 10 minutes in the pan before removing to a rack to finish cooling. This loaf is best stored in the refrigerator, because of the moistness of the apples.

Conventional kitchen instructions: Bake in a preheated 350-degree oven for 50 to 60 minutes, or until the loaf tests done. If the top browns too quickly, put a foil cap over the loaf or put a cookie sheet on the shelf above it.

Teach speed reading to your children even if you can't speed read yourself

By George Stancliffe

For over two years, I have had the hobby of teaching speed reading to people in the community where I live. So far I have taught over 300 people (most of them children) to speed read.

As a result of the many classes I've taught, I've made some observations:

- Children learn the speed reading skill far more easily than adults.
- Children master the skill far more completely than adults do. It literally becomes a natural part of them if they learn it by age 12 or so, just as much as speaking.

English is a natural part of them.

In fact, recently I made the discovery that children learn to speed read so easily that you can teach kids to speed read even if you don't know how to speed read yourself.

Impossible? Not at all. I even tested the idea out on some school teachers and homeschoolers who gave it the acid test. They did just fine.

One homeschooling mother got her 11-year-old daughter to read comfortably at 12,000 words per minute (most adults read at about 250 to 300 wpm). An English teacher at a local high school got two thirds of her class to catch on to speed reading within four weeks at an average speed of about 4,000 wpm. Others who gave this concept the acid test had similar results.

Let me repeat: The instructors did not know how to speed read themselves.

So why can't I just learn speed reading first, before teaching it to my kids? You can, but in my experience as an instructor, it isn't going to happen. It's at least 10 times harder for an adult to learn speed reading than it is

for a child. By the time you finish struggling through the process yourself you will be so weary that you'll doubt that children are capable of learning it at all. Teaching it is really the easy part.

I've checked out a number of commercially available speed reading courses and they usually don't even allow kids under 11- to 13-years of age to enroll. That's too bad. Ninety percent of my very best students were 12 and under. Most of the rest were aged 13 to 14. Older kids can get good at speed reading but they have to work harder at it. The professionals are locking out most of their star students and only admitting their worst prospects. I believe they don't promote their speed reading courses to kids for three reasons:

- Money. The adults have it, the kids don't.
- The methods *they* use to teach speed reading are so rigorous that no young children could survive them. I took one speed reading course that required one hour of homework each night, much of it in the form of written notes or "recall patterns." No kids will ever keep up with that amount of paperwork.
- It probably has never occurred to them that children could master the speed reading skill very easily, as long as it's presented to them in the right way.

The following method for teaching kids to speed read may not be the only way to teach them. It may not even be the best. But I haven't come across any other that is so simple. And no other method I am aware of allows a non-speed reader to teach it effectively.

This article is an abbreviated plan for teaching your kids to speed read.

Keys to speed reading

There are four major keys to learning to speed read:

- Natural vision
- Visualize
- Relax
- Daily practice

Let me briefly explain each one.

Natural vision: Take a minute right now and look at a picture. Let's just say that you're looking at the Mona Lisa. When you look at her does your vision narrow down to tunnel vision so that you see just her left eye? Of course not. Yet when we look at a page of print we have been trained to have tunnel vision. You may as well read through a straw.

You need to look at a page of print with the same natural vision that we use to see a whole picture at once. With natural vision you use your whole field of vision (peripheral vision) to catch large blocks of print on a page. You not only see 3 to 10 words per line, but you also see 3 to 10 lines of print at once also.

Using your natural vision to see the words is the chief cornerstone of speed reading.

There are many different ways of seeing all the words on a page using your natural vision. By experimenting you will find the method that works best for you. (Figure 1.)

Visualize: Have you ever read a really good book, one that was so good that you felt that you were living inside the story, or you were able to picture it in your mind so well that it was like watching a good movie?

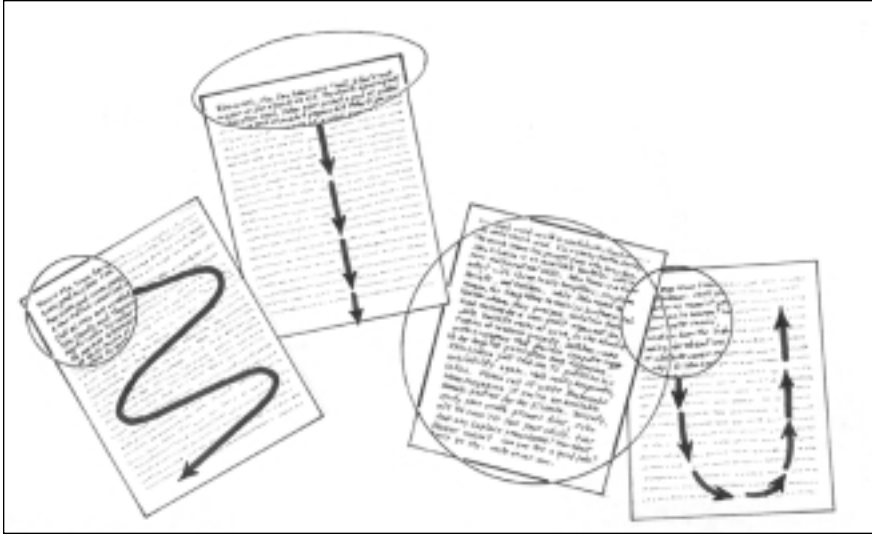


Figure 1. There are different ways of seeing all the words on a page using natural vision. By experimenting you will find the method that works best for you.

Well, that is your goal when you visualize.

The trouble is that your mind has never visualized at this while reading before, so it will take effort to jump-start the visualization process. In fact, for the first day or so, it may seem impossible. But keep trying anyway.

Relax: Normally, when people concentrate on something they focus their minds on something and become somewhat mentally tense. With speed reading it is different. To get maximum comprehension, one must be relaxed while concentrating (visualizing). One can get a feel for this relaxed feeling after doing the casual reading exercise that I explain later. Once you get a feel for how to properly relax while visualizing, it will become easier to become relaxed whenever you speed read.

Daily practice: The importance of daily practice cannot be overstated. After teaching many speed reading classes, one trend has become obvious: Those who practice daily are the ones who get really good at speed reading while those who neglect it don't get good at it.

Of course, all is not lost if you forget to practice once or twice each week. But the more you skip practice, the

worse your end result will be. This is especially true for adults. Sometimes I get kids who forget to practice regularly who still catch on to speed reading. However, they don't get as good as the kids who are diligent in their practice. I recommend at least 15 minutes of relaxed, casual speed reading each day. This is in addition to the regular lessons.

Preparation & equipment

Before we start, here's the preparation we need to make:

a) Mark out on the calendar one month that you will stick to the program of at least two speed reading lessons per week. Of course, the more lessons you have per week, the better your results tend to be. This is because even when the kids forget to practice on their own, they will still get some daily practice for that day during the lesson.

When I teach a speed reading class twice a week, I make the lessons 90 minutes long. However, when I teach daily classes, 25 to 30 minutes is sufficient, as long as you make good use of your time. One homeschool parent I know found it more effective to break practice sessions up into 15 minute

blocks, twice per day. Her daughter got to where she could cruise at over 10,000 words per minute with good recall.

b) Collect enough *interesting* reading materials. Anything that is easy to read and interesting is appropriate: Goosebumps, Hardy Boys, Babysitter's Club, etc.

But please note: a few kids have difficulty catching on to speed reading using books containing regular-sized print. So what I usually do is start all of them off, for the first day or two at least, with something that has very large print. If they are 10-years-old or older, the large-print edition of Reader's Digest magazine is good. If that is too technical for them, then the Little Sisters series by Ann M. Martin has the largest-sized print that I've seen for regular reading books for kids. Try that. After a few days, at most, they should ease their way into normal-sized print.

All these materials should be easily available at your local library. Yard sales and Goodwill are another possible source.

c) You'll need a watch with a second hand for timing regular drills and tap drills.

d) You may need to make arrangements with other homeschoolers to get enough kids together to do a class.

It has been my experience that kids learn to speed read better in a group setting than they do in a tutoring environment because in any group of 6-10 kids, there is almost always at least one kid who will catch on to the skill immediately, usually within three days or so and sometimes on the very first day. The others will try hard, but may not get it for a couple of days more. If there isn't someone in the group who catches on to speed reading really soon, it is easy for most kids to give up on speed reading after the first week. Outwardly they may go through the motions, but secretly they are saying, "This is baloney, nobody can read this fast."

To keep the kids (and adults) motivated, it is important to insure that there is at least one kid in the class that will be the catalyst that will help motivate the others. Once they see others speed reading in real life, or even doing it themselves, it is much easier for them to “remember” to practice every day on their own.

e) Also plan to have a minimum of two months follow-up after the initial month of instruction. This consists of getting them into the habit of always speed reading 10-15 minutes per day on a continuing basis. This is not only easy to do, but it’s necessary. This 10-

It may sound crazy, but you don’t have to know how to speed read yourself to teach speed reading to children.

15 minutes should be spent speed reading books that are enjoyable to the child. No pressure. Just, “Here, read this book and tell me about it.” That’s it for the day. Most kids can speed read a fun book in 10 minutes or so.

Now that you have made the preparations for teaching the course, it is time to discuss the basic activities that take place during class time. After that I will present a simple lesson plan that will help you to quickly see how a block of class time should proceed.

Basic class activities

Drills: A drill is a timed period (usually 30 seconds long) in which the student speed reads as many pages as he can. Afterwards, he reports on what he recalls to the instructor or to a class partner.

Speed reading drills help to build speed. They are short enough to enable the student to recall at least some of what he reads, yet long enough to make a significant dent in a reading selection. I encourage students to see at least six pages during a drill. It’s common for 10-year-olds to be two or three times faster than this.

While doing drills, the focus is on visualization. Of course, we attempt to recall what we can immediately after each drill. But good recall may not always be attained. Sometimes there may not be any recall at all. This is okay. Just the effort to visualize, alone, is the main point of the drill.

After a couple of weeks, fair comprehension (35% to 65%) is commonly attained in drills. I come at the comprehension figure by just asking the student, “About how much of the material are you understanding?” The students actually have a pretty good idea of how much they’ve learned.

Reading speed during drills is different for each student. Some kids only see 6 pages, while others can read 15 to 20 pages, or more, with good comprehension during one drill.

Drill sets: In this course, speed reading drills are arranged into sets of three drills each. This is for the purpose of building greater speed and comprehension than would be achieved by reading each selection only once.

Commonly, on the first drill, a student will read only a few (example: five or six) pages in 30 seconds, and his comprehension will be not-so-good. I’ll count any comprehension, even if he understood it only as he was reading through the selection but forgot it immediately.

However, the second time through the same story, he will often go faster, like seven or eight pages, and he will comprehend it better at the same time.

Then, finally, on the 3rd drill, the student will often be capable of even better speed and comprehension.

Tap drills: Tap drills are absolutely essential to building and maintaining high reading speeds with good comprehension. Here’s an example of how I do them: Give the students three sec-

onds to complete each page. Tap your pen on the table every three seconds for about three minutes. Then give them another three-minute tap drill at two seconds per page. Finish off with a one second tap drill for three more minutes. I usually do two or three tap drills per day just after a series of drill sets, but they can be useful any time the kids are starting to slow down too much.

Casual reading: Usually, at the end of each lesson I have 5 to 10 minutes of what I call “Casual Speed Reading” or just Casual Reading. The goal is to learn to relax while concentrating and visualizing. Go through the book at a comfortable rate, usually about three to five seconds per page—faster if you wish. Just make sure it is an even methodical pace. Don’t worry if you have already read part of the book before while you are going through. Keep alert, deep seeing large groups of words with your peripheral vision. Keep trying to Visualize and Relax at the same time.

While students are doing the casual speed reading, discreetly time how many seconds per page they are reading. This way you can calculate an approximate reading speed for them. Many children’s books have around 200 words per page, so six seconds per page would be 2,000 wpm; 4 seconds per page, 3,000 wpm; 2 seconds, 6,000 wpm; and 1 second, 12,000 wpm.

During the casual speed reading, quietly announce to each student what his reading speed is so that each will know his progress. I also ask them how much they are understanding. Often it is quite a bit. I have found that this alone motivates kids more than almost anything else. They had no idea that they could read 3,000 wpm or better. That’s 10 times faster than most college graduates.

Occasionally, someone will get bogged down in an interesting story and revert to the old way of reading. When this happens, just encourage him to speed up next time.

Fun rewards: Bored children will not practice on their own, no matter how much you nag. Uninterested kids will not even believe that speed reading is possible. I vividly recall one class of third and fourth graders I taught. On the second day of class I nonchalantly asked them which ones had practiced for at least 15 minutes the previous night. Only three children raised their hands. I then pulled three packs of Grandma's Cookies out of a hiding place, tossed them to the diligent ones for a reward, and announced to the others, "Gee, that's too bad nobody else remembered to practice."

A few happy kids ate cookies in front of their friends that day. That's bad manners, but it's good motivation. Nobody forgot their homework again. I reward the kids for their efforts every day. I also reward them for achieving their goals in any activity that I can think of to keep the excitement up. I rarely forget to bring something for those who make the effort. It makes a big difference.

Lesson plans

For these lessons I am assuming a 45 minute block of time is available each day for five days per week. This course will last for four weeks.

Lesson 1: The lesson plan for Lesson 1 is different from the rest of the lessons. That is because this is where the children are introduced to all of the basic concepts and activities of speed reading. After Lesson 1, the rest of the lessons are pretty similar, the main differences only being the alterations you make to tailor the course to fit your needs. Conduct Lesson 1 as follows:

1. Pre-test the students to tabulate current reading speed.
2. Explain natural vision. Give the kids five seconds to see all the words on one page using Natural Vision as you've explained it. Tell them, "Do not try to understand anything. If you understand anything you are going too slow." Repeat this step, if necessary

until all the kids understand the concept of Natural Vision.

3. 30 Seconds: See all the words clearly, on as many pages as you can. Do not try to understand anything. This is only for the purpose of getting used to using your Natural Vision. If the kids aren't seeing at least six pages of print clearly, repeat this step so they learn to go *fast*.

4. 30 Seconds: Going at least as fast as you did in step 3, try to understand one word per page. Do not slow down for this. Don't stop so that you can better focus in on any particular word. Only use your Natural Vision. Report how many pages you covered.

Usually, if you concentrate, a random word will jump out at you from somewhere on the page. Don't slow down to think about it when it jumps out at you. Just keep going fast. Also, this word will vanish from your mind just as fast as it came. Don't worry about that. It still counts. Recall will come later with time and practice.

5. 30 Seconds: Understand 3 words per page, otherwise same rules as for step 4.

Report how many pages you covered.

6. 30 Seconds: Understand five words per page. Same rules as step 5.

7. 30 Seconds: Understand seven words per page. Same rules as step 5.

8. By now they should be used to using their Natural Vision. We will now work on Visualization.

30 Seconds: See as many pages as you can, and try to get a general understanding of what the story is about. Do not slow down. At least, try not to slow down. Try to Visualize as much as possible. Don't worry if you forget everything immediately after the drill, this is a common occurrence at this point. Just do your best.

9. 30 Seconds: Do the same reading selection again that you did in step 8. Tell the instructor all about it, especially anything new that you didn't catch the last time.

10. 30 Seconds; Same as step 9.

11. Tap drill. Three seconds between each tap for 2 minutes. If anybody finishes their book during the tap drill, they can either start the book over again or pick up another book quickly and keep on going.

Remind the kids during the tap drill to focus their energies on trying to visualize and relax at the same time. Even if they feel like they are getting nothing out of it, they are to at least see all the words on each page with their Natural Vision and try to Visualize and Relax.

12. Two-Second Tap Drill. Same as step 11, but two seconds between each tap.

13. One-Second Tap Drill. Same as step 11, but only one second between each tap.

14. Casual Reading. They should speed read fast enough to challenge themselves, but slow enough to get some enjoyment value out of it.

Try not to go slower than five seconds per page. If only one kid is going too slow, overlook it. But if much of the class is starting to slow way down, start tapping your pen at five seconds per tap and tell them they have to go as fast as the taps or faster.

During the Casual Reading let each child know approximately how fast he is reading.

15. Assign the kids to practice on their own with Casual Reading for 15 minutes tonight.

Lessons 2 to 20:

1. Reward those who practiced for at least 15 minutes last night.

2. Do a Drill Set (three drills) at 30 seconds per drill in the same story or selection. Divide the class into groups of two or three students per group. Have each student tell all their recollections to their partner. Have them be sure to always use Natural Vision and try to Visualize in all their speed reading from now on.

3. New story or section. Repeat step 2.

4. New story or section. Repeat step 2 again.

5. Three-Second Tap Drill for three minutes. Remind the kids to Visualize and Relax during each Tap Drill.

6. Two-Second Tap Drill for three minutes.

7. One-Second Tap Drill for three minutes.

8. Casual Reading. Have them go fast enough to be challenged, yet slow enough to get some enjoyment out of it.

As the kids are speed reading, go to each one and tell him or her how fast he or she is reading.

If any of the children are still using very large print materials, try to wean them off them and onto more normal-sized print by Lesson 5.

On Tap Drills, kids are always allowed to go faster than the taps if they wish, but not slower.

After Lesson 10 you may want to spend more time on three to five minute Casual Readings, followed by telling your partner all about it, and less time doing the drill sets.

After Lesson 10 you may want to skip the three-second Tap Drill.

Throughout the course, remind the students that they should practice for 15 minutes each day, after the four-week course ends, for the following two months. More would be better. If practicable, make a poster and put it on the wall to remind everyone. Or send a note home to parents to make sure it gets done.

Comprehension

So that you won't get discouraged in the middle of the course, you need to know what to expect. The only kind of comprehension I look for is what I sometimes call "passing through" comprehension. That is, those things that you understand while you are just passing through the reading material. If you understand 70% of the material while you are reading, but one second after finishing you can only remember 20%, I still stand by the 70%.

Why? Because the only difference between the two is time and regular

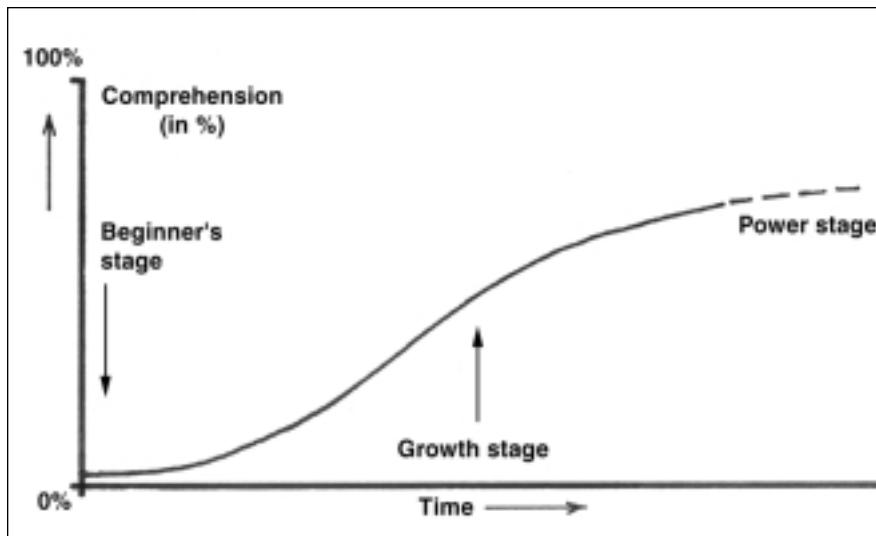


Figure 2. This chart shows how the students' comprehension develops slowly at first, then improves at an accelerated pace before tapering off as it nears 100%.

use of the skill. The part of your brain you use for speed reading has never been used before. And just like a broken leg that has been in a cast for six months and can't yet support you. This part of your brain has no strength to hang on to any comprehension at first. But if you exercise your brain regularly by using your speed reading talent, your ability to recall what you recognize while passing through will increase dramatically.

So the real goal to shoot for is the passing-through comprehension. The long-term recall will just take care of itself with time and regular use.

There is another matter which concerns some kids with regard to comprehension. Some people who don't catch on to speed reading as quickly as others get frustrated because their comprehension isn't increasing as quickly as others in the same class.

I diffuse this frustration by explaining that everybody learns this at a different rate and it has nothing to do with IQ. I draw my Comprehension Chart (Figure 2) and explain the Three Stages of Comprehension that we all go through while learning to speed read:

Stage 1: The Beginner's Stage. This is the first part of the course when we are seeing many words and understanding almost nothing. Some children pass out of this stage on day one. Some adults stay here for three weeks. Most children that I teach stay here for about a week. However, if you are teaching a very small class chances are you may not have that one student who catches on and leads the way and your students may remain at this stage longer than average.

Stage 2: This is the Growth Stage. Your mind is finally able to begin grasping the skill and making sense of the material at high speeds. Comprehension may increase steadily over two weeks time to 60% to 80%. Or it may shoot up to 70% to 90% in just a day or two for some kids.

Stage 3: This is the Power Stage. This is where speed reading begins to be a powerful tool for learning. Comprehension almost levels off, usually at around 60% to 80%. Some kids reach this stage within two days. Others need a few weeks. After this, the comprehension slowly increases just a little bit more each week as it gets closer and closer to 100%. Day by day a student won't notice any

improved comprehension. But week by week, or even month by month, the differences will be noticed.

The Power Stage is also the time when the brain bridges the “recall gap,” where the long-term recall begins to catch up with the “passing-through” comprehension. As always, this happens much more quickly for children than for adults.

Questions and answers

Q. If I learn to speed read, will I still be able to read the old way whenever I need to?

A. Yes. They are two different skills. You’ll find that you will prefer to use speed reading for some jobs and regular reading for others.

Q. I want to learn speed reading too. Should I try to teach myself to speed read while I am teaching the kids?

A. I don’t recommend it. It usually messes up the system. If you want to teach yourself to speed read, I recommend you teach the kids first and

yourself later, or have one of the kids help you through it.

Q. Is it true that some kids develop photographic memories as a result of mastering the skill of speed reading by the age of 10?

A. In some cases, I believe this to be true. However, more research needs to be done in this area.

Q. How young can kids be taught to speed read?

A. I teach anybody that is reading competently on the 3rd grade level or better, regardless of age.

Q. What about those video or audio courses?

A. I’m sure those courses are good, but they are geared for adults, not kids. Even so, I’ve never encountered anybody who mastered speed reading from a video course, have you? I believe the reason that in-class courses with real, live teachers are more successful is because in a live class everybody is accountable to a teacher for completing each assignment.

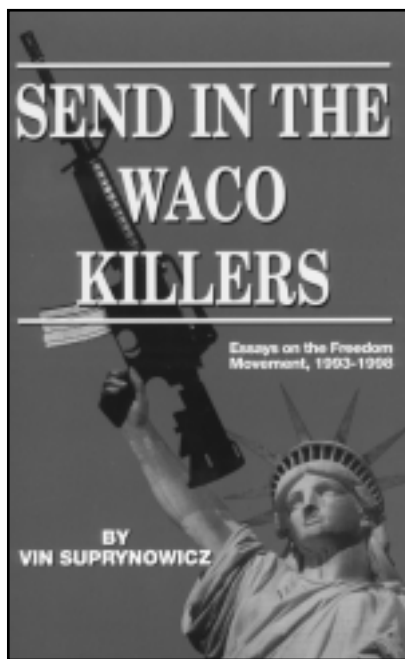
However, in video courses, there is no accountability.

Finally, not too long ago, while I was at the library making some copies, a 10-year-old girl came in. I saw her go up to the checkout desk with a stack of five books. I recognized her as Shawna, who had been in one of my speed reading classes over a year ago. I asked her if she still speed reads and she said she does. Of course, I expected this from looking at the five books she had. Her mother was standing nearby and said that Shawna reads books really fast. Meanwhile, Shawna went back to fetch more books from the shelves.

Moments like this make me glad that I teach speed reading.

(George Stancliffe teaches speed reading for the Yakima, Washington, Parks and Recreation Department. He is the author of *Speed Reading 4 Kids*. He can be contacted at: george@speedreading4kids.com. His book is available from the American Speed Reading Digest, P.O. Box 227, Toppenish, WA 98948.)Δ

SEND IN THE WACO KILLERS



Three times the International Society of Newspaper Editors has included Vin Suprynowicz in their list of the 12 top weekly editorial writers in North America. For years his shoot-from-the-hip style has opened the eyes of thousands to government abuse of our liberties. In this book, *Send in the Waco Killers*, he blends material taken from his syndicated column with new commentary to give the reader a detailed, reporter’s-eye-view of how the rights and freedoms of Americans are being subverted.

He uses factual accounts from the daily news to show how the Feds use the drug war, the public schools, jury rights, property rights, the IRS, gun control, and anti-militia hysteria to increase its power and control over us. He details how agents of the ATF and FBI have routinely lied, how they use paid informants to infiltrate Constitutionally-protected militia groups, then fabricate evidence to get arrests and discredit them.

Had he lived 225 years ago he’d have written a book to detail how King George III and Parliament have tried to enslave us but, sadly, this book is about how our government today is depriving us of our freedoms and ruining the lives of thousands without changing even one word of our Constitution.

If you read no other book this year, read *Send in the Waco Killers*. Just keep your blood pressure medication handy. 506 pages, trade paperback, \$21.95 + \$3 S&H.

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Blanching vegetables

By Tom R. Kovach

If you plan to freeze your vegetables, it is a must to blanch most of them. Blanching slows or stops enzyme action which can cause the vegetables to lose flavor, color, and texture. It is very important to remember that blanching time varies with the size and variety of vegetables. Underblanching stimulates the activity of enzymes and is worse than no blanching. Overblanching causes loss of flavor, color, vitamins, and minerals.

There are two ways to blanch vegetables: boiling water or steam.

- First wash, drain, sort, trim, and cut vegetables as for cooking fresh.
- Use one gallon of water per pound of prepared vegetables, or two gallons for leafy greens.
- Put vegetables into blancher (wire basket, coarse mesh bag, or perforated metal strainer) and lower into boiling water.
- Place a lid on the blancher and start counting blanching time immediately.
- Keep heat high for the time given in the directions.
- Cool immediately in ice water for the same time used in blanching (except for corn on the cob). Stir vegetables several times during cooling.
- Drain vegetables thoroughly.
- Pack into container or spread in a single layer on shallow trays.
- Freeze. Δ

Visit the *Backwoods Home Magazine* website at:
www.backwoodshome.com

Vegetable	Blanching Time (minutes)
Artichoke, Globe Hearts.....	7
Artichoke - Jerusalem.....	3-5
Asparagus	
Small Stalk.....	2
Medium stalk.....	3
Large stalk.....	4
Beans, Snap, Green, Wax.....	3
Beans, Lima, Butter, Pinto	
Small.....	2
Medium.....	3
Large.....	4
Broccoli (flowerets 1 ½ inches across).....	3
Steamed.....	5
Brussels Sprouts	
Small heads.....	3
Medium heads.....	4
Large heads.....	5
Cabbage or Chinese Cabbage	
Shredded.....	1 ½
Wedges.....	3
Carrots	
Small, whole.....	5
Diced, sliced or lengthwise strips.....	2
Cauliflower (flowerets, 1 in. across).....	3
Celery.....	3
Corn	
Corn on the cob: (Cooling time for corn on the cob is twice the time for blanching).	
Small ears.....	7
Medium ears.....	9
Large ears.....	11
Whole kernel or cream style.....	4
(Ears blanched before cutting corn from cob).	
Eggplant.....	4
Greens	
Collards.....	3
All other.....	2
Kohlarabi	
Whole.....	3
Cubes.....	1
Mushrooms	
Whole (steamed).....	5
Buttons or quarters (steamed).....	3 ½
Slices (steamed).....	3
Okra	
Small pods.....	3
Large pods.....	4
Onions (blanch until center is heated).....	3-7
Rings.....	10-15 seconds
Parsnips.....	2
Peas - Edible pod.....	1 ½-3
Peas - Green.....	2
Peppers - Sweet.....	1 ½
Halves.....	3
Strips or rings.....	2
Potatoes - Irish (new).....	3-5
Rutabagas.....	3
Soybeans - green.....	3
Squash - summer.....	2
Turnips.....	2

Ayoob on Firearms:

"Best buy" Backwoods .45

On the day I'm writing this column, newspapers are reporting the death of racist murderer Benjamin Smith in rural Illinois. Smith's depraved spree led him to shoot some 13 people according to the New York Times. One African-American man and one Korean died of their wounds.

Smith was reportedly armed with two low-powered handguns, a .22 and a .380. In the "count the blessings" department, the eleven surviving victims he wounded can be grateful he didn't have a more powerful weapon, or the death toll among the innocent might have been higher. Smith shot himself three times as police closed in on him, and it took the third bullet to do the job. As a general rule, a weapon you have to shoot yourself with three times to kill yourself is probably underpowered. As callous as it may sound, it's simple logic: if two shots don't stop things for someone who wants to die, we've all had a preview of how effective those same two shots would have been against something large and vicious that wanted *you* to die, and had to instantly be stopped from carrying out that wish.

What is the function of a handgun at a backwoods home? If it's shooting squirrels off the bird feeder, a .22 will do nicely. If it's keeping large, maddened livestock from trampling you, the ranchers who were also world class gun experts—Ross Seyfried, and the late Elmer Keith and Skeeter Skelton—showed us the way, the powerful .44 Magnum revolver.

But the average homesteader's needs may be in the middle. Something that shoots a coyote or a

large feral dog off your lamb. Something to discreetly answer the door with at 3 AM that won't frighten a "friendly," who couldn't miss spotting a rifle or shotgun. Something that could harvest for the freezer a deer that shows up on the property at a time when it's legal, or permanently discourage something the size of a black bear from continuing its depredations when you can't reach your rifle.

A .45 caliber semiautomatic pistol is capable of all these things. Since the time the .45 ACP (Automatic Colt Pistol) cartridge was adopted by the US military to the present day, it has enjoyed a splendid reputation for potency on the business end with controllable recoil on the competent shooter's end. Though the general armed services adopted the 9mm Beretta pistol more than a decade ago, the .45 remains in service among those on the "sharp end." Delta Force still issues the Colt .45 to all combat personnel, and a special HK .45 was adopted by SOCOM, the Special Operations Command.

Within its range, the .45 does nicely on whitetail deer. When I hunted the fabulous Y-0 ranch in Texas almost a quarter century ago (I hear it's gotten even better since), the .45 automatic was the most common gun on the belts of the hunting guides. One police department near me has had "one shot, one kill" results with each of the many injured deer they've had to shoot since they adopted the Colt .45 as a duty sidearm. My department has had the same results on deer and moose since issuing the Ruger P-90 .45. Will it do for the mean stuff? In Africa, I spent time with game ranger Phil Honeyborne, who carried an



Massad Ayoob

American Colt .45 with 230-grain ball ammo mainly in case of lion attack. He had seen what lions do to human beings, and the military .45 slug's ability to punch through more than two feet of meat with eight fast shots left him feeling confident. That same deep penetration, of course, makes hollow-point bullets more sensible for the self defense/anti-personnel function.

There are lots of fine quality .45 auto pistols on the market. You won't go wrong with Colt, Glock, Heckler & Koch, Kimber, Les Baer, ParaOrdinance, Ruger, Springfield Armory, or Wilson handguns. For "best buy" status, though, the hands down winner is the new Ruger P97.

This gun is made with a polymer frame. This lightens weight, reduces cost, and gives the gun a much better "feel" than its predecessor, the P90, which has an aluminum alloy frame under the tough stainless slide and barrel. The P97 shares the older model's splendid accuracy and reliability. It was designed to feed any full-power .45 round, including the widest-mouth hollowpoints.

Dick Metcalf put 5,000 rounds through a P97 for *Shooting Times*

magazine. He reported that there were no malfunctions of any kind. My own P97 fired over a thousand rounds without being cleaned. There was only one malfunction: in the hands of a petite female new to large caliber guns, the slide once failed to go all the way forward. She had been "limp-wristing" the gun (shooting it with a relaxed hold) which will cause most automatic pistols to fail to cycle. She and it worked perfectly together thereafter, since she was now locking her wrist and holding the .45 firmly.

My gun came out of the box shooting dead-on to point of aim at 25 yards. I tested it by firing hand-held over a bench at that distance, in five-shot sequences. I took two measurements of each group: overall for the five shots, and then the best three. I've found over the years that the latter measurement factors out human error and gives you the best idea of the handgun's inherent mechanical accuracy. With Federal 230-grain Match ball, groups were 2 3/16" (all five) and 13/16ths of one inch (best three). The best accuracy came from commercial 185-grain jacketed hollow point reloads by Carwyn Dalke, Pinelane Inc., 40 East Division Road, Valpariso, IN 46383. All five shots went into an inch and 13/16ths, and the best three found only half of one inch separating the bullet holes, measured center to center.

This is national match-winning accuracy combined with battlefield reliability, a rare combination. Rarer still is the low price. At a gun shop in New Hampshire's North Country, I saw a new P97 on sale for under \$400. Suggested retail is \$460. .45 caliber pistols with this degree of combined accuracy and reliability generally go for well into four figures.

The gun only weighs 30.5 ounces unloaded. It comes with two eight-shot magazines and is perfectly safe to carry with a ninth round in the firing chamber with the hammer properly de-cocked. The first double action

shot is smooth and easy to get off. The new mag will work fine in the older P90 pistols, which came with seven-round magazines.

A large caliber gun like this makes particular sense in winter, when criminals are heavily clad. Clothing fabric plugs the hollow cavity in the bullet's nose (as does an animal's fur and tough hide), sometimes preventing bullet expansion. When the bullet is almost half an inch in diameter to start with as the .45 is, a fairly wide wound channel is guaranteed even if the projectile doesn't open up. This is why I've always favored the .45 as a single all-weather carry gun in climates that are sometimes cold.

Ruger firearms have long been favorites in rural America because their trademark design features include ruggedness, reliability, high performance, and low price. The Ruger P97 .45 caliber semiautomatic pistol proudly continues that tradition. Δ

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You can view the foregoing article, along with more than a hundred others from past issues of the magazine.



SEND IN THE WACO KILLERS

Three times the International Society of Newspaper Editors has included Vin Suprynowicz in their list of the 12 top weekly editorial writers in North America. For years his shoot-from-the-hip style has opened the eyes of thousands to government abuse of our liberties. In this book, *Send in the Waco Killers*, he blends material taken from his syndicated column with new commentary to give the reader a detailed, reporter's-eye-view of how the rights and freedoms of Americans are being subverted.

He uses factual accounts from the daily news to show how the Feds use the drug war, the public schools, jury rights, property rights, the IRS, gun control, and anti-militia hysteria to increase its power and control over us. He details how agents of the ATF and FBI have routinely lied, how they use paid informants to infiltrate Constitutionally-protected militia groups, then fabricate evidence to get arrests and discredit them.

Had he lived 225 years ago he'd have written a book to detail how King George III and Parliament have tried to enslave us but, sadly, this book is about how our government today is depriving us of our freedoms and ruining the lives of thousands without changing even one word of our Constitution.

If you read no other book this year, read *Send in the Waco Killers*. Just keep your blood pressure medication handy. 506 pages, trade paperback, \$21.95 + \$3 S&H.

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Roughing it with plastic trash bags

By Christopher Nyerges

On a recent survival trip, I planned for our group to build some lean-tos. I wanted everyone to see what was involved in building such an emergency shelter, and I wanted the students to experience what it was like to actually sleep in one.

However, we planned to stay in an established campsite where we'd have no problems building fires, and I knew that this camp was always very clean. By "clean" I mean that everyone else who camps there scours the area for every bit of firewood and branches for their fire. Also, the local ranger puts Boy Scouts to work by having them rake the area of all leaves so there is minimal danger of wildfires. So I knew we would not have a lot of material to work with for building our lean-tos.

If you have ever built a primitive shelter or lean-to, you learn that location is very important for two reasons. You want a location that is naturally sheltered and away from water so it won't get too cold at night. You also

want a spot where there is an abundance of leaves and brush so you won't be carrying all your building materials a long distance.

So I carried along several large plastic trash bags. This would enable us to walk around the bend where there was an abundance of leaves, easily fill the bags, and then dump the leaves on the lean-to frame, making the job of transporting our building supplies much easier.

We located a tree with a low fork and laid a long stout pole into the crotch. That became the main rafter of our shelter, and we then leaned poles onto that main pole. Finally, we filled our bags, twigs, and small branches and covered the small shelter with about two feet of mulch and debris. It turned out to be a snug and warm shelter.

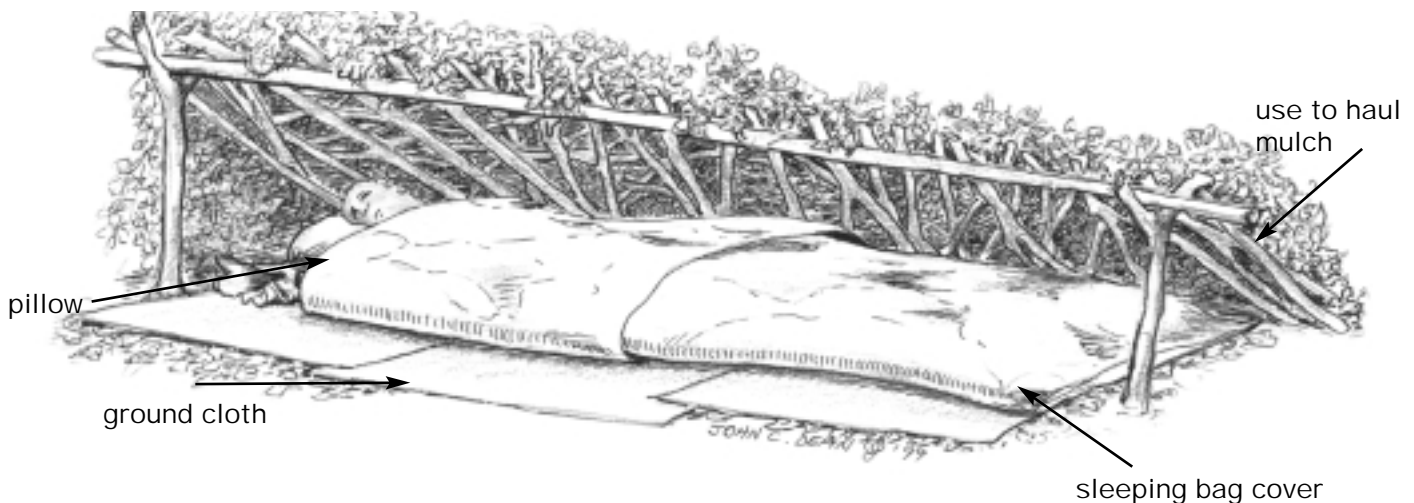
Later that night around the fire, one of the guys commented how handy those plastic bags were for the job of transporting leaves. He pointed to a side pocket of his own pack where he had six of those large, black plastic bags tightly folded and tucked away.

I asked him what he planned to do with them.

"Emergency raincoat," he told me with a smile. In fact, I have used bags like this during downpours and was able to keep myself and my pack fairly dry—at least down to my knees.

We didn't get any rain that weekend, but I knew there was a possibility of at least some rain so I also considered that I'd use two of the plastic trash bags as a cover for my sleeping bag, should the rains come. I would have pulled one up over my feet, and another over my head (cutting out a breathing hole), and tucked the one bag into the other. I have slept in plastic tube tents, and had I needed to use the plastic bags this way, it would have been similar to sleeping in a tube tent.

Plastic trash bags are one of those modern devices that can fill a definite need in a survival situation. I have even used them to wrap items that I wanted to cache in wild areas. Though the plastic does not last for more than a few years before it starts to crumble, it does help protect food and tools from the weather for some time.



A Backwoods Home Anthology

I have found that I can sleep most comfortably on the ground if I have a pillow, something I never carry along with me on the trail. However, a small plastic trash bag filled with leaves or other soft natural material, works fine as a pillow. It is a bit on the noisy side and it is not as comfortable as a cotton-covered pillow, but it still fills the bill.

Another unique use of the large plastic trash bags comes to us from one of Ron Hood's "WoodsMaster" survival videos. Hood shows how you can fill a large plastic trash bag full of soft leaves and use it as you'd use a blanket. Two of these "blankets" provide insulation from the cold and could actually stave off hypothermia in cold conditions. I have even seen people use these bags as water containers in dire situations.

A few other uses come to mind. I have used the trash bags as ground covers and as water or wind-barriers for wilderness shelters. In the garden, I have tied old plastic trash bags to a post about six feet tall and it was the perfect "scarecrow" to keep unwanted birds out of the garden. This is because all the loose flaps make noise in even the slightest wind.

There will always be a few people who will laugh at you when you pull out your trash bags and use them in some of the ways described here. Some folks will think you are homeless, or a bum. Others will think the trash bags not "natural" enough, or not "macho" enough. Don't let that bother you—these bags are so small and lightweight that you really ought to carry at least a few on every outing.

These large plastic trash bags will soon be considered "standard gear," right up there along with such other basics as a knife, fire-starter, canteen, twine, kerchief, etc.

(Christopher Nyerges is the author of Enter the Forest, Guide to Wild Foods, and Testing Your Outdoor Survival Skills, available from the School of Self Reliance, Box 41834, Eagle Rock, CA 90041, or on-line at www.self-reliance.net.) Δ

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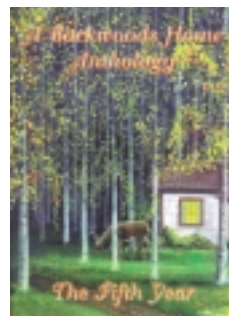
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THE IRREVERENT JOKE PAGE

(Believing it is important for people to be able to laugh at themselves, this is a new feature in *Backwoods Home Magazine*. We invite readers to submit any jokes you'd like to share to *BHM*, P.O. Box 712, Gold Beach, OR 97444. There is no payment for jokes used.)

A drunken man staggers in to a Catholic church and wanders over to the confessional box. He opens the door, sits down and says nothing.

The bewildered priest waits for a few minutes, allowing the drunken man some time to collect his thoughts. Growing impatient, the priest coughs to attract his attention, but still the man says nothing. The priest then knocks on the wall three times in a final attempt to get the man to speak.

Finally the drunk replies: "No use knockin' mate, there's no paper in this one either."

Submitted by Bill Duffy

Adam was walking around the Garden of Eden feeling very lonely, and he heard a loud voice ask him, "What is wrong with you?" Adam said he didn't have anyone to talk to. Then the loud voice said he was going to give him a companion and it would be a woman.

He said, "This person will cook for you and wash your clothes, she will always agree with every decision you make. She will bear your children and never ask you to get up in the middle of the night to take care of them. She will not nag you, and will always be the first to admit she was wrong when you've had a disagreement. She will never have a headache, and will freely give you love and compassion whenever needed."

Adam asked "What would a woman like this cost me?"

The answer was "An arm and a leg."

Adam then asked "What can I get for just a rib?"

The rest is history.

Submitted by Bill Duffy

Two men are drinking in a bar at the top of the Empire State Building. One turns to the other and says: "You know last week I discovered that if you jump from the top of this building, by the time you fall to the 10th floor, the winds around the building are so intense that they carry you around the building and back into the window." The bartender just shakes his head in disapproval while wiping the bar. The 2nd Man says: "What are you a nut? There is no way in hell that could happen." 1st Man: "No it's true, let me prove it to you." So he gets up from the bar, jumps over the balcony, and careens to the street below. When he passes the 10th floor, the high wind whips him around the building and back into the 10th floor window, and he takes the elevator back up to the bar. The 2nd man tells him: "You know I saw it with my own eyes, but that must have been a one time fluke." 1st Man: "No, I'll prove it again" and again he jumps and hurtles toward the street where the 10th floor wind gently carries him around the building and into the window. Once upstairs, he urges his fellow drinker to try it. 2nd Man: "Well what the hell, it works, I'll try it." So he jumps over that balcony, plunges downward, passes the 11th, 10th, 9th, 8th floors, and hits the sidewalk with a "splat." Back upstairs the Bartender turns to the other drinker: "You know, Superman, you're a real jerk when you're drunk."

Jack decided to go skiing with his buddy, Bob. They loaded up Jack's minivan and headed north. After driving for a few hours, they got caught in a terrible blizzard. They pulled into a nearby farm house and asked the attractive lady who answered the door if they could spend the night.

"I realize it's terrible weather out there and I have this huge house all to myself, but I'm recently widowed," she explained, "and I'm afraid the neighbors will talk if I let you stay in my house."

"Not to worry," Jack said, "we'll be happy to sleep in the barn, and if the weather breaks, we'll be gone at first light."

The lady agreed and the two men found their way to the barn and settled in for the night. Come morning, the weather had cleared and they got on their way and enjoyed a great weekend of skiing.

About nine months later, Jack got an unexpected letter from an attorney. It took him a few minutes to figure it out, but he

finally determined that it was from the attorney of that attractive widow he met on the ski weekend.

He dropped in on his friend Bob and asked: "Bob, do you remember that good looking widow from the farm we stayed at on our ski holiday up north?"

"Yes, I do."

"Did you happen to get up in the middle of the night, go up to the house and have sex with her?"

"Yes," he said, a little embarrassed about being found out, "I have to admit that I did."

"And did you happen to use my name instead of telling her your name?"

Bob's face turned red and he said, "Yeah, sorry buddy, I'm afraid I did. Why do you ask?"

"No need to apologize, Bob. She just died and left me everything!"

Clyde, a farmer from Palmer, AK, decided his injuries from an accident were serious enough to take the trucking company (responsible for the accident) to court.

In court, the trucking company's fancy lawyer was questioning Clyde. "Didn't you say, at the scene of the accident, 'I'm fine!'", asked the lawyer.

Clyde responded, "Well, I'll tell you what happened. I had just loaded my favorite mule Bessie into the..."

I didn't ask for any details," the lawyer interrupted. "Just answer the question. Did you not say, at the scene of the accident, 'I'm fine!..."

Clyde said, "Well, I had just got Bessie into the trailer and I was driving down the road..."

The lawyer interrupted again and said, "Judge, I am trying to establish the fact that, at the scene of the accident, this man told the Highway Patrolman on the scene that he was just fine. Now several weeks after the accident he is trying to sue

my client. I believe he is a fraud. Please tell him to simply answer the question."

By this time the Judge was fairly interested in Clyde's answer and said to the lawyer, "I'd like to hear what he has to say about his favorite mule Bessie."

Clyde thanked the Judge and proceeded. "Well, as I was saying, I had just loaded Bessie, my favorite mule, into the trailer and was driving her down the highway when this huge semi-truck and trailer ran the stop sign and smacked my truck right in the side. I was thrown into one ditch and Bessie was thrown into the other. I was hurting real bad and didn't want to move. However, I could hear ole Bessie moaning and groaning. I knew she was in terrible shape just by her groans. Shortly after the accident, a Highway Patrolman came on the scene. He could hear Bessie moaning and groaning so he went over to her. After he looked at her he took out his gun and shot her between the eyes. Then the Patrolman came across the road with his gun in his hand and looked at me. He said, 'How are YOU feeling?'"

An elderly man lay dying in his bed. In death's agony, he suddenly smelled the aroma of his favorite chocolate chip cookies wafting up the stairs. He gathered his remaining strength, and lifted himself from the bed. Leaning against the wall, he slowly made his way out of the bedroom and with even greater effort forced himself down the stairs, gripping the railing with both hands. With labored breath, he leaned against the door-frame, gazing into the kitchen. Were it not for death's agony, he would have thought himself already in heaven: there, spread out upon newspapers on the kitchen table were literally hundreds of his favorite chocolate chip cookies. Was it heaven? Or was it one final act of heroic love from his devoted wife, seeing to it that he left this world a happy man?

Mustering one great final effort, he threw himself toward the table, landing on his knees in a rumped posture. His parched lips parted; the wondrous taste of the

cookie was already in his mouth; seemingly bringing him back to life. The aged and withered hand, shaking made its way to a cookie at the edge of the table, when it was suddenly smacked with a spatula by his wife.

"Stay out of those," she said, "they're for the funeral."

Submitted by Jean L'Heureux

TALK LIKE A FROG

A little boy turned to his grandpa and said, "Grandpa, talk like a frog."

The grandpa replied, "What? I am not going to talk like a frog!"

The little boy again asked, "Come on, grandpa talk like a frog please."

Grandpa again said, "No! Go bother your grandmother."

The little boy finally gave up and left.

A little while later the little boy's sister came in and said, "Grandpa, will you talk like a frog for me?"

Grandpa of course replied, "NO!"

The little girl then said, "Please grandpa will you just talk like a frog?"

Grandpa was very disturbed by now and said, "What is it with you and your brother? Why in the world do you want me to talk like a frog?"

The little girl looked at her grandpa and said, "Well, last night Daddy told us that when you croak we are going to Disney World."

Submitted by John Allen

These quotes were taken from actual Federal (US) employee performance evaluations...

"I would not allow this employee to breed."

"The wheel is turning, but the hamster is dead."

"This employee is depriving a village somewhere of an idiot."

"This employee should go far, and sooner the better."

"A gross ignoramus - 144 time worse than an ordinary ignoramus."

"He brings a lot of joy whenever he leaves the room."

"This employee is not so much of a has-been, but definitely more of a definite won't be."

"Donated his brain to science before he was done using it."

"When his IQ reaches 50, he should sell."

"A prime candidate for natural deselection."

"Works well when under constant supervision and cornered like a rat in a trap."

"If you stand close to him, you can hear the ocean."

"If he were any more stupid, he'd have to be watered twice a week."

"If you give him a penny for his thoughts, you'd get change."

"It's hard to believe that he beat out the other sperm."

"Since my last report, this employee has reached rock bottom and has started to dig."

"He would be out of his depth in a parking lot puddle."

A husband proving to his wife that women talk more than men, showed her a study which indicated that men use on the average only 15,000 words a day, whereas women use about 30,000 words a day.

She thought about this for awhile and then told her husband that women use twice as many words as men because they have to repeat everything they say.

He said, "What?"

RAISING WASCALLY WABBITS FOR DIN-DINS

By Don Fallick

Which farm animal is best at converting pounds of feed to pounds of meat, produces the least wastage, the best fertilizer, produces the largest return per investment dollar with the least capital risk, and performs equally well in all environments, from central city to primitive backwoods? The answer, of course, is the lovable domestic rabbit.

A pair of rabbits can produce as much red meat in a year as an angus calf, while requiring about the same outlay of time and money as a pair of house cats. The meat tastes and looks a lot like chicken, is nearly as low in saturated fats, and can be prepared the same ways. But rabbits are quiet, require very little space, raise their own young, never need to be plucked or clipped, and make excellent pets. Ever try to housebreak a chicken? And rabbit manure can be applied directly to the vegetable garden without composting, with no danger of “burning” plants.

Rabbits are ideal for urbanites who plan to move to the country and want to learn how to raise their own meat. In many cities, rabbits are classed as pets and can be kept legally in zones where “farm animals” are forbidden. Even in areas where they are technically illegal, city health officials will often wink at a small rabbitry, as long as it is kept clean.

Choosing a breed

Neophyte rabbit breeders can be bewildered by the amount of informa-

tion available for “rabbit fanciers.”

Although there are many different breeds, most rabbits fall into one of four easily recognizable types.

Dwarf types, such as the Dutch and Mini-lop, are used for pets and for competitive shows. They produce plenty of manure for a small garden, and cost virtually nothing to keep, but are too small to be useful for meat or fur. Even experienced does (females) may fail to provide enough milk for a typical litter of four to six small bunnies.

Giant breeds, such as the Welsh, are sometimes used for meat by breeders who want a large carcass, but they take much longer to grow to butchering size than other breeds. In fact, it costs nearly twice as much per pound of meat to raise giant breeds. There will be much more waste in a giant carcass, as the bones are heavier than in a normal size rabbit. Furs are generally of good quality. Litters are small, but the does are usually good mothers.

Commercial breeders usually prefer the all-white “**production**” breeds such as the California or New Zealand. The uniform-colored, pure white skins are preferred by buyers, who are usually planning to dye the fur anyway. These breeds have been selected for fast weight gain, large litter size, and hardiness. A typical production rabbit should grow to butcher-



ing weight in six to eight weeks and to breeding age in three months. Does usually kindle (birth) a litter of eight to twelve bunnies, and can usually nurse eight or ten of them.

Colored breeds are most often raised by 4-H club members, homesteaders, and other small-herd operators. Sizes vary, but most average just a bit smaller than the commercial breeds. Does make excellent mothers, raising average litters of six to ten. Bunnies reach butchering weight in about eight weeks and are very hardy. They make excellent pets, as they are smart and often have interesting color variations. Fur quality varies with the breed but is almost always soft and silky. Angora rabbits and satins, for example, are usually raised primarily for their fur, though the meat-producing ability and other qualities are indistinguishable from other, similar-sized breeds. Lop-eared rabbits of normal size can be considered a color breed in this respect, too, even if their fur happens to be white.

Color breeds generally cost less to buy than commercial rabbits and are the best for a beginner. If there is no breeder in your neighborhood, look in the classified section of your local newspaper, especially around Easter time, or at a local swap meet. Or contact the 4-H leader at the county

extension service of your state university. The extension agent may be listed under either county government or state university in your telephone directory. You can almost always find lots of rabbit breeders at your county or state fair, too.

Buying rabbits

In buying a meat rabbit, it is not necessary to get a pedigreed one. They cost more and may be no better meat producers than a “scrub” rabbit.

Tell the breeder that you are looking for a herd sire (male) and breeding doe. They need not be the same color or breed, but should be about the same size and should not be closely related to each other. In rabbits, especially, incest produces birth defects.

Ask the seller for a proven mother. First time mothers throw small litters, and may have no idea how to care for them. It may take two or even three litters before a new mom catches on. If a doe hasn't learned to raise babies by then, she probably never will.

Some breeders will sell such a cull, rather than butcher her themselves. There are no guarantees in the rabbit business, but most folks will admit that they are culling poor producers if you ask them directly. Many customers buy such rabbits to butcher, so make sure the owner knows you are looking for breeding stock.

Breeders will sometimes sell off a good mother if the herd is getting too big or if they are getting out of the rabbit business. But the most common reason for parting with a good breeding rabbit is age.

A doe more than two or three years old starts to slow down, producing litters of smaller and smaller size. It is uneconomical to keep such a doe in a large herd. But you can benefit from an experienced mother who will raise your next generation of does and teach them how to be good mothers. Such an older doe should cost no more than \$15 or \$20.

Ask about her age, average litter size, and recent litter sizes. Three or four years is old for a doe rabbit. Don't be too thrilled with reports of huge litter sizes. A doe who typically kindles twelve but can only raise eight is no bargain.

On the other hand, a doe who typically kindles and raises eight to ten, but is down to four or five per litter is nearly exhausted. She may never kindle again, but if she does, her daughters are likely to be good producers. If you do buy such a doe, don't pay more than a few dollars for her. Her owner has already got everything he can out of her and is only selling her so he won't have to butcher a pet himself.

When you go to buy your first rabbits, ask the breeder to show you how to pick them up and how to sex them. You can grab them by the scruff of the neck (never by the ears!), but there are other ways that are much more comfortable for the rabbit and less likely to get you scratched. Always wear long sleeves when handling rabbits. You can trim their claws with a dog claw trimmer, but you may get scratched anyway.

It is virtually impossible to describe how to sex a rabbit in words. Females have a clitoris that is nearly as big as the male's penis, and both are sheathed internally when not in use. Get someone to show you.

Equipment

To begin keeping rabbits you will need two cages right away and a third one very soon. Keep the male and female separated except when they are breeding. The father will kill his own babies and will greatly annoy a pregnant doe.

You only need one herd sire for up to five or six does. Mature bucks kept together will fight and may kill or castrate each other. Most bucks reach breeding age at around two months, does at three to four months.

Each cage must include a feeder and a water dish and some place for the rabbit to get off the wire floor. The mother's cage will need a nest box with sides at least six-inches high. You want the mother to be able to get in and out easily, but not the babies.

Newborn bunnies do not have enough fur on their bodies to keep warm, even in hot climates, and will die if they can crawl out of the nest box. The box should be large enough for the mother to lie down in but small enough to get in and out of the cage easily. Some homemade cages have built-in nest boxes. Most serious breeders prefer removable ones, as they are easier to keep clean.

If you make your own cages, you can use any kind of wire for the sides, as long as the holes are too small for the rabbits to get through. Even half-inch mesh chicken wire will work. But the floors must be made of $\frac{3}{8}$ -inch hardware cloth, with the sharp side down. Holes larger than that will catch the rabbits' feet, while smaller holes will not pass their stools.

It is very important to keep rabbits out of the wind. They can stand great extremes of cold if there is no breeze blowing on them. If you do not have a shed or building to keep them in, one alternative that works is to attach scraps of carpet to the sides of each cage so they hang all the way to the ground. Shingles or tar paper will protect the top of the cage. A good roof is important. Rabbit skin is porous and will not keep out water. It also will not keep water in. In hot weather, rabbits need access to good ventilation.

Feeders and food

Feeders for pelletized rabbit food are available at most farm-supply stores, and are a good investment. They can be installed through the wire, so they can be filled without opening the cage. Actually, rabbits will eat food pellets out of any kind of container. But they will chew plastic containers to bits in short order, and they will tip over any

container they can, spilling their food on the ground.

If you use homemade containers, make sure the rabbits cannot tip them over. Wire them to the cage or nail them to a piece of wood. Punch holes in the bottom of home-made feeders, to allow the “fines” to fall through. If they collect, the rabbits may inhale them while eating and contract lung problems.

An average size rabbit needs about a cup of alfalfa pellets or a “flake” of baled alfalfa hay a day. Rabbits are nocturnal, so do most of their eating at night. They can go for several days without food if they have to, but will die of thirst quickly because of their porous skin. They should always have water available, but especially in hot weather.

Rabbits love most raw vegetables and grains. They will even eat weeds from the garden. It’s not a good idea to feed too much wet or green food to rabbits that are not used to it, though. Increase the amount gradually while watching for signs of diarrhea. They also need salt and minerals. Round mineral blocks, suitable for wiring to the side of the cage, are sold in pet stores and feed stores.

Rabbits love to chew on anything they can reach and can demolish a wood-frame cage. To keep them from such “cribbing,” some breeders give their rabbits chunks of broken drywall to play with. Chewing the drywall keeps their teeth in good shape, and may provide a few minerals as well. It will not hurt them.

Water bottles with lick-type valves are great if you live in an area where it does not freeze in winter. Many breeders use stone crocks for rabbit waterers as the rabbits cannot chew them up or tip them over. But they get cold in winter and have to be removed to thaw out.

A cheap, easy compromise is to make water dishes out of cut-down #10 cans such as large coffee cans. If you cut down such a can, it is necessary to hammer over the raw edge so

the rabbits don’t cut themselves. Punch or drill a couple of holes near the top and wire the can to the cage, so the rabbits can’t tip it over or pull it to the back of the cage. Tin can waterers are easily thawed by running the can under hot water. Or you can carry hot water to the barn, pour some in the can, wait a few minutes, and bang out the ice.

Breeding

Put the buck (male) in with the doe for a few minutes and watch what happens. If she is in heat, she will soon stand still and allow him to mate. If she fights with him, or persists in running away, she is not ready.

Put him in her cage for a few minutes every day until she allows him to breed, and record the date. Twenty-eight days later she should kindle. Protect her from anything that might frighten her, such as the immediate presence of a dog or cat or loud, sudden noises. Rabbits have the ability to resorb their babies, right up to the time of birth, if they become frightened.

Put the nest box in the mother’s cage three or four days early to give her time to get used to it. Twenty-four hours before birth, the doe will pull out large amounts of her soft underfur to line the nest. If you think she is not pulling enough, give her some straw.

Leave the babies alone for the first day or two. Rabbits have exquisitely sensitive noses and may reject their babies if they have even a whiff of human scent on them. If you must handle the newborns, put a

small dab of Mentholatum® on the mother’s nose. By the time she gets it off, the human scent will have faded.

Remove any babies that die or the mother may eat them. If a doe kindles more babies than she can feed, you may be able to foster them on another doe who kindled at about the same time. Use the Mentholatum trick to fool the new mother, too, and keep a sharp watch, as she may kill them anyway.

Feed pregnant and nursing does all that they will eat. After the first two days, it’s important to pet the bunnies every day. Studies have shown that rabbits actually grow significantly faster if they are petted. This is a great job for children, as long as they are taught not to let the rabbits escape.

Some breeders feed their rabbits a few bits of Calf-Manna, a dietary supplement for cattle. Rabbits think it’s candy. If you use Calf-Manna, never give more than three or four pellets

Waiting for Something to Happen

There was the dent in the fender of the ‘49 Merc
That made it look cockeyed at night;
One headlight on the road,
The other up in the branches as we whizzed by.
My friend was eighteen and owned the car;
I was sixteen and brewed beer in a corner of our barn.
We cruised the small towns
And backwoods of southern New Hampshire
With the windows down and the radio wailing—
It was 1960, our whole lives were ahead of us,
But we were waiting for something to happen.
We always drank what we didn’t sell
(Fifty cents a quart—for gas and cigarettes).
But around eleven
I was usually in the headlights throwing up,
My friend behind the wheel, laughing and jeering,
And I’d swear I’d never get drunk again.
But we’d be back out the next night,
A bag of bottles in back,
Selling what we could,
Passing an open back and forth,
And waiting for something to happen.

—John Silveira
Ojai, CA

per day. More than that can cause fatal attacks of gas.

Once they have tasted Calf-Manna, even shy bunnies will take it directly from your hand. Such trust can be a great help at butchering time, or when a rabbit has escaped. Calf-Manna is expensive, but a bag will last even a large herd a year or more.

When the babies are old enough to leave and enter the nest by themselves, and are eating and drinking on their own, it is time to move them to their own cage. It's okay to keep several bunnies in one cage, as long as they have enough room to hop around, but be sure to separate the females from the males when they're a month old or so. The breeding ages mentioned above are averages. Some individuals may breed at a much younger age. It's horrible to butcher a female "fryer," only to find six or seven dying fetuses.

Slaughtering

The only unpleasant part of keeping rabbits is killing and butchering them. Even this isn't as bad as it might be, as they rarely put up a fuss, and are easier to skin than any other domestic animal. Contrary to popular belief, rabbits do have voices and may scream when you kill them, but this is extremely rare. In 25 years of rabbit keeping, I have only heard a rabbit scream twice.

Butchering equipment for rabbits is very simple. I use an old hammer handle, an empty bucket, a very sharp paring knife, and a clean pair of pruning scissors or general-purpose kitchen shears. I could do without the shears, but they make skinning and butchering go much faster. I wear old clothes that I don't mind getting bloody.

I also use a homemade gambrel-stick to hang the rabbit on for skinning. This is just a piece of wood with a couple of 16d nails hammered all the way through, about a foot apart. Nail the stick to a tree with the "hook"

nails poking out, and bent up a little to hold the rabbit. I know other breeders who just lay the dead rabbit on the kitchen table, but I find skinning easier with the rabbit hanging by the hind feet.

There is a method for quickly and easily killing young rabbits of fryer size by dislocating the head with the bare hands. This method is the most humane, but is not easy to learn, and must be demonstrated by someone skilled in the technique. If you know a breeder who has the skill, get him to teach you. This only works well with young rabbits anyway.

For older rabbits, use the tried-and-true method of stunning the rabbit and slitting its throat.

The best way is to sit the rabbit on a tree stump or chopping block, pet it until it relaxes, and hit it hard in the back of the head, just above the neck, with a hammer handle, piece of iron pipe, etc. That's why this kind of a blow is called a "rabbit punch." The rabbit will be stunned, and may shake and shiver, but will not object while you chop off its head with a hatchet, or just hang it up and slit its throat with a sharp knife.

Skinning

To skin a rabbit, bend one hind foot to expose the Achilles tendon and poke one of the hook nails of the gambrel-stick through the skin, between the tendon and the bone. Repeat with the other foot so the carcass is hanging facing out. Cut off the head, if you haven't done so already, and drop into the bucket. Some people feed rabbit heads to their dogs. I feel this only trains the dogs to kill rabbits, so I throw the heads away.

Cut the skin all the way around one hind leg, just below the foot, being careful not to cut the tendon. Repeat with the other hind foot, then slit the skin down the "inseams" of both legs. Join the cuts in front of the sex organs.

Pull the skin off the legs. Force your hand between the skin and the muscle

if need be in order to make the skin come off. Work your hands around to the back, until they meet behind the tail.

Leaving the skin and fur on the tail, cut the rest of the skin away from the tail. The carcass should now appear to be wearing a long dress open at the knees. Remove the dress by turning it inside out. You may have to slice carefully between skin and muscles in a few places, but unless the rabbit is very old it should come off pretty easily with a steady, downward pull. Rabbit skin tears easily, so be careful.

When you reach the arms and neck, you will have to work the skin with your fingers to get it over the arms and the stump of the neck. It will look confusing. Just keep pulling and working with the fingers, alternately, until the skin is completely inside out, down to the wrists.

Cut the forepaws completely off at the wrist, allowing them to stay with the skin. The rabbit should now be entirely free of skin, except for the hind feet, tail, and genitals.

Using pruning shears or kitchen scissors, cut through the tail where it joins the body. Slide one blade of the shears between the anus and the pelvic bone and cut through the front of the pelvis on each side of the anus. Hold onto the tail so the genitals and anus don't slip inside.

Place the scrap bucket below the carcass and slit the membrane holding the guts in, all the way down the front. Using the tail for a handle, carefully work the anus through the opening you made in the pelvis and allow the guts to fall into the bucket. Be very careful not to prick the bladder or you'll get urine all over the meat and maybe all over you.

If you do, don't panic. Rabbit pee won't hurt you. Just wash it off the meat right away and don't tell anyone. Urine is sterile when it comes out of the bladder and will not contaminate the meat, if you wash it off right away.

The rest of the guts will fall out of the carcass down to the level of the diaphragm. Pull the diaphragm out of the carcass, strip out the large vein along the backbone, and work the lungs, heart, and the windpipe free. It comes out easier if you use the shears to cut the ribs along the breastbone.

While you've got the guts handy, find the liver. It's a dark, reddish, irregularly shaped organ near the bladder. Slice it open and check for liver flukes. These are small white wormy parasites about the size of a grain of rice. If you see them, STOP and throw the carcass away. Do not feed it to the dog, either.

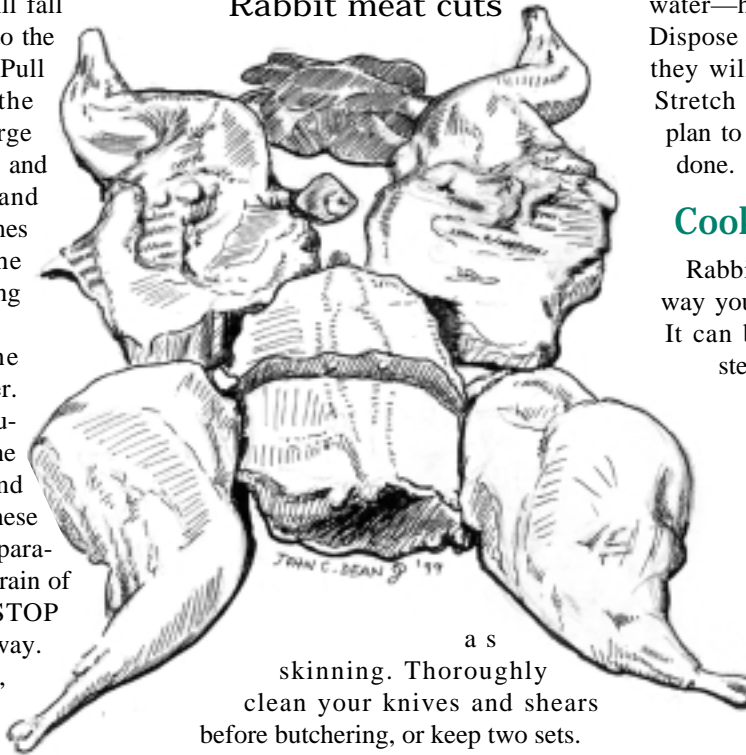
Liver flukes are about the only disease people can get from rabbits. Dogs and cats can get them too. In fact, dogs and cats are the most common source of infestation for rabbits. The flukes don't seem to bother dogs or cats much, but they will eventually kill rabbits. There are other diseases rabbits can get from dogs and cats, and they are another reason to keep pets away from your rabbitry.

Remove the carcass from the gambrel-hooks, cut off the hind feet, and you're ready to clean and cut up the meat. Soak the entire carcass in cold water for 10 or 15 minutes to remove any trace of blood. Hand pick the entire carcass to remove every hair.

Butchering

Most mammals are built on the same plan, so if you know how to butcher one kind, you can pretty well butcher any other. Nevertheless, rabbits are much smaller than other farm animals, so you won't be worrying about steaks and chops. It's more like cutting up a chicken. I make good use of the kitchen shears in butchering, as well

Rabbit meat cuts



as skinning. Thoroughly clean your knives and shears before butchering, or keep two sets.

Start by removing the neck and the arms. Cut through the meat and bone of the neck with the shears. If there are any bruised spots left from killing, discard them. Cut the thin meat around the shoulder blades and the arms come free. Cut off the drumsticks by slicing down through the meat all around the hip joint. When the joint is exposed, either break it or cut through it.

Remove the pelvis by cutting down to any vertebral joint below the ribs.

Cut the meat on either side of the spine as well. Turn the carcass over and cut to the same joint on the other side, then break the joint by hand.

Cut the ribs along the spine. If the rabbit is a large one, cut and break the spine in the middle of the remaining piece as well. If the rabbit is small, this is not necessary. Make sure there is no dried blood or hair on the meat anywhere, rewashing if necessary. Freeze in convenient-size packages or cook and serve as is. Rabbit meat is naturally tender and does not need to be hung.

Clean-up is not difficult. Wash your tools, hands, and clothes in cold

water—hot water will set the blood. Dispose of the guts and head where they will not attract wild predators. Stretch and scrape the skin, if you plan to keep it or sell it, and you're done.

Cooking

Rabbit meat can be prepared any way you can cook a cut-up chicken. It can be barbecued, fried, baked, stewed, roasted, etc. But rabbit does not taste or cook exactly like chicken, and there are other recipes that work better for rabbit.

Europeans eat a lot more rabbit than Americans do and there are special rabbit recipes in the national cuisines of most European countries.

Just about any good German cookbook will contain a recipe for hasenpfeffer, a marinated rabbit dish, for example. Many of these special rabbit recipes are quite complicated. Δ

Rabbit in beer marinade

Here's a simple one that my mother used to make:

- 1 or more rabbits, cut up.
- 1 can of beer per rabbit. (Cheap beer works as well as fancy imported.)
- 1 can of cream of asparagus soup concentrate or white sauce.

Marinate the rabbit in beer overnight, in the refrigerator, in a covered, non-metallic container.

Drain, place in casserole dish, and spread with soup concentrate.

Bake like poultry, sprinkling occasionally with left-over beer marinade.

Unlike poultry, it is safe to eat rabbit cooked rare, so do not overcook.



THE WATER SYSTEM

PART 2:

TANKS AND PUMPS

BY MICHAEL HACKLEMAN

It is versatility that ensures a robust and reliable water system. In the last issue (July/August 1999, Issue 58) I detailed potential sources of water—i.e., rivers and streams, springs, lakes and ponds, shallow wells, deep wells, and rainfall—and the factors a landowner may use to evaluate their potential of development for use in a water system. Then we examined potential energy sources—human, wind, water, engines, electric motors, and combinations for the processes of extraction, transport, storage, and pressurization of water in systems. Finally, I detailed the energy requirements of lifting and pumping water and those factors related to the sizing of water storage for normal usage,

source variance, gravity flow and pressurization, and emergencies like fire fighting and blackouts.

In this issue, we will continue with a closer look at those factors related to selecting and sizing the hardware of the water system, particularly tanks and pumps. Next, we will examine several examples of water systems and the accessories needed to complete any system.

Tanks

Tanks are one of the best ways of storing water. The relatively high cost of storage by this means (compared with ponds or reservoirs) is often justified in light of convenience, better protection against contamination, effective shielding from sunlight, and

the ease of determining the precise amount of water that has been stored.

Tanks come in all shapes, sizes, and materials. Four basic materials are used in tanks: wood, metal, plastic and concrete.

Wood tanks: One of the oldest materials used for tanks is wood. Typically these tanks are round-sided, flat-bottomed, and with a top that's open, flat, or sometimes fluted to shed precipitation, airborne dust, and other debris.

Not just any wood will do for water tanks. Typically, successful ones are fabricated from redwood, mahogany, or white oak. These woods, after an initial leaching of acids and resins, offer a sterile environment when in contact with water. Water in contact with other woods will warp or rot

SIDEBAR A: TYPES OF METAL TANKS

Welded: Welded tanks are used for smaller capacities than bolted tanks. Thicker steel is arced to the desired shape and welded to similar sheets. The component parts of the tank are welded together into a rigid tank. This type of tank may be easily manufactured in a shop and transported to the usage site (**Fig. 1**). The limiting factor on size for this type is the carrying capacity of the transport system used to ferry the tank from the shop to the site. Of course, the shaped steel sheets could be transported “as is” along with the welding equipment to put it all together on-site.

Bolted: Another possibility is to use a steel tank designed to be bolted together; this eliminates the need for any on-site welding while solving the transport problem for thick-wall tanks of immense size. Tar or another petroleum-base sealant is sandwiched between the bolted sheets during assembly to prevent water loss.

Soldered: If the potential for on-site construction exists, a third option is to use very thin sheets of galvanized steel for the tank. Because of the thinness of the material, welding cannot be employed; instead, solder is used to seal the joints. The solder is a good sealant against water leakage. However, it is not strong enough to withstand the “shear”—the forces that tend to separate the joined sheets—when the tank is filled with water. For this reason, bolts or screws

are also used to secure the sheets at the edges, along with crimping.

The thinness of steel or tin in galvanized sheet tanks is sometimes a disadvantage. In coastal areas, for example, the effects of the salt-laden air are all too evident.

While welded or bolted steel tanks may be transported about, the thin galvanized tin or steel tank usually can't survive transportation from one place to another or rough handling in any form. Out of necessity, then, they are constructed on-site.



Figure 1: Welded tanks are transported to the storage site.

them, leach undesirable chemicals and resins into the water, or promote the growth of bacteria and algae in the water supply.

Just as redwood or oak swells in the presence of water, it shrinks in its absence. Therefore any portion of the wood in a tank that is not covered with water will, after a few days, dry out and may lose its water-sealing function. In view of this, tanks constructed of either oak or redwood should be kept filled. Lacking this, they should be sprayed with water several times a day or excused from verbal abuse when they do leak.

Other woods are used in the construction of tanks. However, they must be treated so that, in effect, the water

does not come into direct contact with the wood itself. Varnishes, resins, fiberglass, tar, or other coatings will be necessary. Or the water may actually be enclosed in some type of plastic or rubber bladder inserted in the tank.

Metal tanks: Water storage tanks may also be made of metal. This is usually sheet steel, and even very large tanks may have surprisingly thin walls. Since steel exposed to water rusts, it must somehow be protected. Paint, tar, and galvanizing are three common coatings.

Steel tanks are characterized by one of three techniques used to secure the metal sheets together in tank construction. They may be welded, bolted, or soldered. (**Sidebar A**)

Plastic tanks: The high price of steel has prompted the production of plastic tanks in the 400 to 2,000-gallon range for water storage. Usually pale yellow or black and cylindrical, they have molded fittings for the inlet and outlet, and an access hatch in the top. These may be purchased and delivered to the water site.

Concrete Tanks: Concrete is also used. The basic setup is a poured slab for the base of the tank and poured, formed walls. Since this is similar to constructing a building's foundation, the resulting tank is square or rectangular sized. Or if a round tank is preferred, a slip form constructed in the shape of an arc can circumvent the many difficulties in producing a con-

SIDEBAR B: THREE METHODS OF TANK SUPPORT

Banding: A band is a strong, continuous material that encircles the tank. It is demonstrated in banded wood barrels. The operating principle of banding is simple. Pressure is identical in all directions; therefore, the outward pressure of water at any point is opposed by the band's inward pressure on the tank wall directly opposite that side of the tank. Obviously the band material is under heavy tension and must be strong enough to withstand shear.

Bands work on circular tanks only. Square or rectangular tanks may also be banded, but the only points where the bands are really working is at the corners. The outward pressure at any point between the corners works perpendicularly to the tensioned band and is, therefore, rather ineffective. The weakest point is the midpoint between the tank's corners. The walls will bulge outward at these points.

Buttressing: One solution to tank support involves buttressing. It takes two forms. One is an external, angled support (**Fig. 2**). Accordingly, if one buttress is used, it should be placed at the midpoint between the corners of the tank on each side. Long tanks may require several buttresses on each side.

A second buttress solution is to use an arced section of material along each side and to band it as you would a perfectly round tank. Either a square or rectangular-sided tank will be best supported if the selected arc describes a full circle.

Burial: Concrete, masonry, and concrete block tanks may also be supported by burial. There are two ways to do this. One is to dig the hole and insert a ready-built tank. The other is to dig the hole and build the tank in it.

This is no problem with standard concrete block or masonry construction. A poured-concrete wall will

require forms. Putting them in is easy, but extracting the exterior portion of the form (facing the pit's walls) afterward may not be. Nevertheless, it should be removed. The wood could swell enough during the wetter season to crack the concrete wall.

There's a temptation simply to "form up" the inside surface of the tank and use the pit's wall in place of the exterior form. The penalty for such laziness is the cost of all that extra concrete. Also, concrete is heavy—a cubic yard weighs four tons—so it will readily compress the earth, particularly when it's stacked up for four to eight feet. Finally, concrete doesn't cure against dirt as nicely as it does against forms, which means that it won't be as strong.

Cisterns or reservoirs built into a slope may have a good percentage of the complete tank showing and, therefore, unsupported. Banding or buttressing will not be required if some of the leftover dirt is shoved up against the wall. The result is a "bermed" wall. Since this technique will work, no tank need be completely buried. While retaining the best aspects of a buried tank, a partially buried tank saves on cost, time, and materials and solves the problem of what to do with all that "extra" dirt displaced by the tank.

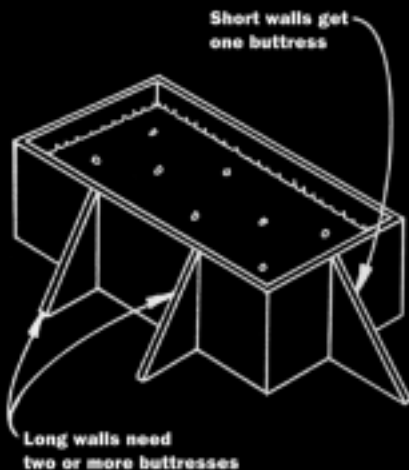


Figure 2: Buttresses provide additional structural support.

toured form. The use of rebar (a reinforcing bar used in standard concrete construction) is critical for either type to offset the water's weight and pressure when the tank is filled. A larger square or rectangular tank, even with internal rebar, will need additional external bracing to maintain structural integrity in use. (**Sidebar B**)

Bottom support of tanks: Irrespective of the type of tank used, it must have adequate support from below. Water hits the scale at 8.33 pounds per gallon. A thousand gal-

lons, then, weighs over 8,330 pounds. At 2,000 pounds per ton, that's in excess of 4 tons. A 4000-gallon tank, then, holds a whopping 16 tons of water and that doesn't include the weight of the tank! The point? Never place a tank on rough ground or soft fill. If a tall and slim tank is desired over one that's short and squat, the problem becomes more acute. An analysis of the soil density may be needed to assure that it will not settle.

Wood tanks placed on bare earth will rot. Steel tanks (even galvanized)

placed on bare earth will rust. How fast is anyone's guess, and it doesn't really matter. Don't do it! Large tanks are usually set on a bed of gravel over leveled earth. This takes care of the rust or rot problem—precipitation and condensation are drained away. This also lends a self-leveling feature. Use sand over gravel when the tank wall is thin plastic or metal. Otherwise, the bottom will be deformed or punctured by the smallest object when the tank is filled.



Figure 3: (Left) A tower will provide gravity pressurization.

Figure 4: (Below) A water tower can be converted into a house.



Wood and steel tanks may also get some help from treated wood beams. Old railroad ties spaced evenly over leveled ground will do the job. A raised platform also helps to lessen the probability of rot or rust in wet climates. Where it is desirable to use gravity flow and/or pressurization—but a higher elevation than the usage site is not available—the platform may be extended upward the needed distance to accomplish either or both. Obviously, this has a limiting effect on the type of tank used. A tank that can be constructed piece by piece on the tower will be preferable to one that must be raised to the top. Another drawback is that tank size is restricted. The tower, including footings, tower legs, and cross bracing must be sized to evenly support the tank's bottom area, its weight, and the weight of the water it can hold. Add in the extra problems of wind pressure on both tower and tank and any propensity for the ground to move through settling or earth tremors, and both the logistics and expenses are formidable. Nevertheless, tower raising can be a lot of fun (**Fig. 3**) And your tower might even become a house (**Fig. 4**).

Tank coatings: Redwood, mahogany, and white oak tanks have a built-in coating that prevents leakage,

the formation of organic growths, and deterioration of the wood itself from rot. Water loss is prevented because it is the nature of these specific woods to swell and seal the tank. Newly constructed tanks, then, will leak like the proverbial sieve. For this reason, before the first filling, water is sprayed about the interior, wetting the wood uniformly to initiate the swelling and avoid the otherwise lengthy process of filling the tank. Another idiosyncrasy of these specific woods is that most of the harmful resins are leached from the wood during the initial period of use and will thereafter remain inert.

The scarcity and high demand for these woods make them prohibitively expensive for large tanks. However, other woods—pine, fir, oak—may suffice. But while these substitutes do give the nice wood appearance and provide the necessary structural support, they do not exhibit the self-sealing and preserving qualities of redwood. Moreover, once the resins are leached from the wood, fungus growth will occur.

For these reasons, the inside of tanks constructed of other types of wood must be sealed. Sealers and paint will counteract many of these problems, but preventing leakage is the tough

one. So, a hard, completely watertight coating is called for, and that narrows the possibilities to some kind of epoxy, resin, or liner. Fiberglass is the usual choice because it may be used in conjunction with fiberglass cloth to make a tightly bonded, impenetrable finish.

In the presence of water, steel rusts. So, irrespective of the type of steel tank—whether soldered, welded, or bolted—a first requirement of a coating is to keep the water away from the metal. A waterproof paint or tarlike sealant is the primary choice. Pick one that prevents the growth of algae. Be wary—select a coating that meets your own standards in what you're willing to allow in your water in the way of chemicals, trace minerals, and elements.

Provided that the solder or weld joints are good ones, steel tanks don't need leakage protection. The application of any type of paint or epoxy over these surfaces if they're even slightly encrusted with rust, dirt, or oil is cosmetic only. Don't do it! Wire-brush or sand off the rust, wet-mop the dust,

and use something akin to alcohol or lacquer thinner to remove any trace of oil or grease prior to the application of a primer. Avoid the use of any rust-inhibiting primers not specifically approved for potable water. Fortunately, red lead primer is no longer available, but even zinc chromate primer would not be a good addition to drinking water. These are strictly weatherizing primers, for external use only. Apply the epoxy paint or other good water-base paint in one or two coats. Redo as required. Access to the tank will assure sufficient warning when a recoating is indicated.

Galvanized sheeting that is soldered for waterproofing should also receive a coating of some type. It's not usually done—the solder takes care of leaks, and the galvanizing takes care of the rust protection. However, long-term exposure of both solder and galvanizing to water, particularly soft water, can be dangerous. The water tends to leach lead from the solder—solder is lead and tin in various mixes, usually fifty-fifty. The water will leach both lead and cadmium from the galvanized coating. If

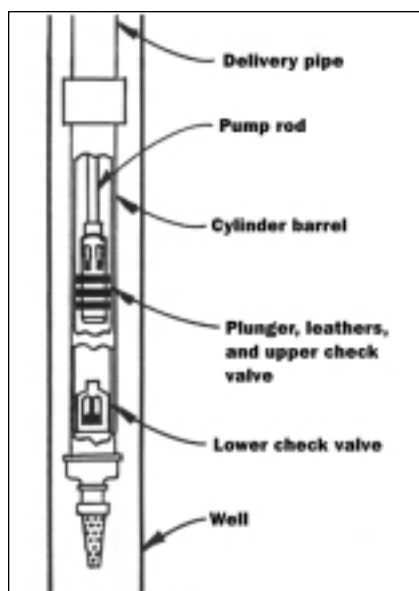


Figure 5: A deep well piston pump and cylinder.

you decide to cover the galvanizing with a coating that reduces this risk, choose it carefully. Many types of paint or epoxy will not adhere to galvanizing, and fewer still will meet potable water standards.

Concrete tanks will need a coating to prevent the escape of water and the formation of organic growths. A standard coating technique is that used for swimming pools: a mudlike, cement-rich plaster applied over the cured concrete, inside or out. An alternative is to use one of the newer concrete sealants such as cement paint or bituminous mastic. Both ways are expensive. Cement paint requires specialized labor in applying the coating. With mastic, the sealant itself is expensive.

Pumps

There are three basic types of pumps that may be used in a water system to extract water from a source and deliver it to storage or immediate use. These are the piston pump, the centrifugal pump, and the hydraulic ram.

Piston pump: The piston pump, also known as the positive displacement pump, sees wide uses in water systems. It works on the reciprocating principle, or an up-and-down or back-and-forth movement. More specifically, a piston moves inside a cylinder (Fig. 5), drawing water through an intake check valve on one part of a stroke and pushing it out through an outlet check valve on the second part of the stroke. Irrespective of the outlet or inlet water pressures, the same amount of water is pumped during each stroke; hence the term “positive displacement.” This no-nonsense action also enables the unit to pump air efficiently. The air compressor and tire pump are both piston pumps. The piston pump can suck water up from as far as 25 feet below the pump.

There are two common configurations of the piston pump in water systems. In the first setup, the pump

mechanism and its power unit—the motor or engine that drives it—sit atop a shallow well with a tail pipe reaching down below the water level. As long as this distance is not greater than about 25 feet, the pump's action will suck water up to the pump and then push it onward to usage or storage.

The second configuration handles well depths where the water level is more than 25 feet below the ground. The power unit and pump are separated. The power unit operates a converter—a device that translates the rotary motion of the power unit into the reciprocating motion needed in the pump mechanism—at the wellhead (ground level). Through a section of rigid rod, usually referred to as “sucker rod,” this power is transferred to the piston pump mechanism situated deep in the well. The deeper the well, the longer the sucker rod. Since the water must be pumped to the surface through a pipe anyway, the sucker rod is designed to operate the piston pump from inside the delivery pipe, sharing this space with the upward-moving water.

This arrangement seems odd, but in reality it is both simple and straightforward. It has two additional benefits related to servicing the pump and using a tailpipe. (Sidebar C)

There is a limit to the maximum number of strokes that this type of pump can withstand. A stroke is one cycle consisting of one up-and-down movement of the piston in the cylinder. This pump has a limit of 30-45 strokes per minute. In consequence, a system that uses a 6-inch stroke (total distance of movement) and a 3-inch cylinder (the biggest available) can supply up to 7.7 gallons per minute. (Fig. 6)

This is a low rate compared with other pump types such as the submersible centrifugal pump, and will barely cover most household needs directly. For this reason, the deep-well piston pump is utilized primarily in

Figure 6: DEEP-WELL PISTON PUMP RATINGS

GPH	Discharge Rate*		Cylinder Size (I.D.) in inches	Electric Motor Size Maximum Lift in Feet		
	GPM			1/3 HP	1/2 HP	3/4 HP
146	2.4		1-11/16	228	336	513
157	2.6		1-3/4	212	318	477
180	3.0		1-7/8	186	277	416
205	3.4		2	162	244	366
260	4.3		2-1/4	128	192	289
321	5.4		2-3/4	104	156	234
389	6.5		2-	85	128	192
463	7.7		3	72	108	162

* Assumes 6-inch stroke and 42 strokes per minute.

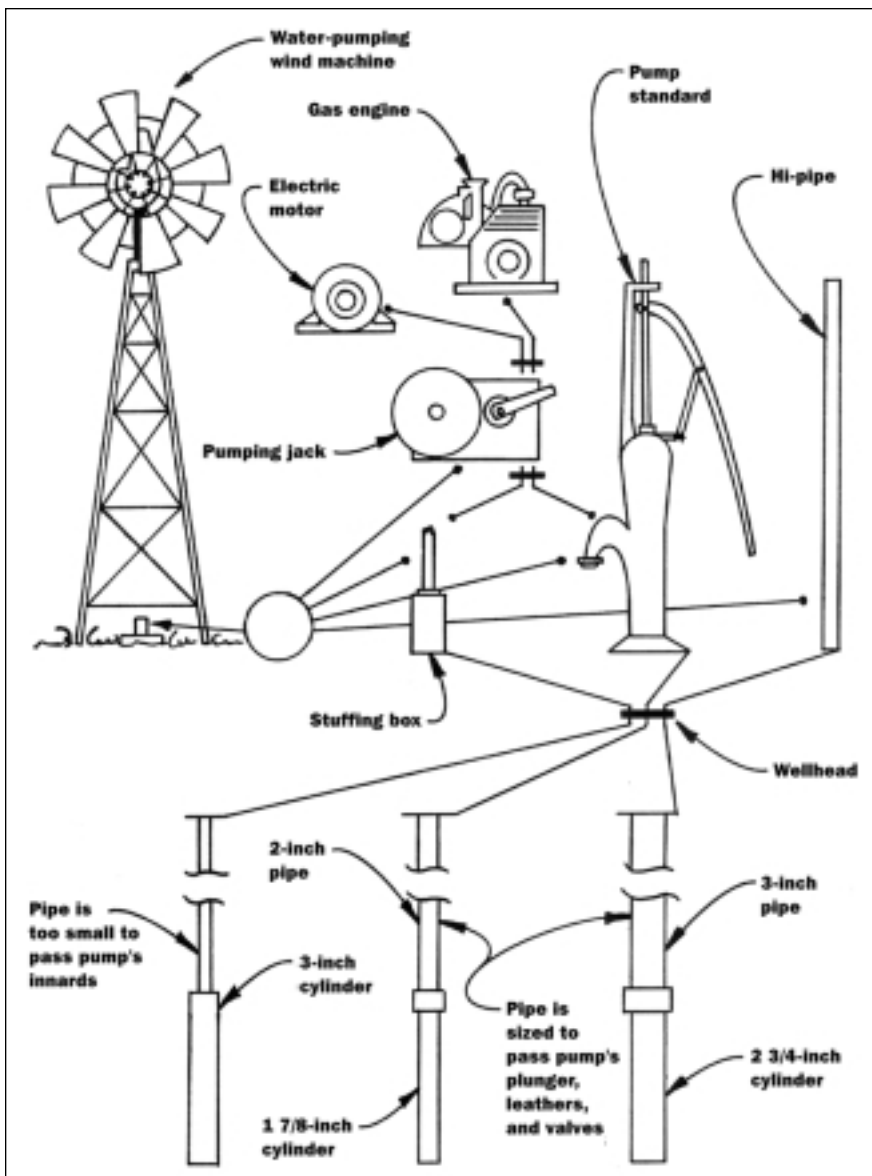


Figure 7: There are multiple ways to power a deep well piston pump.

the “store” type of water system where its only job is to pump water to storage. Hence, transporting and pressurizing water for usage is left to another means, i.e. gravity.

The deep or shallow well pump mechanism may be operated in four different ways. (Fig. 7) Pumping by hand is accomplished through use of the pump standard. An electric motor will drive the pumping jack—a unit that bolts to the pump standard—to operate the pump’s sucker rod. A small gasoline engine will also operate the pumping jack. Finally, a wind machine will connect directly to the sucker rod to operate the pump. Frequently two or more of these pumping methods are combined, since the equipment is designed to accommodate multiple energy sources. (Fig. 8)

Centrifugal pump: The centrifugal pump works on the same principle as a rock on a string that you swing around your body. The rock wants to travel in a direct line, but the string prevents it from doing this. If, instead, you held a bottle with one end of a long section of rubber tubing secured through its cap and whipped the hose around in a tight circle, the water in the bottle would travel down the tubing. That’s centrifugal pumping.

The centrifugal pump built for a water system uses impellers instead of tubing and is much more compact. Coupled to a high-speed electric motor, it is capable of delivering water at a very high rate.

A single set of impellers in a centrifugal pump can pump against only so much pressure (head). Hence, the pumping rate drops off as the pumping head increases. This limitation is alleviated in design by stacking individual impeller sections on top of one another, each with an outlet connected to the inlet of the stage above it and its own inlet derived from the outlet of the stage below. Standard centrifugal submersibles are available with as few as seven stages and as many as forty-

SIDEBAR C: FEATURES OF THE DEEP WELL PISTON PUMP

An above-ground positioning of well pumps is always preferable for the convenience it affords in servicing the equipment. However, with the deep well piston pump, careful selection of components will still allow the removal of the entire pump mechanism, including valves and leathers—the only section of the pump mechanism that is subject to wear—up through its delivery pipe for servicing without hassling with the pipe and cylinder itself. This is a nice bonus. All that 2-inch galvanized pipe is heavy, and removing it would add many hours and considerably more equipment to an otherwise fast and easy overhaul.

This magic works if the cylinder diameter is 1-7/8 inch and the delivery pipe is of 2-inch diameter. If a larger cylinder size is needed (or dictated) to increase the pumping rate or pump depth, there are two options. One is to install a pipe size larger than 2 inches to retain the servicing capability. The other is to keep the pipe size at 2 inches (or smaller) and lose the option of removing the wearable portions of the pump up through the pipe when servicing is needed.

A second benefit stems from the piston pump's ability to pump air and therefore suck water. With the addition of a tail pipe, the pump's reach for water is extended to 15 to 20 feet below the pump. This saves just this much expensive sucker rod and galvanized pipe. In addition, maximum use of the well's depth is assured. No type of pump can be placed close to the bottom of a well without sucking in a lot of sediment and doing itself irreparable harm. In this scenario, the bottom of the tail pipe can sit closer to the bottom of the well while the pump itself is safely 15-20 feet above it.

five stages, depending on the final in-well depth, total pumping head, pumping rate, and delivery pressure.

Note the difference in pumping rates of the centrifugal pump (**Fig. 9**) compared with the deep-well piston pump (**Fig. 6**) for equivalent motor horsepower, pumping head, and pressure delivery.

With such a difference in performance, why then isn't the piston pump retired to dusty shelves alongside other antiques? A major reason is that the centrifugal pump can't suck or pump air. For this reasons, it must be submerged. The water level in a well

drops as the water is pumped from it. This is called "drawdown." At the high rates the centrifugal pump will extract water, it must be located deep enough in the well so that the point of greatest drawdown will not fall below its inlet.

This is no particular problem for the pump mechanism, but it does raise a few engineering nightmares for the power unit. Since both operate in a rotary fashion, coupling the two units together over a distance of more than a few feet is difficult. At the kind of rpm the pump works best, there's also a real problem with balance.



Figure 8: A pump jack mounted on a pump standard offers hand and powered pumping.

There are several solutions to this problem. In shallow wells, the pump may be mounted over the wellhead. Equipped with an injector mechanism, it pumps a high-velocity stream of water upward through a tail pipe. Well water is caught up in the flow and rises to the sump, where the centrifugal pump takes over. In this instance, the jet pump can exceed the performance of a piston pump of equal specifications if the water level is only a few feet below the pump. Still, it falls off rapidly as the distance approaches the suction limit of the piston pump.

A more commonplace solution joins the pump to the motor in a single, watertight housing. This is the highly acclaimed submersible centrifugal pump. By simply attaching a 1-inch

FIGURE 9: CENTRIFUGAL PUMP RATINGS

Electric	No. of	Total Pumping Head									
		20	40	60	80	100	120	140	160	180	200
1/3HP	10	745/12.4	690/11.5	620/10.3	535/8.9	430/7.2	285/4.8	65/1.1	-	-	-
1/2HP	13	820/13.7	775/12.9	735/12.3	690/11.5	635/10.6	580/9.7	505/8.4	415/6.9	300/5	125/2.1
3/4HP	18	870/14.5	845/14.0	820/13.7	795/13.3	760/12.7	730/12.2	700/11.7	665/11.1	630/10.5	585/9.8

* Assumes 30 psi at delivery point.



Figure 10: A hydraulic ram is a simple, water-powered pump.

plastic pipe (type PE), the pump may be lowered by its delivery pipe and the protruding electrical wires to any desired depth. Pretty simple!

Hydraulic ram: While different in appearance and operation from other waterwheels or turbines, the hydraulic ram is a water-powered device. (**Fig. 10**) It has one function: to pump water.

How does it work? The ram uses the energy of moving water to pump a small portion of that water to a higher point. It starts when we let water flow through a drive pipe into the ram and suddenly shut it off. Water, once moving, doesn't like stopping so abruptly, so it piles up. And because it's virtually incompressible, it builds up pressure. If we put a check valve in the chamber, the pressure will pop it open, moving a small amount of water into the vertical pipe beyond. Once the penned water has spent its pressure, the check valve closes and the flow automatically resumes. Preset adjustments again shut off the flow, and the pressured water acts again on the check valve. The water in the pipe behind the check valve climbs higher and higher with each cycle. You can attach extra sections of pipe until the suddenly blocked water does not create a pressure sufficient to overcome

the weight of the water in the delivery pipe and deliver any more water through the check valve. That's the limit of the ram, and it can be increased beyond that point only with a larger inflow of water (larger diameter of drive pipe) or a higher pressure of incoming water (greater initial drive head).

Theoretically, the ram pumps $\frac{1}{10}$ of the water 10 times as high, $\frac{1}{5}$ of it 5 times as high, and so on. As we might suspect, in practice the results are much lower because of friction in the working parts such as valves and inlet and delivery pipes. Nevertheless, the results are impressive and beneficial if you want to fill a reservoir or get water to your homesite on the hill from the stream in the canyon below. If you have gross amounts of water in the stream or river, you can use the hydraulic ram to pump water to an elevation and then let it drop into a water turbine that's back down the hill, thereby producing electricity. Sort of roundabout, but undeniably practical under the right conditions.

The standard ram is a single-acting unit. It pumps the water that powers it. A double-acting ram will pump a different source of water than the one which provides the pumping action. In this way, a stream may operate a

hydraulic ram to pump water from a spring or well.

The hydraulic ram is manufactured worldwide. Commercial units are simple and easy to maintain and operate but relatively expensive. Owing to its simplicity, a multitude of do-it-yourself ram designs exist for the owner-builder or person with an ability to work with standard plumbing hardware.

Pump evaluation

The two most popular pumps are the deep-well piston pump (hereafter the piston pump) and the submersible centrifugal pump (hereafter the submersible pump) and we will focus on these two. [This is not meant as a judgement against the hydraulic ram. The hydraulic ram needs running water which, over the length of your property, must drop in elevation at least 10 to 15 feet to be useful.]

What factors affect the selection of a piston pump or a centrifugal pump? Let's examine well size, pumping capacity and head, positioning in the well, the power unit, pumping vs usage rates, and energy vs pumping rates.

Well size: A submersible pump is not made for well sizes below 4 inches in diameter. The piston pump can be utilized in well sizes as low as 2 inches.

Pumping capacity and head: The pumping capacity (rate of flow) of the submersible pump decreases rapidly with drawdown, particularly if the water approaches the level of the pump's intake. Effectively, the pumping head is increasing, too, since it's measured from the level of water in the well. This situation may be accommodated in three ways. First, the well can be dug deeper to reduce the effect of drawdown; this also increases in-well storage. Second, a submersible pump with more "stages" and a higher horsepower rating may be selected for the job. And third, a higher-capacity

well—one that won't experience much drawdown—can be dug. In terms of both energy and money, all three are expensive solutions.

A piston pump's efficiency, on the other hand, is not affected by drawdown. Positive displacement always assures the delivery of the same amount of water. So if the pumping head increases because of normal drawdown, the only effect it can have is to increase slightly the load on the above-ground power unit.

Positioning in the well: The submersible pump must at all times be submerged, and a tail pipe will not work with this type of pump. This necessitates a deeper well, both to maintain the pump's clearance above the bottom of the well and to assure that the drawdown will not uncover it.

A piston pump, at the slower pumping rate, causes less drawdown, can pump water from as much as 25 feet below the pump level (using the tail pipe), and requires less clearance above the bottom of the well.

The power unit: The power unit of the submersible pump is limited to an electric motor (gas engines won't run underwater) that is built for 110V or 220V, 60-cycle A.C., single-phase or a variety of DC voltages.

The piston pump can utilize a number of "power" units—muscle power, solar power, wind power, gasoline-engine power, and electrical power. If an electric motor is used, it can be wired for high or low voltage, A.C. or D.C. Additionally, if the pumping equipment cannot be positioned directly over the well, an offset system may be installed.

Pumping versus usage rates: In the "demand" system, the water pump must be closely matched to the rate at which water is used. At the very least, the pump must have a capacity equal to the largest single rate of use. Better yet, it must allow simultaneous rates of water usage. Finding the pumping rate requires thought and consideration.

The store system's pump capacity is not affected by usage rates, singularly or in combination. Instead, it is concerned only with equaling the total quantity of water that is used daily. However, storage must be sized to handle this amount of water, pipes must be sized for the use rates, and the energy source must be selected so that, at whatever rate, the pump will replenish the water. Fortunately, though the water is at times used at high rates, the pump has a 24-hour period in which to restock the water in storage for the next day.

Energy versus pumping rates: It could be argued that for deeper wells, the submersible pump is capable of handling the needs of a "store" system, whereas the piston pump cannot function in the "demand" system. This is a clever observation, yet it's flawed. Why use excessive amount of energy required to do a job quickly when there's normally lots of time to do it slowly. Nevertheless, it brings up an interesting point: There are times when it would be nice to have both pumping rates.

Conclusions: The inherent advantages and disadvantages of the submersible pump and the piston pump are as distinct as the differences between the deep-well systems they commonly serve—that is, the "demand" system and the "store" system, respectively. In a nutshell, we could say that the piston pump works best in situations where only low energy levels are available, high pressure (head) exists, and the water source has a low yield. Conversely, the submersible pump shines in situations where high flow rates are required, low head exists, and energy availability is not an issue. For shallow wells, these differences lessen. The piston pump can approach the highest pumping rate required for the household without suffering the submersible pump's wildly varying pump rates for the same water drawdown.

At this point, it will probably be helpful to look at some examples of commonplace water systems. Three major design concepts are reflected in the Gold, Silver, and Gold-Silver systems. The Gold system is based around the "store" theme of water system design, the Silver system around the "demand" theme, and the Gold-Silver system is a hybrid of the two.

We'll discuss these three water systems next issue in the final installment of this three-part series.

(Some text and drawings in this article were taken from Waterworks: An Owner-Builder Guide to Rural Water Systems (Michael Hackleman, Peace Press, 1983, 172pp), The Homebuilt Wind-Generated Electricity Handbook (Michael Hackleman, Peace Press, 1975, 194pp), and At Home with Alternative Energy (Michael Hackleman, Peace Press, 1980, 146pp) For a publications list, send an SASE to: Michael Hackleman, P.O. Box 327, Willits, CA 95490.) Δ



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A salvaged oak floor for \$5

By Robert L. Williams

Several months ago we decided we did not want to install a traditional bedroom floor of plywood and carpet. We had several reasons, but the major ones were that I am not one of the great fans of plywood floors and that I also dislike most carpeted floors because, with advancing age, I am also advancing in the number of materials to which I am allergic.

We decided to buy oak flooring and install it, but we modified our plans when we visited our building supply store and learned the price of the oak. On the basis of those prices, I figured I could pay off the national debt about as easily as I could buy the flooring.

For the entire work we wanted to do, we would have paid close to \$3,500 for the oak flooring and the nails.

So we modified our stance and decided to take up some old oak flooring in a house near us. The oak, we were told, was ours for the taking. The house was going to be demolished and we could have whatever we wished.

So we set to work, and when we were through we had invested several hours of fairly hard work. But we were able to floor not one but three rooms, and there is still oak remaining, if we can get to it while the old house is still standing.

Here's the bottom line: we removed the old flooring, cleaned and planed it lightly, and re-installed it in the three rooms, all at a total cost of \$5.

Now, if you want to repeat what we did, there are several basic steps, the most obvious of which is to find a house with the flooring you want and can get at a premium price. In our case, we had seen the old house standing empty for several years and it was obvious that the structure was too far

gone to ever be repaired. The owner had made it public that he would cheerfully give anything inside the house to anyone who would remove it and at the same time agree to four basic requests.

First, whoever took materials from the house was asked not to damage other materials so that others could not use them. By this it was understood that if you don't need the paneling, you should not rip it off the walls and ruin it in order to get to what you wanted.

Second, you were to leave the place as clean as possible. That is, you were not expected to leave boards with nails sticking up so that others might be injured.

And you were not to smash windows that you could not raise because they were stuck. You were not to litter the yard or in any way deface the shrubs and flowers that still grew in the area.

Finally, you had to agree that you would not hold the owner legally responsible for any injuries you sustained while you were working on his premises.

Finding a house

If you have not found an ideal house, go looking for one. Ride around the countryside. When you notice a house that is obviously vacant, and has been for months, even years, inquire as to who owns the house, then seek out the owner and ask about giving you his permission to salvage materials.

If you see a sign in front of a house you might want to pause and look closer. If the sign says something like, "Future Home of Podunk Burgers," you know the house will not be used for the new diner and common sense says that the owner might be delighted to have someone take away part, or all, of the house.



To clean off old stains or varnishes, use a planer set so that the blades barely touch the wood.



When the wood is planed, you can coat it with a sealer such as polyurethane stain. Let it dry for several hours, preferably overnight, before you install it.

You might see a church in disrepair, or a civic building, or a school house, or gymnasium. Read newspapers for notices of the demolition of local buildings.

Salvaging

When you have found the house, you will need several pieces of equipment, most notably a pickup truck in which to haul your flooring or other treasures. You will also need a crowbar or prybar, and a hammer with claws.

To take up the flooring, you should remove it exactly opposite from the way it was installed. The flooring is in all probability tongue and groove, which means that only one side of each piece was nailed. The first piece was installed with the groove side against the wall so that the flooring could be nailed through the tongue on the outside edge. All subsequent sections of flooring will have been installed in the same manner.

Your first job is to determine where the flooring started and where it ended. You will start where it ended and work your way back to where it

started, otherwise, you will destroy too much of the valuable oak flooring.

Your first step, particularly in an older house, is to remove the molding, then the baseboards. When the baseboards are out of the way, you can usually see the groove protruding against the wall—or at least close to the wall.

No matter how careful you are, you may have to damage the first section of the flooring. Start by inserting the claws of the crowbar between the wall and the flooring. Let the claws reach into the crack until you get a good leverage point, then raise the other end of the crowbar until the back side of the flooring starts to break free.

Now slip another crowbar into the same basic area, but a foot or two away, and pry gently with both of the crowbars. As you make more and more progress, work your way down the section of flooring until it pops free. If it breaks, you may be able to cut the piece and use it later. Save everything. You don't know when you will need a short piece, especially in the closets or hidden areas.

If there are two or three of you working, let one person start to remove the nails that once held the flooring. Keep a gallon bucket or something similar handy to contain the nails. Most of the time, cut nails are used to install flooring and you can use these same nails when you reinstall the oak sections.

Continue to work your way across the room taking up each piece slowly and carefully. When you have removed two or three rows of flooring, you can see where the pieces are nailed and, if you insert the hammer or crowbar claws near the nails, you can pop the flooring loose easily. If you have trouble getting the crowbar claws under the oak flooring, use a hammer to hit the back of the crowbar and drive the claws under the section.

After removing the nails, stack the flooring, and be sure that none of the sections are under stress. When you haul it to your house, stack it again in



Notice the building paper under the new floor. This paper will keep the floor from squeaking—or it will at least help to do so. When you install each piece of end-matched oak flooring, tap one end gently to get the best possible fit. To keep from damaging the edge of the wood, you can place a scrap piece of oak flooring against the board you just installed, and hammer against that.

a smooth, even manner. Be sure it will be protected from moisture and other damage.

Installing your floor

Before you think of installing the flooring, you may want to sand or plane the wood lightly to remove all old stains or paints applied ages ago. In our case, we own a small portable planer.

I set the planer blades so they barely made contact with the flooring, but deep enough to cut away all of the old stains. It takes only two or three seconds to plane an eight-foot section of flooring and it comes out of the planer looking like new. You can plane enough wood for a full floor within an hour or two.



Use a handsaw when cutting the oak in order to prevent end-splintering.

You may at this point worry about the damage the old stain will do to your planer blades. And you are right. You will dull the blades after an hour or two of work. What then? In my case, I take the blades out, run them on a bench grinder for two seconds, and put them back in.

You could build a case for buying a planer just for the flooring. Even if you spend \$400 for it, when you are finished with the work you still have the planer. We use ours so often, I wonder how we ever did without it.

When you are ready to install the flooring, go over the floor first to be

sure that there are no pieces of debris, no nail heads sticking up, or other problems. You may want to put down a layer of building paper before you start installing flooring. It is useful in preventing squeaky boards. Lay a strip of paper and start putting down flooring. Don't cover the entire floor with building paper; if you do, you will rip and tear it to shreds before you finish the room. Lay the paper as you go.

It is a good idea to place a square in the corners of the new room just to be certain that your corners are square. If they are not, you will need to make



Fitting the oak flooring across a door opening requires patience and care.

adjustments somewhere. More about that later.

Start by pushing the first section of flooring against the wall, the groove side toward the wall. See if the section fits flush against the wall. If the old flooring is bowed or warped, you may need to set it aside and try another. You may as well get off to a good start.

When you find a good length of flooring, drive the cut nails into the tongue. Hold the nail so that it is at about a 45° angle to the tongue and the top surface of the oak. If the oak is extremely old, you may need to drill a small pilot hole to keep from splitting the tongue. You can even use the holes that are already in the oak. Try them to see if they work well and offer a good hold.

When the nail head is close to the wood, stop hammering and use a punch to sink the nail the rest of the way. One easy way is to lay the punch across the top of the nail head, then strike the side of the punch with the hammer until the head of the nail is flush with the surface of the wood at the tongue.

You will find that much older oak flooring is end-matched, which means that you can fit the ends together as if they were pieces in a jigsaw puzzle. The two ends join neatly, perfectly, and soundly.

It is a good idea to lay all of the sections in stacks that are of similar lengths. We used masking tape with marks on each section to indicate length. By using the lengths wisely, you can cut waste down to a minimum.

Use the best pieces where they will show off the room to the best advantage. Save the less attractive wood for closets or other spaces that will not be seen readily. However, most of the wood will be of high quality and this selection process will not be a problem.

Do not let sections end at the same place. If your room is 18 feet across and if you have flooring lengths of 8



Some sections of flooring will have warped, no matter how very careful you have been. When you encounter pieces such as the one shown here, you can nail a pry block near the wood and use a crowbar to pry the wood into a good fit then nail it while it is in its exact position.

and 10 feet, the simple thing to do is use the 10-foot section first in one course of flooring and the 8-foot section next. On the next course start with the 8-foot section and finish with the 10-foot section. If you have or must use short lengths, try to keep these for use at the ends rather than in the middle of the room.

When you come to a length of flooring that is hopelessly bowed, but you need it anyhow, you can align it by doing the following. Lay the section in position. If it fits well at any point, nail it at that point. Where the bow starts, move out a few inches and nail a short piece of 2 x 4 to the plywood floor. Next, place another short length of 2 x 4 against the floor and also against the flooring. Then put the tip of the crowbar between the two blocks of wood and pry against the flooring until the flooring fits snugly. Hold the flooring in position while you drive two or three nails to be sure it stays in place. You can straighten out a four- or five-inch bow this way. Even if the fit is nearly perfect, keep prying until the fit is exact.

Do not use the crowbar against the oak flooring itself. You will mar the surface of the wood.

When you reach the end of a course, measure the length of the remaining distance then cut your final section

slightly shorter than the needed length. Many home-repair people try for an exact fit. But why? You will cover the slight crack with molding or baseboard.

When you come to the end of the room, you may need to rip a length of flooring by using a circular saw. Here, again, do not try for an exact fit. When the piece is cut, tilt it slightly so the groove starts over the tongue. You may need to lay a piece of scrap wood over the final flooring and hit the scrap wood with a hammer to drive the final piece into place.

If you have an especially difficult fit, you may want to turn the flooring over and cut or chip off the bottom side of the groove so that the flooring fits easily into place.

Your final (and optional) job is to apply a coat or two of polyurethane sealer and protector onto the oak. If you don't want to do this, the floor will remain shiny and bright for months to come. On the other hand, if you want to put a dozen coats onto the wood, no harm is done and you have more and more protection.

I lied. The final job is to stand in the doorway and look at the shiny floor and think of how little it cost to have such a beautiful oak floor. Δ



SEND IN THE WACO KILLERS

Three times the International Society of Newspaper Editors has included Vin Suprynowicz in their list of the 12 top weekly editorial writers in North America. For years his shoot-from-the-hip style has opened the eyes of thousands to government abuse of our liberties. In this book, *Send in the Waco Killers*, he blends material taken from his syndicated column with new commentary to give the reader a detailed, reporter's-eye-view of how the rights and freedoms of Americans are being subverted.

He uses factual accounts from the daily news to show how the Feds use the drug war, the public schools, jury rights, property rights, the IRS, gun control, and anti-militia hysteria to increase its power and control over us. He details how agents of the ATF and FBI have routinely lied, how they use paid informants to infiltrate Constitutionally-protected militia groups, then fabricate evidence to get arrests and discredit them.

Had he lived 225 years ago he'd have written a book to detail how King George III and Parliament have tried to enslave us but, sadly, this book is about how our government today is depriving us of our freedoms and ruining the lives of thousands without changing even one word of our Constitution.

If you read no other book this year, read *Send in the Waco Killers*. Just keep your blood pressure medication handy. 506 pages, trade paperback, \$21.95 + \$3 S&H.

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Publisher's Note

Complete "back issue set" winner

Steve Winters of Champaign, Illinois, is this issue's winner of a complete set of original back issues. We'll continue to draw names from among our three-year or longer subscribers for the next two issues and give the person whose name is drawn a set of the issues. The next drawing will be Nov. 5.

Two new features

This issue inaugurates two new features: *Ask Jackie*, a question and answer feature by Jackie Clay, and a homeschooling feature, which will be written by various people.

Questions for Jackie's column (page 22) should be addressed to *Ask Jackie, Backwoods Home Magazine*, POB 712, Gold Beach, OR 97444. The question can be on any facet of low-tech self-reliant living, such as food growing and storage, animal care, etc.

The homeschooling column (page 16) will typically deal with science, mathematics, history, and economics. John Silveira has written the first one for this issue; John's Americana pieces, such as the one in this issue on page 62, also double as excellent homeschooling articles.

Our approach to these homeschooling pieces will be strictly utilitarian, that is, strictly educational. We're not going to talk about the politics of whether homeschooling is better than government-run public schooling. We're just going to get right down to offering some basic education to interested readers and their children.

Duffy Dollars

Notice the Duffy Dollars on page 15. These will make the complete anthology set on page 14 a lot more affordable. "So what's the catch?" one reader who visited our Gold Beach bookstore asked. None! It's better for us to make a little money on each of a lot of sales; that's how Sam Walton made Wal-Mart a success.

Bookstore

Our bookstore has been expanded, making it a nice place to visit the next time you are in Gold Beach. We've hung original art by Don Childers and John Dean on the walls, and also sell a variety of small self-reliance items. Since many on our staff are musicians, we even have 50s and 60s "rock and roll" sessions on some evenings.

The hours of the bookstore are Monday through Saturday, 8 to 5 Pacific Time. Any daytime visitor to the bookstore



Dave Duffy with 11-pound red snapper and 30-pound ling cod, caught off Gold Beach Reef

can have a free cup of Starbucks coffee plus a free copy of our famous "doom and gloom" issue. For the "rock and roll" sessions, we make you pay fifty cents for the coffee so we can dole out a few bucks to the band.

Pocket-sized Constitution book for \$3

We've bought a couple of thousand copies of a shirt pocket-sized, 58-page book that contains the *Declaration of Independence*, the *U.S. Constitution*, including the *Amendments*. Henceforth we are giving the book away to anyone who either subscribes or renews their subscription for one year. Otherwise we're selling them for \$3 each, which includes postage and handling. These 3½-inch by 5-inch perfect-bound books were produced by the Cato Institute, a Libertarian think tank. They are high quality and a splendid little reference book you can carry in your pocket. For the money, they're a steal.

Gold Beach fishing and our 10th year

Have you noticed the two fish I am holding in the photo on this page. They are why I moved the magazine to Gold Beach, Oregon. I love to fish, but I especially love to ocean fish. Size does matter.

This is the end of our 10th year in business. Thank you for supporting us all these years, and we will try to make our next 10 years worthy of your continued support. Δ

My view

Millennium excuses and the quest for truth

It's time to roll out the millennium excuses to explain why society hasn't collapsed as the result of the Y2K computer bug. I know I'm a couple of months early, but January 1 will be too late to make predictions of why we haven't succumbed to Y2K doom. So here's my list of what the excuses will be. Take your choice:

Predictions for Jan. 1:

- Society has collapsed, but the government is covering it up. Thousands are dead or starving, but it's such a clever coverup, it'll be years before we know the staggering toll.
- We calculated the date wrong so the collapse has been postponed six months to a year. Lucky for us because we've still got a lot of food storage supplies we need to sell.
- What are you talking about? I never said society would collapse. I knew all along that nothing would happen.
- And, of course, as the usual day-to-day disasters around the world *do* occur, the Y2K diehards will claim that every little disaster that makes the newspaper is due to Y2K.

Predictions for Jan. 2:

- Most doomsayers will find a new horse to ride, such as the planets lining up in one quadrant in the sky, or the impending visit by a close-encounter asteroid in 2028.
- Some government bureaucrat, maybe even Clinton, will take credit for averting the Y2K crisis, saying the government needs broad new power over computer technology to continue averting such crises in the future.
- Russia will ask the U.S. and the I.M.F. for big new loans because they'll claim Y2K devastated their already devastated economy. They'll get the money.

Predictions for Jan. 3:

- People who drew some money out of their bank "just in case" will begin putting it back, denying they ever thought there'd be a problem.
- The U.S. stock market will go up 250 points.
- At your local coffee bar, there will be very little talk of Y2K. It will be an embarrassing subject.

But all the concern about Y2K during the last year hasn't been a total waste of time. It's caused a mini boom in many sectors of the American economy. My subscriptions are up nicely, and once we get subscribers here we keep them with all kinds of incentives such as inexpensive anthologies and a magazine that is just too good, accurate, and honest to put down. A lot of other self-reliant businesses who have experienced significantly increased sales will have to put up with slow sales for awhile due to a glut on the market. I'm sure they are having sales meetings right now trying to identify a new doomsday scenario that needs promoting.

Have people learned anything from all the Y2K hysteria? The promoters of doom have, that's for sure. Never again will they ride a doomsday horse that has too many dates that were supposed to trigger the beginning of chaos. April 1, April 9, July 1, September 9, and October 1 were all trigger dates that came and went without Y2K incident. But I'm not sure the rest of the public has learned much. It's too much fun to get worked up about impending doom, making plans to avert it, and scaring your neighbors.

The whole experience has been dismaying to me. In an industry dominated by people who value American traditional values such as those embodied in the United States *Constitution*, it has been too easy for people to get distracted by phony "doom and gloom" scenarios such as this Y2K bug. Instead of zeroing in on what America's real problem is, namely, the declining state of freedom in this country, too many people spent all their energy on a phony Y2K crisis. Instead of concentrating on saving America, they concentrated on saving themselves from an imaginary enemy. If I had been an emerging tyrannical government trying to dissipate the angry passions of a people growing increasingly less free, I might have invented the Y2K crisis and would consider inventing many others just like it.

So being the Libertarian I am, and cherishing the freedoms enshrined in the U.S. *Constitution* the way I do, I thought I'd try my best to persuade people that Y2K-type crises are not our real enemies. And since you can only persuade people through knowledge, I thought the best way to persuade is by increasing people's knowledge about *real* things, such as *real* science, not the pseudoscience that accompanied the Y2K predictions of doom. So, starting with this issue, we are launching expanded homeschooling articles in the areas of science, mathematics, history, and economics in hopes of giving people a better framework from which to consider future doom and gloom scenarios like the Y2K crisis. If people can ward off bogus monsters, they'll have more time to battle the real monsters, like our emerging tyrannical government.

Self-reliant people, such as those who read this magazine, are the main soldiers in the battle to retain and restore America's constitutional freedoms. America needs these people, undistracted by phony crises, to help save America and her wonderful institutions of freedom and individual liberty. If our expanded homeschooling articles can help self-reliant people tell the difference between fiction and fact, we'll feel part of the huge battle that lies ahead.

For although this country was never on the edge of a Y2K doomsday, it *is* on the edge of a political doomsday. And if more of us don't get our heads straight and concentrate on the real enemy at hand, namely, our own government, America is going to become a 200-year bleap of freedom in the long history of tyranny that has reigned over people for all past millenniums. — **Dave Duffy**

By Skip Thomsen

The good life on the Big I sland

(This is the first of a series of articles on "PLACES TO LIVE" in the country. If you live in a great place and want to write about it, submit the article to *BHM*, P.O. Box 712, Gold Beach, OR 97444. Please include photos and an SASE.

— Editor)

You've figured out the basics: you grow your own food, you have a small business that runs efficiently out of your home and supports your family, you're becoming more and more self-reliant . . . life is good. So how do you make it even better?

What if you could live where you can grow sumptuous tomatoes in December; where you'll have perfect weather year-round; never again have to burn anything just to keep warm; live in an environment of peace, quiet and tranquility where friends, neighbors and even strangers always have time for each other; never again have

to deal with a traffic jam . . . sounds too good to be true, right? Well, what if you could have all of that and much, much more and be able to enjoy that kind of a lifestyle for less money than you're probably spending now? What if you could buy a home or small farm there for a pittance?

No, I'm not talking about moving to some remote village in Indonesia or South America. I'm talking about life in rural Hawaii!

OK, ok, so what's the catch? Everybody knows it costs a fortune to live in Hawaii. Especially those of us who have had the opportunity to vacation there; we know how expensive everything is . . . don't we?

Here is perhaps one of the best-kept secrets of our times: the Big Island of Hawaii, along with being one of the only places in the Islands where there is still any semblance of the *real*

Hawaii, is actually a very affordable place to live. There are nice homes and small farmable acreages for sale here for less than \$40,000 (some friends of ours just bought a fixer on one acre of fantastic rain forest for \$14,000), one-acre lots in the most beautiful subdivisions imaginable for \$6000 (and less, if you look for them), and the taxes for a home (as opposed to an income property) are next to nothing. Many of the subdivisions allow small farming operations and home businesses, and there are many of both prospering all over the windward side of Hawaii Island. Some do not allow farm animals, but orchards, raising crops, and flowers are all OK. Small businesses, like light manufacturing, woodworking, and crafts operations are fine, too.

There are also more rural properties that are not in subdivisions and many



are already small farms with homes. Most are at rock bottom prices right now, too.

In Hawaii, “rural” equates well to “cheap.” For some reason, folks here like to be close to town, and all other things being equal, real estate prices drop for every mile that a property is farther out of town. Being off the grid is another reason for dramatic price-drops. We’ve seen some incredible bargains that were a mere 5-10 miles out of town and off the grid. There’s one near us, for example, that’s been on the market for some time now: several acres of prime land, some in forest and some cultivated, lots of fruit trees, a mile or so to the ocean, a well-built small house and a huge shop, all for \$75,000. It’s at the end of a mile-long road of small farms.

Food costs

But what about groceries and just the cost of goods you need for day-to-day living? Well, you’re going to grow your own food, right? And even

if you don’t, there are farmers’ markets and little mom-and-pop produce stands all over the place that sell every kind of produce you could ever want (and lots you’ve no doubt never even seen nor heard of before) for tiny prices. Folks who come over here on vacation and buy their groceries—consisting of mostly imported, processed foods—in a tourist town, do pay some high prices. You can pay \$6 for a box of sugar-coated Korn-Krispies if you’re into that sort of thing. Or you can fill your trunk with fresh, picked-that-day produce for the same price.

And if you happen to love the ocean, then you also get some incredible perks here: an ever-so-inviting, crystal clear, warm and sensuous ocean that’s fun to play in all year long, and bountiful for fishing.

Topical features

The Big Island is over twice the size of all the other islands combined, and yet its population is a small fraction of

just the city of Honolulu, and Honolulu is merely a small corner of the Island of Oahu.

The Big Island is Big! It’s a two and a half hour drive from one side to the other. We have two 13,800 foot mountains, all but one of the planet’s weather systems (Arctic), and this is one of the only places on Earth where you can go skiing in the morning and play on a warm, white sand beach a couple of hours later. The crystal-clear ocean is nearly always about 80 degrees, even when there’s snow on top of Mauna Kea.

Farmers’ markets

The varied weather systems here make it possible to grow an incredible variety of produce. The higher elevations, like Waimea and Volcano, are much like Oregon or Washington weatherwise; the wet side of the Island is rainy and lush and is where most of the produce is grown. The lower elevations are where you’ll find the citrus fruits, mangoes, and



Above left: A small farmer's market stand featuring organic produce and healthy baked goods.

Below left: These folks are selling their home-grown tropical plants.

Above right: This artist uses her own photos to produce greeting cards, always popular in Hawaii.



eries and shops that are happy to sell locally made products.

Want a green thumb?

Planting most things here is as easy as breaking a twig off of the parent plant and sticking it in the ground. Presto! A new plant!

Do you like to grow flowers? There's an abundant market here for flower-growers, and many of them grow flowers specifically to export to the mainland. Others sell theirs at the farmers' markets or to local florists, hotels, and other outlets. Most flowers are easy to propagate and grow here. Get one started, snip off the top and stick it in the ground, and you have two plants. Same with trees, too. Our neighbor has this beautiful Euphorbia, a tree with leaves the color of a fine red wine, and one day as I was admiring it she snapped off a branch and said here, plant it. I did, it grew immediately, and now I have about a dozen of them. All are from branches taken from the one she gave me. That tree is now about 20 feet tall . . . and three years old. I have a 40-foot African Tulip Tree that only five years ago started as a foot-long stick that I drove

papayas. There are abundant farms, large and small, and lots of the farmers sell their products at our many farmers' markets and even roadside stands.

Some of the more common offerings of these markets include tomatoes, sweet potatoes, huge varieties of greens, many kinds of oranges, grapefruit, lemons, limes, onions, mangoes, papayas, lilikoi (passion fruit), several different kinds of incredibly delicious bananas, macadamia nuts, coconuts, regular and the ultra-sweet and low-acid white pineapples, starfruit, lychee, rambutan, and lots of tropical fruits and veggies I'd never even heard of before coming here. Most of these are year-round crops, too. We had an orange tree at the place we just moved from that produces constantly; the next crop's blossoms are on the

tree while the last crop's fruit is still ripening. Until you've tasted an apple banana, you haven't tasted a banana. And after getting used to them, you'll never eat another grocery store banana.

And let's not forget the best coffee in the world: Kona Coffee. There are lots of successful and profitable coffee farms in the hills of Kona and some are as small as two acres. Of course there are much bigger ones, too, but even the small ones can do well.

The bigger of these markets, like the Hilo Farmer's Market which runs every Wednesday and Saturday, are also home to a lot of crafts vendors. And again, since this is a tourist destination, there are lots of events happening all over the Island that feature crafts fairs, plus there are many gal-



Left: The Windward side of The Big Island has few actual beaches, but spots like this make up for it.

Right: This geothermally-heated pool is usually 92 degrees, slightly saline and immensely therapeutic. A wonderful way to spend an hour or two after a hard day's work.

into the ground with a hammer. Really!

The people

In rural Hawaii, people always have time for friends, neighbors, and even strangers. There's a popular pastime here called "talk story." You always have time to talk story. If you're about to leave your home to go on an errand and a friend shows up, you stop what you're doing and talk story. You have a cup of coffee, or whatever, but you always have time. That's why appointments have little meaning here: the bottom line is that people are always more important than anything else.

Speaking of people, one of the things we love about living here is that everybody is a minority. There is no prejudice here; what you look like or what your personal culture is doesn't matter. It's what's inside that counts. Especially here on the Windward side of the Big Island. The population is a

mix of Hawaiian, Chinese, Japanese, Filipino, Portuguese, haole (Caucasian), different Island cultures, and others. There is an obvious respect for everyone's culture, and each practices its own ways to whatever extent they wish.

The Hawaiian culture is alive and well here, and is being preserved and nurtured. It's truly heartwarming to us every time we see another example of the energy that the young people here, especially the Hawaiian kids of all ages, put into the preservation of their culture. The Hawaiian culture is built upon love and acceptance, family and friends, the land and the ocean. These are the important things; everything else is secondary.

Making money

You may have heard that it's next to impossible to find work here. Not so. Well, let me qualify that. If you come over here and go the Employment Department and ask for a job, there

isn't likely to be one. In the first place, there aren't that many available, and when they do come up, the locals are more likely to get them than are newcomers. But there is lots of work available to those who do not need a boss to tell them what to do next. Almost all of our friends are self-employed, most in the arts or crafts areas, and all are doing well. The way it is here is that if you know how to do anything well, you'll have all the work you want.

We've got friends who are woodworkers and are as busy as they wish to be trying to keep up with the demand. Our nearest neighbor makes clay jewelry in her home; she is about 40, has her beautiful home on three acres paid for, her car paid for, and she salts away money every month.

Another neighbor opened a gallery nearby and sells the work of selected artists and craftspeople. She has expanded her gallery several times in the last few years and is doing very well. Her husband makes furniture out of Koa, a beautiful indigenous

Hawaiian wood, and he is always behind in his orders. Others include successful photographers, fine artists, farmers, fishermen, builders, tree trimmers, B&B owners, house cleaners, yard maintenance people, and owners of various stores and restaurants. Remember, this is a tourist destination, and although this side of the Island gets far fewer tourists than the drier Kona side, there are still enough that there are lots of opportunities serving that population. There's even a market here for good musicians.

An opportunity that's fairly unique to here is house-sitting. There are always folks who need to travel to one place or another and need dependable folks to take care of the home while they're away. These arrangements are from short-term, like a week or two, to many months.

We also know of several people who have made successes of computer-based home businesses. They simply found different people who had a need to be connected, and they became the liaisons. We know of a woman who started an Internet vacation rental listing service, and before her first year in business, she had over 1000 listings. She charged a very affordable \$100/year to her clients, put each listing on an attractive Web page, and that's all she needs do from there on in. She collects \$100/year from each client each year for the continued listings, and the clients are thrilled to receive world wide advertising for their rentals for such a low price. She now has several thousand listings at \$100/year. Do the math!

We've amazed several of our mainland artist friends when we introduced them to our friends here who are supporting themselves quite well with their art. The more common scene on the mainland is that artists must have a "real job" to support their art.

Another friend runs aquarobics instruction at a local public pool and at a close by huge, geothermally-heated tidepool. Not a bad way to earn a

living. The tourist trade here also brings us other options, including vacation rental maintenance (badly needed, too), wedding coordinators, and food service opportunities.

Some basic research

OK, so you say you'd like to give it a try . . . where do you start? I'd suggest a visit first, of course, the longer the better. Then if it feels right and you decide to really do it, it's a good idea to rent a place in whatever area felt best to you on your visit. There is so much variety here that it takes a long while to feel all of it. We've finally come to the place we've been looking for for years, and that's after spending a lot of time feeling every square inch of this Island. I'd suggest looking through the realtor's catalogs of offerings and becoming well informed of property values, how long things stay on the market in the area of your choice, and how much they sell for compared to the asking prices. There's often a big spread there.

All of Hawaii has been in a real-estate slump for the last few years. Things are beginning to pick up again, but slowly. It's my feeling that prices are now at about rock bottom, so there has never been a better time to buy.

If you feel fairly certain of a particular area, you might do well to buy a fixer that you can get really cheap, and then if you decide to move elsewhere in a year or two you can most likely make some money on it.

Furnishing a house here is really easy and cheap, what with all the itinerant population and the many garage sales. It rarely pays to ship your belongings, unless you have a lot of very special or one-of-a-kind stuff that you're seriously in love with. Appliances, especially, are heavy and costly to ship, and they cost very little more here new and there are lots for sale used. Same with cars and trucks. Shipping your belongings over is still reasonable, as the ocean shippers give a great rate for household goods.

Depending on where you are on the mainland, it might cost you more to get your things to the West Coast than across the ocean. The shipping points are Seattle, Oakland, and LA.

If you are likely to want to build your own home or homestead, it will cost about the same as on the mainland. The basic building materials are higher because they must be imported and all lumber must be treated, but then you need no insulation and no heating systems, and it is still possible to build some pretty basic structures here, and that about evens things out.

Do some research on the Internet. "Planet Hawaii" has some interesting material, and typing "Big Island hawaii" into any search engine will bring you lots more.

In conclusion

If thoughts of year 'round perfect weather, year 'round sunshine for your solar ventures, a laid-back lifestyle of unhurried peace and spiritual tranquility, some of the best growing conditions imaginable, world-class fishing at your doorstep, opportunities limited only by your imagination, and friendly, gracious people all sound like they make for an interesting possibility for your new home, the Big Island of Hawaii may be for you. Lots of people still believe that living in Hawaii is expensive, and on all of the other islands, it is. Here on the Big Island, it isn't. Δ

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How big is the solar system?

By John Silveira

In artists' renderings of the solar system we often see the sun represented by a small sphere with the planets drawn fairly close by. In truth, drawings like that aren't even close to the real dimensions of the solar system. But artists must draw the solar system this way because it's the only way to get all the components of the solar system onto one page.

But what is a true perspective of our solar system?

Here's a good experiment for homeschoolers—or anyone else who wants to see how immense the solar system really is. Take a basketball and imagine that it is the sun and everything else in the universe is to the same scale. In our basketball-sun model, how big do you think the planets would be and how far away do you think they'd be?

To get a perspective of how far away the planets are, place the basket-

ball on the ground and walk away from it.

How far?

Since the diameter of the sun is 864,000 miles and the diameter of a typical basketball is about $9\frac{1}{2}$ inches (they vary from $9\frac{1}{4}$ to $9\frac{1}{2}$ inches), if we divide 864,000 miles by $9\frac{1}{2}$ inches, we discover that in our model 1 inch represents roughly 91,000 miles. To see how everything else fits into our model we need only divide any other dimensions of our solar system by 91,000. For example, Mercury, on

the average, is about 36,250,000 miles from the sun. If we divide 36,250,000 by 91,000 we find that in our model it is roughly 398 inches—or about 33 feet away from the basketball. And, if we divide Mercury’s diameter of 3050 miles by 91,000, we find that the Mercury in our model is just .034 inches wide—about $\frac{1}{30}$ inch. This is smaller than a typical BB.

If you know your stride (mine is about $2\frac{1}{2}$ feet) you can put the basketball on the ground and pace this off. Better yet, if you have access to a football field at a local high school or college, place a basketball on one of the goal lines and walk out to the 11 yard line. This is where Mercury is.

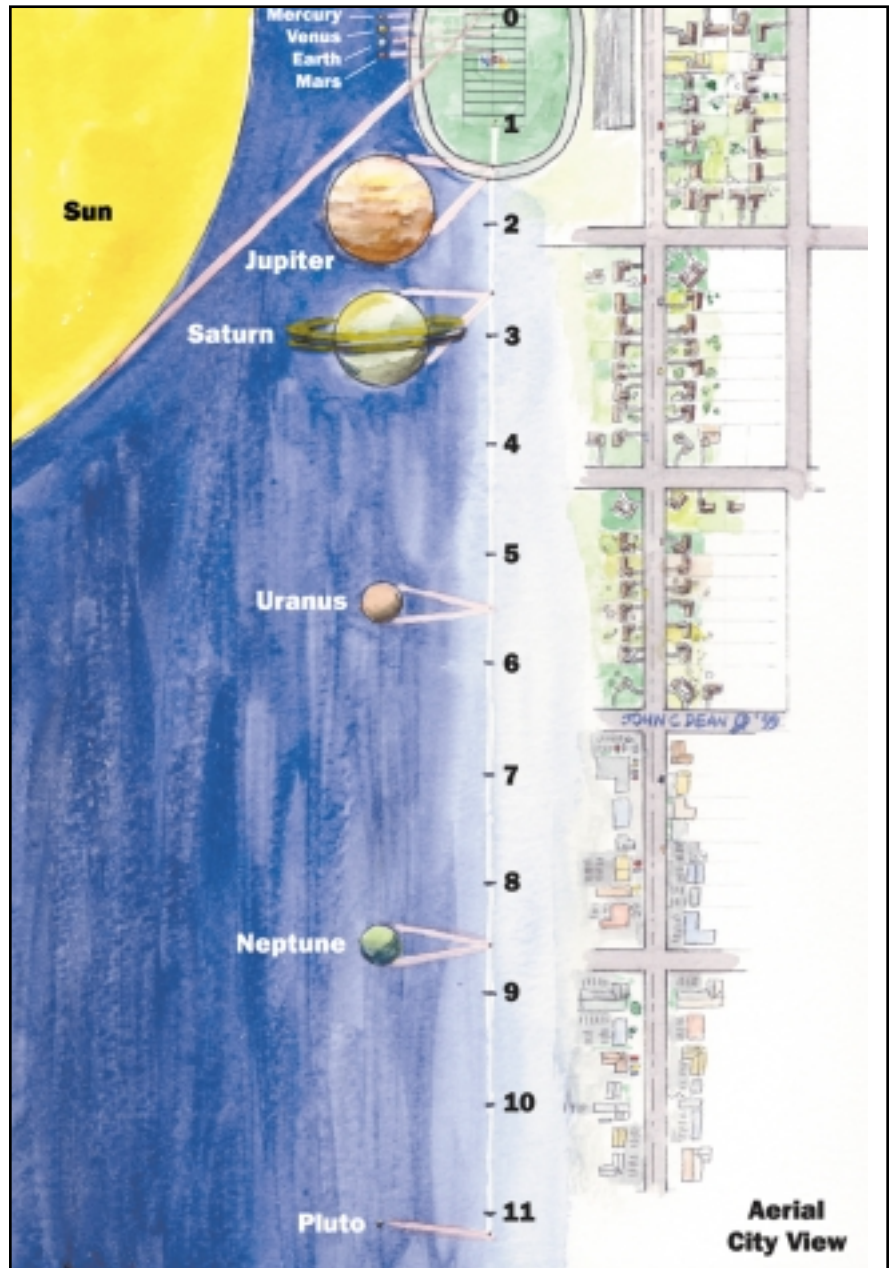
You can perform these calculations for the distances and diameters of each of the remaining eight planets. I’ve done this for you and placed them in Table 1.

To locate Venus you will have to get about 62 feet from the ball—that’s just beyond the 20 yard line. Venus, incidentally, would be a small but bright pebble about $\frac{1}{12}$ of an inch in diameter.

Earth is about 86 feet away from the ball—that’s almost at the 29 yard line on a football field—and it’s slightly bigger than Venus. But unlike Venus, earth has a satellite, the moon. In our model it will be a mere $\frac{1}{40}$ -inch in diameter and orbiting about $2\frac{2}{3}$ -inches from the earth.

If you can, do this exercise on a day when there’s a full moon visible in the sky because if you feel this scale isn’t right, now’s the time to judge for yourself. Even though the moon is much smaller than the sun, because it is near to us and the sun is so far, they appear to be the same size. (That’s why during a solar eclipse the moon appears to cover the sun almost perfectly.)

So to check this perspective, stand where the earth would be, 86 feet—or almost 29 yards—from the basketball and hold a pencil perpendicular to the ground at arm’s length, so you see the basketball just over it. Compare the basketball’s apparent diameter to the pencil’s diameter. Holding your pencil



On the left are the relative sizes of the sun and the planets of our solar system. On the right is a neighborhood containing a football field. To build a scale model in which the sun is the size of a basketball and rests on one of the goal lines, only the four inner planets would fit within the football field; the outer planets would lie well beyond, some even several blocks away.

this way, the basketball appears to be about half as wide as the pencil. Now hold the pencil so you can just see the moon over it and compare the moon’s diameter to the pencil’s. You’ll see that it appears to be the same size as the basketball. I hope this gives you some faith in my model and you realize the scale is accurate.

But whatever you do, don’t look at the sun like this to get a comparison; it’s a sure way to permanently damage your eyes.

Once you make this comparison, you can go back to where Venus and Mercury are and hold your pencil at arms length to see how large the basketball appears. It will appear larger from these vantage points and give

TABLE 1: THE SOLAR SYSTEM

Body	Approximate equatorial diameter in miles	Mean distance from the sun in miles	The solar system in our basketball sun model	
			Diameter in inches	Distance from the basketball sun in feet
Sun	864,000	-	9.500	-
Mercury	3,050	36,250,000	0.034	33
Venus	7,560	67,500,000	0.083	62
Earth	7,960	93,500,000	0.088	86
Mars	4,250	142,438,000	0.047	130
Jupiter	89,360	486,250,000	0.983	445
Saturn	75,340	891,875,000	0.828	820
Uranus	31,950	1,794,375,000	0.351	1645
Neptune	30,690	2,815,000,000	0.337	2580
Pluto	1,440	3,687,500,000	0.016	3380

you a fair idea of how large the sun appears when seen from either of these planets.

The next planet out is Mars and in our model it's 130 feet away from the basketball, or about 43 yards from the goal line. The basketball appears a lot smaller from here, as does the sun from Mars. Mars itself would be less than 1/20-inch in diameter. It also has two satellites, but in our model those would be specks of dust orbiting less than 1/6 inch from our planetary model, and they would be all but invisible to us.

Throughout this scaled down solar system there would be a scattering of dust, finer than the motes of dust you see floating on the rays of sunlight that stream into a house on a summer's afternoon. This "dust," though extremely sparse, would be thickest between the orbits of Mars and Jupiter. This is the asteroid belt.

Beyond the asteroid belt is Jupiter, the largest planet. In our model it's

almost an inch wide and 445 feet—or almost one and a half football fields—away from the basketball. 445 feet is beyond the home run fences of most major league ballparks. A basketball, sitting at home run distance, would appear quite small from home plate, and the sun appears quite small from Jupiter.

Jupiter also has about 16 satellites, only four of which we would see in our model, appearing as grains of sand, while the rest would be specks of dust like Mars's satellites. Incidentally, Jupiter has more mass than all the other eight planets, all their satellites, and all of the asteroids in our solar system, combined.

Saturn is 820 feet away from our basketball. That's almost three football fields away. It is also the oddest looking of the planets. In our model it is 5/6-inch in diameter along its equator but noticeably smaller, only 3/4-inch in diameter, along its poles, so it looks like a flattened sphere. It also has a

ring around it that is 15/6 inches in diameter.

Like Jupiter, Saturn has a swarm of satellites, only one of which—Titan—is significant. The rest of Saturn's satellites would be invisible, or nearly so, in our model.

The next planet out, Uranus, is 1/3-inch in diameter and it's 1645 feet away. That's almost a third of a mile from the basketball. It has at least five satellites, all of which are like tiny grains of sand in our model.

And after that is Neptune, also 1/3-inch wide, but it's about a half mile away from the basketball. The basketball appears quite small from a half-mile. Neptune has at least eight satellites, only one of which would be as large as a grain of sand in our model.

Last is Pluto. Pluto is just a grain of sand, actually two grains in our model, because Pluto's satellite, Charon, is about half the diameter of Pluto. Pluto's average distance from the basketball would be almost 3400 feet. That's roughly 2/3-mile. But because its orbit is so eccentric, sometimes it is a little closer to the basketball than Neptune—a half mile away—and at other times it's 5/6-mile away. Standing 2/3-mile away, you'd barely be able to see the basketball. In reality, if you could stand on Pluto, the sun would appear as no more than

TABLE 2: THE EARTH-MOON SYSTEM

Body	Approximate equatorial diameter in miles	Mean distance between the earth and moon in miles	The earth/moon system in our basketball sun model	
			Moon's diameter in inches	Distance from the earth in inches
Moon	2170	240,000	0.024	2.64

the brightest point of light—the brightest star—in a very black sky.

Beyond Pluto in our model, to a distance of 16 miles, is a haze that represents the Ort cloud; this is where comets are born.

There are some other interesting aspects to our model. For instance, in the real world the speed of light is approximately 186,284 miles per second. But in our model light moves only two inches per second or about 10 feet per minute. It takes almost 8½ minutes for a beam of light starting from the sun's surface to reach our earth, and it takes more than five hours to reach Pluto.

In one year light travels almost six trillion miles. Written out, that distance is 6,000,000,000,000 miles. In our model one light year is just about 1,000 miles. This means that if our basketball size sun were perched atop the John Hancock Building in Boston, Massachusetts, then St. Louis, Missouri, would be one light year away.

So you can see, when placed in proper perspective, our solar system is immense, but it is also mostly empty space with a few almost insignificant objects in it. And it is also extremely isolated. In spite of the number of stars we see in the night sky, none are really close to us. The very closest, other than our own sun, are the three stars that make up the Alpha Centauri star system: Alpha Centauri, Beta Centauri, and the closest of the three, Proxima Centauri. These stars are about 4.3 light years away. In our model, 4.3 light years are about 4400 miles, approximately the air distance from Boston to Moscow, Russia. The brightest, Alpha Centauri, is about the same size as our sun and can be seen from earth. In other words, in our model it's as big as our basketball, it's 4400 miles away, and we can see it, but only as a point of light. So, if we wanted to create this star system, to be in perspective with our model, you would have to locate it 4400 miles away.

At least 95 percent of the stars in our universe are smaller than our sun, but there are some that are much larger. They can be as much as 400 times bigger. Compared to our basketball, such a star would be a sphere that reaches from one goal line of a football field to the other—100 yards in diameter.

Also, as our own sun ages, and burns up its nuclear fuel, it will become what astronomers refer to as a red giant. Its diameter will expand and it may extend well beyond the earth's orbit. In our model this means the sun will inflate until, eventually, it is 70 or so yards wide. This will not occur for another five billion years, but when it does, Mercury, Venus, and—assuming it gets large enough—earth will be vaporized. All three will cease to exist.

If this doesn't give you an appreciation for the vastness of the universe,

consider if we expanded our basketball-sun model to include the entire galaxy we live in, the Milky Way. The Milky Way is about 100,000 light years in diameter. We would have to make our model 100 million miles wide. This means that to make a model of our galaxy where our sun is the size of a basketball, our model would have to reach from the sun to a point some 10 million miles beyond the earth.

The edge of the universe, if it's proper to talk about the universe having an edge, is thought to be about 15 billion light years away from us in all directions. Distances this large are incomprehensible. To extend our model to include the entire universe we would need all the space between here and Alpha Centauri—and at least 10,000,000,000,000,000,000,000 basketballs of various sizes. Did somebody say, "Wow!" Δ

WE'VE GONE
DIGITAL

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Ask Jackie

(Jackie Clay invites *BHM* readers to submit questions on any facet of low-tech, self-reliant living for this new column.)

Would you be so kind as to ask Jackie Clay how to can wieners and link sausage you buy from the store? I'd like to give it a try.

Elaine Hales, Shepherd, Texas

Do you can sausage, bacon, and meatloaf?

Nancy Green

Yes, you can home can link sausage and wieners, as well as bacon. I often do it, as when we butcher or get wieners on sale. You can also can any other store-bought or home made sausage, such as salami, pepperoni, bologna, etc.

The only problem with canning sausage or wieners in a casing is that often the meat will swell, splitting the casing, which does nothing to hurt the taste or edibility of the product but it will result in a visually less appealing product.

When canning any sausage in a casing, pack them cold in a clean pint jar, upright, and as snug as you can get them without force. Use no liquid. If you use liquid, they will swell much worse, and some of the liquid will boil out during the processing, possibly resulting in an incomplete seal.

Wipe the jar rim with a clean cloth, put on lids which have been boiled in water and are still warm, then tighten rings down firmly. Process in pressure canner only for 75 minutes. If you use quarts, process for 90 minutes at 10 pounds of pressure. (If you're more than 2,000 feet above sea level, see your canning book for altitude adjustments.)

When canning bacon, it's best to use only lean bacon, either unsliced or sliced but kept in one chunk, and trimmed to fit into the jar you will be using, either pint or quart.

You'll find that wide mouth jars work best. Be sure to leave an inch of head room above the bacon. Pack the uncooked bacon in the jar snugly, then seal and process as above.

I've found it better to can sausage patties, rather than link sausage, just for visual effect. Besides you don't have to use casing if you are making your own from home grown pork or venison. Simply fry the patties lightly, browning them a bit. Add a small amount of water to the sausage fat. Lift sausage patties and stack to within an inch of the top of the jar. Then add about 4 tablespoons of the juice to each jar. Wipe rims, put on lids, and screw bands down firmly. Process pints for 75 minutes and quarts for 90 minutes. The basic pressure for all meat is 10 pounds, but adjust the pressure upward for elevations over 2,000 feet.

I have a couple of questions for you.

1. You often speak of buying #10 cans of items from a "preparedness company." I would like to do this, but where do I buy them? Is there an address I can order from?

2. I have chickens and a lot of eggs. Is there any way to dry eggs at home? I have used dried eggs at the store, but would like to be able to make my own.

Kathy Bower, Redfield, Kansas

#10 cans are the nearly-gallon sized cans of food found in larger supermarkets and restaurant supply houses in most cities. Most will also sell to private parties like you and me. Dehydrated foods are found on occasion in restaurant supply houses but



Jackie Clay

more often at preparedness companies, such as regularly advertise in *Backwoods Home Magazine*.

We also have chickens, but I don't believe there is a safe way to home-dry eggs due to the possibility of salmonella or other bacterial contamination. This goes for milk, as well. My hens generally lay all winter, but when they seem to be slacking off I gather several dozen clean, fresh eggs, pack them unwashed in cartons, and place them in a very cool area—refrigerator or back corner of a 40° winter pantry. These will nearly always last till the "girls" are laying abundantly in the spring. My dried eggs are on the shelf, just in case.

I would also like to answer the questions that Lisa Evers (p.81 of the July/August 1999 *BHM*) had on milk cows, as I feel her frustration. It read, in part:

I want to have a couple of dairy cows so that I will have enough milk for my family. How much milk will this one particular breed give me on a daily basis? What do I feed her/them? What kind of shelter do I need? What equipment do I need for milking? What about daily and annual care requirements? Where do I get all this stuff? I have been doing a lot of

research on the Internet, at the local library, new and used bookstores, have contacted various associations... and the only conclusion that I have come up with is that I am going to have to work damn hard, and will make a lot of mistakes simply because it is virtually impossible to find the needles.

Lisa Evers, Charlotte, NC

Lisa, having your own dairy cow is no where near as complicated as you may think. If it was, we sure wouldn't have a milk-cow-in-training right now (a two year old heifer). We have always had a milk cow or two, and we had many dairy goats at one time, which were as good as a cow for all dairy purposes.

My day with a cow goes like this: Morning, give hay to cow and clean up manure. In the winter she is kept in a stallion with a wood platform raised to allow an 18-inch deep by 18-inch wide gutter behind her to keep the urine and manure off her body when she lays down. Plenty of straw bedding keeps her comfortable. She goes out for exercise during the day, and returns in the late afternoon on all but the coldest, blizzardy days. I carry out two buckets, one with warm water and a clean cloth to wash her udder, and a larger stainless steel milk bucket.

After she is watered and her bedding cleaned, she is munching hay happily. I wash her teats with warm water and let them air dry while I get her grain and dump it into her manger.

Then I sit down on her right side, facing her side, lean my head into her warm belly and begin milking. The first stream from each teat is sprayed into the washing cloth to make sure there are no clots or blood streaks, which could indicate mastitis, a common dairy animal infection.

When all teats check out okay, I milk her, two teats at a time, in rhythm. It doesn't matter what breed of cow you choose, even a tame beef breed provides more than enough for family use. Pick one that you like and

is used to being hand-milked. When I have enough milk for my needs, I turn her calf with her to finish. Most of my cows will raise not only their own calf but at least three calves I buy at the sale barn each year, in rotation, as they are weaned. The benefit of having a calf available to nurse is that you don't have to be tied down to a milking routine. If you plan on going away for a day, just leave the cow in a pen with the calf or turn them out on summer pasture together.

The fresh warm milk is then strained, either through a commercial milk strainer (available at most feed stores or ranch supply stores) or a sterilized old tea towel (Don't wash them in scented detergent.).

The cow is milked morning and night. She is fed plenty of good grassy pasture, plus alfalfa or clover/grass hay in the winter, a dairy cow mixed ground feed or high protein sweet feed, depending on your preference. She needs access daily to a mineral-salt block. All feed and most equipment can be bought locally and relatively inexpensively.

Having any animal requires work, but a cow is *not* a big job and most folks find having one very relaxing. Besides, you will have homemade whipped cream, cheeses, butter, sour cream, ice cream, and even beef if you raise a steer calf each year to butcher when it is two or three. All will be much better than any store-bought products, and they won't make you glow in the dark. Plus you'll have manure to add to your garden's compost pile. Δ

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**SEND
IN THE
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KILLERS**

Three times the International Society of Newspaper Editors has included Vin Suprynowicz in their list of the 12 top weekly editorial writers in North America. For years his shoot-from-the-hip style has opened the eyes of thousands to government abuse of our liberties. In this book, Send in the Waco Killers, he blends material taken from his syndicated column with new commentary to give the reader a detailed, reporter's-eye-view of how the rights and freedoms of Americans are being subverted.

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Ayoob on Firearms:

Defending your lifestyle

I was sitting in the witness box, an expert witness for the defense, in a courtroom out west not long ago. The opposing lawyer was conducting cross examination, and not having much luck with it. It wasn't a case if "I was hot and he was not." It was a matter of the side that brought me in being right, and the side that hired him being wrong.

His law school tuition had not been wasted. He clearly remembered what the law professors and trial tacticians must have taught him. "If the law is on your side, argue the law. If the facts are on your side, argue the facts. If neither the law nor the facts are on your side, assassinate the character of the witness."

If the facts and the law hadn't been with the defense, I wouldn't have taken the case for them. I had known what would be coming. Fish gotta swim, dogs gotta bark, and lawyers with no case gotta do something they call "destructive cross." It's the nature of the beast. I don't hold it against them.

Having exhausted all meritorious questions and getting answers he didn't want the jury to hear, he played what he thought was his trump card. "Mr. Ayoob, do you write a column for a publication called *Backwoods Home Magazine*?"

My ears perked up. This was something new! I answered in the affirmative.

Then he got going on Y2K, the whole "survivalist" rant, and finished up by asking me if I trained people to prepare for "Armageddon." I laughed out loud, something I rarely do in

front of a jury, and explained that I taught people to be prepared for crisis in all its forms.

What the lawyer was trying to do was to take advantage of media distortions that have tried to portray people who practice self-sufficiency and crisis preparedness as either "the world is coming to an end" weirdos, or fanatical paramilitary militia types. It's a "dirty debate trick" called *argumentum ad hominem*. If you can't attack the man's argument successfully, attack the man.

He or one of his staff had apparently run my name through the Nexis computer to pick up work in print. If

Every now and then, they ask you a question that is their business. It helps to have the answer ready.

they'd actually read what I'd written in *BHM*, I don't think they'd have brought it up.

I don't have the transcript in front of me, but basically the repartee went like this. He was trying to paint me and anyone who prepares for crisis as some sort of Armageddon cult, and I was explaining that stocking up on food, generators, and defensive firearms in a time when the media is predicting massive shortages of food-stuffs, power outages, and breakdown of law and order, is simply common sense. I commented that keeping a year's supply of food on hand is considered standard procedure in certain cultures, from the nation of Switzerland to the Mormon church.

The lawyer winced. The trial was taking place in Salt Lake City. He



Massad Ayoob

realized he was ticking off the jury and making a fool of himself.

He made one last try, attempting to inveigle me into saying I thought every home should have an "assault rifle" or something to that effect. I replied that there was in fact one assault-related piece of gear I felt every home should have

for Y2K, and that he must have read about it if he'd been through my work in *BHM*.

His ears perked up. He looked like a fisherman who just felt a pull on the line. The lawyers on my side, however, looked worried as hell.

I explained that the piece of kit in question was a Rhodesian ammo pouch. It is designed to hold five magazines for a Belgian FN assault rifle, arrayed across the wearer's chest.

The jury was leaning forward intently. The cross examiner had a look of triumph on his face. The lawyers who had hired me went pale.

The reason for the Rhodesian ammo pouch, I concluded, was it was exactly the right size to hold five cold cans of your favorite beverage, leaving the sixth one in your hand. I explained that my plan for Y2K was to watch

the clock pass midnight, watch society not collapse, and open a cool one to toast the New Year at the first opportunity.

The jury burst out laughing. The defense lawyers looked like they were going to collapse in relief. The cross examiner's face turned a bright and angry red. The cross examination was done.

The plaintiff's case was in tatters. That night, the lawyer who had cross-examined me went to the ones who had hired me and offered to settle for chump change. The amount was so small that the insurance company insisted on going with the settlement. The lawyers considered it a victory.

So, what's the point?

Only this. There are a lot of people who can't tell preparation from paranoia. There are others who know the difference perfectly well, but for reasons of personal agenda will attempt to distort the truth.

Being prepared for any crisis, whether natural disaster or social upheaval, is as natural and logical as exercising and eating healthy foods.

Taking care of yourself physically doesn't mean you're a hypochondriac. Having fire extinguishers and smoke alarms doesn't mean you have a phobia about fire. Being ready to protect yourself and your family doesn't make you paranoid.

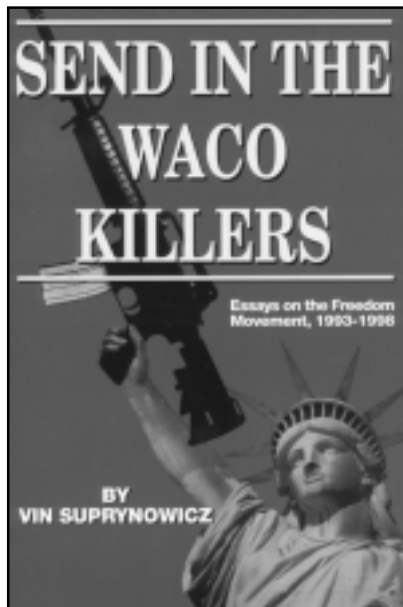
Whether the fight is verbal or physical, the first law of human conflict is to be able to predict where the attack will come, and already have a counter in place for it. If your lifestyle and values are subject to deliberate or accidental misinterpretation, be prepared to defend that lifestyle and those values as surely as you stand ready to protect yourself and yours.

(Massad Ayoob is the author of several books, including the authoritative text on deadly force, In the Gravest Extreme: the Role of the Firearm in Personal Protection. He is a police captain in New Hampshire, and is the director of Lethal Force Institute, P.O. Box 122, Concord, NH 03302, which offers training and judicious use of deadly force and firearms at locations around the country. He has won several state combat pistol championships and two regional championships, and he has published more than 2,000 articles on firearms, self-reliance, and law enforcement.)

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Practical livestock for the homestead

By Amelia Porter

Raising livestock is an integral part of the homestead experience. But newcomers often ask me, which livestock should I start with? The answer to that question is a very personal one, but I will say that in a small homestead situation (where space and financial resources may be limited) animals which can provide the greatest diversity with the least amount of feed and supplies are the most practical choice. It is also good to pick animals that will not require a beginner to learn too many new skills, that are inexpensive to set up, easy to handle, and cannot present a danger to your family. Here is a brief overview of a few animals that fit nicely into this category. We'll skip rabbits, an obvious choice, because *BHM* covered them last issue.

Poultry: No homestead is complete without some kind of poultry. Chickens, geese, ducks, turkeys, and guineas all offer some measure of diversity with little feed and care. Geese provide the most benefit for the least money, and so I will start with them.

Geese provide meat, eggs, down, feathers, and fat. The fat is used not only in lotions & soaps and for cooking, but also makes excellent lamp oil. The feathers can be used for making quill pens, toothpicks, and other small items. The real advantage to geese is that they are classified as a true grazing animal (the only one in the poultry world) which means that 95% of their diet is just plain grass. This makes their feeding and management very simple. Even in winter, geese will dig through the snow to get at the grass, providing the ground is not too frozen to allow for this. They will eat hay when fresh grass is not available, and will also eat grain. The grain is a good

idea if you want maximum production and growth rate out of your geese, but it is not essential. Domestic geese do not fly, so a 30" fence works fine for containment; and they don't scatter when you try and catch them, as other poultry will. They are not as prolific as other poultry, so you do need a pretty fair sized flock if you are raising them for meat, but what they lack in production they make up for in diversity. Not to mention the superior flavor of roast goose - yum!

Geese (like other waterfowl) do not require ponds or creeks as is commonly thought, but do fine with just a bucket of water tied to the fence. Be sure to tie it securely or they will tip it over in their zeal to play in it. Geese have no particular desire for shelter except the occasional shady spot in summer, windbreak in winter, and some secluded place where they can build a nest. The natural vegetation found on most farms provides for this just fine. Unlike most other poultry, geese are not bothered much by small predators such as skunks and raccoons, and only are vulnerable to these when young.

The picture in most people's minds of a loud and angry goose chasing someone or biting them is not as accurate as you might think. Different breeds and strains (bloodlines) of geese are more or less aggressive. The Oriental breeds, such as Chinese and African (recognized by the knobs on their heads), are the most likely to behave in this territorial manner, while the European breeds (no knobs) tend to be quiet, docile, and very polite. Crossbreeds between the two categories are often extremely aggressive while crossbreeds from within the same category tend to reflect the temperaments of their parents. If you are after very calm geese, I recommend purchasing them from someone who breeds for showing. While mass-pro-

duced commercial geese are bred with no thought given to temperament, geese bred for show are generally bred to be very docile, to put up with being confined in small cages and being handled by the judges during show season. Show-bred geese are also generally larger and have a better meat carcass.

Chickens and Ducks are next on my list of suitable poultry. Both of these require more protein than geese, and so need a lot of bugs, meat scraps, or a regular supply of grain in their diet. If you keep your poultry in an enclosed area, where bugs are in short supply, you can place a light bulb or lantern behind some screen at night and your birds will eat the bugs who swarm around the light. Chickens and ducks are both excellent choices for the homestead, providing meat, fat, and eggs. The tip of buying show-bred poultry does apply to all waterfowl (like ducks), but does not apply to chickens. Chickens bred for show are bred for things like feather quality and color, and often their good production qualities are sacrificed in the bargain. When buying chickens, try and find strains which have been bred for hardiness, good feed conversion, and high egg production.

Chickens are the trash cans of the poultry world, and will eat almost anything. By this, I don't mean just your garden waste, but the butchering waste, too. Chickens will eat road-kill right down to the bare bones. They will polish off melon rinds, old fruit, stale bread, sour or curdled milk, and anything else you toss their way. They also eat mice and snakes when they can catch them, a quality which some people appreciate. This opportunist's diet has no ill effect on them. In fact, studies have proven that chickens fed on a diet of 25% flies, 50% weeds, and 25% grain produce as many eggs

as chickens raised entirely on commercial feed.

While housing your chickens in a designated building at night does help with predator control and make it convenient to gather the eggs, a building of some sort is not strictly necessary. Chickens can roost relatively safely in trees and will find nesting spots around your yard. Once you discover where they are laying, simply replace the eggs you gather with good quality fake eggs (leave about six fake ones) and they will continue to return to the same nest each day to lay. If the nesting site your chickens have chosen is not convenient for you, simply remove all the eggs each day and they will choose another spot.

If you do opt for an enclosed hen house, there are a few things you should know. First of all, the beauty of a hen house is that chickens are creatures of habit. If you keep them locked up inside the hen house for a few weeks it will become their “home” and they will always return to it to sleep and lay their eggs. After the “training period” you can open the coop door and let them wander all over the farm, foraging bugs, and fertilizing before returning to their little home each evening. The convenience of this arrangement is that their eggs will always be within easy reach and the chickens will not be as vulnerable to predators at night. It also makes things much more simple on those rare occasions when you actually need to do things to your chickens, such as clip their wings or claws (both optional procedures). Chickens can be caught and handled quite easily when they are “roosting” (asleep) at night and so this is the time for such tasks. Trying to catch chickens in the broad daylight is often futile and only serves to stress them out, which reduces egg production.

If you are planning to build a chicken house, I would strongly suggest that you construct it in such a way that the nest boxes and feeders/waterers are accessible from the outside. This

arrangement prevents you from having to walk in all the poop and dust which accumulates at an amazing rate in a chicken house. The nest boxes can be situated at almost any height, but I have found 2 ½ to 4 feet to be a happy compromise between ease of egg gathering and comfort for the chickens. It is Murphy’s law that you will always have a few rogue hens who will lay their eggs on the ground, and so it is good to have a solid board of some kind placed directly below the nest boxes, preventing their access to the area directly below the nest boxes.

Your nest boxes should be filled with something that will keep the eggs clean and protectively cushioned. Most people use straw or hay for this purpose, but I have had much better luck using sand. The sand keeps the nest much drier than straw, which in turn keeps the eggs cleaner. It also stays to the bottom better, so there is less chance of breakage. Your chickens do not need to see inside of their nest boxes, and I have found that keeping them a bit dark (by using a fabric door flap) helps to cure egg picking.

A chicken house needs to be designed with plenty of ventilation because chickens are very vulnerable to respiratory ailments when they must breathe stagnant air. Constructing the off-wind side wall completely out of mesh helps a lot with this problem. Chickens are not terribly sensitive to cold, so leaving their house open on one side should not bother them, but in extremely cold climates you may have to take measures against frostbite on their feet and combs.

If you are planning to confine your chickens to an enclosed pen, you will most likely have to clip their wings to teach them not to fly over the top. Even with clipped wings, your fence should be a good six feet high (or more) because chickens fly much better than most people realize. In fact, it is not at all uncommon to see chickens

roosting on the farmhouse roof. Clipping a chickens wings, when properly done, will not harm them and the feathers soon grow back. If you clip both wings as far back as possible (so they can not fly at all) it will teach them that escape attempts are useless and you will probably never have to clip their wings again. Once in awhile, you will get a clever chicken who tests the fence after her wings have grown back. If this happens, catch her quickly and clip her wings again. If you don’t do this immediately she will teach the others her mutinous ways and before you know it you will be forced to clip the whole flock on a regular basis. One final note for the beginner: You do not need a rooster to get eggs—the hens will lay them either way. But you *do* need a rooster to get baby chicks. Borrowing a neighbors rooster for about two weeks will provide enough fertile eggs for a nest of baby chicks, but that may incite a few squabbles over pecking order.

Ducks are better than chickens when it comes to thriving in horrible weather, and are less vulnerable to predators since they don’t roost (or sleep) at night. They are also wonderful year-round egg layers. In fact, egg-bred ducks consistently outperform chickens in this regard—a distinction that few people are aware of. Ducks are not as efficient as chickens at converting feed to meat and eggs, and so are a bit more costly to raise. They are also more messy, but make up for this by being such wonderful natural parents. Since ducks do not roost at night like chickens or herd like geese, catching them can be a real adventure. Requiring them to walk into an enclosed small pen to access some grain each evening is effort well spent when it comes time to grab one. This also is handy when you want to gather their eggs - just shut the gate and leave them there until early afternoon when the eggs have all been laid. Like geese, ducks do not need a body of water to swim in. A simple bucket or

dishpan will meet their requirements, but a child's wading pool will provide them (and you) with hours of amusement. Just be sure and situate it so that it is easy to rinse out and refill, because you will be doing this often.

Sheep: Providing perhaps the greatest array of products for the least expense in feed, sheep are an excellent choice for the homestead. They provide meat, bone (buttons, small tools), milk (soap/skincare/paint ingredients/food/beverage), pelts, leather, wool, gut (string), and lanolin (water repellent/skin care ingredient). They also can be trained as beasts of burden for pulling carts and packing small loads. I once saw a full sized carriage being pulled by eight stout sheep. Better yet, the sheep were all wearing hats. Although cattle provide many of the same benefits as sheep, their size, strength, and reproductive limitations make them less practical for the small homestead. In fact, out of all the large meat animals, sheep are the easiest and safest to work with. They are easily trained to come when called, and can be moved around quite easily using only your voice and presence. This is better for the sheep, too, as it stresses them less than a herding dog would.

Sheep are very predictable animals, and once you learn their particular idiosyncrasies you can make them do almost anything. One example of this is that because sheep do not see very well, a shadow on the ground can be mistaken for a ditch or a stream. Using shadows, then (cast by sheets thrown over the fence) is a handy way of being able to influence which path a sheep will take. Sheep also move away from darkness and toward light, away from movements or noises, toward other sheep, and tend to bunch up in corners. Understanding these and other tendencies can make working with sheep a relatively simple task.

Sheep are another grazing animal, so their food is easy to come by in any season. They will fatten on grass

alone, and have one of the lowest nutrition requirements of all domestic ruminants. Sheep are easily contained, very quiet, gentle enough to be worked by older children, have minimal care requirements, and do not jump, climb, dig, tear, or chew their way out of pens like their Caprine cousins (goats) do.

Nowhere else in livestock will you find a greater diversity among breeds than in sheep. There are breeds that have no wool at all—only short hair, and breeds with wool so long it drags on the ground. There are sheep which produce dairy-quality milk in abundance, sheep which produce whole litters of lambs rather than singles or twins. There are stupid sheep, clever sheep, tiny sheep (60 lbs.) and tremendous sheep (300 lbs.), and the list goes on and on. With such mind-bending diversity available in this lone animal, there is undoubtedly a breed suited to your personal needs and preferences.

One note of caution: If you have a lot of potential hazards on your property that can't be fixed, don't pick a stupid sheep. A primitive breed (Mouflon, Romanov, Jacobs, etc.) will be better able to figure their way out of a problem situation. Case in point: I've had many commercial meat breeds manage to get their heads irreversibly stuck in the fence mesh, but never have had a primitive breed do this. Something to consider.

If you have decided to go with sheep, you won't need to buy a lot of special equipment for them. They appreciate a roof over their heads from time to time, but can also find decent shelter in a grove of trees. An assortment of small pens or portable panels are handy for moving and working with sheep, and for providing newborns with a private place to get to know mom for the first few days. Young lambs should have some place to get out of heavy rain, and newborns require a draft-free area in winter months. It is nice to have some bottles and feeding tubes around for weak or excess lambs. Milk replacer that is

specifically formulated for sheep is a wonderful and worthwhile convenience, but not essential as you can always milk your ewes or other dairy animals.

Sheep are great wasters of hay if it is not kept up off the ground, so you'll want some type of hay feeder. Do NOT use hay nets for this purpose, as they are like magnets to lambs with suicidal tendencies. You'll want some iodine for the lambs navels, a castration device for your ram lambs (not essential, but makes management much simpler), and some goat-style hoof trimmers. Like other hoofed stock, sheep need loose minerals available to them at all times. Many people keep some corn or other grain on hand for lactating ewes, although if your pasture is good and you breed late (Dec/Jan) this is not essential.

Goats: Whenever the word "homestead" gets mentioned, people think of dairy goats. And rightly so. Although a tad more difficult to manage and offering a bit less in product diversity than sheep, goats are still the most popular of all homestead hoofstock. Their inquisitive and comical personalities probably are what gained them this position, but their wonderful production qualities are what has kept them there.

While goats do provide most of the same products as sheep (meat, milk, leather, bone, horn, fiber, strength), they are best known for their milk. Despite its reputation, when properly handled, goat milk tastes just like cow's milk and most people can't tell the difference. That gamey, sour tasting stuff you buy in the store should not be confused with normal, home-grown goat milk. The store bought milk is processed differently, and often comes from goats bred for making cheese, since they generally have the highest production efficiency. The natural "tang" from a cheese-bred goat is not a flavor that most people prefer in their table milk, but the larger dairies go with what is the most profitable for them.

Many people reject the idea of dairy goats for their homestead because either they are allergic to milk, don't like the idea of being tied down to milking every day, or don't feel they could ever use the sheer quantity of milk that comes along with keeping your own dairy animal. Let me start by saying that goats are useful for things other than just producing milk meat. For one thing, goats are terrific at clearing brush. They will eat bushes, trees, weeds, sticks, poison oak, thistles, and anything else that gets in their way, but will not damage the grass. Many people buy goats just for clearing pastures. Goats are also very strong and easy to train. They can carry moderate loads on their backs and will also learn to pull carts and wagons. In the old days, people sometimes rode to town to do errands in their goat carts, and today many people use goats as pack animals. Photography buffs appreciate that wild deer can often be approached without frightening when accompanied by a goat. Goats also make wonderful companion animals, and will befriend a lonely horse (or anything else), and make excellent pets for children. Many goats will "adopt" other animals, and so can be used to raise orphaned lambs, calves, foals, and other livestock. These "orphaned" animals can often be gotten for free (or very little) from livestock auctions and farmers, so having a nanny goat around can be quite profitable. Long-haired goats provide the finest quality fiber for spinning and making into clothes (cashmere & angora are both produced by goats), and buck goats will fight off coyotes, within reason. Like all livestock, goats provide fertilizer for the garden, and let's not forget the most important thing goats can produce—baby goats!

As far as the objection due to a milk allergy goes, people who are allergic to milk & dairy products usually are not bothered at all by goat milk or goat's milk products. In fact, most of the people who own dairy goats got

started because they (or a family member) were allergic to milk. If you have an infant who is allergic to breast milk, cows milk, or is having trouble with formula, try goat's milk. It often provides a nutritious and inexpensive solution.

To answer the concern about having too much milk, I will tell you that everyone who owns a dairy animal thought this at one time. However, once you discover all the uses there are for milk, the problem becomes never having *enough!* That's one reason most goat owners end up buying several more goats. Goat milk is not just used for drinking. When you have an abundant quantity, you find that milk is handy for making soaps, cosmetics, and durable paints, great for removing stubborn odors from clothes (use it in your pre-wash), can dramatically cut the cost of feeding other homestead pets and livestock (milk-fed chickens taste superb), and the list goes on and on. Also it takes a lot more milk than you might think to make cheese. Depending on the type of cheese desired, it can take as much as two gallons of fresh milk to produce just one cup of cheese. Milk is also a great commodity for bartering. Once your friends and neighbors discover how delicious and healthy fresh goat milk can be, they will be calling you for a supply. Homegrown goat's milk usually sells for around \$5 a gallon these days, so extra milk can also provide a side income. In many places, pasteurization is required by law before milk can be sold to the public for drinking. It is simple enough to pasteurize the milk yourself (just heat it to 190 degrees), but most of your customers will want the milk left raw as it is much healthier for humans in its natural state. In this situation, simply label your milk "for pet use only" and don't ask questions about how they intend to use it.

Processing your milk into cheese is not as difficult or time consuming as people think. In fact, the part that takes the longest is letting it sit undis-

turbed. The actual work involved in cheesemaking only lasts for a few minutes at a time. The type and taste of the cheese depends on which culture you use, how you season it (salt, herbs, etc.), how long you let it sit, and whether or not you "age" it (leave it in the root cellar).

The setup for making cheese and other products does not require any major expense for equipment. While home dairying is a little bit easier with the proper tools and supplies, the things you already have laying around your house can make do—and pretty well, at that. Old plastic pitchers make satisfactory milking buckets, Clorox disinfects almost as well as dairy cleanser, garden shears make excellent hoof trimmers, coffee filters or cloth can be used to strain milk, and the most popular cheese press is still made out of a coffee can fitted with a wooden disk. If you want to be really proper and use all stainless steel or glass, your kitchen pots and pans, mixing bowls, and spoons and forks can do most everything necessary. The only item that is truly essential is a good dairy thermometer. If I were to suggest one more item to purchase for the home dairy, it would be a proper milk strainer with a supply of disposable filters.

Despite all the benefits a dairy goat provides, many people still rule them out because they don't want to be tied down to the chore of milking every day. While it is true that a doe in full lactation does need to be milked once or twice daily, there are creative ways of accommodating this that do not involve *you*. Personally, I always try to keep around some nursing lambs, puppies, kids, calves, etc. who can take over the chore if I'm not going to be home. This requires an obliging goat of course, but they are not too hard to train. The best breeds for accepting stray infants seem to be Toggenburgs, LaManchas, and Angoras. Neighbors and other goat keepers are surprisingly willing helpers, too, since they usually are

happy to do the milking occasionally in exchange for the milk they receive. Another factor is that dairy goats do not always need to be milked regularly. How the goat regulates her production is up to you. You can keep a goat in production all year, or just for a few months, or not at all. And the amount of milk she gives can also be regulated according to your personal needs by varying your feeding program or the time period between milkings.

If you are planning on customizing your goat's milk production, I would recommend choosing an individual from one of the Swiss breeds who was bred for a long lactation cycle, and avoiding Nubians altogether. Nubians are very sensitive to changes in their upkeep and will tend to dry up on you if they are tampered with too radically, whereas a goat bred to have a long lactation cycle is often difficult to dry up, even if trying. It is this quality that makes a goat more agreeable to changes in their production output.

Goats are famous for getting out of pens and that reputation is well earned, but you can keep them confined quite easily if you simply realize that: (a) goats love to climb, (b) goats love to jump, (c) goats love to squeeze under things, and (d) goats love to eat most common building materials. This may make keeping goats confined sound like a difficult task, but problems only arise when people don't consider their goats natural "Houdini" talents. Very effective pens can be built out of woven wire, chain link, solid wood, picket type fencing, or horse panels. The best goat pen I ever had was built out of old wooden pallets that I got for free. Most goats will stay in a three and a half foot fence, and all goats will bother your fence less if they have plenty of room, and something fun to climb on inside the pen, such as a wooden spool, some logs, or an old truck tire. If you're still worried about fencing, you might consider one of the breeds with less of an inclination to escape, such as Toggenburgs.

Goats do require more protein in their diet than sheep or other ruminants, so you will need to keep them on a comparatively rich diet. Alfalfa or clover hay, leafy brush, and legumes such as soybeans work fine for this. Grain is frequently fed for optimum milk production. Unlike sheep, goats are browsers rather than grazers, meaning that most of their diet consists of the richer foods, such as broad leafed weeds and tree leaves. For this reason, you can not expect a goat to stay content in a pasture filled with grass alone.

Pigs: Because of their size, strength, and characteristic odor, pigs are not an animal that I am inclined to recommend as the first choice for a beginner. Better to start with something like rabbits or chickens. But pigs are so practical that I would be cheating you if I did not at least give them a mention. Like chickens, pigs will eat almost anything. God has designed the pig to excel at this, by giving it a physiology that compensates for unorthodox feeding. When fed insufficiently, pigs will be just as healthy, prolific, and content as properly fed pigs—they will just be smaller. Because of this, you can responsibly raise a pig on pretty much whatever you have a surplus of. You can also let them roam free and fatten on your pasture, but this method requires you to fence them out of other areas, such as your garden and chicken coop (they will eat small animals). This ease of feeding, coupled with their large litter size and minimal space requirements are what has made keeping pigs one of the staples of homestead living. Pigs are year-round breeders, who give birth to some 8 to 14 babies per litter, sometimes even more. They provide meat, bone, a tough and versatile hide, and a great quantity of useful fat. Although pigs are capable of inflicting fatal injuries on humans, they are normally very docile and affectionate creatures if raised properly. In fact, pigs (who are highly intelligent) can be trained as beasts of burden, hunting

companions (scent), or reliable guard animals.

Because pigs do not have sweat glands, they must regulate their body temperature by keeping wet during hot weather. Often the only "wet" spot a pig can find is a pool of mud. The resulting necessity of "rolling in the mud" has led to the image of pigs as dirty animals, when in fact they are very clean animals if given access to streams or other renewable sources of water.

Pigs are outrageously strong animals, so strong that they can root your fence posts right out of the ground. This quality makes them very difficult to keep confined. To fence pigs either in or out of an area requires very stout fencing that is solid all the way down to the ground. If they can get their mighty snouts underneath any part of it, they will pull it up and out of their way with a lack of effort that will astonish you. Electric fencing works tolerably well for pigs when it is strung in several levels, beginning close to the ground. Concrete block and steel rail fencing posted in cement are both used frequently. Putting a ring through a pig's nose will solve the problem of digging under fences, but unfortunately will prevent them from foraging food, too. A happy (meaning well-fed) pig is usually content to stay in its pen once it has reached adulthood, so the trouble of confining a pig is at least short-lived.

The only other drawback to keeping pigs is that they are difficult to restrain bodily for vet care or routine management, so some skills in this area will need to be acquired before the beginner can safely handle them. Pigs are also capable of exchanging certain illnesses with humans (they can catch your cold, and visa versa) whereas most other animals are not.

Practical advice

Well, that concludes my discussion of practical homestead animals. I feel obligated to add a few thoughts on

disease control because the vast quantity of books out there frighten many people with their warnings about disinfecting everything from your cages and pens to your boots and feed tubs. What you need to realize is that the majority of books available on livestock care were written with the large commercial operation in mind, or were based on the information found in such books.

In a homestead situation, you are keeping only a few animals and they are not subjected to the overcrowding, horribly filthy conditions, high turnover, and stresses associated with commercial establishments.

Because of this, you don't need to worry about disinfecting everything your animal comes into contact with any more than you would worry about disinfecting your children's hairbrush and schoolbooks every day, or spraying down the walls of their bedrooms. A healthy animal's immune system will keep them from getting sick from the germs commonly found in their surroundings, and through constant contact will actually build up a resistance to the illnesses.

There are, of course, exceptions. Occasional disinfecting of pens and cages is good management, and specific contagious ailments will sometimes get into your livestock that do need to be carefully controlled and prevented from spreading. These specifics will be addressed in the various livestock books, but for now, simply know that any area that is clean enough for you to be comfortable in is probably clean enough for your animals. If you keep the accumulated poop to a minimum, have fresh food, water, and dry bedding available, and a roomy well-ventilated area for them to live in, you should not need to worry about constant disinfecting.

A word of wisdom: Don't try to get all your animals at once. It takes some time to become proficient in most husbandry skills, and Murphy's law dictates that sometimes everything will go wrong at once. When this happens,

it is best if you are experienced enough with your animals to be able to do things quickly. Speed comes from practice, and so it is best to limit your animal varieties until you have had time to gain some level of proficiency in each one. I have been keeping animals for over 30 years. Once I went on a vacation overseas and left my farm in the care of a young couple who loved animals but had very little experience. I left them a detailed list of my normal routine, and walked them through everything the day before I left. My normal daily livestock chores took me about three hours. After a week in Europe, I phoned home to see how things were going. The young wife told me that she was slaving all day long, and her husband had had to quit his job to help her because there were not enough hours in the day to keep up with everything. For me, this same load had taken three hours. I relate this true story to make a point: People who fill their whole farm with new critters are often unprepared for what can happen when the work load is suddenly shifted because an animal gets sick or injured, or escapes, or gives birth, or some other very common occurrence. Please be kind to your animals and yourself by not biting off more than you may be able to chew. Animal skills are not acquired overnight.

When researching breeds, *do not* overlook the minor breeds. These are the heirloom foundation stock that today's commercial production ani-

mals descended from. As a group, they are much more hardy, and are generally better suited to the needs of a small homestead.

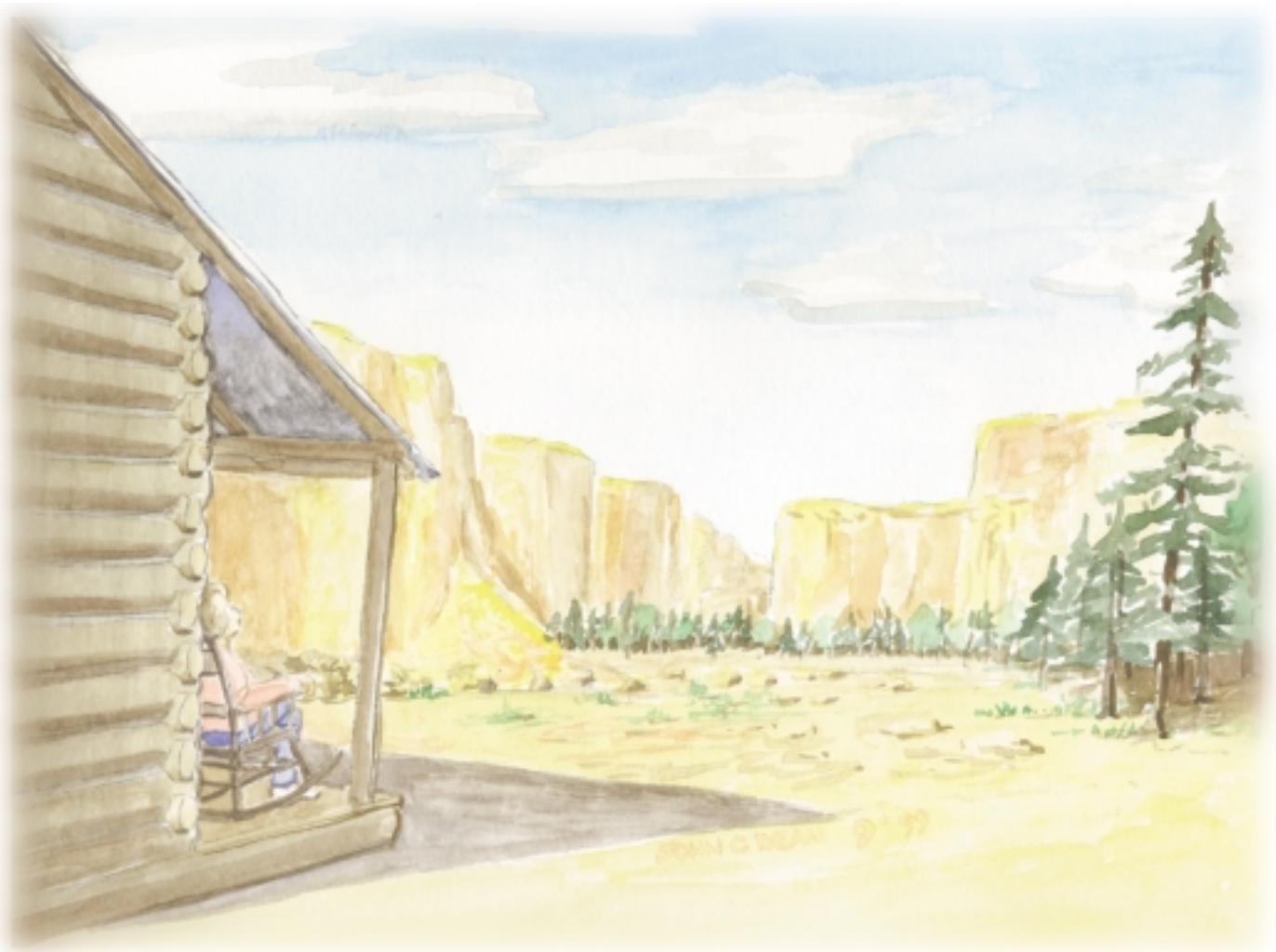
Today's industrial livestock breeds were carefully engineered to deliver the greatest possible production yield in a carefully controlled environment, but in achieving this goal, the natural stamina and vigor had to be sacrificed due to excessive inbreeding. This is one reason why commercial farms of today keep all their animals on maintenance antibiotics. Many of the modern breeds have brittle bones, low fertility, birthing problems, poor maternal instincts, respiratory and organ weakness, poor foraging ability, and little resistance to diseases and parasites.

The traditional heirloom breeds, however, are the same as they were when our great grandparents depended on them for life. This is why most savvy homesteaders are going back to the minor breeds when choosing livestock. This just might be a good idea for you, too.

For more information, consult the various livestock associations and clubs as well as a number of books, and talk to as many experienced stockman as you can. Since there are as many successful methods for keeping livestock as there are successful livestock keepers, gather an abundance of information and then pick and choose those techniques which are best suited to your lifestyle. **Δ**

If you enjoyed Amelia Porter's animal advice

you can find more of it in [Boston on Surviving Y2K and Other Lovely Disasters](#) from Javelin Press. She wrote chapter 18, a 44-page guide on choosing livestock for a survival crisis. The book has been cited by reviewers as the best disaster preparedness book on the market, exhaustively covering everything from generators to dental health in an informative yet engaging style. The author provides thorough research about all of the products and procedures one might need to become entirely self-sufficient. Phone numbers and resource lists are also included. This excellent book retails for \$22, plus \$3 S&H, but you can order a copy directly from Amelia Porter for only \$17, plus \$3 S&H, or two for \$32, plus \$3 S&H, by writing to her at P.O. Box 31M, Ignacio, CO 81137. To get this special price, make checks and money orders (or send cash) to Amelia Porter. No credit cards. Amelia's special discount for *Backwoods Home* readers will allow you to purchase any of the Javelin Press books for \$3 off the retail price when you mention her name and this article. You can visit the Javelin Press website at: www.javelinpress.com to learn more about this and other Javelin titles.



Reflecting on a life in the woods, and
LOOKING AHEAD

By Marjorie Burris

It is a good life here on the old homestead. We've worked hard, and we are enjoying the fruits of our labor. It was tough digging the holes in our hard, rocky ground to set our six solar panels, but they make enough electricity to power lights and a big refrigerator with a freezer. It has taken years, but we've finally worked enough humus into our sticky clay garden to make some lovely friable

loam. And it took a lot of pruning and fertilizing, but we've managed to revitalize our 100-year old orchard to the point where it bears bushels of some of the tastiest apples we've ever eaten. Now, another harvest season has almost passed, and the cozy snowed-in days of winter are coming.

We haven't done haphazardly what we now enjoy; we've planned all along the way, and planning for the years ahead will make these coming years fruitful too. In planning, we divide our jobs into three categories:

1. Those jobs which are necessary for our survival, such as plant a garden, cut firewood before the snow piles up, clean the stovepipe, and cut the weeds around the house that harbor rattlers.

2. Those jobs which help to make us comfortable, such as add to our solar system, perfect our water system, finish building our new house.

3. Those jobs which enhance the property, such as replace some of our old apple trees, add to our irrigation system, paint the barn.

When we think of the jobs to be done in the light of these priorities, it is easier to decide where to start first, and how much effort we need to apply to get the job done. Husband and I are both eager to finish our new house, but because it is a second priority job, we know it will be at least another year in the building. Our old log house, about 1903 vintage, is a roof over our heads, but that roof is getting very leaky and just a little patch up work here and there won't do anymore. We need to tear the whole roof off and start over, but that isn't wise as long as the foundation is settling into non-existence. That leaves us at the beginning of a house, which meant a new beginning on another house was the better choice. In the new house we are installing propane heat, with a wood-heating stove as a back-up. We are getting too old to cut the 17 cords of firewood we need every year to heat and cook with in the old house. Our concession to fossil fuel heat was a necessity brought on by old age. It was either make our life easier here or move to town. We couldn't bear the thought of going to town.

Planning has helped us to take into account our age and energies, then to prompt us to get up and do more than wishful thinking.

We are grateful we have been able to live a simpler life here in the backwoods. I've noticed how our sense of values has changed over the years. I no longer see a woman's big diamond ring, or a man's hand tailored suit, or the fancy car they drive. Frankly, those things don't interest me. But I do appreciate a bone-warming fire on a cold winter day, a drink of pure water from our spring, the juicy tomato just picked out of the garden.

We no longer even want to go to a movie or a play; it is more entertaining to sit on the front porch and watch the animals, both wild and tame, play. Animals play? Yes, they do. Even the birds play. We didn't know this until

we lived in a place where we could watch them.

For us, it would be a waste of time to go to a gallery to see painted landscape scenes. Every morning we get up and look out our front window on one of the prettiest scenes imaginable. The almost vertical, rocky sides of a mesa rise up on three sides of us, enclosing us in a box canyon. Trees, pines, junipers, oaks, walnuts, box eider, with leaves of every hue of green, dot the cliffs, softening the steepness with their branches. When the first rays of the rising sun touch the trees and the rocks, they turn everything a rich, breathtaking gold. In the evening the setting sun filters through the trees, back lighting them, making them throw longer and longer shadows. In the winter, snow makes a christmas card of it all.

Also, Husband and I have learned to appreciate one another more fully. Living as we do, we depend on one another much more than we ever did in the city. Our tasks compliment one another. I cook, he feeds the cows. I sew, he saws the boards. I hoe the garden, he runs the backhoe. It takes us both to get in our supply of winter wood. It takes us both to lift the big rocks we need to build a wall.

And it takes us both to put up the siding on the walls of our new house. Not to mention, we keep track of one another's welfare; so many accidents can happen with our active lifestyle, it is comforting to know that someone who cares is about to check on you.

We appreciate our surroundings, our home, our companionship. Whatever happens in the future, we will always have the sweet memories of our present life.

We would have an empty feeling if we thought all our work on this old place was for the benefit of only the two of us. Through the years we have learned how to do so many things the "old timey" way and most of it had been learned through trial and error, tears and frustration. We don't want

those old ways, and especially the old attitudes, to be lost in time. We want to share what we have learned, what we have accomplished.

Fortunately, our three sons and their families are interested in taking up where we will leave off. But it is not just family we have thought about. When we were younger and up to the emotional challenge, we would take other boys into our home for a summer, boys who needed to be away from the influence of a city gang, or who were becoming rebellious at home. Almost always, at the end of the summer a counselor or a psychologist would call us and tell us what a difference they saw in a boy after he had lived awhile on the old homestead. We think it is the "can do" attitude the boys developed after being in a rustic, remote place where they were encouraged to fix machinery, mend fence, build a shed out of materials at hand, and using their own ideas. Now, our own children are bringing their children to the homestead to learn the same things.

We don't know whether these young ones will ever live in the country or not, but if they feel capable and confident, they will do well wherever they decide to live. This, we hope, is our legacy.

I'm looking forward to the year 2000—there's so much yet to do. Robert Frost, the New England poet who wrote about simple country things, must have felt the same way when he wrote the poem "Stopping by Woods on a Snowy Evening." The first part of the poem tells about an evening when he was riding his horse home through the woods and it began to snow. It was so lovely, he had to stop awhile and watch the snow as it piled up on the tree branches. But in the last stanza of the poem he explains why he goes on:

**The woods are lovely, dark and deep,
But I have promises to keep,
And miles to go before I sleep,
And miles to go before I sleep. Δ**



MEDICAL KITS

for self-reliant families

By Jackie Clay

There may be a time, as close as tomorrow, when your loved ones need medication or medical treatment and there is no drug store open or doctor available. This may be as simple a situation as a head cold coming on during a weekend night, or more drastic, such as nothing available after a civil or natural disaster.

Family medical kits

Here at home, we've always had a medical kit. Several, in fact. One is quite large, made up of a poly box, originally designed as a field box for trap and skeet shooters. This "drug store on wheels" is a well-packed medical utility box that will handle nearly everything from a cold to

severe lacerations. This one we carry when traveling in remote locations.

But while it is loaded with most medical needs, far surpassing a first-aid "kit," it is heavy, weighing over 30 pounds, and it is not something we carry for short trips, pack in our canoe, or carry on horseback.

An intermediate kit is lighter and fits into a flat, moderate-sized fishing tackle box. While this does not contain such a wide variety of medical supplies and medications, it is a very well thought out first-aid—and then some—medical kit. This is light enough to pack in the canoe (if we don't foresee many lengthy portages, when every ounce counts), with camp supplies on a horse packing trip, or small enough to take up little room in the truck.

Besides this kit, we also carry a small first aid kit under the seat of the

truck and Suburban, containing bandages, antibiotic ointment, burn medication, sterile gauze, tweezers, aspirin, sterile eye wash, and cold tablets for ourselves and our eight-year-old son, David. In the glove box is a smaller snap-open plastic box with Bob's oral diabetes medication, my blood pressure pills, and a few aspirin. This has come in handy many times when someone forgot to take prescribed daily medication or a headache suddenly popped up. As the glove box does get hot during the summer, this small stash of meds is rotated routinely to make sure the strength does not fade.

Learning to use your kit

No matter how comprehensive your medical kit is it can be useless or even harmful if you do not know how to use it safely. You don't have to have

SUGGESTIONS FOR YOUR MEDICAL KIT (LARGE)

ITEMS

thermometer
aspirin/Tylenol
zinc lozenges
cough/throat lozenges
antifungal medication
antibiotic ointment
eye medication
oral expectorant
burn medication, such as Burn Free
oral electrolytes
rolls of 2" sterile gauze
several packs 2" sterile pads

rolls of elastic leg wrap

rolls of sterile cotton
alcohol, soap, Betadine
oral antidiarrheals
any family daily meds
oral antibiotics/sulfas
injectable antibiotics/sulfas
injectable ephinephrine
injectable antihistimine
surgical instruments, such as
 forceps, needle holder,
 scalpel w/blades, scissors, etc.
assorted sizes suture material;
 absorbable
stethoscope
sterile needles and syringes
sterile IV kit (if experienced)
IV electrolytes
first-aid manual

USES

detecting fever
fever/pain
head off colds/flu
comfort with colds
fungus infections of the skin
heal cuts/abrasions
infections/irritations
clear lungs, reduce coughing
reduce severity and pain from burns
treats dehydration
covers wounds, control bleeding
covers wounds, gauze controls bleeding,
 holds medication in place
supports sprains, holds meds in place
 controls bleeding, protects legs
cleaning area, controls bleeding, etc.
cleaning, disinfection, wound healing
treating moderate diarrhea
maintaining health
treating systemic or local infection
treating systemic or local infection
shock, as in drug allergy
allergies; bee sting
facilitate minor surgery

allows suturing of gaping wounds

monitoring vital signs
giving injections
makes IV injections possible for severe dehydration
severe dehydration, shock
instructions

Of course your family's personal medical kits (small, medium, and large) will probably contain different items, depending on your foreseeable needs, medical experience, and preferences. And you will probably think of many more items that would be provident to carry, especially in your large kit. There are no hard and fast rules, only suggestions. The main thing is to be prepared-and confident.

extensive medical treatment to handle most emergencies that occur in real life. Most of ours consist of splinters, minor cuts and scrapes, sprains, and an occasional head cold or the flu. While these are scarcely life-threatening, they are uncomfortable and the afflicted party sure appreciates quick, competent aid.

Our family is lucky; I have spent a lifetime as a veterinary field technician riding on calls and acting as an assistant on everything from broken

legs to pneumonia. Bob is a Certified Nurses Assistant (CNA) with additional military medical training in Vietnam.

But you'd be surprised at how much free medical training is out there for you to pick up. Many communities provide first-aid classes, including invaluable cardiopulmonary resuscitation (CPR) training.

During these classes, ask questions to boot up the amount of knowledge you receive. Attend volunteer fire-

men's training sessions, as available (again, ask around). Ask your veterinarian if you could accompany him/her on calls one or more days a week free in exchange for the knowledge you gain. Yep, I know, they're animals, not people, but basically, a mammal is a mammal, especially when it comes to shock, wounds, and common illnesses such as pneumonia.

Pick up a good first-aid manual (which should be in your large medical kit at all times) and a book or two

from a preparedness company which details medical treatment when no doctor or dentist is available. Then *read* these manuals carefully. I know they're not great reading, but they can save someone's life. Share the reading with your spouse or older children, and even practice at home. It can be interesting, learning to suture gaping wounds on a piece of that chicken you're having for dinner. After it's butchered and ready to cook, of course. I'm not that morbid.

Real life medical treatment basics

While some survival first aid manuals assume your family's injuries will need treatment for nuclear blast and gaping wounds, in reality most will be of a much more mundane level no matter where you are, from arctic tundra to urban sprawl. They will consist of minor cuts, scrapes, slivers, blisters, the flu, colds, a fish hook in the skin, etc. We have lived for years in very remote locations and, although the worst injury any of us sustained was Bob's green stick fracture of his leg in a snowmobile accident, the most painful was my severely sprained ankle, suffered when I missed a step going downstairs in our farmhouse in "civilization."

Let's look at some real-life possibilities and what to do about them, assuming that there is no doctor or hospital available. Remember that if trained medical help is available, one should always consider this course first as many conditions can be made worse by incorrect diagnosis and treatment.

Hypothermia

Believe it or not, hypothermia (the condition where the body temperature is lowered below normal) kills more people in survival/stress situations than does gunfire, wild animal attacks, poisonous reptiles and spiders, wounds, or drowning.



The large medical kit is portable. We carry it on all remote trips.

Hypothermia has many causes, from shock following an accident to remaining outside in cold weather without adequate clothing or shelter to getting dunked in icy water—even for short periods of time. It is definitely something to watch for in any survival situation.

Identifying hypothermia can be a problem with the uninitiated, as it comes on slowly and the person still can walk and talk. But by paying careful attention, one can usually notice body shaking, paleness, and a tendency toward poor judgement and/or speech that doesn't make sense.

Taking the victim's temperature, you will quickly see that it is subnormal.

Hypothermia must be treated vigorously and immediately. Warmth is the key. As the body has lost its ability to warm itself, simply putting a blanket around the person is not enough. Build a warm fire. If the victim is wet, get them into warm dry clothes quickly. Warm a blanket or sleeping bag, then wrap it around them while they sit or lie in front of the fire. If they are not too bad, a drink of warm coffee or tea often helps. But do not give anything

to eat or drink to a victim that is dazed or unconscious.

If nothing else is available, have one or more persons crawl into a sleeping bag or blankets to provide bodily warmth to the victim. Then keep the person warm and dry until they are fully recovered. You don't have to be a mountaineer to suffer hypothermia. I have had several encounters: falling through thin ice while crossing a beaver dam, getting stuck out in an unexpected blizzard in June, and getting drenched in the rain while making a mile and a half canoe portage in Minnesota's Boundary Waters. Hypothermia can be just plain uncomfortably miserable, but it can also kill.

Wounds

Most wounds that folks suffer in a survival situation are relatively minor, and though they may be uncomfortable and even bleeding, they are not usually life-threatening. The thing is not to panic. A little blood looks like a lot, especially when it is on yourself or a loved one.

If the wound is combined with possible other injuries, such as following a tumble down a rocky slope, you have to first assess the possible dam-



Our medical kit comes in handy in daily life, from cuts to colds.

age. Could there be a broken bone? A concussion? Internal injuries?

Don't panic. However, if you suspect such complications, do not move the injured party unless absolutely necessary, and then do it with great care.

Talk to the victim. He can usually tell you a lot about where he hurts and how much pain he is in. If the only injury seems to be the wound, reassure the victim and begin treatment.

Check the wound. Is it visibly dirty? Is the blood simply flowing from the wound or is it spurting? In survival situations, more people die from infected wounds than bleeding to death.

If the wound is relatively minor and the bleeding is minimal, you'll want to gently clean it before any attempt is made to bandage it. Nothing causes infection more than bandaging an unclean wound, even if it contains no visible dirt. Remember that deadly staph organisms are commonly found on human skin.

A good way to clean most wounds is to gently bathe the area with mild soap and water. Mop away from the wound, as one would sweep a floor, instead of scrubbing back and forth. The latter only moves bacteria around

rather than removing it from the area. Rinse or soak the area well, removing any debris carefully with sterile tweezers.

When the area is clean, pat it dry with sterile gauze or air-dry it, then apply Betadine or antibiotic salve. We use Betadine for deeper wounds, and antibiotic salve for lesser injuries. Minor wounds seldom require bandaging, healing quicker by air exposure. Deeper wounds and ones in areas where they will be constantly irritated by clothing or work should be bandaged. A simple adhesive strip usually does the trick.

If the wound is bleeding quite a bit, simply applying pressure to the area with a sterile gauze pad will usually stop it within a few minutes. Where tourniquets were once advised, it has been found that more damage was done by the tourniquet than the bleeding would have caused in most instances. The application of firm pressure directly to the wound is very effective. After the severe bleeding has been stopped, gently clean the wound, but do not destroy the clot that has formed or bleeding will probably resume.

Should you be dealing with a more severe wound, covering it with a

Betadine soaked (but not wet) sterile gauze, then a plain sterile gauze square, then adhesive tape is usually sufficient. If the edges of the wound gape or there is a flap of skin hanging down, either gently match the edges with butterfly adhesive strips or suture them, if you have the experience. Remember that most wounds will heal fine without suturing, especially with a little help from gentle butterfly adhesive strips. Sutures that are too tightly drawn will cause pain and scarring.

Never bandage a wound tightly with gauze bandage or anything else. This will restrict circulation and can cause pain and severe problems and even gangrene.

In the following days, keep the wound clean and dry. Change the dressing as needed, usually twice a day, leaving the dressing off and the area open to fresh air and sunlight as much as possible. This will greatly reduce the healing time and reduce chances of infection. Bacteria love damp, dark, warm areas, including a wound which is bandaged.

Watch for ugly redness or a fever in the patient, which would indicate infection in the wound. In this case, keep the area soaked in Betadine and give the patient antibiotics for 10 days, even if they seem better within a day or two. Immersing the infected wound in a hot Epsom salts solution also helps reduce pain and swelling along with cleansing the area.

Simple pain and swelling from the injury can be alleviated by plain aspirin, taken orally. Do not give aspirin immediately following an injury if there is a possibility of internal injuries, as aspirin may enhance hemorrhage. Do not give aspirin to young children. Use Ibuprofen instead.

Colds and flu

These common conditions are bad enough when things are fine, but are downright miserable in a survival situ-

ation. And remember that stress helps these overcome your body.

At the first sign of a cold or the flu, do those things your grandmother told you: keep warm and dry, rest, and drink plenty of fluids. Then add vitamin C and zinc lozenges, and most folks can overcome that mean cold or flu in a few days. If you need to alleviate symptoms, such as fever, runny nose, or coughing, take a cold/flu medication that covers your symptoms. By now, you probably know what works best for you and your children. The key is to have the medication on hand.

If the cold or flu lasts for longer than 10 days or seems to get worse, it may have turned into bronchitis or pneumonia, and antibiotics are necessary. Remember that home treatment is only for when no doctor or hospital is available.

Sprains

Believe it or not, sprains are one of the most common injuries in a survival situation. And often one of the most painful. The sprain can arise from walking over debris, logs, rocks, and even urban curbs. It can come from a fall or even an ankle turning over. (Your family will experience less sprains if they wear good, sturdy footwear, not flats or sandals. Ankle support is very important.)

When a sprain is new, immerse the affected part in cold water or apply ice packs to reduce pain and inflammation. I've found that when I take two plain aspirin immediately following such an injury that it greatly reduces both pain and inflammation later on.

If possible, rest the sprain, keeping it immobile and elevated for as long as reasonably possible. I continue taking the aspirin to keep down the inflammation. If you must move about, gently wrap the area with an elastic bandage to support it. Do not wrap area tightly or you will restrict circulation and make the pain much worse. Use a cane or crutches if the sprain is in a

foot, ankle, or knee to reduce the amount of weight put on the injury. If the sprain is in the hand, wrist, elbow, or shoulder, keeping the arm in a sling will greatly reduce the pain and help it heal.

After a day, begin using hot Epsom salts soaks or packs to reduce the swelling and pain. And remember, the more you use a sprained joint, the longer it will take to heal and it may not ever heal completely if you persist using it before it heals. Rest is the key.

Slivers and spines

Getting a sliver or sticker of some kind is awfully common, especially in a survival situation, when one may be building a wood fire or foraging for food. Most of the time you can simply get hold of it and pull it out and be no worse for wear. But sometimes it is in too deep and painful and seemingly impossible to remove.

For relatively minor, but painful slivers, I use a sterile hypodermic needle, choosing the gauge (diameter/size) to fit the sliver size. Most smaller slivers are removed very easily with a 20-gauge needle. Now I use a hypodermic needle for several reasons, as opposed to using a sewing needle. First, and most important, they are hollow. This allows one to slip them into the sliver track with little pain, as less bulk is pressing on that tender skin. They are also sharp, which lets me carefully pick away the skin layer above the sliver which has no feeling because there are no nerves, until the sliver is exposed and can be either snagged with the needle and drawn out or picked up with a pair of sterile tweezers and removed.

With larger slivers, I use an 18-gauge needle, which does the same thing but is a bit stronger. When the sliver is very painful, using a local anesthetic, such as oral medication or antibiotic ointment containing an anesthetic on the area about 10 minutes before the procedure, helps a lot.

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The main thing is to keep the sliver aligned with its track, and not to pry it upright in removal, which is extremely painful.

Once the sliver is out, a little alcohol or Betadine will disinfect the area and let it heal quickly.

I've discovered a great treatment for small stickers and cactus thorns which break off when you try to remove them from tender skin. Should you or a family member fall into a cactus or other plant with fine stickers, simply coat the area with Shoe-Goo or Sportsman's-Goo, which is a clear silicone-type produce. Just a thin coat is fine. In about fifteen minutes it will be dry, and you can just peel it off, complete with all of the painful stickers.

Of course, there are many other possible injuries and illnesses. With a little advance preparation and study, you'll be surprised at what you can glide smoothly through. There is seldom any benefit to panic; a positive mental outlook can save lives. Δ

Tips and tricks for the kitchen

By Richard Blunt

The warmest and most interactive place in my mom's home was her kitchen. Cooking was her favorite pastime and her kitchen was a place she could relax and enjoy herself. There she entertained friends and neighbors, helped me with my homework, and even read her favorite mystery novels. Many of the subjects I write about are based on the many wonderful hours I spent in her kitchen, watching her perform her culinary magic on all kinds of foods. I grew up believing a kitchen is a place to enjoy yourself while being creative. Mom taught me that if I understood the basics and knew what I was doing at all times, cooking would be easier, faster, and more enjoyable. This is true even when you're working with foods and preparation methods that are new and unfamiliar.

Since I started writing for *Backwoods Home Magazine* I've spent a great deal of time talking with other people about their kitchen adventures. Along with their many culinary triumphs, folks share with me the problems they've encountered while trying to prepare their favorite foods and beverages. Most of the problems are minor but, when uncorrected, they can lead to wasted food and possible embarrassment in front of guests or family. For many cooks these problems lead to frustration with an environment that they eventually perceive as being more like a minefield than a kitchen.

As I read through my notes to recall some of these woeful tales of culinary disaster, I realize that most of these problems could be avoided by "knowing your basics," as my Mom would put it. As an example, a close friend came to ask my advice one day. She loves Asian foods and loves to prepare many of the classic dishes, especially those from Thailand and southern India. But she couldn't cook the delicate long grain Basmati and Jasmine rices, an integral part of many Asian cuisines, without having the individual grains split and curl at the ends. The rice tasted fine but the split and curled ends detracted from the presentation of these otherwise magnificent dishes. I told her to soak this kind of rice in cold water for 30 minutes before cooking it, and her problem was solved.

But it isn't just techniques that can make your time in the kitchen more enjoyable. Many labor-intensive or difficult kitchen tasks can be performed more easily if you use a piece of equipment specifically designed for the task at hand. An example occurred the day my son's hockey coach tried to shred a nutmeg berry with a paring knife. On the



Richard Blunt

way to the hospital to get his finger stitched he complained, "Why don't they invent something to make that job easier?"

Simple problems like these can frustrate anyone and make their kitchen seem like a war zone. What he didn't know is that there are nutmeg graters which are easy to use, safe, and available in most food stores. This is how I grate nutmeg. Of course, a nutmeg grater may not be practical for someone who uses it just once a year on New Year's Eve to grate nutmeg for eggnog, but if you use fresh nutmeg frequently, it is a practical and almost indispensable tool.

During the 25 years I've been a professional cook I've employed many simple techniques, procedures, and tools to help make my experiences in the kitchen more enjoyable. In this and the next column I'm going to share with you some of the preparation techniques, special equipment, and general knowledge that I use in my kitchen. Some of the information, and a couple of the recipes, are taken from some of my earlier articles. I have included them here because they're working examples that demonstrate the benefits of knowing and using basic rules of culinary art.

Spices

Success or failure of many recipes often depends on the type and quality of flavor enhancers used. Spices like clove, coriander, black and white pepper, cumin, nutmeg, cardamom, allspice, and cinnamon are an absolute necessity in any kitchen. Unfortunately, spices quickly lose their flavor and aroma after they are ground. I suggest, if you must buy ground spices, buy them in the smallest amounts possible because the average life of preground spices is only about three months, even when they're stored in the refrigerator where they can easily get lost. Plus it is usually not possible

for the average home cook to use all of a package of pre-ground spices in a three-month period, even when the spice is purchased in the smallest possible package. The solution to this problem is to buy whole spices and grind them yourself. Whole spices have a nearly indefinite shelf life when stored in airtight containers in a cool, dry space.

Whole spices are also cheaper to buy than pre-ground spices, especially if you buy them from one of the many spice shops that advertise on the Internet. Buying pre-ground spices in the supermarket is just like going to the sleaziest used car dealer you can find to buy an automobile; you pay too much and get second-rate quality. To buy them on the Internet, just fire up your search engine and type in the word “spice” and you’ll find vendors for almost any spice you can think of. If you live in or near a neighborhood with an ethnic grocer, try there.

Grinding whole spices has never been easier than it is today. Several kitchen equipment manufacturers make combination coffee grinder/spice mills that retail for about 10 dollars. These little mills have a high-speed electric motor that drives a small propeller-like stainless steel blade at a speed that will reduce even tough spices like whole clove to a fine powder in a matter of seconds. You can also buy a specially designed mortar and pestle, made of marble, that will perform the same grinding duties for under 15 dollars.

Food and gas

At the risk of sounding inappropriate, I would like to say a few words about an often embarrassing consequence of consuming a wide variety of foods—intestinal gas. Flatulence is not life threatening, unless you live with some-

My own chili seasoning

Here’s a simple recipe that demonstrates the advantage of using whole spices. I dislike commercial chili powders. In my opinion they all add “off-flavors” to chili or any other dish. But when chili powder is made from scratch you will produce a seasoning with which you can make great chili and it can also be used to enhance the flavor of many other dishes including salad dressings, table sauces, and casseroles. If you grind up a batch of this seasoning it will keep for months when stored in an airtight container and kept in your freezer.

My formula is designed to add a warm, nutty chili flavor to dishes, not spicy heat. You can add as much hot flavor as you can handle by simply adding measured amounts of powdered cayenne pepper or other pure, hot chili powder. Don’t try to prepare this chili seasoning with pre-ground spices. Use whole spices you grind yourself; otherwise, the result is a dull, stale-tasting seasoning.

Ingredients:

- 2 oz. dried ancho chilies, stems, seeds, and veins removed
- 2 dried pasilla chilies, stems, seeds, and veins removed
- 2 Tbsp. whole cumin seed, toasted
- 1 Tbsp. whole coriander seed, toasted
- 4 whole cloves, toasted
- ½ tsp. allspice berries, toasted
- 1 Tbsp. dried marjoram
- 1 tsp. dried oregano
- 1½ tsp. dried, granulated garlic
- 2 Tbsp. hot Hungarian paprika

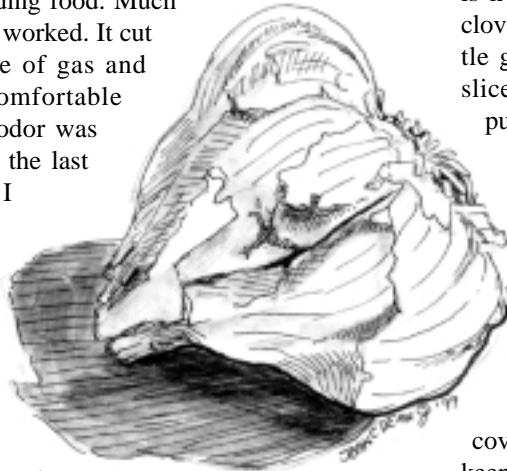
Method:

1. After removing the stems, seeds, and veins from the ancho and pasilla chilies, break or cut them up into pieces. Toast them over low heat in a heavy-bottomed skillet until they are fragrant, slightly darkened, and somewhat crisp. Do not walk away from this procedure because they’ll scorch. You want to stir the peppers constantly while they are in the pan. When they’re ready, set the toasted peppers aside to cool.
2. Using the same procedure described above, lightly toast the cumin seed, coriander seed, whole cloves, and allspice berries.
3. In a spice mill (or a coffee grinder that is reserved only for grinding spices) process the toasted peppers into a fine powder. Repeat the process with cumin seed, coriander seed, whole cloves, and allspice berries. It is important to grind each spice separately, because each has a different density and will not grind to the same consistency if ground together.
4. Combine the powdered chilies and spices with the marjoram, oregano, granulated garlic, and Hungarian paprika.

one who's got a real bad disposition. Otherwise, it just makes for an embarrassing and uncomfortable end to a wonderful meal.

The list of gas producing foods is long. It includes many of our favorites: milk, wheat, oats, potatoes, and many vegetables. Many of these foods contain what scientists call raffinose sugars, which are a prolific source of intestinal gas. The offending gas is produced when these sugars, along with starches and food fiber, reach the large intestine without being digested. Once there harmless bacteria residing in the bowel start to feed on them and give off the bothersome gas as a by-product. Raffinose sugars require a specialized enzyme (alpha-galactosidase) to break them down. However, our bodies don't produce this enzyme, so our intestinal bacteria are left to the task.

There a number of products on the market that may help if you are troubled by flatulence. I am one who has been troubled with it all of my life, so about eight years ago I decided to try a new gas preventer manufactured by the same company that developed Lact-Aid. Beano, as it's called, contains alpha-galactosidase and is designed to be popped into your mouth along with the first bite of any potentially offending food. Much to my surprise Beano worked. It cut down on the volume of gas and eliminated that uncomfortable bloated feeling, but odor was still a problem. Over the last few years, however, I have learned a few tips that also help to reduce gas generated by bean consumption.



1. Cook your vegetables and beans completely. By completely I mean soft without being mushy.

2. Discard the water you soak the beans in. This water is loaded with raffinose sugars. Also, precook your beans separately and discard the cooking water, before combining them with other ingredients in a recipe. This process does not hurt the integrity of the beans and will reduce the cooking time in long cooking recipes like baked beans.

3. Many bean recipes call for the addition of other vegetables, such as onions and cabbage. Try reducing some of these ingredients before giving up the beans.

4. Always carry a book of matches (no joke). A lit match produces ozone which oxidizes those mortifying odor-causing gases.

Here are a few tips on working with two of the worlds favorite flavor enhances, fresh garlic and fresh ginger.

Garlic

Not all fresh garlic is created equal. American garlic, which has a white skin, has a very strong flavor. Mexican and Italian garlic have mauve skins and a smoother milder flavor.

If fresh garlic is stored in an open container in a cool dark place, and the outer skin is not broken, it will stay fresh for more than two months. Once a clove is broken from the bulb, it will remain fresh for about five days.

The most efficient way to peel a garlic clove is what I call the Julia Child method. Place the unpeeled clove on the cutting board, clear the kitchen of all friends and family, then take careful aim and whack the clove with a the flat side of the blade of a cleaver or a french knife. It works every time, but I suggest you practice a little.

Once in a while we forget a bulb of garlic and the cloves start to sprout. This is not always evidenced by a little green shoot poking out through the clove. More often you will notice that the garlic has developed a very strong and harsh flavor and aroma. When I discover this, I usually toss the garlic in the trash and buy a fresh bulb. However, when this is not possible, you can tame the flavor by cutting each clove in half with a sharp paring knife and removing the little green shoot hiding inside. After removing the shoot, slice the garlic cloves instead of crushing, chopping, or pureeing them. This reduces the amount of essential oils that will be released into the recipe.

I feel that garlic is an essential ingredient in many foods and I use a lot in a short time. When I am assembling a recipe, especially a new one, I find that peeling garlic cloves can be a hassle. I solve the problem by first separating the cloves from a whole bulb of garlic then dropping them into boiling water for about 15 seconds. This makes them easy to peel. I then put the peeled cloves into a half pint jelly jar, cover them with peanut oil, seal the jar with a new lid, and keep the jar in the refrigerator. The garlic will stay fresh for two weeks. When the garlic is gone I use the wonderfully scented oil to add subtle flavor to a variety of hot and cold foods.

Once fresh garlic is placed in oil, that oil must be kept in the refrigerator, if you intend to use it in recipes after the garlic is gone. If I don't use this garlic scented oil within three days after the garlic is gone, I discard the oil.

The garlic press

If you don't own a garlic press I suggest you get one as soon as possible. Buy a good one, preferably one made of stainless steel. A garlic press makes quick work of preparing garlic for most recipes. It isn't even necessary to peel a garlic clove before passing it through the press. Just pop the clove, skin and all, into the press and squeeze.

Vermont baked beans

Several years ago my daughter announced to me that she did not like baked beans. This was a real let down because, like many New Englanders, baked bean casserole is a regular item on our weekly menu. "I don't like the taste of molasses, and the beans make me feel fat and uncomfortable," were her reasons. I knew how to get around the molasses, but the intestinal gas was going to take some work. After two years of research and 12 failed recipe attempts I came up with three recipes that relieved both problems, plus satisfied the taste of her two brothers Jason and Michael. This recipe also puts to the test all of the kitchen tips that we have been talking about in this column. However, the roasted spices are not ground; they are cooked whole. When spices are cooked whole instead of ground, they impart a more subtle flavor. Give the recipe a try and let me know what you think.

Note: slab bacon is processed two ways. One type is cured in brine and the other is dry smoke cured. If at all possible use the dry cure variety in this recipe. You can tell if bacon is cured in brine by reading the label on the package. Don't let anyone tell you that there is no taste difference between the two. The taste of the dry cured is far superior.

Ingredients:

1 cup dried white beans	1 Tbsp. olive oil
1 cup dried kidney beans	1 medium onion, diced
water to soak beans	1 carrot, peeled and diced
water to simmer beans	3 fresh garlic cloves, chopped fine
1 tsp. whole cumin seed	1 Tbsp. marinated fresh ginger, chopped fine
½ tsp. whole coriander seed	½ cup beer or ale
1 stick cinnamon	1 cup chicken stock
6 whole black peppercorns	1 10 oz. can diced tomatoes with chili peppers
4 whole cloves	½ cup pure maple syrup
2 dried bay leaves	zest from one orange
½ lb. smoke cured slab bacon, diced (If you don't eat pork, omit the bacon. It will change the flavor of the dish somewhat but the casserole will still be delicious.)	¼ cup fresh cilantro, chopped

Method:

1. Soak the beans overnight in cold water. Use enough water to cover by at least two inches. Change the water and add fresh water at least once during the soaking process.
2. Discard the soaking water, rinse the beans in cold water, and set them in a suitable size pot over medium heat. When the water starts to boil, reduce the heat to a point where the beans are just simmering. Simmer them for 45 minutes, or until they begin to soften. Test them for tenderness by biting into one or two beans from the pot. Drain the beans, discard the cooking water and set the beans in an 8 or 10 cup casserole or bean pot.
3. In a heavy bottom skillet, roast each of the spices over low heat until they begin to brown and add them to the beans. Add the bay leaves without roasting them.
4. Add the diced bacon to the same skillet and saute over low heat until it begins to brown and about half of the fat has been rendered out. Remove the rendered bacon from the fat and add it to the casserole.
5. Add the olive oil to the same pan, increase the heat to medium, and add the onion and carrot. Saute this mixture until the onion becomes opaque, add the garlic and ginger. Continue to saute the mixture for about 30 seconds then add the mixture to the casserole.
6. Preheat the oven to 250 degrees. Combine the beer or ale with the chicken stock, diced tomatoes and maple syrup. Add this mixture to the casserole.
7. Put the lid on the casserole and place it in the oven. Slow cook the beans for five or six hours or until the beans are very tender without being mushy. If the beans become dry during this time, rehydrate them by adding a little chicken stock.
9. During the last hour of cooking remove the cover from the casserole or bean pot.
10. While the beans are cooking, remove the zest (the colored part of the skin) from the orange with a hand grater and mix it with the chopped cilantro. **Caution:** Don't remove any of the white under flesh from the orange. This flesh is usually very bitter and will ruin the delicate flavor of the casserole. Sprinkle this mixture on top of the casserole just before serving.

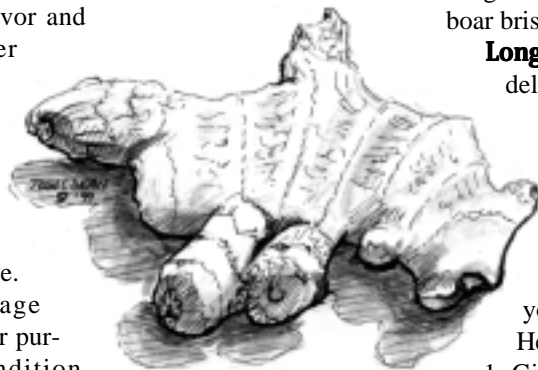
Cleaning a garlic press can be a hassle. To make cleaning less arduous, I keep a cup of warm water on the counter while I am using the press. During a cooking session, after each use, I place the press in the warm water. This prevents the garlic residue from drying onto the press. When I'm done cooking I take press from the water and place it in the dishwasher in the open position on top of the silverware. One pass through the dishwasher is usually sufficient. If you don't have a dishwasher, or you don't plan to run your dishwasher for a couple of days, add a little liquid dish soap to the warm soaking water, soak the press for about an hour, then clean it using a tooth brush you have set aside for special cleaning projects.

When working with the recipes in my columns, the only time a garlic press is called for is when the instructions call for garlic to be "minced fine."

Ginger

In my opinion fresh ginger is one of the most versatile flavor enhancers available. It can be used to add spark to soups, salads, casseroles, vegetables, and baked goods. Fresh ginger can be purchased in two forms, young ginger and mature ginger. Young ginger, which is sold under the name of Jamaican ginger in many Asian grocery stores during the spring, has a tender, pale skin and a delicate mild flavor. Jamaican ginger does not require peeling before being used in a recipe. Mature ginger has a tough tan skin, which must be removed before use, and a strong spicy flavor and aroma. Mature ginger can be found in most food stores throughout the year.

Ginger, like garlic, can also be hassle to peel when you are trying to assemble a recipe. Under the best storage conditions, fresh ginger purchased in prime condition only has a shelf life of about three weeks. After that it's smooth skin wrinkles and the flesh inside turns an ugly grey and develops an unpleasant acrid odor. Unless you use a lot of this very expensive root, half, if not more of what you buy, ends up in the trash. A great way to store freshly peeled mature ginger, is to cut it up into 1/2-inch pieces, place them in a half-pint jelly jar, and cover them with a light dry sherry. Seal the jar with a new cap and place it in the refrigerator where it will keep for three months. When the ginger is gone the, the ginger flavored sherry can be used to enhance the flavor of stir-fried and many other dishes. Fresh ginger can also be peeled, placed



in freezer bags, and put in a freezer where it can keep for up to a year.

Barbecue

I feel that barbecue cooking must always be a pleasure. If it becomes a chore, stop and use your oven. Here are a few basic tips to help you make all barbecue sessions fun.

Equipment that is nice to have:

Meat thermometer: This is a tool most professional cooks would feel naked without and usually have one hanging from their pocket when they enter the kitchen. They are easy to use and serve as a great tool for eliminating the complaint, "This meat is still raw." Here's a chart I find helpful when cooking meats, indoors or out.

Long handled tongs: I don't feel comfortable poking any food with a fork while it is being grilled. Tongs do a better job and don't damage food by allowing valuable juices to spill into the fire.

Meat	Rare	Medium	Well Done
Beef	140°F	160° F	175°F
Pork	-	160°F	170°F
Lamb	140°F	160°F	170°F
Poultry	-	165°F	-

Basting brush: The expensive long handled brushes made for grilling do not baste food any better then a standard, flat, boar bristle kitchen brush.

Long handled offset spatula: A nice item for turning delicate items like fish .

Charcoal lighting chimney: This, in my opinion, is the safest and quickest way to light charcoal briquettes. Follow the instructions that come with the unit and you can't go wrong.

Skewers with 1/2-inch wide flat shanks: Great for solving the problem of food spinning around as you try to turn it over.

Here are some tips to make your barbecuing easier.

1. Give yourself at least 30 minutes after you light your charcoal to allow it to burn to the point of forming a white ash.
2. Use only high quality brand-name charcoal. Bargain charcoal causes more problems than cost savings justify.
3. Store your charcoal in a place that is dry. If this is not possible, place your charcoal into high quality plastic bags and seal the bags tight.
4. Use only the amount of charcoal required for the item being grilled. Excessive amounts cause dangerous flare ups and charred food.
5. Charcoal briquettes and natural lump charcoal burn at different temperatures: Briquettes burn at about 350 degrees F; natural charcoal burns at 600 degrees F.

If you have a Weber-type grill with a cover and would like to add a new fragrance and flavor to your grilled foods, try this.

Mix together:

- 4 dried bay leaves, crumbled
- 1 tsp. dried oregano leaves
- 1 tsp. dried thyme leaves
- ½ cup hardwood chips, soaked in warm water for 30 minutes
- ½ cup loose tea leaves
- 1/3 cup brown sugar
- zest from one orange
- 1 tsp. whole anise seed

Just before placing the items to be grilled in the grate, move all of the coals to one side of the grill, place the items to be grilled on the grate, but on the opposite side of the grill, so they are not directly over the coals, then sprinkle this mixture onto the hot coals. Place the cover on the grill, making sure the upper and lower air holes are open about half way. Leave the lid in place, without peaking for about 15 minutes. Remove the lid and finish cooking as you usually do.

Later I'm going to give you more kitchen tips and I will suggest some other pieces of equipment that will help make the time that you spend in the kitchen more enjoyable. At one time some of this equipment was very much overpriced and not widely available. Technology and free market competition has changed all of that. High quality kitchen equipment, designed for the home kitchen, is now available in many retail stores and on the Internet at good prices. I'll show you how to use some of them in the next issue. Δ

Christmas Day

I sat at the window,
A cap gun in my hand,
Plastic cowboys and Indians scattered on the floor
behind me.
Under the tree there were boxes
Still bearing shirts, pants, socks, and underwear
for school.
But I stared out the window
At the kids down on Andrew Street
Riding their brand-new bikes,
With their chrome fenders flashing like knife
blades in the sun.
And already that morning I'd been up to Eddie's
To see his new Lionel trains
And BB gun,
And I wondered why Santa brought
Bikes, electric trains, and BB guns
To the kids whose fathers lived at home
And had jobs,
Fathers who could have bought those things
Any day of the year.
But I sensed, even at that age,
I shouldn't ask my mother to explain this mystery.
I knew I wouldn't like the answer.

John Silveira
Ojai, California

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THE IRREVERENT JOKE PAGE

(Believing it is important for people to be able to laugh at themselves, this is a continuing feature in *Backwoods Home Magazine*. We invite readers to submit any jokes you'd like to share to *BHM*, P.O. Box 712, Gold Beach, OR 97444. There is no payment for jokes used.)

A husband and wife were having dinner at a very fine restaurant when this absolutely stunning young woman comes over to their table, gives the husband a big kiss, tells him she'll see him later, and walks away.

His wife glares at him and says, 'Who was that?!!'

"Oh," replies the husband, 'that was my mistress.'

The wife says, "That's it; I want a divorce."

"I understand," replies her husband, "But, remember, if you get a divorce, there will be no more shopping trips to Paris, no wintering in the Caribbean, no Lexus in the garage, and no more country club. But the decision is yours."

Just then the wife notices a mutual friend of theirs entering the restaurant with a gorgeous woman. 'Who's that woman with Jim?' she asks.

"That's his mistress," replies her husband.

"Ours is prettier," says the wife.

Submitted by James Mayfield

Someday, a long time from now, President Clinton finishes his time on earth and approaches the Pearly Gates of heaven.

"And who might you be?" inquires St. Peter. "It's me, Bill Clinton, formerly the President of the United States and Leader of the Free World."

"Oh, Mr. President! What may I do for you?" asked St. Peter.

"I'd like to come in," replies Clinton.

"Sure," says the Saint. "But first you have to confess your sins. What bad things have you done in your life?"

Clinton bites his lip and answers, "Well, I tried marijuana, but you can't call it dope-smoking because I didn't inhale. There were inappropriate extramarital relations but you can't call it adultery because we didn't have full 'sexual relations.' And I made some statements that were misleading but legally accurate. You can't call it bearing false witness because, as far as I know it didn't meet the legal standard of perjury."

With that St. Peter consults the "Book of Life" briefly, and declares, "OK, here's the deal. We'll send you somewhere hot, but we won't call it 'Hell.' You'll be there indefinitely, but we won't call it 'eternity.' And when you enter you don't have to 'abandon all hope,' just don't hold your breath waiting for it to freeze over."

Submitted by Baron Scarpia

If men truly ran the world...

Regis and Kathy Lee would be chained to a cement mixer and pushed off the Golden Gate Bridge for the most lucrative pay-per-view event in world history.

Instead of "beer-belly", you'd get "beer-biceps".

Tanks would be far easier to rent.

Telephones would cut off after 30 seconds of conversation.

Instead of a fancy, expensive engagement ring, you could present your wife-to-be with a giant foam hand that said "You're #1!"

When your girlfriend really needed to talk to you during the game, she'd appear in a little box in the corner of the screen during a time-out.

Nodding and looking at your watch would be deemed as an acceptable response to "I love you".

The funniest guy in the office would get to be CEO.

At the end of the workday a whistle would blow and you would jump out of your window and slide down the tail of a brontosaurus and right into your car like Fred Flintstone.

Too much salt

An Arab diplomat visiting the U.S. for the first time was being wined and dined by the State Department. The Grand Emir was unused to the salt in American foods (french fries, cheeses, salami, anchovies etc.) and was constantly sending his manservant Abdul to fetch him a glass of water.

Time and again, Abdul would scamper off and return with a glass of water, but then came the time when he returned empty-handed.

"Abdul, you son of an ugly camel, where is my water?" demanded the Grand Emir.

"A thousand pardons, O Illustrious One," stammered the wretched Abdul, "infidel sit on well."

Submitted by Bill Duffy

Something to offend damn near everybody...

Where does an Irish family go on vacation?
A different bar.

Did you hear about the Chinese couple that had a retarded baby?
They named him Sum Ting Wong.

What would you call it when an Italian has one arm shorter than the other?
A speech impediment.

What does it mean when the flag at the Post Office is flying at half mast?
They're hiring.

Why aren't there any Puerto Ricans on Star Trek?
Because they're not going to work in the future, either.

Did you hear about the dyslexic rabbi?
He walks around saying "Yo."

What do you call an Alabama farmer with a sheep under each arm?
A pimp.

What's the difference between a southern zoo and a northern zoo?
A southern zoo has a description of the animal on the front of the cage, along with the recipe.

What's the Cuban national anthem?
"Row, row, row your boat."

Finally! A blonde GUY joke

An Irishman, a Mexican and a blonde guy were doing construction work on scaffolding on the 20th floor of a building. They were eating lunch and the Irishman said, "Corned beef and cabbage! If I get corned beef and cabbage one more time for lunch I'm going to jump off this building."

The Mexican opened his lunch box and exclaimed, "Burritos again! If I get burritos one more time I'm going to jump off, too."

The blonde opened his lunch and said, "Bologna again. If I get a bologna sandwich one more time I'm jumping too."

Next day the Irishman opens his lunch box, sees corned beef and cabbage and jumps to his death. The Mexican opens his lunch, sees a burrito and jumps too. The blonde opens his lunch, sees the bologna and jumps to his death also.

At the funeral The Irishman's wife is weeping. She says, "If I'd known how really tired he was of corned beef and cabbage I never would have given it to him again! The Mexican's wife also weeps and says, "I could have given him tacos or enchiladas! I didn't realize he hated burritos so much."

Everyone turned and stared at the blonde's wife. "Hey, don't look at me" she said. "He made his own lunch."

ANAGRAMS

An anagram, as you all know, is a word or phrase made by transposing or rearranging the letters of another word or phrase.

dormitory	dirty room
evangelist	evil's agent
desperation	a rope ends it
The Morse code	here come dots
slot machines	cash lost in 'em
animosity	is no amity
mother-in-law	woman Hitler
snooze alarms	Alas! no more z's
Alec Guinness	genuine class
semolina	is no meal
The public art galleries	large picture halls, I bet
a decimal point	I'm a dot in place
the earthquakes	that queer shake
eleven plus two	twelve plus one
contradiction	accord not in it

And for the grand finale:

Clinton, President of the USA	to copulate, he finds interns
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Submitted by Baron Scarpia

A funeral service is being held in a church for a woman who has just passed away. At the end of the service, the pallbearers are carrying the casket out when they accidentally bump into a wall jarring the casket. They hear a faint moan. They open the casket and find that the woman is actually alive. She lives for 10 more years and then dies. A ceremony is again held at the same church and at the end of the service the pallbearers are again carrying out the casket. As they are walking, the husband cries out, "Watch out for the wall!"

Submitted by Jeff Rutter

Think of it this way:

The greatest American who was never President



John Silveira

“The election’s next year, right?” I asked.

Dave Duffy, the publisher of *Backwoods Home Magazine*, was editing a rather lengthy article on water. I don’t know if he didn’t hear me or just didn’t realize I was talking to him. He didn’t say anything, so I repeated the question.

He turned when he realized I was talking to him. He looked up at the ceiling for just a second, then said, “Yeah, November 2000.”

He started to turn back to his work.

“Who do you think will be running?” I asked.

He hesitated. “Right now it looks like Bush and Gore.”

“Who do you think will win?”

He looked at me somewhat exasperated. “What are you asking for?”

“I’m trying to get some ideas for a column.”

He nodded. “If it’s a contest between those two, Bush is in the lead, just now, and I think he can maintain it. But who knows? In 1991, his father just came off winning Desert Storm and had one of the highest approval ratings for a President in history—92 percent or something like that—and Clinton was way back in the pack among the Democratic contenders. He didn’t even look like he’d be in the election. The next year, Clinton was on the way to the White House and Bush was heading for his vacation home in Maine to retire.”

I nodded and he returned to his work. But I wanted a more definitive opinion, so I looked across the room at Mac. O.E. MacDougal is our poker-playing friend from southern

California. He was up for another round of battle with the local fish. “What do you think?” I asked him.

He looked up. “Who do I think will win the 2000 presidential election?”

“Yeah.”

“It’s going to be someone I’m not going to like.”

“But who do you think it’s most likely to be?”

“Dave’s right, it’s too early to tell. It’s such a long way from here to election, and early front-runners have a way of fading. By November of next year I’d guess there’s a 50 percent chance that the person who gets elected will be someone no one would give much of a chance to today. But the man to beat right now *is* George W. Bush.”

“Who do you think is the best man for the job?”

“Ron Paul.”

Dave turned around again and I gave him that “who-in-the-world-is-that” look.

“Ron Paul was the Libertarian candidate in 1992, wasn’t he?” Dave asked.

“1988,” Mac said. “He’s a Republican congressman from Texas now.”

“Why do you like him?” I asked.

“At the national level, he’s closer to the Founding Fathers than anyone else I can think of—more of a constitutionalist, if you know what I mean.”

“Is there a way to find out more about him?” I asked.

“He has a web site.”

(I did a quick websearch as we talked and there he was at

<http://www.house.gov/paul/display.htm>)

“I also like Dick Armey,” Mac continued, “because he’s an economist and a lot of his beliefs parallel Paul’s.”

“And I’d give a nod to the new Minnesota governor, Jesse Ventura. I know, when he runs for any office again, the media will focus on the clownish aspects of wrestling, but what’s more important is that, though he ran on the Reform ticket, his beliefs are at odds with the Reform Party platform and are more in line with the Libertarians.”

“At odds, how?” I asked.

“The Reform Party’s motto is, ‘less government.’ But, starting even with the party’s founder, Ross Perot, every solution they propose to the problems that face us in society is a government solution. Their programs are really no different from what the Republicans and Democrats offer.”

“Then why did so many people vote for Perot?” I asked.

“In voting for so-called ‘change,’ the electorate unwittingly chose something familiar.”

“How’s Ventura so different?”

“Listen to what he says; at heart he’s a Libertarian. He genuinely believes in getting government off our backs. With any luck he’ll either move over to the Libertarian Party and give them a presence or he’ll reshape the Reform

Party into something that offers the American people a real and rational choice.”

“Do you think the Republicans would ever nominate Ron Paul?” I asked.

He laughed. “Not a chance.”

“Hey, Mac, who do you think is the greatest American *never* to be president?” Dave asked.

Without hesitation he said, “George Mason.”

Now Dave gave me the same who-in-the-world look I had given him moments before.

Dave asked, “In 30 words or less, who is he?”

Mac opened his mouth to say something, but he looked at me for a moment, then back at Dave. “He’s a contemporary of Washington and Jefferson and you can thank him for the *Bill of Rights*—that’s 17 words.”

“I thought we had Jefferson or Madison to thank for the *Bill of Rights*,” I said.

“No, Jefferson endorsed the concept, but he wasn’t the originator. And Madison steered it through the Congress, but the ideas weren’t his. As a matter of fact, the irony is that even though Madison honchoed the legislation through the Congress, he originally opposed including a bill of rights in the *Constitution*.”

“Really?” Dave asked.

“Yeah.”

Dave thought a second. “George Mason, huh? What else can you tell me about him?”

“Do you guys want to get me started?” Mac asked.

“Is there a lot to say?” Dave asked.

“It depends on how much you want to know about him.”

“How important was he?”

“I could make a short list and title it ‘The most important Americans you never heard of,’ and Mason’s name would head it.”

Dave drummed his fingers on his desk. I grabbed the World Almanac from the bookshelf.

“You won’t find him in there,” Mac said.

I looked anyway. He was right.

“You’ve got me interested,” Dave finally said.

Mac began: “If any other man deserves to have his name mentioned in the same sentence as Washington,



Jefferson, Madison, Benjamin Franklin, Thomas Paine, or any of the other Founding Fathers, it’s Mason.”

“Did Jefferson know who he was?” Dave asked.

“He knew him personally. So did Washington, Madison, Paine, Henry, the Adamses, and the others. Mason was a Virginian. He was about 18 years older than Jefferson and had a profound influence on him. Jefferson never made a secret of the fact that he revered him. He called him the wisest man of his generation. Even Madison, who is generally credited with framing the *Bill of Rights*, and who became the fourth President, considered Mason one of the most profound and penetrating thinkers of his time. And he was right. Washington himself called

upon him many times. In fact, many of the Founding Fathers, whose names nowadays roll off the tongues of school children, knew who he was, were influenced by him, and sought his advice.”

“I can’t believe this guy could be so important but I’ve never heard of him,” Dave said. “Is this some kind of a joke?” he asked suspiciously.

Mac laughed and shook his head.

“Okay,” Dave said, threw his feet up on his desk and leaned way back in his chair. “Tell me all about this guy.”

“You’ve got an issue to turn out,” Mac said knowing we were in deadline.

“We’re taking a break.”

The Declaration of Rights

“Mason’s fellow Virginians, and this included the lawyers, deferred to him with the acknowledgement that no one else in the colony knew the colonial laws as well as he. It was also a tacit acknowledgement of his capabilities and honesty. In a six week period, during May and June of 1776, he wrote the state’s constitution and its bill of rights, called the *Virginia Declaration of Rights*.”

“The *Declaration of Rights* was adopted in June, three weeks before the *Declaration of Independence* was signed at the Continental Congress. In it he held that ‘All men are by nature born equally free and independent’ and ‘that all power was originally lodged in, and consequently derived from, the people.’”

“Those words sound familiar,” I said.

“Of course they do. Jefferson paraphrased them in the preamble to the *Declaration of Independence*.”

“Did Jefferson give Mason credit?”

“The others at the Continental Congress knew where the words came from. Mason’s *Declaration* had been

The Virginia Declaration of Rights

Adopted unanimously June 12, 1776

A Declaration of Rights made by the representatives of the good people of Virginia, assembled in full and free Convention; which rights do pertain to them, and their posterity, as the basis and foundation for government.

1. That all men are by nature equally free and independent, and have certain inherent rights, of which, when they enter into a state of society, they cannot, by any compact, deprive or divest their posterity; namely, the enjoyment of life and liberty, with the means of acquiring and possessing property, and pursuing and obtaining happiness and safety.

2. That all power is vested in, and consequently derived from, the people; that magistrates are their trustees and servants, and at all times amenable to them.

3. That government is, or ought to be, instituted for the common benefit, protection, and security, of the people, nation, or community, of all the various modes and forms of government that is best, which is capable of producing the greatest degree of happiness and safety, and is most effectually secured against the danger of mal-administration; and that, whenever any government shall be found inadequate or contrary to these purposes, a majority of the community hath an indubitable, unalienable, and indefeasible right, to reform, alter, or abolish it, in such manner as shall be judged most conducive to the publick weal.

4. That no man, or set of men, are entitled to exclusive or separate emoluments or privileges from the community, but in consideration of publick services; which, not being descendible, neither ought the offices of magistrate, legislator, or judge, be hereditary.

5. That the legislative and executive powers of the state should be separate and distinct from the judicative; and,

that the members of the two first may be restrained from oppression, by feeling and participating the burdens of the people, they should, at fixed periods, be reduced to a private station, return into that body from which they were originally taken, and the vacancies be supplied by frequent, certain, and regular elections, in which all, or any part of the former members, to be again eligible, or ineligible, as the laws shall direct.

6. That elections of members to serve as representatives of the people, in assembly, ought to be free; and that all men, having sufficient evidence of permanent common interest with, and attachment to, the community have the right of suffrage, and cannot be taxed or deprived of their property for publick uses without their own consent, or that of their representatives so elected, nor bound by any law to which they have not, in like manner, assented, for the publick good.

7. That all power of suspending laws, or the execution of laws, by any authority without consent of the representatives of the people is injurious to their rights, and ought not to be exercised.

8. That in all capital or criminal prosecutions a man hath a right to demand the cause and nature of his accusation, to be confronted with the accusers and witnesses, to call for evidence in his favour, and to a speedy trial by an impartial jury of his vicinage, without whose unanimous consent he cannot be found guilty, nor can he be compelled to give evidence against himself; that no man be deprived of his liberty except by the law of the land, or the judgement of his peers.

9. That excessive bail ought not to be required, nor excessive fines imposed, nor cruel and unusual punishments inflicted.

10. That general warrants, whereby any officer or messenger may be com-

manded to search suspected places without evidence of a fact committed, or to seize any person or persons not named, or whose offense is not particularly described and supported by evidence, are grievous and oppressive and ought not to be granted.

11. That in controversies respecting property, and in suits between man and man, the ancient trial by jury is preferable to any other, and ought to be held sacred.

12. That the freedom of the press is one of the greatest bulwarks of liberty, and can never be restrained but by despotick governments.

13. That a well regulated militia, composed of the body of the people, trained to arms, is the proper, natural, and safe defense of a free state; that standing armies, in time of peace, should be avoided as dangerous to liberty; and that, in all cases, the military should be under strict subordination to, and be governed by, the civil power.

14. That the people have a right to uniform government; and therefore, that no government separate from, or independent of, the government of Virginia, ought to be erected or established within the limits thereof.

15. That no free government, or the blessings of liberty, can be preserved to any people but by a firm adherence to justice, moderation, temperance, frugality, and virtue, and by frequent recurrence to fundamental principles.

16. That religion, or the duty which we owe to our Creator, and the manner of discharging it, can be directed by reason and conviction, not by force or violence; and therefore all men are equally entitled to the free exercise of religion, according to the dictates of conscience; and that it is the mutual duty of all to practice Christian forbearance, love, and charity, towards each other.

copied and sent to the other colonies. Up and down the Atlantic seaboard it was read aloud in public places, printed in newspapers, considered, debated, and admired. There wasn't a man at the Congress who hadn't seen the *Declaration* or knew who its author was. And one after another, first Pennsylvania, then Maryland, then Delaware, then North Carolina and others took most or all of the *Declaration of Rights* and either made them amendments to their own constitutions or incorporated them directly into their constitutions."

"Did Mason realize this?" Dave asked.

"Of course he did, as did others like Washington, Jefferson, and Madison.

"Even the French used it as a model when they wrote their *Declaration of the Rights of Man and the Citizen* in 1789."

"Then he made a big impression in his day," I said.

"He did, but not all of it was favorable. Quite a few of his contemporaries took exception to his words that 'all men are created equally free and independent.' At issue was slavery and quite a few people felt those words written by Mason could inspire slaves to revolt.

"But Mason, though a slave owner, had come to find slavery reprehensible and morally indefensible. Furthermore, he questioned its economic principles and said it actually hurt the economy of the southern states. Economists have since pointed out that he was right.

"But the death knell for slavery came only with the concept that *all* men possess natural rights. It started with English philosophers, particularly John Locke. But it saw its very first application, its first appearance in a government document, in Mason's *Virginia Declaration of Rights* and it spread like wildfire through the colonies, to the chagrin of many slave owners. After the other states incorporated his *Declaration* into their own

constitutions many of them then abolished slavery as unconstitutional.

"But slavery wasn't the only issue that made him unpopular. Though a member of the Anglican Church, he found continuing to maintain the Anglican Church as the official church of Virginia, supported by taxes so that its clergymen were paid by the state, objectionable. Sentiments like these did not make many of his fellow Virginians very happy.

"In the meantime, he was also busy with other things. He assisted in the formation and maintenance of Virginia's militia, he was called upon by lawyers when they began to revise the old laws and create new ones for the commonwealth, and, after the war began, Washington asked him to take the lead in helping control the inflation which threatened to wreck the economy of all of the new states.

The Constitution

"Between the end of the Revolutionary War, in 1783, and the Constitutional Convention, in 1787, Mason took some stances that didn't make him popular with his fellow Americans. For instance, he didn't believe, despite the war with Britain, that Americans should use the war as an excuse to renege on their debts to British merchants. Many of his countrymen would love to have done this, but, as he pointed out, it wasn't with the merchants they'd been fighting.

"But even more pressing problems faced the new nation. The united front displayed by the separate states, that had existed in the face of war, dissolved when independence was won and the fledgling country needed men like Mason to guide them through the tough times ahead. But after the War for Independence he found his council was less sought. Those in politics did not put much faith in the words of someone who chose not to get involved. Yet, the new nation, established with the Articles of Confederation in 1777, was founder-

ing. After 10 years representatives from each state agreed to meet to try to fix the problems by amending the Articles of Confederation at a Congress in Philadelphia.

Mason was among those called upon. He grudgingly said he would reenter public life and, for the first time, he would even serve outside Virginia. The trip to Philadelphia would be the longest trip of his life. But we're lucky he made it. Over the next three and a half months his inputs profoundly determined the future course the United States was to take.

"As I said, what these guys were supposed to be doing was amending the Articles of Confederation, which were the framework for the new United States, but once they got to Philadelphia what they did was to propose a whole new government. They wrangled for most of the summer creating a new government that would have more power and run more efficiently than it did under the *Articles of Confederation*, and finally, in September of 1787, most of the delegates to the convention were ready to wrap up business.

"Only Madison had had a greater input into the new *Constitution* than Mason, and during the Convention Mason, though older than most of the delegates, proved himself to still be a master debater and able politician.

"But with the Convention drawing to a close and the other delegates wanting to go home, it's ironic that the man who hated public service, who was always late and often absent from meetings of government, wanted the Convention to go on. And if not continue, he wanted another Convention scheduled for later. He felt there were matters that still had to be addressed. He still felt the federal government, including the Presidency, was too strong and would be a sleeping monster that would eventually crush the people. But foremost was his concern that the delegates had neglected to include a declaration of rights. He offered to the Convention a list of

Objections to this Constitution of Government

by *George Mason*

There is no Declaration of Rights, and the laws of the general government being paramount to the laws and constitution of the several States, the Declarations of Rights in the separate States are no security. Nor are the people secured even in the enjoyment of the benefit of the common law.

In the House of Representatives there is not the substance but the shadow only of representation; which can never produce proper information in the legislature, or inspire confidence in the people; the laws will therefore be generally made of men little concerned in, and unacquainted with their effects and consequences.

The Senate have the power of altering all money bills, and of originating appropriations of money, and the salaries of the officers of their own appointment, in conjunction with the president of the United States, although they are not the representatives of the people or amendable to them.

These with their other great powers, viz.: their power in the appointment of ambassadors and all public officers, in making treaties, and in trying all impeachments, their influence upon and connection with the supreme Executive from these causes, their duration of office and their being a constantly existing body, almost continually sitting, joined with their being one complete branch of the legislature, will destroy any balance in the government, and enable them to accomplish what usurpations they please upon the rights and liberties of the people.

The Judiciary of the United States is so constructed and extended, as to absorb and destroy the judiciaries of the several States; thereby rendering law as tedious, intricate and expensive, and justice as unattainable, by a great part of the community, as in England, and enabling the rich to oppress and ruin the poor.

The President of the United States has no Constitutional Council, a thing unknown in any safe and regular govern-

ment. He will therefore be unsupported by proper information and advice, and will generally be directed by minions and favorites; or he will become a tool to the Senate—or a Council of State will grow out of the principal officers of the great departments; the worst and most dangerous of all ingredients for such a council in a free country; From this fatal defect has arisen the improper power of the Senate in the appointment of public officers, and the alarming dependence and connection between that branch of the legislature and the supreme Executive.

Hence also sprung that unnecessary officer the Vice-President, who for want of other employment is made president of the Senate, thereby dangerously blending the executive and legislative powers, besides always giving to some one of the States an unnecessary and unjust preeminence over the others.

The President of the United States has the unrestrained power of granting pardons for treason, which may be sometimes exercised to screen from punishment those whom he had secretly instigated to commit the crime, and thereby prevent a discovery of his own guilt.

By declaring all treaties supreme laws of the land, the Executive and the Senate have, in many cases, an exclusive power of legislation; which might have been avoided by proper distinctions with respect to treaties, and requiring the assent of the House of Representatives, where it could be done with safety.

By requiring only a majority to make all commercial and navigation laws, the five Southern States, whose produce and circumstances are totally different from that of the eight Northern and Eastern States, may be ruined, for such rigid and premature regulations may be made as will enable the merchants of the Northern and Eastern States not only to demand an exorbitant freight, but to monopolize the purchase of the commodities at their own price, for many years, to the great injury of the landed interest, and impoverishment of the peo-

ple; and the danger is the greater as the gain on one side will be in proportion to the loss on the other. Whereas requiring two-thirds of the members present in both Houses would have produced mutual moderation, promoted the general interest, and removed an insuperable objection to the adoption of this government.

Under their own construction of the general clause, at the end of the enumerated powers, the Congress may grant monopolies in trade and commerce, constitute new crimes, inflict unusual and severe punishments, and extend their powers as far as they shall think proper; so that the State legislatures have no security for the powers now presumed to remain to them, or the people for their rights.

There is no declaration of any kind, for preserving the liberty of the press, or the trial by jury in civil causes; nor against the danger of standing armies in time of peace.

The State legislatures are restrained from laying export duties on their own produce.

Both the general legislature and the State legislature are expressly prohibited making ex post facto laws; though there never was nor can be a legislature but must and will make such laws, when necessity and the public safety require them; which will hereafter be a breach of all the constitutions in the Union, and afford precedents for other innovations.

This government will set out a moderate aristocracy: it is at present impossible to foresee whether it will, in its operation, produce a monarchy, or a corrupt, tyrannical aristocracy; it will most probably vibrate some years between the two, and then terminate in the one or the other.

The general legislature is restrained from prohibiting the further importation of slaves for twenty odd years; though such importations render the United States weaker, more vulnerable, and less capable of defence.

his objections beginning with the words, 'There is no Declaration of Rights...' But in the end, the other delegates spurned his suggestions.

"They just wanted to get out of Philadelphia," Dave said.

"That's right. But you've got to understand, Mason, like the others wanted an effective national government. But he wanted more safeguards built in. For instance, he didn't want a standing army. He wanted a militia that would be called up in time of war. But he did not want Congress to control the militia; he wanted that to remain in the hands of the people and the states. This was just one of the problems he felt was unresolved by the delegates.

"Why was he opposed to the existence of a standing army?" Dave asked.

"It entices foreign adventures—the European armies were constantly busy—and eventually it would be used as a police force.

"He also felt the *Constitution* was unnecessarily vague in its wording. Among other things, he objected to inclusion of the words to 'promote the general welfare' as part of the preamble, seeing it as a catchall clause that provides an opportunity for abuse by the government, particularly in the absence of a Bill of Rights.

"He also regretted the compromise position the Congress took on slavery. Even as a slave owner, he wanted a way to rid the country of the institution.

"He didn't like the provision that allows treaties, which are enacted by the President and two thirds of the Senate, to become the law of the land without first being reviewed by people's representatives in the House.

"He would have been a believer in term limits. He believed those who served in government should serve, then return to the position of private citizens to live under the laws and policies they had created.

"Although nowhere in the *Constitution* are there provisions for the courts to rule unconstitutional laws passed by Congress to be void, Mason believed such powers should exist and that came about during the tenure of John Marshall as Chief Justice of the United States Supreme Court, in 1803 (*Marbury vs. Madison*). Still, nowhere in the *Constitution* is this a power specifically granted to the Supreme Court. But what Mason did fear about a federal judiciary was that it would render the state courts powerless. He wanted safeguards against that.

The guaranter of rights was what the people wanted, and Mason forecast a civil war if they didn't get what they wanted.

"Though many of the provisions he wanted included in the *Constitution* were not adopted, many others were. There were proposals to make each state's representation in the House to be based on wealth. This would have given Mason's state, Virginia, the most representation, but he opposed it. He wanted representative democracy and that's what we got.

"He believed the Senate should not be popularly elected. If the House was to represent the people, the Senate was to represent the states and, until 1913, senators were appointed by the state legislatures.

"Mason had been the chief proponent of the idea that appropriations bills should originate in the House and never the Senate. He was hoping that the way the federal government spends its money would more accurately reflect the will of the people.

"He also believed the House should be constantly subject to reapportionment as the country expanded. He realized that this would eventually erode Virginia's power in the federal government as new states were added

and the population spread westward. He also wanted to ensure that as new states were admitted, they would come into the Union as equals with the existing states. This meant that neither the old states nor their citizens would have any advantage. He wanted the nation's capital separate from any of the state capitals, thus ensuring the formation of an independent district, Washington, DC.

"He wanted to ensure that representatives had to live in the district they represented, that money bills originate in the House where he felt the will of the people—and the source of the money—lay, and he wanted a certain minimum time of citizenship to be able to serve in either the House or the Senate. These were all provisions that were included.

"He wanted and got provisions to allow the impeachment of a corrupt President. He also wanted the power to declare war to rest with the Congress, not the President. Military adventures should be the will of the people, not the government."

"But today Presidents can get us involved in conflicts without declaring war," I said.

"Mason's probably whirling in his grave like a dervish," Mac said.

"How did the other delegates feel about these things?" I asked.

"More often than not, he wasn't the only delegate who called for all of these measures, but he was often the most vocal and persuasive and he had a single motive: More than anything he wanted a strong government that expressed the will of the people, *and* allowed the individual maximum freedom.

"But he also didn't want a government that allowed the tyranny of the majority, either. Among other things he wanted a provision that commercial laws could not be passed without two thirds majority in both the House and Senate to pass them. What he feared was that the populous northern states would engage in economic tyranny of

the majority over the less populous southern states.

The Convention adjourns

“But almost all the other delegates present felt it was time to sign the document and submit it to the states. Some of the delegates had already left weeks earlier so they couldn’t sign it, but Randolph and Mason of Virginia and Gerry of Massachusetts were there and they *refused* to sign it.

“This left the other delegates in a quandary because they wanted a show of unanimity before the new *Constitution* was presented to the states, and all those still in attendance were expected to sign it. When it became apparent that persuasion wasn’t going to work, Gouverneur Morris of Pennsylvania—Gouverneur was his first name, not a title—offered a solution that appeased most of the delegates: since a majority of the Virginia and Massachusetts delegate did sign it, the document should include the phrase ‘unanimous consent of the states present’ and not ‘unanimous consent of all the delegates.’ It was a trick of wording, but Morris’s proposal was accepted.

“It was on this note the Constitutional Convention ended with the delegates returning to their homes. But Mason wasn’t happy. He still had his list of objections that he displayed to anyone who wanted to see them.

“Eventually, they appeared in a pamphlet titled *Objections to this Constitution of Government* which was circulated throughout the states. He personally sent copies to Washington, Jefferson, and other influential men. His list was longer now. He had added to them, protesting the regulation of the militia by the government, the power of Congress to vote itself pay raises, and other matters.

“The Federalists, as those who supported the ratification of the *Constitution* had come to be known, united to support the *Constitution* as it

stood, and to oppose Mason. Several of the essays in the Federalist Papers addressed Mason’s objections point by point.

“Jefferson, from his post in France, where he was ambassador, took Mason’s side, writing to Madison and others, threatening to call another Constitutional Convention and even work toward breaking up the Union unless a declaration of rights was included. The *Constitution* hung in the balance.

“Ultimately, it was by promising a declaration of rights that the Federalists started winning the opposition—now called the Anti-Federalists—over to their side.”

“You mean, to get the *Constitution* approved, they now had to promise the very thing they had rejected in the Convention?” Dave asked.

“Yes.”

“What made anyone think they were going to keep their promise once it was ratified? Politicians are famous for renegeing on campaign promises.”

“The Federalists, Madison among them, were winning the debates against the Anti-federalists in the state legislatures, but they saw the writing on the wall. Even as the state legislatures ratified it, the one and only state that allowed ratification by popular vote—Rhode Island—rejected it. And in the other states there was a popular cry for a declaration of rights—a *Bill of Rights*. The guarantee of rights was what the people wanted, and Mason forecast a civil war if they didn’t get what they wanted. So, to ensure winning a seat in the first Congress, Madison discovered that one of his campaign promises had to be that he would introduce a bill of rights, and everyone knew what that meant—he was going to push Mason’s *Declaration of Rights*.

“But Madison personally still didn’t like the idea. He was sure, and history has borne out his prediction, that any rights not specifically mentioned in the *Constitution* would be denied. It is on this basis the FDA, motor vehicle

departments, and the IRS, among others, have denied us any rights not specifically mentioned in the *Constitution*. And though the 9th and 10th Amendments were included in the *Constitution* to prevent this very thing from happening, they may as well not exist. The government has argued from day one that anything not specifically mentioned in the *Bill of Rights* isn’t a right, and it has invariably won.”

“What did Mason say to this Federalist argument?” Dave asked.

“He pointed out that it was a lack of written rights that had precipitated the recent revolution because the King and the Parliament felt they could safely ignore anything not written.

“But because of his opposition to ratification, Mason became the subject of various smear campaigns. He was ridiculed as doddering and foolish.”

“How did he take that?” I asked.

“One man said it was widely known to the public that Mason’s mind was failing. Mason replied, ‘Sir, when yours fails, nobody will ever discover it.’

“Few stood by him or still regarded him as a friend, though there was still a small circle of devoted followers, among whom was the great orator, Patrick Henry, who was his ally in opposing ratification. And though the man who quoted him in the Declaration of Independence, Thomas Jefferson, had changed his position and he now concurred with the position Massachusetts took, ratify the *Constitution* now with the recommendation that a bill of rights be added later, arguing that otherwise the entire United States might fall apart, he remained an admirer of Mason.

“But one by one the states ratified the *Constitution*. Only 9 of the 13 states were needed for ratification to make the document official and, with ratification by New Hampshire, on June 21, 1788, the *Constitution* was the law of the land. Though word from New Hampshire wouldn’t reach Virginia for several more days, no one

kidded themselves; if New York and Virginia, the two most populous and important states, failed to ratify the *Constitution*, the Union could not stay together. So the struggle in Virginia continued. But even with Mason and Patrick Henry opposing it, opposition to ratification was caving in, particularly with the Federalists now promising a declaration of rights, and on June 25, 1788 Virginia ratified it. Just over a month later, New York followed suit and the viability of the United States was assured.

“But ratification now presented a dilemma to the Anti-federalists. Many of them still opposed the *Constitution* but Article VI states that to serve, all executive and judicial office holders, at both the national and state level, were bound by oath to support the *Constitution*. To continue in his posts, Mason had to swear an oath to the very document he was protesting.

“In the end he resigned from the Fairfax County Court and left public service. In 1790, he was appointed by the Virginia legislature to the United States Senate, but he refused to serve, thus avoiding the necessity of swearing an oath.

“A beaten man, he felt he had lost the most important battle of his life, along with almost all his friends.

The Bill of Rights

“Madison, running for Congress against another future President, James Monroe, was now forced to take up the baton and campaign on the promise that Congress should enact a bill of rights. He told his fellow congressmen they should act on this while the glow of the Revolution was still upon them, that if it wasn’t done soon the urgency would eventually become cold and a bill of rights would never pass.”

“So now he was one of the most ardent advocates for a bill of rights,” Dave said.

“Yes, and the amendments to the new *Constitution* that he presented to the Congress were culled from Mason’s *Declaration*.

“It’s ironic that Madison is now remembered as the prime creator of the Bill of Rights when he in fact initially opposed it and only supported it when forced to.

“It’s also ironic that Mason, if remembered at all, is remembered only as one of the three Convention delegates who refused to sign the *Constitution*, when he had, in fact, more to do with shaping the good aspects of it than anyone but Madison.

“It is because of Mason that the First Ten Amendments now exist. Without him I doubt there would have been a Bill of Rights.”

“What happened to Mason?” Dave asked.

“He went back to Gunston Hall to live out his life, and shortly after his retirement he died—on October 7, 1792, but not without seeing the *Bill of Rights* adopted, on December 15, 1791. Madison, in the meantime, resumed his friendship with him, and Jefferson, as ever, remained his friend. But Washington, a friend since childhood, never forgave him for his opposition and never spoke to him again.

“Not long after he died Mason was forgotten by his countrymen and history. There was a county in Kentucky named in his honor, and George Mason University was founded in 1957 in Fairfax, Virginia, but not much else. Today, if he is remembered at all, it is usually as the cantankerous old man who opposed the ratification of the *Constitution*, but few know why. For years he lay in an unmarked grave at Gunston Hall.

“Only recently have Americans rediscovered him, though the number who have is still damned few. Here and there you can find people who know he wrote the *Virginia Declaration of Rights*. Fewer still know he was the force behind the *Bill of Rights*—the First Ten Amendments of the *United States Constitution*. And

even fewer realize that he influenced the Constitutions of most of the states, the French *Declaration of the Rights of Man and the Citizen*, and the *United Nations Universal Declaration of Human Rights*. In Jefferson’s own words, Mason was ‘of the first order of greatness,’ and he was right.

“There haven’t been many documents in history, such as the *Virginia Declaration of Rights*, that have had such a huge impact on mankind, but where the author received so little recognition. It’s like Christians knowing what the Bible is and who the Apostles were, but not knowing who Christ was.

“In many ways, the *Virginia Declaration of Rights* is more powerful than the *United States Constitution* itself. If there’s any shortcoming in the *Constitution*, it’s that it doesn’t go as far as Virginia’s *Declaration of Rights*. The *Declaration of Rights* is more or less an amalgam of both the U.S. *Bill of Rights* and the opening words of the *Declaration of Independence* and it contains not only our rights, but words that say that those who serve in government are there at our pleasure and are answerable to us at all times. And at any time, the government and those who serve in the government, can be replaced at the people’s pleasure. Those words should have been included in our *Constitution* to serve as a reminder not only to the those who serve, but the people themselves.

“How different would this country be had he never lived?” Dave asked.

“I will state flatly that even if there had never been a Jefferson, there would still have been a Declaration of Independence; had Washington never been born, American troops would still have won the Revolutionary War—perhaps quicker. But, though others called for a bill of rights, were it not for George Mason, there simply would not have been one.

“In my opinion, he was the greatest American never to be President.”

"How do you feel about his objections to the *Constitution*?" Dave asked.

"There are certain powers he wanted retained by the states that would have made the country too fragmented, but in general his objections were on the mark."

"What kind of President would he have made?" I asked.

"There's no real way to know for certain, but here was a guy who risked his life and property to support the Revolutionary War, who denounced slavery when he knew it could hurt his livelihood, and who lost almost all of his friends in a battle to ensure individual rights for everyone. But best of all he probably wouldn't have wanted the job, so he'd probably have been one of the best."

He left it there and none of us spoke. But I don't think we were sitting there for more than a few minutes when a voice asked, "Why aren't you guys working?"

It was Ilene, Dave's wife and also the business manager of the magazine. She'd just walked into the office and there was Dave, his feet still up on his desk, me slouched back in my chair, and Mac teetering back in his own chair as he faced us.

"Mac's just telling us about George Mason," Dave said.

She swept by us on her way to her desk. She got a lost look on her face for a moment, then said, "That's the guy who was behind the Bill of Rights, wasn't he?"

Dave looked stunned and I guess I did too.

"That's right," Mac said.

"There something wrong?" she asked.

"No," Dave said.

"No, Ilene, there's nothing wrong," Mac added. Δ

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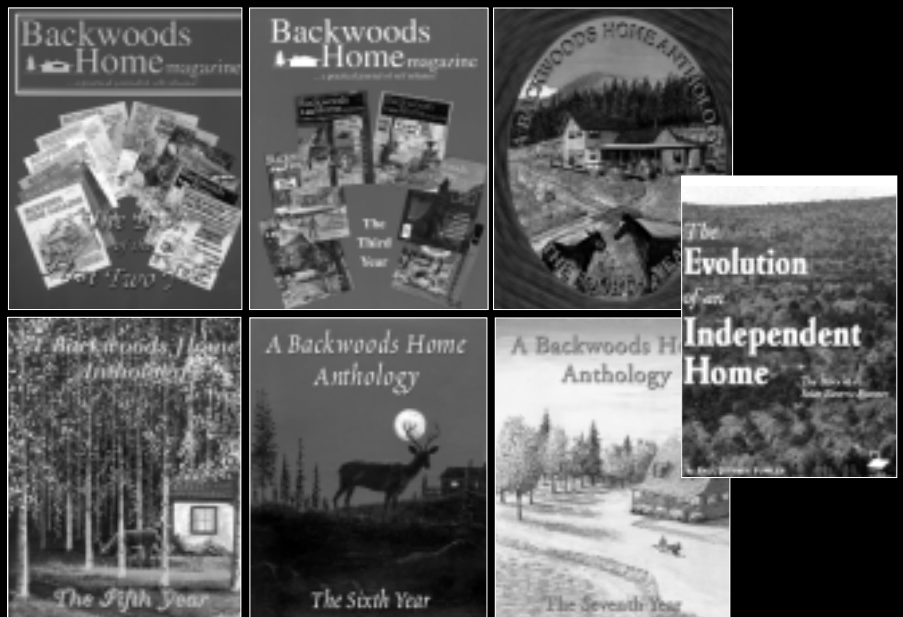
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Part 3: THE WATER SYSTEM

GOLD & SILVER

(This is the third and final part of our series on home water systems. Parts 1 and 2 were in Issue Nos. 58 and 59. — Editor)

By Michael Hackleman

Let's look at some examples of commonplace water systems. Three major design concepts are reflected in the Gold, Silver, and Gold-Silver systems. The Gold system is based around the "store" theme of water system design, the Silver system around the "demand" theme, and the Gold-Silver system is a hybrid of the two. [Note: Realize that these are only the

base parts of a system. Water purification and conditioning equipment, if any, are additive items, and are not treated in this article.]

The Gold system

The Gold system (my own term) is built around the deep-well piston pump. Primary considerations in this setup are minimal use of energy, the application of low-yield energy sources, the variety of energy sources that may be applied, and accessibility to the pumping equipment for maintenance and repair. Though only one energy source may be applied initially, this system boasts the ultimate in "add-on" capability. Money permit-

ting, other energy sources may be applied as the need arises to match increasing water usage or a changing energy picture.

The Gold system is a composite of systems I've seen in manufacturer's manuals. It shows the full breadth of options available for a water system based on wind power. Even if wind energy is not accessible, the system is still sound, easily able to utilize a number of other, equally good energy sources. Systems using various arrangements of these components have withstood the test of time and tough conditions.

The Gold system is composed of a piston pump, the delivery pipe, the sucker rod, a stuffing box, pump stan-

dard or hi-pipe, a pumping jack, a motor or engine, and a wind plant in various combinations. (See figure 7 from Issue No. 59) Let's look at each part and its function in the system.

Deep-well piston pump: The deep-well piston pump is composed of a plunger and a stationary cylinder. (See Fig 5 from issue #59) This pump is sized to the energy source that powers it, the desired gpm (gallons per minute) rating, and the pumping head. Through careful selection, we can vary the cylinder diameter, stroke (length of pumping motion), and number of strokes per minute (usually not to exceed an upper limit of 40) to fulfill the pumping needs. (See Fig. 6 from issue #59)

Cylinders vary in size, ranging from 1¼ inch to 3½ inches inside diameter, and are made from iron, plastic, or brass. The all-brass cylinder and plunger assembly with the ball type of check valves offers the longest life, particularly in pumping highly turbid water. These cylinders come in different lengths to accommodate various sizes of wind machines or pumping jacks which can additionally offer a longer stroke.

Delivery pipe: A pipe is needed to position and support the piston pump in the well, house the sucker rod (which connects the drive mechanism to the piston pump itself), and transport the water to the surface. Since it must withstand water pressure, absorb the push-pull forces of the sucker rod, and guide the sucker rod with minimal resistance losses, the pipe should be rigid and strong. Two-inch (I.D.) galvanized steel pipe is the standard.

As previously mentioned, there's a unique feature in the 1⅞-inch cylinder and 2-inch delivery pipe combination: the pump innards, including the two check valves, the leathers, and the plunger assembly (the only portions of the pump that are subject to wear) may be removed up through the pipe for servicing and repair as required. Remember, it's the delivery pipe that is the real weight in this system. So,

this feature makes maintenance and repair an uncomplicated affair.

When a larger size of cylinder (producing a higher pumping rate) is desired, without a corresponding increase in the size of the delivery pipe, this feature is lost. The situation is not always unavoidable. The cumulative weight of pipe becomes a problem for wells over 200 feet in depth, and a delivery pipe smaller than 2 inches may be needed for wells double this depth. Still, for wells up to 200 feet, the owner should seriously consider longer strokes and longer cylinders to increase pumping rates, rather than hasty increases in cylinder size.

Stuffing box versus pump standard: At the top of the well, one of two pieces of hardware will be needed: the stuffing box or the pump standard. (See Fig. 8 from issue #59) They have similar functions, but the main difference between the two is that the pump standard has a lever attached for using muscle power to pump water from the well. This assumes that you have both the muscle and the inclination. For the added fifty dollars or so in price, it's not a bad deal.

Both the stuffing box and the pump standard perform several important functions. First, they hold the in-well equipment—delivery pipe and piston pump—in position and support their combined weight. In fact, they are screwed onto the pipe end. Second, they have a watertight fitting through which the sucker rod passes and is able to move back and forth; this permits power transfer to the piston pump without spilling the pumped water. Third, the stuffing box and pump standard contain a number of fittings for attachment to the rest of the water system aboveground. And fourth, equipped with the correct type of gasket, both units provide a watertight seal over the well casing to prevent contamination of the well by dirt, insects, small animals, and surface water.

Since the primary function of either the stuffing box or pump standard is to effect a watertight seal at the point where the sucker rod emerges from the delivery pipe, an alternative to using this hardware is the hi-pipe (my term). In essence, the hi-pipe is a delivery pipe that has been extended upward to some point above the level where the water is pumped. A T-fitting anywhere between the wellhead and that point allows the water to flow out of the delivery pipe and, a few feet higher, the sucker rod emerges. Where the sucker rod is used, however, no watertight fitting is required.

The hi-pipe technique is used extensively in systems using only a water-pumping wind machine. The height of the tower might allow an easy extension of the delivery pipe to some level above that to which the water is being pumped. The tank need not be directly alongside the tower. Just as long as water storage is situated below the level of the wind machine itself, this technique can be used. However, if the delivery pipe does not extend all the way up the tower, it should be fitted with some type of cover. A watertight seal may not be required, but we'd still want to keep debris out of the well.

Sucker rod: The piston pump in the well is linked with the stuffing box or pump standard at the wellhead via the sucker rod, or pump rod. Moving up and down inside the delivery pipe, this transfers power from the energy source to the pump mechanism. The sucker rod is made up of sections of either wood or galvanized steel rod fitted with threaded ends. The required number of lengths, then, may be screwed together.

Wood is the preferred sucker rod material for three reasons. First, it's bulkier, and so a closer fit to the inside diameter of the delivery pipe. This helps to guide the rod and, on the downward stroke, keep the rod from bending or flexing over long lengths. Second, since the power stroke occurs on the upward swing of the rod, the

wood's buoyancy assists this motion. With a metal sucker rod, the power source must overcome the accumulated weight of the rod, too. And, third, wood rubbing against the steel delivery pipe is silent. With a metal sucker rod, there's a chance that everyone will get to hear the repeated "clang" as the rod strikes the pipe wall during pumping operations.

The sucker rod ends just below the watertight fitting in the pump standard or stuffing box. There it is secured to the smooth rod that actually moves up and down through the seal. If a water-pumping wind machine is used in the system, sucker rod is also used to transfer its power to the pump standard or stuffing box above the seal.

Pump rod and sucker rod are used interchangeably to describe the same thing. However, a rod that works between the wind machine and the pump standard will not necessarily work in the constant wet to which a rod connecting the pump standard and piston pump will be exposed. So, irrespective of the terminology, be certain that you and a supplier are talking about the same thing.

Pumping jack: The pumping jack is a device that converts the rotary motion of a number of energy devices such as electric motors and gasoline engines into the reciprocating (up and down) motion needed to power the piston pump. Typically, the pumping jack is bolted to the stuffing box, the pump standard (See Fig. 8 from issue #59), or the concrete pad surrounding the wellhead. With long lever arms, it's designed for quick connection to, or release from, the sucker rod protruding from the stuffing box or pump standard. In the wind energy-based system, then, the pumping jack is connected during low and no-wind conditions for water pumping as needed. If no wind system is feasible, the pumping jack may be the primary means of operating the piston pump.

The pumping jack is only a sophisticated conversion device. It is not an energy source. For this reason, a

motor or engine must be attached. This is usually no problem. A bolt plate that will accommodate either a small engine or an electric motor is part of the assembly.

The pumping jack is designed to rotate in a specific direction—clockwise or counterclockwise—and the motor or engine you select may or may not turn in the same direction. If it does, fine. If it doesn't, there's a definite problem. With an electric motor the direction of rotation may be reversible. A local motor shop can do this in a few minutes. A gas engine is not reversible. Of course, either a motor or engine could be mounted separately from the pumping jack, but it's a hassle to align the pulleys, maintain belt tension, and keep the respective assemblies from loosening up in operation. So—get a pumping jack that rotates in the same direction as your motor or engine or be prepared to buy your way into matching the pumping jack's rotation.

Quality pumping jacks have their gears running in oil. They should provide quiet and trouble-free operation for a lifetime. Check your pumping jack frequently, replacing lost oil and occasionally draining the old and filling up with new.

Electric motor versus gas engine: Either an electric motor or a gas engine may be bolted to the pumping jack for water-pumping operation. Gas engines are considerably noisier, and they use expensive gasoline. If there's a choice, the electric motor is the preferred power source. However, this assumes that you have electricity, either utility-supplied or generated on-site. If you don't, the gas engine is the only alternative. Don't rule out the possibility of using both. If the pumping jack is normally powered by utility-supplied electricity, it's nice to have a small gas engine as backup during a blackout or other emergency.

Manufacturers' specifications clearly designate electric-motor horsepower for given conditions—the pumping head, pumping rates, cylinder size,

etc. However, observe caution when using a gas engine with a pumping jack. Without using an intermediate jackshaft, the smallest pulley that may be attached to the engine will over-speed the pumping jack (which operates at a maximum 40 strokes per minute) at optimum engine speeds. At reduced speeds, the available engine HP is a mere fraction of the engine's rating—it can be as low as $1/10$ the value. Hence, where a $1/3$ HP electric motor is specified, a 3-5 HP gasoline engine will be needed to deliver the same performance.

Water-pumping wind machine: The deep-well piston pump is ideally suited for use with a wind machine of the type produced by the Aeromotor, Dempster, or Baker companies. Since these aeroturbines are designed for operation at low wind speed, there are few places where they cannot be used. The least that can be said about the aeroturbines themselves is that they have evolved over a long period of time (75 to a 100 years) and that the present models are time-tested. For example, the last major design change in the Aeromotor wind machine was in 1933. Finding parts for either the new or older wind machines, however, is not a problem—a definite advantage over the change-the-model-each-year syndrome that affects other commercial equipment such as cars. This is good to know when buying a new wind machine and a lifesaver when restoring a used wind machine (if, in fact, any restoration is required).

New or used, the major expense in wind-pumped water systems is split between the wind machine itself and the tower. Which one represents the higher cost depends largely on the circumstances. Unfortunately, the best spot for digging a well is rarely the best wind site. If this is the case, the tower must extend the wind machine high enough above surrounding obstacles such as trees and houses to reach undisturbed wind. This is not only an initial problem. Since there's a tendency to site the well and wind

machine near a house and also to plant shade trees in the same location, the problem may arise in later years. Many an old farmstead may be found today with the wind machine nestled deep in the trees which have, over the years, grown above it.

If wind energy is accessible, there are a number of ways to proceed. The first is simply to buy new equipment, letting the supplier size the wind machine and tower and having him install them. This is pretty painless and, not surprisingly, expensive. An alternative is to buy the equipment and install it yourself. This is particularly applicable if you're in the boonies and there's little chance that the supplier can get his baby crane in there. Don't let the size of the job intimidate you. Learn everything you can on the subject and get the necessary help or equipment.

Tactics: Any situation that meets the requirements of a store type of water system will find the Gold system a cost-effective and efficient setup, particularly when used with a low-yield energy source. Again, this type of system is still a viable alternative even if alternative sources of energy are not available in sufficient amounts. An electric motor powered from utility-supplied electricity driving a deep-well piston pump through a pumping-jack pump standard boasts a higher cost-benefit ratio than a submersible pump pumping into the same storage. Furthermore, if energy use, hardware, well capacity, system versatility, and usage are evaluated honestly, the two systems are even cost competitive. In this respect, only personal preferences will sway the decision one way or the other.

If your money is limited, a tower, wind machine, and storage tank are pretty major expenses to tackle right away. A better idea is to install the pumping jack first. If electricity (utility, wind-electric, or standby generator) is available, an electric motor is used. If electricity isn't available, a gas engine may be installed. Both get

you going right now. And even if you have no storage, you get water when you want and can turn it off when you don't.

The next item to add (as money becomes available) is the storage tank. This investment will save you from having to turn on the pump every time you want water. Additionally, it will allow you to use water at higher rates than that at which water is pumped directly from the well.

Eventually, if you plan a wind-pumping setup, the tower is purchased or made, installed, and the wind machine added.

There's an alarming tendency to reverse this process. Resist it. Even if the money is available, you can't make effective use of wind-pumped water without storage. And there's no point in having storage if there's no water to put in it. It may take weeks to correctly install a tower, wind machine, and storage tank. Only a few hours are needed to complete a pumping jack installation. So get the water first, provide storage next, and then alternate means of pumping it.

Accessories: The Gold system has several additional components: a well seal, a screen and an in-tank level sensor.

Well seal: All wellheads need a sanitary seal. This seal is always watertight and sometimes airtight. In a store system, a different well seal is positioned over the wellhead casing before the pump standard or stuffing box is set atop it. It seats when either piece of hardware is bolted down to the concrete well pad.

Screen: The piston pump doesn't come equipped with a screen affixed solidly to the bottom of the cylinder. It's sold as an accessory. Why? With a piston pump assembly you can use a tail pipe. If you do, you'll want the screen on the bottom end of it.

While all piston pump installations should use a screen, many do not. Two reasons are given. One, at lower pumping rates like those exhibited by the piston pump assembly, there's not

as much need for the screen. And, two, in those systems where the pipe and cylinder have been sized so the pump innards may be removed up through the delivery pipe, it's ever so much easier to replace the leathers more often than it is to lift out the entire assembly to clean a screen.

In-tank level sensor: It's nice to know the level of water in a storage tank. This can be accomplished in at least five different ways.

1. Look inside the tank.

2. Look at a pressure gauge near the house. At .433 psi per foot, there's a 4.3 psi difference of pressure in a 10-foot high tank between empty and full.

3. Rig up a wire with a float at one end and a weight at the other. Run it out the top of the tank and down the side. Paint a scale behind the hanging weight. When it's at the bottom, the tank is full. When it's at the top, the tank is empty. Points in between will tell you how much water is present.

4. Install an electronic gizmo in the tank to give you a reading of water level. You design and install the gizmo. Hint: If it needs anything bigger than a few AA size cells to operate, you'll probably electrocute someone at some point.

5. Water flowing out of the top of the tank = full. No water at the tap = empty tank. Everything else = guess.

The Silver system

The Silver system (my own term) starts its life built around the centrifugal pump (**Fig. 1**). Primary factors in this setup are a high-yield water source, available of utility (or generator) electricity, high head, high usage rates, and the need for immediate installation.

Note: The starting block of the Silver system is a favorite of well drillers everywhere. It is also often installed by individuals who are ignorant of the existence of any alternatives to it. It is a system that best emulates the water system found in houses in the city. It is not efficient or versa-

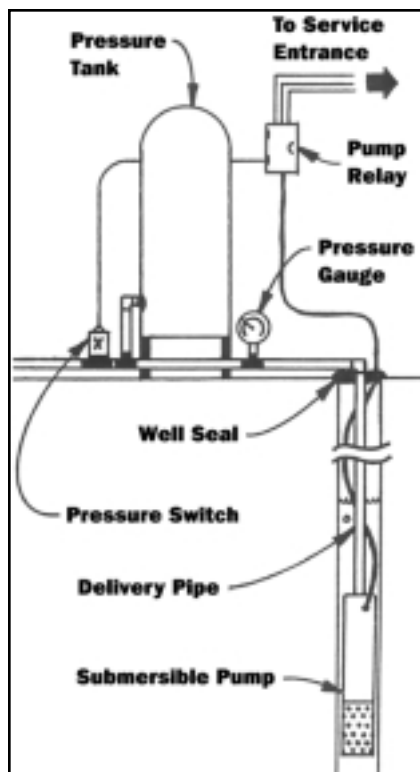


Figure 1: Components of the "demand" type system.

tile. The depth of the well in which the pump hangs is usually increased beyond the point of actually hitting water. While this helps minimize the impact of drawdown, it increases the cost of drilling the well in the first place. Despite these deficiencies, the Silver system can be modified—using a dual (parallel) or piggyback (series) arrangement of a piston pump—to increase its versatility over the basic system. (More on the Gold-Silver system soon.)

The initial setup of the Silver system is composed of a 110V or 220V AC centrifugal-type submersible pump (previously discussed). Additional components required in this system are delivery pipe, electrical wires, level sensor, pressure gauge, pressure tank, pressure switch, screen, torque arrestor, and well seal.

Delivery Pipe: In the demand system, the in-well delivery pipe (which transports the pumped water) is usually 1-inch, type PE (black) plastic pipe.

Electrical Wires, Pump: Use only code-approved electrical wiring that is specially formulated for water submersion with submersible pumps. If well depth is greater than stocked lengths of wire, use code-approved connectors. Wires are strapped to the side of the delivery pipe to avoid fouling and to keep the wires from chafing against the well wall or casing.

Level sensor, in-well: If the water source is ever pumped dry, and you don't catch it right away, the submersible pump may burn out trying to pump air. The in-well level sensor is an automatic means of both sensing this condition and disabling the pump when it occurs. Two probes are lowered into the well. One is positioned just above the pump, the other some distance above it. The magnetic relay into which they connect will stop the motor when water reaches the lower sensor. It will restart power to the pump only after the well has recharged with water to the level of the upper sensor.

Pressure gauge: A pressure gauge may be added to the plumbing in the vicinity of the pressure switch (below). At this location, of course, it cannot be used for monitoring the system's operation (unless you frequent the pumphouse). It serves two purposes. Initially, when the system is installed, the gauge assists in the adjustment of the pressure switch to the correct range of operation. Later, the pressure gauge is a good visual indicator if there's some malfunction. It will let you know at a glance what is working and what is not, thereby isolating the problem.

Pressure switch: Ever wonder how the water system automatically turns on when you open a faucet? In a demand system, a pressure-sensitive switch detects the lowered pressure, closes its contacts, and energizes the pump relay, starting the submersible motor. When usage stops, the water pressure builds to a pre-adjusted value, the pressure switch's contacts open, the pump's power relay is de-

energized, and the submersible pump stops.

The pressure switch doesn't open and close at one specified pressure. Instead, it closes at some low pressure and opens at some higher pressure. Typical values are 30-50, 35-55, 40-60, etc. The overall range is adjustable, but the difference between the upper (open) and lower (close) points is a built-in specification. If you want a smaller or larger difference, you must buy a different pressure switch.

Pressure tank: Water is not compressible. A water system that uses only a pressure switch will suffer from "water hammer." This is the sound of knocks like hammering as the pump switches on and off in its attempt to sustain system pressure. This also causes sputtering at a faucet when it's first turned on and uneven flow when the faucet is in use.

The remedy is the pressure tank. The pressure tank is primarily an air chamber. Unlike water, air is compressible. Inserted in-line, the pressure tank absorbs water hammer and assures an even flow to the faucets at any rate of use below the pump's capacity. The pressure tank acts somewhat like a storage tank since it is possible to get some water from the system without having the pump start up. Still, this is merely a byproduct of the pressure tank's functioning. Indeed, even a 42-gallon pressure tank is not capable of supplying more than 6.5 gallons of water before the pump restarts.

Since air mixes so readily with water, a recurring problem with older-style pressure tanks was their propensity toward waterlogging. Periodically, air had to be pumped in to replace that lost to absorption. This was usually done manually. With suitable controls, it could be automated. Newer-style tanks use floating separators, minimizing the surface area and hence the interaction between water and air. Some tanks even confine the air in a bladder suspended in the tank.

Screen: A screen is attached to the intake (upper end) of the submersible pump to filter out anything that would clog the pump. A fine-mesh screen may be added to help filter out anything that would pit the pump's impellers.

While the submersible pump may function two to fifteen years in the well without servicing, the screen may not fare as well. If pumping performance diminishes in time, the first thing that should be checked is the screen. The entire assembly—delivery pipe, wires, and pump—must be pulled for this five-second check and, if clogged, a five-minute cleanup job.

Torque arrester: Mounted on the delivery pipe just above the centrifugal pump, the torque arrester is a flexible gadget that makes contact with the well or casing wall, resisting the "twist" of the pump assembly on start-up due to motor torque.

Well seal: All wellheads need a sanitary seal. This seal is always watertight and sometimes airtight. In the demand system, the well seal is a pancaked rubber seal with holes bored through it. You buy the one that will fit the diameter of your well and pass the size of delivery pipe and electrical

wires for your pump. Once these have been routed through, the seal is set on the wellhead casing. Upon tightening, it expands against the well casing to affect an impenetrable seal.

The Gold-Silver system

There's really no reason to view water systems as strictly either/or, demand versus store, piston pump versus submersible pump. Why not a combination?

There are two basic ways that the submersible pump and the piston pump may be merged into one system—side-by-side and piggyback. **(See sidebar)** Each combines the best features of both pumps (and systems) and effectively neutralizes the disadvantages of each.

Phase one: After operating a demand system for a number of years, some friends of mine realized the availability of wind energy at their site and its potential as an alternative energy source for water pumping. Their present system was ill prepared to handle fire fighting and to operate during blackouts. As water usage increased with a newly installed gar-

den and orchard, the frustrated owners were ready to consider alternatives.

An extensive retrofit was designed—a waterpumping wind machine and tower, a piston pump, and plumbing to handle two service pressures.

Using wind energy necessitated a storage tank. While the property did elevate sufficiently to provide gravity flow from a storage tank sited at the highest point, gravity pressurization was not possible. This was not considered a major handicap since all of the

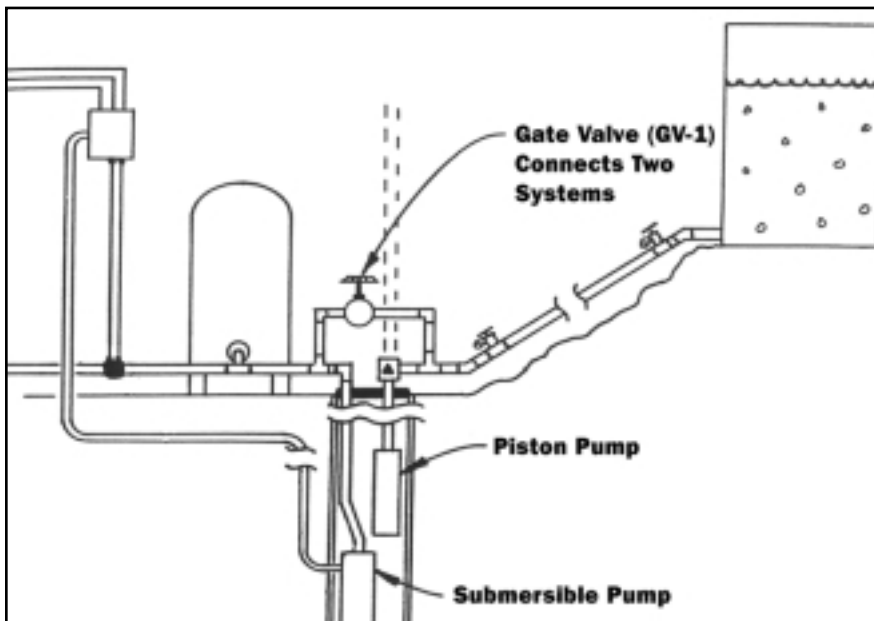


Figure 2: Demand and store type systems joined in a side-by-side method.

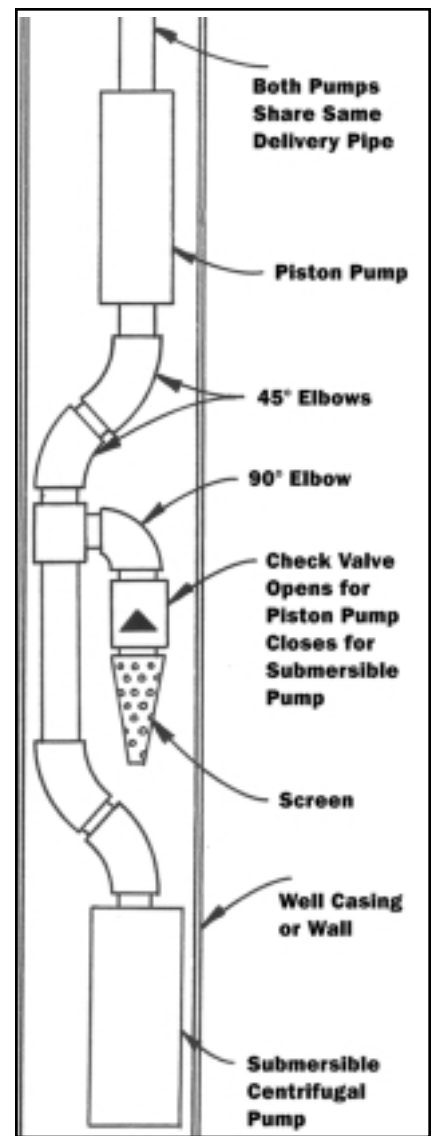


Figure 3: Demand and store type systems joined in a piggyback method.

Variations of the Gold-Silver System

A store-type and demand-type system may be combined into one system using a side-by-side or piggyback arrangement.

In the side-by-side system, each system is installed independently of the other, with the piston-pump usually positioned above the submersible (See Fig. 2). The plumbing is kept separate through the wellhead and joined, in some fashion, thereafter, in a variety of ways.

In the piggyback arrangement, the submersible pump is joined with the piston pump (See Fig. 3) to feed the same delivery pipe to the surface. While no harm would come of operating both pump mechanisms simultaneously (and, I might add, no gain either), normally only one or the other pump

would be operated at a time. When the piston pump is operational, it draws water through the check valve as it would through a tail pipe. When the submersible pump is operated, it draws water through its own strainer and pumps it through the piston pump and up the delivery pipe.

The piggyback arrangement is illustrated in a number of pump manuals circulated by manufacturers. However, in practice the actual connections between the two pumps cannot be easily made inside a 6-inch well size. There just isn't the room. Instead, a number of 45-degree pipe elbows are needed to offset the interconnecting pipe to accommodate the room taken up by the check valve. It is possible to use flexible pipe between the two to surmount this obstacle, but it's not rec-

ommended. A submersible pump, on startup or shutdown, exhibits a vicious little jerk due to motor torque. Therefore a short section of interconnecting plastic pipe will fatigue in short order and break. This will necessitate pulling the entire system out of the well for repair.

Controls similar in type and function will permit the piggyback arrangement to act alternately as a demand or a store system. In reality, it is both. However, the use of this system presupposes that the owner/operator is utilizing a non-utility energy source as the power unit for the piston pump. For this reason, water pumped to storage from the submersible pump must be limited or the piston pump will have no place to put water when it is functioning.

gardens and orchards were downhill from the ideal site for the tank.

A 2,000-gallon storage tank was purchased and sited. A 20-foot wood tower was built on top of the stone pump house and a water-pumping wind machine was purchased and set atop it. A deep-well piston pump was inserted into the well in addition to the existing submersible pump. Instead of a piggyback system, a side-by-side mounting of the two pumps was chosen (See Fig. 4).

A new wellhead was fashioned to accommodate the unorthodox side-by-side arrangement of these two pumping systems. An overflow pipe was added to handle the well's tendency to become artesian during a few months of the year and the overflow was routed to a nearby garden. A new anti-contamination seal was made to accommodate the 2-inch galvanized pipe for the piston pump and the 1-inch plastic pipe and electrical wires for the submersible pump. A stuffing box was located at the wellhead and the needed length of pump rod and pipe was routed up through the ceiling

of the pump house to the wind machine perched overhead.

The two water systems were, at this stage, wholly separate. Any water that was pumped from the wind machine to the tank was used at low pressure in

the gardens and orchards. All household water was supplied by the utility-powered submersible pump. Backup hoses from the submersible pump system were routed to the gardens and orchards to take care of any watering

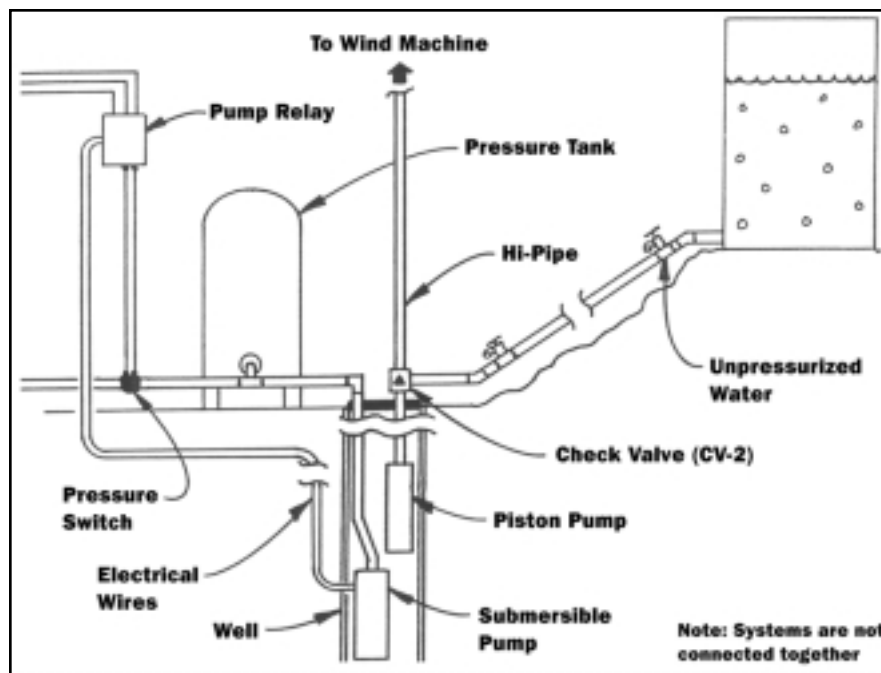


Figure 4: Phase one of the Gold-Silver system

needs beyond the capability of the wind-pumped water system. They were never used. Once the system was in and operating, it was quickly evident that the wind pump was able to handle all of the outdoor watering needs. Indeed, the system exceeded the nearby garden's water requirements, and the owners had to shut down the wind machine manually (via the handcrank in the wellhouse) again and again. Any uncertainty or disbelief on the part of the owners that the added system would handle garden and orchard and, perhaps, some of the household watering needs too, evaporated. They were ready for phase two.

Phase two: Phase two of the Silver System tied the two systems together with a gate valve between the pipes for each system at the wellhead. This served two functions. First, during a blackout, the submersible doesn't work. If there's water in the tank and there's a need for water in the household, opening the gate valve feeds water from the tank directly into the house. In times of need, water at any pressure is hardly "inconvenient."

The secondary function of the gate valve is that it provides a quick and easy way to fill the water tank to any desired level using the submersible pump. This is particularly handy if a forest fire or tornado is on its way. Simply opening the gate valve has the same effect as opening any water faucet, causing water to flow into the tank until the gate valve has been closed.

For a mere twenty dollars in parts—a gate valve, pipe, a union, and a few pipe tees—this tie-in does an awful lot.

Final comments: As simple as the Gold, Silver, and Gold-Silver systems are, it may not appear that way to the novice. I highly recommend making a system diagram. This will certainly help family, friends, and visitors to understand the system. It will help you remember, too, and will prove invaluable if something doesn't seem to be working correctly. You can't

troubleshoot something if you can't remember how things are supposed to work. Clearly label all switches—pressure, level sensor, reserve bypass, etc.—in the system and key them to the drawing.

Whatever type of water system you eventually design and install, I hope it brings you and your land life, utility, and happiness.

(Some text and drawings in this article were taken from Waterworks: An Owner-Builder Guide to Rural Water Systems (Michael Hackleman, Peace Press, 1983, 172pp), The Homebuilt Wind-Generated Electricity Handbook (Michael Hackleman, Peace Press, 1975, 194pp) and At Home with Alternative Energy (Michael Hackleman, Peace Press, 1980, 146pp) For a publications list, send an SASE to: Michael Hackleman, PO Box 327, Willits, CA 95490.) Δ

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TRY THIS SIMPLE SLOW COOKER

BY REV. J.D. HOOKER

While on a church outing at Indian Springs Campground, just south of Garrett, Indiana, my wife called me over to have a look at the unique homemade slow cooker one of the young mothers was using. I knew instantly that I was looking at something most of *BHM*'s other readers would find just as interesting as I did.

"Actually," the young lady explained to us, "I was just looking for a really cheap, but effective, way to keep food hot when we take the boys on picnics and such. It took me a while before I figured out that this could cook things just as well as my electric crock pot does. Since then, though, I use this nearly every day."

Her homebuilt slow cooker is exceptionally simple, both to fashion and to use. So naturally, a couple of days later I took a couple of hours and put one together for my wife, Connie.

All that I needed to put together a nice working replica of the simple slow cooker this young church-going

mother had fashioned was a sheet of two-inch thick styrofoam insulation (the tough blue stuff most concrete suppliers sell for insulating footings is ideal for this), an old stainless steel stock pot and lid (bought for \$2.50 at the Salvation Army store), some paste type car wax, a little bit of construction adhesive, one spray can of expanding styrofoam insulation, and part of a cardboard box.

First off, I cut five pieces of the two-inch thick insulation to shape a square box into which the stock pot would slide easily, as shown in Figure 1. The four side pieces are cut the same height as the pot and two inches wider than the pot's diameter. The bottom piece is cut square four inches longer than the diameter of the pot. After gluing this box together with the construction adhesive, I used the automotive wax to polish the exterior of the stock pot, using three coats and buffing each to a high shine. This is done after removal of the handles to make the pot a smooth fit in the box.

Next I inserted the pot into the foam box, and used some of the expanding foam to fill in the empty spaces at the corners for a perfect fit, as shown.

Later, once this canned foam had set up, I carefully worked the well-waxed pot loose and removed it from the insulated box. Then I really lightly sanded the inside of the hardened insulation with coarse sandpaper so the pot would just slip in and out easily for washing after each use.

I waxed the lid in the same fashion, then set it inside of the cut-down cardboard box which had simply been smeared with a heavy layer of the paste wax (Figure 2). Then I cut a piece of the two-inch styrofoam to just fit inside of the box, covered the lid with the remainder of the can of expanding foam, and pressed the cut styrofoam piece on top, as shown. Later, I lightly sanded the inside of this lid cover so it could be easily removed and replaced on the top of the slow cooker.

Once the whole thing was completed, I assembled it together. At each corner I shoved a three-inch-long piece of half-inch wooden dowel down through the top foam cover into the sides of the insulated box. This should ensure that everything lines up perfectly, but probably isn't really necessary (Figure 3).

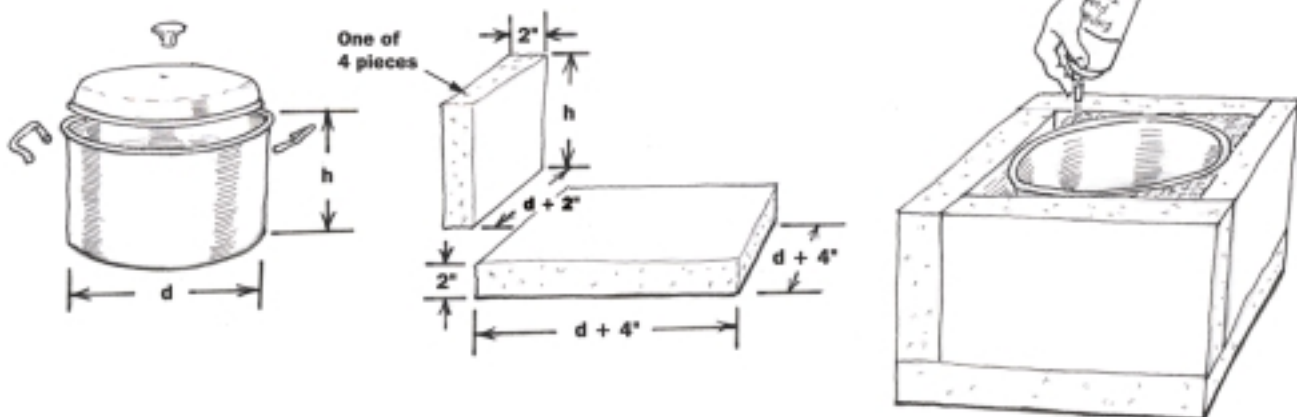


Figure 1: Cut and glue together five pieces of two-inch styrofoam pieces, insert well-waxed pot after removing the handles, and fill empty spaces with expanding foam insulation. Note the dimensions of the five foam pieces.

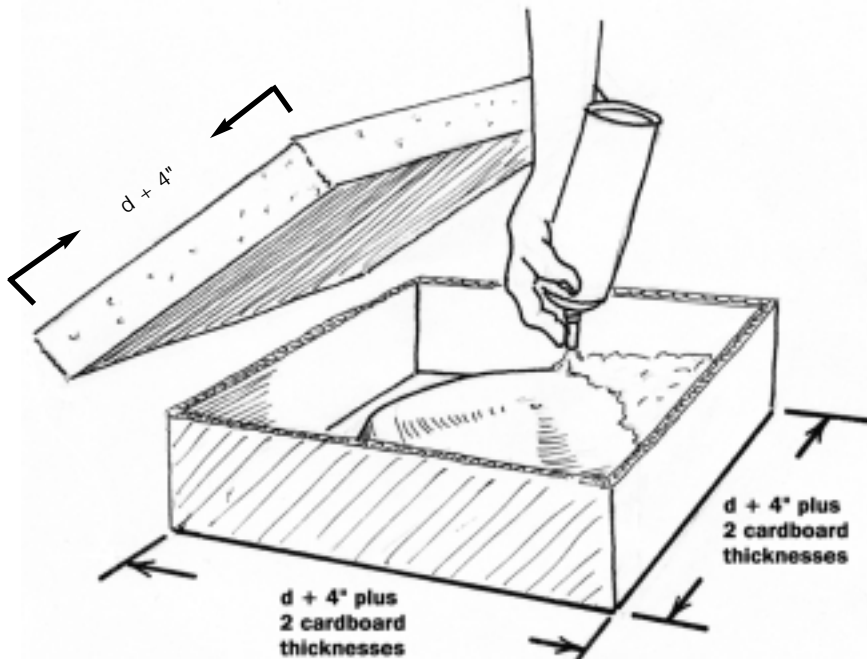


Figure 2: Place waxed lid (after removing lid handle) inside waxed cardboard box, cover with expanding foam insulation, then press piece of two-inch thick foam insulation into box, on top of the expanding foam. Note the dimensions.

The day after I'd finished up, my wife was ready to use her new cooking device. First she strained off the water in which a pound of speckled Jacob's cattle beans had been soaked, reserving the liquid in a separate pan while the beans went inside of the insulated pot.

Next she finely diced about half a pound of leftover ham and a large onion and added them to the water she'd drained off the beans. Then she set the pan on the stove and brought

the mix to a full, rapid boil. This boiling mixture was then poured in with the beans inside the insulated pot, and the lid and the insulated cover were quickly set in place on top. The whole thing was then just left alone to sit for about three hours.

At supper time, we found the contents still piping hot, and indistinguishable from ham and beans prepared in any regular crock pot.

You can use any recipe that you'd normally use in any other slow cooker. The difference is that you must always bring the cooking liquid to a full rolling boil and add it to the pot last, after all of the other ingredients. You also need to close the cooker up as quickly as you can once the boiling liquid has been added. Having something of an artistic nature, my wife rounded off the corners of our new slow cooker with some sandpaper, covered the exterior with paint, and stenciled colorful flower designs all over the outside. I'll admit it now looks just as good as it works, but I'd still say the painting is optional. Δ

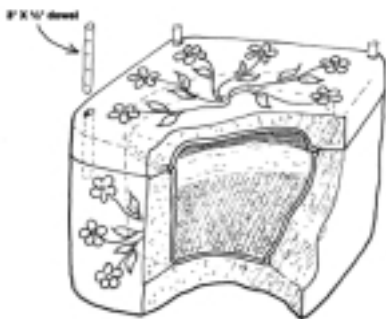


Figure 3: After assembling the two slow cooker pieces, you can secure them together with dowels if you wish. My wife rounded off the corners of ours, then decorated it.

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