

VOLUME LXIX

NUMBER THREE

THE NATIONAL GEOGRAPHIC MAGAZINE

MARCH, 1936

WITH THIRTY-TWO PAGES OF ILLUSTRATIONS IN FULL COLOR

Northern California at Work

With 36 Illustrations and 2 Maps FREDERICK SIMPICH

California—85 Years After the Gold Rush

23 Natural-Color Photographs B. ANTHONY STEWART

Where Spring Paints a State with Wild Flowers

18 Natural-Color Photographs

Bridges, from Grapevine to Steel

With 13 Illustrations

A Palette from Spain

With 17 Illustrations

W. LANGDON KIHN

Flashing Fashions of Old Spain

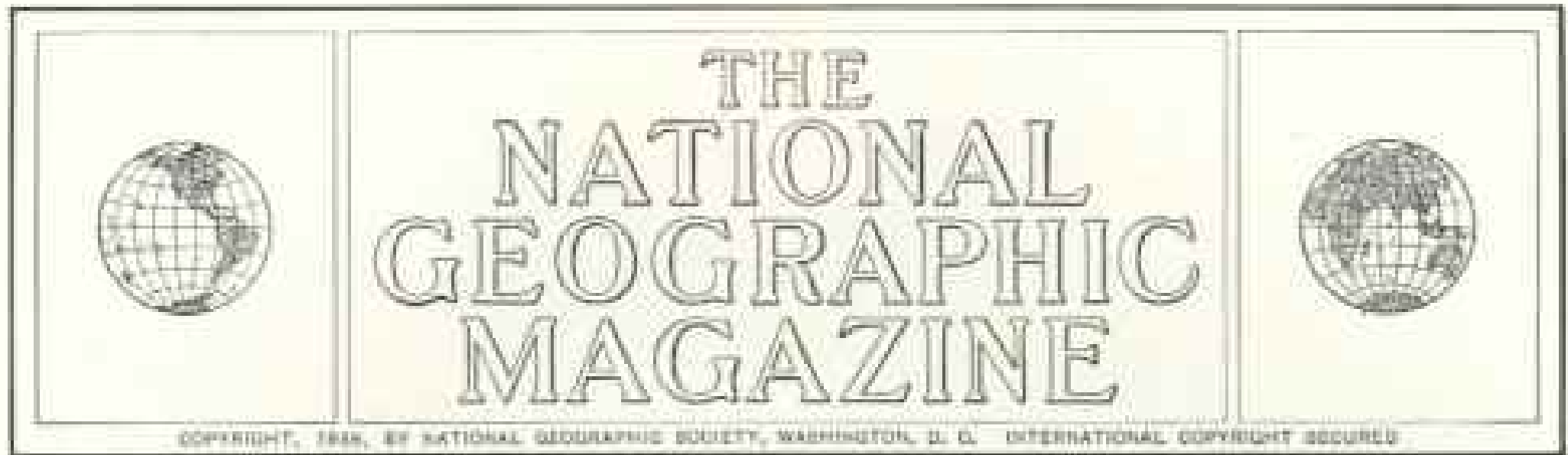
26 Illustrations in Duotone

J. ORTIZ ECHAGÜE

PUBLISHED BY THE
NATIONAL GEOGRAPHIC SOCIETY
HUBBARD MEMORIAL HALL
WASHINGTON, D.C.

\$3.50 A YEAR

50c THE COPY



NORTHERN CALIFORNIA AT WORK

BY FREDERICK SIMPICH

I HOLD they are not worth a dollar." That is what Daniel Webster thought of California, and other southwestern lands, when it was proposed that we take them as indemnity after the War with Mexico. "What sympathy," he added, "can there be between the people of . . . California and . . . the Eastern States . . . ?"

Webster gave that opinion of California in the Senate only 88 years ago.

Today it is the wealthiest State west of the Mississippi, and has some 6,158,000 people. One of them said to me: "It took my folks 200 years to get to California. They landed in Virginia about 1650, and moved west with the frontier. My father got here in the 1850's."

Up in Humboldt County at a "Forty-niner's Ball," for which men grow full beards, a sweet, bright-eyed lady said: "My dress must be all of 130 years old. It was old when my mother brought it around the Horn, from Nova Scotia." Her men fought grizzly bears and Klamath Indians, panned gold, and cut timber to build schooners. Only once in 15 or 20 years did they get down to San Francisco, and then by sea; no railroad reached northwest California till long after she was grown.

"My father was General Mariano Vallejo, the last Mexican officer to command this post," proudly asserted Señora Luisa V. Empanan, of Sonoma. "He was born at Monterey. Here are his silver-mounted saddle, his sword, spurs, and pistols. After America acquired California he became a patriotic, influential citizen of the United States."

In such ways came the whites who people this land—divergent races, from sources far apart.

In Napa County you see how French, Italian, and German grape growers form yet another racial strain. In 1880 one-third of all people then here had come from foreign lands, a fact which was profoundly to influence the human and economic geography of this oldest and largest of all Pacific Coast States (see map, pp. 312-313).

Seek quiet country lanes that lead to long-established homes of both native American and foreign stock, and you sense the social maturity of this complex yet mellow land. Monterey was a seat of Spanish culture before Washington, D. C., was even surveyed. Russians had built Fort Ross, and were growing wheat and trading counterfeit wampum for otter skins before peace ended the War of 1812.

Ever since Hubert Howe Bancroft's painstaking researches, writers have told and retold the story of early California—and they still make use of Bancroft's incomparable source material, preserved now at the State University in Berkeley. You cannot understand present-day trends and conditions in this extraordinary State without at least a glance at its fascinating history since gold was discovered.

To see what the white man has done with work, tools, and science in developing this region as it is now, consider the place where his labors began. Ride through the "Mother Lode Country," where the first pick marks on this now lush, opulent land were made by the gold seekers. Every hillside, gully, and stream bed shows the scars of shafts, tunnels, and frantic digging.



Photograph by H. Anthony Stewart

VISITING THROUNGS CHEER THE "DAYS OF '49" PARADE AT ANGELS CAMP.

Celebrated each spring, this fiesta may include a Pony Express ride from Sacramento, and re-enactment of historic stage robberies and hanging bees. Most exciting is the frog race, inspired by Mark Twain's "Jumping Frog of Calaveras County" (see Color Plate XV).

Ruined huts and half-deserted "ghost towns" dot these gold fields from which bearded men in red-flannel shirts gouged nuggets and panned the yellow dust. Melancholy Columbia is adumbrative of all these early camps. In its old Wells-Fargo stagecoach office you see the clumsy scales on which, records prove, more than \$30,000,000 in gold was weighed. In boom days 15,000 people lived and worked here; now the village is shrunk to a bare 250.

All through Sierra foothills you find these fading towns, with such names as Rough and Ready, Slug Gulch, You Bet, and Grizzly Flats. At Hangtown (now Placerville) long stood the big tree on whose stout limbs two men could be strung up at once. In Tuolumne County is the cabin of Bret Harte, whose characters in "Tennessee's Pardner" and "The Outcasts of Poker Flat" were drawn from hereabouts.

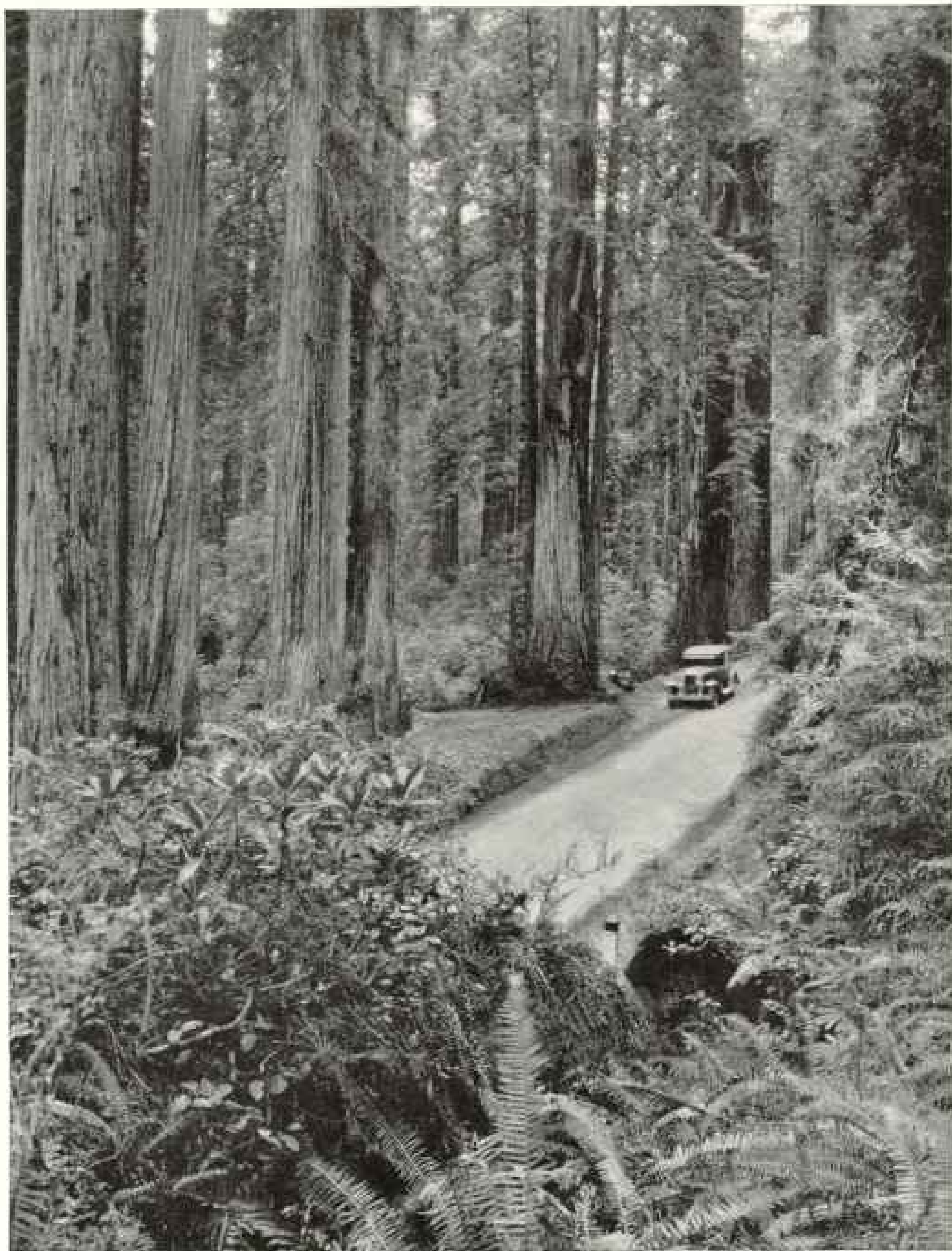
FROGS RACE AT ANGELS CAMP

Another shack is labeled "Mark Twain's Cabin." Violent, murderous, and thieving though life in these diggings was, Twain was able later to say: "Always do right;

it will gratify some and astonish the rest!" In those halcyon mining days he wrote "The Jumping Frog of Calaveras County." Each spring now the once hedonic town of Angels Camp stages a "jumping frog" contest; entries come even from distant Arkansas. Guests with what Pope called "nice foppish gusto" look with gluttonous avidity on the fat legs of these prize-winning frogs; and I have it from frog-track habitués that it is fair to eat any frog that refuses to jump.

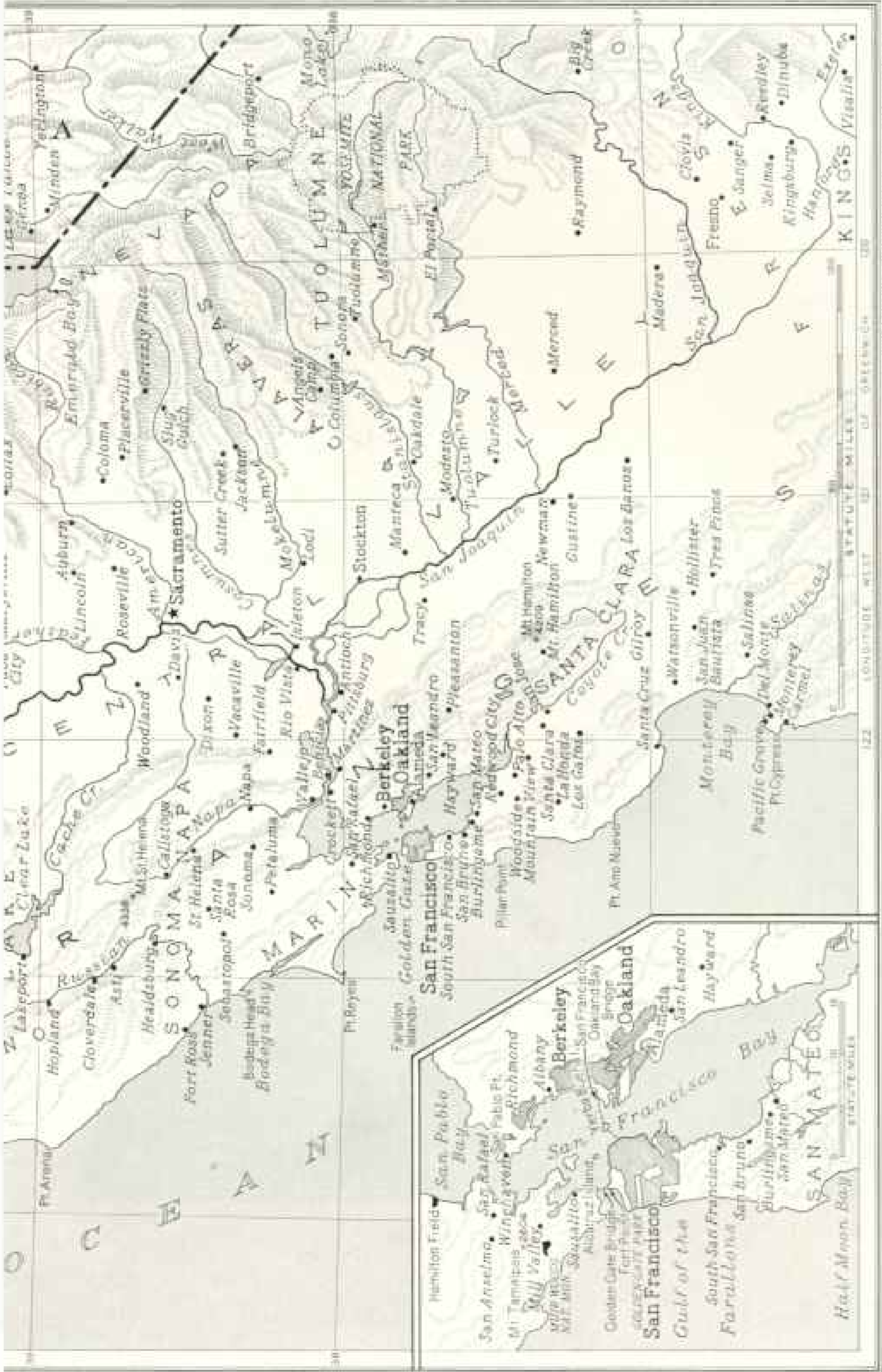
Though from these gophered hills some gold seekers took their dizzy millions, the real contribution of the Gold Rush to California's destiny is often overlooked. Think of the blacksmiths, carpenters, cowboys, farmers, doctors, lawyers, and teachers who came with the gold-hunting horde. They cleared land, built towns and roads, sent East for wives, raised husky "Sons of the Golden West," and spread the raw canvas for this 1936 picture of northern California at work.

Few, comparatively, got rich in the mines; that wasn't economic production, anyway. They simply *found* the gold, at



FERNS AND RHODODENDRONS FRINGE THE ROADS THAT LEAD BENEATH THE TALL TREES

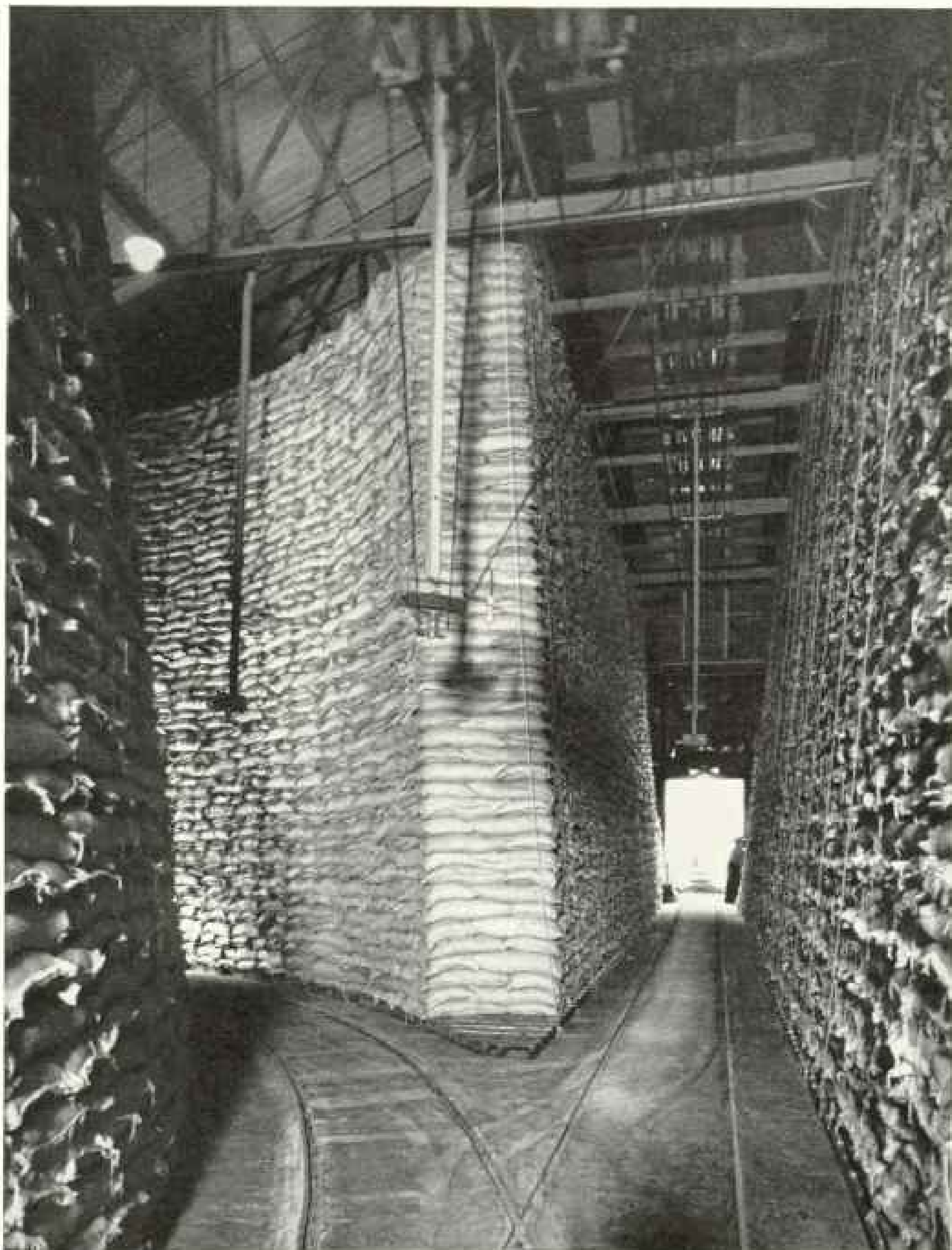
From San Francisco north to Oregon stretches the Redwood Highway. Along it and along scenic connecting roads into Marin, Sonoma, Lake, Mendocino, and Humboldt Counties stand the Redwood groves, many preserved for the State by the Save-the-Redwoods League. Delicate shrubs cling to the bases of these giants (see text, pages 334, 342).



Drawn by Newman Dumont and Arthur J. Haas

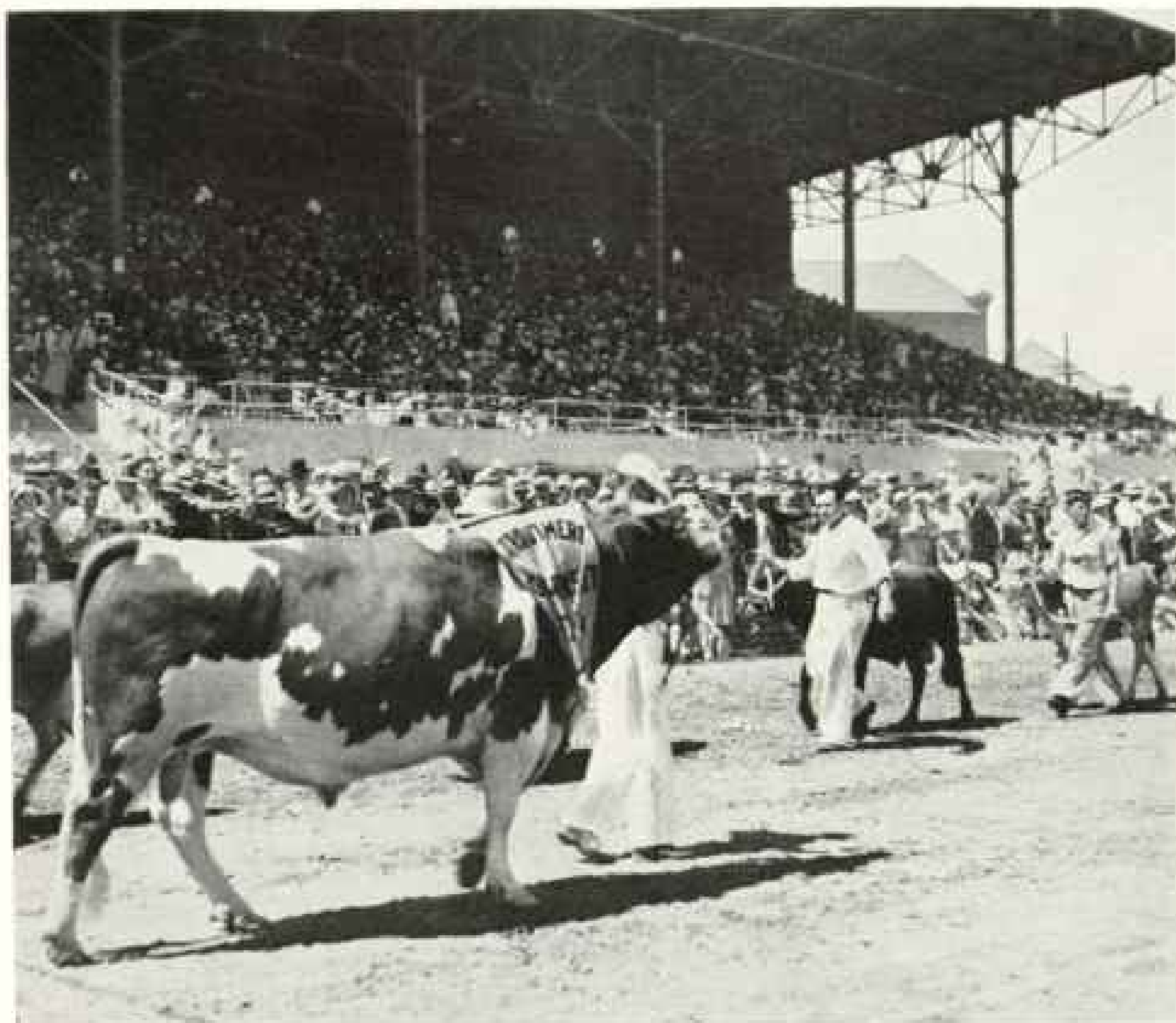
WONDERS OF NATURE PLUS PUNY MAN'S PRODIGIOUS ENGINEERING FEATS MARK THE MAP OF CENTRAL AND NORTHERN CALIFORNIA

Yosemite's stupefying grandeur, Lassen Volcano's earth-rocking power, Shasta's chaste magnificence are beyond man's imitation. But now be flies over them! With hydraulic science he grows crops in age-old wastes of Great Central Valley, tunnels mountains, bridges vast San Francisco Bay, and bores 11,000 feet for oil.



LIKE THE WALLS OF SOME ANCIENT FORTRESS, MYRIAD BAGS OF SUGAR MOUNT TO THE WAREHOUSE ROOF

Shiploads of raw Hawaiian and Philippine sugar arrive each year at refineries on San Francisco Bay. Much Hawaiian wealth, since missionary and trading schooner days, has come from sugar "melted" here. Philippine sugar imports may be affected soon by changing relations with those islands.



Photograph by McCurry

GRANDSTANDS APPLAUD AS BERIBBONED BOVINES PARADE ON GOVERNOR'S DAY AT
THE STATE FAIR

For 75 years farmers, fruit growers, stock raisers, poultrymen, manufacturers, and others have exhibited at Sacramento before visitors who now total many millions. Such old-time county fair attractions as side shows, trotting races, and draft horse pulling contests still persist (see text, page 323).

first, and took it. In time, mining settled down to a business of deep shafts, stamp mills, smelters, timbered tunnels, roads, and towns. All this meant more food, machinery, lumber, transportation, clothing, amusements. To supply these, farms to grow meat and grain developed; towns with factories, schools, and music halls grew up to take care of mines, of farms, of each other.

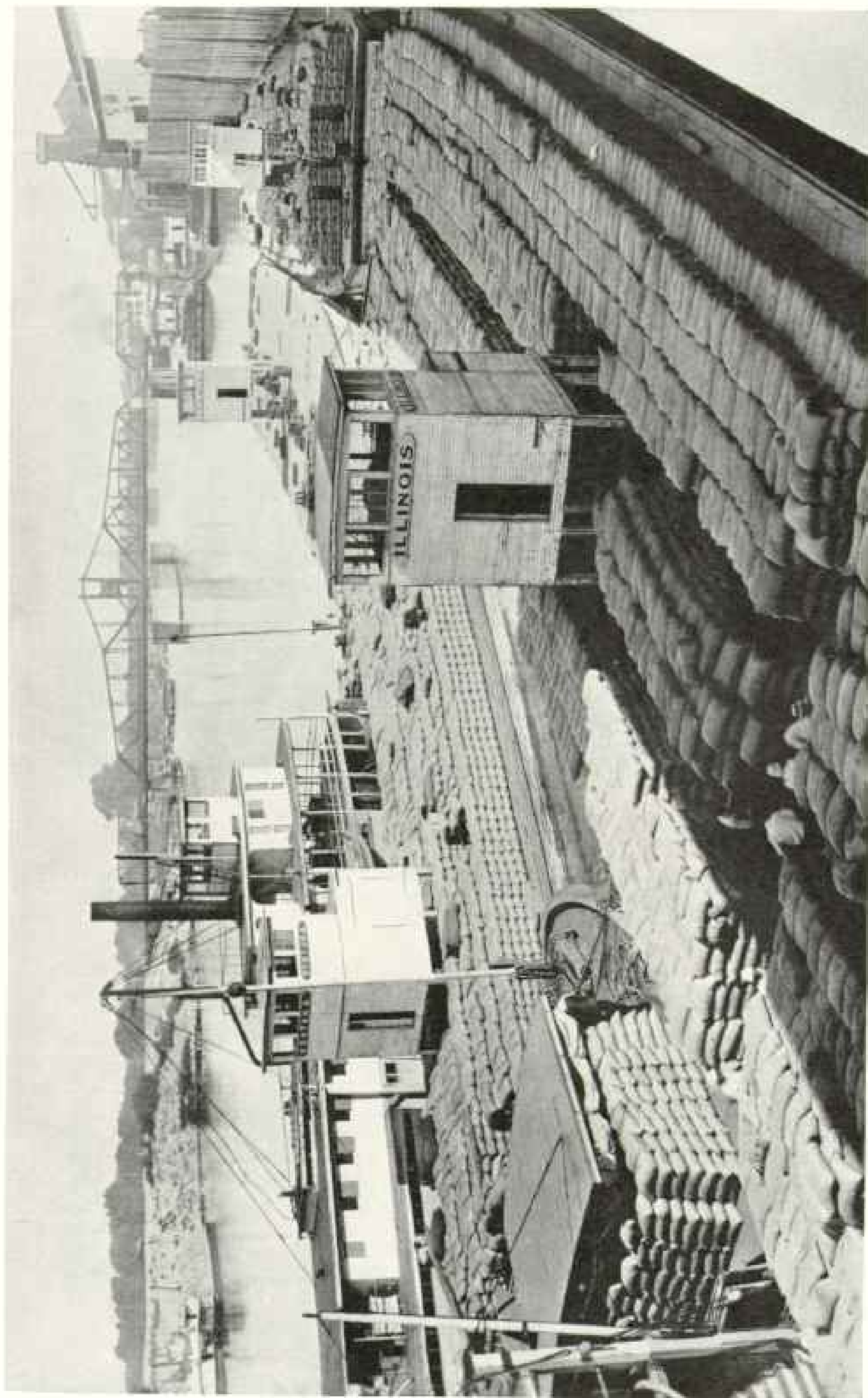
SACRAMENTO, FROM INDIAN TRADING
POST TO STATE CAPITAL

Law grew, too, from this pioneer experience—the doctrines of appropriation and use, the laws of mining, water rights, and grazing. Students of jurisprudence say it is seldom that the customs of a people have

had their origin, development, and final adoption by a legislature all within one lifetime, as came to pass here.

John A. Sutter, Swiss adventurer, built a trading post on land given him by the Mexicans. That was the beginning of Sacramento, in 1839. It was a strategic location; soil was rich, the river afforded easy transport to San Francisco, and the new town was right in the path of settlers coming from the East through Emigrant Gap. Sure, swift steps in the rise of that town epitomize the American conquest of this region. First Sutter fought the Indians, then hired them to farm his lands, run his cattle, and work about his "fort."

Kit Carson and John C. Frémont came here for fresh horses.



Photograph by McCarty

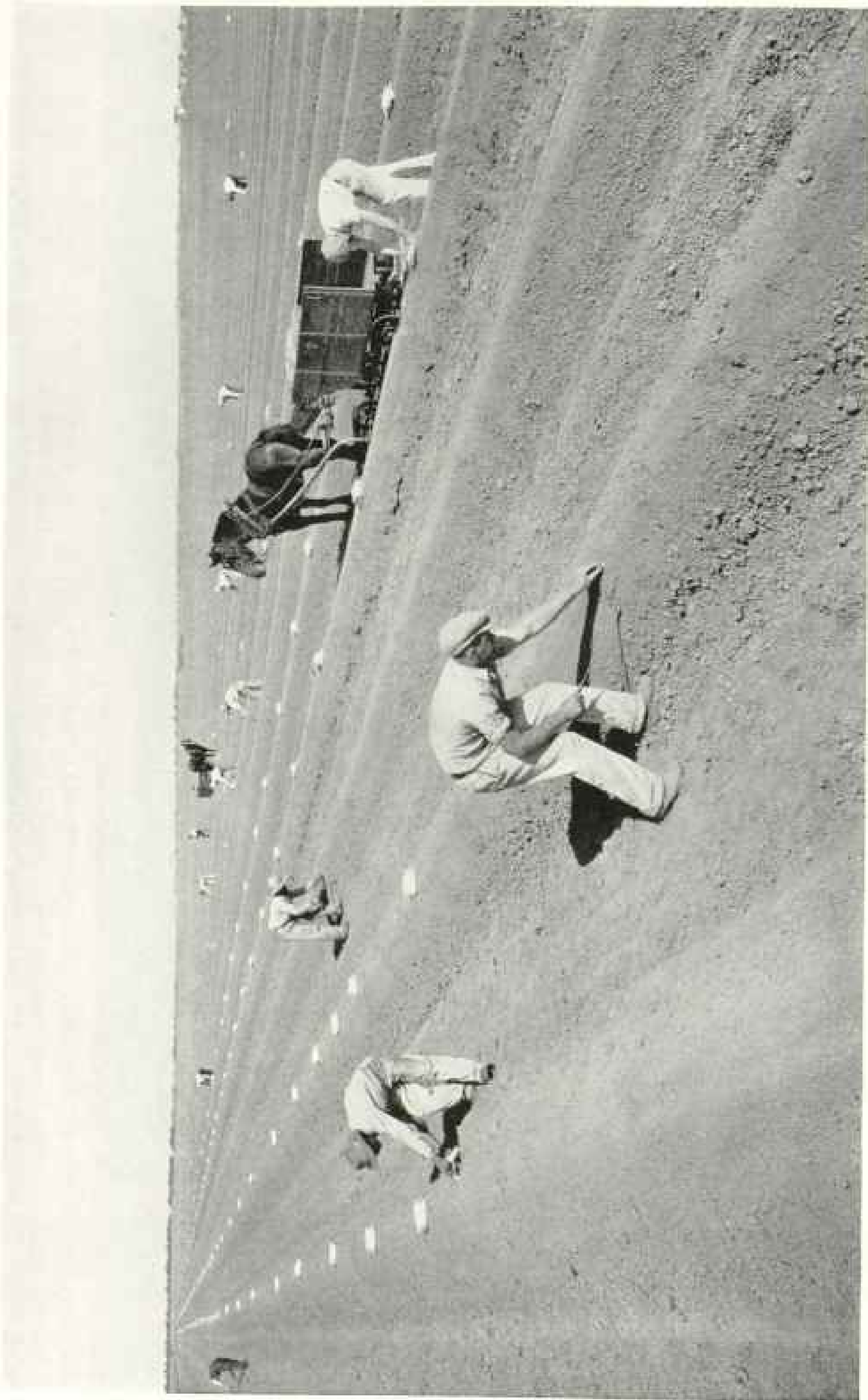
MISSISSIPPI-TYPE STERN-WHEELERS AND THEIR GRAIN BARGES TIE UP ON SACRAMENTO'S RIVER FRONT

By 1870 California's golden grain was worth more, each year, than its gold. Palatial passenger boats, as well as smaller craft and cargo barges, have for decades plied between San Francisco and ports up the Sacramento. Both Sacramento, and Stockton, on the San Joaquin River, owe much growth and prosperity to river trade (see page 319, and Color Plates III, V, XIII, and XIV).



FROM THESE WRINKLED KETTLEMAN HILLS, LONG KNOWN ONLY TO COWMEN AND COYOTES, COME NOW PRODIGIOUS FLOODS OF OIL AND GAS

Underlying Fresno and Kings Counties, about 180 miles southeast of San Francisco, the "sleeping giant of Kettleman Hills" is a truly astonishing reservoir of oil and natural gas. Pipe lines run north and south to refineries; one, hid under water on the ocean floor, supplies passing tankers; they grapple for the buoy which marks the pipe end, raise it, fill their tanks, and sail away (see text, page 333). From here natural gas is pumped to towns 350 miles distant.



© Gabriel Moulin

ASPARAGUS STALKS ARE CUT JUST AS THEY PEEP UP, SO THEY MAY BE WHITE AND TENDER

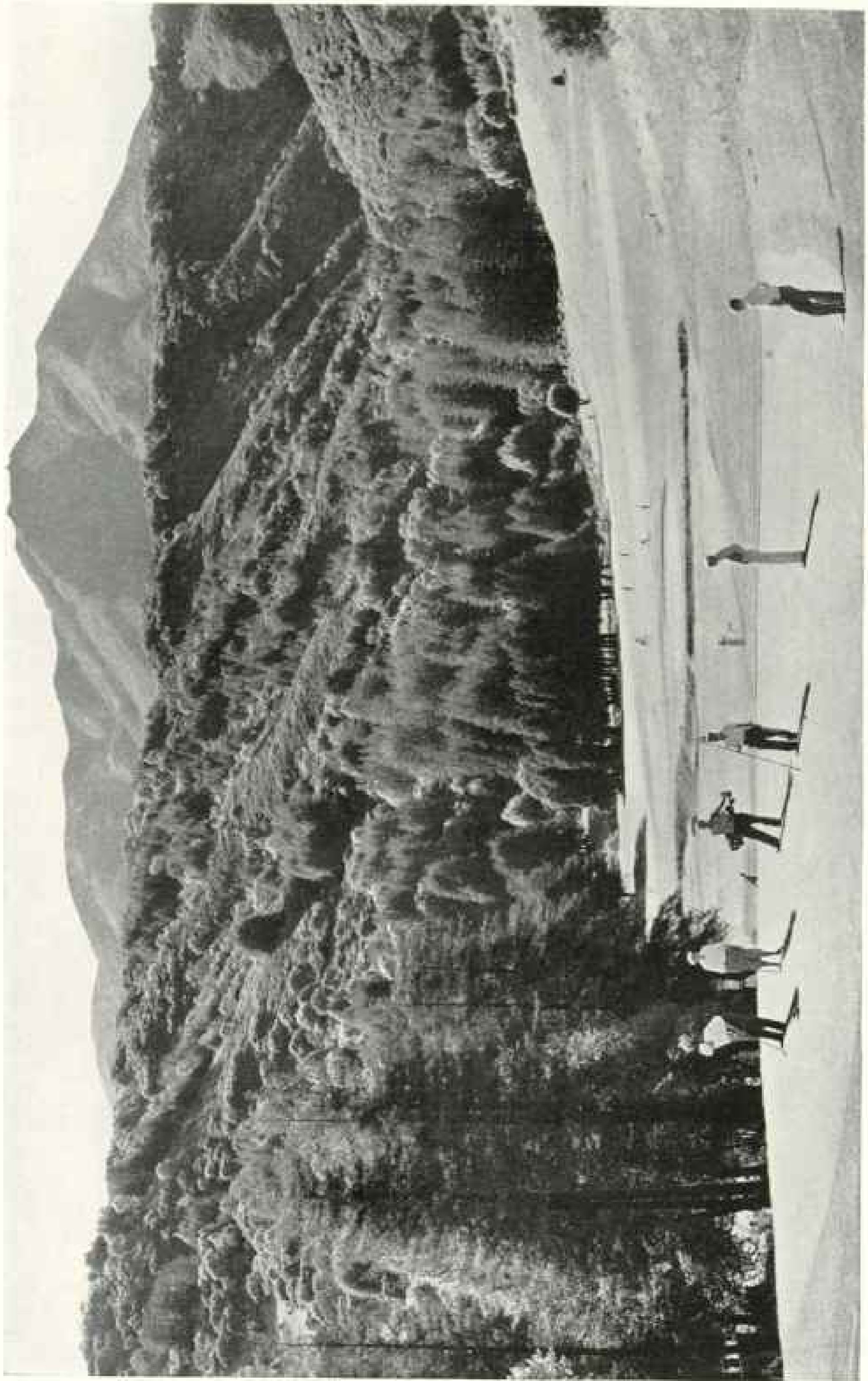
Diggers thrust long-handled knives eight inches down and cut the plants underground. Beginning at the break of dawn, they work furiously to finish before sun with the tender stalks. Piles of fresh-cut asparagus lie in rows, to be picked up by the one-horse wagon and rushed to the canneries near by. There it is cleaned and packed, sealed and cooked, all within a few hours (see text, pages 324, 357).



Photograph by Arnold Williams

OCEAN SHIPS STEAM THROUGH RICH PLAINS TO REACH STOCKTON'S DEEP-RIVER TERMINAL, 68 MILES FROM THE PACIFIC

This inland "seaport" on the San Joaquin River is oddly like ancient Babylon, to whose Euphrates wharves came trading junks from far Cathay. Laid out in 1849, at tidewater head, Stockton early grew fat on gold seekers' trade. Served now by three railways, steamer, bus, truck, and air lines, and humming with factories, this city is surrounded by a land of potatoes, grain, fruit, onions, corn—in all, 51 commercial crops. Herodotus' graphic description of Babylon's ancient fertility applies aptly to this region.



© Gabriel Meuller.

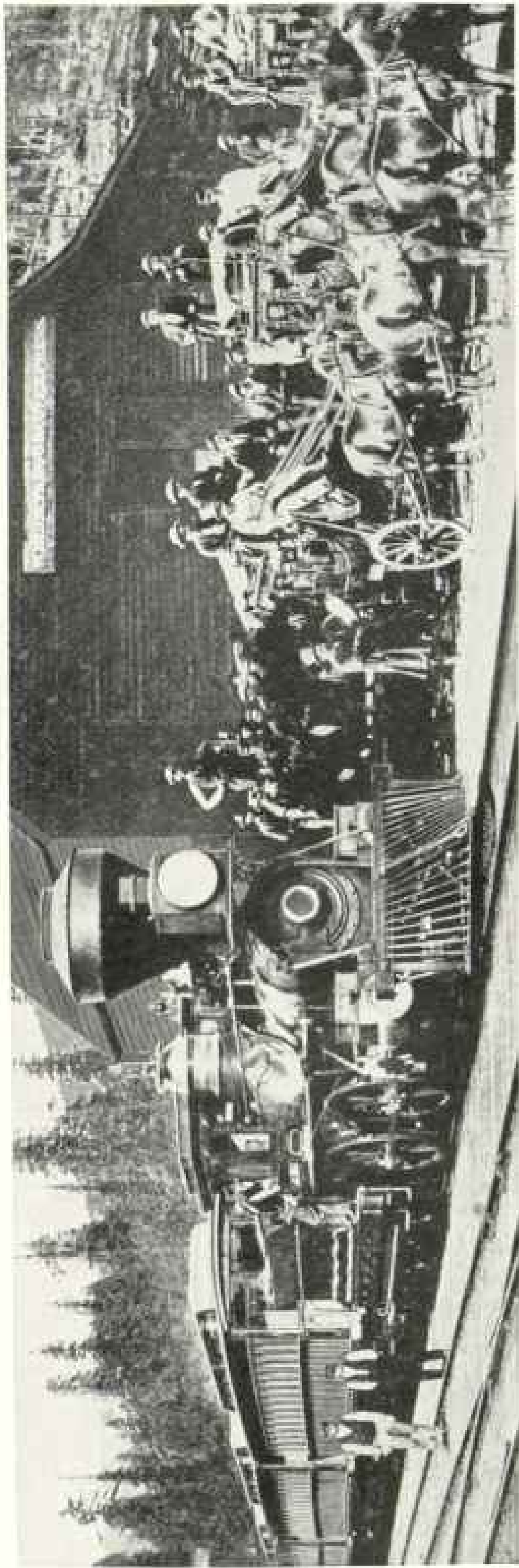
WHEN WINTER COMES, MARIN COUNTY PLAYS GOLF IN SHORT SLEEVES WITHIN THE SHADOW OF MOUNT TAMALPAIS

Foot and bridle paths lead to Muir Woods National Monument, to the summit of the peak, and to other scenic points. This exclusive region is noted for its gardens, trees, and sumptuous homes. When Golden Gate Bridge traffic begins to pour in, its aloofness will diminish (see text, pages 383-4).



THROUGH PEPPER RIVER VALLEY IN SIERRA NEVADA Foothills this Western Pacific fruit train steams for the east

This "articulated locomotive" of the 2-8-8-2 type is among the world's strongest. One newly built branch of the Western Pacific, extending gradually toward eastern Oregon, serves the great Red River Lumber Company's mills at Westwood and the sheep country about Sasauville.



Photograph from Southern Pacific Co.

TRANSCONTINENTAL PASSENGERS AND MAIL BEING SHIFTED BETWEEN STAGECOACHES AND RAILROAD TRAIN AT COLFAX, IN 1865



Photograph by Laval Co., Inc.

LIKE A TOY ARMY'S TENTS, PARCHMENT "FROST CAPS" PROTECT THESE
CUCUMBERS FROM FREEZES

San Joaquin Valley grows winter vegetables. When young plants come up, these white covers shield them from any frost, and during sunny middays act as bothouses. Though snow may still lie in Eastern city streets, housewives find in market fresh cucumbers, peas, beans, and other green vegetables, shipped from California.

Into Sutter's Fort (now Sacramento), in 1841, drove the first immigrant wagon train to cross the Plains. From here men went, in 1847, to rescue the Donner party, snowed in and fighting starvation.

Sutter's hired man, digging to build a sawmill, found gold at Coloma in 1848, and started the great stampede. This lawless horde robbed and ruined Sutter; he died poor. Others held the fort, and traded furiously. They charged \$64 to shoe a horse; \$2,000 a ton to haul freight to the mines. It cost a pinch of gold dust to buy a drink of whiskey, and only men with big hands were hired to tend bar! Dance halls never closed; even today one advertises itself as "Bon Ton Dance Hall. Beautiful Girls Galore." Miners, coming to celebrate, brought their gold in an old sock, or in yeast cans! Modern youths buy a strip of tickets, each good for a dance with a "taxi girl."

California became a State in 1850. That year more than 42,000 miners swarmed through Sutter's Fort, from the East. About it a wild lawless town was growing, a town of tents and rough boards, of saloons, eating places, stores, and blacksmith shops. Most goods came first to San Francisco by sea, and then up the Sacramento River.

Jumping from Monterey to San Jose, Vallejo, and Benicia, the State capital got to Sacramento in 1854. Many a bitter battle has been fought at this capital, none more exciting than that which once almost divided California into two States. Only the diverting advent of the Civil War prevented this.

From Missouri came the Pony Express in 1860. Next spring riders carried Lincoln's inaugural address through from "St. Joe" in seven days and seventeen hours—the fastest trip on record. Then a half-



Photograph by B. Anthony Stewart

LUTHER BURBANK'S HOME IN SANTA ROSA ATTRACTS STEADY STREAMS OF PLANT
AND FLOWER-LOVING VISITORS

This "City of Roses," because of its fecund soil and balmy climate, was chosen by the plant wizard as a laboratory for his well-known experiments. Here he worked for about half a century with the hybridization and propagation of flowers, fruits, and vegetables.

ounce letter cost \$5; one now is flown by overnight plane for six cents.

Building east from Sacramento in 1869, the Central Pacific met the Union Pacific Railroad at Promontory Point, in Utah; Senator Stanford drove a golden spike. Isolation was ended. Men and goods moved west at unheard-of low rates, at speed thought miraculous.

Today Sacramento railroad shops are among the world's largest. About the old fort, where pioneer blacksmiths shod mules, filed saws, and whittled out pick handles for the miners, rises now a busy city of more than 500 factories, including colossal canneries of fruit and vegetables.

STATE FAIR

The city grinds flour, packs meat, cleans beans, sells machinery, runs boats down to San Francisco—does much the same work as long ago, when it got rich off the gold miners. Also it plays, boisterously, as in

early dance-hall days. From the Oregon line to the Mexican border come incredible crowds, to the State Fair (see page 315).

"We've held this fair every year since 1851," said Governor Frank Merriam, as we sat in his box listening to a motorcycle policeman sing "O Sole Mio." Next came a group of boys flying model airplanes; then a pulling contest between heavy draft horses; and a man who "called hogs" and imitated barnyard chatter. "He can bawl better than a calf itself," chuckled the Governor.

When a field of harness horses lined up for a trotting race, one reared and threw his gray-haired driver heavily to the track. "He's hurt!" people shouted. But the plucky old driver swung on to his reins, got up, climbed back into his sulky, and won that race.

Landmark for hordes that pack the fairgrounds is a gilded bear, set before Exposition Hall. All day long a loudspeaker

shouted above the din: "Will Mrs. Dick Jones please get her lost boy Chester, who is waiting at the Golden Bear. . . . Attention, please! A four-year-old blond lady in a blue dress who says her name is Minnie is being held at the Golden Bear, waiting for her mamma! . . . Just a minute. Colonel Botts! Wanted at the Golden Bear for an important message."

Between races came a parade of new, brightly painted farm machinery. "The ploughman homeward plods his weary way," shouted a wag, as the last word in field tractors rolled swiftly by. It had big, fat rubber tires; over the driver's head rose a fancy sunshade; from somewhere in the machine came radio music.

"When I walked behind a plow, all the music we heard was the mules' grunts," said a hog-raiser from Fontana. "Now just listen to that cornfield calliope!"

Like a colossal show window this fair exhibits the whole State, county by county. Wines from the "Valley of the Moon," logs of Redwood centuries old; huge melons, potatoes, cucumbers, prunes; hogs as big as Mexican cows—anything from a model of the Golden Gate Bridge to the prize "Jumping Frog of Calaveras County."

"Never pet your frog," warned the keeper of that bouncing batrachian. "Handling makes him sluggish. I never touch mine till the minute the race starts."

Fireworks boomed in star-spangled heavens after sundown. By some transported Hollywood magic, huge revolving stages appeared, set with trees and imaginary lakes; Spaniards landed, in coats of mail, either to baptize or kill the Indians; cowboys and covered wagons; gold seekers of '49; throaty, beguiling pioneer mammas in hoop skirts; Chinese cooks, Mexican vaqueros, all took their parts, to familiar tunes of bygone days, like "Oh! Susanna," in dramatic extravaganza based on State history.

Late at night "The World's Most Perfect Rooster" and "The Best Milk Cow in California" acted a bit bored. Even the Jumping Frog, denied all petting, seemed preoccupied as if contemplating one final, record-smashing hop to get away from it all.

When I left, the 81st Annual State Fair still roared, shouted, and thumped its drums. Noisy youngsters packed the side shows; shrieks of girls on daredevil swings rose above the blare of bands; on crowded benches older and fatter women rested their tired feet, while Pa hunted the chil-

dren. Driving out the big main gate, I heard a last, patient, almost evangelical plea from the loudspeaker, imploring some heedless one, "Pu-lease report at the Golden Bear!"

Food! Superabundance! Incredible piles at this fair hint at riddles of distribution, else man could not hunger. Meats, fruits, vegetables, grain, jams and jellies, nuts and raisins, milk and honey. From this once desert land food is sold now to every civilized country.

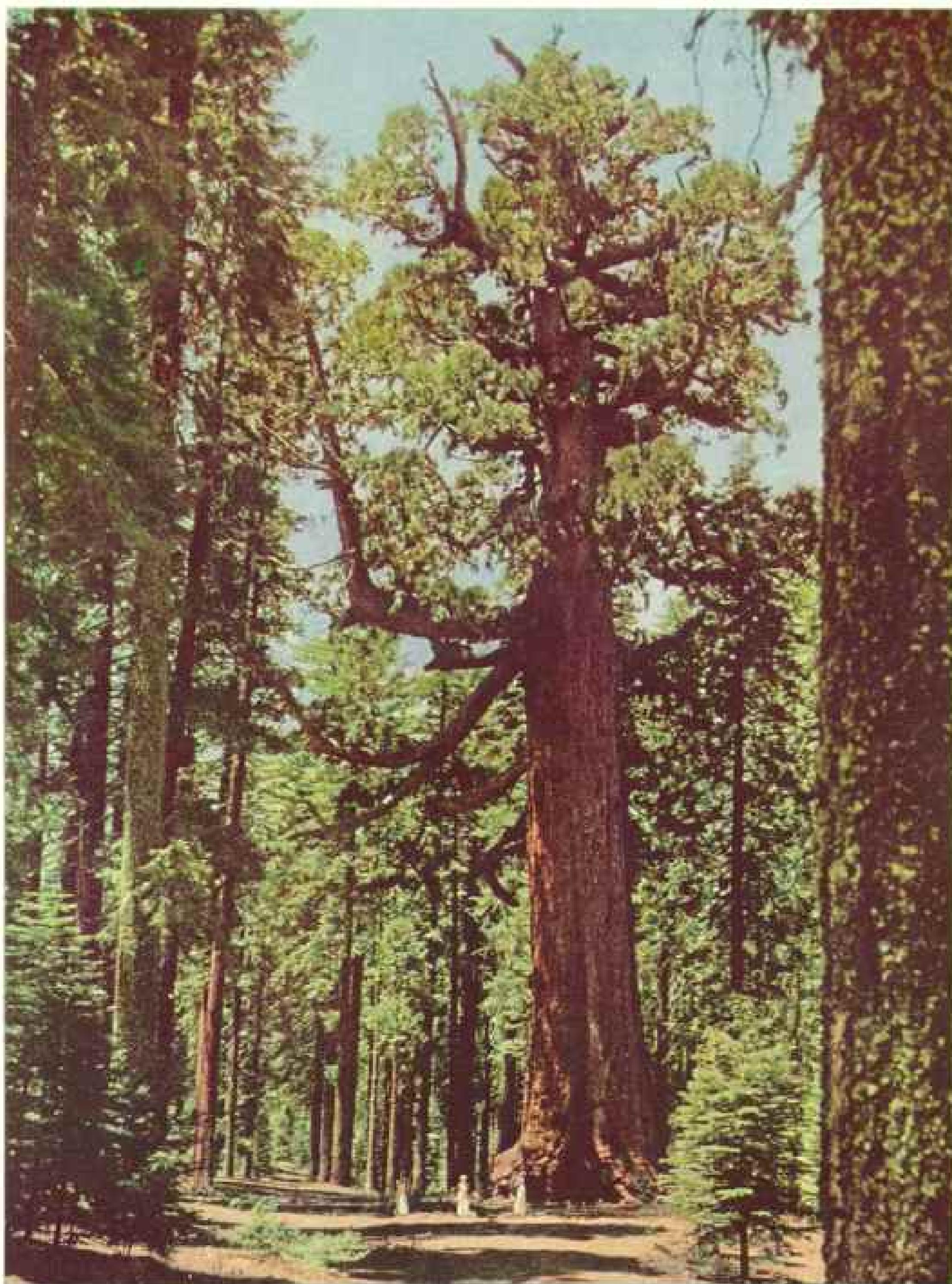
CANNED FRUITS FOR CHINA AND ETHIOPIA

One concern alone, the California Packing Corporation, which began here and now operates more than 100 plants scattered from the Mississippi Valley to Alaska and the Philippines, each year cans and ships enough food to serve one and one-half meals to every man, woman, and child on earth. It took their statisticians six weeks to answer that one! While they figured, others showed a letter from a missionary in China saying that when he was held for ransom by bandits, these discriminating rogues had fed him on California canned fruits! The same kinds of fruits were served in Addis Ababa at the coronation of Haile Selassie.

Most of this Gargantuan food stream flows from the Great Central Valley, the basins of the Sacramento and San Joaquin Rivers. From the Standard Oil Company I borrowed a plane to study this new Babylonia. Today it is what the Tigris-Euphrates Basin was in the days of Herodotus (see pages 316, 319).

Near Stockton, the great Weyl-Zuckerman plantation plows the world's largest potato patch. Tractors work at night, with headlights. Near Fresno one man planted 15,000 acres of figs; about Modesto and Merced spread infinite seas of peach trees, cut into checkerboard squares by roads and irrigation ditches.

Sacramento delta islands, saved from floods by Mississippi-like levees, grow 90 per cent of all the world's asparagus. To the south near Salinas are lettuce patches flat as billiard tables, so rich they ship lettuce by trainloads. From overhead you look down on prunes, pears, melons, grapes, tomatoes, dairy farms and chicken pens—and thousands of big trucks racing back and forth hauling all this to market. Steamboats on the Sacramento, on the San Joaquin, push barges of sugar and wheat.

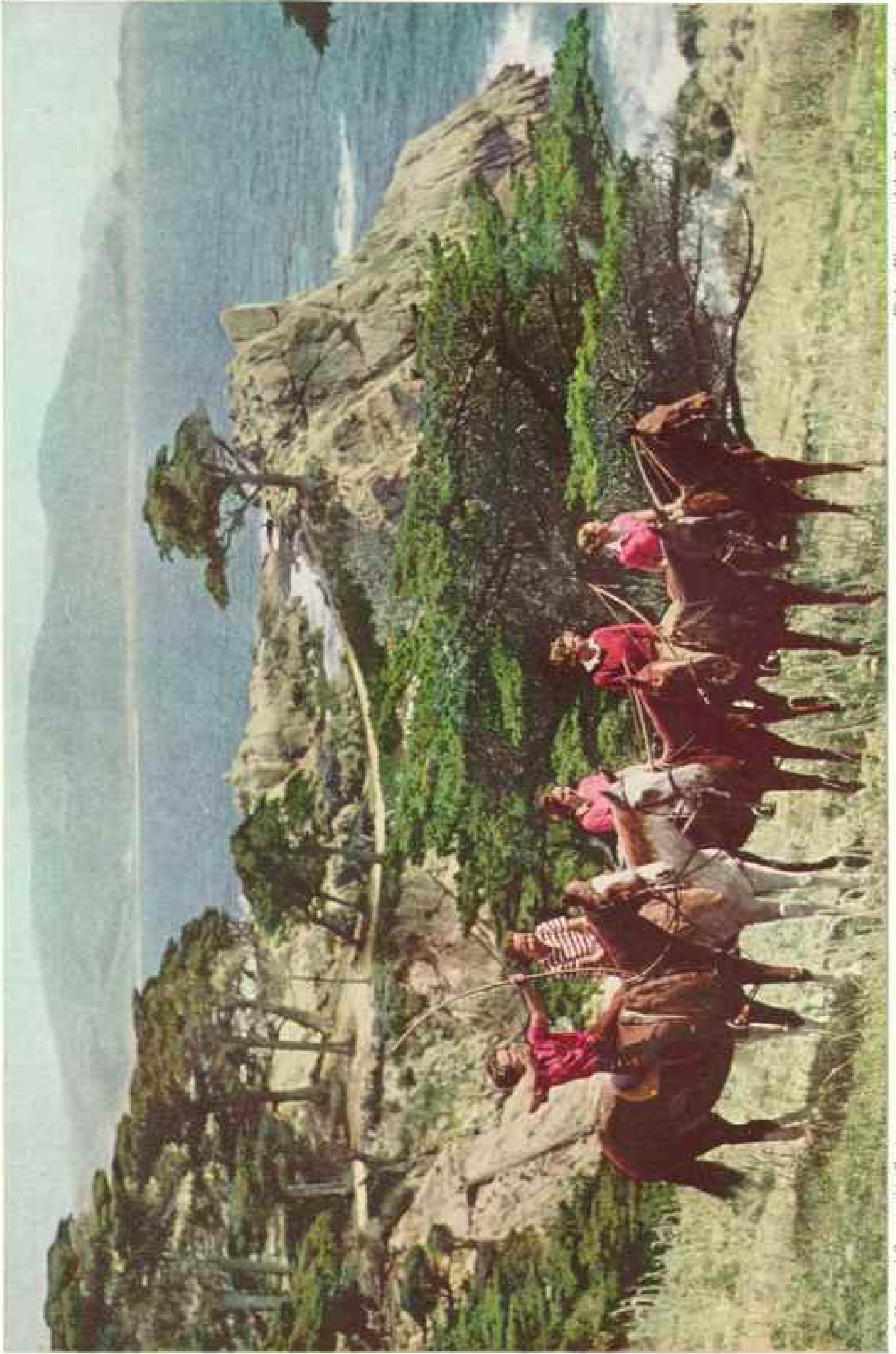


© National Geographic Society

Finlay Photograph by R. Anthony Stewart

"GRIZZLY GIANT," OLDEST TREE IN MARIPOSA GROVE IS NEARLY 100 FEET IN GIRTH

Though living tree ages may be determined by core borings, this stalwart sequoia's exact life span has not been fixed. Park officials estimate it at 3,800 years. In the grove also stands the tallest of all Big Trees, the "Mark Twain," towering 331 feet—127 feet higher than the "Grizzly Giant." Visitors entering Yosemite National Park from the south reach Mariposa Grove over the Wawona Road.



Finlay Photograph by H. Anthony Stewart

FANTASTIC IN FORM, THE MONTEREY CYPRESS IS A BOTANICAL RIDDLE, COMING FROM NOBODY KNOWS WHERE

© National Geographic Society



© National Geographic Society
 Findlay Photograph by B. Anthony Stewart
 ABOVE A PARK SET WITH TREES FROM MANY LANDS RISES THE
 DOME OF THE STATE CAPITOL

California children were asked to send to Sacramento, "young trees native to the State," for planting. From the Redwood country came one "little tree" 55 feet high!



Autochrome Lumière by B. Anthony Stewart
 SAN JUAN BAUTISTA, A LINK IN THE MISSION CHAIN STRETCHING
 FROM MEXICO TO SAN FRANCISCO

Priest and Conquistador, side by side, built churches and forts. About the missions, under priestly guidance, Indian converts developed flocks, herds, grainfields, and orchards.



THINK HOW LONG IT WOULD TAKE A WOODPECKER TO MAKE A HOLE LIKE THIS!

Known as the "Wawona Tunnel Tree," this living giant stands in Mariposa Grove. The 26-foot hole was cut in its base in 1881 to permit vehicles to pass through. No such destructive cutting is now permitted (see Color Plate I).



© National Geographic Society

Finlay Photographs by B. Anthony Stewart

MEN, MAILS, AND GOLD DUST RODE THE ROUGH ROADS OF WILDWEST DAYS IN SUCH COACHES

With iron tires, leather springs, and armed guards on the driver's box, these lumbering four-horse stagecoaches played their adventurous, romantic role in the history of early California.

CALIFORNIA—85 YEARS AFTER THE GOLD RUSH



© National Geographic Society

Autochrome Lumière by B. Anthony Stewart

RIPE ORANGES MAY FALL ON YOUR HEAD AS YOU WALK ALONG THESE SHADY STREETS

Center of life in the Central Valley, Sacramento is a busy crossroad of air, rail, and highway travel for all northern California. All about spread vast grainfields, vegetable gardens, and orchards of prunes, pears, oranges, figs, peaches, and other fruits. Many of today's leading industries were founded to meet the needs of pioneer gold seekers (see Plates III, XIII, and XIV).



© National Geographic Society

SANDVERDENAS PAINT BRIGHT PATCHES BESIDE SCENIC "17-MILE DRIVE" ABOUT MONTEREY PENINSULA

Finlay Photograph by B. Anthony Stewart

The rocks to the right are often crowded with barking seals, pelicans, cormorants, and gulls. In the background stands a fantastic cypress grove (see Plate II). Lustrous homes and sperry golf courses face the pounding Pacific along this world-famous drive.



© National Geographic Society

SOME SUGAR PINE CONES GROW 20 INCHES LONG; THE SMALLER ONES HERE ARE FROM THE JEFFREY PINE

Cross sections of coniferous "life zones" rising from the foothills to the Sierra crest afford an ideal laboratory for tree study. Whitebark pines grow up to 10,500 feet. The seeds underlie the cone's woody scales.



Finlay Photographs by H. Anthony Stewart

"CHERRY-RIPE, RIPE, RIPE I CRY, FULL AND FAIR ONES; COME AND BUY!" (Robert Herrick)

Uniform in size, this fine fruit is packed in even rows, like eggs. For centuries men have prized cherry brandy, and craftsmen have carved cherry tree wood and even the stonks.



© National Geographic Society

Finlay Photograph by B. Anthony Stewart

CASCADES OF WISTERIA DRENCH THE PORTALS OF THIS BURLINGAME HOME

Since Spanish days the cultivation of flowers and ornamental shrubs in the equable peninsular climate south of San Francisco has been a favorite avocation. Here some gardens are set with colored porcelain birds, fountains, and winding paths of delicately shaded flagstones and tiles.

From the air you see better how many irrigation ditches there are. What a calamity should water fail! In some regions that is a danger. Already some farms are deserted for lack of water. Too much is wasted in flood times; each year irrigation uses more. This means a lower water table, and failure of wells. Now, the better to save what rains and snows fall in the hills, a huge plan known as the Great Central Valley Project is under way. It will be long and costly; but, if ever completed, it will preserve this rich, flat, highly cultivated area as a food basket of the world.

Spread over it all is a vast net of high-tension wires, of oil and gas pipe lines.

"THE SLEEPING GIANT OF KETTLEMAN HILLS"

So men call this high-grade oil and gas reservoir under Fresno and Kings Counties, named for David Kettleman, a forty-niner. He failed as a miner, but trudged back to Missouri and returned with cattle to graze on these hills. Seen from on high, these tawny, bare hills are like the wrinkled hide of an old elephant (see page 317).

In oil-boom days wildcatters sank 20 miles of holes here, but did not go deep enough to reach the reservoir. It was the advent of better deep-drilling technique that brought the great strike, news of which flashed over the world.

Think that our first well sunk at Titusville, Pennsylvania, in 1859, was only 69½ feet deep. Compare it with these modern wells, producing oil from as deep as 9,200 feet. One well, not producing, was explored down to 11,000 feet.

Now, through huge pipe lines, Kettleman oil is pumped north and south to refineries near San Francisco and Los Angeles. One such pipe is laid out under the Pacific Ocean, and rests on the bottom of the sea. To its seaward end a flexible hose is attached, with a buoy to mark its nozzle. Tankers hunt this buoy, grapple for the hose and lift it up, fill their tanks, and sail away.

Today this Standard Oil submarine loading terminal on the coast north of San Luis Obispo is one of the world's busiest oil-shipping ports. It would be busier, except that petroleum today is our chief national asset, which Uncle Sam seeks to conserve, and so production is held down. California consumption alone is enormous—1,500,000,000 gallons in 1935. United Air Lines, flying out of San Francisco, uses

more than 8,000,000 gallons of gasoline a year.

From the Kettleman field natural gas is pumped through fat pipes for use 350 miles away.

GOLD HELPED THE YOUNG STATE TO ITS FEET

Quitting the plane, we went slowly among manifold industries that crowd the many cities and towns about San Francisco. Study them, and you reflect again that all human history is but the record of man's battle with environment. Pioneers needed sugar, and paid their gold to skippers of New England schooners to bring sugar from Hawaii. Here now, in the big Crockett Refinery, where we saw men eating salt tablets to replace that lost through sweat, you still see Hawaiian sugar (314).

"You can't come in; it's against rules—dangerous!" they said at the Hercules Powder Works. But you can stand outside a gate, and think. Miners wanted powder; they were the first. Now more of it goes to road makers, lumbermen, to many new uses.

And flour! Hungry miners imported wheat from Chile. Then immigrant farmers began growing it; by the 1870's, the wheat crop was worth more than gold mined in the same period.

Here is the lesson: Gold *was* all-important, but only at first. There is no form of cash so powerful. It paid for things needed to build up California; it set in motion other forces that in a few decades made the output of farms and shops worth more than the gold yield itself. It made men able to pay taxes for schools, and a State university.

BERKELEY, A WORLD CENTER OF RESEARCH AND LEARNING

Sixty-five years ago the University of California was called "the smallest college in the world." It had 40 students (340).

Today its enrollment is larger than that of any other. Work on pernicious anemia, which brought Nobel Prize distinction to Dr. George H. Whipple, is one of the contributions of its Hooper Foundation for Medical Research. From that Foundation, also, comes much of the world's knowledge of botulism, a dangerous form of food poisoning; and of one of the most deadly toxins encountered by man, shellfish poison. Vitamin E was discovered on the Berkeley campus.

In chemistry the University has contributed many fundamental studies. In atomic-physics it is recognized as a world research center, and it has trained many eminent astronomers. In agricultural sciences it is doubtful whether any institution can rival it, largely because of the extent and diversity of California farming.

In petroleum engineering, protozoology, tropical diseases, oriental languages, and anthropology, its work is outstanding. Its library facilities and museum collections are unrivaled west of Chicago.

Inspect its luxurious International House, and you see why it is so popular with foreign students.

LIFE IN THE REDWOOD COUNTRY

Far up this coast lies another California. Parts of it are more thinly peopled now than in Indian days. We took a last look at Muir Woods National Monument, at Mount Tamalpais, and turned north (320).

Now you can ride from the Golden Gate up to Oregon, at times beside Pacific breakers, on a majestic road that glides through green fields and ferny dells, and loops about wooded slopes for 364 miles.

No other road, anywhere, leads through the cool shadows of such abundant primeval forest. Known officially as U. S. 101, it is commonly called the Redwood Highway (see page 311).

Broad and smooth it sweeps north from Sausalito, passing Hamilton Field, where roost the Army's big bombers that flyers say "lay hardboiled eggs!"

SCIENCE ROBS HENS OF MOTHERHOOD'S JOYS

Stop at Petaluma, the first big town. "Chickaluma," they nickname it, because its streets echo to the clucks, crows, and cackles of multitudinous chickens.

Petaluma hens still cackle, but in a hollow, mirthless way—without any familiar old barnyard levity. Raised in fancy pens, they never learn to scratch for worms; "setting" is a lost art, and hens no longer proudly strut, followed by their peeping chicks. One electric hatchery alone handles nearly 2,000,000 eggs at a time, and the young go to heated brooders—not back to be "hovered" by Biddy's warm, protecting wings. In one busy day 60,000 live chicks are shipped; already some have sailed through the sky on the new *China Clipper* for distant Pacific isles.

Artificial incubation is old. Chinese ages ago hatched chickens in manure piles, and Egyptians used mud ovens heated with camel-dung fires. But here at Petaluma, the mechanical incubator has been perfected. It even turns the eggs, a trayful at a time, as hens used to turn them with their feet. From here, machines are sold to some 30 foreign lands, including Greenland. Some go to Africa, for hatching ostriches!

Here is actually a "Chicken Pharmacy" that deals only in drugs and remedies for sick chickens, and chicken doctors who treat every ailment from rickets to "limber-neck." From Japan, lately, came experts to teach "chick sexing," so now dealers can "guarantee 90 per cent accuracy" in selling one-day-old males and females. Fancy breakfast foods, for building up the feeble, may include such odd items as fish meal, dehydrated molasses, sardine oil, and ground oyster shells shipped from Florida.

In big sheds girls deftly "candle" the eggs, handling two and three at once, like a juggler with his flying balls. In ice-cold rooms husky lads in sweaters toss dressed chickens at distant bins, with all the accuracy of railroad mail clerks sorting paper bundles.

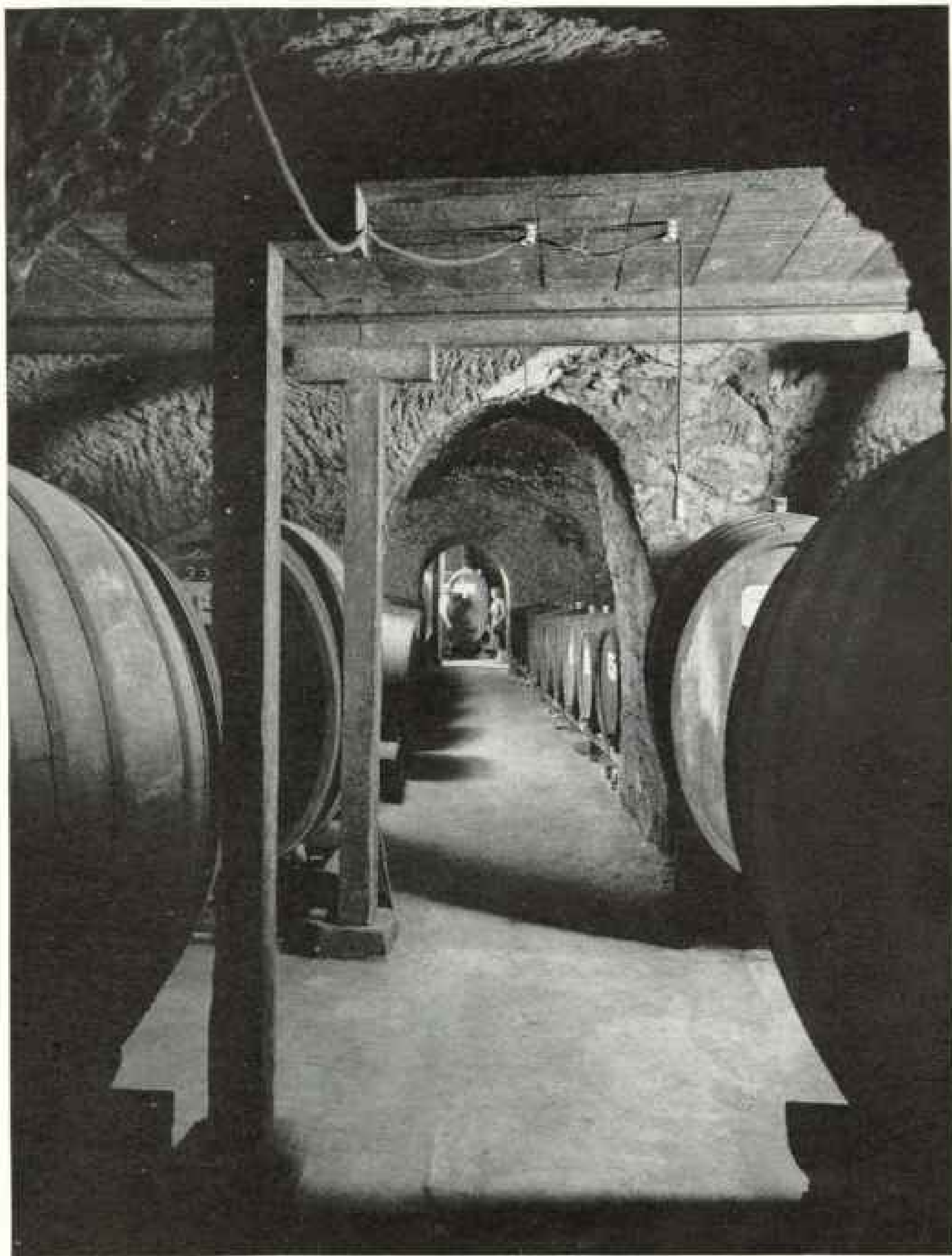
"I came here from Wisconsin 25 years ago," said a chicken farm owner. "I've got 10 acres, but I could do with two; this isn't a farm any more—it's a factory. I just haul feed into one end of the shed and take eggs out of the other. I make a living; but lots of newcomers don't. They buy a place for the view, or because it's near the movies."

All the way to Santa Rosa, where a Baptist church is built from lumber of one Redwood, we passed trucks loaded with eggs, and white Leghorns!

HERE RUSSIANS BUILT OLD FORT ROSS IN 1812

To see where the Czar once got a California toe hold, we headed west through orchards of Gravenstein apples for Bodega Bay. Near Sebastopol, a girl was gassing gophers. "You can hear them sneezing down in their holes, but they don't run out," she said. "We must gas them, or they ruin the lawn."

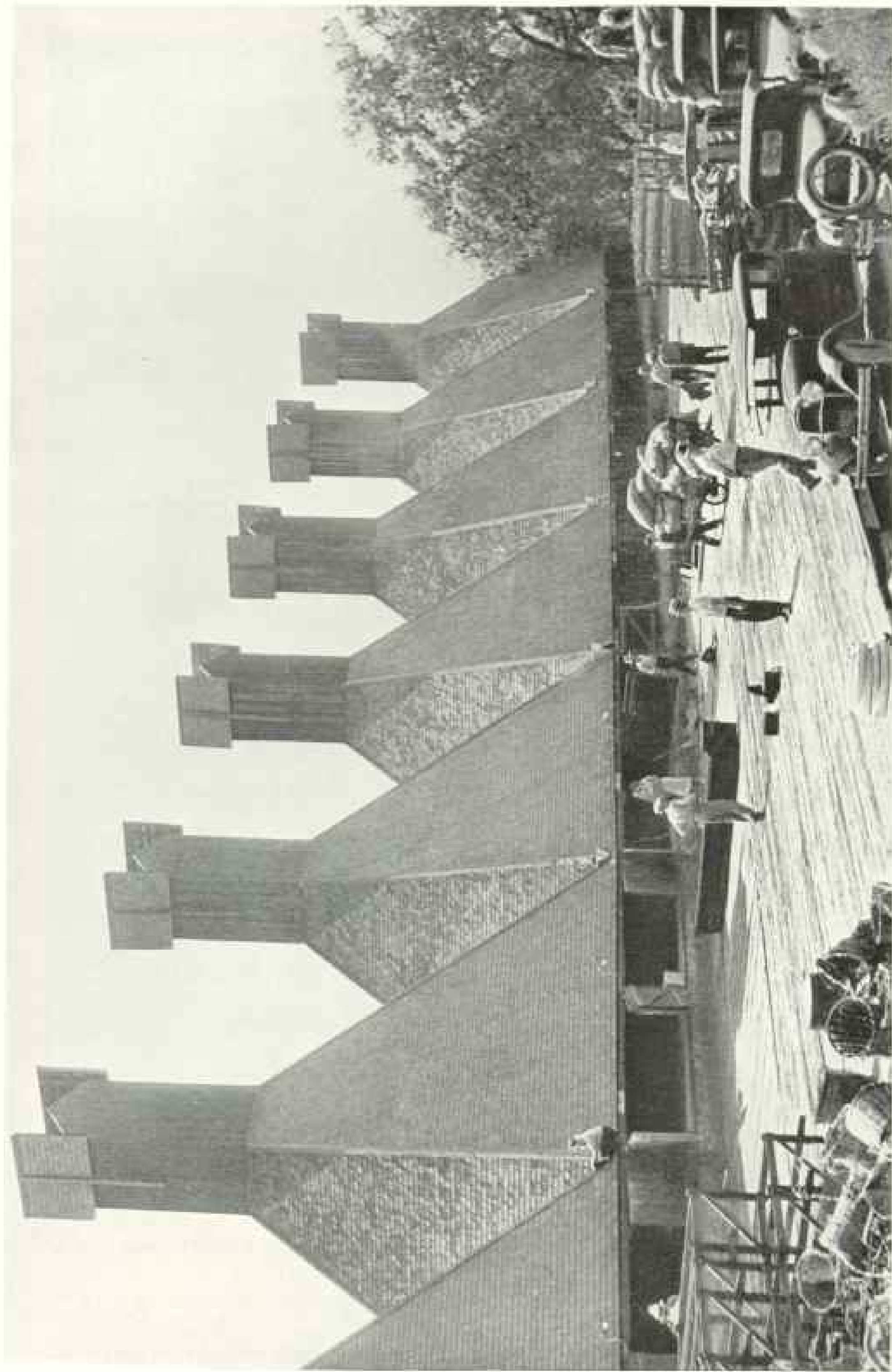
Delicious apple fragrance rode on the breeze. At one drying plant we watched girls cutting apples at incredible speed. Men raced about with big flat trays,



© Gabriel Moulin

TUNNEL CELLARS EXCAVATED IN NAPA COUNTY HILLSIDES AFFORD VAST STORAGE SPACE FOR WINES

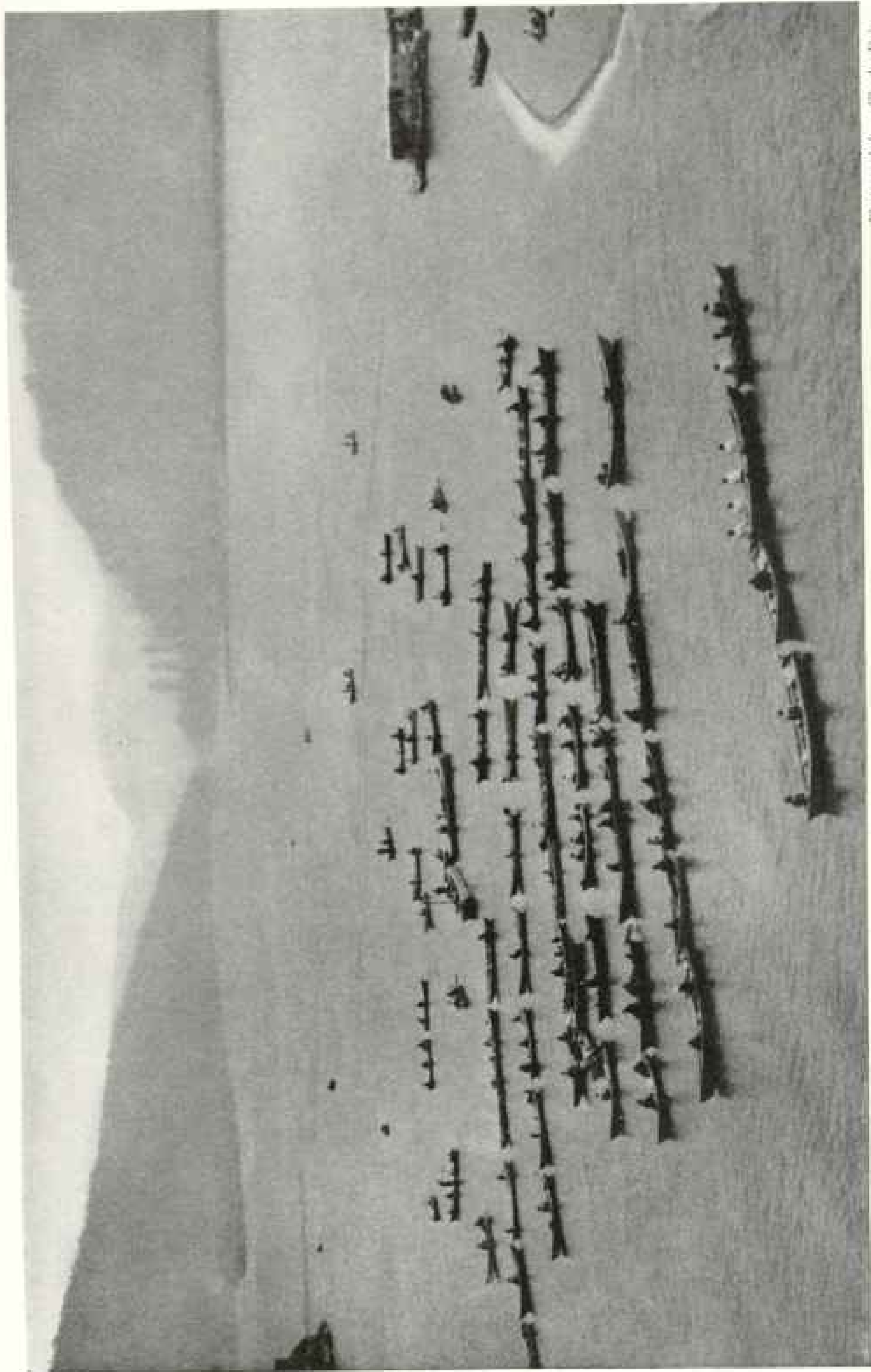
Huge casks hold many thousands of gallons of assorted vintages, all kept at even temperature by natural atmospheric conditions in these Beringer wine caves near St. Helena. Soil and climate enable California to produce virtually all choice varieties of wine grapes known to Europe. Wine districts extend from "south of the Tehachapi" up through Fresno, the Great Central Valley, and the counties of Santa Clara and Sonoma.



Photograph courtesy Redwood Empire Ass'n

WEATHER-STAINED DRYING KILNS, SHAPED LIKE OLD-STYLE INKWELLS, RISE ABOUT THE HOP FIELDS

Trucks haul fresh-picked hops to the platform to be dumped into the dryers. Fires of wood and sulphur burn beneath each kiln. Got too near and the fumes make you sneeze (see text, page 338).



Photograph from Charles Daly

FROM FAR AND NEAR FISHERMEN FLOCK TO KLAMATH RIVER'S MOUTH WHEN STEELHEADS AND SALMON ARE RUNNING

As the fish swim in from the Pacific and start upstream to spawn, the number which crowd into this river is beyond belief. Excitement among fishermen and spectators is intense, especially when several sportsmen have hooked fish at the same time and their lines got tangled.



Photograph by Paul M. Schmoek

FELLING A REDWOOD TREE WITH A PORTABLE SAW OPERATED BY A TINY GAS ENGINE

The saw is faster than the ax; yet it often takes cutters a day or more to build their platform, rig up their "dragsaw," and fell a big Redwood. Experienced lumbermen can usually cut a tree so it will drop just where they wish (see text, page 344, and illustration, page 341).

shoving them into hot ovens where the apples "dried" in a few hours.

It was in 1809 that Ivan Kuskof, a Russian commander, built huts at Bodega Bay. Later, up the coast, they built Fort Ross. With Greek Church of wood, restored palisade, and original officers' quarters, it shows you how comfortably the Czar's people were colonized here—in a day when both Russians and British coveted this region.

What optimists call a "non-speed, unfinished highway" twists and turns up the Cornwall-like coast to Mendocino and Fort Bragg. When completed this shore-line highway will start streams of travel through scenic regions till now known to few outsiders.

At the Russian River's mouth, two boys sat on a driftwood log, reading last week's funny paper. Beside them lay three or four greenish glass fish-net floats of the kind used by Japanese.

"These glass things wash up in the surf," one boy said. "I hear they come clear across the ocean. We hunt 'em for curio

hounds; they'll pay five dollars for a big one."

About the sand-choked mouth of the river lay the flotsam of far-away seas; some tree trunks were smooth from long months in the waves. They, too, may have crossed the Pacific, maybe from the mouth of the Amur.

Inland, along the summer playgrounds of the Russian River we went, past a camp of shouting, sunburnt Campfire Girls. At Healdsburg, on the river, we came again to the Redwood Highway and to camps of migratory hop pickers.

"Fruit tramps," they call them. Like wild geese they migrate with the seasons (see Color Plate X). Some start with winter truck farms near the Mexican border, and work slowly north, till fall finds them in Sonoma apple orchards. In one day's ride I met at least 300 cars, crowded with people, pots, cots, pans, and bedding.

Hop vines grow 10 or 12 inches a day. Trained along strings on a trellis, they cover the field like a tent. Near by are drying sheds that burn wood and sulphur (336).

"These pickers bring everything, from dogs and babies to banjos and Bibles," said a boss. Under a tree a small girl peeled potatoes; near by a woman was cutting a man's hair. "That family has camped in the same spot every summer for years," the boss explained. "Most of these pickers are steady, happy people. One group here has been having a revival; every night they sing and pray, and we've even had baptizings in the river. Last week three couples got married. That family over there with the new car comes here every season for their 'vacation.' The man is a painter by trade; he takes care of floats in a Los Angeles hotel."

At spots along the Russian River, Redwood-covered slopes dip right down to the sandy beaches where city picnic parties come to frolic.

INTO THE LAND OF BACCHUS

"Don't go on north without seeing the wine country," people urged. That short trip east is worth the time. It shows you a fallen forest of petrified Redwoods; large vineyards, wine vaults cut into solid hillside rocks and set with giant wooden casks brought from Germany (see page 335); and, far up on Mount St. Helena, the house where Robert Louis Stevenson lived when he wrote "The Silverado Squatters."

With gay wassail, like some grape center in the Moselle or Rhine Valley, the friendly town of St. Helena was celebrating its annual wine festival when we saw it. By day came parades of brass bands and multi-colored floats, emblematic of Bacchus and his devotees; at night, on a spacious outdoor stage, groups of German, Swiss, and Italian vineyard workers, in native-land costume, danced and sang their folksongs of earlier days. All over central California you find these tiny racial islands, ranging from Basques to Japanese. Usually, each sticks to its own favorite industry.

A good example is the Italian-Swiss colony at Asti, which we saw on our way back to the Redwood Highway. Here is a chapel shaped like a wine cask; and here is a glass-lined concrete wine tank, 180 feet long and 35 feet deep, that holds 500,000 gallons.

All through this long-settled fruit, livestock, and wine country you are struck by the neat, prosperous appearance of homes, their air of well-being. "Few of our old-

timers are either idle or poor," I was told. "It's only floaters who need help." Of these, unhappily, there are many. One old man I saw was trudging alone, pushing all his earthly goods in a ramshackle two-wheeled cart.

CALIFORNIA FLOWERS MIGRATE TO OTHER LANDS

In a canyon near Ukiah lives Carl Purdy, who has scattered California wild flowers over the world (see Wild Flower Color Plates). He told his story.

"I crossed the Plains with my parents in 1865. When I grew up I got interested in botany, and started selling wild bulbs abroad. I started a large share of all California wild flowers on their migrations to foreign lands.

"I wasn't the first; as early as 1830 the Royal Horticultural Society of London had sent David Douglas here to gather seeds and flowers. But I've covered more ground. Last week we gathered 15,000 dogtooth violet bulbs. We work up to elevations of 10,000 feet, to get some Sierra plants."

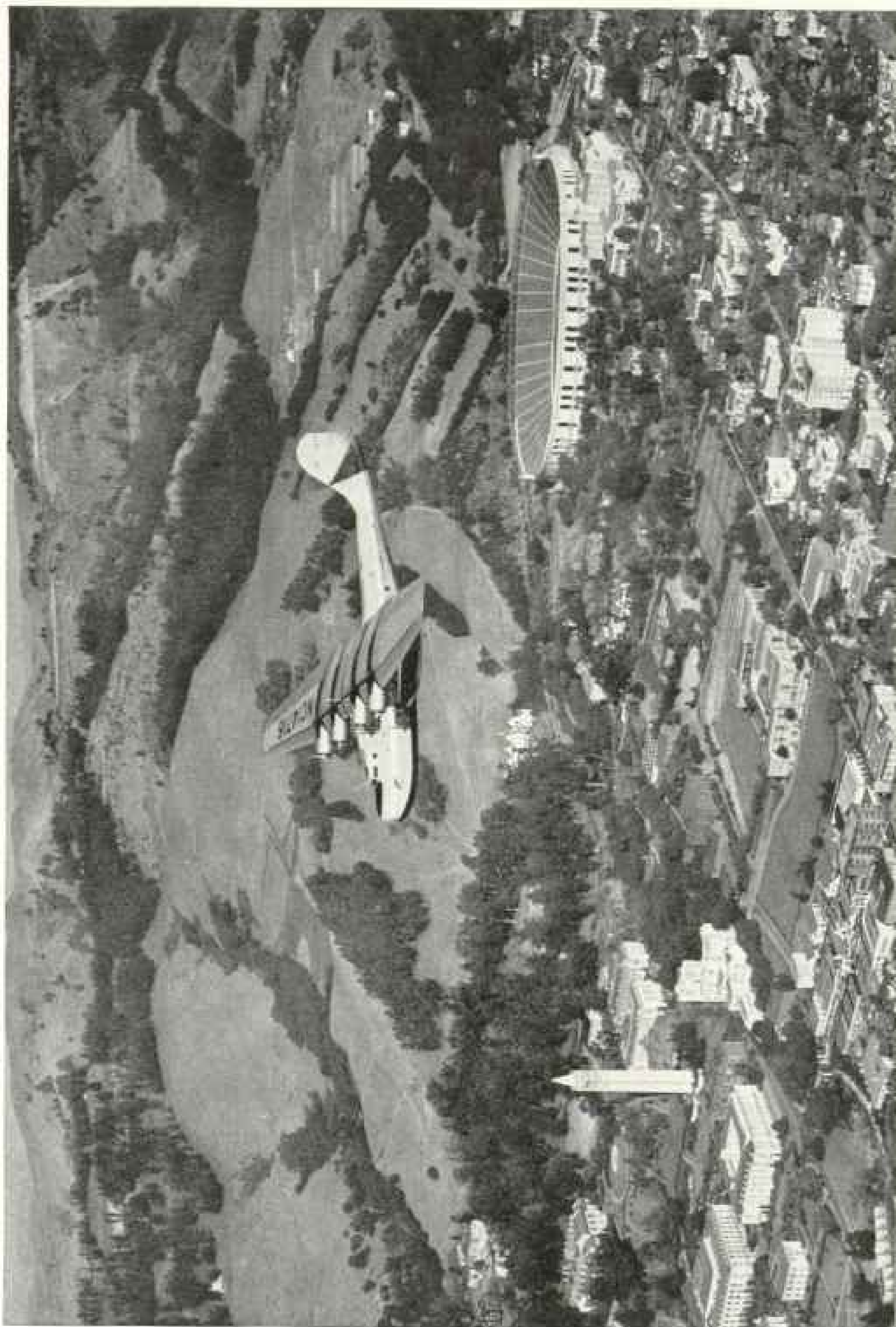
His mountain garden forms an interesting acclimatization laboratory for many overseas plants. He showed me Morocco morning-glories, Iceland poppies, harebells from Scotland, a honeysuckle tree from Tibet, lilies from the hills of southwest China, and strange blossoms from Basutoland.

A FEW POMA INDIANS STILL SURVIVE

In Ukiah I visited a lady I'd met years ago, painting natives on South Sea islands. Her life shows, again, how this country was settled. Son of an officer in the Revolution, her father came to Potter Valley in 1859. He was an editor, packing in his small printing press by mule. With it came her mother's melodeon.

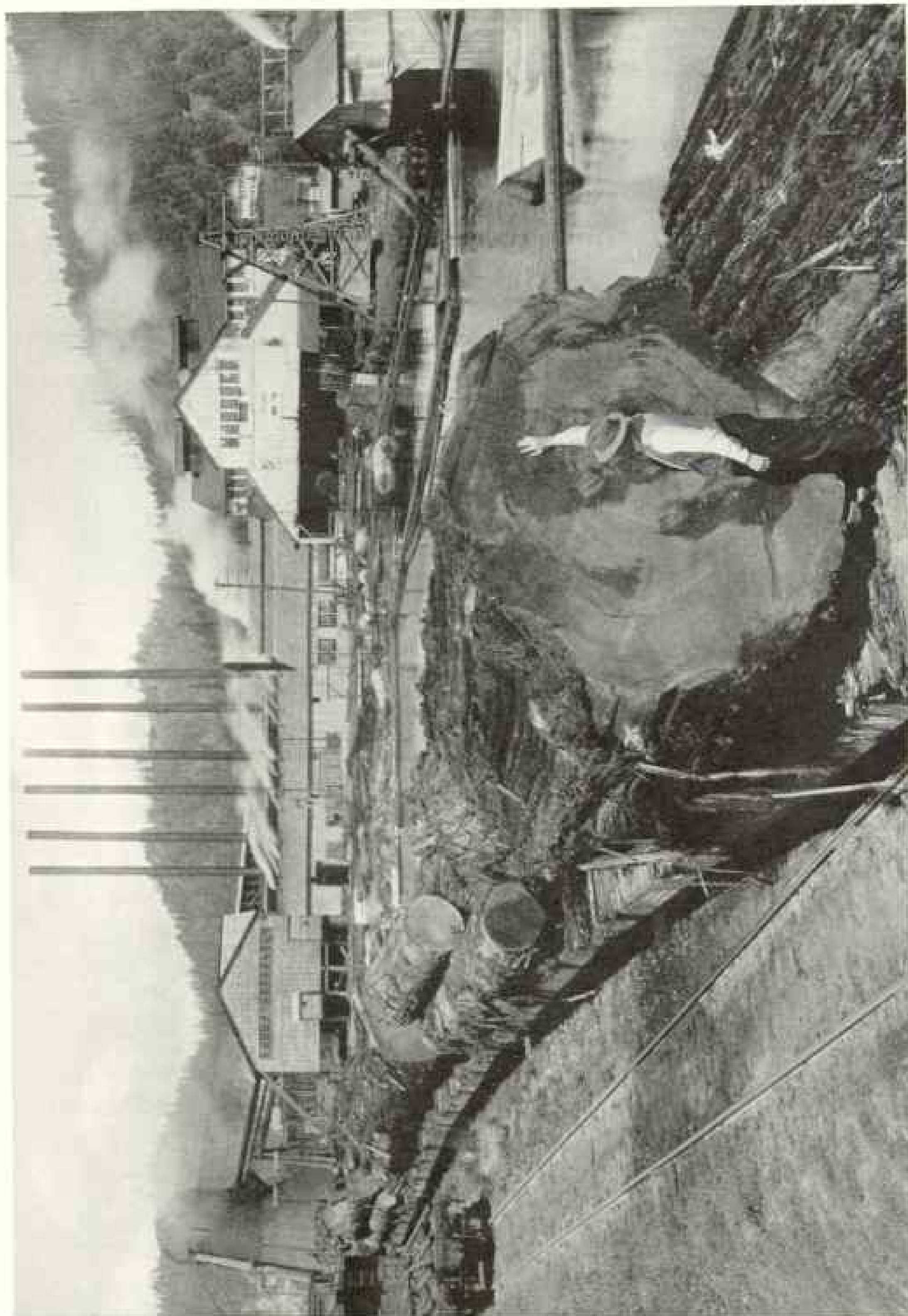
"I started painting Indian children in 1893. One of my paintings is in the Smithsonian," she said. "Some 680 others are scattered over the world. Studying these earlier portraits, I can see how civilization has completely changed the Indian's expression.

"See that picture I've just finished—a naked Indian child chewing an eagle feather? Well, a customer came yesterday. She took a glass to study the moisture in its eyes—and its hands (I painted it realistically, dirty fingers and all). 'Good



© Clyde Sunderland

FROM BURNLEY'S WOODED SLOPES RISE THE CAMPANILE, THE STADIUM, AND OTHER STRUCTURES OF THE UNIVERSITY OF CALIFORNIA. From the *China Clipper*, passing over, its occupants look down on this institution of magic growth. Six men composed its first graduating class; now more than 20,000 students, in all branches, are enrolled (see text, page 323). Every other year Stanford's football team visits here, playing in the stadium.



SAWS HUM AND FRAGRANT SAWDUST FLIES AS SCOTIA'S MILLS MANUFACTURE REDWOOD LUMBER FOR WORLD MARKETS

Set on Redwood Highway in southern Humboldt County is this busy town, with its tall smokestacks, log trains, and piles of fresh-cut lumber. It makes not only lumber and shingles for buildings, but enormous quantities of railway ties, shakes, and stakes for vineyards.



Photograph by J. D. Goodrich

PUMA HUNTERS USE TRUCKS TO HAUL HORSES, DOGS, AND CAMP EQUIPMENT UP TO GAME-INFESTED HILLS

It is estimated that a puma, known also as cougar and mountain lion, may kill an average of a deer a week the year round. Many pumas still lurk in California's back country (see text, page 346). This picture was made before Yreka High School.

gracious!' she suddenly cried. 'Its nails are dirty—did you notice that?'

Poma Indians live about Ukiah and Hopland. A few make the same baskets today they did when Sir Francis Drake saw this coast. He took such baskets back to the British Museum. Their workmanship is strangely microscopic. As food pushers, Poma children use tiny turtle shells. Graves yield spoons made of elk-horn. Some old Pomas still make and use wampum. The best, corresponding to our vanished gold money, is made of magnesite. Counterfeit wampum, turned on lathes in France and used by early Russian traders, has been found here. I saw some. To keep track of moon phases and thus tell time, the Pomas used "counting sticks."

Here at Ukiah stands a small observatory of the U. S. Coast and Geodetic Survey. It is one of five at intervals around the world at which, by international agreement, a certain more-or-less erratic wobbling of the axis of the earth is determined by means of very precise observations. Near Willits, where a good road branches

west to Fort Bragg, on the coast, you pass a rock named for "Black Bart." He was a notorious highwayman who robbed stage-coaches along this road.

One chill night on the Redwood Highway, we stopped at a village where Jim Jeffries, former world champion, was referee in a boxing match between an Indian named "Tony" and a white man. Indian friends of the red boxer, fluent in ringside patter, rooted in characteristic American, "Soak him, Tony! Get his scalp, or we'll get our bows and arrows, and *heel* you!"

GIANT GROVES SHADE REDWOOD EMPIRE.

There is a sense of strength, of peace that passes understanding, beneath these aged, towering trees. Like monuments to time they rise above man's evanescent works. Many shade this Redwood Highway; other groups rise to right and left of it, as on the scenic ride from Cloverdale to Navarro by the sea.

Forty-nine groves are preserved for the State, by hard work of the "Save-the-Redwoods League." In spots along this high-



CLOUDBURSTS UNDERMINED A GLACIER ON MOUNT SHASTA AND SENT ROCKS AND MUD DOWN THE SLOPES TO BLOCK A HIGHWAY

Icy chunks of the glacier itself broke off and joined the avalanche, which occurred in August, 1935. Passengers in the abandoned car saw the mud flow coming in time to jump out and climb to safety.

way where trees were thickest some were felled, or their sides sliced away that wheels might turn. Here man's puny paths around their feet shrink to insignificance, like runways of short-tailed field mice under an oak.

One grove is named for Stephen T. Mather, in his life a Trustee of the National Geographic Society. Another honors Franklin K. Lane, Secretary of the Interior in President Wilson's Cabinet, and Trustee of the National Geographic Society.

Fossils prove the Redwood's great age. When tropic forests covered California this mighty tree ranged from here to Europe. On St. Lawrence Island, in Bering Sea, its remains are found. Across that sea the Redwood moved from continent to continent, says Dr. Ralph Chaney of the University of California, along with the dinosaur and other animals of the prehistoric past. Even that hideous, long-jawed flying reptile, the pterodactyl, may once have flapped his clumsy wings about the Redwood treetops.

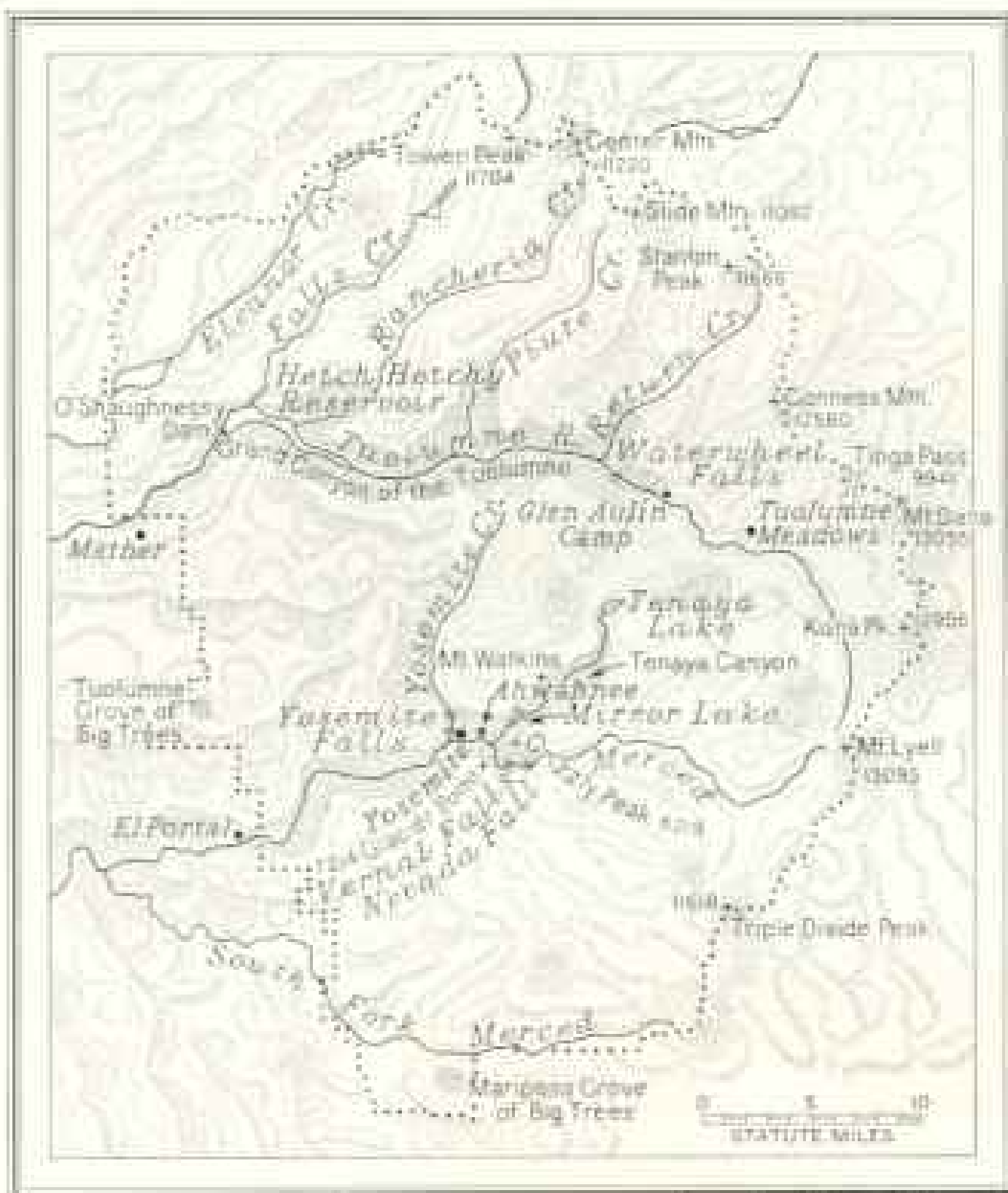
So indestructible is this wood that dead trunks, scattered through these groves, are

centuries older than the 2,000- and 3,000-year-old living trees. You see a good example of how this wood endures at Mendocino, on the coast south of Fort Bragg, settled by Russians in the 18th century. There is an old Masonic Hall, built by early Americans, whose odd cupola is carved from Redwood. Its mystic emblem, showing a maid beside a broken pillar, her tresses being fondled by Father Time, is sound and well-preserved after decades of fog, sun, and storm.

EUREKA, WHERE GRANT BUILT AN INDIAN FORT

Industrious Eureka is like some town on the gray, wind-swept coasts of Scotland, even if fog is euphemistically known here as "summer sea mist." Its dairy herds and neat farm homes add to its Scottish aspect. Two small girls, who had just crossed the continent by bus, all by themselves, showed me about the place.

Here the Redwood Highway touches the Pacific; sawmills whine and the scent of fresh-cut lumber fills the damp air. Wild, rugged coasts, fish-filled waters, and inland



Drawn by Arthur J. Haas

WHITES CHASING INDIANS IN 1851 DISCOVERED YOSEMITE VALLEY, SINCE VISITED BY MILLIONS

Tens of millions more know what it looks like, from the constant stream of published pictures, even stamps, showing its waterfalls, big trees, peaks, domes, and trails. Established as Yosemite National Park in 1890, its boundary shown by the dotted line, it has an area of 1,176 square miles. It is located in the Sierra Nevada 140 miles east of San Francisco, and is easily accessible by motor car. Airplanes also land in the valley, which measures about one mile by seven (page 357).

forests still rich with game lure sportsmen from far away.

Among the most westerly of American cities, Eureka stands on Humboldt Bay, discovered by the crew of the Yankee ship *O'Caïn* when they worked along this Indian-haunted shore, hunting sea otters in 1806. It was Captain Ottinger of the *Laura Virginia* who named the bay for Baron von Humboldt, in 1850. That same year, a wooden village was born. The tale goes that when a United States Land Office was set up here, and deeds began to trickle back to Washington, the records there failed to show any such place as "Humboldt City." Finally one clerk, pawing his documents, cried, "I've found it!"

"Then name it Eureka," suggested a

fellow clerk; and it was.

Indians, raiding the town in 1852, led to Army action, and here came Ulysses S. Grant, then a young lieutenant, to build Fort Humboldt. History records that soon thereafter he resigned from the Army, only to re-enter the service and eventually to become President of the United States.

Near Arcata, a short ride north, Peter B. Kyne laid the scenes in his lumber-camp book, "The Valley of the Giants."

WHEN TALL TREES FALL

"Where can we see them cut down a giant tree?" I asked.

"Climb into the cab of that engine," came the word. It pulled a long string of empty flatcars. Winding up valleys, we came to hills so steep the engine faltered. They cut it off, and we got on the flatcars. To these a cable was hooked, and we resumed our ascent, pulled uphill by some unseen power.

Up, up, a dizzy spectacular ride, till we came to a huge stationary engine mounted on giant

log skids. *It* was the power; it wound the cable on a big, fat drum.

All about were strewn acres of tumbled red bark, 20-foot splinters, and piles of prodigious logs.

Sharp rattles like machine-gun spurts echoed through the forest.

"That's the dragsaws," a boss said. "They're portable gas engines that two men move about to cut down trees" (338).

"But I want to see a tree fall!" I insisted.

"Go on and see it; up that canyon, and over the slope."

What a climb! Goodbye, new summer suit and rubber heels. In that hour I learned why hobnails are made; why lumberjacks don't wear smocks like beauty-shop workers.

I got near enough, in time, to see two trees felled. They did not seem really to fall, at least not fast. They lay down, deliberately, but with a final crash that seemed to shake the world and fill the mountains with a low, hoarse roar, the death rattle of a giant.

"Timber!" That's the warning cry when a tree is about to fall. "It means get out of the way, or reach for your harp," said a worker. "And right afterward, look out for widow makers." These are big limbs, broken from adjacent trees by the one that falls. Often they hang a few minutes, and then drop, when you would think all danger was past.

Indians did not fell these trees. They had no tools. Pioneer whites, with only an ax, found it slow work. Even the drag-saw crew, what with preliminary rigging and chopping to drop a tree in just the right direction, may work a day or more to get one down.

To drag logs down to the tramway, some firms now use tractors. Here the "high line" was used, an overhead cable. There's a sense of frightfulness in this, of cyclonic power run wild. You see logs of stupendous weight swing high in air, crash into trees along their path, plow into the ground, rush madly down the mountain side straight at you, raising a cloud of bark dust and dirt, like some prehistoric animal on stampede, only to slow down, at just the right spot, and settle quietly to earth, or to waiting flatcars. That was the way they loaded the empty trams that hauled us up; then they eased them down the mountain, to the engine.

We rode down with the day shift at sunset. Some workers brought their saws, chalked their names on them, and turned them in for sharpening.

I mentioned bears. "Sure, they steal our lunch. One day my partner and me hung ours high up on the top of a ladder. A bear got 'em both; he walked away with mine in his mouth, up on his hind legs, and carrying my partner's under one arm, like a man. They're smart; they'll steal cans of jam, but leave the spinach. You'd swear they can read the labels."

North again now, past azalea-clad slopes, to Trinidad, with a big stone cross set where Spaniards put a wooden cross when they anchored here in 1775. Here and there, along the road, you see ruined shacks; many gold seekers landed here, in the

1850's. Passing Redwoods of dizzy height, you come to Douglas Memorial Bridge, adorned with two huge concrete bears.

Here is the mouth of the Klamath River, crowded with boats trolling for salmon. On the bank is a small cannery; you catch your salmon, they can it for you, label the can with your name on it, and ship it to your home (see page 337).

One woman, in a boat rowed by her husband, had hooked a big fish. Their black dog, riding with them, barked furiously as the fish leaped and leaped, trying to shake out the hook. "Shut up! Drown the darn dog!" near-by fishermen grumbled. Then the salmon got away. Now the woman took the oars, and the man soon hooked a fish. Again the dog grew vocal; again other fishermen swore. Then the man, too, lost his fish, and the dog lay down again.

We lunched on salmon steak, deliciously cooked. For breakfast I had tried some of the Klamath Indians' smoked salmon—which must be an acquired taste! Up the Klamath River go myriad fish, to spawn.

Civilization came to this remote nook of America by two routes, by sea and by painful climbs along the boulder-strewn Trinity and Klamath River beds. For decades no good roads existed. Men still point out traces of old corduroy roads used by lumbermen and pioneer stagecoaches.

Till very recent years no highway ran north and south along the coast; down one roadless stretch, south of Crescent City, adventurous motorists used to risk both their cars and their lives by using the ocean beach at low tide as a road. Many cars were lost in the sands. Today, three good roads serve Crescent City, which stands in the extreme northwest corner of California, where the Redwood Highway turns inland for Grants Pass, in Oregon. On the way to the State line you pass historic Gasquet, built by Frenchmen in days when 2,000 pack horses used this trail.

THE LAND OF STEELHEADS, BEARS, AND PUMAS

Turning south to Orick, near which a herd of wild Roosevelt elk still roam the forest, we rode inland to strike the Klamath at Weitchpec, near the north end of the Hoopa Valley Indian Reservation.

Wild, empty, this road was. The few houses were weather-beaten, and far between. You could tell by occasional old orchard trees and shacks that whites came

long ago. Most of them left long ago, when gold and lumber failed. Profound loneliness hung in the air.

Crossing one sheep ranch, we saw dead coyotes nailed to fence posts—warning to other lamb snatchers. On the six-hour ride to Orleans fishing camp we passed only one or two other cars, and a wagon-load of Indians. "Except for what lumber is left, much of this country isn't worth a dollar an acre," said a man panning among tumbled rocks in the Klamath. "Pioneers got most of the gold from this stream 85 years ago. We barely make a living washing this sand. I earn more in winter, trapping fur, than I do mining."

Orleans, its saloon filled with Indians, was a lively spot. Fishermen, after steelheads, packed every room of the lodge where we stayed. Guests inclined to brag about catching big fish, especially fish unseen by others, are warned by a porch sign: "Any fish caught on this porch that weighs over 50 pounds must be thrown back." That day a man chopping wood in the backyard saw a deer wading the Klamath River; he grabbed his gun where it lay on the woodpile, and shot the deer.

The Lodge's letterhead read, "Bear and Panther Hunting with Hounds." Dogs lay about, scratching fleas. On sitting room walls hung pictures of dead pumas and half-naked Indians playing a "stick game."

After-supper talk switched from fish to deer and big cats. "Lots of people wouldn't believe it," said one hunter, "but when deer stay up on the high ridges till snow gets so deep they can't run well, many are killed by gangs of common, short-tailed bobcats."

Later I asked a park naturalist about this. "Yes," he said, "we have testimony from reliable eyewitnesses proving that bobcats do sometimes kill deer. We figure that a mountain lion kills at least one deer a week the year round" (see page 342).

The gifted raconteur who runs this Orleans lodge had just returned from exploring certain lakes in the Marble Mountains to the northeast. "Few whites ever get in there where I was," he said. "You can't even imagine what a wild, beautiful country it is."

Large areas hereabouts have only two or three people per square mile, sometimes none at all. Much country is a painful, melancholy wilderness, almost valueless since lumbering stripped it.

Riding northeast to Yreka, set on the main highway from Sacramento to Portland, we followed up the Klamath River for miles, passing pyramids of bowlders thrown up by gold diggers long ago. Between Orleans and Yreka the country is more thickly settled, with neat ranch homes and fishing camps. Near one tent women fired target rifles at empty beer bottles and tin cans while the men fished for steelheads.

IN THE SHADOW OF MOUNT SHASTA

U. S. Highway No. 99, from Yreka south, follows roughly that line of easiest grades sought long ago by the Southern Pacific Railroad. Through here flows heavy motor traffic bound to and from Portland and Seattle. Mexicans and other itinerant fruit pickers moved with this honking human stream.

Mixed in the stream was that other distinctive American type, born of good roads and cheap, second-hand cars, the "tin Lizzie tramp." Many groups we saw, camped beside brooks, or under trees; they are knights of the open road, successors of that horse-trading, fortune-telling "mover" who, back in "Kansas or Bust" days, cluttered the Middle West with his dingy covered wagons and bony animals.

To our left rose majestic Mount Shasta, white-capped and serene. Rocks, rubbish, and fallen trees still marked the path of recent cloudbursts (see pages 343, 358).

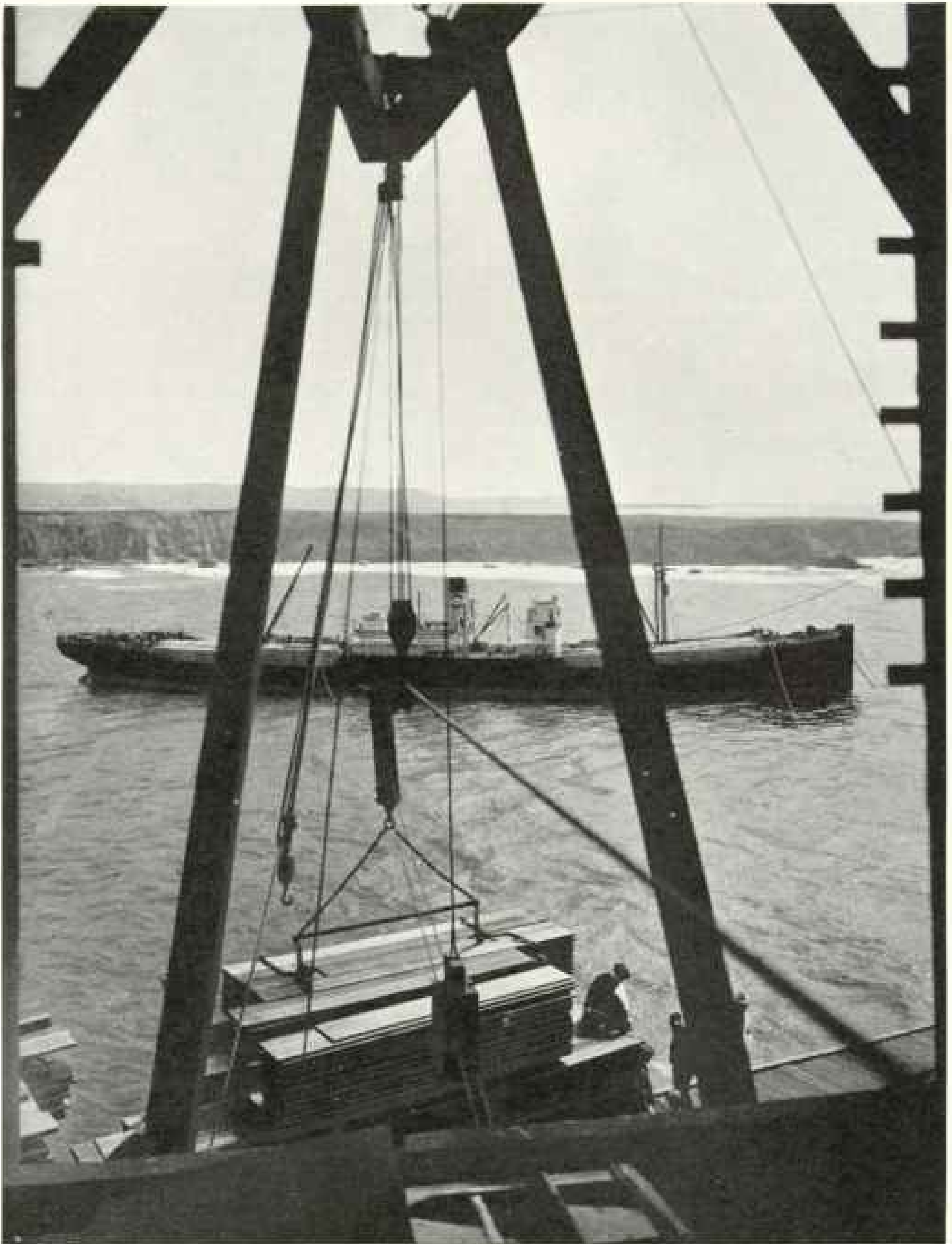
Working these highway hamlets came a man with a big portable telescope. In village streets he set it up, charging five cents for a peep at towering Shasta, often visible as much as 100 miles away.

From Redding, next day, we turned east to explore that wonderland national park of cool streams, hot springs, Shasta lilies, pines, and quaking aspens which frames Lassen Volcano.

FIREWORKS FROM LASSEN VOLCANO

"Look where the huge trees were shot down by the volcano," said my guide. All point northeast, just as blown by a great gas blast from the mountain side. You can still see splintered scars on the prostrate trunks, where flying rocks hit them 21 years ago.

That eruption was in May, 1915, the volcano's first in perhaps 200 years. On that frightful day an ominous mushroom cloud was blown four miles up into the



ON THE ROCK-BOUND COAST OF HUMBOLDT COUNTY, AT POINTS WHERE SHIPS MUST STAND OFFSHORE, LUMBER IS OFTEN LOADED BY CABLE CARRIER

Some of the wildest, most majestic coastal scenery in America, where Pacific rollers roar and break against cliffs and rocky islets, is encountered along the Shoreline Highway. When completed, this road will follow the coast from Bodega Bay north via Fort Ross, Mendocino, Fort Bragg, and Ferndale, where it is to connect with the main Redwood Highway.

sky. Far away, in the Sacramento Valley, startled people stared at the terrifying sight, and trembled at its thunder.

Fiery flashes lit the skies for miles that night, and red rocketlike bodies leaped from the crater.

Snow on Lassen slopes instantly melted, so that floods, as well as hot gas, swept a path ten miles long. Trees three feet thick were broken off or uprooted. You see slopes along Hat and Lost Creeks covered now with logs, as if men had felled the trees and stripped off their bark.

No wonder crowds swarm here. This is the last active volcano in the continental United States. Besides the strange sights of the ruined forest, there are steaming springs, hot mud pots, and baby geysers. Go to Boiling Springs at dusk, and it reminds you of the last scene in "The Bird of Paradise," and that volcanic lake on Hawaii where the Kanaka princess sacrifices herself to the Goddess of Kilauea. "The most baffling question visitors ask, and the most frequent," said a guide, "is, 'When will the next eruption occur?'"

From Lassen Peak, 10,453 feet, you can look east across the purple mysteries of lava beds and sagebrush, to where a new highway, U. S. 299, takes off for Boise, in Idaho. One early immigrant wagon route crossed this waste.

Into that country, by way of the wild Feather River and the great lumber mills at Westwood, the Western Pacific is building its new railroad.

INDIAN SKIRMISH AMONG LAVA BEDS

Seen by few visitors, the lava beds, in the northeast corner of this huge State, are a region of strange geological aspects. In a recent survey in the Lava Beds National Monument, part of which is in Modoc County, collapsed lava tubes, locally called rifts, are found to be as much as 100 feet deep; one extends a mile across an old lava flow. Surveyors also found a total of 224 caves in the lava, many of which contain ice and ice water always on tap. They counted 16 craters and 75 fumaroles.

It was in this wilderness of nature in the raw that "Captain Jack" and his red devil band held out for five months against the U. S. Army in California's last Indian war. A cross now marks the spot where, under a flag of truce, they murdered General Canby.

Shuffling acres of sheep, led by a trained

burro, crowded the Lassen road. Behind trailed a Portuguese in a truck with a few sheep that had "give out."

"Two boys in an old Ford just ran into us," he complained, "and killed six sheep."

"There's a western tradition," I said, "that men driving herds have right-of-way. Don't cars stop, and give you a chance?"

"Yes, most of 'em; some cuss us for blocking the road. I'm in a hurry to get out of the mountains before snow flies. We've come 100 miles, and we've got ten more days to go."

WOOL SPINNING AN EARLY INDUSTRY

Spanish priests brought the first sheep here from Mexico. They proved a civilizing force on Indians, changing them from wild-meat hunters to shepherds.

At Cuernavaca, Mexico, in 1560, Spaniards set up a woolen mill; from there this industry came to California. Vancouver, visiting this coast in 1792, wrote: "The looms, though rudely wrought, were tolerably well contrived and had been made by Indians . . . I saw some of the cloth, which was by no means despicable."

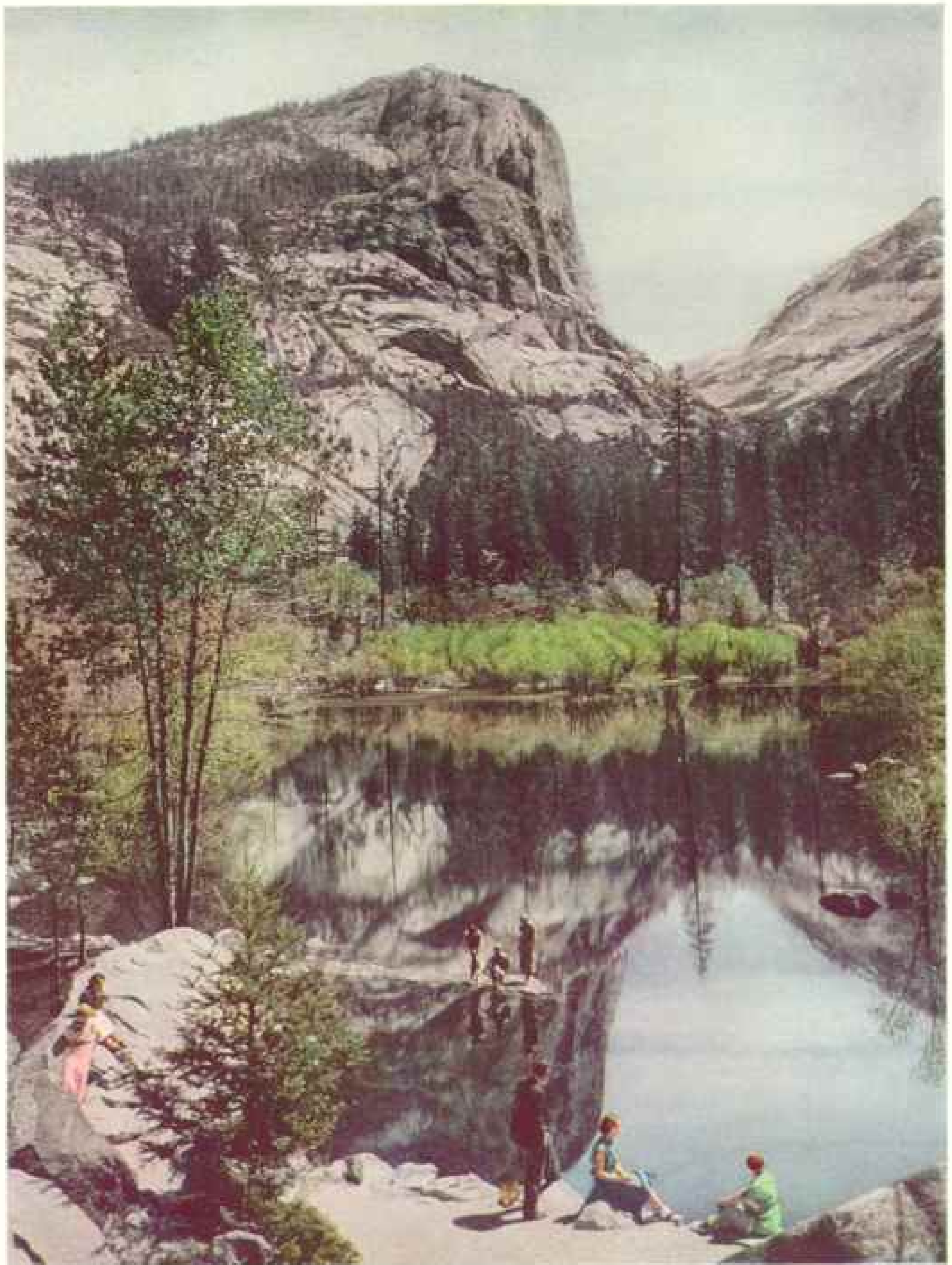
Pioneer Americans drove sheep here from as far east as Illinois. Kit Carson drove one large flock from New Mexico. During eight years following 1852 more than half a million sheep were driven west over mountains and deserts. Some were two years on the march.

When forty-niners swarmed in, they lived largely on the Mexicans' mutton. Meat packing today is one of San Francisco's chief trades; every spring live and dressed lambs are shipped East.

Wool from this coast is of high quality. One mill at Eureka makes flannels, blankets, suitings, and overcoat cloth shipped all over the Nation.

Stopping overnight at Red Bluff, we went with friendly townfolk to watch a burning house. Many job hunters camped about, hopeful of work on a proposed power dam north of Redding, which as yet exists wholly on paper. Some had come from distant States. Again I heard it: "We Red Bluff people can take care of ourselves, but it's hard to see these campers go hungry."

South now, again on the main highway, we rode through prosperous Corning, famed for rich, fat olives, and into rice lands where seed is sown with airplanes.



© National Geographic Society

Autochrome Lumière by B. Anthony Stewart

MOUNT WATKINS PAINTS ITS OWN IMAGE ON THE STILL WATERS OF MIRROR LAKE

Rimmed by trees and quietly asleep at the mouth of Tenaya Canyon, this lake lies at the eastern edge of Yosemite Valley. Three girls walked out on a flat ledge from the left, and appear to be standing on water. Sunrise Easter services are held here on the shores of the lake.



CRAB MEAT, CRAB CAKES, CRAB COCKTAIL, CRAB IMPERIAL, CRAB SALAD,
CRAB A LA DEWEY OR NEWBURG—OR JUST CRAB!

From an open-air boiler, fired with kindling from pine boxes, a man takes a freshly cooked one. Visitors, workers, housewives, all flock to San Francisco's Fisherman's Wharf for crabs.



© National Geographic Society

Finlay Photographs by H. Anthony Stewart

THIS MEXICAN GIRL BELONGS TO CALIFORNIA'S "FRUIT TRAMP" ARMY

Beginning with melons and vegetables in the Imperial Valley, thousands of seasonal workers follow the ripening crops, gradually advancing north to the fall picking of apples, prunes, and hops. She now works in a pea field near Sacramento, center of amazing agricultural production.



© National Geographic Society

Field Photograph by H. Anthony Stewart

MOSAICS OF BIBLE SCENES DISTINGUISH THE MEMORIAL CHURCH AT STANFORD UNIVERSITY

Here is portrayed the Sermon on the Mount. The earthquake of 1906 ruined the original mosaics, made in Venice by Salviati and shipped in sections to the University. Later they were restored. All architecture here is an adaptation of mission style, structures being of sandstone, with red-tiled roofs.



© National Geographic Society Autoclimate Lorraine by B. Anthony Stewart
**MAY THAWS START THE SNOW LINE CREEPING UPWARD
 ON STEEP MOUNTAINS**

Emerald Bay is an inlet of Lake Tahoe, 6,125 feet above the sea; along the slopes runs a scenic highway around the lake, part of which is in Nevada. At Cal-Neva the State line is marked on the hotel floor.



Filisy Photograph by B. Anthony Stewart
**IN GOLDEN GATE'S JAPANESE GARDEN A STEEPLY ARCHED
 BRIDGE SPANS A POOL**

The garden, true to ancient pattern, was built for the city of San Francisco, as a gift from the Emperor of Japan. Here, through many decades, Japanese women in native costume have served tea to visitors.



© National Geographic Society

Autochrome Lamination by H. Anthony Stewart

SEMITROPICAL SACRAMENTO PARKS ARE BRIGHT WITH FLOWERS AND SHRUBS, MANY IMPORTED FROM DISTANT LANDS

Patricimed McKinley Park, shown here with its willows and waterlilies, is a part of the city's 4,204 playground acres. Capitol Park is famed for trees from far and near (see Color Plate III); others provide a zoo, facilities for golf, tennis, and baseball, and children's playgrounds.



FROM WARM SPRING DAYS IN CENTRAL VALLEY A FEW HOURS' DRIVE LEADS TO HIGH SIERRA SNOW SPORTS

This ski party was pictured near Soda Springs in May. From December to March snow sports are most enjoyed, especially the skjoring, curling, and skating in Yosemite National Park.



© National Geographic Society

Endley Photographs by B. Anthony Stewart

WARM MAY MORNINGS LURE SACRAMENTO MERMAIDS TO THEIR PRIVATE SWIMMING POOL

Contrast this with the snow scene above—both photographed in May. California is one of our few States where sports lovers may easily ride from summer to winter scenes. In shaded high Sierra spots snow patches lie all summer long.



NO MUSEUM OF GOLD RUSH RELICS HOLDS AN EXHIBIT MORE REALISTIC THAN THIS OLD PROSPECTOR WITH BURROS AND COVERED WAGON

He still pans for gold in the once rich stream beds and dry washes of the Mother Lode country. But there's more profit now, he says, posing for wandering photographers than washing gravel!

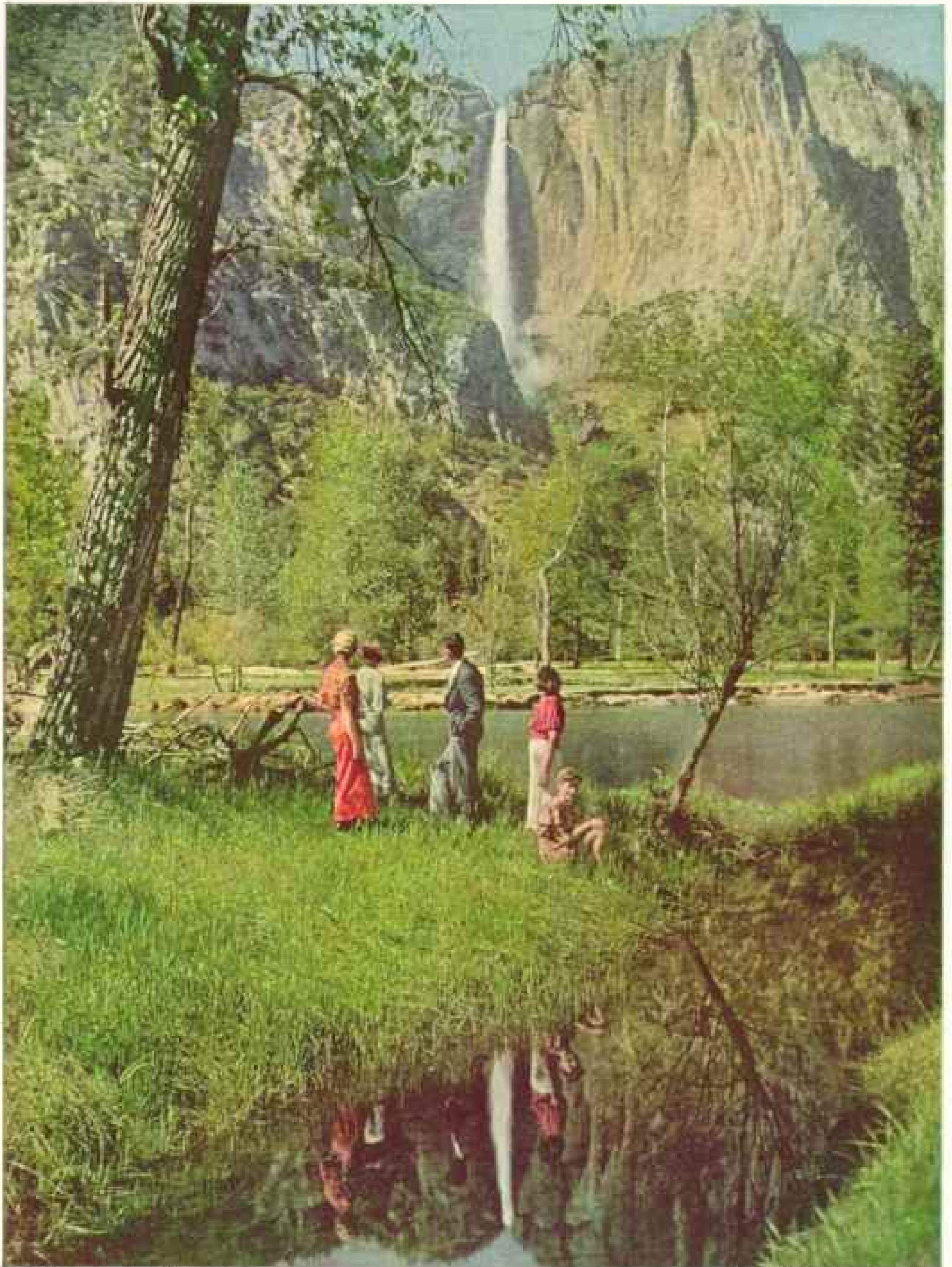


© National Geographic Society

Finlay Photographs by J. Anthony Stewart

MARK TWAIN'S "JUMPING FROG OF CALAVERAS COUNTY" LIVES AGAIN IN THIS JUBILEE

Long-jumpers from many States are brought for the annual contest at Angels, which may also include the staging of historic mail robberies and lynchings. In one race the winning frog jumped 12 feet 5 inches against 168 contestants, before a crowd of 20,000!



© National Geographic Society

Finlay Photograph by H. Anthony Stewart

WIND-SWAYED SINUOUS UPPER YOSEMITE FALL REFLECTS ITS RIPPLING WHITE RIBBON
IN A QUIET POOL ON THE VALLEY FLOOR

Here the spray-brooded water column drops 1,430 feet in one sheer descent. Immediately below is another fall of 320 feet. Counting intervening cascades, the total drop from crest to meadow is 2,565 feet. In winter an ice tower several hundred feet high may form at the foot of the falls.

Later the pilots use their plane to scare away wild ducks that come to devour the young rice!

Beside another road stood a bronze Indian, monument to Chief Solano, friend of whites. And so through Vacaville, an old cow town. Over a bar here a warning: "No Credit Unless You Are Past 80, and Accompanied by Parents."

MEN WEAR VEILS TO GUARD
AGAINST GNATS

Along the winding Sacramento River a highway is built on top of the levee. From it you look down on both the busy river traffic and the Netherlands-like farm life behind the dike (see page 316). Here Will Rogers was filming "Steamboat 'Round the Bend" when our photographer got there. "Sure!" he told Mr. Stewart. "Come along! Make all the shots you want."

Oriental swarm in this delta. One town, under the levee, is 100 per cent Japanese. Signs, food, manners, children, schools, smells, all are Nipponese.

Rio Vista streets were gay with flags. "For our annual bass derby," explained a local editor. "This year we're giving away a fine speedboat to the visitor who lands the biggest bass on Derby Day."

In wide flat fields Filipinos cut asparagus with almost comical rapidity (page 318).

"Why work so fast?"

"The sun. It wilts asparagus."

"But why wear veils, like harem women?" I asked the Tagalog.

"Gnats. The veils keep them out of our eyes."

"We use tractors now, with wide tires," said a grower. "That keeps the machine from sinking into this fine, soft peat. In old days, to keep our horses from miring down, we often put wide plates on their feet, like snowshoes."

Some land here is below sea level. Salt water backs far upstream. By much dredging, smaller ocean ships now steam even up the San Joaquin, to Stockton, where cement-carrying ships are unloaded by 10-inch suction pipes, which pour the cement into silos, for valley distribution. This city rumbles with barley elevators, cotton presses, paper-box mills, boat yards and ear-icing plants (319). While still very young, it was a boisterous trading post for pioneers. It still flaunts a lively, rough-and-ready air. In one cafe, Basque sheep-

men drink wine from goatskin flasks (page 382).

In Lodi that day it was 102 in the shade. I wanted to find a farmer who, many insisted, owns some wild geese hatched from eggs found by his grandfather in 1865! After 69 years in captivity, in 1934 these geese laid eggs!

But it was too hot, even for a wild-geese chase; we headed for the Sierras. Valley dwellers enjoy this advantage. Hot this sun-baked land may get, but always, in a short ride, they can reach the fog-cooled coast or the shady Sierra valleys (Plate XIV).

No society pays more attention to roads. More than 79,000 miles are built for county and State use. Spectacular methods of work are seen. In Trinity County hills you see roads being graded by hydraulic mining methods; giant hoses squirt furious streams which wash away the slopes.

Radio devices, set in lowlands subject to floods, automatically broadcast warnings of rising waters.

Roaring like big guns on some Western Front, carloads of exploding dynamite tear away rocky hillsides and blow up huge Redwood stumps.

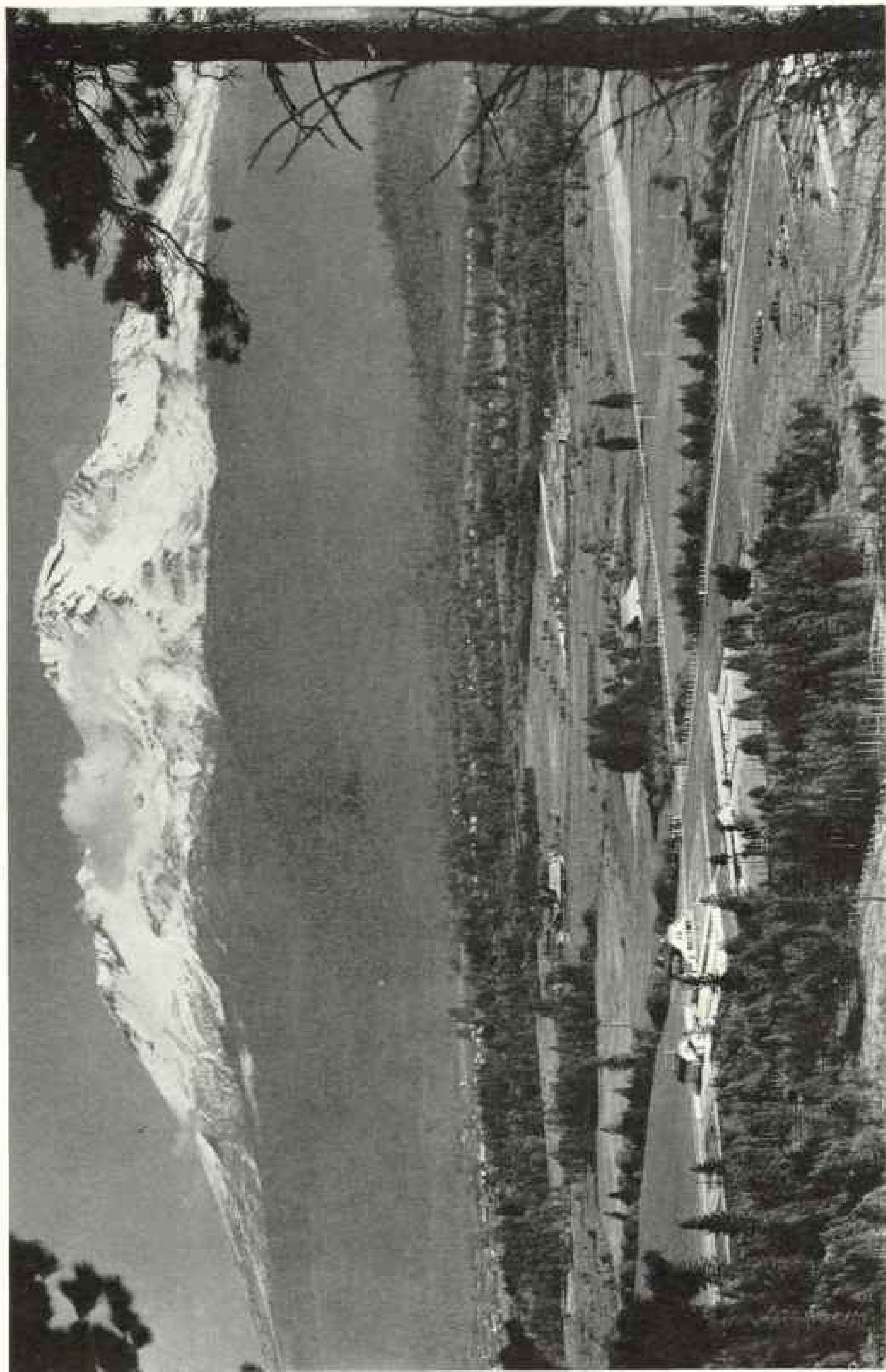
Snow plows buck the drifts on mountain roads. Last April an avalanche on the Lake Tahoe road buried a crew and their plow. One man smothered to death; another, though badly injured, doggedly dug his way to air and life.

IN AND OUT OF YOSEMITE

Back in horse and buggy days, when I first saw the Yosemite, you quit a train at El Portal and crawled in by stage. Now the smooth, sweeping, "all-year" motor road from Merced takes you there at high speed (Plates IX and XVI).

Yosemite's main valley, only about one mile by seven, is hardly big enough to hold the crowds: 372,317 camped there last season, or packed the hotels (see map, p. 344).

After dinner we sat before the restful Ahwahnee Hotel, heard a youth in mail-order chaps sing cowboy ballads, and watched the "fire fall," a weird spectacle achieved by dumping flaming bark over the canyon rim. Then guests went to that nightly diversion known as "feeding the bears." In this gastronomic orgy, staged under arc lights, these impudent animals fuss and fight over barrels of hotel garbage. In spite of all warnings, said a park official,



Photograph from Californians, Inc.

MOUNT SHASTA, WITH ETERNAL SNOWS, RISES 14,161 FEET HIGH IN NORTHERN CALIFORNIA

Of volcanic origin, Shasta was built up gradually by successive eruptions. At its base lie the resort towns of Dunsmuir and Shasta Springs. Weed, busy lumber-mill town, stands to the west, and at the southeast lies McCloud, also an important lumbering center. In the State, only Mount Whitney is higher.



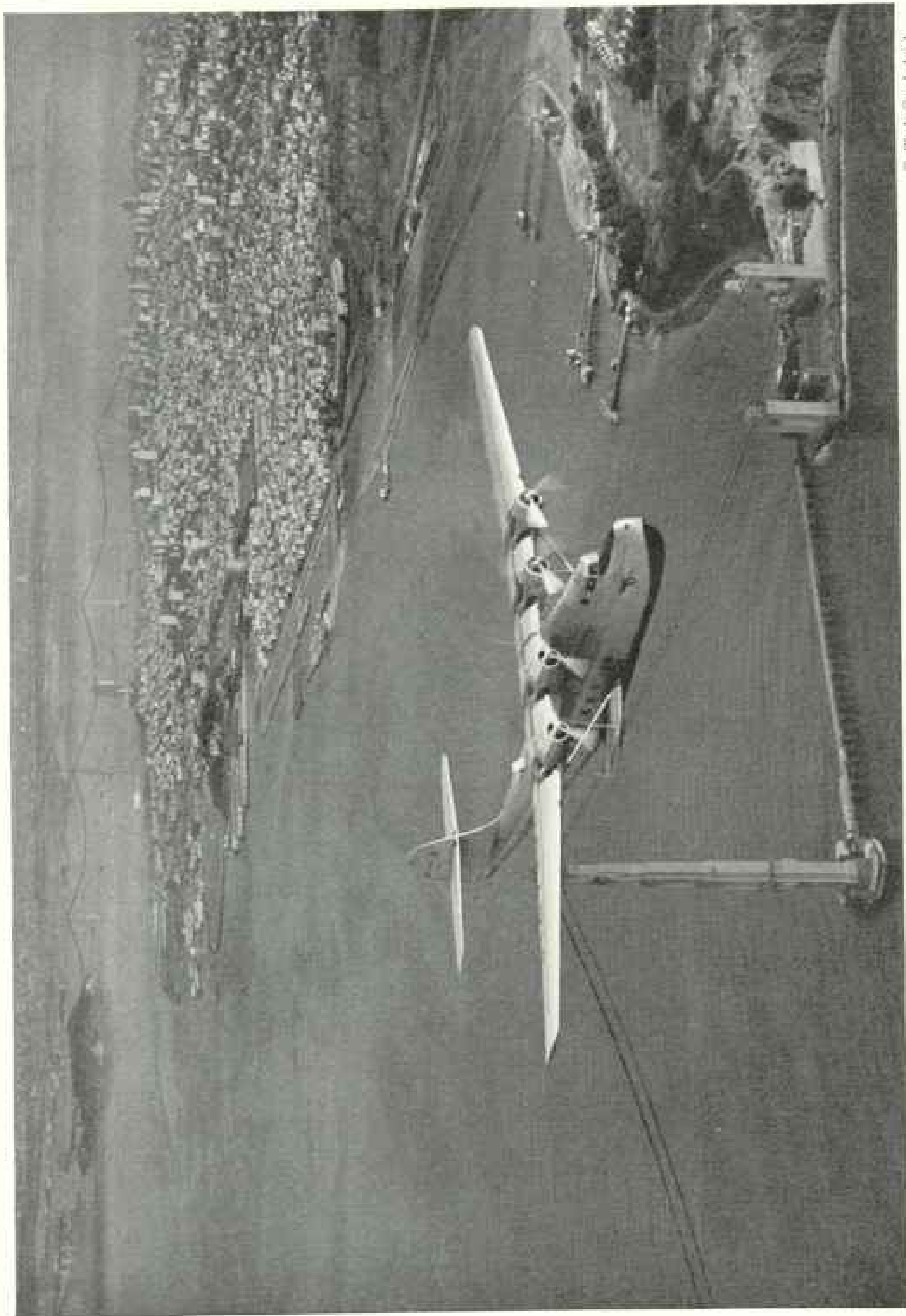
"RIDE HIM, COWBOY!" HOOPS, HORNS, AND TAILS FLY AT THE SALINAS RODEO

Often the outlaw horse or bucking bull is blindfolded until the rider mounts; then they uncover its eyes and the fun starts. Each year Salinas hires America's best riders, ropers, and bulldozers, who, when they are not performing, often take "ringside" seats on fences.



LICK OBSERVATORY ON MOUNT HAMILTON, NEAR SAN JOSE, IS ALSO A TOMB AND A MONUMENT

This astronomical observatory, the first on the Pacific coast, was the \$700,000 gift of pioneer James Lick, whose tomb is in a supporting pillar of the 36-inch reflector. Built for the University of California to be "superior to and more powerful than any yet made," this telescope, though dwarfed by later giants, has for years been of important use to many scientists.



© Clyde Sunderland

HIGH OVER GOLDEN GATE BRIDGE, UNDER CONSTRUCTION, CLIMBS A NEW "CHINA CLIPPER" HEADING FOR ITS FIRST STOP, HONOLULU. At the lower right is the Presidio, dwarfed by two bastions of the bridge; beyond is San Francisco; along the beach are yacht clubs, Fishermen's Wharf, and the Embarcadero. This giant span (left) reaches to the Marin County bluffs. Across the far background stretches the San Francisco-Oakland Bay Bridge.



© Gabriel Mooslin

NOCTURNAL ILLUMINATION OF THE SAN FRANCISCO-OAKLAND BAY BRIDGE REVEALS THE STERN MAJESTY OF THIS COLOSSAL STRUCTURE

The view is westward, with San Francisco in the background. Measuring eight and a quarter miles from end to end, this double-decked bridge will carry six lanes of automobile traffic on the upper level and three lanes of trucks plus two electric railway lines on the lower deck. The maximum ship clearance of the bridge is 218 feet above the surface of low water (see text, page 383).



© Gabriel Moynihan

GLITTERING, CASTELLATED SAN FRANCISCO AT NIGHT, WITH BATTLESHIP SEARCHLIGHTS PLAYING AGAINST FOG BANKS OVER THE BAY. Across the bay swing the lamp-lit cables of the new bridge to Oakland. Floodlights turn the historic Ferry Tower at the left into a white marble shaft. Lights of boats moving on the bay, and those of cars running in the streets, leave behind bright sleighlike trails, because this is a time exposure.

careless visitors persist in trying to play with these over-stuffed bears, and somebody gets scratched almost every day.

"We found a Big Horn sheep frozen dead in the glacier," said a ranger. "There he is, in that glass case. He may have been in the ice two or three hundred years. Who knows? They're trying now to figure it out."

At the Sierra Club's lodge in Tuolumne Meadows, next day, we heard tales of daring climbs, when men in rubber-soled shoes dangle at rope's end over dizzy cliffs, or risk their necks scaling peaks meant only for eagles.

On sure-footed, mountain-bred horses we picked our way down the boulder-strewn Grand Canyon of the Tuolumne to see fantastic Waterwheel Falls. These form when water rushes over a steeply slanting table of flat granite and falls against a hollow ledge below. This throws the stream up and back, in an arc, oddly like a wheel.

Rough, wild, and tumbled this canyon is, a strange, unfinished world of geologic jitters; here and there glaciers have polished off large areas of granite, smooth as a turtle's stomach. Over these the river rushes in shallow sheets, eager to find its bed again in a narrow gorge that leads to deep trout pools. Walking gingerly over these slippery, flat stone sheets, our horses' iron footsteps echoed hollowly, like Japanese wooden shoes on a cement pavement.

Beside this jubilant, singing stream men were building a lodge. I admired the skill of one Irishman, peeling a tamarack pole with his drawing knife.

"In the old country," he said proudly, "I made artillery wheels for His Majesty's Army."

Patiently, at a discreet distance from the new lodge, another man pecked futilely against the granite base of a rocky mountain.

"You can't do it," I said, "not with that tiny hammer and chisel."

"Do what?"

"Move that mountain."

"I'm making a toilet," he explained defensively.

Nobody knows why, but millions of ladybugs fly up and winter among these high Sierra peaks. Professional bug catchers come here and scoop them up by the handful from under rocks, then sell them by the quart to fruit growers, who use them to

make war on certain pests which eat plants and leaves. "We shipped some ladybugs to our farm in the Midwest," a fruit grower said, "but they left at once. Maybe they came back to California!"

Back we came, over the Tioga Pass Road that leads by glistening Tenaya Lake, down through the Tuolumne Grove of giant trees to the Merced River—and away for Fresno.

"FRESNO, WHERE THE RAISINS COME FROM"

"A worthless waste," General Frémont once called this Great Central Valley. Coyotes chased jack rabbits here till long after our Civil War. Over its smooth pavements now cars whiz at 70 miles an hour, where not so long ago men scattered straw in dry weather, to keep down dust.

Fresno was not incorporated till 1885. Now the world's dried-fruit industry centers here. It works like a safety valve for the State's 125,000 families who grow fruit. They couldn't possibly sell it all, fresh and for canning; drying takes up the slack. Each year this State dries about 2,000,000 tons of apples, pears, prunes, apricots, grapes, etc.

Raisins are a dramatic example. Chinese like them; they say if a man eats raisins he may have male children. The lowest-priced package goods known to foreign trade is a tiny red envelope holding only some 15 or 20 "Sun Maid" raisins sold in China for one-twelfth of a cent, and less!

At a big Fresno factory trays of raisins, dried in the sun, roll in at one end, as lumber for boxes rolls in at the other. After a mile ride on belts, the raisins emerge cleaned, seeded, and packed in labeled boxes in less than seven minutes.

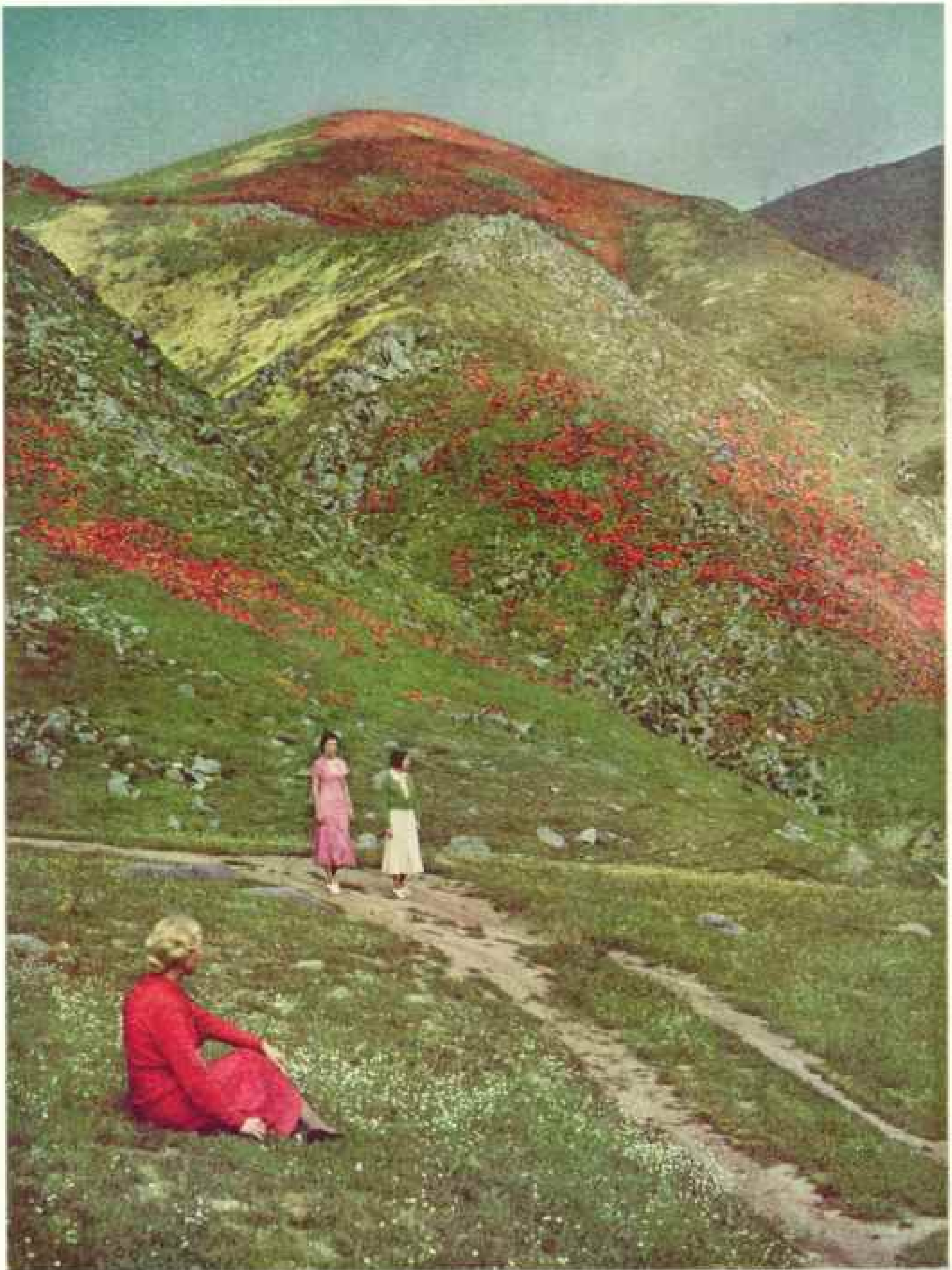
Nothing is wasted. Stems make cattle feed; seed are bricked and sold as fuel. Oil pressed from seed is sprayed back on the raisins, to preserve them; over their moving stream magnets are hung, to pick up any nails, bolts, nuts, or bits of wire accidentally mixed with fruit.

"Do you still eat raisins?" I asked a man who has worked here 20 years.

"Sure! And they still make me think of Christmas or Thanksgiving. Back East, as a boy, we had them only on holidays."

One Fresno patriarch moved here 40 years ago, from Pennsylvania. Every year, since then, he has grown a crop of raisins.

WHERE SPRING PAINTS A STATE WITH WILD FLOWERS

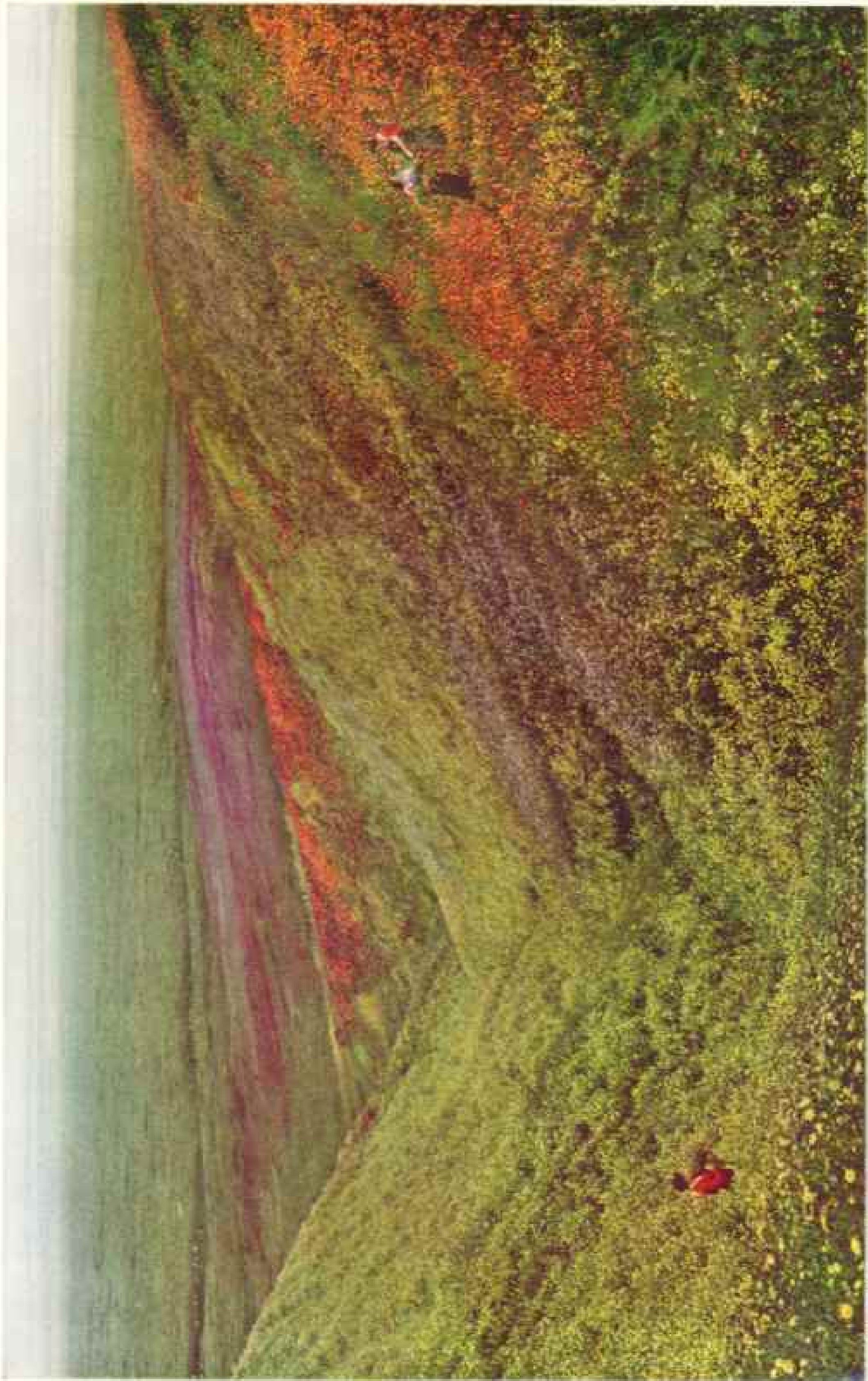


© National Geographic Society

Field Photograph by H. Anthony Stewart

SPRING WILD FLOWERS PAINT THESE KERN COUNTY SLOPES SO VIVIDLY THAT
THEY ARE VISIBLE 22 MILES AWAY

Profusely strewn over colored hillsides are California-poppies, coreopsis, and the creamcups that form the creamy-white patches on the distant slopes. Sandy spots fringing the deserts of southern California and Arizona are often brightened by species of coreopsis, while, by contrast, a near relative, the sea coreopsis, grows along the seacoasts.



© National Geographic Society

LIKE FOOTLIGHTS FOR THIS FLORAL STAGE, SHAPELY "TIDYTIPS," OF THE ASTER FAMILY, ILLUMINATE THE FOREGROUND.

Beyond the tidytops rises the fiddleneck; scattering red flowers in the right foreground are windpoppies. Light blue tansy-leaved phacelias are also discernible, while poppies and owlclover appear on more distant slopes.

Finlay Photograph by B. Anthony Stewart



© National Geographic Society

Finlay Photograph by B. Anthony Stewart

IN ONE ASTONISHING REGION NEAR ARVIN, KERN COUNTY, GROW 108 DIFFERENT VARIETIES OF WILD FLOWERS

Here the purple lupine alone covers more than 3,000 acres. Blooming early, the lupine is quickly replaced by the thistle sage. The evening-primrose, crowsfoot, brodiaea, poppy, buttercup, paintbrush, mariposa, monkeyflower, verbena, and popcornflower are all seen at Arvin's annual festival, which lures flower lovers from all over the West (see Color Plates VII and XII).



© National Geographic Society

Field Photograph by B. Anthony Stewart

EXAMINING A THISTLE SAGE WHERE NATURE'S MANY-BUED FLORAL PATTERN CARPETS A VALLEY NEAR BROWN

Frostleaf (*Gypsophila serotina*) in the foreground, tidytips sprinkled about the center, and a purple curly bloom combine with the thistle sage to form this floral piece. When a wild flower gets in the farmer's way, as does the bindweed, which resembles a morning-glory, it becomes a weed! A weed has been defined as "a plant out of place."

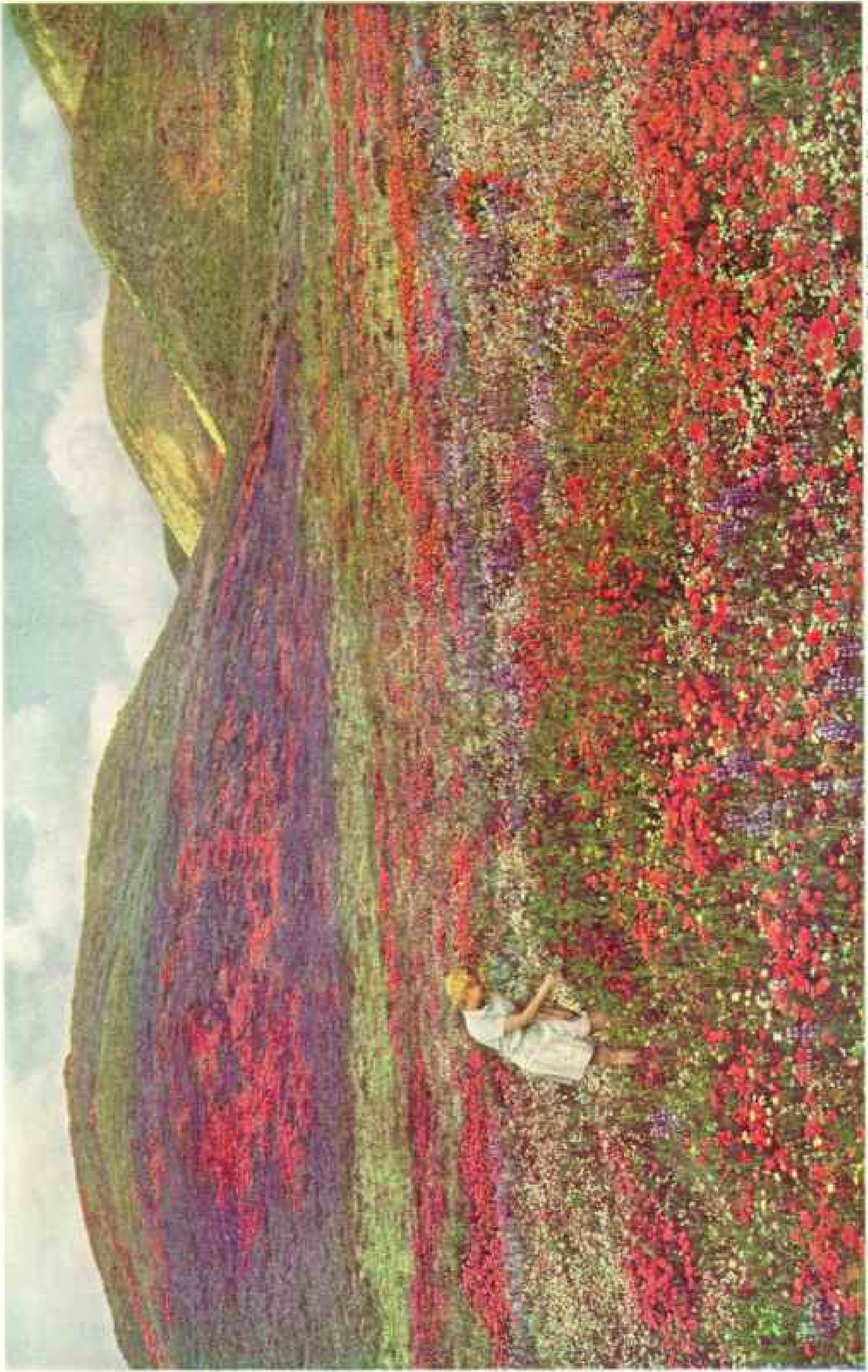


© National Geographic Society

Finlay Photograph by B. Anthony Stewart

MOTOR VISITORS WALK KNEE-DEEP IN TIDES OF DELICATELY FRAGRANT DESERT FLOWERS

For generations plant enthusiasts from many lands have botanized in California. A pioneer was Archibald Menzies, who came in 1792 with Vancouver. He took many wild flowers back to Europe with him, and some are named for him. Today the familiar California-poppy, the State flower, is grown in gardens all over the civilized world.

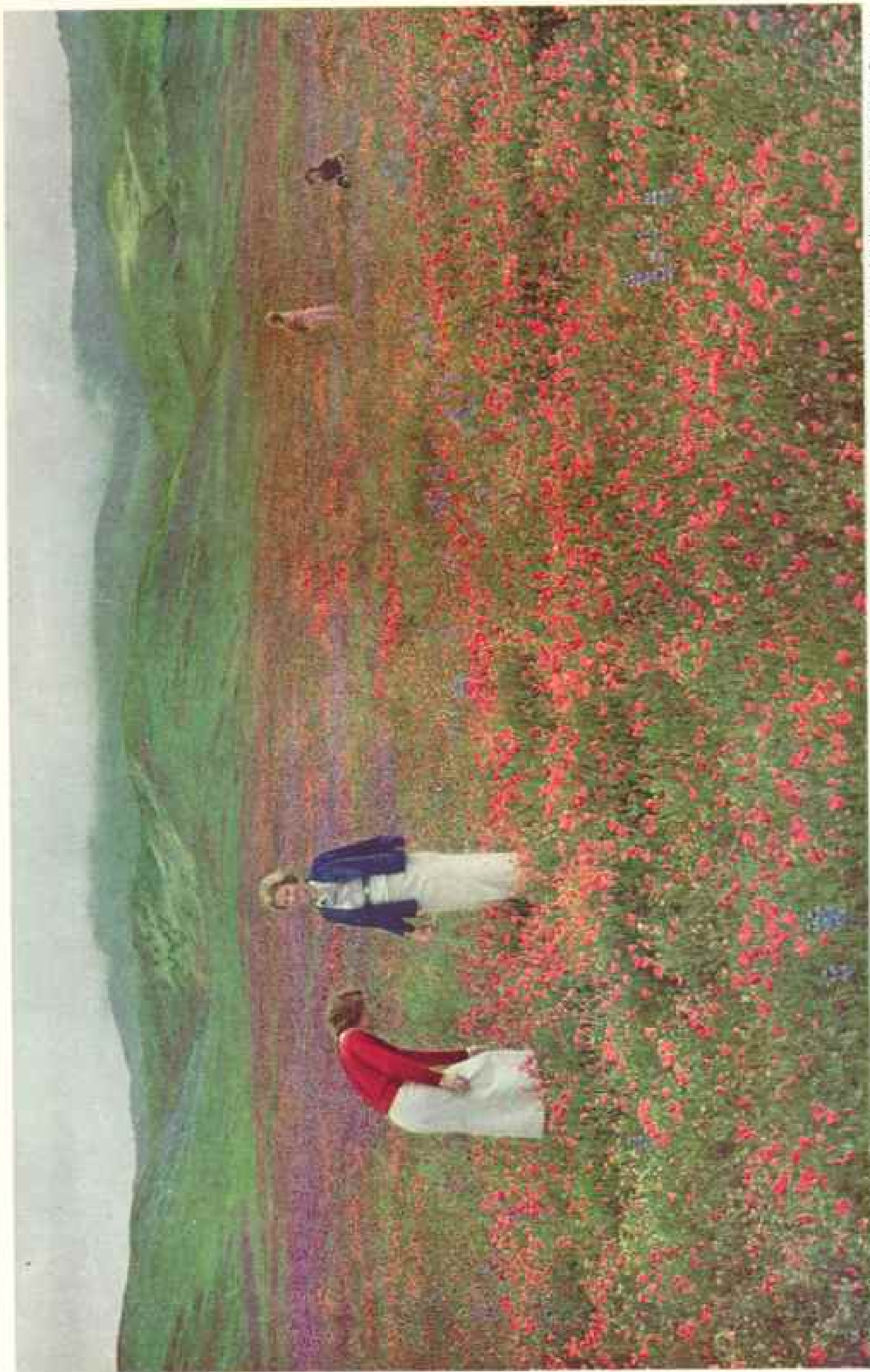


© National Geographic Society

LARGE PATCHES OF WILD FLOWERS GROWING IN KERN COUNTY ATTEST THE ROMANCE OF PLANT MIGRATION

Finlay Photograph by H. Anthony Stewart

Scattered among wild flowers are various weeds, some of which migrated here in baled hay, sand ballast on ships, sheep's wool, immigrants' straw mattresses, and in other odd ways. Wild garlic and bull thistles, for example, may have come in seed and grain. The star-thistle from Malta, with its handsome flower, is among the noxious immigrant weeds.



Pinfor Photograph by D. Anthony Stewart.

© National Geographic Society

WHILE CLOUDS OBSCURE SNOW-CAPPED BEAR MOUNTAIN'S 6,934-FOOT CREST, FLOWERS BLOOM ABOUT ITS BASE

Near Arvin the brilliant thistle sage blooms from April to June, its stems rising as much as two feet high on arid plains and sand washes. To aid flower-loving visitors one enterprising oil company (Richfield) has published a guidebook and map; colored pictures aid in identifying various flowers described in the text, and the wild-flower map shows where the most popular blossoms appear in greatest profusion (see Color Plate III).



YOU MAY PAY A FINE OR GO TO JAIL IF YOU PICK WILD FLOWERS IN CALIFORNIA.

Motorcars traveling over more and better roads make access to wild-flower country easy for increasing thousands. So many people pulled wild flowers up by the roots that now the State Penal Code prohibits any picking of flowers without a permit from the county authorities.



© National Geographic Society

Finlay Photographs by B. Anthony Stewart

CALIFORNIA MAIDENS "GILD THE LILY" FOR THE GEOGRAPHIC'S CAMERAMAN

From ancient times—from Aztec sacrificial girls, from Cleopatra, and Shakespeare's Ophelia to modern maids—a changeless affinity has endured between women and flowers.

WHERE SPRING PAINTS A STATE WITH WILD FLOWERS

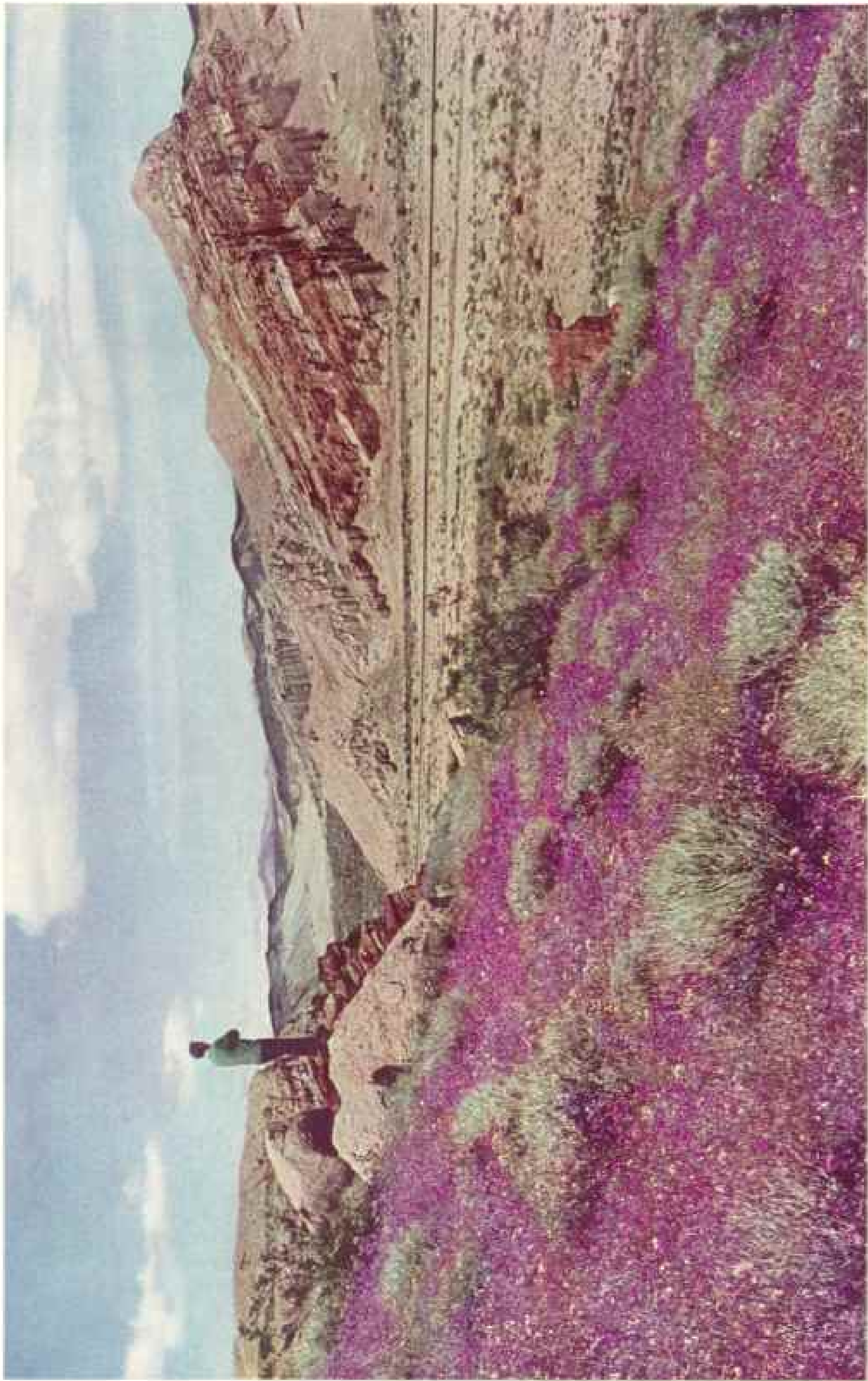


© National Geographic Society

Finlay Photograph by B. Anthony Stewart

FOLLOWING BRUSH FIRES ON HILLSIDES THE PURPLE LUPINE APPEARS IN PROFUSION

The pea family includes the harlequin, bluebonnet, dwarf, beach, and yellow lupines, as well as the vetch and loco. This latter, a poisonous plant, is often known as "crazyweed." "Lupine" came from the Latin word for wolf; ancients thought this plant ruined the soil, as wolves destroy their prey.



© National Geographic Society

DRY RIDGES OF REDROCK CANYON NEAR MOJAVE ARE BRIGHT WITH DESERT GILIA

Finlay Photograph by B. Anthony Stewart

Though chiefly a western plant group, the gilia, related to phlox, has now wandered all over the world. One variety, the buff gilia, grows at elevations up to 6,000 feet, thriving abundantly in the Yosemite and vicinity. The many species of gilia differ widely in appearance.



© National Geographic Society

VAST CATTLE HERDS OFTEN GRAZE ACROSS THIS RANGE, COVERED NOW WITH ROSE-PURPLE OWLCLOVER

Finlay Photograph by B. Anthony Stewart

Though commonly known as "owlclover," the plant belongs to a family far removed from true clovers. Cattle grazing here often find the flowering "loco" mixed with good grasses. This is a habit-forming weed, inducing in cattle a form of insanity, just as narcotics may stimulate and create human addicts. State authorities help farmers to eradicate such noxious weeds.



© National Geographic Society

THIS LUPINE CLOSE-UP REVEALS THE DETAILED STRUCTURE OF ITS PEA-LIKE FLOWER

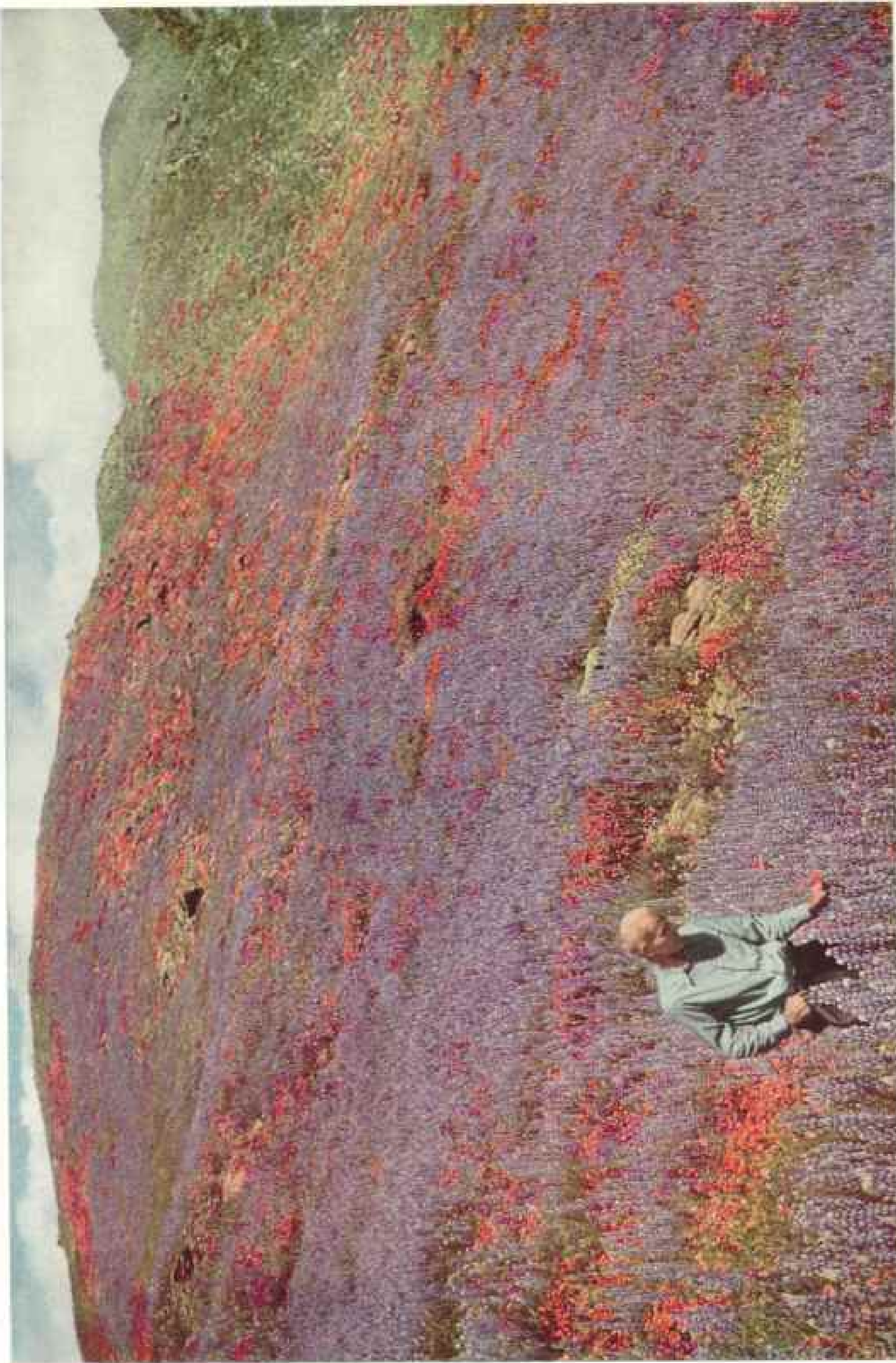
Most lupines have blue, purple, and yellow flowers. This particular species is distinguished for its delicate pink shade. Lupines range from low valleys to 10,000-foot slopes.



Finlay Photograph by B. Anthony Stewart

TINY, FRAGILE MIMULUS PALMERI IS A MEMBER OF THE FIGWORT FAMILY

The foxglove, snapdragon, and paintbrush are also kin to this shy blossom. Dr. Frederick V. Coville lately found in Death Valley a related plant which he calls "rock midget."



Finlay Photograph by B. Anthony Stewart

© National Geographic Society
IN THE ANNUAL WILD-FLOWER SHOW NEAR ARVIN, VISITORS WADE THROUGH INFINITE SEAS OF HARMONIOUS COLORS

From April till June fertile fields and rolling hillsides fairly blaze with gold, pink, and lavender spots that, even at a distance, identify patches of poppies, lupines, and other flowers. As early as 1830 the Horticultural Society of London sent David Douglas to explore the California plant world. Besides collecting herbarium specimens for scientific study, he also first introduced the California-poppy to the great gardens of Europe.

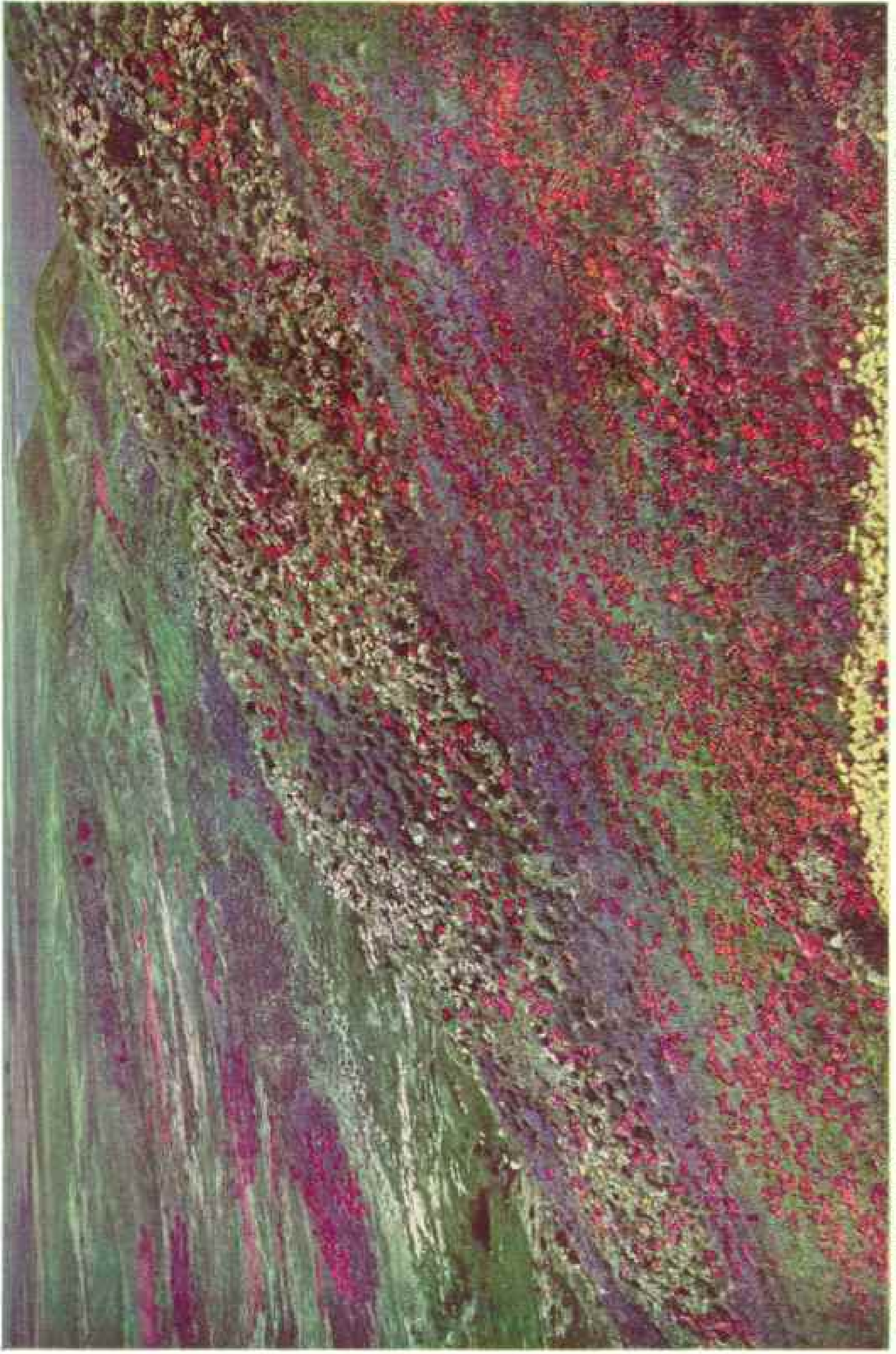


© National Geographic Society

MYRIAD FLOWERS FAIRLY LEAP FROM APPARENTLY BARE GROUND WHEN SPRING SUNSHINE FOLLOWS AMPLE RAIN

Friday Photograph by B. Anthony Stewart

Even to experienced Californians there is something almost miraculous in the fact that while a certain land area may appear absolutely barren during prolonged drought, it puts forth seas of blossoming plants immediately after seasonal rains. On desert valley floors the phenomenon is particularly noticeable. Flowers disappear almost as miraculously as they come.



© National Geographic Society

Fisher Photograph by B. Anthony Stewart

EVEN AMONG DRY ROCKS AND IN STONY HILLSIDE CREVICES WILD FLOWERS BLOOM PROFUSELY DESPITE PREGARIOUS FOOTHOLDS

“Many millions of years ago,” wrote Edith S. Clements, “when this staid old earth was still in its turbulent youth; when vast mountain ranges were being lifted and oceans were shrunken into their basins; when giant tree ferns and horsetails had passed their prime and huge reptiles browsed on the shores of lakes and streams — then were evolved from their fernlike ancestors the first plants that bore true flowers.”



© National Geographic Society

Finlay Photograph by B. Anthony Stewart

LIKE SLENDER, BLOSSOMING YOUNG FRUIT TREES, THESE LUPINES RISE FIVE FEET HIGH

What did a lupine look like a million years ago? What may it become, a million years hence? Heat, cold, wind, rain, time, and insects, changing environment—all affect the destiny of plants, as of men. Sugarcane came from a wild grass; so did durum wheat. Some varieties of vetch, a member of the lupine family, are already used as forage and as food for humans.

"Could a young man come here now—a young man as you were in 1889—and find as good a chance to succeed?" he was asked.

"Yes," quickly. "I'll tell you why. The first settlers plowed raw land, planted trees and vines, built roads, ditches, towns, schools, churches—even started graveyards. Now this is a complete, highly finished agricultural region. And today you can buy a developed farm for a whole lot less than it cost to build it up."

Said another, "That's right. Our once high-priced lands have been scaled down to their normal worth. This cost us all a lot of grief. Men who thought they owned a \$50,000 farm now find it priced at half that, or less; their incomes are shrunk in proportion. But we feel our worst troubles are behind us."

To relax, ride out to the Balfe ranch. See that trick trout pool, where fish feed on insects lured to the water by a clever arrangement of blue and white lights.

Northwest lies cloistered, peaceful Palo Alto. Peaceful, unless Stanford has just won a football game! A privately endowed, hard-working university this is, with a press noted for its long and useful list of publications (see Color Plate XI). On a near-by hill stands the book-strewn, friendly home of former President Herbert Hoover, one of Stanford's early graduates.

"How's the old Geographic?" he asked in greeting.

We recalled stirring events of the great Mississippi flood of 1927, which I saw from the deck of his relief boat. He talked about the Great Central Valley, its water problems and huge farms. "Our big tractors run night and day," he said. "You ought to see them. With their gang plows they turn as much dirt in 24 hours as mules used to do in a month!"

VIA SALINAS TO DEL MONTE AND MONTEREY

Hoofs, horns, and tails! Men riding bulls and busting broncos, unhorsed cow-girls brushing off their white riding pants, runaways, falls, and broken bones. Just a day's work at the Salinas Rodeo. "I fancy the horses must be frightfully bored," was my English guest's only comment, after we once sat through a long, cold day of this Wild West substitute for the gladiatorial struggles of ancient Rome. But it doesn't bore Salinas. All the artichoke, lettuce field, and sugar-beet mill workers for miles

around knock off that day, and hurry here to mingle and bet and cheer along with cash customers from Hollywood and famous riders who've brought their outlaw mounts from Arizona, Texas, Oregon, from all the horse lands of the West (page 359).

Leisurely, luxurious Del Monte, serene amid stately groves and landscaped gardens, known afar for its polo and golf matches, lies but a short ride southwest. Beyond is that harbor where Vizcaino anchored in 1602, and Monterey.

In dawn's dark fog Italian sardine crews in rubber boots and sweaters tramped the water front. Dragged in by the ton, sardines scale themselves by friction as they are pumped through big pipes into the cannery. Flipped deftly about by mechanical fingers, pneumatic suction disembowels the now nude and astonished sardines; then machines clip their heads and tails, as they rush on their giddy way to be snugly packed in oil or mustard.

Out from the old Army post on the hill, where soldiers have paraded for generations, an Army captain slowly led his silent, day-dreaming troop for gentle morning exercise. Idle street loafers followed a man who strolled about with a live skunk sitting on his shoulder. A sleepy town is modern Monterey; historically, however, it ranks high in California annals. When Madrid ruled all the west coast from here to Cape Horn, this was a gay Spanish capital. In its Plaza de Toros they pitted grizzly bears against bulls, ran herds in the hills, feasted, drank, danced to guitar music, fought, and then yielded to the Mexicans.

How our own war with Mexico put the Stars and Stripes over Monterey is an oft-told tale.

On a seventeen-mile drive below Monterey you see that strange, wind-blown, so-often-painted Monterey cypress. On a rock just offshore 200 or more seals bleated and barked, while all about pelicans, cormorants, and porpoises joined in the fishing (see Color Plates II and VI). And then Carmel! A sole and original policeman rules this colony of writers, artists, and scientists, who all meet at the village post office once a day for mail.

ALL ROADS LEAD TO SAN FRANCISCO

Evening fogs refreshed the green artichoke fields as we wound north through Watsonville, past Half Moon Bay, Golden Gate Park, and the Cliff House, and into



Photograph by Logan Studios

BASQUE SHEEPMEN, CELEBRATING NEW YEAR'S EVE IN A STOCKTON CAFE, DRINK WINE FROM GOATSKIN FLASKS

By squeezing the pliable leather bottle at its base, wine is squirted out in a fine stream; beginners practice first in private. Some shepherders carry such wine bags while tending flocks in the mountains. Passing this flask about camp is a gesture of friendship or good will, a custom imported from southwest Europe.

the roller-coaster streets of hilly San Francisco.

Once I looked on these hills, smoking from a great fire. More than 28,000 buildings had been burned. "San Francisco is gone," some people said. "It will never be rebuilt." Mightier than of old it rises now, a glittering, powerful city, financial center of the West.* Indisputably, *something* of the old city, besides combustibles, was lost in that fire, a rollick-

* See "Out in San Francisco," by Frederick Simpich, NATIONAL GEOGRAPHIC MAGAZINE, April, 1932.

ing, audacious something of the spirit. Maybe it was only our youth. Fly from Mills Field now and look down on that throbbing, factory-dotted region which stretches for scores of miles about the "Big Bay." See the ships from all over the world's map. Look at the railroads, the bus and truck lines that converge here, the new air lines from north, east, and south—and now from the Pacific West.

Out from its Alameda hangar rolls a *China Clipper* of Pan American Airways, just leaving, as I jot these notes, for a trial flight to Guam. Before this is printed, that clipper will be hauling men and mail all the way to Manila!

For contrast in progress, look at another craft

I see. She's a gallant, historic old windjammer, the *Star of Finland*, sold to Japan for scrap. As she sails out the Golden Gate for the last time, tiny brown men swarm over her unfurling sails, like ants devouring a dead bird.

And there, flung high, bold and beautiful across Golden Gate itself, is a dream of years come true—the world's mightiest suspension bridge. Spectacular link in a coast road from Canada to Mexico; some day, no doubt, a road from Alaska to Chile.

Swing now back along the busy Embar-

cadere, with all its docks and ships, and here is yet another bridge, a bridge from San Francisco to Oakland, more than eight miles long, with 51 piers. "It's like San Francisco to build *two*," you hear visitors say.

Come down to land and water, and see these bridges better. Start with the one that bores through Yerba Buena Island on its way to Oakland. Look at that first tower. It rises 754 feet from rock bottom under the muddy bay to its tip above the water line. Men treading its catwalk far above look like tiny dolls; some fall to death.

Into its giant cables go 70,815 miles of wire. At the highest point its floor will be 218 feet above the bay. To build it means 54,850,000 man hours of work. More than 18,000 years of toil for one man! But it is not size, or cost, that matters; only function—or what the bridge is for—is important.

Though opening as a toll bridge, it is planned that in the sweet by-and-by it will pay out and become free. Statisticians figure it will carry about 8,000,000 vehicles and perhaps 35,640,000 electric train passengers in 1937, its first year of operation (see illustrations, pages 362, 363).



Photograph by B. Anthony Stewart

STRETCHING 3,180 MILES FROM NEW YORK VIA CHICAGO AND SALT LAKE CITY, LINCOLN HIGHWAY ENDS IN SAN FRANCISCO

Popular transcontinental motor route, this trunk road beyond the Missouri follows in places the Mormon and other pioneer trails. Beside it, at Newpass, Nevada, stands one of the old Pony Express stations. In 1913, Carl G. Fisher conceived the idea of a transcontinental motor road, piloted a fleet of automobiles from Indianapolis to the Pacific coast, and organized the Lincoln Highway Association.

It spans the largest major navigable body of water yet bridged, and has two floors. On the upper are six lanes for automobiles; on the lower, three lanes for trucks and two for electric trains.

In the bay, on shoals off Yerba Buena, dredges pile up an extensive man-made island. Here air traffic, for both land and sea planes, will have its base.

Ride out in a launch, past Alcatraz Island prison, to see the Golden Gate



THIS INDIAN FAMILY SAILS BY DUGOUT ON THE UPPER KLAMATH RIVER

Sparsely inhabited and served by no good roads, such isolated regions in northwest California have been affected not at all by civilization's progressive strides across the rest of the State. Hunters say that Del Norte County forests are the last pathless wilderness left in the West.

Bridge, and you begin to grasp what a task it was for engineers (see page 361).

Deep water, swirling tides! Far below, where divers worked, pitch-black darkness. Yet, deep down under that moving sea, men laid foundations for the Fort Point tower that rises 746 feet above the bay—a tower comparable to a 65-story skyscraper! On the north or Marin County side is another, and between them a span 4,200 feet long.

"What about earthquakes," people ask, "and high winds?" Flexibility, engineers say, will defy an earthquake far more severe than any ever felt in California.

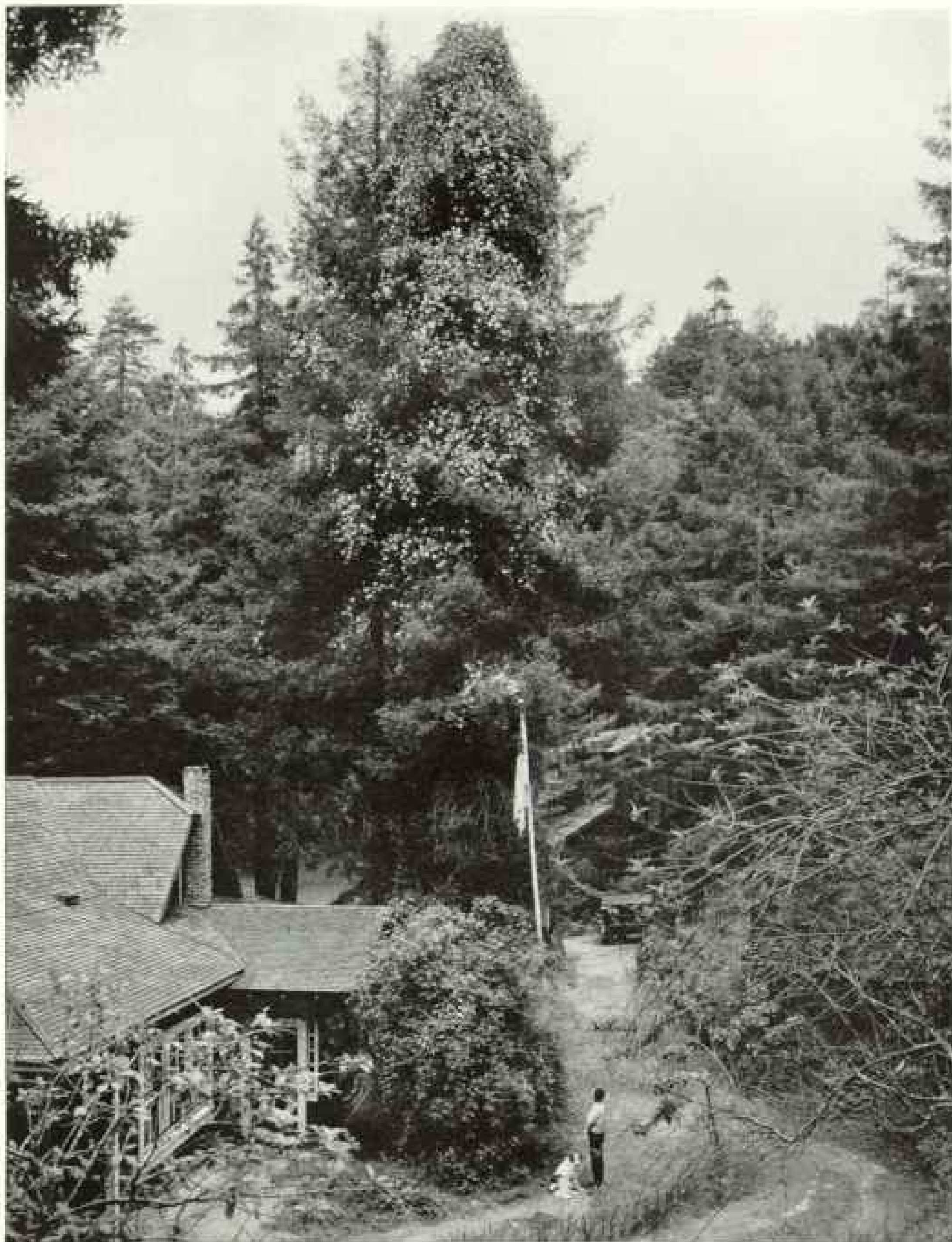
As for winds, a storm might sway this bridge 20 feet, and do no harm. Heat and cold had also to be considered. Change of temperature may raise and lower this bridge as much as ten feet, on hot days, without danger to it.

Because some 7,000 ships pass under this bridge each year, the Government is building a lighthouse on it, and air beacons are mounted atop its towers. It will carry six lanes of motor traffic, and have two lanes for pedestrians. Think of *walking* across Golden Gate, so high above Pacific breakers!

At Mills Field, next day, men with scrapers were smoothing off more land, making still more space for planes, for still more air traffic. Between here and Sacramento we sighted five planes. "Call some one on the ground," I said to the pilot, "and ask about the World Series baseball score." Somebody on the ground answered, and told us. Off to the left now, in the mountains, was Emigrant Gap, where pioneer wagon wheels rolled; and there was the railroad, and its long dark-roofed snowsheds.

Under us, presently, lay blue, road-rimmed Lake Tahoe (see Plate XII). Reno, and Nevada, looking naked, treeless from high up, like the valleys of the moon. Along these valley stream beds wind the westward roads; on flat plains they shoot out, arrow-straight—good roads now, where forty-niners left only tracks on the ground. Over these came the ox teams, the flocks, the Pony Express, the first whites, whose pioneer work helped start this astonishing State on its rise to power and glory.*

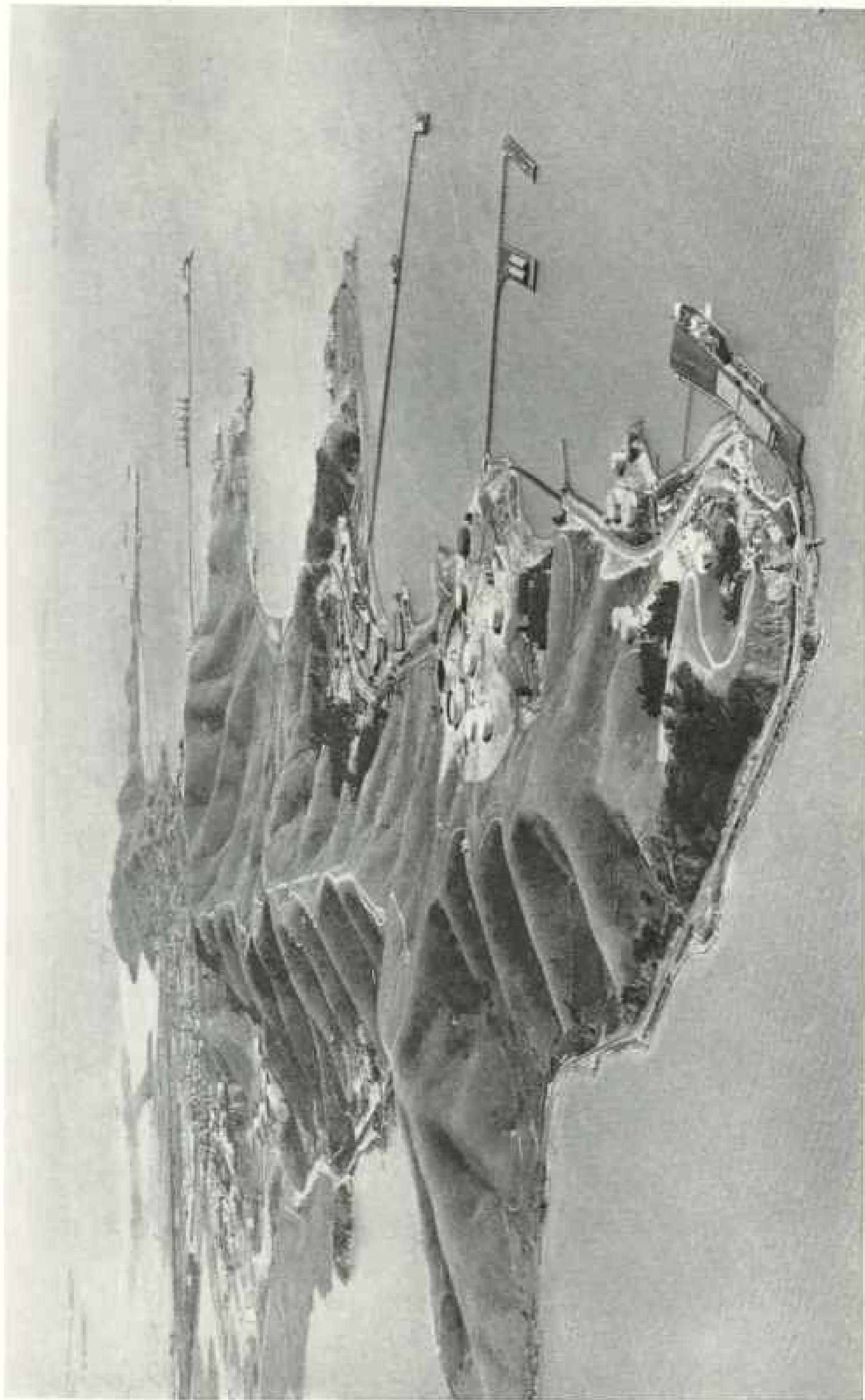
* See "Southern California at Work," by Frederick Simpich, NATIONAL GEOGRAPHIC MAGAZINE, November, 1934.



Photograph by Gabriel Moulin

ROSES CLIMB TO THE VERY TIP OF A REDWOOD AT LA HONDA, SAN MATEO COUNTY

Rich in scenic charm, ingratiating in climate, these wooded valleys are set with many country homes of San Franciscans. Known locally as "The Peninsula," this region is famed for its cut flowers and fine vegetables, including artichokes. Over motor highways and on suburban trains commuters pour in and out of San Francisco.



Photograph by Commercial and Photo View

A GLEAMING HIGHWAY ETCHES THE BACKBONE OF A BUSY MANUFACTURING AND OIL-REFINING DISTRICT ON SAN FRANCISCO BAY

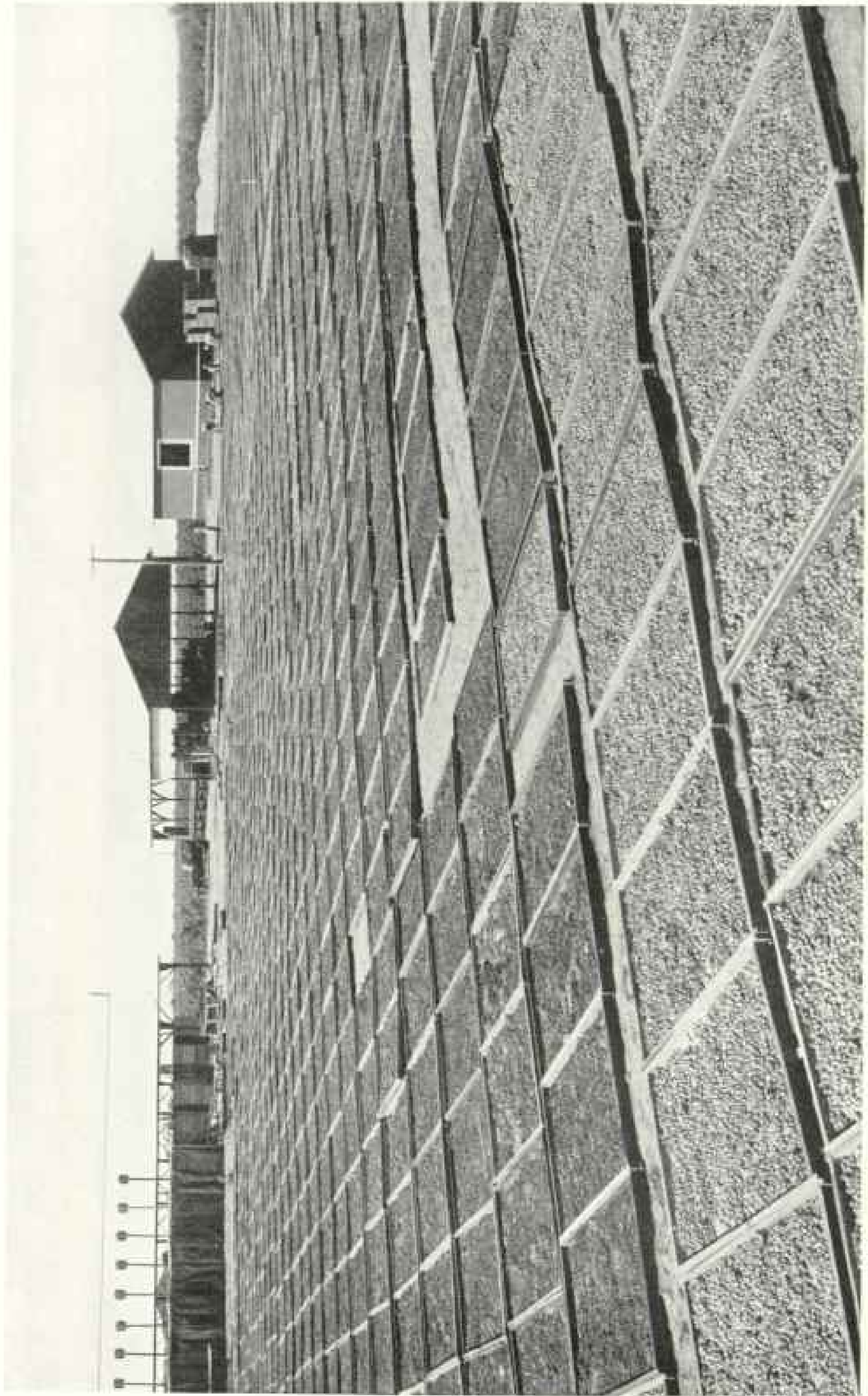
Diversified manufacturing ranges from pottery and heavy chemicals to railroad cars and steel barrels, when until 1899 there were only grainfields and farmhouses. Crude oil is piped here from Kettleman Hills, more than 200 miles south (see page 317). "Tank farms," railway switches, and shipping piers indicate intense activity (see text, page 333). This shows Richmond's western water front, looking south from San Pablo Point. Berkeley is six miles beyond Richmond, in the background.



Photograph by Gabriel Moudlan

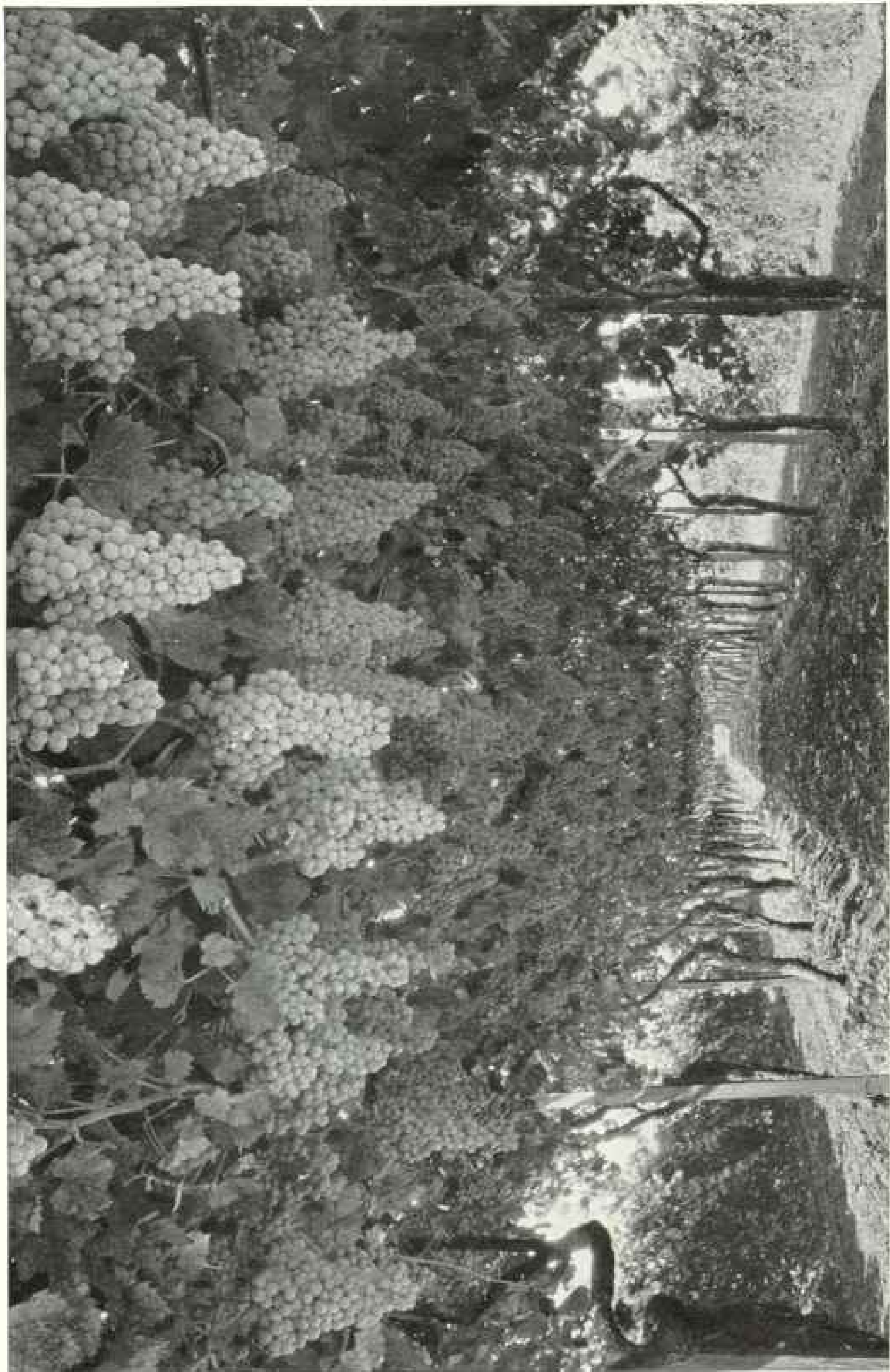
GIANT GOLD DREDGES OF THIS YUBA TYPE, MADE IN CALIFORNIA, CAN DIG 112 FEET BELOW THE WATER LINE

At work now in the Yuba Consolidated Gold Fields, this world's largest dredge is more than 333 feet long. Look down on square piles of bowlder-strewn dredged gold fields as you fly up American River, and you sense this dredge's power. Yuba dredges have been exported to many foreign gold fields.



ACRES OF RAISIN GRAPES, SPREAD IN TRAYS, ARE DRIED BY EXPOSURE TO HOT SAN JOAQUIN VALLEY SUN

When sufficiently dehydrated for further processing, the raisins are hauled to factories such as "Sun Maid" in Fresno; here they are stemmed, cleaned, sprayed with oil pressed from their own seeds, packed, and shipped. Peaches, apricots, and other fruits are also dried in the sun, and some of America's most delicious confections are made now from dried fruits once regarded as rather second-rate foods (see text, page 366).



Photograph by Hammond.

TONS AND TONS OF LUSCIOUS GRAPES ON THESE FEW VINES ATTEST MIRACULOUS SOIL FERTILITY

Childhood's Bible picture books show big grape bunches, like these in Tulare County, carried back from the Promised Land by the spies of Moses. All the choicest varieties of European grapes flourish now in the rich soil and equable climate of California.



Photograph by Gabriel Moulin

THIS $3\frac{1}{4}$ -MILE BRIDGE LEADING TO OAKLAND WILL COMPETE WITH THE FAST FERRIES
HERE SCURRYING ACROSS THE BAY

Through a rocky hill on Yerba Buena Island, center, bridge traffic is carried by a double-decked tunnel. The west half of the structure in the foreground, between San Francisco and the island, is a suspension bridge; the other, toward Oakland, is of cantilever and truss construction. When completed, November 1, 1936, this bridge will have cost approximately \$77,000,000. Known as the San Francisco-Oakland Bay Bridge, it was financed by the Reconstruction Finance Corporation and the California Department of Public Works, which designed and built it. C. H. Purcell is Chief Engineer.

BRIDGES, FROM GRAPEVINE TO STEEL

FEW works of man more profoundly affect his destiny than does the bridge.

An empire was at stake when Xerxes threw his pontoons across the Hellespont, and Rome's long arm stretched over Europe when Caesar's army bridged the Rhine. Lack of pontoons on which to cross the Seine, Napoleon complained, kept him from ending a war. Our own General Zachary Taylor reminded the War Department that its failure to send bridge materials had prevented him from "destroying the Mexican army."

Yet history, being so largely the annals of wars, fails to emphasize the importance of bridges in everyday life. When you reflect how bridges now make travel easy and swift between towns, cities, States—even between nations where rivers form frontiers—you feel that few other devices conceived by man serve more to promote understanding and mutual progress.

BRIDGES DOT MODERN LANDSCAPES

Ride the air across America and see how bridges dot the map. If the day be clear half a dozen may be in sight at once. From culverts over backwoods creeks to steel giants that span broad rivers, you see a bridge of some kind wherever rails or highways cross a watercourse. How many bridges of all kinds America has, nobody knows. No official count exists. U. S. Army engineers, concerned only with bridges that span navigable rivers of the United States, have more than 6,000 on their list.

Look down on any river city, such as Pittsburgh; see the steady two-way traffic that flows over its bridges, like lines of ants marching. Think of the jams, the chaos in traffic, should all bridges suddenly fail!

Trace the bridge through history and you see how its development is an index to man's social and mechanical advance.

Fallen trees, chance stepping stones, or swinging vines formed his first bridges. He used them in flight from enemies, to hunt, fight, or steal a wife on his own predatory quest. Fantastic old woodcuts even show us living chains of monkeys swinging from tree to tree across jungle creeks! *To get across*, even as when the waters parted and Israel's Children walked dry-shod over the Red Sea floor, was the primary urge.

To this day, as in parts of Tibet, Africa,

and Peru, men still cross dizzy canyons on bridges of twisted grass and wild vines. Yet the function of these primitive structures is the same as that of the new Golden Gate Bridge (see pages 361 and 393 to 404), or the new giant at Sydney, Australia. They carry man across.

ANTIQUITY SHROUDS THE FIRST BRIDGE

We do not know who built the first bridge. At the end of the reign of Queen Semiramis, about 800 B. C., an arched bridge spanned the Euphrates at Babylon. The legendary "Hanging Gardens," some say, consisted of trees and plants set along the roadway of this wide bridge. Explorers at Nebuchadnezzar's palace at Babylon found no traces of any bridge. Yet the use of the arch is very old thereabouts; you see proof of this in the amazing ruins of Ctesiphon Palace, east of Babylon, where the vaulted ceiling of the grand banquet hall, still standing, is 85 feet high.

Romans left us fine examples of the ancient arch bridge. To this day their masonry work is unsurpassed for strength and beauty; some of their early stone bridges are still in use. Only in recent times came cast iron, steel, and cables. In our own country it was the advent first of railways and then of improved highways for motor cars and trucks which was to strew bridges from coast to coast.

In the pioneers' bold trek to our Middle West and beyond, they forded streams or used crude ferryboats drawn by cables. Often the forty-niners swam their horses and oxen, and floated their heavy wagons by lashing logs on either side of the wagon boxes. Covered wagons bound for the "Indian Territory" camped at fords to rest, wash clothes, swap horses and shoe them, and to soak their tires. Today steel bridges span many such creeks; across them whiz motor cars, so fast that passengers barely catch even a glimpse of the streams that once seemed so wide.

Train riders, asleep or busy with books and cards, are rushed for 20 miles over the famous Salt Lake Cut-off of the pioneer Union Pacific Railway. The "world's longest bridge structure" it is called. Stand this trestle on end and it would reach so high that men on the ground could not even see the top of it!

Most new bridges we now build are for highways. But when you recall that after 1850 we laid more than 200,000 miles of

rails, you can see how the railroad, first with its crude wooden trestles, scattered bridges across America. As westward migration rose to millions, the use of fords and ferries dwindled and bridges multiplied, sometimes not without local disputes.

ABRAHAM LINCOLN ATTORNEY FOR
MISSISSIPPI BRIDGE BUILDERS

When the first railroad bridge was started over the Mississippi at Davenport, Iowa, steamboat men enjoined its building as a "nuisance" to navigation! Abraham Lincoln, lawyer, argued the case for the railway—and the bridge was built.

"He is crazy!" men said of James B. Eads when he sought to build the largest steel-arch bridge of its time over the Mississippi at St. Louis. Doubters sniffed at Eads' use of pneumatic caissons for bridge pier foundations. "I told you so," they said, when the first two half-arches approached their junction at mid-span and failed by a few inches to fit. "Pack the arch in ice," ordered Eads. The metal shrank and the ends dropped into place.

The same taunts of ignorance were flung at John A. Roebling and his Brooklyn Bridge. "Men cannot work like spiders," these critics said. "They cannot spin giant cables from fine wires high in air." Roebling died before the task was done, but his monument is the bridge that spans East River. In the half century since its completion, amazing advance has been made in the design, materials, foundations, and erection methods of bridge engineering.

And there is speed! It took more than ten years to build the Brooklyn Bridge. Greater structures are built now in one-third the time. When opened in 1883, Roebling's Brooklyn Bridge was called one of the "Wonders of the World." Now the George Washington Bridge over the Hudson at New York has a span of 3,500 feet—more than twice that of the Brooklyn Bridge. And the new Golden Gate Bridge spans 4,200 feet!

Our American bridges were all built yesterday, as the Old World counts time. Except that American Indians laid flimsy bridges of poles over narrow streams and sometimes sent a crowd of squaws to test a new bridge to see if it would sustain the tribe's horses, we have little of the lore, the traditions, and superstitions which cling to ancient bridges of Europe and the East.

It is even hard for us to imagine that the Caravan Bridge in Smyrna may be 3,000

years old; that Homer wrote verse in nearby caves, or that St. Paul passed over this bridge on his way to preach! Or that Xerxes, the Persian king, bridged the Greek straits more than 400 years before Christ. Then, tasting grief even as Eads and Roebling, he saw a storm destroy it, so that he had to order the rough waters to be lashed and cursed by his official cursers, while he executed his first bridge crew and set another gang at the task.

Reading the papers, it was easy for us to learn all about the International Bridge over the Rio Grande between El Paso and Juarez, when President Taft walked out on it to shake hands with President Díaz of Mexico. Later, by radio, we heard the Prince of Wales, now King Edward VIII, and the diplomats speak when the Niagara Peace Bridge opened to let Americans and Canadians mingle in friendly commerce.

It takes more imagination to picture the opening of the famous Pons Sublicius, built across the Tiber some six centuries before Christ. Horatius, you remember, held that bridge, with two fighting companions, against the whole army of Lars Porsena!

No radio, then; but what a big moment for a good broadcaster if there had been one! What a chance to describe the steady tramp of the oncoming Etruscans, their final assault, the desperate defense by Horatius, the Romans cutting the bridge behind him, and his final escape by swimming!

Myths and superstitions linger about many bridges. Since people often die in floods, the Romans looked on a bridge as an infringement on the rights of the river gods to take their toll. Hence, human beings first, then effigies, were thrown into the flooded Tiber by priests, while vestals sang to appease the river gods. In parts of China today a live pig or other animal is so sacrificed when rising floods threaten a bridge.

Turkish folklore reveals this same idea. In his book, *Dar Ul Islam*, Sir Mark Sykes records this legend of a bridge under construction which had fallen three times. "This bridge needs a life," said the workmen. "And the master saw a beautiful girl, accompanied by a bitch and her puppies, and he said, 'We will give the first life that comes by.' But the dog and her little ones hung back, so the girl was built alive into the bridge, and only her hand with a gold bracelet upon it was left outside."

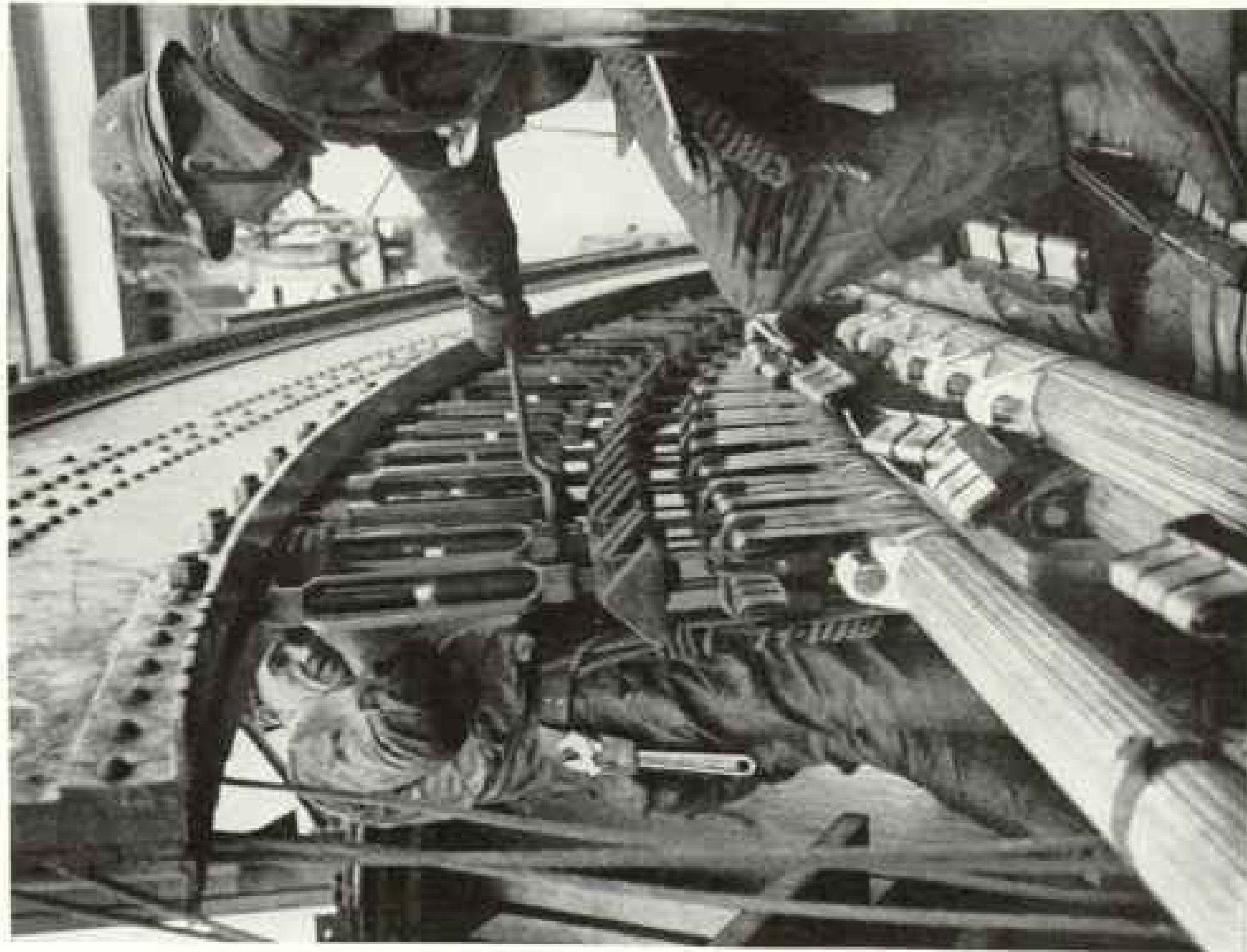
It was Peter of Colechurch, a monk in charge of the "Brothers of the Bridge," who built the Old London Bridge. It was a queer



Photograph by Gabriel Moulin

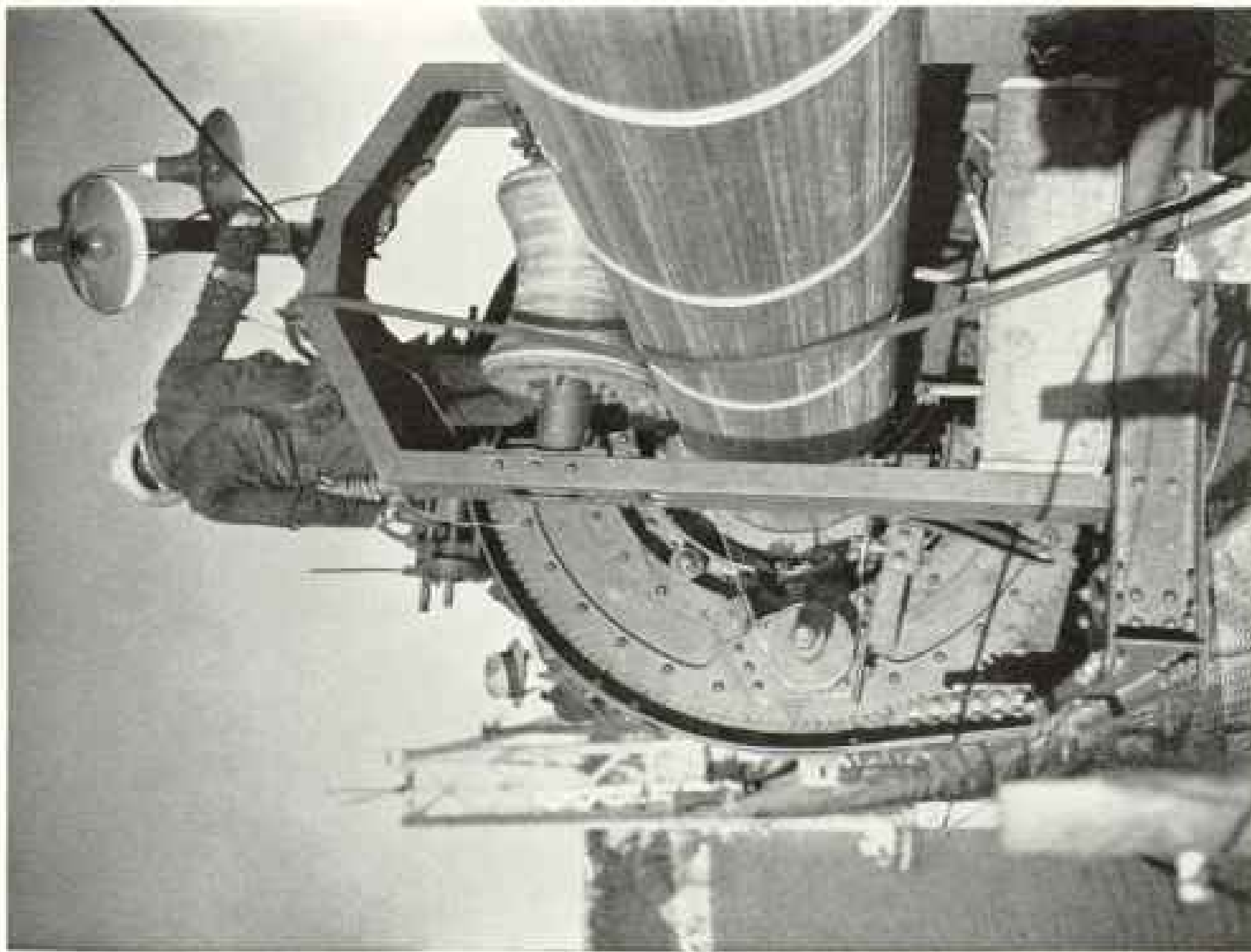
WORKERS ON TOP MARIN COUNTY TOWER OF GOLDEN GATE BRIDGE CONTROL SPINNING OPERATIONS 746 FEET ABOVE THE SEA

Overhead is the trolley cable which carries the roller skate-like frame of the spinning wheel (see pages 401 and 404). Levers in the foreground are guides which hold the wires in place as they are brought in, trip after trip, by the moving wheel. A finished strand, made of many small wires, lies in the trough next the man on the right. At the far end of the bridge are Fort Point, the Presidio, and, beyond, some of San Francisco's hilly streets. To be completed in May, 1937, and financed by regional bond issues, this toll bridge will cost about \$35,000,000. Joseph B. Strauss is Chief Engineer.



SETTING A CABLE STRAND IN THE SADDLE ATOP THE MARIN TOWER OF GOLDEN GATE BRIDGE

Balance beams lift the strands from their temporary spinning positions to permanent locations in cable saddles, or rounded top of the tower over which they are carried.



RUN BY AIR MOTORS, THIS POWERFUL RADIAL JACK SQUEEZES THE 37 STRANDS INTO ONE ROUND CABLE

Photographs by Gabriel Moulin

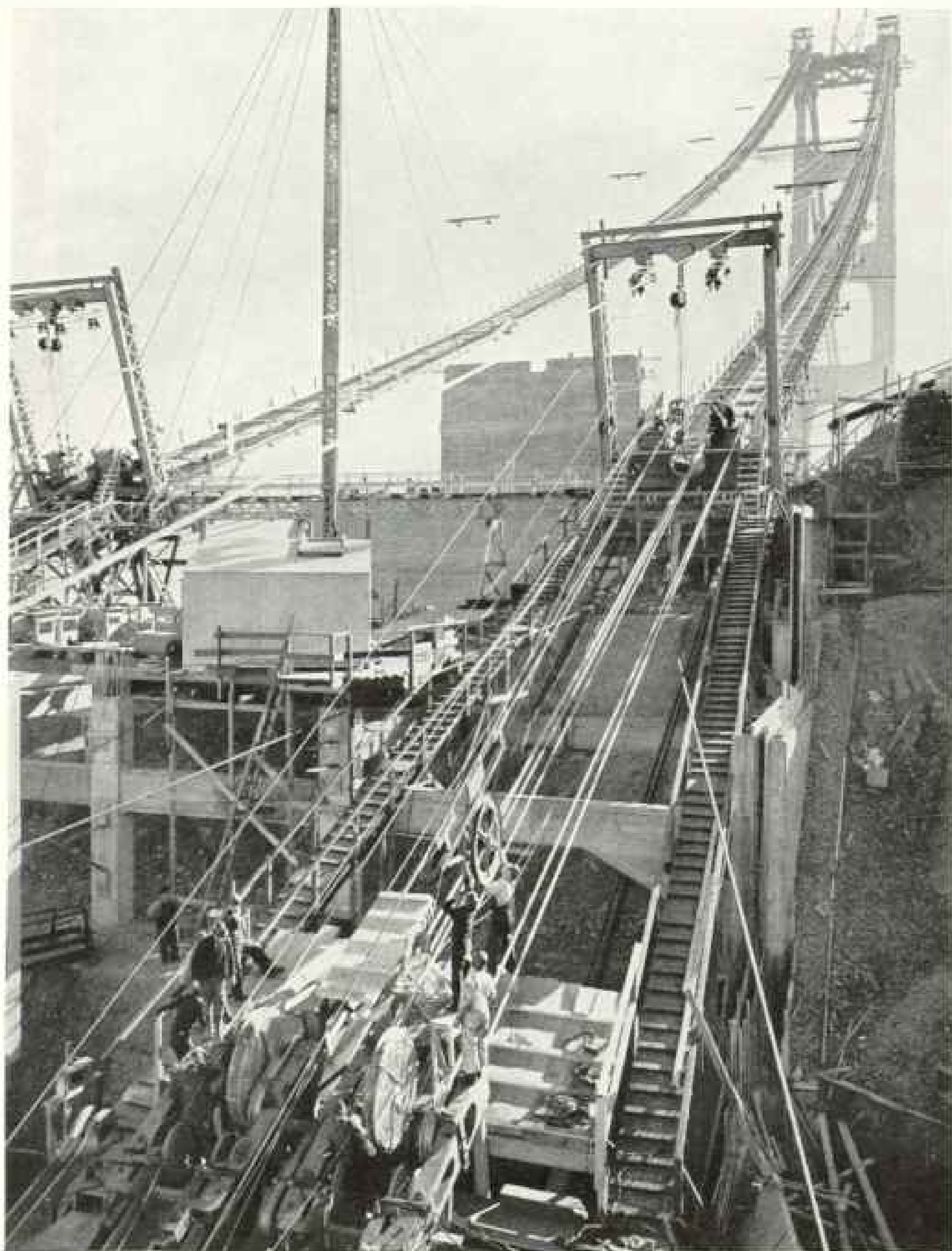
When all of the strands have been spun (left), they are then compressed into a single cable by the radial jack. Along with this compacting machine marches a wire-wrapping device, which binds the cable tightly every three feet.



Photograph by Gabriel Month

LIKE BIG BAMBOOS, CABLE ENDS SPLAY OUT INTO STRANDS THAT TIE TO ANCHORED EYEBARS

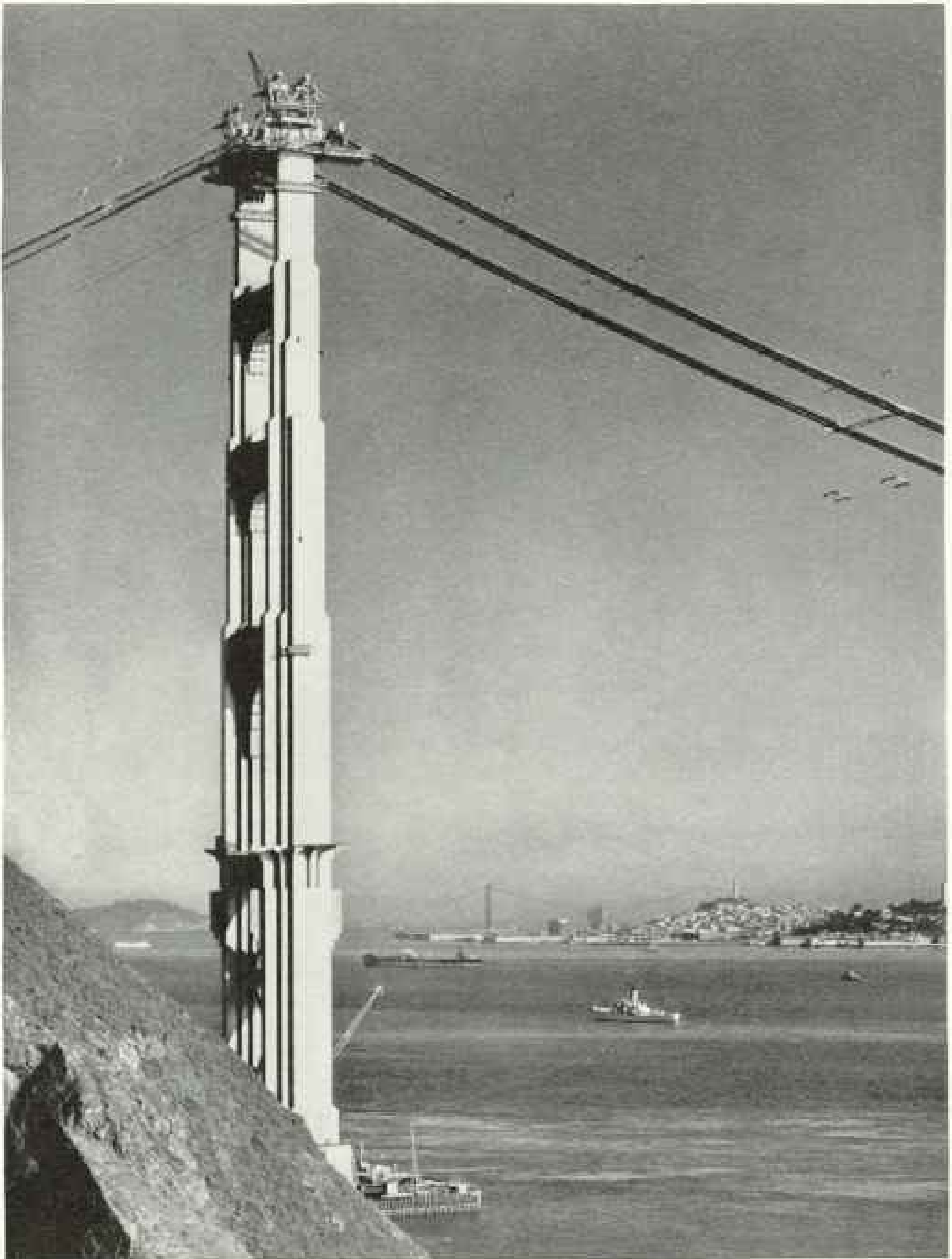
Just out of the picture, at right, the strands unite to form the huge cable. In it they lose their identity, emerging as strands only at each end. Eyebars, at left, connect with chains and steel girders set in giant concrete blocks to form anchorages heavy enough to resist the loaded San Francisco-Oakland Bay Bridge's pull.



Photograph by Gabriel Moulin

RISING STEEPLY LIKE A FUNICULAR RAILROAD ON VESUVIUS, GOLDEN GATE CATWALKS
MOUNT DIZZILY TO DISTANT TOWER TOPS

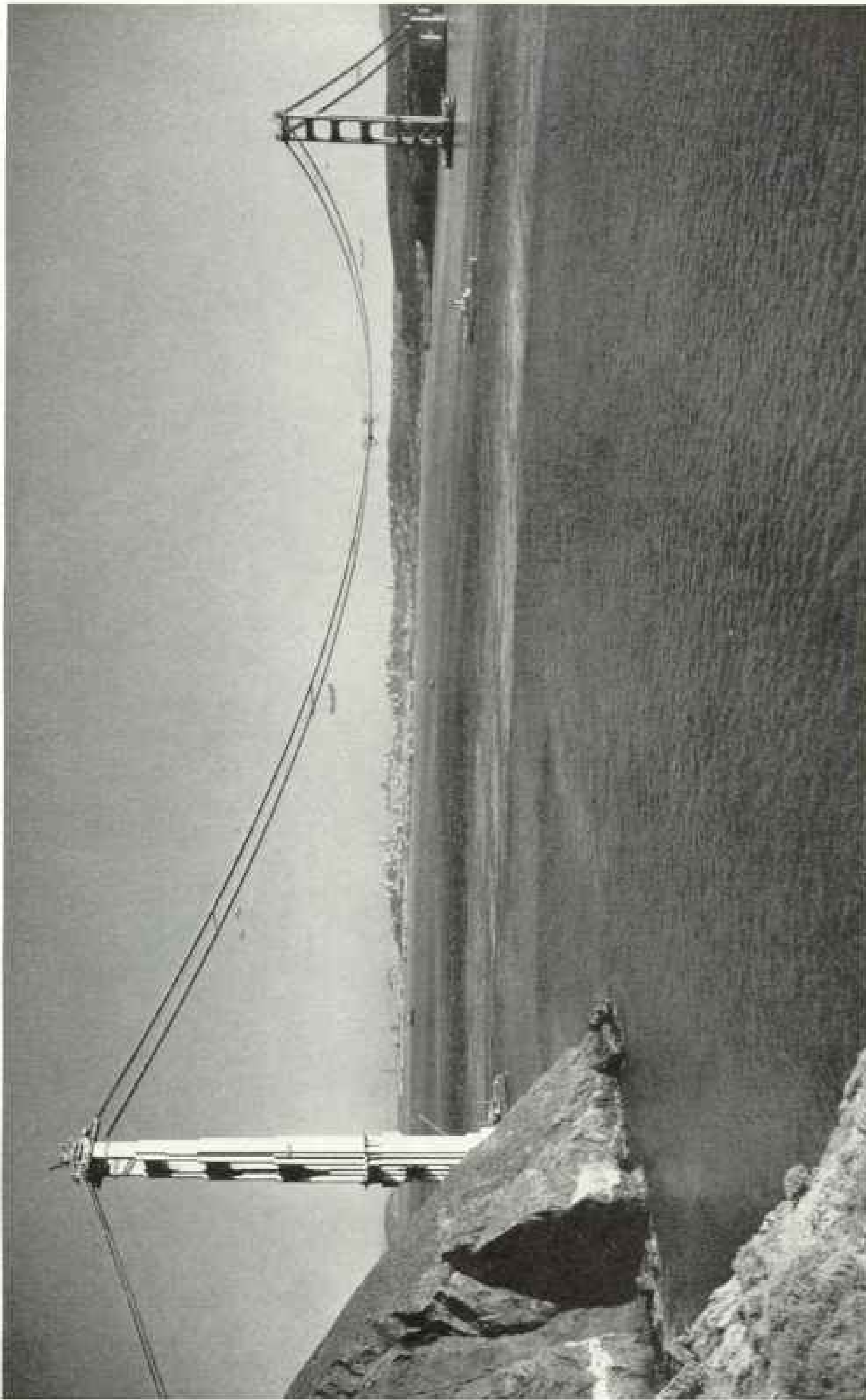
All up the catwalks men are at work, but their figures grow tiny and dim with distance until utterly lost to sight in the overwhelming magnitude of the structure they raise. Two workers loop a wire about the spinning wheel while others tend the electric winch that pulls the wheels back and forth. Routine work on these high, swaying wires demands poise and steady nerves; merely the dizzy climb up the narrow catwalk, from its 470-foot sag in the center span, is no mean physical feat.



Photograph by Gabriel Moulin

THE COAST GUARD CUTTER IS DWARFED TO MODEL SIZE BY NORTH TOWER, HIGHER THAN THE WASHINGTON MONUMENT

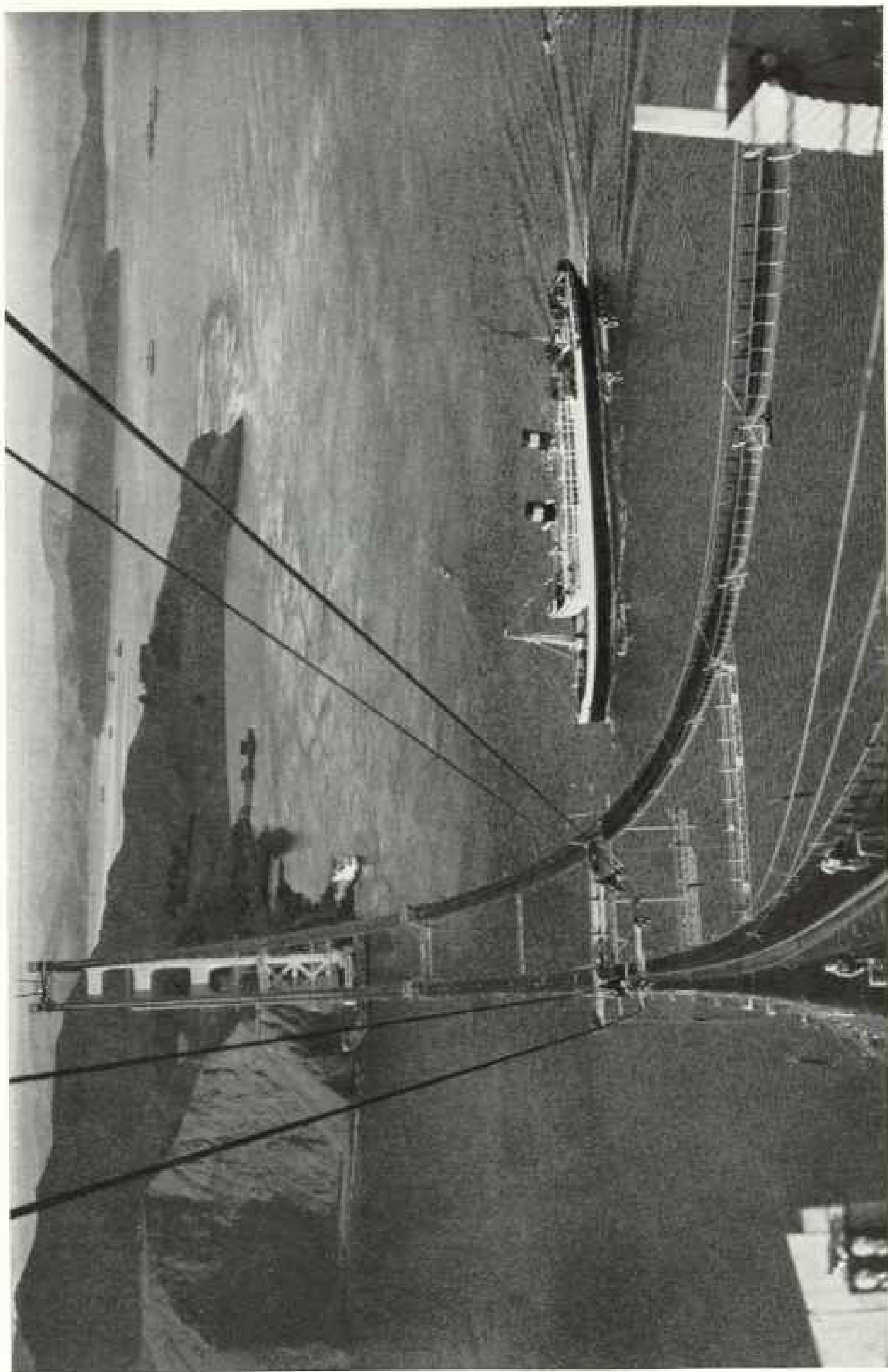
Its twin, 4,200 feet across the bay to the right, will suspend the San Francisco end of Golden Gate Bridge. The steel surface is painted and not sheathed with masonry because of possible earthquakes. The towers rise as high above the water as a 65-story building above the street. Into each went 450 carloads of steel. In the background is seen the San Francisco-Oakland Bay Bridge stretching out to Yerba Buena Island (see page 390).



Photograph by Gabriel Moulin

EACH OF THESE GIGANTIC CABLES, WHICH WILL CARRY A ROADWAY ACROSS GOLDEN GATE, WEIGHS MORE THAN A HEAVY CRUISER

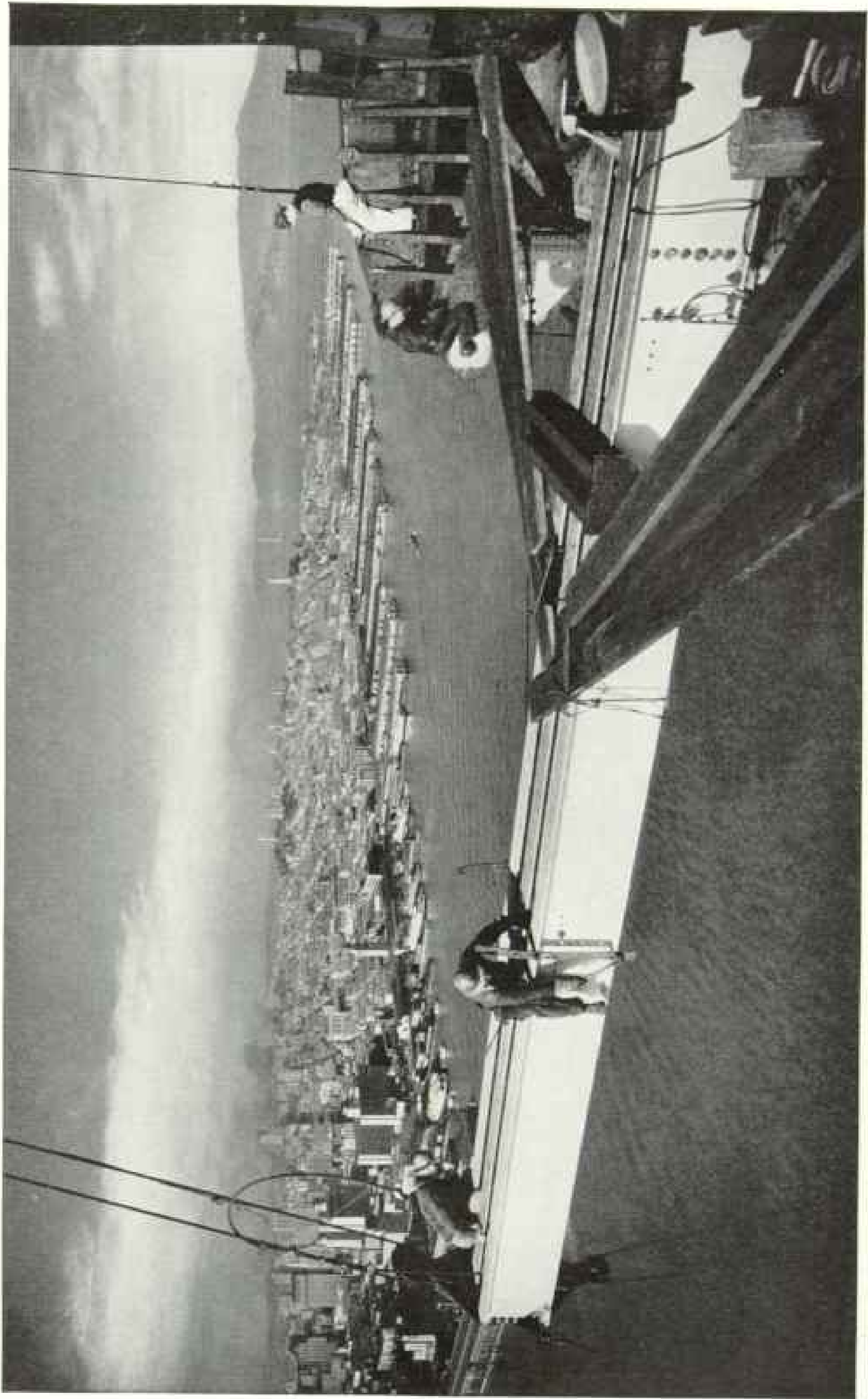
A cable is spun from 27,571 wires compressed together in a unit (see page 394). If the wires could be strung out end on end, they would circle the globe at the Equator more than three times. To gain an idea of the tremendous strength of the cables, one should imagine them as capable of supporting a load about equal to that of the three super liners, *Queen Mary*, *Normandie*, and *Rea*. If the huge ships were hung from the cables, stern to bow, like lifeboats swung in the davits, there would still be a quarter of a mile gap.



Photograph by Gabriel Meulna

LOOKING NORTH ACROSS THE MAIN SPAN OF GOLDEN GATE BRIDGE FROM THE TOP OF ITS SAN FRANCISCO TOWER

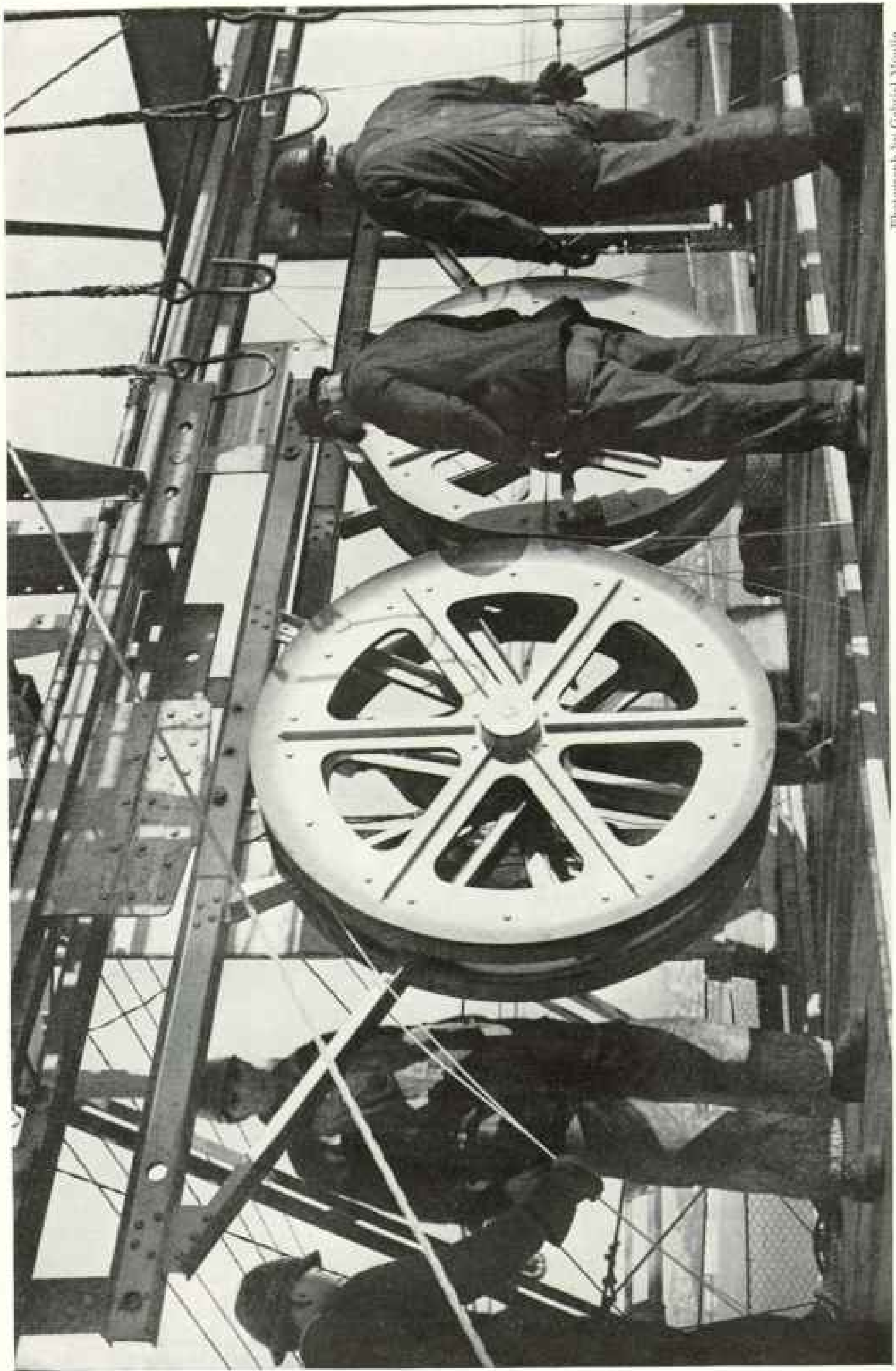
The outgoing *President Hoover*, passing under the great span, finds a clearance of more than 200 feet. Radio telephones are used to give orders to workers, and receive progress reports. Crews on harbor launches, likewise equipped with wireless telephones, hear the air's endless chatter about steel, paint, wire, and details of daily work.



Photograph by Gabriel Meudlin

SAN FRANCISCO'S ROMANTIC WATER FRONT FRAMED BY GIANT GIRDERS OF THE BRIDGE TO OAKLAND

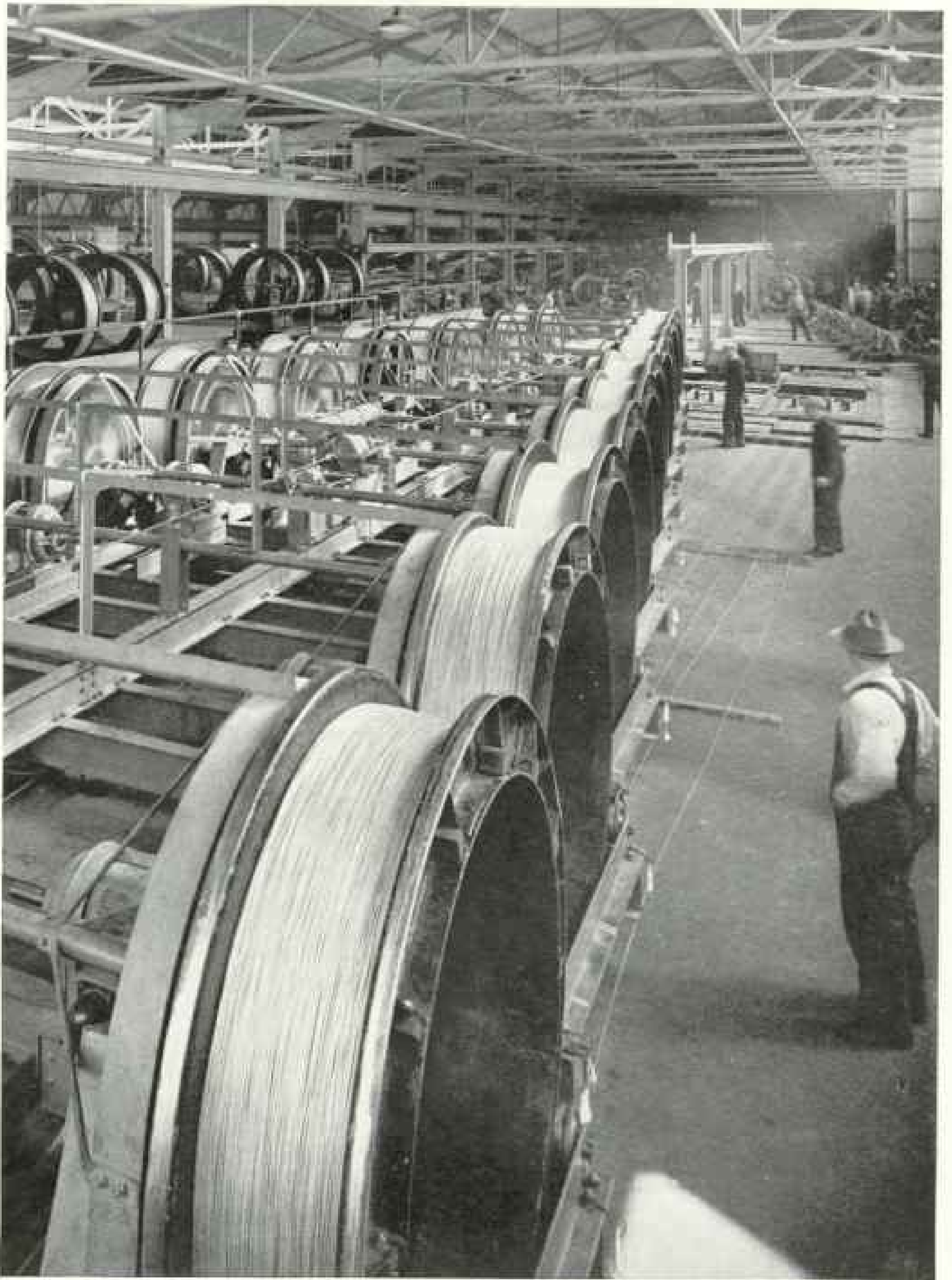
These men rig a balance girder to support a derrick set on a tower 500 feet above the water. The derrick lifts steel into place. To protect their heads from smaller falling objects the men wear helmets. Mount Tamalpais and the Marin County Tower of Golden Gate Bridge are seen in the far background (see page 393).



Photograph by Gabriel Moulin

LIKE HUGE SPIDERS SPINNING MONSTROUS WEBS, THESE WHEELS SHUTTLE BETWEEN BRIDGE ENDS, LAYING WIRES TO FORM STRANDS

Here are two "spinning wheels," each on its own overhead cable track. The wire is looped around the flanged wheel, which is then drawn from anchorage to anchorage, the bridge's length, pulling the long wire after it (see page 404). By the time the cables are completed, these wheels will have made many thousands of trips.



Photograph by Gabriel Moulin

LEAGUES OF WIRE BEING WASHED AND REELED FOR USE IN GOLDEN GATE BRIDGE

All wire must be washed to remove dirt and excess wax. This is done by running it through a tank of water heated to about 200 degrees Fahrenheit, and then through rubber wipers. The wire is wound on reels, each holding about 40,000 feet. These, set in place near the anchorage, feed the spinning wheels (see page 401). A scene at Roebling's Plant, California City, five miles by water from the Golden Gate Bridge.

structure, with rows of high wooden houses flanking each side, overhanging the Thames. Soon after its completion the houses at one end caught fire. Crowds rushed out on the bridge and hosts of people died either in the blaze or from jumping into the stream.

In its more than six centuries this Old Bridge saw many other gruesome events. Often the heads of men executed as traitors, even Sir Thomas More's, were set up here on poles, like dead beetles on pins.

Many other notable structures cross the Thames. Among them is the Westminster Bridge, with its familiar colossal group of Boadicea in her chariot. Visitors best remember this bridge for the excellent view it affords of the Houses of Parliament and Big Ben clock.

Waterloo Bridge, destroyed now to make place for a new structure, was in its day called "The Noblest Bridge in the World." It was built of granite by John Rennie in 1811-17. The new structure, rising between Brettenham House and Somerset House, will be distinguished by its long, low arches.

Famous the world over is the Pont Neuf, bridging the Seine in Paris since 1578. In French street and night life it long was to Paris what Times Square is to noisy New York.

"You never cross the Pont Neuf," says an old proverb, "without meeting a monk, a girl, and a white horse." On its open thoroughfare the outdoor dentist had his "office." To collect a crowd he was often dressed in grotesque clown make-up and had with him a band of acrobats, buglers, or musicians. With no dental chair, patients merely got down on their knees before the athletic tooth-puller, and the pioneer "extraction" afforded amusement for everybody except the patient.

TELFORD, FAMOUS FOR BRIDGES AND PAVEMENTS

To England, in 1776, fell the honor of erecting the first iron bridge. There Abraham Darby cast a bridge at the Coalbrookdale Iron Works and erected it across the Severn.

Thomas Telford, a Scotsman who lived between 1757 and 1834, is known to students of engineering the world over for his achievements in canal, harbor, road, and bridge construction. He was engineer for the parliamentary commissioners for road making and bridge building in the Highlands of Scotland, under which organization

1,200 bridges were erected. In England he helped build five bridges over the Severn, and was employed on canals and highways by the Swedish and Polish Governments.

The Menai Suspension Bridge in Wales, connecting Carnarvonshire with the island of Anglesey, is the best-known monument to his pioneering genius. It was opened in 1826, after seven years of work, and was, at that time, the world's largest suspension bridge, being 1,710 feet long, with a main span of 579 feet.

Telford was a shepherd's son. Apprenticed to a stonemason at 15, he studied engineering in his spare time and published verse. A man of amazing industry and versatility, Telford invented the pavement which bears his name.

Cables spun in place to swing a suspension bridge were tried in 1831 by Vicat, a French engineer, for a bridge across the Rhone. Later Roebling developed this method at Niagara Falls, Cincinnati, and finally at the Brooklyn Bridge.

In Europe, as in America, the 19th century saw vast advance in iron bridge building, especially stimulated by new railways. The Newcastle and Berwick Railway alone required 110. Progress in design sometimes was costly. A new iron bridge across the Firth of Tay, near Dundee, Scotland, collapsed in a gale. Rushing at night into the open gap a mail train was wrecked, killing some four-score passengers.

Today's bridge excels not only in design, foundations, and methods of erection, but especially in materials. Now iron yields to steel. The Bessemer, and later Siemens-Martin processes, gave bridge builders something new and stronger—a steel cheaply produced.

At any Army field day you may see the speedy work of engineers, showing how emergency bridges are built, wrecked, and repaired in wartime.

Homer tells about pontoon bridges used in war. Darius, Cyrus, Xerxes, Alexander the Great, all employed them. Caesar built his 1,400-foot wooden bridge across the Rhine in ten days.

In 1781, it took General Washington four days to ferry only 4,000 men across the Hudson when he moved his army south from New York to Virginia. Now, over the George Washington Bridge at New York, a whole army corps—or 97,000 men, 23,105 animals, and more than 11,000 gun carriages, trucks, and other vehicles—could be put across *in eight hours!*



Photograph by Gabriel Moulin

AGAINST A PACIFIC SUNSET THE MAGIC SPINNING WHEEL, LIKE SOME PHANTOM CHARIOT OF THE SKIES, TRACES THE GROWING PATTERN OF GOLDEN GATE BRIDGE

Back and forth it speeds, at 640 feet a minute, drawing after it the tiny wire that finally forms the giant cable. On the often storm-tossed catwalk stands a lone worker, carefully observant that each wire may find its exact place in the growing strand, on which he rests one hand. Because of the dizzy height and dangerous winds, men for catwalk duty, hundreds of feet above the surface of the bay, must be chosen with greatest care.

Wild animals make free use of man's bridges in thinly settled regions. Study the early-morning dust patterns about any back-country wagon-road bridge and you see where rabbits, coons, bobcats, coyotes, and other creatures have crossed.

PRIMITIVE BRIDGES STILL IN USE

Chinese classics relate that a certain king once crossed a river by walking over a bridge formed by the backs of a long line of big, accommodating turtles!

In west China and Tibet, to this day, men "coast" across rivers on tightropes, sitting in a seat slung under the rope and sliding along it. To make the underslung seat slide faster the rope is often greased with butter. Dr. Joseph Rock, exploring for the National Geographic Society, reports his own use of yak butter on such bridges. "I always tried to find a bridge made of *new* rope," says Dr. Rock, "for the rope soon wears out."

In his "Voyage to South America," written many decades ago, Don Antonio de Ulloa describes various Inca bridges he found there. One of them, the *tarabita*, is much like the greasy buttered bridge of Tibet. "The *tarabita* is only a single rope made of bejuco," says Ulloa, "or thongs of ox hide. . . . This rope is fastened on each bank to strong posts. On one side is a kind of wheel, or winch, to straighten or slacken the *tarabita* to the degree required. From the *tarabita* hangs a leathern hammock capable of holding a man."

Using another rope, the passenger pulls himself back and forth. Ulloa saw mules moved the same way. And in west China Dr. Rock put *his* pack mules across a river on a Chinese *tarabita*.

At Baghdad years ago, when the Turks were still waging their long war against desert tribes, their artillery used to lumber noisily across the Tigris on a bridge of boats, on its way to bombard some Arab mud town that had not paid its taxes. From a safe distance, when Turkish guns opened fire on the mud-walled villages, observers could see dust and timbers fly high into the air. Sometimes the Turks came back across the bridge of boats driving long lines of camels confiscated from delinquent nomads. One quiet, very hot Sunday morning, the Bedouins, shooting and shouting, rushed suddenly over the bridge, and stole their camels back again.

At Mosul on the Tigris, hard by old Nineveh and in the shadow of Jonah's

tomb, is another such bridge of boats. Millions of Shiah pilgrims have crossed these swaying structures, carrying their dried and salted dead relatives and friends to sacred burial grounds around the desert holy cities of An Najaf and Karbala.

In Arabic *Al Kántarah* means "The Bridge." That old Roman bridge, the Alcántara, over the Tagus in Spain, stands today as proud and stout as when its huge arches were built, some 1,800 years ago.

Look at the mass, the heavy weight of these ancient bridges! They were built in, and for, one particular place. Today man cuts his steel bridges to order, ships them 5,000 miles, 10,000 miles, and erects them, by standardized practice, wherever they may be needed. The pieces are all shaped, numbered, and packed in a ship's hold like the pieces of a child's construction toy in a Christmas box; blueprints are the "directions" for setting up!

Rocketing from rain clouds on an air trip around Brazil, passengers come suddenly upon an enormous suspension bridge that seems to run out into the Atlantic Ocean. It does. It connects the mainland State of Santa Catharina with its capital, Florianopolis, which stands on an offshore island. The American Bridge Company erected this structure, shipping all the parts ready-made.

No other field in American overseas trade demands more ingenuity than does the bridge man's calling. Orders come in for new bridges which may be wanted in any land from Alaska to Ecuador. No facts may be at hand about floods, river traffic, health and food conditions, or the nature of the river bed and banks, whether rock, clay, sand, or mud, at the spot where the new bridge is to be built.

Since no tools, equipment, or building supplies of any kind may be available there, the American builder must take everything with him. To forget one little tool, costing only a dollar or so here, might delay the whole job. Often steel must be moved over hills, valleys, or deserts, by mule or camel; in such cases no one piece can weigh too much.

TROUBLES OF TEMPERATURE AND DIET

Problems of language, food, and climate must be met. One American engineer arrived in Peru on his first visit to Latin America to build a bridge. Anxious to gain a Spanish vocabulary of bridge words, he chose a personal helper from among the

workers and practiced diligently. Imagine his chagrin when he finally discovered that his bridge vocabulary could be used only in India, for he had picked a Hindu as a teacher! On another job food shipments were so delayed that one American foreman was found subsisting on popcorn fried with bananas.

Temperatures, too, are a problem. Using floodlights because of short winter days, workers on an Alaskan bridge carried on at 45 degrees below zero, while on a bridge job in Ecuador steel lying in the sun got so hot the workmen could not touch it. Steel varies, of course, with temperature. A bridge in Alaska which is 700 feet long at 45 degrees below zero would be about nine inches longer at 120 degrees Fahrenheit in the Tropics. So workers take advantage of such expansion and contraction. Often a beam that seems too long to be set in place in the heat of the day may easily be fitted there in the cool of the morning.

When any precise measurement of bridge steel is desired it is never made in the heat of the tropic day, but always in early morning or on a day of fog or rain.

"We have sold about 12,500 bridges for export," said an official of a well-known bridge-building company. "We have sent the ready-made material, or actually erected bridges, in 44 foreign lands and five possessions of the United States."

NEW ORLEANS BRIDGE PRESENTED DIFFICULT PROBLEM

Dedicated in December, 1935, the New Orleans Bridge across the Mississippi is almost four and a half miles long. Of truss and cantilever construction, this bridge carries railroad and highway traffic; both are very heavy, since New Orleans is one of the South's busiest ports.

The depth of the river here is as much as 75 feet below Gulf level at one of the pier sites, and its bed is composed of sand, silt, and clay, so foundation work presented difficult problems. Larger piers had to be sunk to 170 feet below Gulf level. This was achieved by sinking open dredged caissons on a man-made "sand island."

The longest of the world's high-level viaducts for vehicular traffic, stretches over drab meadows, over the Passaic and Hackensack Rivers, and over smoky factory dis-

tricts between Newark and Jersey City, in New Jersey.

It affords fast, easy motor traffic between Newark Airport and New York City, and serves many of the millions who use the Holland Tunnel under the Hudson River and the ferryboats. With five lanes, it has an annual capacity of 20,000,000 vehicles. Massive but graceful, this spectacular viaduct has a clearance of 135 feet above the Passaic River, sufficient to let all masted vessels pass beneath.

Bayonne Bridge, over the Kill Van Kull between Bayonne, New Jersey, and Staten Island, New York, is noted for its majestic 1,675-foot steel arch. Under this arch, with a maximum clearance of 150 feet, passes more yearly tonnage than uses the Suez Canal.

A MASSIVE STRUCTURE IN REMOTE RHODESIA

Conspicuous among recently erected bridges is the giant Birchenough structure across remote Sabi River in Southern Rhodesia. Its single-arched span is 1,080 feet long and rises 280 feet above the river.

Though similar in appearance to the world-famous single-span bridges at Sydney, Australia, and Bayonne, New Jersey, the function of the Sabi River structure is quite different. While dense centers of population are served at Sydney and Bayonne, the Rhodesian bridge stands far from any city, in a thinly peopled land. Its purpose is to link the Melssetter District and the Sabi River Valley with the central area of Southern Rhodesia.

Because of high midday temperatures and consequent steel expansion, the two halves of the arch had to be joined in the cool of early morning. Mr. Ralph Freeman designed this bridge, named after Sir Henry Birchenough.

Thus do bridges carry the world's burdens. Without them rapid transport would fail. Their history, function, and structure involve every aspect of human activity—from war, trade, travel, and politics to architecture and engineering. Their growth has measured the march of civilization. As we dedicate the last "world's greatest" bridge, wherever it may be, somewhere in Borneo the Dyaks are weaving a new jungle bridge of wild vines and twisted grass.

A PALETTE FROM SPAIN

BY W. LANGDON KIHN

ONE gray wet dawn in early winter found us aboard a Paris express speeding for Spain and armed with a note to Señor Z, Sevilla (Seville)—nothing but that, Sevilla—for there is but one Sevilla.

I had been presented with this valuable document by a Spanish friend in Paris. He had urged me to go to Spain, and particularly to Andalusia, "where the people are gay and the orange trees bloom in Holy Week."

"Perhaps I will join you later," he added, a little wistfully.

The moment we crossed the border, it seemed as if we had entered another world.

We had just passed through the rugged Pyrenees. It had rained heavily all day and we had gazed upon many miles of tall gray rocks, their jagged peaks hidden behind low-hung leaden clouds. Heavy forests, dark and green, stretched for miles beneath the somber cliffs. Now and then the train rumbled over a narrow trestle high above a deep gorge, through which coursed a rushing stream.

Puffing and snorting, as if out of breath from its long mountain climb, the engine came to a full stop. A throbbing stillness filled the air. The sun burst through the dark clouds and we heard a song.

WHITEWASH AND RED TILES

It was late afternoon. The golden beams of a lowering sun bathed everything in a warm, rich light. Long blue shadows fell from the whitewashed walls of quaint old houses whose red-tiled roofs were dotted about like the vermilion poppies of Flanders fields.

A plaintive melody in a thin voice, high and clear, broke upon the peaceful scene. The minor strains floated loudly, now softly, by the window.

The singing drifted nearer.

The beggars approached. The one who sang was but a boy. By his side shuffled a phantom derelict, like a black and hungry vulture. They were inconceivably ragged, torn, dejected souls, mere shells of grotesque humanity. They stopped, and the boy poured forth his strange song in astonishingly intense appeal. He was a little Goya lad, peering out of a sienna canvas, his earnest face distorted for the moment.

We threw him a shiny peseta that fell

and tinkled on the gravel. The ghost of a man snatched it up, like a gaunt wolf snapping at raw meat. But the boy kept on singing, puckering up his cracked face in serious abandon, while the apparition beside him bowed and scraped, and bowed again.

This, then, was Spain. It was a land of dramatic contrasts—the rich setting of a beautiful land in which stood a little beggar boy, singing an old, perhaps Moorish song. The weird minor strains floated gently down the languid breeze. I think that I shall never forget the beauty of that afternoon or that slightly melancholy song.

Many full days followed, days in which we wandered over the paths of the ancients and followed ghosts that beckoned to us from the dim past. They led us through corridors and chambers of massive and intricate ruins, showing us the scenes of their intrigues and bold deeds.

HILLS AND CASTLES OF CASTILE

The hill cities of Castile were fascinating (see map, page 409). Each one was different and individual, like a large family whose offspring were begat by different fathers, but of the same mother.

Few perhaps have seen, but who has not heard or read of the famed cities of Castile? Burgos, with its splendid Cathedral, whose slender spires of stone lace pierce the blue sky (page 434); and El Escorial, the citadel of the monks with its tombs of the kings. Here, part way up the steep slope of purple mountains, this colossal monastery of San Lorenzo frowns in austere dignity over the wide valley below (see page 433).

Segovia has its massive Cathedral crowning its high hill, while the lower town nestles sleepily in the long shadows of the giant ancient aqueduct that stretches in a grand sweep across the deep valley (p. 430). Toledo, built on massive cliffs of solid rock, towers high above the muddy waters of the Tagus (Tajo). It was the home of El Greco, whose beautiful house with its garden patio stands on the top of a hill overlooking a vast arid plain (see illustration, p. 435). It is the city of Moorish streets.

Madrid is modern and up-to-date.* Its wide, bustling streets, its down-town district and its movie houses and theaters give

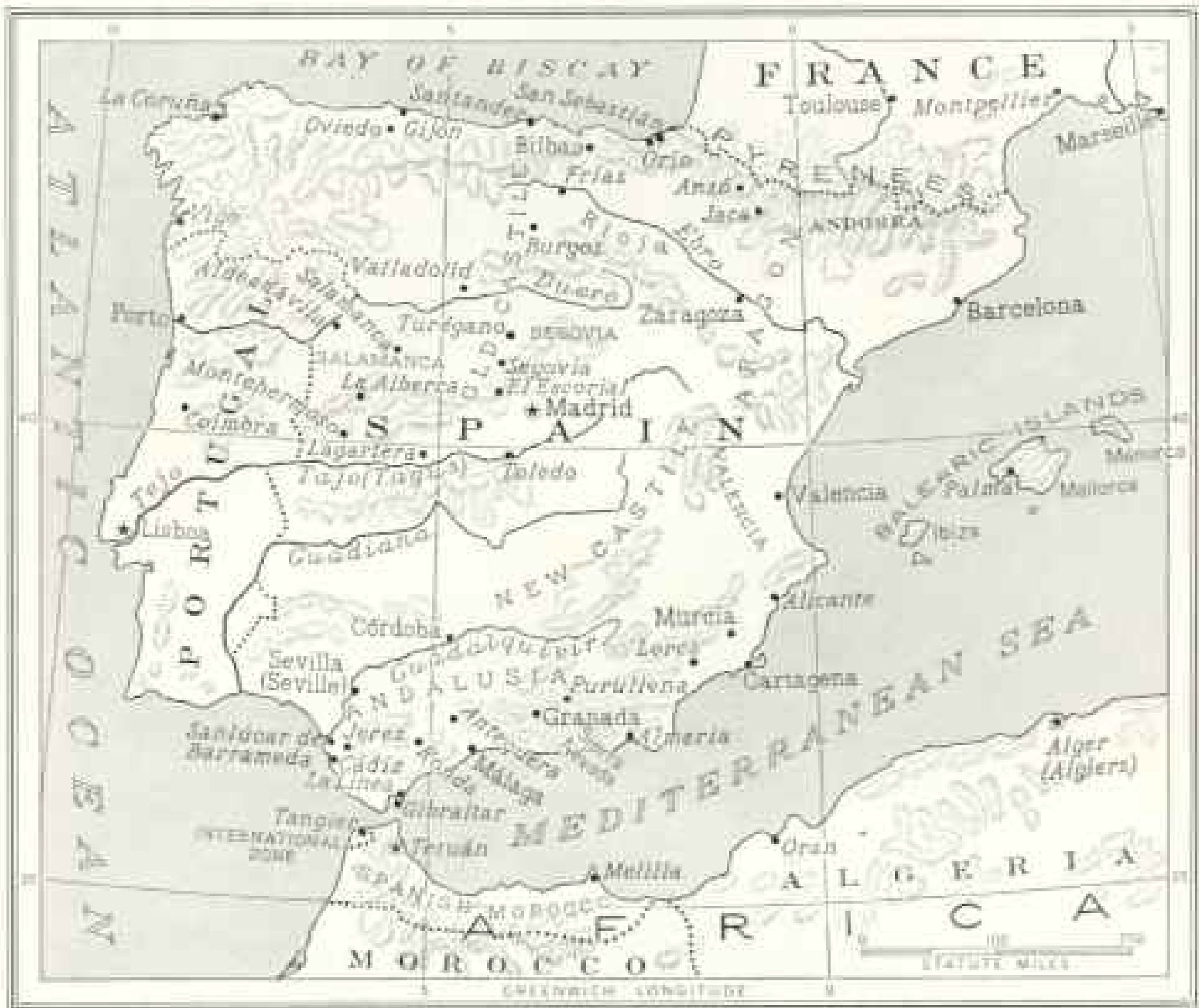
* See "Madrid Out-of-Doors," by Harriet Chalmers Adams, NATIONAL GEOGRAPHIC MAGAZINE, August, 1931.



© Publishers Photo Service

ONCE A MOSLEM MINARET, THE GIRALDA IS NOW A CHRISTIAN CATHEDRAL'S BELFRY

The exquisite tower has for centuries been Seville's dominating landmark. Visitors climb up inside, on easy inclined planes, to get a superb view of the city's many-colored buildings and of the Guadalquivir River as it winds its way toward the sea. Two horsemen can ride side by side up the paved interior ramp to the top! The open bell tower and pinnacle were added during the 16th century, yet they harmonize with the original Moorish design. Beside the Giralda the east end of Seville's massive Cathedral fronts on this cobblestoned street.



Drawn by E. J. Howell

COMPACT SPAIN PRESENTS SURPRISING CONTRASTS

Within two or three hundred miles of Madrid, roughly near the center of the country, are the verdant valleys of the Pyrenees, barren plains of the central plateau, snow-capped peaks of the Sierra Nevada, Valencia's rich farming country, and sunny Andalusia's orange groves.

it a distinctly Nordic touch. It hardly seems like part of fabled Spain until you begin to stroll about. But here is El Prado, one of the finest museums of the world, where hang El Greco, Murillo, Velásquez, Goya, Zurbarán, and hosts of others, including Flemish, French, Dutch, German, and Italian painters; rooms and galleries of them, on and on (see illustration, page 431). To this day these things flavor everything I see.

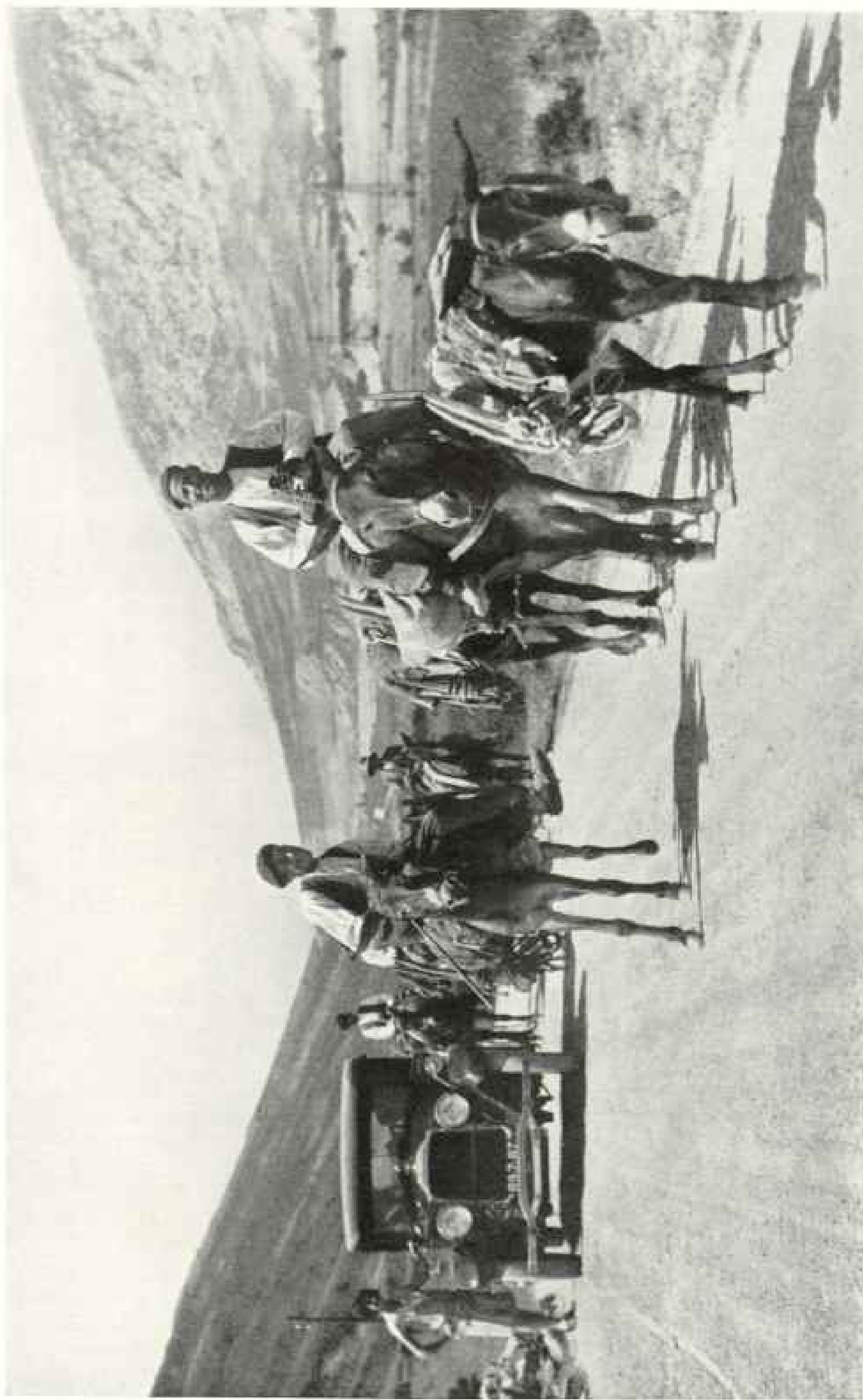
Córdoba was the first city on our southward course. Its oriental character and beauty far outstripped any of the occidental masterpieces we had yet seen. Here the Arab "Mosque," like a deep dank forest, lying breathless beneath a languid June sun, graced Christian Spain with the mocking dignity of its cultured presence. Christian chapels were dotted here and there in this mosque turned cathedral, among the maze of delicately colored columns and

beneath the graceful pagan arches, for all the world like small jewels that had dropped into the velvet lap of a slumbering queen (see illustration, page 432).

Through all these full days we had been immersed in a rich, restful mellowness, born of antiquity, that radiated from the ruins, the buildings, the art, and the very ground and trees. It drenched and was reflected in the people themselves. Ghosts of the past seemed to live in the present, and the present seemed to live in the past, in a curious intermingling mass, at once satisfying and intriguing.

THE MARK OF MANY RACES

But it was not for the past that we were going to Sevilla. These things were magnificent, fascinating. They spoke eloquently of many and great civilizations, but their speech was silent, ghostly. It was the people that had inherited this vast



Photograph by H. Armstrong Roberts

JUDGING BY THEIR SMILES, THESE PROSPECTORS FROM THE PYRENEES HAVE MADE A LUCKY STRIKE

Except for their jaunty berets, they look like some of the happy-go-lucky miners one meets on mountain roads in the western United States. A touring party in an American car has stopped on a main highway of northern Spain to watch them amble past. Next to agriculture, mining is Spain's most important source of wealth.



THE MATADOR'S FLASHY GARB MUST BE ARRANGED JUST SO

When the author began this portrait, the bullfighter took pains to see that his red, blue, and gold apparel looked as it does when he parades into the ring (see text, page 412).



From Paintings by W. Langhin, Eibar

HER HIGH COMB IS OF CARVED TORTOISE SHELL

Exotic costumes like this are still to be seen in Sevilla, especially during fiestas; but Paris fashions are preferred for daily wear (see illustrations, pages 420 and 435).

wealth that we had come to see. What are they, these Spanish people of to-day?

Glance over the strange medley and procession of races which have made the Spaniard what he is—Iberian, Celt, and Basque; Phoenician and Carthaginian; Greek and Roman; Visigoth and Moor.

The mark of some of these races still survives in an astonishing and fascinating degree.

As if this were not enough, the unique Spanish gypsy joins the procession. I say unique, for the Spanish gypsy is like no other gypsy in the world. He is gypsy and isn't gypsy. He is Spanish and he isn't Spanish. He does not wander like the traveling Romany of central Europe, but lives in the cities and in the caves in the hills (pages 424, 438-9). He stands alone and aloof. They say he has not changed for thousands of years and I can believe it. He is today a picturesque, slovenly devil, who seems to be in uncompromising argument with himself and everyone else. He lives emotionally; his spirit is wild and untamed.

Many of the gypsies have been the famous matadors of history. By far the best dancer I ever saw was a gypsy girl, and all the most successful beggars are gypsies.

Indeed, one might rightly ask, Where is there anything to compare with Spain, and particularly Andalusia? It is a 20th-century contradiction. It is modern. It is ancient. It is progressive. It is backward. It is oriental. It is Caucasian. It is masculine. It is feminine. It is melancholy. It is gay. Above all, it is never dull. Moody it is indeed, yet it is always beautiful.

When I presented the letter from my Paris friend to Señor Z, Sevilla, he stopped all work and found me a studio where I could paint. He then furnished me with models, and a model stand and easel. When I expressed my thanks, he said, "It is nothing. Do not speak of it again."

The next few days found me firmly installed, paints and paraphernalia. I was working one morning at what I considered to be a reasonably early hour when the bell rang long and loudly. Señor Gómez came sleepily out of his little room dressed in awning-striped pajamas and carpet slippers. He wiggled his shoulders and rubbed his hands, for it was a cool morning, really cold for Seville.

He was a tall man, scarcely more than a boy, and what some would call handsome,

I suppose. He had clear, waxy, dark olive skin, full lips, thin nose, large dark eyes, high forehead, and a well-oiled head of black wavy hair. His teeth were white and glistened when he grinned, and on his left cheek was a prominent mole.

COQUETTE AND MATADOR AS MODELS

Presently he returned, ushering in a dark-eyed coquette with a rosebud mouth and turned-up nose.

"Now, m'sieur," he beamed, "here is a model. She is very pretty, is she not, m'sieur?"

I agreed and asked him how much.

"Two pesetas. It is fair enough, m'sieur," he added confidentially.

She posed three-quarter length with a blue-embroidered shawl draped over her shoulder and in her hair were a blue comb and a rose.

Gómez was an affable, pleasant landlord, and an artist of no mean talent. There was always a crowd of young boys and girls drifting in and out of his studio; jolly people who laughed continually. They began to arrive about eleven in the morning and then appeared and disappeared, singly and in groups, all through the day and into the dark hours of the following morning.

They were mostly students at the art school. Every now and then in the course of a week or so they would start to paint something, anything; not too often, of course, and never for long, just spasmodically.

This morning a good-natured group of them breezed in all at once, noisily parking themselves about like a flock of sparrows on a tin roof. Animated repartee flashed back and forth. My model joined in, squirming this way and that as she babbled, which was often. I yelled at her once or twice, and shook my finger at her, all to no avail.

A few days later, when my charming but irresponsible little model had not shown up, I was engrossed in draping a matador in costume when Gómez suddenly interrupted me. "Pardon, Mista Keen, may I show you?" He turned and spoke to my model at length.

Presently he explained. "The model thinks you wish this pose for your own reason. But he is a matador and he will show you some true positions. Do you wish? Perhaps you prefer it this way, though? No?" he added eagerly. I assured him I wanted it correct in all details.



Photograph by J. Ortiz Echague

LIKE KINDLY FATES, THREE AGED ARAGONESE WATCH LIFE PASS BENEATH THEIR BALCONY.

Costumes like those worn in Columbus' day still are seen in Ansó, nestling in a valley of the Pyrenees Mountains, the natural barrier between Spain and France. Traditional dress persists in many other corners of Spain, but it is gradually disappearing, owing partly to the modernizing influence of motion pictures. Hanging from the eaves, strings of onions dry in the sun.



HANDSOME BUT PRACTICAL IS THIS COWBOY'S GARB

Like many American herdsmen, the Andalusian wears a wide-brimmed sombrero, and leather "chaps" to protect his legs while working on the range. The short jacket is often trimmed with silk braid. Across his shoulder is an alpenstock or goat stick for bullfighting on horseback.



Photographs by J. Ortiz Echagüe

THE VALENCIANA'S DRESS IS ONE OF SPAIN'S GAYEST

This girl wears an ample skirt of richly flowered brocade. Her tulle shawl is embroidered with brilliant spangles and matches the white apron edged with delicate lace. A gilded comb crowns her hair. Even her horse is decked out in flowers and jingle bells!



NO FANCY-DRESS COSTUMES ARE THESE

They are the traditional attire for the women of Montebanoso. Bright colors adorn the mantlets and the skirts, which are wider than they are long. The top-heavy hats-sometimes are worn while the women work. Often the elaborate garments are handed down from mother to daughter.



HER SKIRT IS FOR LOOKS, NOT COMFORT

Photographs by J. Orla E. Hughes

Montebanoso, in western Spain, is one of the few places in the country where the old regional costume still prevails in its original style. The town's remoteness has helped preserve the bell-shaped skirt, low, slipperlike shoes, and silken kerchief for the head.



A SMILING BRIDE DONS ALL THE FAMILY'S SKIRTS!

Elaborate weddings are the rule in Lagartera. The outer skirt covers many others, accumulated by the girl's relatives. Jewels and tinsel embroideries enrust her tight velvet bodice, which will be partly hidden by the lace mantilla being draped over her head when she goes to church.



Photographs by J. Ortiz Echagüe

A GODEN PRINT COMES TO LIFE

From the front, these hats suggest certain 19th-century styles. Women of Montebanoso make them of straw and adorn them with colored wool, ribbons, shiny buttons, and round mirrors. The kerchief is a fashion which probably originated in the women's veils worn during the Moorish invasion.



Photograph by J. Cortia Echagüe

LIKE FANTASTIC BIRDS ARE THESE GIRLS, WITH "PLUMAGE" OF BRIGHT PETTICOATS AND SHOWY HATS

Before sitting down, each girl had to lift six or eight petticoats, one by one, the edges of which reveal a variety of brilliant colors. Expensive, uncomfortable costumes like these of Monteberrnoso have usually been developed through rivalry between towns. They are steadily being discarded in favor of foreign fashions.



Photograph by J. Ortiz Echag n

ON THE WAY HOME FROM A NIGHT OF CATCHING TINY EELS

Along quay walls, the oil lamps of these barefoot Basques attract the white, almost transparent eels, which are about two inches long and are considered a tasty delicacy when fried in olive oil. The fishermen belong to a race of ancient and mysterious origin. Their language, Euskara, is thought to be a relic of the Iberian tongue spoken in Spain before the Roman conquest.



FOR MORE THAN FIFTY YEARS LINO HAS SAILED THE TEMPESTUOUS BAY OF BISCAY.
This weather-beaten Basque spends his evenings in a tavern over a funnel-necked jug of wine.



Photographs by J. Oetia Echagüe

A BRIDE AND GROOM RECEIVE WEDDING GIFTS IN AN UNUSUAL WAY!

Each donor puts a coin in his teeth and she takes it in hers—capitalizing on the custom of kissing the bride!
The money on the plate has been given her by male guests.



SWARTHY COUNTRYMEN SPORT FANCY VELVET JACKETS

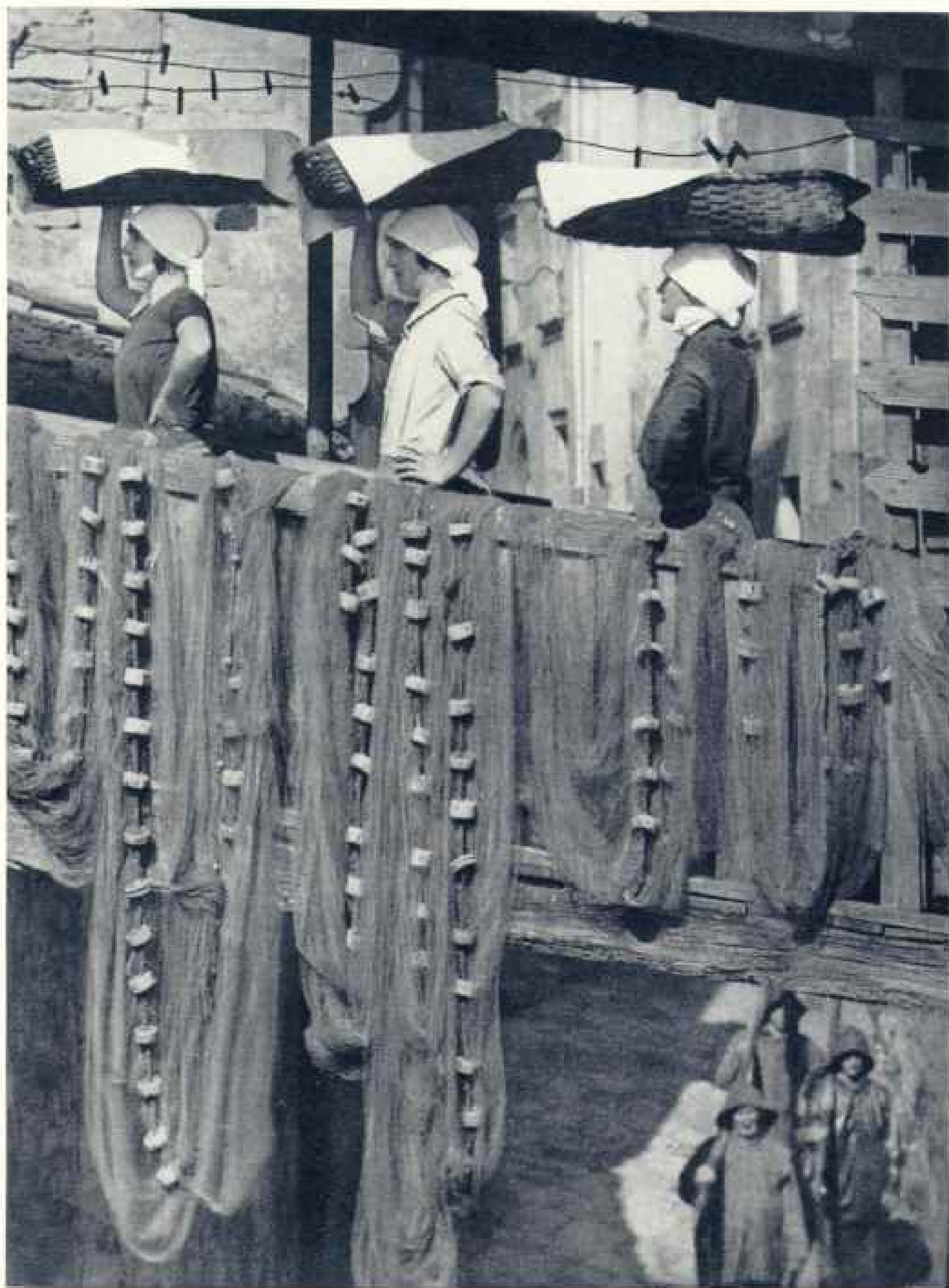
Few districts of Spain have as rich a variety of costumes as Salamanca, three of whose plains people meet here, strolling in Aldeadávila, near the Portuguese frontier.



Photographs by J. Orta Echagüe

LOVELY CARMENS OF TODAY MAKE MERRY IN OLD SEVILLA

In the three-day festival which follows Holy Week, light-hearted Sevillanos dance in the streets and open-air pavilions. The tobacco factory, scene of the labors of Blet's flirtatious heroine, is still a busy place. Hundreds of women file out at closing time, each with a flower gracing her dark hair.



Photograph by J. Ortiz Echagüe

HOME IS THE SAILOR—AND WOMAN'S WORK BEGINS

The men below with oars on their shoulders have just returned from the fishing grounds and each wife carries on her head a basket containing the husband's portion of the catch. These strong-backed Basque women of Oriz are marching up a ramp draped with fishnets. Later they will cry their wares in the streets.



OFF TO THE FIESTA ON A ONE-HORSE HUMBLE SEAT

Country girls from Salamanca, wearing fine lace mantillas and embroidered skirts, perch behind their escorts.



Photographs by J. Ortiz Echaguir

BASQUE SPADES LOOK LIKE MAMMOTH TUNING FORKS

The men wear the well-known *béret*; the women, the white headdress of their ancestors.



Photograph by J. Ortiz Echagüe

FRÍAS PERCHES ON A HILLSIDE BENEATH "A CASTLE IN SPAIN"

These clusters of sun-baked houses with red-tiled roofs and vines clinging to the walls are typical of many little villages that dot arid, desertlike Castile. The central plateau is quite different from romantic "sunny Spain" of the south. People of the north describe their weather as "nine months of winter, three months of hell." According to tradition, Castile owes its name to its many castles erected as defences against the Moors.



Photograph by J. Costa-Escalante

LIKE HUMAN MOLES, GYPSIES DUG THESE DWELLINGS IN THE BARRIO DE SANTIAGO

A whole colony now lives in the little grottoes, fronted with doors and windows, scooped from the soft tufa at Parullena. The curious settlement is not far from the railroad, and passing visitors often stop off to see the cliff dwellers' famous dances.



ONE CORNER OF THE LACY KERCHIEF MUST FALL BETWEEN THE EYES

It is made of fine gauze, adorned with delicate lace and ribbons, and is tied around the neck of this girl from La Alberca. The huge necklaces of gold and silver, filigreed with coral, hang nearly to the knees. Attached to them are medals, rosaries, amulets, and jeweled crosses.



Photographs by J. Orth Echaigüe

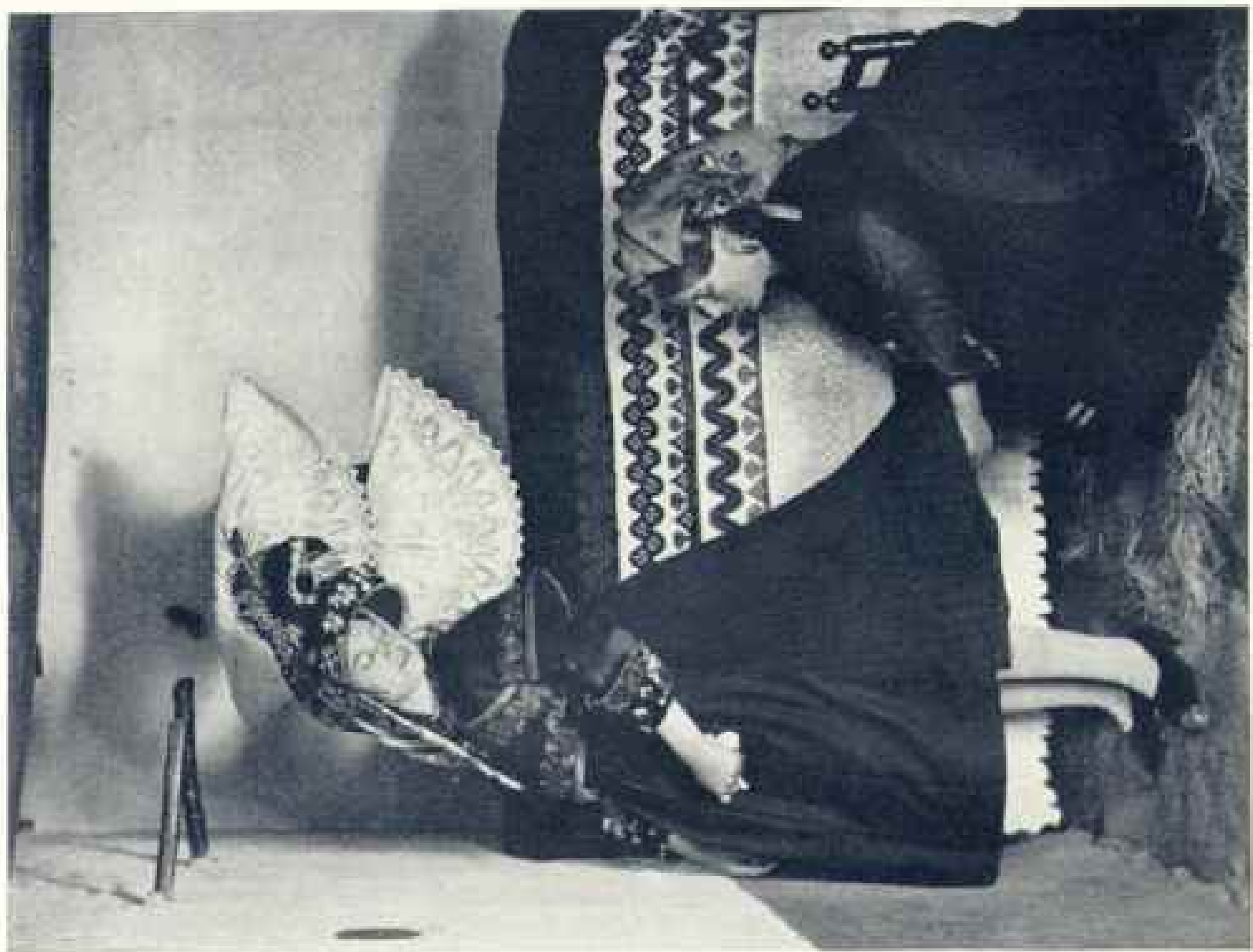
THE VILLAGE BAND SERENADES HIS HONOR THE MAYOR

Despite the flageolet player's strenuous blowing, and the exertions of the drummer and the guitarist, this "high-hat" mayor of a Valencia village maintains his dignity. There will be dancing and fireworks during the local celebration—and, of course, the indispensable bullfight.



HER GOLD AND SCARLET DRESS IS THE ENVY OF THE VILLAGE

There is no finer in Turégano. A crowning glory is the cap that resembles a bishop's miter. With her grizzled companions, in their long capes and hats with upturned brims, she might have stepped down from some Castilian painting of the days of Isabella.



Photographs by J. Ortiz Echagun

"IS THE SKIRT WIDE ENOUGH?" THE SEÑORITA WONDERS

The final fitting may be as tedious in Montebanoso as that of a Paris or New York modiste. Behind her stands one of the family's old-fashioned beds with its colorful home-made blankets. Hay and wool are used to stuff the mattresses, which is covered with rough linen. The pillows have fine lace coverings.



DON QUINOTE'S SPIRIT FLASHES IN THE EYES OF THIS OLD MAN

But he has fought enemies of flesh and blood, not windmills. Years ago, during some forgotten insurrection, this austere countryman was the nightmare of the Civil Guards. Now he delights in telling the lads of La Alberca how he came near being shot.



Photographs by J. Oetia Echeagoin

MAYORESS FOR A DAY IS THIS DIGNIFIED VILLAGE MATRON

Once a year, on St. Agatha's Day, women of certain Segovia villages are chosen to assume the title and rights of Lady Mayoreesses, a privilege granted them by King Philip IV. This one holds her staff of office as a queen her royal scepter.



Photographs by J. Ortiz Echagüe

"ABOUT FACE, GIRLS"—READY FOR AN "APPLE DANCE" AND SIX DAYS OF FUN

"When they parade into the arena," Gómez went on, "they wear their cape so." And the two of them draped it with infinite care over the left shoulder and under the right arm. They were extremely particular about arranging the roll and folds of the cape where the left hand held it at the belt line (see illustration, page 411).

"The elbow should be a little more, so," he continued, tugging at the model's sleeve. "And the cap, so," he said, asking the model to pull it down farther over his forehead.

"There, it is more chic, is it not, m'sieur?" and his face lighted up with enthusiasm. "For a good bullfighter everything is form. It is a pretty thing to watch," he remarked.

BULLFIGHTS AND FOOTBALL

About bullfights, Nordic tastes, and Spanish appetites in sport, much controversy invariably arises. Apropos of this, I was given a surprise in the studio one afternoon. Seven or eight students had drifted in. I was absorbed in sketching a girl with a fan, but was conscious of a weighty argument going on around me.

"M'sieur, you like the bullfight?" one of the students abruptly appealed to me. He was a very handsome young Castilian.

I answered, "Yes," rather weakly.

"You don't like it the best sport you have seen?" he urged.

"No, not exactly," I replied honestly.

He then astonished me by blurting out, "I like football." And half the boys agreed with him.

"It is what you call the soccer," he explained.

He later substantiated his preference by twice inviting me to soccer games; and well played games they were, too. At both contests large, enthusiastic crowds turned out, and my host was one of the most excitable in the audience.

RAIN IN SEVILLA

Strange as it may sound in the face of the storied sunshine of Sevilla, not many weeks had gone by when it started to rain. It was a curious rain. One minute the sky would be clear and blue, then suddenly thick clouds would roll up and a deluge descend upon us.

And how it did rain! It poured buckets. The streets were literally rivers of mud and water. Sevillanos stayed in and grumbled and shivered. It lasted about a week; then

the sun burst forth, and we never saw another drop. All Sevilla turned out and swarmed the streets again, happy to be in its beloved sunshine.

Gómez asked me one day if we were going to stay for Holy Week. When I told him we would, he was pleased. "Then you will see Sevilla," he added. "This weather is not Sevilla. Brrr! From now on we have sunshine and warm days." He smiled at the thought. "You stay for the Fair, too?" he queried hopefully.

It was delightful the way these Andalusians wished you to like their fascinating Sevilla.

Life went on as usual, painting at the studio and wandering about Sevilla in spare hours and at night. We never grew tired of it.

Happy, colorful throngs filled the streets, women and girls in high combs and black mantillas, handsome bronzed men with wide-brimmed hats, civilians, soldiers, police, peddlers, gypsies, and peasants in endless parade.

Everywhere we saw the friendly, patient burros, some of them laden down with such enormous loads that all you could see was a comical head with big ears and four spindly legs underneath.

The days grew warm and longer, and Sevilla made ready for Holy Week. When it arrived, a full moon was just coming in and the orange trees were blossoming, their sweet, pungent, unforgettable scent permeating everywhere.

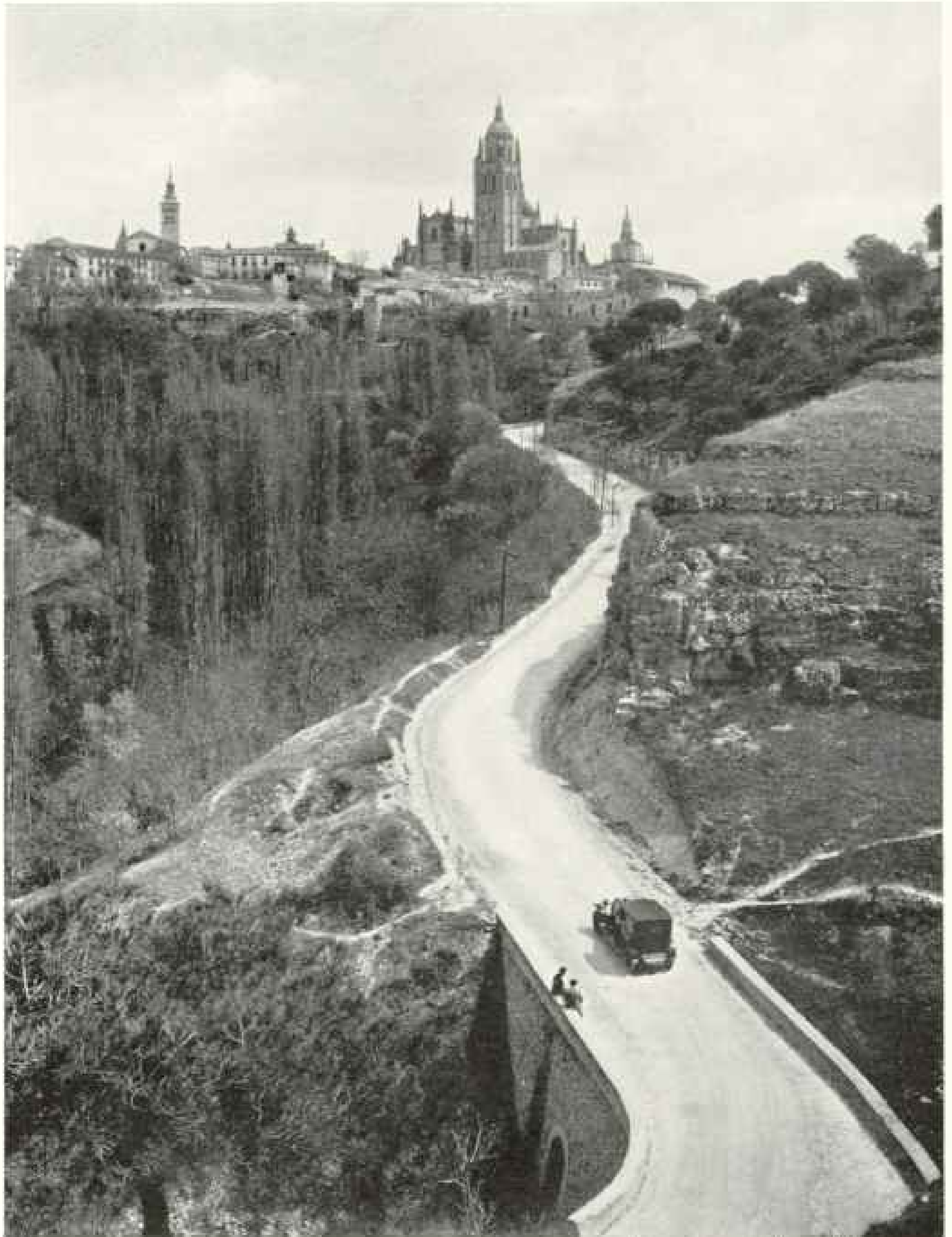
A WEEK OF PROCESSIONS

The entire week was an incomparable pageant, consisting of an endless series of processions, one after another. Once we stayed up all night, following them until long after dawn the next day.

Each of the many churches in Sevilla takes its life-sized carved wooden effigy of Christ or the Virgin from its own altar through the city to the altar in the great Cathedral, to be blessed and returned.

The figure is enthroned on a large dais or platform and clothed in magnificent costly robes, studded with sparkling precious jewels. Hundreds of white burning candles, five and six feet tall, illuminate it, and many figures have a canopy also studded with precious jewels (see page 437).

The platform is carried on the backs of barefoot penitents, who shuffle slowly beneath their staggering burden for many exhausting hours.



Photograph from Publishers Photo Service

WHERE ROMAN LEGIONS ONCE MARCHED, A MODERN HIGHWAY LEADS INTO SEGOVIA

The old Castilian city, famous for its Roman aqueduct and its towering Cathedral, is reached by fine paved roads characteristic of Spain's growing network of highways. Not long ago, a motorist was a curiosity in the Spanish countryside. Nowadays, except in remote regions, an automobile arouses little more comment than a horse and wagon or donkey.



Photograph from Publishers Photo Service

A FAMOUS "FLIRTATION WALK" IS MADRID'S PASEO DEL PRADO

Many a romance has blossomed on the wide stone benches of this tree-lined boulevard. Pretty girls, soldiers, children, beggars, visiting country people in their village dress, all take part in the colorful parade that passes the Prado, the National Museum of Painting and Sculpture (see p. 409).

In front and back of the procession are the confraternities, squads of full-robed men with hoods surmounted by a high graceful cone. Each confraternity wears a different color. They all carry 6-foot tapers, whose yellow flame flickers in the breeze. Heading the procession is an incense bearer, a small costumed boy swinging an incense lamp. Everywhere are the delicious, intoxicating, blended odors of candle wax, incense, and orange blossoms. Thousands of spectators follow and watch this extraordinary and impressive pilgrimage.

We heard that the gypsies were coming from their church across the Guadalquivir, so we hastened to the picturesque quay of this broad, gently flowing stream. The moon was full and bright, and hung in a sky of fathomless blue. From the quaint buildings, bathed in eerie moonlight, gleamed yellow and orange lights, like tiny topaz inlaid in lapis. An ancient bridge of many arches, long and low, spanned the silent river in a graceful sweep.

At the far end we saw pin points of flickering candle flames, and we knew the gypsies had started to cross. The movement was slow and barely discernible. Phantom shadows, dark and formless craft, floated on the incandescent silvered surface of the quiet stream. The pale yellow candles were reflected in the cool water, like running liquid threads of gold. There was little noise beyond stirring life, the symphony of city streets, that drifted faintly to our ears from far away.

We followed the gypsies for a while and noticed that crowds of people were pushing off in a steady stream in another direction. We turned and went with the crowd. It got more dense at every corner and after a long walk we came upon a plaza jammed with spectators.

At one end was a large church, and the other three sides of the square were lined with low whitewashed buildings. The blazing street lamps bathed everything in warm flooding light. Several thousand people



Photograph by Garson

MOORISH CALIPHS OF SPAIN ONCE STROLLED IN THIS FOREST OF COLUMNS

Red and white stones form graceful arches above the 850 pillars of Córdoba's former mosque. Begun by Moslem invaders more than 1,100 years ago, this was Islam's largest shrine next to the Kaaba at Mecca. Today, as a Christian cathedral, its ground plan is only a little smaller than that of St. Peter's, at Rome.

must have packed themselves in that little square. They were all good-natured and jovial.

BELLS AND LIGHTS OF A FESTIVAL

It was three o'clock. The rich-toned bells in the belfry chimed the hour. A light hush surged through the crowd and rapidly diminished to a pregnant breathing silence. Instantaneously, with the last peal of the bells, all lights went out. The silver beams of the bright moon painted a broad stroke of deep turquoise over the huddled thousands. The huge doors of the church were flung wide and a blaze of golden candle-

light burst through the suffused swimming veil of blue.

From one of the balconied windows, a clear bell-like voice drifted out upon the deathlike stillness of the Andalusian night. It seemed as if all Sevilla held its breath as it listened to the weird refrain, poignant, unearthly, of the strange *Saeta* (a short prayer used on solemn occasions in churches or during religious processions in the streets).

As the last plaintive note died away, thundering applause rent the air. The vast throng shouted and yelled, whistled and cheered again and again. The lights went on and the stately procession wound its way through the dense mob.

We turned back and wandered toward the Giralda, our minds and thoughts filled with the varied scenes in this astounding drama. We had not gone far when we came upon another procession that had stopped to rest. Just as we approached the Virgin we were astonished to see the penitents duck from under their curtained platform and rush for the corner cafe. They each had a swig of manzanilla or beer, then returned to their post.

When we reached the Giralda, we wormed our way through the crowd to a point opposite the towering arched portals of the great Cathedral. Another effigy of the Virgin, with its bodyguard, was resting in the street, preparatory to going up the incline and through the entrance of the nave. A dim ethereal light filtered from the magnificent interior through the huge and graceful doorway. The Mother with her dais was raised, and the procession moved on slowly. The platform teetered; it rocked,



Photograph by Franklin Fisher

AMERICAN VISITORS MARVEL AT THE GRAND BUT GLOOMY ESCORIAL

The huge palace-monastery seems like a foothill of the wild, barren mountains in which it stands, about 30 miles from Madrid. It has some 120 miles of corridors, 12,000 windows and doors. From his unpretentious quarters in the Escorial, Philip II ruled a large part of 16th-century Christendom.



Photograph by Bronson De Ceu from Galloway

PHILIP II'S CELESTIAL GLOBE STILL STANDS IN HIS VAULTED LIBRARY

The rich frescoes on the walls present vivid colors which brighten the somber Escorial, where the pious King lived like a monk. In the center of the room are revolving glass cases, which contain some of the rare old books.



© E. M. Newman

OXEN, DONKEYS, AND MOTOR TRUCKS CLATTER OVER BURGOS' COBBLESTONES

Battleground of Moor and Christian, home of Spain's national hero, El Cid, and capital of Queen Isabella's Kingdom of Castile, Burgos was long a stage for the pageantry of the Middle Ages. Began in 1221, the Cathedral, at the far end of the street, is considered one of Spain's finest.

it reeled, it almost slithered over, only to straighten up and start the other way.

The warm sun had ridden for hours above the low-flung horizon of Sevilla when the gypsies wound their tedious way back across the Guadalquivir. Reluctantly, yet anxious to rest, we returned to our neat hotel and welcome beds. As we dozed off quickly, the strong, lingering scent of candle wax and orange blossoms floated through the room.

WINE WITH SHRIMPS AND ALMONDS

One day after I had left the studio and was idly strolling down Calle de las Sierpes, I met my friend Alvaro. We stopped to exchange greetings.

I suggested a drink. His face lit with pleasure and we stepped into a cozy cafe.

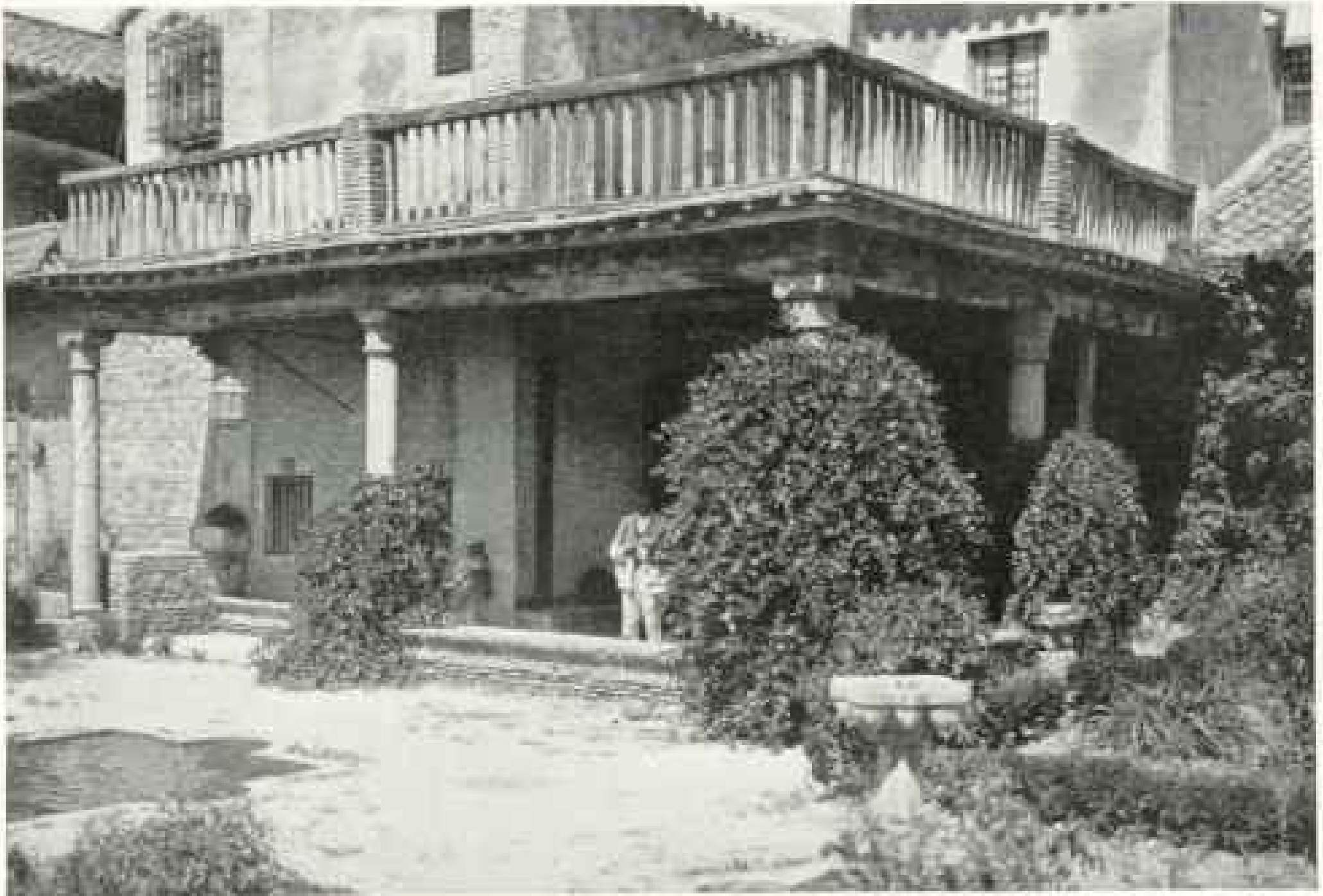
"There is a real Spanish wine; it is Corregidor. Would you like to try it?" he

asked, munching a large olive and spitting the pit on the floor. "Oh, and waiter, bring some of those little pickled shrimps and some almonds. Is it not wonderful?" he continued, turning to me. "In Spain you buy a little glass of wine and they give you a whole meal with it free."

The waiter brought the wine, shrimps, and almonds. "À la salud. In Andalusia we say, 'Salud y pesetas.' Health and wealth you call it. Is it not good?" he bubbled on.

First he smelled it, then tasted it, and finally looked at me as pleased as if he had just won a bet. I did the same, parrot-like, and had no difficulty in showing my appreciation, for it was indeed delicious.

"Ah, where in the world is there anything to compare with Spanish wine? This is just the right temperature, too," he pronounced. "Where can you equal manzanilla,



Photograph by Angel Rubio

EL GRECO'S HOUSE, IN TOLEDO, IS A 16TH-CENTURY RELIC

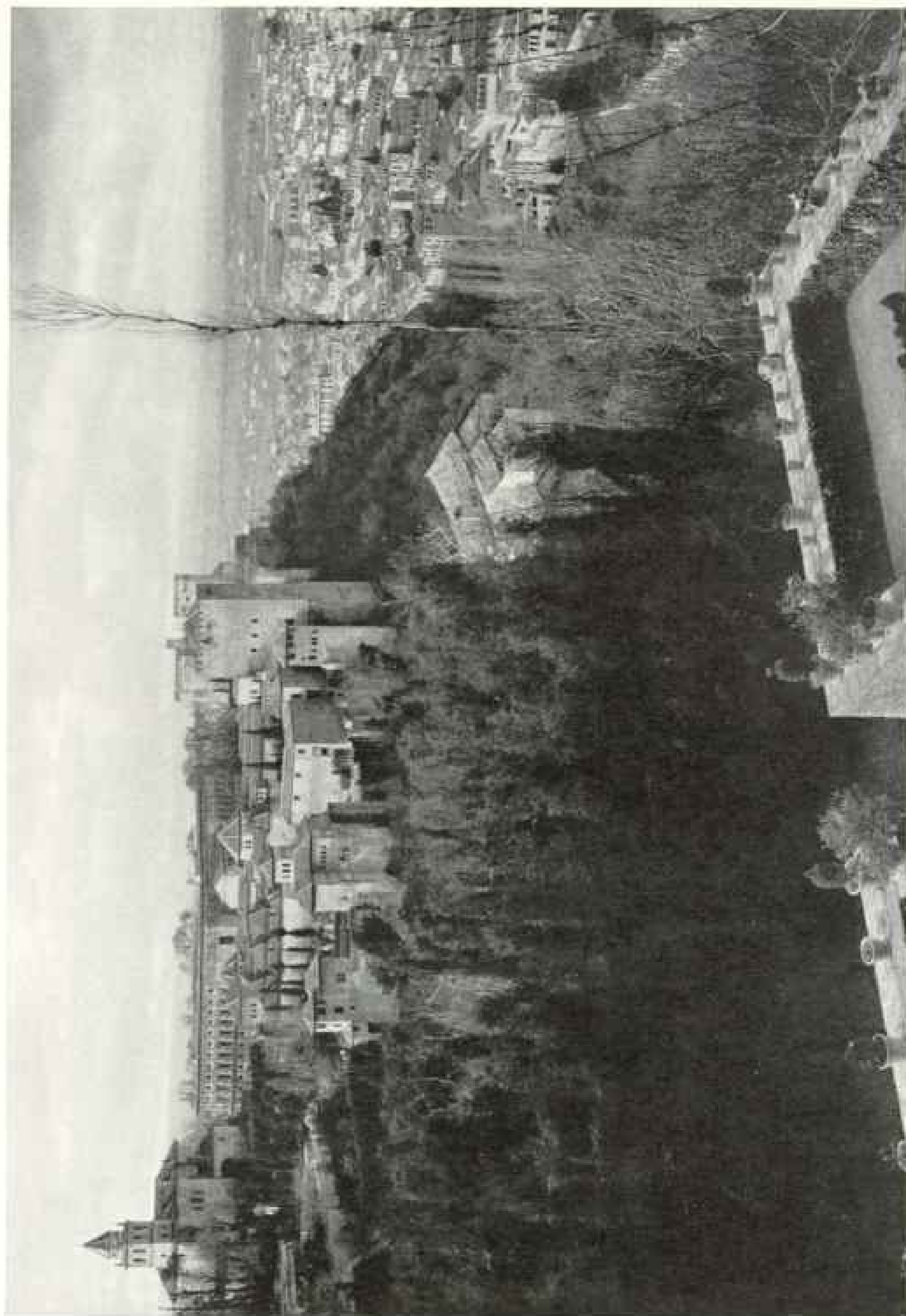
Wandering through its inviting rooms, delightful little patio, and shady verandas, a visitor is likely to find himself saying: "How comfortable and attractive for a house nearly 400 years old! I shouldn't mind living in it myself!" The building, now Government-owned, honors the celebrated Cretan painter whom the Spanish nicknamed "El Greco" (The Greek).



Photograph from Richard Ford

A CLICK OF THE CASTANETS, A FLASHING SMILE—AND THE DANCE BEGINS!

This gay party is being entertained in one of the many outdoor pavilions erected for Sevilla's annual fiesta and cattle market. Modern foxtrots are popular, but prime favorites are the local dances called *sevillanas*, with their accompaniment of guitars and castanets.



Photograph from Publishers Photo Service

BROWNING LAMPARTS OF THE ALHAMBRA CONCEAL THE "EARTHLY PARADISE" INSIDE

The palace's many towers and secluded courtyards stand on the right-hand side of the hill overlooking Granada (see text, page 440). Here lived Moorish rulers until their expulsion from Spain by Ferdinand and Isabella. The two large buildings to the left of the Alhambra were erected by the Spanish.



Photograph by C. Sanchez del Pardo

GAILY BEDECKED OXCART'S LUMBER THROUGH SEVILLA IN A JOYOUS RELIGIOUS PARADE

Even the oxen are decorated with what seems to be white dance caps. In the first vehicle, behind clusters of candles, is a religious picture, but the celebration is not solemn. Groups of girls follow in other two-wheeled carts, singing and clicking castanets as the procession meanders out of town for a day in the country.



© Herbert G. Puntling

ROMANY DAUGHTERS ARE BORN COQUETTES

This one, flowers in her hair, seems to say: "Well, how do I look?" The gypsy man, sitting in the recess before a barred window of the cave dwelling (see page 424), wears a short jacket and a conical hat that gives him a *pierrôt's* appearance.

Corregidor, and other wines of Málaga, Rioja, and Sanlúcar de Barrameda? Have you seen the big wine café of the connoisseurs and wine tasters? Ah, I must take you there."

And he launched on a long and truly fascinating dissertation on the manufacture, consumption, and exportation of Spanish wines.

"Adiós, señor. Muchas gracias. Hasta mañana." We shook hands; we bowed; we almost saluted, and then parted.

I watched his slim nervous figure as he walked briskly and easily, weaving in and out of the late afternoon crowd that strolled indolently down Calle Sierpes.

I thought of Gómez, Señor Z, and Alvaro

and of all Spain, especially Andalusia. The deep-toned bells of the Cathedral pealed a rich sonorous chime. They had pealed that way for many centuries. The burning sun bathed the tower of the Giralda in a golden glow and the spire seemed to float without support in a clear sky of delicate blue (page 408).

A peddler with a golf bag full of canes and a basket full of leather cigarette cases called, "Cane, señor?" An elderly, stately dame in a black dress, black mantilla with a high comb, and an armful of bags and packages strolled by as her grandmother had before her and her grandmother's grandmother before that. The soft clappity-clap of burros' unshod feet sounded through the babel of many voices. Somewhere, someone whistled a strange oriental-sounding melody.

WHEN THE REPUBLIC WAS BORN

This was Calle Sierpes, the street of many ages. It was the heart of Sevilla, and Sevilla was the heart of Andalusia.

As I wound my way home slowly, my mind went back to the day in 1931 that

marked a new era for Spain—the day we decided to go to Granada. We knew not how long we could stay then and we were afraid we might not see this most magnificent garden spot of all Europe. Besides, we heard that there was to be a song festival. Some of the wild Moorish tribes of Spanish Morocco had been brought to Granada and there was to be a splendid pageant in the Alhambra. The temptation was great, so we hired a car and started east one morning early.

It was a perfect Andalusian day with a warm bright sun and cloudless sky. At first the country was flat and we passed through some quaint peasant villages and towns. The new character and aspect of the coun-

tryside were decidedly refreshing. Soon it began to roll and we drove over wooded hillsides and wound through wide, pleasant valleys which were dotted with farmhouses, tilled land, and olive orchards.

Gradually the country became more rugged and sparsely settled. We would traverse long tracts of rock-bound hills and virgin forests, when suddenly the road would come out high above a vast cultivated plain. Down we would roll and wind through well-ordered fields and pastures, and past neat-looking whitewashed peasant houses with tiled roofs. There were many more miles of wild and beautiful country, and about the middle of the afternoon we sighted the deep-blue sawtooth range of the Sierra Nevada.

It was late afternoon when we motored into Granada. We went directly to the travel bureau to learn details of the festival.

"We are sorry, señor. The festival is postponed. No, we can give you no definite date. We have no authority. We do not know. We now try to get news from Madrid, but no news comes. We know nothing."

This was indeed startling news. I was just debating what course to take when a fine-appearing elderly man approached me and I was aware of the first English spoken without accent that I had heard in months.

"I can see you are an American. You must have come a long way to see the festival."

"Yes," I answered, introducing myself. "We came from Sevilla this morning."

It was then I learned that this was the man who had planned the entire festival program.



Photograph by Angel Rubin

A GYPSY REBECCA PAUSES ON THE WAY TO FILL HER JUG

Like many of her race, she has adopted the custom of the country, wearing the typical Andalusian comb and plastering a curled lock of hair tightly over her forehead. She lives in the Albaicín, Granada's oldest quarter, where visitors often go to have their fortunes told.

"I do not know what will happen now," he mused sadly. "It is a great disappointment to me. I have dreamed of this for years and worked on it, putting all my thought, time, and energy into it."

He looked absently through the window and asked idly, "You are alone?"

Before I could reply he suddenly turned and looked directly at me, his eyes dancing. "Listen," he said, "I have just decided. I am going to put all my Moors in taxis and drive up to the Alhambra. Meet us there at six, will you? I am doing this at my own risk and expense, but it will be worth it just to see them stroll through the courts and gardens.

"And remember," he admonished as we

parted, "I have lived in Spain many years. Don't forget that your greatest protection is the innate courtesy of the Spaniard to all strangers and foreigners."

He had neatly put into words what I had felt many times.

Washington Irving wrote two thick and exhaustive volumes on the Alhambra. If one is interested, I recommend them, for what more could one say than what he has already written? The rooms in the matchless palace in which he worked and lived are pointed out proudly by the Spaniards (see illustration, page 436).

MODERN MOORS AND THE ALHAMBRA

When we arrived there the Moors had just entered the Court of the Lions. There were 25 or 30 of them, men and women in full costume. A thrill passed through me as I suddenly realized that we were gazing upon the Arabs just as they had strolled and talked in this, their own great creation, in their last days of supremacy before their expulsion by the Christian hordes almost five centuries before. It was fantastic, it was history, it was epic!

They walked actively about, eager to see it all, fascinated with what they saw. They looked in awe at the delicate, multi-colored maze of intricate carving that graced the ceiling and arched domes. They studied the Arabic letters and inscriptions incorporated in the lacy patterns carved and painted on the walls.

They strolled in admiration through the beautiful gardens and courts, landscaped with tall, stately, somber cypress, and waxy-leaved orange-trees, shading rich, full beds of sweet-scented myrtle, jasmine, and rhododendron. Everywhere were clear pools of colored tile and playing fountains.

The Moors, in their colorful costumes, wandering through this unsurpassed paradise of gardens, courts, and chambers, climbing up and down the stairs and through the rooms of the palace, just as their forefathers, who had conceived this masterpiece, had done ages before, made a picture I shall always carry with me.

The golden sun was sinking toward a hazy blue horizon when we finally emerged on the roof of one of the Alhambra's fort-like towers. In front of us rose the lofty, snow-capped peaks of the mighty Sierra Nevada. Storm clouds, lavender and gray, rolling away, still clung to their jagged pin-

nacles, and great drifts and fields of new snow, rose-tinted by the lowering sun, gleamed beneath their sullen, vaporous banks. A vast country, gradually leveling off to a straight line, stretched far to the west.

Below us lay the city of Granada, its tiny buildings appearing in the distance like a geometric pattern of dots and squares. Across the deep valley to our right was the hill town of the cave gypsies, whose burrowed homes reminded me of prairie-dog colonies I have seen on the Western Plains (see illustration, page 424).

We stood enthralled at the lavish scene. A strange melody near by drifted softly to our ears. It was one of the Moors singing an exotic song. The haunting refrain floated out in endless space—a faint appeal to the unforgotten glories of the dim past. As if in answer to the call, an ever-deepening drone was heard high in the heavens to the north.

A dark speck pierced the blue sky, and a humming plane sped swiftly toward us; as it soared, like a great bird over the city of Granada, it threw off fine white sprays of paper that fluttered and turned in the sky like tiny flakes of silvery snow. They were handbills, the only news that had come through that day—and they told of the birth of the Spanish Republic and the abdication of the King!

Here we stood on the roof of one of the towering bastions of the Alhambra with the very Moors whose sires by their genius and vision had built it, and watched the whirling specks that heralded the dawn of a new era for Spain floating gently down to Andalusian soil once owned by Arabs.

Back at the hotel, abruptly brought in contact with the new Spain, I felt as confused as Irving's own Rip Van Winkle.

The crowds, though moody, were astonishingly docile, considering the absence of all military and civil organization for 24 hours. No violence of any proportion occurred. The new flag of the Republic was raised and the police went back on duty.

Through all this we had stayed discreetly on the hill, and steeped ourselves in the secluded, intoxicating beauties of the Alhambra and the gardens of the Generalife. It seemed as if we wandered in a peaceful cloistered paradise, remote from the world, forever shut off by the serene, snow-clad Sierra Nevada.

NATIONAL GEOGRAPHIC SOCIETY

GEOGRAPHIC ADMINISTRATION BUILDINGS

SIXTEENTH AND M STREETS NORTHWEST, WASHINGTON, D. C.

GILBERT GROSVENOR, President
ROBERT V. FLEMING, Treasurer
HERBERT A. POOLE, Assistant Treasurer
FREDERICK V. COVILLE, Chairman Committee on Research

JOHN OLIVER LA GORCE, Vice-President
GEO. W. HUTCHISON, Secretary
THOMAS W. MCKNEW, Assistant Secretary

EXECUTIVE STAFF OF THE NATIONAL GEOGRAPHIC MAGAZINE

GILBERT GROSVENOR, EDITOR

JOHN OLIVER LA GORCE, Associate Editor

J. R. HILDEBRAND
Assistant Editor

MELVILLE BELL GROSVENOR
Assistant Editor

McFALL KERBEY
Chief of School Service

LRO A. BORAH
Editorial Staff

FREDERICK SIMPICH
Assistant Editor

ALBERT H. BUMSTEAD
Chief Cartographer

E. JOHN LONG
Editorial Staff

FRANKLIN L. FISHER
Chief Illustrations Division

MAYNARD OWEN WILLIAMS
Chief Foreign Editorial Staff

CHARLES MARTIN
Chief Photographic Laboratory

LEONARD C. ROY
Editorial Staff

BOARD OF TRUSTEES

ROBERT V. FLEMING
President and Chairman of the
Board, Riggs National Bank

WALTER S. GIFFORD
President American Telephone and
Telegraph Co.

DAVID FAIRCHILD
Special Agricultural Explorer, U. S.
Department of Agriculture

C. HART MERRIAM
Member National Academy of
Sciences

LYMAN J. BRIGGS
Director National Bureau of
Standards

GEORGE R. PUTNAM
Commissioner of Lighthouses,
Retired

THEODORE W. NOYES
Editor of The Evening Star

GEORGE W. HUTCHISON
Secretary National Geographic
Society

CHARLES EVANS HUGHES
Chief Justice of the United States

WILLIAM V. PRATT
Rear Admiral U. S. Navy, Retired

RAYMOND S. PATTON
Director U. S. Coast and Geodetic
Survey

ALEXANDER WETMORE
Assistant Secretary, Smithsonian
Institution

GILBERT GROSVENOR
Editor of National Geographic
Magazine

J. HOWARD GORE
Prof. Emeritus Mathematics, The
George Washington University

FREDERICK V. COVILLE
Botanist, U. S. Department of
Agriculture

JOHN J. PERSHING
General of the Armies of the
United States

GEORGE OTIS SMITH
Formerly Director U. S. Geological
Survey

O. H. TITTMANN
Formerly Superintendent U. S.
Coast and Geodetic Survey

JOHN OLIVER LA GORCE
Associate Editor National Geo-
graphic Magazine

CHARLES G. DAWES
Formerly Vice-President of the
United States

GEORGE SHIRAS, Jr.
Formerly Member U. S. Con-
gress, Faunal Naturalist and
Wild-Game Photographer

MAJ. GEN. OSCAR WESTOVER
Chief, U. S. Army Air Corps

ORGANIZED FOR "THE INCREASE AND DIFFUSION OF GEOGRAPHIC KNOWLEDGE"

To carry out the purposes for which it was founded forty-eight years ago, the National Geographic Society publishes this Magazine monthly. All receipts are invested in The Magazine itself or expended directly to promote geographic knowledge.

Articles and photographs are desired. For material which The Magazine can use, generous remuneration is made. Contributions should be accompanied by addressed return envelope and postage.

Immediately after the terrific eruption of the world's largest crater, Mt. Katmai, in Alaska, a National Geographic Society expedition was sent to make observations of this remarkable phenomenon. Four expeditions have followed and the extraordinary scientific data resulting given to the world. In this vicinity an eighth wonder of the world was discovered and explored—"The Valley of Ten Thousand Smokes," a vast area of steaming, spouting fissures. As a result of The Society's discoveries this area has been created a National Monument by proclamation of the President of the United States.

The Society cooperated with Dr. William Beebe in a deep-sea exploration of undersea life off Bermuda, during which a world record depth of 3,028 feet was attained August 15, 1934, enabling observations of hitherto unknown submarine creatures.

The Society also had the honor of subscribing a substantial sum to the expedition of Admiral Peary, who discovered the North Pole, and contributed \$100,000 to Admiral Byrd's Antarctic Expeditions.

The Society granted \$25,000, and in addition \$75,000 was given by individual members, to the Government when the congressional appropriation for the purpose was insufficient, and the finest of the giant sequoia trees of California were thereby saved for the American people.

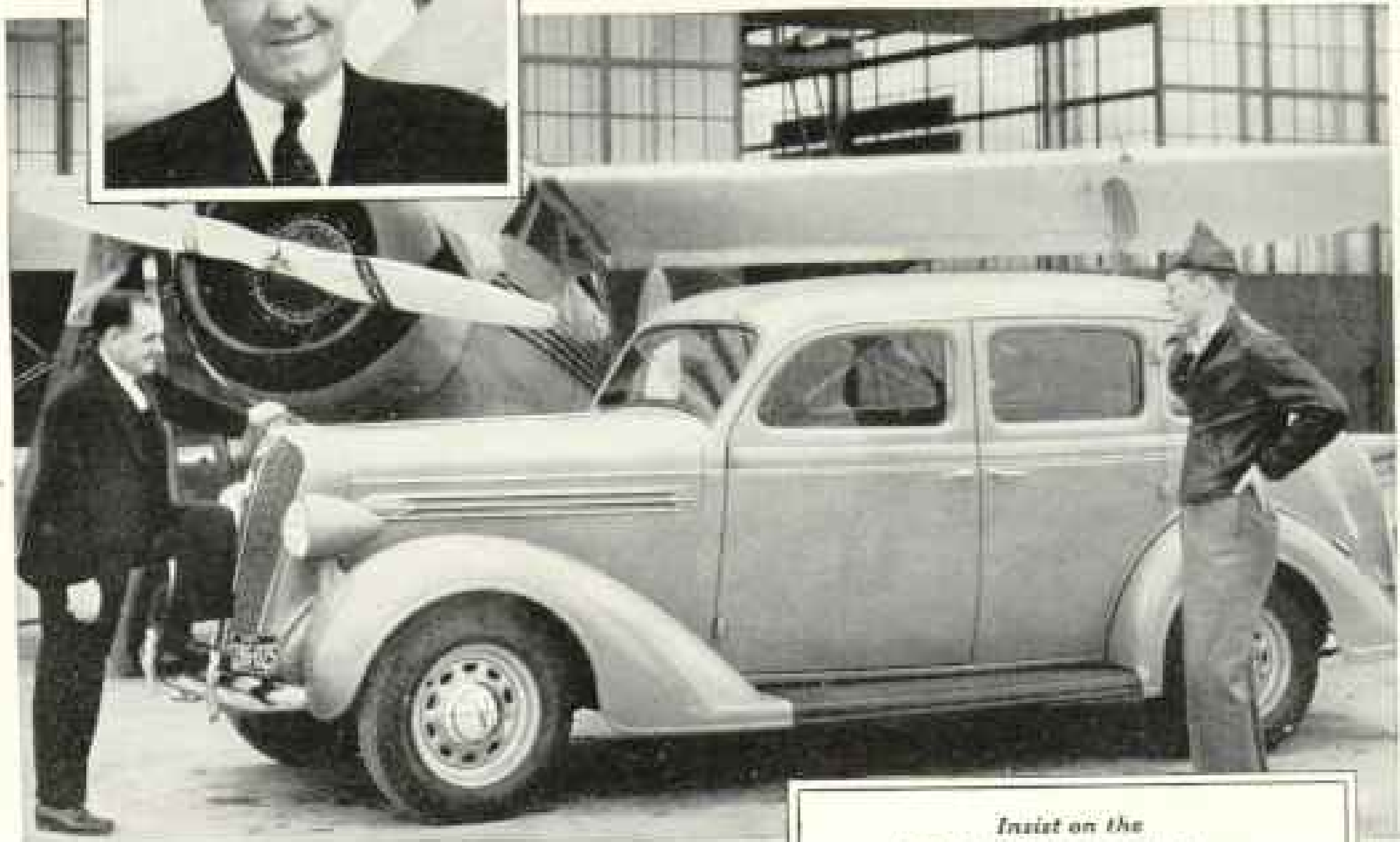
The Society's notable expeditions to New Mexico have pushed back the historic horizons of the southwestern United States to a period nearly eight centuries before Columbus crossed the Atlantic. By dating the ruins of the vast communal dwellings in that region, The Society's researches have solved secrets that have puzzled historians for three hundred years. The Society is sponsoring an ornithological survey of Venezuela.

On November 11, 1935, in a flight sponsored jointly by the National Geographic Society and the U. S. Army Air Corps, the world's largest balloon, *Explorer II*, ascended to an officially recognized altitude record of 12,395 feet. Capt. Albert W. Stevens and Capt. Orvil A. Anderson took aloft in the gondola nearly a ton of scientific instruments, which obtained results of extraordinary value.

"5500 Hours in the Air Taught Me About Motors"



*"THAT'S ONE OF THE REASONS WHY
I BOUGHT A NEW 1936 PLYMOUTH!"*



A CERTIFIED INTERVIEW WITH
GARZA A. WOOTON, PILOT, DALLAS, TEXAS

SEVENTEEN YEARS of flying... 5,500 hours...
taught Pilot Garza A. Wooton plenty about engine performance.

Plymouth's sweet-running engine sold him.

"That engine," he says, "has plenty of pep! And a flier can appreciate the vibrationless smoothness of patented Floating Power engine mountings.

"With those great hydraulic brakes and the Safety-Steel body, I always feel safe, driving."

Try out a 1936 Plymouth, yourself. Ask your Chrysler, Dodge or De Soto dealer about it.

PLYMOUTH DIVISION OF CHRYSLER CORP.

*Insist on the
Official Chrysler Motors
Commercial Credit Company*

6% TIME PAYMENT
PLAN

Available through all PLYMOUTH Dealers

You pay for credit accommodation only $\frac{1}{2}$ of 1% per month on your original unpaid balance. To arrive at your original unpaid balance: 1. Add cost of insurance to cost of car.* 2. Deduct down payment—cash or trade-in.

Result is *Original Unpaid Balance.*

*In some states a small legal documentary fee is required.

PAY \$25 A MONTH—INCLUDING EVERYTHING

\$510

**AND UP, LIST AT FACTORY, DETROIT
SPECIAL EQUIPMENT EXTRA**

PLYMOUTH BUILDS GREAT CARS



Discovery! Actually, Europe is 1248 miles nearer North America on this ocean crossing. But that's only half its attraction. The other half is those two unforgettable days, when you sail serenely down the broad reaches of the St. Lawrence Seaway, between the picturesque shores of France in the new world.

Sail from Québec in French-Canada to Cherbourg and Southampton on the *Em-*

press of Britain or *Empress of Australia* . . . from Montreal to Glasgow, Belfast, Liverpool, Southampton, and Havre on the reasonably-priced *Duchesses* or the low-cost *Mont* ships. Get "39% Less Ocean" booklet and fares from YOUR OWN TRAVEL AGENT or Canadian Pacific: New York, Boston, Buffalo, Chicago, Detroit, Philadelphia, St. Louis, San Francisco, Montreal, 32 other district offices in U.S. and Canada.

Canadian Pacific

... VIA ST. LAWRENCE SEAWAY



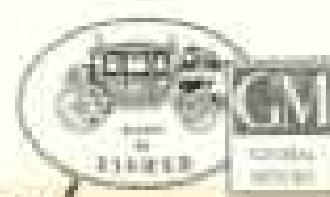


Safer—and More Beautiful!
Master of the highway is this sleekly stunning Buick, with safety to match power-thrill, style to grace deep comfort—and the one-piece solid steel "Turret Top" contributing to both. Buick's the buy for many reasons—and Body by Fisher with its solid steel "Turret Top" and Fisher No Draft Ventilation is one of them.

*Breezes are fun
 —but Drafts are Out!*

No lovely young lady with an interest in whirligigs is going to return from her ride with a case of draft-caught sniffles—as long as she rides in a Body by Fisher! Of fresh air she may have a plenty—always enough to keep the car free from smoke and stale, stuffy air. But of drafts that breed colds, chill ankles, cause general discomfort, there will be none. Fisher No Draft Ventilation shuts them out as completely as the solid steel "Turret Top" of Body by Fisher

shuts out the hazards of the highway. No matter what price you customarily pay for a car, choose a General Motors car and you will ride in safety and in smartness, in roomy interiors that cloak durability in good taste and beauty of finish. For all General Motors cars—and only these cars—have the solid steel "Turret Top" Body by Fisher.



fisher

THE MARK OF THE MODERN CAR

ONE-PIECE SOLID STEEL "TURRET TOP"

BODY BY

ON GENERAL MOTORS CARS ONLY: CHEVROLET • PONTIAC • OLDSMOBILE • BUICK LA SALLE • CADILLAC



A GENERAL MOTORS VALUE



MASTER DE LUXE SPORT SEDAN

Take a Ride

... across this page and then across town in the
NEW 1936 CHEVROLET

NO DRAFT VENTILATION

Take a ride in the new Chevrolet for 1936. Notice, first of all, the greater beauty, luxury and more healthful comfort of its *Turret Top Body with Fisher No Draft Ventilation*. It's the smarter, safer body and, of course, it's exclusive to Chevrolet in its price range.

KNEE-ACTION RIDE*

Give particular attention to the unmatched smoothness of the gliding *Knee-Action Ride**. The safest, steadiest, most comfortable ride ever developed. It's obtainable *only with Knee-Action*, and *Knee-Action* is also exclusive to the Master De Luxe Chevrolet in its field.

TURRET TOP

Next, examine the *Solid Steel one-piece Turret Top*. This top puts the safety of solid seamless steel over your head . . . stiffens and reinforces the entire body structure . . . beautifies and identifies the modern car . . . and it, too, is exclusive to Chevrolet in its field.

SHOCKPROOF STEERING*

Notice, too, how perfectly steady and vibrationless the steering wheel is at all times. How much simpler and easier it is to drive and park this car. That's due to *Shockproof Steering**, a direct result of *Knee-Action*, and another exclusive Chevrolet advantage.

HIGH-COMPRESSION ENGINE

Now start Chevrolet's *High-Compression Valve-in-Head Engine*. The most economical of all fine power plants. Notice how much quicker this new Chevrolet is on the getaway, how much livelier in traffic, how much smoother and more satisfying in all ways on the open road.

PERFECTED HYDRAULIC BRAKES

Now step on Chevrolet's *New Perfected Hydraulic Brakes*, as lightly or firmly as you please, and bring the car to a smooth, quick, even stop. You've never felt such super-safe brakes before, and won't today anywhere else, for they're exclusive to Chevrolet in its price range.

CHEVROLET MOTOR COMPANY, DETROIT, MICHIGAN

**Available in Master De Luxe models only. Knee-Action, \$20 additional.*


6%

NEW GREATLY REDUCED G.M.A.C. TIME PAYMENT PLAN

The lowest financing cost in G.M.A.C. history. Compare Chevrolet's low delivered prices.

ONE RIDE AND YOU'LL NEVER BE SATISFIED UNTIL YOU OWN

The only complete low-priced car



*Costs so little
to protect lives
worth so much*

LAST year unsafe tires and improperly adjusted brakes caused more than 50,000 accidents—casualties that could largely have been avoided. Why not equip your car with Firestone High Speed Tires and Sealtype Tubes and have your brakes relined with Firestone Aquapruf Brake Lining? You will have the safest driving equipment money can buy.

Performance records prove that Firestone High Speed Tires give greatest blowout protection, and tests by a leading university show they will stop your car 15% to 25% quicker. Why risk your life and the lives of others by driving on tires that slip and slide—that give little or no protection against blowouts—and with brakes that fail to hold? It costs so little to protect lives worth so much! Take no chances—call on your nearby Firestone Auto Supply and Service Store or Firestone Tire Dealer today.



Firestone

The MASTERPIECE OF TIRE CONSTRUCTION

Listen to the Voice of Firestone featuring Richard Crooks or Nelson Eddy—with Margaret Speech, Monday evenings over Nationality N. B. C.—WEAF Network



Scientific recording instrument attached to car shows Firestone High Speed Gum-Dipped Tires stop a car 15% to 25% quicker—the result of 2,350 separate tests made by a leading university.



This scientific instrument accurately measures the heat generated in tires at high sustained speeds, and proves that Firestone Tires, built with Gum-Dipped cords, run cooler—this means added strength, greater blowout protection and longer life.

For eight years, Firestone Gum-Dipped Tires have been on the winning car in the Pike's Peak Climb where a skid means death.

MR. BARCLAY: You got a sweet-running motor in this old bus.

MR. DIXBY: Yes sirree, that's 'cause she's always had oil that circulates the minute she starts!



A DURNED GOOD CAR.. IN SPITE OF HER FENDERS

Mr. Bixby is smarter than he looks. He has found out a most important fact about *any* automobile. Ordinarily, over 50% of all the wear on your motor *takes place on starting.*

In zero weather, *the first 5 minutes* wears out your car more than a 100-mile drive.

BUT HERE'S AN OIL THAT STARTS WITH THE STARTER

You can keep your car powerful, snappy, full of reserve stamina. You can prevent its rapidly growing old, despite added mileage.

Everything depends on how *fast* your oil starts circulating.

Even below zero, Havoline starts circulating instantly. Due to the new Furfural Refining Process, it has the ability to be fluid, to flow

freely at low temperatures, and *still* lubricate under hottest engine temperatures.

Change *your* crankcase oil to Havoline and save wear whenever your motor starts. Ask for it at any Texaco Dealer and other good dealers in all 48 states.



**DEPENDABLE DEALERS
CAN SERVE YOU**

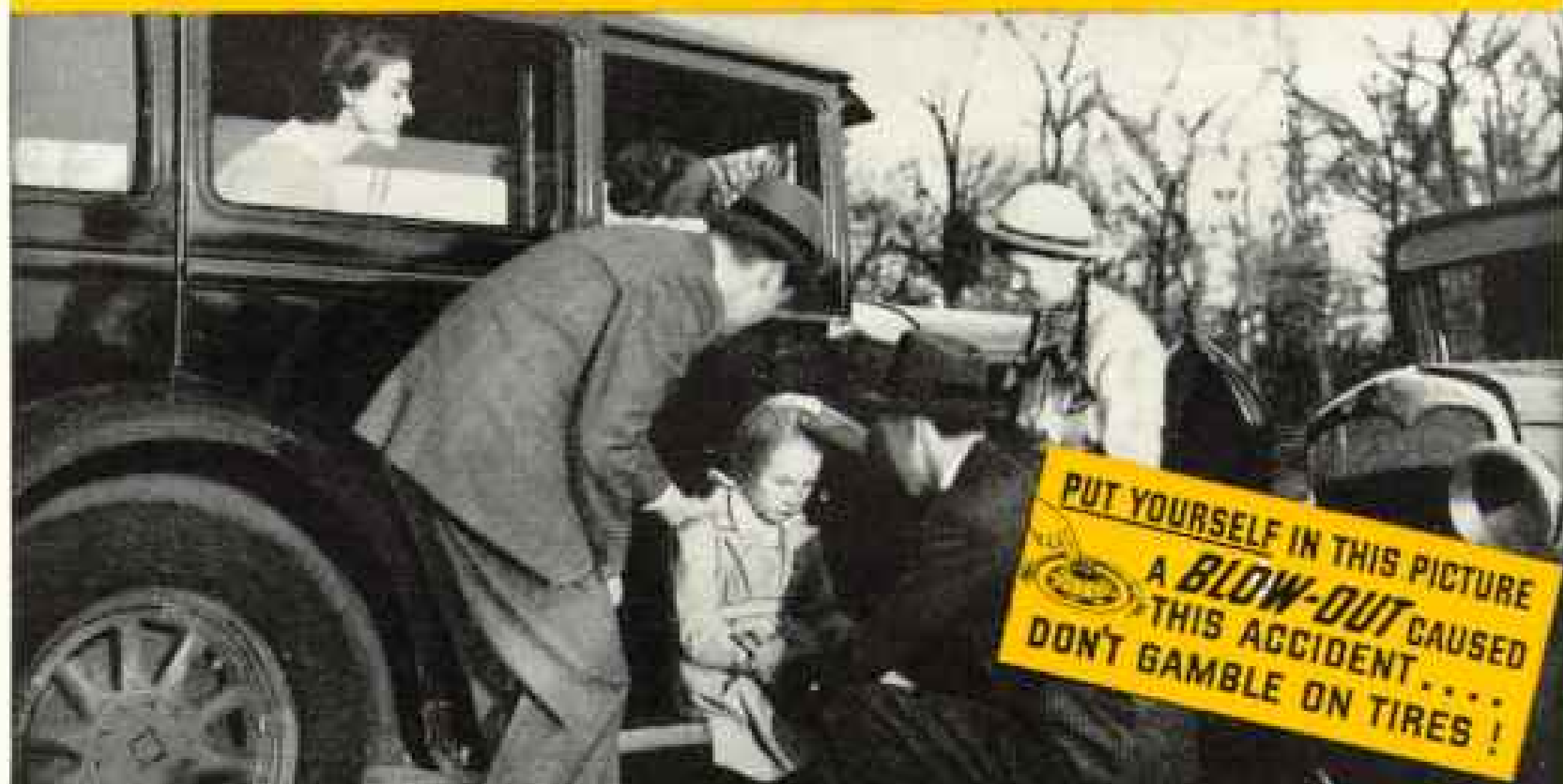


Next time you need oil that starts as fast as the engine . . . ask for HAYOLINE. Every can stamped with the correct S. A. E. Number.

**INDIAN REFINING
COMPANY, INDIANAPOLIS**

*Affiliated with
The Texas Company*

DON'T GAMBLE!



GOLDEN PLY BLOW-OUT PROTECTION FOUND ONLY IN SILVERTOWNS!

Onlooker: "That was a mean blow-out you had, Mister. Is your daughter all right?"

Father: "She'll be O.K.—but I'll never gamble on tires again."

* * *

It certainly doesn't pay to gamble on tires. Blow-out accidents are responsible for thousands of deaths or injuries every year. Do you realize that, unless you're protected, the chances are better than even you'll have a blow-out some day?

At speeds of 40 — 50 — 60 miles an hour, tires get blistering hot *inside*. Rubber and fabric pull apart. A blister forms and grows bigger until—sooner or later—BANG! A blow-out!

That's why Goodrich engi-

neers, thinking of your safety, invented the Golden Ply. This invention makes the new Goodrich Silvertown a real *life-saving* tire because it resists internal heat. It keeps rubber and fabric from separating. It keeps blisters from forming. Thus you're protected against treacherous high-speed blow-outs. Ride in comfort and without worry.

In addition to the Golden Ply, Silvertowns also have a "windshield-wiper action" tread that gives you maximum protection against dangerous "tail-spin" skids and months of extra mileage in the bargain. Yet they cost not a penny more than other standard tires. See your Goodrich dealer. Remember, it's better to be *safe* than sorry.



FREE! Join the Silvertown Safety League. Sign the Safe Driving Pledge and your Goodrich dealer will get for you absolutely free a tail-light emblem with red crystal reflector.




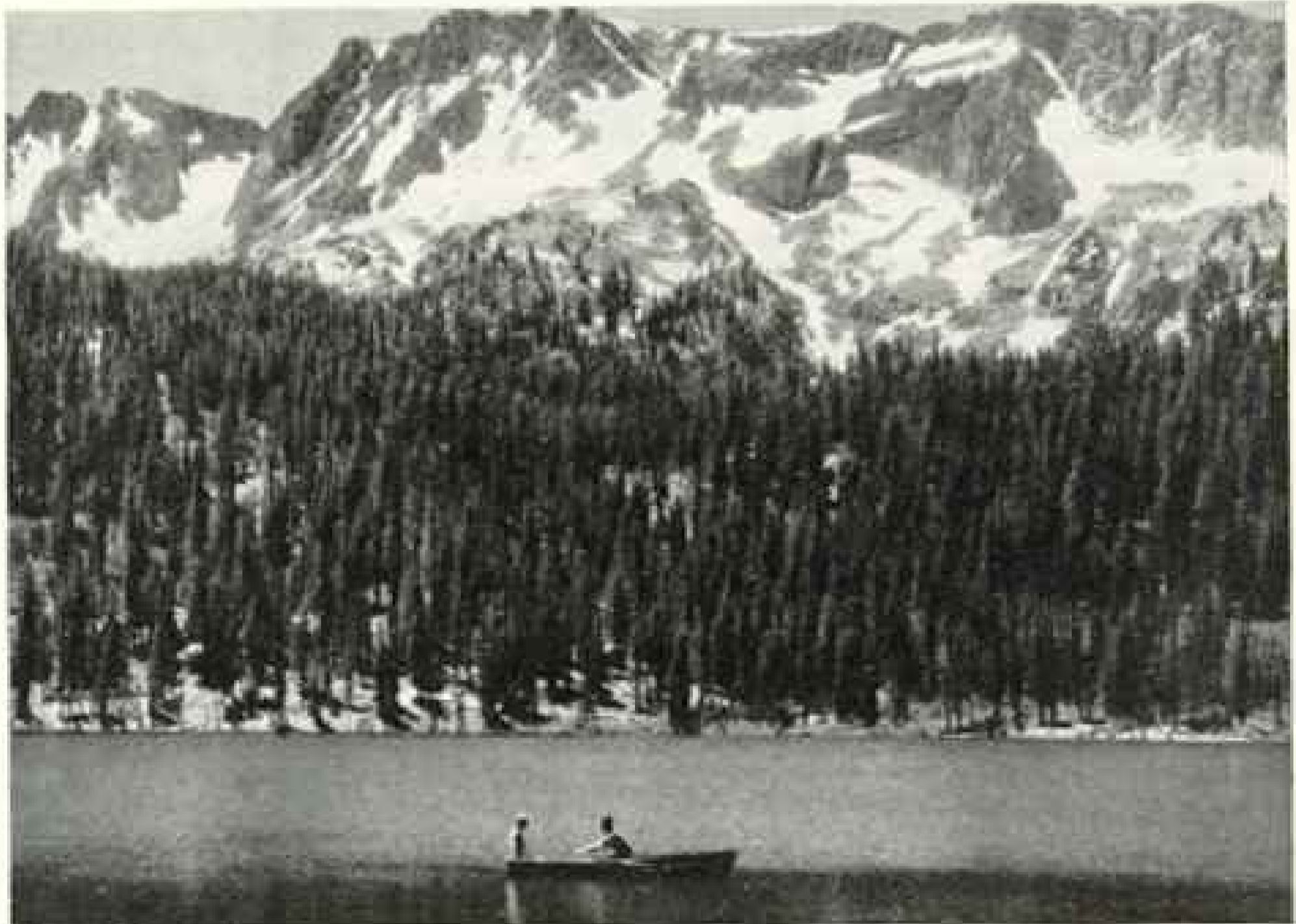
The *new* Goodrich **SAFETY** Silvertown

With Life-Saver Golden Ply Blow-Out Protection

World's easiest geography quiz

You won't miss a single answer if we can help it

- Questions** **1:** Where are Los Angeles, Hollywood, Pasadena, Long Beach, Pomona, Beverly Hills, Santa Monica, Glendale, other Los Angeles County cities? 
- 2:** Where do the movies find scenery typical of practically every part of the world, such as South Seas, Alps, Riviera, Black Forest, Africa?
- 3:** Where is the summer climate cool (69.4° average) and rainless?
- 4:** What playground is blessed with a unique combination of contrasting natural attractions that includes ocean, mountains, islands, desert, forests, lakes, streams, a glacier, the nation's highest and lowest points, and makes its living by equally fascinating enterprises like orange raising, oil production and movie-making?
- 5:** Where are costs 18% under U. S. average?
- 6:** What vacation land used to be remote but is now easily and quickly reached, even within a two-weeks vacation (being just overnight, even from New York, by plane; 3 days by train; 5 to 7 by auto or stage; 2 weeks via Panama)?
- 7:** What place has been under English, Spanish, Russian, Mexican, Argentine, Bear, U. S. flags?
- FREE: Don't Miss This One!**
- 8:** What playground will send you FREE by return mail (as a reward for reading this far) its official, 80-page vacation book, containing more than 100 photographs, maps, sightseeing itineraries, itemized costs of everything and the answers to all vacation questions?
- 9:** Where do you suppose we suggest as the place to have the time of your life this summer?
- ALL-YEAR CLUB OF SOUTHERN CALIFORNIA**
Come for a glorious vacation. Advise anyone not to come seeking employment, lest he be disappointed; for tourists, attractions are unlimited.



Answers

1. SOUTHERN CALIFORNIA
2. SOUTHERN CALIFORNIA
3. SOUTHERN CALIFORNIA
4. SOUTHERN CALIFORNIA
5. SOUTHERN CALIFORNIA
6. SOUTHERN CALIFORNIA
7. SOUTHERN CALIFORNIA
8. SOUTHERN CALIFORNIA
9. SOUTHERN CALIFORNIA

MAIL COUPON TODAY

All-Year Club of Southern California,
 Dept. 1-G, 429 So. Hill St., Los Angeles, Calif.

Send me free book with complete details (including costs) of a Southern California vacation. Also send free routing by auto, rail, plane, bus, steamship. Also send free booklets about counties checked:
 Los Angeles, Santa Barbara, Orange, Riverside, Kern, San Diego, Ventura, San Bernardino, Kern, Imperial.

Name _____

Street _____

City _____

State _____

★ WHEN BETTER AUTOMOBILES ARE BUILT BUICK WILL BUILD THEM ★



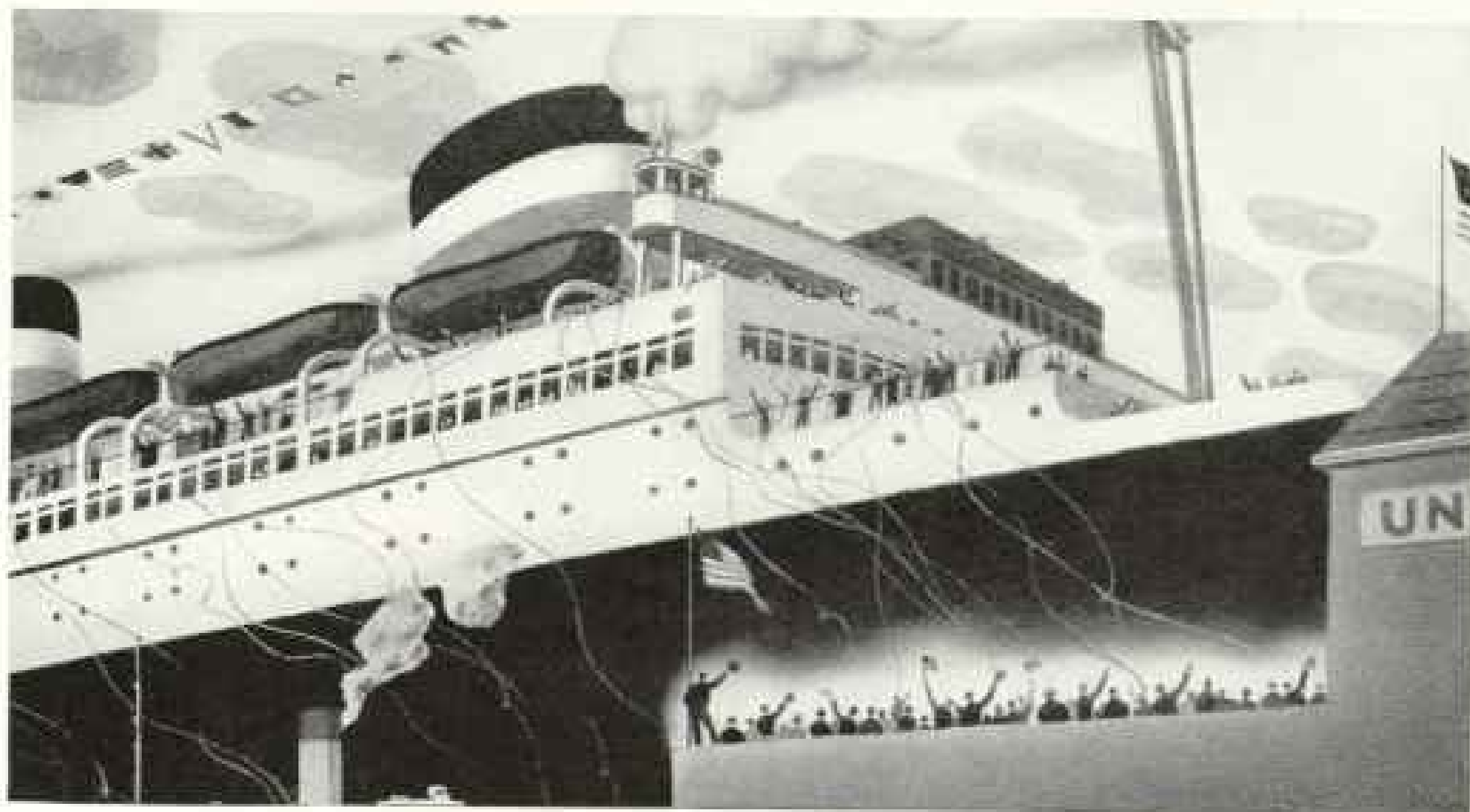
One of the finest things about our phenomenal new cars is the completeness with which they satisfy oldtime Buick owners, who tell us we have not only preserved every traditional Buick advantage, but have given these new cars even at their lower prices much in addition that the best of the old ones never had.

Buick 8

NO OTHER CAR IN THE WORLD HAS ALL THESE FEATURES: *Valve-in-Head Straight-Eight Engine . . . Anodized Fittings . . . Sealed Chassis . . . Luxurious "Turret Top" Body by Fisher with Fisher No Draft Ventilation . . . Tiptoe Hydraulic Brakes . . . Knee-Action Comfort and Safety . . . Torque-Tube Drive . . . Automatic Starting, Spark and Heat Control . . . Built-in Luggage Compartment . . . Front-End Ride Stabilizer*

\$765 to \$1945 are list prices of the new Buicks at Flint, Mich. Standard and special accessories groups at extra cost

America recognizes Value... makes
WASHINGTON and MANHATTAN
the popular ships to Europe!



NEARLY 100,000 passengers in their short period of service! That's the proud record of the brilliant American liners, *Washington* and *Manhattan*.

To create such a popularity record, these lovely American twins had to be more than "just ships." They had to offer experienced travelers *good reason* for using them.

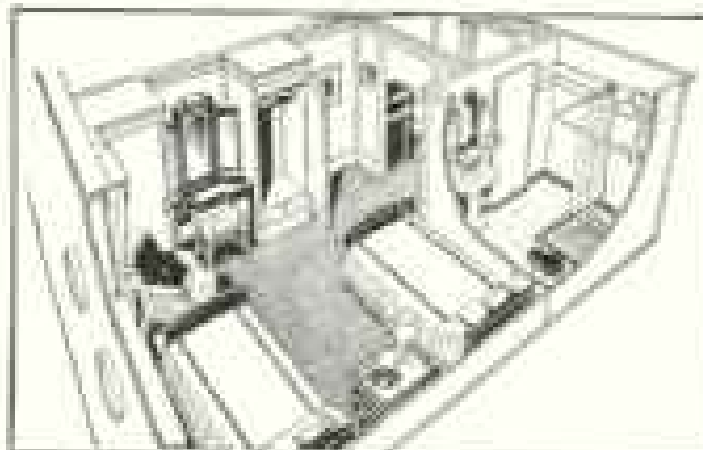
They did! And still do! The reason is *value*.

What do we mean by value? Just this: For only \$176 you have a large stateroom with shower in Cabin Class, which is the highest aboard. You sail in modern luxury on these splendid ships, enjoy all their up-to-the-minute facilities, in surroundings completely American.

The *Washington* and *Manhattan* offer these thrilling features for

your utmost comfort and pleasure: Giant cabins, all with real beds. In many rooms, private bath. In many others, private shower. Large closets. Immense decks for rest and play. Tiled swimming pool. Modern gymnasium. Hydro-therapeutic baths. Entertainment. The service Americans like. A cuisine that is unexcelled. And, they are among the few ships in transatlantic service with air-conditioned dining salons! Many more attractive features, too. In Tourist Class, where high standards of comfort and pleasure also prevail, you can sail for as little as \$113 one way. With the *Pres. Harding* and *Pres. Roosevelt*, the *Washington* and *Manhattan* offer weekly service to Ireland, England, France, Germany. Apply to your travel agent. His services are free.

Also "American One Class" liners, fortnightly to Colih and Liverpool... and "American One Class" ships of American Merchant Lines, weekly direct to London. Both \$100 one way... \$185 round trip.



\$176 with shower (Cabin Class) brings you a luxurious, over-size cabin, with real beds, tasteful furnishings; magnificent public rooms, entertainment, unexcelled food and service. (Tourist Class from \$113.) (Cabin Class on President ships from \$126.)

A sailing every Wednesday at noon

United States Lines

Associated with American Merchant, Baltimore Mail Lines to Europe; Panama Pacific Line to California; Panama Pacific and United States Lines cruises. No. 1 B'way and 601 Fifth Ave., N. Y. Other offices in all principal cities.



Painting by Rockwell Kent

Copyright 1936, Sherwin-Williams Co., Cleveland, O.

BEAUTY AND PROTECTION BY SHERWIN-WILLIAMS

From the use of paint—Sherwin-Williams paint—come pleasures few things can give. Every bit of your heart's desire for the color, freshness, and loveliness of a newly painted room is at your brush's bidding.

Your walls and woodwork become warm and friendly—almost animated—under the touch of colorful, easily applied S-W Flat-Tone. Should you wish a bright, quickly washable quality added to the color beauty, S-W Semi-Lustre awaits your commands. And chairs, tables, cabinets, kitchen, bathroom and breakfast room indispensables alluringly join the color magic parade when you repaint them with glistening S-W Enameloid.

Painting is fascinating . . . fascinating to watch and anticipate the final beauty on the big jobs where the painting

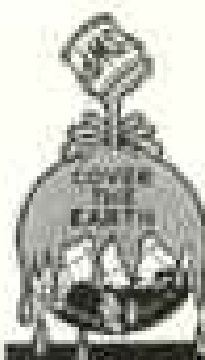
is done by a master painter . . . fascinating to feel the flow from the brush as you recreate a table or chair yourself.

And a paint can . . . with a Sherwin-Williams label around it . . . is an indispensable part of your home's beauty and protection. Be it famous old SWP, America's best known and most widely used house paint; be it the interior paints mentioned; or be it any other of Sherwin-Williams well known products—furniture polish, floor waxes and finishes, etc.—it is made to help you to beautifully identify your dearest possessions—to transform a house into a home.

"All you need to know about paint is Sherwin-Williams." Go to "paint headquarters" in your locality. There the Sherwin-Williams "cover the earth" emblem means help and service from a paint dealer able to aid and guide you.

You can have twelve to eighteen months to pay for repainting. Ask the Sherwin-Williams dealer in your locality about the S-W Budget Payment Plan. Write directly to Sherwin-Williams Co., Dept. L-3, Cleveland, O.

The new Sherwin-Williams Home Decorator, a source book of color and paint ideas can be had free of charge from the Sherwin-Williams dealer in your locality. Or write The Sherwin-Williams Co., Dept. L-3, Cleveland, O.



SHERWIN-WILLIAMS PAINTS



ALL YOU NEED TO KNOW ABOUT PAINT



Above: Painting the huge funnels of a Cunard White Star liner . . . with a red that simulates the "bright ochre and buttermilk" used by Cunard 96 years ago. Right: Gardener Davis of the Aquitania, fellow of the Royal Horticultural Society.



THE BRITISH TRADITION DISTIN

Shipshape

"Shipshape" is an English word, with no equivalent in any foreign tongue. It comes down from sailing days when the rigging of Britain's ships first sang in Atlantic winds. Even then it meant more to a seaman than orderliness and cleanliness. It meant soundness in every part . . . master mariners on the poop, and a crew alert to do their bidding . . . the honor of Britain on the seas!

Aboard Cunard White Star liners today, the word has become a casual symbol, a homely understatement of the British tradition. To the officers on the bridge it recalls the pride and prestige that have been won through centuries of sail and steam. But it is also familiar to those who serve you personally. It helps to explain why your steward or stewardess is so much more apt in divining your desires . . . why even the gardener can make flowers bloom so profusely, in foyers far from the soil of England. They only do a "shipshape" job, so they might say . . . but the implications of that word are vast and glorious.

Heir to the same traditions of ease and fine living . . . "shipshape", with all that word's connotations . . . the new super-liner "QUEEN MARY" will have special provisions for such small but gracious details as flowers. Her modern conservatory will supply shrubs and bouquets to embellish every vast vista of her 9 passenger decks.

The "QUEEN MARY" will make her maiden voyage from England May 27 . . . her first sailing from New York June 5.

TO FRANCE AND ENGLAND

FIRST CLASS

Next Sailings: *Aquitania* March 11 and 27 . . . *Berengaria* March 18 and April 3 . . . \$216 up.

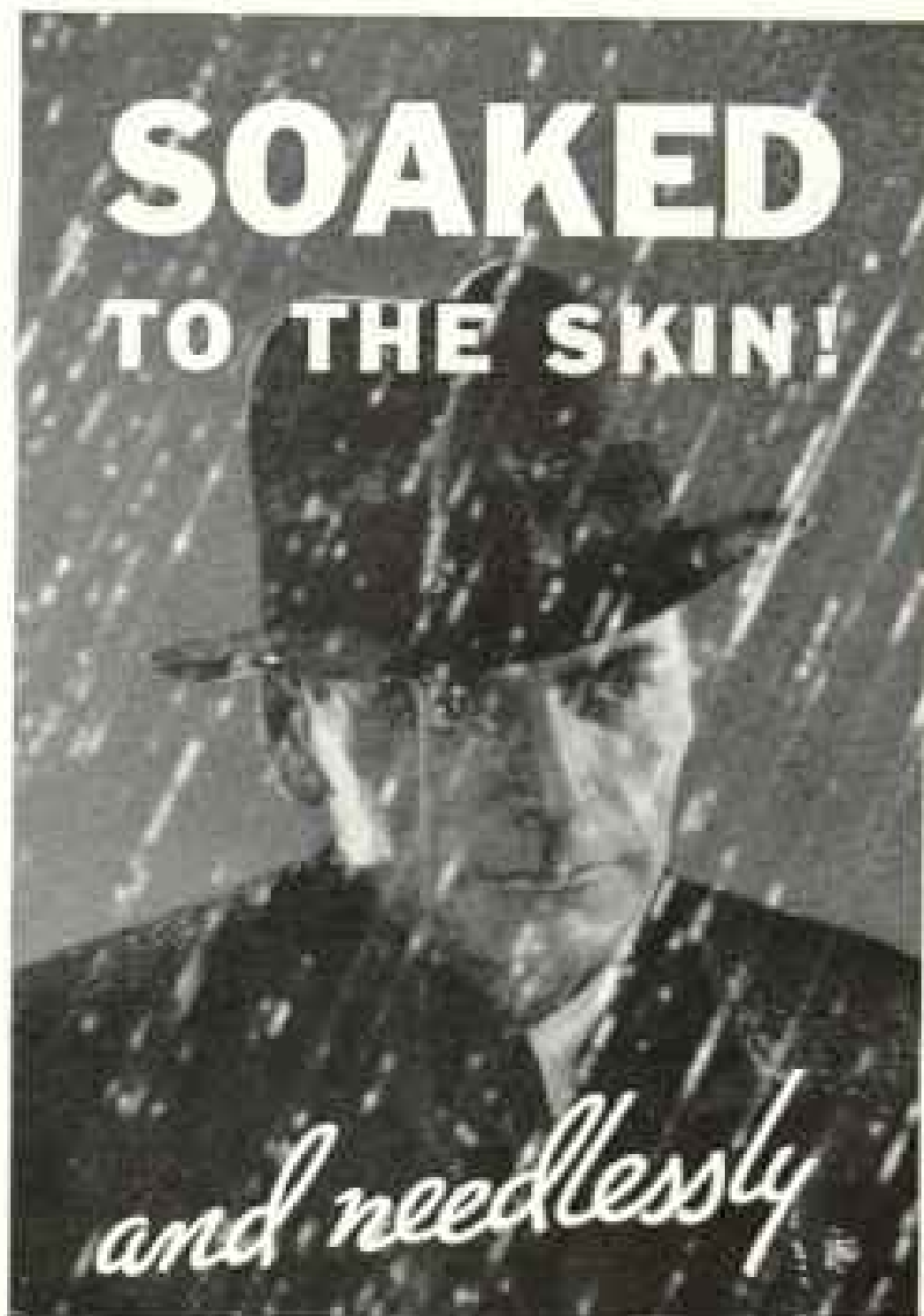
CABIN

Next Sailings: *Somaria* March 14 . . . *Arcania* March 19 . . . *Antonia* March 20 . . . \$126 up.

TOURIST CLASS in all ships, \$104 and up; *THIRD CLASS* from \$62.

Cunard White Star's famous Sunshine Cruises, 6 to 18 days, include 8 sailings in March and early April. Transatlantic passage or any cruise available on the Cunard White Star Deferred Payment Plan . . . an exclusive feature. Book through your local agent or Cunard White Star Line, 25 Broadway and 638 Fifth Ave., N. Y., and in other principal cities.

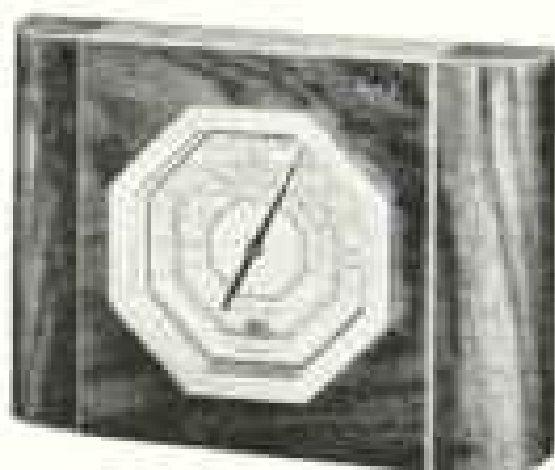
GUISHES CUNARD WHITE STAR



A STORMGUIDE PREDICTS THE WEATHER 24 HOURS IN ADVANCE

NO NEED to let rain, wind, or any kind of weather catch you off guard—if you own a Stormoguide. These scientific instruments predict the weather while it is still many hours away. Not is their uncanny knack of forecasting the weather an accident—built into every one is Taylor's 83 years' experience in making weather instruments used in official weather bureaus. Get a Stormoguide right now and *know*—don't guess—about tomorrow's weather. Prices, \$7.50 to \$60*. If your dealer cannot supply you, write direct to Taylor Instrument Companies, Rochester, N. Y. Plant also in Toronto, Canada.

Rights: "GROSVENOR" STORMGUIDE, mahogany, walnut or maple-and-walnut frame. Smart gold-plated dial, \$15.* Below: "FAIRFAX" STORMGUIDE, satin black case, chrome rod trimmings, grained aluminum dial, \$20*.



*Prices slightly higher west of the Rockies and in Canada.



Both these Stormoguides can be adjusted to 3500 ft. altitude, and both are equipped with an exclusive new Taylor automatic signal device which tells at a glance which way the weather is going.

Taylor

INSTRUMENTS

IN INDUSTRY, other types for indicating, recording and controlling temperature, pressure and humidity.

Help yourself

to our

Salad Bowl



SOMEWHERE on Southern Pacific's 16,000 miles of line, lettuce, tomatoes and other vegetables are always ripening. If we can't get them in California, we get them in Arizona, Mexico, or the southern states.

In December as well as in June, guests of our dining cars enjoy the famous Salad Bowl, and as many helpings as they wish. (The Casserole is another popular "Help yourself" dish.)

"Help yourself" typifies the western hospitality of the west's largest railroad. Next time you travel west, enjoy the luxury of Southern Pacific's air-conditioned trains and the delicious, inexpensive "Meals Select" served in all Southern Pacific dining cars.



Southern Pacific

For information and literature about a trip west, write O. P. Bartlett, Dept. NT-3, 310 South Michigan Blvd., Chicago.

"Mention the Geographic—It identifies you."

THE PROVINCES OF FRANCE

Normandie



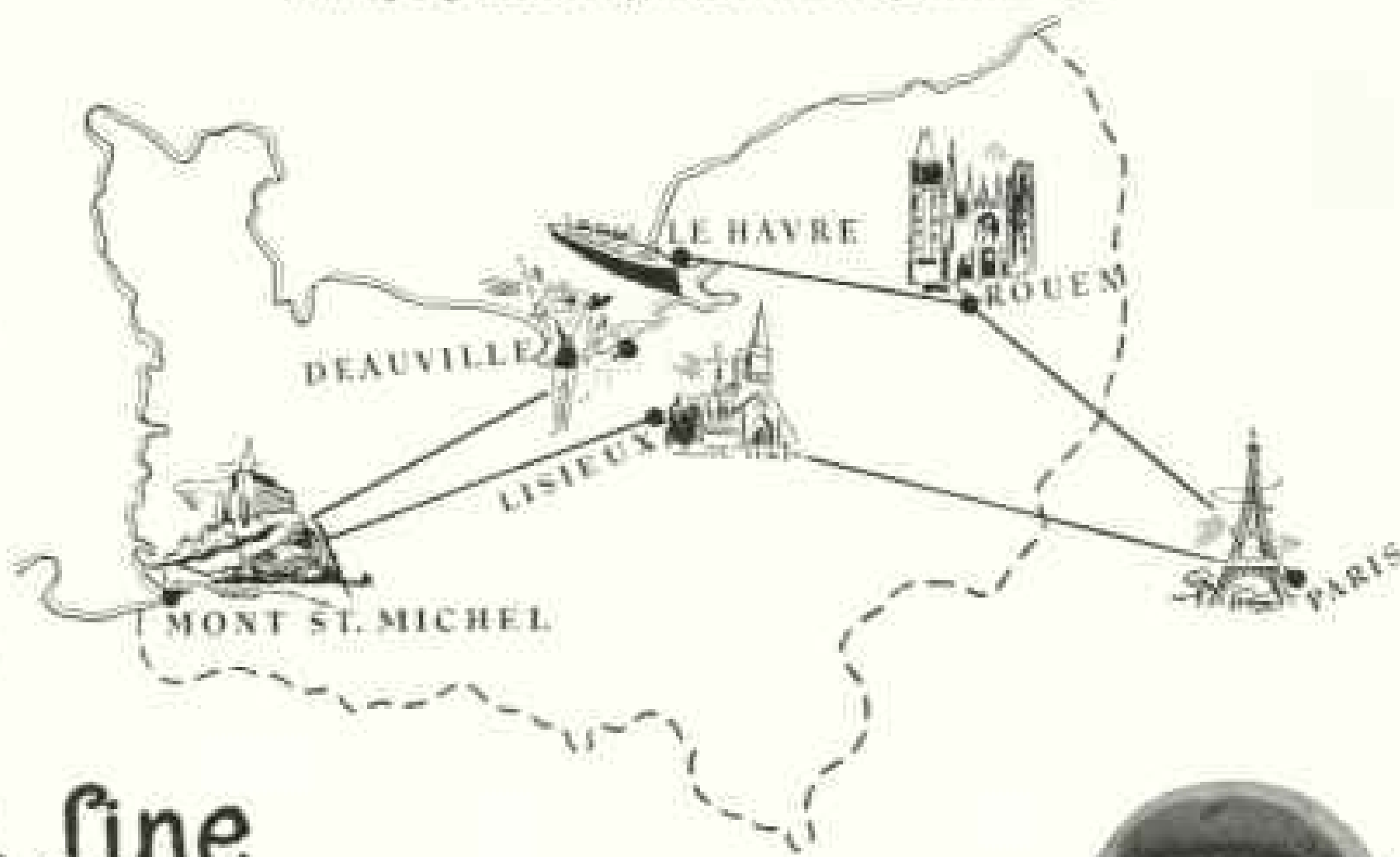
LOOK at the map below and see how easy it is to visit fascinating Normandy . . . if you travel via French Line to Le Havre . . . And it's not expensive, as your travel agent can show you!

A trip through the old province of Normandy is like turning the pages of a history of France . . . Rouen, rich with memories of the Plantagenets, of Joan of Arc, of Flaubert . . . Lisieux and Ste. Therese . . . Bayeux and the tapestry of the Norman conquest . . . everywhere the past comes to vivid life before your eyes.

The Norman school of cooking deserves your serious consideration also. Try a Filet de Sole à la Normande and a bottle of sparkling cider in one of the ancient inns you'll discover for yourself.

It's all very easy to do if you travel via French Line. You'll land in Le Havre . . . Rouen is on your way to Paris . . . only 40 minutes by train or an hour by car.

Let your TRAVEL AGENT make all the arrangements for you. His expert services cost you nothing.

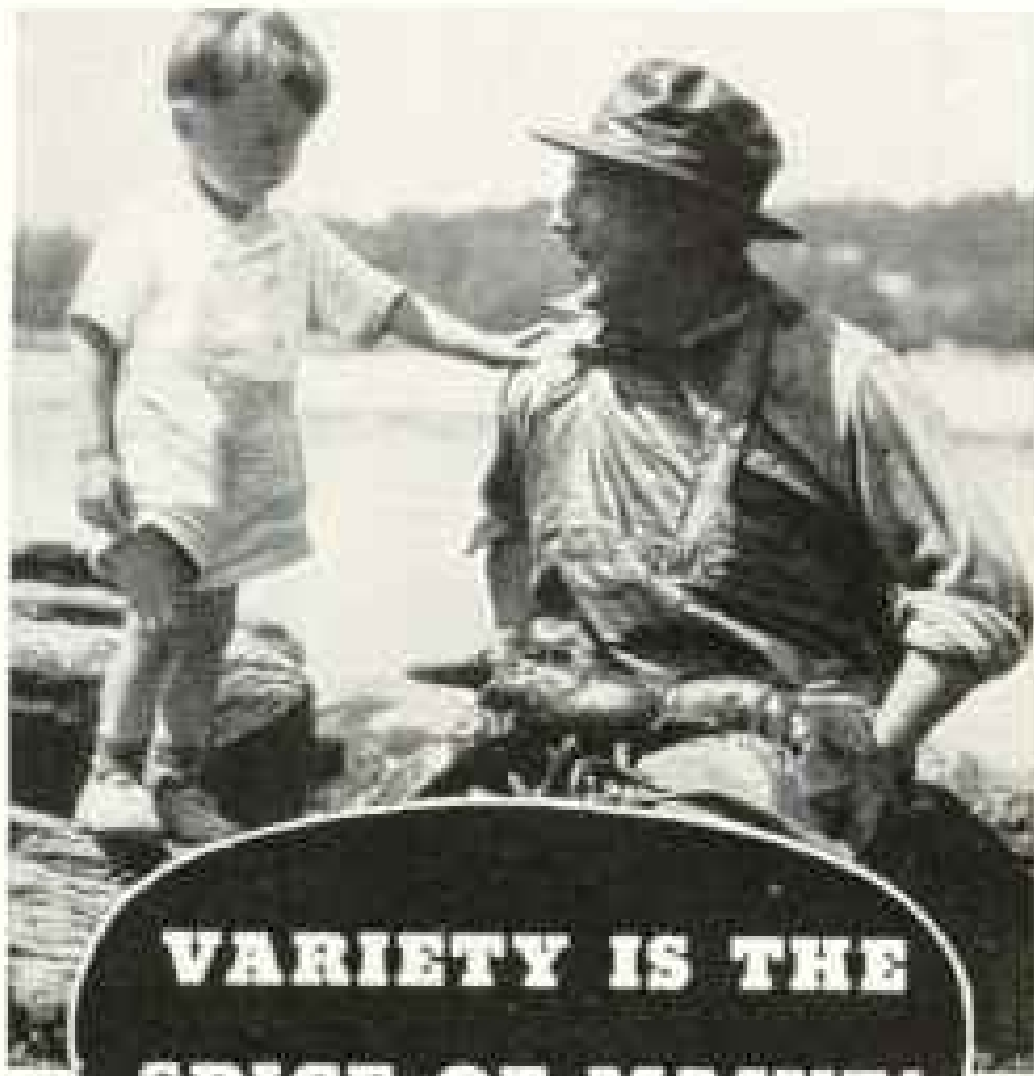


French Line

610 FIFTH AVE. (ROCKEFELLER CENTER), NEW YORK

TO ENGLAND AND FRANCE DIRECT AND THRU TO ALL EUROPE . *Normandie*, April 22 . *Ile de France*, April 4 . *Paris*, March 21 . *Champlain*, March 28 . *Lafayette*, April 18.





**VARIETY IS THE
SPICE OF MAINE!**

You can do almost *anything* and *everything* in Maine! In the morning, you can breathe the salty tang of sea-winds; fish, swim, and sail on Maine's coast . . . in the afternoon, you can be deep in the fragrant woods; sleep in the shadow of a mighty mountain, lulled by the soft *lap-lap* of a lake.

No matter what kind of vacation you want—you can have it in Maine this summer! Camp. Canoe. Motor. Hike. Ride. Play golf and tennis. 22,000 miles of good roads let you drive in quick comfort. Modestly priced, *state-inspected* stopping-places everywhere. Fine hotels and sporting-camps. Maine's famous native foods. Bracing climate . . . health, and new vigor. Mail the coupon today.



MAINE

HAVE THE TIME OF YOUR LIFE IN MAINE!

MAINE HOSPITALITY SERVICE

11 Longfellow Square, Portland, Maine

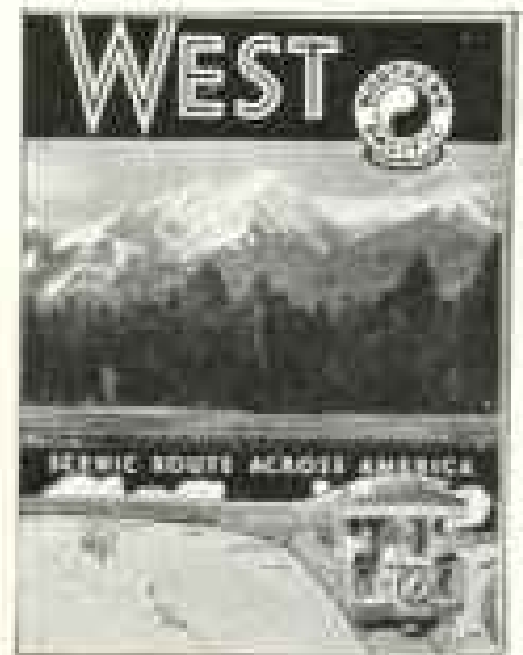
Send the new, free 1936 Official Vacation Pamphlet—showing Maine fully photographed; describing every possible Maine vacation.

Name _____

Street _____

City _____ State _____

FOR YOUR SUMMER'S
Vacation!



This
Picture
Album
Free!

Go in

Air-Conditioned Comfort

THE fascinating Northern Pacific Country between Chicago and the Pacific Coast—is graphically described in a new picture album, "WEST," which is yours for the asking.

If you are interested in a train trip to Yellowstone Park, Rocky Mountain Dude Ranches, Rainier Park, North Pacific Coast, California or Alaska, send for the "WEST" album now and start planning for summer. Northern Pacific's summer excursion fares are very low and travel is a delightful experience on the

Air-Conditioned, Roller-Bearing
**NORTH COAST
LIMITED**

WESTERNERS—

May we help you plan a trip east? Send for literature.



Write a letter or card, or mail the coupon to

E. E. NELSON
213 Northern Pacific Railway, St. Paul, Minn.

I am interested in a train trip to

Escorted All-Expense Tour Individual Trip

Name _____

Address _____

NORTHERN PACIFIC RY.

TRAVEL THE SCOTCH* WAY



Pipers • scones • haggis • the Cotter's Saturday Night • a wee doch-an-dorris • for eight glorious days at sea!

ONE STEP and you're in Bonnie Scotland — when you step aboard an Anchor liner. You're piped up the gangplank by veterans of the Royal Seaforth Highlanders. And from then on you're in the land of Annie Laurie . . . Auld Lang Syne . . . A Wee Doch-an-Dorris.

You'll like the crisp Scotch scones and Dundee marmalade at tea. You'll adore the ancient rite of piping in the haggis at dinner.

You'll find Scotch Deck Golf the most fun of all deck sports. There's deck tennis, dancing, talking pictures, a fine gymnasium. And eight days' crossing gives you the relaxation of a *real ocean voyage*.

You'll feel at home, too, with the accommodating stewards and stewardesses who *think and talk* your language. You'll feel real confidence in the veteran Scotch engineers . . . in the keen-eyed Caledonian on the bridge.

But most of all you'll enjoy your fellow passengers. Jolly people of your own race and sort . . . bright-eyed Londonderry colleens . . . good-natured Scotch and Scotch-Irish, the world's best story tellers . . . and travel-wise Americans who know that the best way to see Europe is to start from the top of the map down.

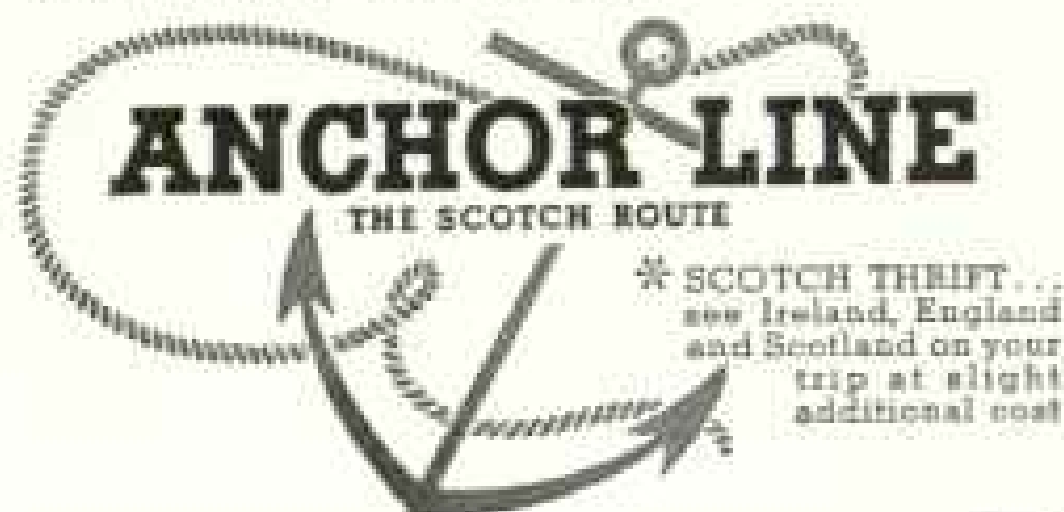
And that's something worth remembering. For on the Anchor Line you see beautiful

Ireland and land at Glasgow, gateway to the heart of the romantic Highlands — just eight hours by train, through the historic English Midlands, to London. You have a choice of two routes . . . traveling on ships which stop at **Londonderry** and **Belfast** or on those which go by way of **Dublin**.

Write for the Anchor Line Booklet "Travel the Scotch Way."

First class round trip fare starts at \$280, Cabin class \$265, Tourist class \$198, Third class \$146.50.

ANCHOR LINE: main office, 89 Broad Street, New York City, other offices in Boston, Philadelphia, Chicago, New Orleans, Montreal, Toronto, Winnipeg, Vancouver, Seattle, Portland, San Francisco and Los Angeles. Or see your authorized travel agent.



TO ALL EUROPE VIA IRELAND AND SCOTLAND

*Excuse me, I'm
HARD OF HEARING*



*Rather, I was
hard of hearing*



*before I was properly fitted
with a Western Electric
Hearing Aid*

Western Electric sound-experts have shown clearly that the same type of hearing aid is not equally helpful to all hard of hearing cases.

Western Electric makes Audiphones, designed by Bell Telephone Laboratories, in both air and bone conduction types. These can be fitted scientifically to compensate for various degrees of hearing loss and various kinds of deafness.

For more information and name of nearest Audiometrist, send the coupon.

Distributors in Canada: Northern Electric Co., Ltd.

Western Electric
• HEARING AID •

Consult telephone directory for address of Graybar branch in your city, or mail coupon to Graybar Electric Co., Graybar Building, New York, N. Y., for details on Western Electric Audiphones and name of nearest Audiometrist. N 22

Name.....

Address.....

City..... State.....

Let your mind paint in the colors of this outline picture! Out through San Francisco's Golden Gate a world-famed President Liner steams into the sunset. Ahead lie rare Hawaii... Japan, China and the Philippines... Malaya, India... Egypt, Italy and France. And you can be aboard, playing on the ample decks... sleeping in an airy, outside stateroom... dining on the best the world affords, for no more than it costs to stay right here at home!

Round the World
\$854
First Class



Shanghai—where your U. S. Dollar is worth three times as much

Any Travel Agent will be glad to give you all the details... show you the schedule of the President Liners' fortnightly sailings from New York, Los Angeles and San Francisco via the Sunshine Route to 21 ports in 14 different countries Round the World. He will explain how you may stopover anywhere you choose, make sidetrips, continue on the next or another of these world's only regular world cruising ships... take 104 days to two full years. See your agent now. Or write us at 604 Fifth Ave., New York, 110 So. Dearborn St., Chicago, or 311 California St., San Francisco. Offices in other principal cities.

DOLLAR
Steamship Lines

NEW YORK-CALIFORNIA • ORIENT • ROUND THE WORLD



AGES ago down in Southern Utah, Mother Nature set out to produce a vacation paradise that would be a veritable wonderland.

Slowly, tirelessly she toiled. Long years she kept her masterpiece hidden and inaccessible.

Today, however, the glorious regions of Bryce Canyon-Grand Canyon-Zion National Parks are easily reached, and can be visited on one delightful, low-cost tour.

Or via Union Pacific they can be seen in connection with a trip to California, Colorado, Yellowstone or the Pacific Northwest.

It's a vacation that has thrilled thousands

Union Pacific's splendidly equipped, air-conditioned trains make it easy to go. Rail fares are lowest ever. Coupon brings full information.

Let's go this Summer!

MAIL COUPON FOR TRAVEL INFORMATION

W. S. Baunger, Passenger Traffic Manager
Room 298, Union Pacific Railroad
Omaha, Neb.

Please send me information and descriptive literature about:

- | | |
|--|--|
| <input type="checkbox"/> Colorado | <input type="checkbox"/> Dude Ranches |
| <input type="checkbox"/> Yellowstone | <input type="checkbox"/> Boulder Dam |
| <input type="checkbox"/> California | <input type="checkbox"/> Pacific Northwest |
| <input type="checkbox"/> Zion-Bryce-Grand Canyon Nat'l Parks | <input type="checkbox"/> Alaska |

Name

Street

City State

UNION PACIFIC RAILROAD



The National Geographic Directory of Colleges, Schools and Camps



Colleges FOR WOMEN

BEAVER COLLEGE STANDARD 4-year college. Liberal arts, science. Vocational courses: Kindergarten, music, fine arts, home economics, health education, secretarialship. Teachers' certificate. Suburb of Phila. Moderate rates. Catalog: **W. B. Greenway, D.D., LL.D., Pres., Box N, Jenkintown, Pa.**

MARY BALDWIN COLLEGE For Women. Background of culture and scholarship. Accredited; endowed. A.B. degree. Music, Art, Dramatics, Secretarial. Educationally efficient, socially selective, spiritually sincere. Riding, sports. Catalog: **L. Wilson Jarman, Pres., Box J, Staunton, Va.**

Girls' Schools

THE ANNA HEAD SCHOOL Est. 1867. Accredited College-preparatory and Lower School. Swimming, Hockey, Riding, Tennis, the year round. Comfortable home and garden in college town. Address **Mary E. Wilson, M.L., Principal, 2540 Channing Way, Berkeley, Calif.**

ARLINGTON HALL JUNIOR COLLEGE and 4-year high school. Strong Academic work. Excellent music and other departments. Virginia hills 15 minutes from White House. Modern buildings. 190-acre wooded campus. All sports. **Carrie Sutherland, M.A., Pres., Ben. Franklin Sta., Box N, Washington, D. C.**

LASELL JUNIOR COLLEGE Ten miles from Boston. Two-year courses for High School graduates. Academic, Secretarial, Home Economics, Music, Art. College Preparatory. Separate Junior School. Catalog: **Gay M. Winslow, Ph.D., 123 Woodland Road, Auburn Falls, Mass.**

NATIONAL PARK SEMINARY Strickman in Washington. Junior college and preparatory school. Distinguished patronage. All sports. Terminal courses and preparation for advanced standing in universities. Catalog: **James E. Ament, Ph.D., LL.D., Box 938, Forest Glen, Md.**

WARRENTON COUNTRY SCHOOL NEAR Wash-ington. College preparatory, cultural courses. French the language of the home. Teaches girls how to study, brings them nearer nature, inculcates ideas of order and economy. **Mrs. Lea M. Bauligny, Box N, Warrenton, Va.**

Boys' Camps

CULVER SUMMER SCHOOLS On Lake Maxinkuckee. Naval-Cavalry—Boys 12-17 yrs. Woodcraft—Boys 8-14 yrs. 4 weeks Culver Training. Educational Recreation. Complete facilities. All sports. Academic tutoring if desired. Moderate cost. Catalog: **311 Lake Shore Way, Culver, Ind.**

"Mention the Geographic—"

Boys' Schools

AUGUSTA MILITARY ACADEMY COLLEGE preparatory. Modern gym and pool. All sports, including riding. 400-acre. Graduates in 42 colleges. 7th year. Reasonable rates. For catalog address **Box 14, Col. T. J. Roller or Maj. C. S. Roller, Jr., Fort Defiance, Va.**

BLAIR ACADEMY EXCELLENT preparation for college. Small classes. Wide choice of sports and student activities. Golf course. Swimming pool. Careful health supervision. 60 miles from New York. Address **Charles H. Breed, Headmaster, Box 17, Blairstown, N. J.**

CRANBROOK SCHOOL Distinguished endowed boys' school, grades 7-12. Graduates in 40 colleges. Original opportunities in arts, science, athletics, hobbies. Creative talent cultivated. For catalog write Registrar, **2400 Loss Pine Road, Bloomfield Hills, Mich.**

CULVER MILITARY ACADEMY. On Lake Maxinkuckee. Educates the whole boy. Studies his understanding. Discovers interests and aptitudes. Develops initiative and poise. 40 graduates in 25 colleges. Moderate cost. Catalog: **311 Pershing Way, Culver, Indiana.**

GEORGE SCHOOL QUAKER. Estab-lished 1895. Fully Accredited College Preparation. Cultural Courses. 27-Acre Campus. Endowment. Boys and Girls in the Same School under conditions that merit the Approval of the Most Careful, Discriminating Parent. **G. A. Walton, A.M., Box 265, George School, Pa.**

GREENBRIER MILITARY SCHOOL TRAINING for Leadership, 12th Year. Accredited High School. Lower School, and Postgraduates. Near White Sulphur. Altitude 2900 feet. New "How to Study" plan. **Col. H. B. Moore, Box N, Lewisburg, W. Va.**

MOSES BROWN SCHOOL Hope and inspiration for each boy, a century-old tradition. Excellent college record. Scenic 25-acre campus. All athletics. Pool. Lower School. Endowed. Moderate tuition. **L. Ralston Thomas, Headmaster, 279 Hope St., Providence, R. I.**

NEW YORK MILITARY ACADEMY WRITE FOR free copy of significant booklet—"Why a Military School?" A valuable aid to any parent in choosing a school for his son. Address: **Dept. A, Cornwall-on-Hudson, New York.**

OHIO MILITARY INSTITUTE 10000 YEAR. Certificate admit to College. Lower School for younger boys. High, beautiful location. Catalog: **Col. A. M. Henshaw, Box N, College Hill, Cincinnati, O.**

ST. JOHN'S MILITARY ACADEMY EFFECTIVE preparation for college. Faculty of 75 specialists. Thorough scholastic and military training. 10 buildings on 100 acres. Gym. All sports, swimming, skating, riding, golf, rowing. 1800 ft. Catalog: **1336 DeKoven Hall, Delafield, Wis.**

SAN DIEGO ARMY AND NAVY ACADEMY "WATER POWER of the West." International patronage. Exceptional faculty. Fully accredited. Unrivaled recreational facilities and climate. Boys 5 to 20. Catalog: **Box 7, Pacific Beach, California.**

Boys' Schools CONTINUED

STAUNTON MILITARY ACADEMY ONE of America's distinguished military schools. Prepares boys (10-18) for all colleges, universities, Annapolis, West Point. Able faculty, excellent equipment. Separate Junior School. **Supt., Box D-2, Kettle Station, Staunton, Va.**

WESTMINSTER SCHOOL PREPARATORY to the leading eastern universities. Fully accredited. Numbers limited, permitting flexible forms and small classes. Junior School, Swimming pool and ample recreational facilities. Half-way between Boston and New York, near Hartford. Established 1888. Un denominational. Incorporated under trustees. For catalogue and information address **The Principal, Westminster School, Box 20, Simsbury, Conn.**

Vocational

ALVIENE SCHOOL OF THE THEATRE ONE YEAR. Graduates—Fred Astaire, Lee Tracy, Una Merkel, Peggy Shannon, Rita Adam, etc. Stage, Screen, Radio. Stock Theatre training. Appearances, N. Y. Debuts. Write **Sec'y Landl for Catalog 1, 68 West 85th St., New York.**

AMERICAN ACADEMY OF DRAMATIC ARTS FOUNDED 1884 by Franklin H. Sargent. The foremost institution for Dramatic Training. Spring Term opens April 1st. Catalog from **Secretary, Room 271-C, Carnegie Hall, N. Y.**

Miss CONKLIN'S SECRETARIAL SCHOOL FOUNDED 1898. Secretarial and Executive Training. Students from leading Colleges and Schools. Midtown Location. Entrance at any time. Individual Advancement. Request booklet. **105 West 40th St., New York.**

KATHARINE GIBBS SCHOOL SECRETARIAL, Executive, Academic. One and Two year courses for Preparatory and High School graduates. Special courses for college women. Catalog: **Asst. Dean, 230 Park Ave., New York; 90 Marlboro St., Boston; 155 Angell St., Providence.**

GRAND CENTRAL SCHOOL OF ART INDUSTRIAL talent developed by successful modern artists. Drawing, Printing, Sculpture, Illustration, Advertising, Applied Arts, and Interior Decoration. Catalog: **7010 Grand Central Terminal, New York City.**

NATIONAL COLLEGE OF EDUCATION ONE YEAR. Young women educated for teaching in Nursery School, Kindergarten and Elementary Grades. Dormitory. Athletics. Intensive summer sessions. Write **Edna Dean Baker, Box 62-C, Evanston, Ill.**

It identifies you."

MORE TRAVEL COMFORT
LESS COST
to
ENGLAND·FRANCE·GERMANY



You get more solid travel comfort for every travel dollar on fine American One Class liners. Staterooms all outside on upper decks, all with deep-sprung beds, hot and cold running water, 60% with private baths. Spacious public rooms, more deck space. Fine food, spotless cleanliness.

Weekly Sailings to and from Europe

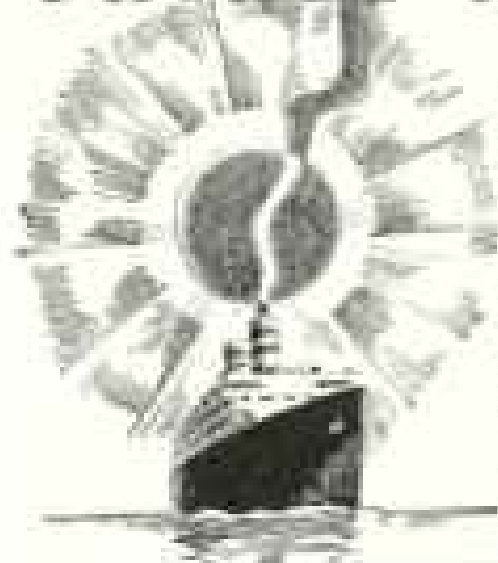
Weekly sailing to Hamburg — to London or Havre alternate weeks
 alternate. Returning via Harwich or Southampton. See your travel
 agent, or United States Lines office or write Passenger Agent, Baltimore.

MINIMUM \$
***100**
 PER WEEK
***185**
 PER CABIN

BALTIMORE MAIL LINE



See the Sun that SHINES ALL NIGHT



A voyage of thrilling exploration among the wonders of the Far North. Extra features—Scotland & Holland. Rates \$495 up. For full details see your local travel agent.

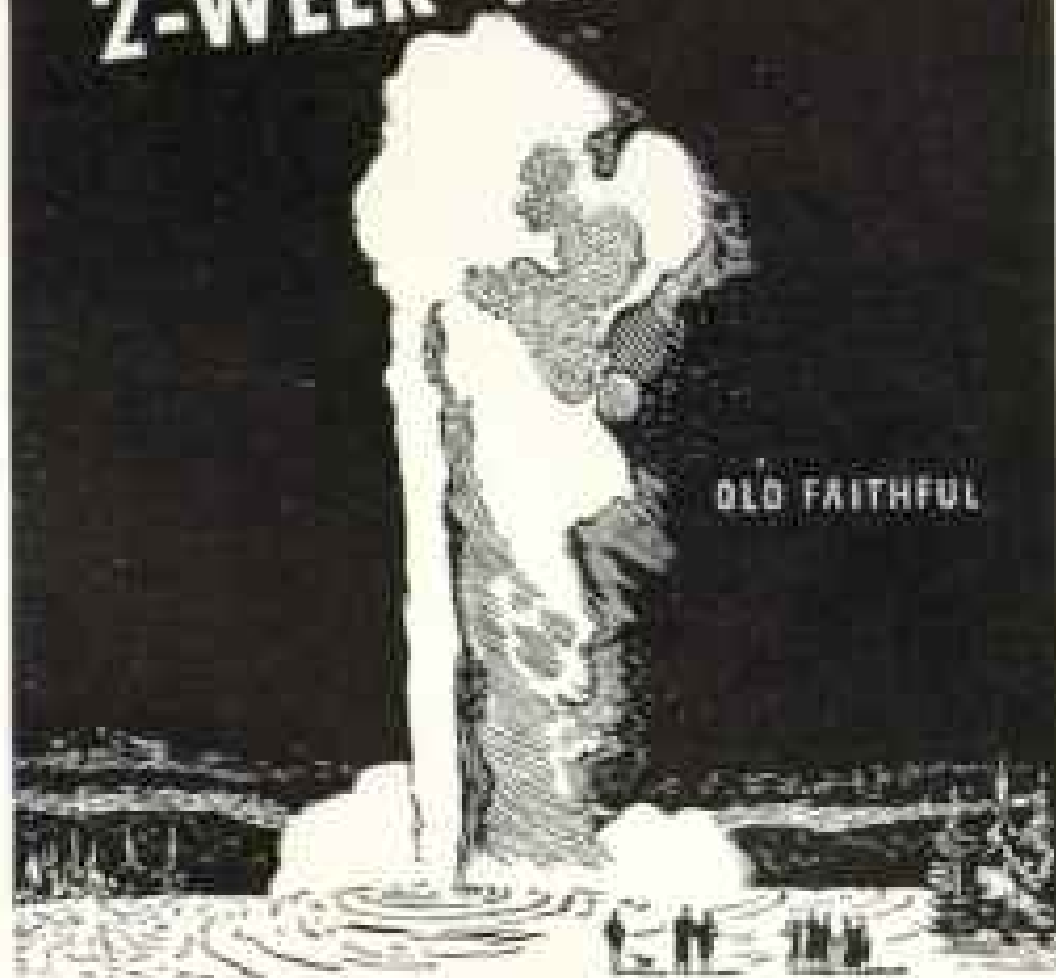
Luxury Cruise to

NORTH CAPE & RUSSIA
45 DAYS + sails JUNE 29

S.S. Rotterdam

HOLLAND-AMERICA LINE,
29 Broadway, New York City

14 DAYS IN YELLOWSTONE ON A 2-WEEK VACATION!



UNITED AIR LINES offers fine, fast service also to Yosemite, Rainier, Zion, Bryce — and equally fast flights to scenic Colorado and California

● No other airline offers such fast service to so many National Parks and scenic wonders as United. Overnight and scenic daylight flights from both Atlantic and Pacific Coasts to Rocky Mountain (via Denver), Yosemite (via San Francisco), Zion and Bryce Canyon (via Salt Lake), Rainier (via Seattle or Tacoma). Fly to Southern California's famed playgrounds.

Enjoy United's comfortable 3-mile-a-minute planes and many niceties of service: stewardesses, complimentary meals, unexcelled station facilities. 95 million miles of experience. Economical fares. Six circle tours including all Pacific Coast cities.

● To learn what you can do with a **ONE WEEK** or a **TWO WEEK** vacation by flying United, see your travel agent, or mail the coupon now!

UNITED AIR LINES



221 N. LaSalle St., Chicago, Illinois

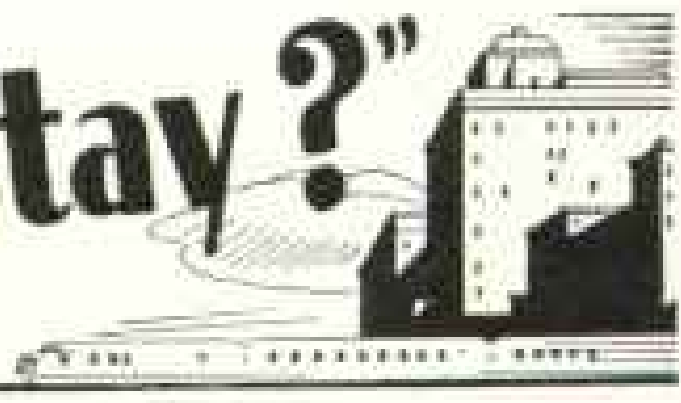
Please give me details on United's service to the National Parks and California.

Name _____

Address _____



"Where shall we stay?"



NATIONAL GEOGRAPHIC MAGAZINE'S HOTEL SECTION

ARKANSAS

Hot Springs National Park

Arlington Hotel & Baths. Arthritis, rheumatism benefits. Waters proved and recommended by U. S. Govt. Golf . . . Races. Write for folder.

CALIFORNIA

Berkeley

Hotel Claremont. Transient, Residential, 34 room garden, 15 min. from Oakland, 40 min. from San Francisco. Quiet, restful, homelike. \$2 and \$2.50 per day.

Los Angeles

The Ambassador. Twenty-two acre playground in heart of City. All Sports, Punge, Beach, Lido, Coconut Grove for Dancing. European, \$2.00 up.

Palm Springs

Desert Inn. Luxurious hotel and bungalow accommodations. All sports. Season, October 1 to June 1. American Plan, \$9 up. Write for folder.

Santa Barbara

Santa Barbara Biltmore. Famous seashore resort hotel, 20 acre park. All sports. American Plan. Write for folder. Charles D. Willett, Mgr.

San Francisco

St. Francis. On Union Square, 1,000 rooms with bath from \$3.00. Famous Cabine. Dancing nightly in the Mural Room. James H. McCabe, Manager.

Yosemite National Park



The Ahwahnee and Camp Curry

Yosemite, the highlight of any trip to California, is overnight from San Francisco or Los Angeles. Accommodations at THE AHWAHNEE, one of the world's most distinctive resort hotels, or CAMP CURRY, Yosemite's hospitably outer since 1899. Write for 1939 folder and rates; Dr. Don Treadder, Yosemite National Park, California.

DISTRICT OF COLUMBIA

Washington

Hay-Adams House. Across from the White House at 16th and H. The best in accommodations and smart surroundings. European, \$1.90 up.

Hotel Martinique. 16th Street at M. Directly across from National Geographic Society. New and Modern. Every room with bath. European. From \$1.

The Raleigh Hotel. Across Penn. Ave. from new Govt. Bldg. Dining rooms air conditioned. Rooms with tub and shower, \$2-\$2 one, \$4.50-\$5 two, R. P.

FLORIDA

Atlantic Beach

Atlantic Beach Hotel. Year round resort, 30 minutes from Jacksonville. American Plan. Golf, fishing, hunting, bathing. Write for folder.

Miami

The Columbus. "Miami's finest buy front hotel." Overlooking park and bay. Roof dining room accommodates 100. European plan.

Miami Beach

Fleetwood. DeWitt Operated. On Biscayne Bay. European plan. Coffee Shop with excellent food. Ample parking space and pier, free taxi to beach.

Florida (continued)

Mt. Dora

Lakeside Inn. White lakes and hills of sunny central Florida. Ideal conservative atmosphere. American Plan from \$1.00. Golf, Swimming, Fishing.

Palm Beach

Whitcomb. Palm Beach, Fla. Directly on Lake Worth. Amer. and Eur. Plan—Reasonable Rates. Director Martin Swency, Edward C. Swency, Mgr.

Punta Gorda

Hotel Charlotte Harbor. Facing beautiful harbor, beach and outdoor pool. Private 18-hole golf course. Am. Plan, W. F. G. 200 rooms. Floyd Alford, Mgr.

St. Petersburg

The Huntington. A resort hotel of merit in beautiful and exclusive surroundings. Close to all activities. American Plan. Booklet. Paul Barnes, Mgr.

GEORGIA

Augusta

Sea Air. DeWitt Operated. America's most exclusive resort hotel. American and European Plan. Golf, tennis, riding, etc. Excellent food and service.

Savannah

Oglethorpe. DeWitt Operated. On Wilmington Island. Golf course, Swimming Pool, Tennis, Riding, Shooting, Dancing, etc. Cash rates. Free Garage.

ILLINOIS

Chicago

LaSalle Hotel. Formerly La Fayette. Near everything—LaSalle at Madison St. You'll like the clean, bright rooms—good food—reasonable rates.

MINNESOTA

Minneapolis

Curtis Hotel. Contiguous to Minnesota's 10,000 Lakes region. Largest Hotel in the Northwest. Soft-water baths throughout. Rates \$2 to \$8.

NEW YORK

Forest Hills, L. I.

Forest Hills Inn. Long Island's most attractive hotel, 14 minutes New York. Amer. and Europ. plans at moderate rates. Write for booklet. A Knott hotel.

New York City

Barbizon-Plaza. New skyscraper hotel overlooking Central Park at 6th Ave. Lower rooms from \$1 single, \$3 double. Continental breakfast included.

Hotel New Weston. Madison Ave. at 56th Street—A distinguished hotel in a preferred location as correct as it is convenient. Rates \$4.00 and up.

The Plaza. New York, Fifth Avenue, facing Central Park. Single Rooms from \$2; Double from \$2; Suites from \$4. Henry A. Roet, President.



The Waldorf-Astoria

Famous scene of New York social and business activities . . . convenient to the City's important and interesting centers . . . single rooms \$5, \$6, \$7; double \$8, \$9, \$10. Various restaurants with comprehensive range of prices and types of service. Park Avenue, 49th to 56th Street, New York.

NEW JERSEY

Atlantic City

The Ambassador. Brighton Avenue and the Boardwalk. American and European plans. William Hamilton, General Manager.



Chalfonte-Haddon Hall

"Added attractions" are daily features at these year-round seaside hotels. Sunny ocean decks and lounges. Game rooms, squash courts, and modern health baths. Music, dancing, and varied entertainment, topped with tempting meals. Play-rooms for the youngsters. Outside, golf, skating, riding on sand. American and European Plans. Special weekly rates.



Hotel Dennis

Oceanic moxie, tempered by the sun and the nearby Gulf Stream, gives Atlantic City an earlier Spring. Hotel Dennis adds sundecks, solaria, health baths and a famous cuisine to make your Spring vacation ideal. Sports program, riding, golf and other amusements. Both Plans. Winter rates still effective. Write, Walter J. Hudby, Inc.

NORTH CAROLINA

Asheville

Asheville-Biltmore.—190 rooms, 170 baths, European Plan. Restaurant in building. Single from \$2.25. Double from \$3. Three golf courses.

Battery Park Hotel. Five excellent golf courses, many scenic places to visit; entrance to Great Smoky National Park. A Knott Hotel.

The Manor and Cottages.—in beautiful Alleghenie Park. Two famed golf courses within 5 minutes. Albert Malone, Proprietor.

Southern Pines

Mid Pines Club. A Club Hotel. All Outdoor Sports. American Plan. Unusual Service. Restricted clientele. Rates on application. December to May.

PENNSYLVANIA

Philadelphia

The Warwick. Features the famous cuisine of Mr. George Lammie. Centrally located, just off Rittenhouse Square. From \$1 single, \$3 double.

SOUTH CAROLINA

Charleston

Fort Sumter Hotel. On the famous old Battery. Only water front hotel in America's Most Historic City. Ideal climate. Fine golf. Joe B. Cater, Mgr.

Villa Margherita. Stately mansion on the famous Battery. Gathering place of cultured, traveled people. Booklet on application.

"Where shall we stay?"

NATIONAL GEOGRAPHIC MAGAZINE'S HOTEL SECTION

WEST VIRGINIA

White Sulphur Springs



The Greenbrier

America's world-famous spa and resort. In the midst of the Alleghenies. Open the year 'round. Full calendar of activities. All sports including golf (3 courses), riding, and tennis. Spring season reservations now. For rates and information apply L. R. Johnston, General Manager.

BERMUDA

Paget



Belmont Manor

Meeting place of 2 Continents. Center of things in this quaint foreign land. Tenebrous under the moon and cedars. Every sport on land and water, complete golf club, championship golf course, tennis, riding, surf and sun bathing, sailing, archery, fishing. Bermuda Hotels Incorporated, Department N, 500 Fifth Avenue, New York City.

BERMUDA

Warwick



Inverurie

Famous pleasure spot of "the Treasure Island." Glorious bathing all winter in the soft, magic water in the Harbour in front of the hotel, and in the surf. Tennis, riding, surf and sun bathing, sailing, archery, fishing. Golf privilege at famous Belmont Manor course, nearby. Bermuda Hotels Incorporated, Department N, 500 Fifth Ave., New York City.

BAHAMAS

Nassau

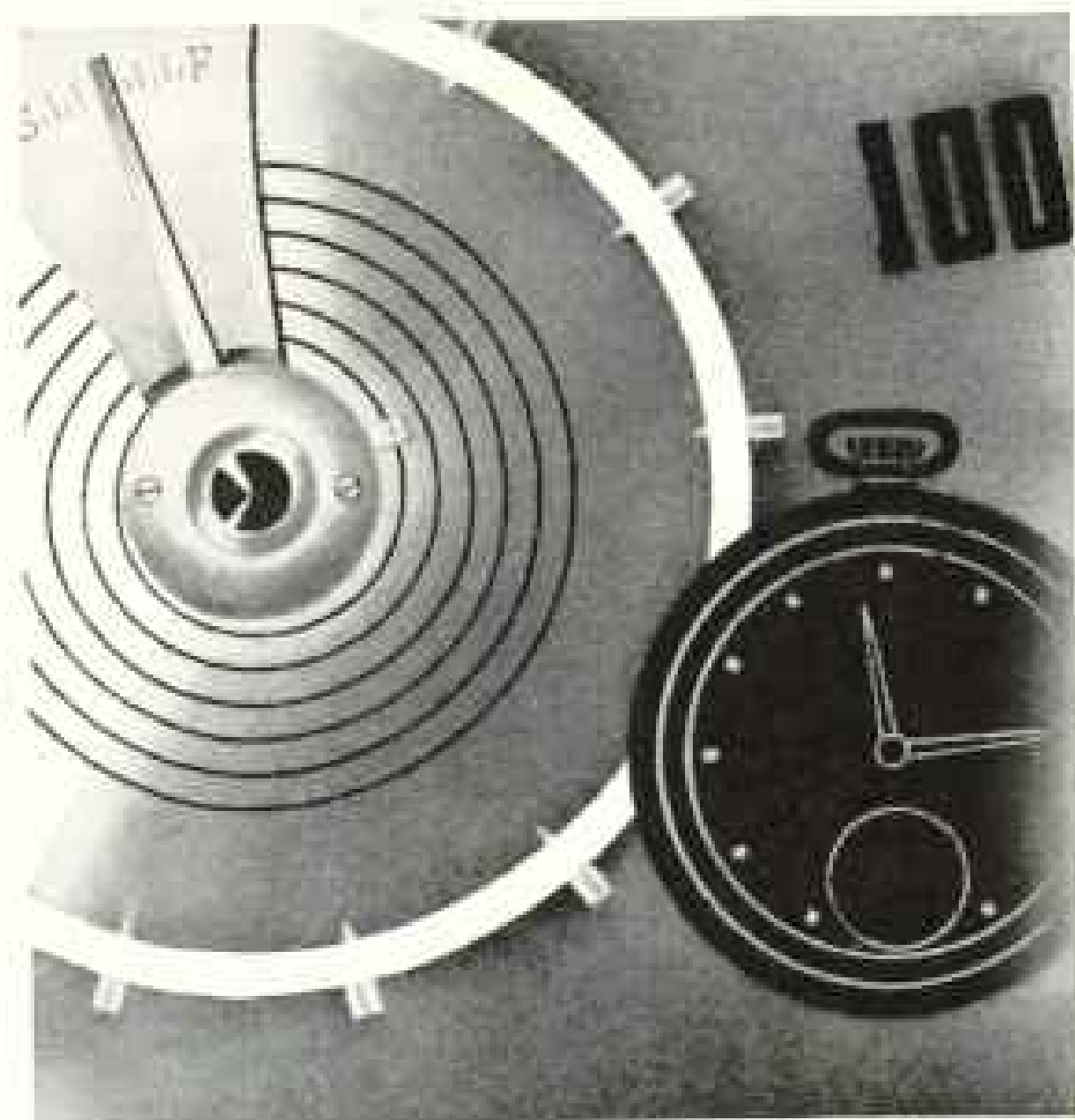
Fort Montagu Beach, Nassau's Only Sea Beach Hotel. Thoroughly modern. Distinguished international clientele. All sports. Write for folder.

"Mention the Geographic—
It Identifies You."

SOUTH AMERICA

Caracas, Venezuela, S. A.

Hotel "Casa Domke", European management. American, European Cooking. Terraces with wonderful view of mountains and town. P. O. Box 44.



100,000,000 TICKS and never a doubt

You trust your watch to keep you on time, as you trust Pennzoil in your motor, to take you farther... safer

Like the springs in your watch, New Pennzoil works unseen. But it's just as dependable, for New Pennzoil is all oil — all lubrication — with sludge-forming elements completely removed by Pennzoil's own process.

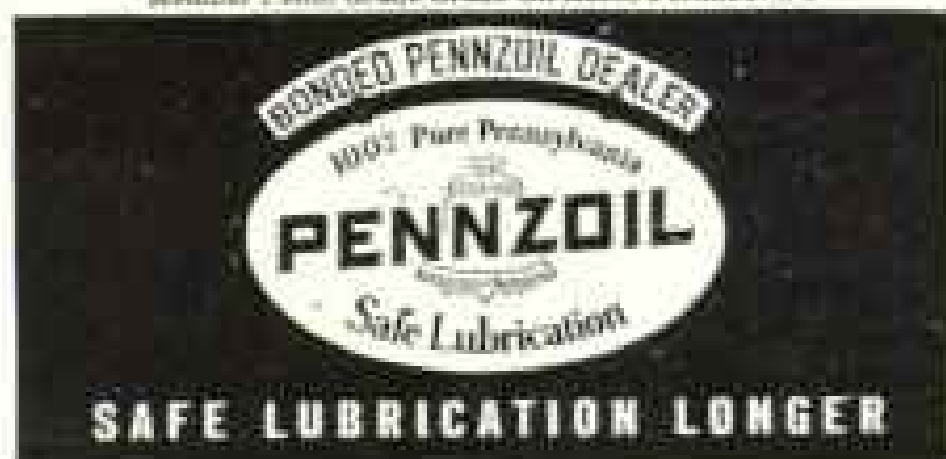
When you use New Pennzoil, you get more miles of safe lubrication per quart or per gallon — fewer oil changes — less "adding a quart."

Member Penn. Grade Grade Oil Assn. Pennoil No. 1

New Pennzoil Saves

Up to 50% on oil cost.
Up to 15% on gasoline.
Up to 90% on valve and piston ring repairs.

Buy New Pennzoil from independent dealers everywhere.



"Dodge Costs Less To Run-

Than Small Car"—Says Noted Explorer
ROY CHAPMAN ANDREWS
American Museum of Natural History



It's hard to excel Dodge for dependability, comfort and economy... I know... Dodge helped me blaze the way through trackless wastelands in the Far East...



... many times we staked our lives on the dependability of Dodge cars... And what an economical car...



... I know my Dodge has cost less to run than a small car... After my experience with Dodge I recommend that everyone see and drive the big, new, 1936 Money-Saving Dodge.

DODGE

NEW LOW FIRST COST

NOW ONLY \$640 and up,
 List Prices at Factory, Detroit.

And under the new Official Chrysler Motors Commercial Credit Company 6% Time Payment Plan, Dodge is now so easy to pay for!



Newly Decorated ROOMS and SUITES

The furnishings: by Anne Tiffany featuring the use of bright chintzes, silks and woollens are in the manner found only in the finest private houses.

By the day: Single: \$5. to \$8.
 Double: \$8. to \$10. Suites from \$12.

HOTEL ST. REGIS

FIFTH AVENUE AT 35TH STREET, NEW YORK
 JAMES O. STACK, General Manager.

The charm that is AUSTRIA has been a by-word for a thousand years—

White peaks of Tyrol, Carinthia's smiling lakes, the Danube of melody and saga... trans-glacial Glockner Road... Festivals of fabulous Salzburg, Linz, gay imperial Vienna, peasant revels, costumes, art, opera, all sports, that atmosphere of "gemütlich" grace... Inveterate nomads, new travelers; all these await you.

OVERNIGHT FROM ALL PORTS

Moderate rates, liberal reductions

Write for rates, rates, special booklets:
 Romantic Austria
 Hunting and Fishing in Austria
 Vienna
 Automobile Map of Austria

FESTIVALS

Vienna—June 7-21
 Broekner—July 18-21
 Salzburg—July 25-August 31
 Passion Plays at Thiersee
 Sundays—May to September



Consult your local travel agent or write

AUSTRIAN STATE TOURIST DEPARTMENT

630 Fifth Avenue, New York City

"Mention the Geographic—It identifies you."



Flaming Royal Poinciana Tree—Natural Color Photograph taken in Hawaii.

Words and Pictures Only Suggest Hawaii's Beauty!

Interesting illustrated literature... detailing low-cost vacations in Hawaii... and Matson South Pacific Cruises... personally-escorted to New Zealand and Australia... via Hawaii, Samoa and Fiji... free from your Travel Agent or Matson Line • Oceanic Line: New York, Chicago, San Francisco, Los Angeles, Seattle, Portland.

S. S. LURLINE • S. S. MARIPOSA • S. S. MONTEREY • S. S. MALOLO

Matson Line

Plan now for your CALIFORNIA VACATION

Our free illustrated book gives
costs and all details



San Francisco's Mission Dolores

ONCE UPON A TIME a trip to California took many weeks and cost a lot of money. But now this is all changed.

Today, the fascinating outdoorland that San Francisco centers is only a few days from all America by train . . . or over broad, smooth highways made for safe high-speed. (By air, the Golden Gate is but a flight of overnight from the Atlantic Coast. And even steamers through the Panama Canal reach California within two weeks.)

Special, sharply reduced summer roundtrip railroad fares begin on May 15, in fully air-conditioned flyers. Pullman and meal costs are down to a new low. And if you come by motor car, you'll find clean, comfortable hotels and inns and eating places actively engaged in keeping down the cost of travel all along your way.

In fact, getting here and getting home are matters simply of your choice of scenic routes.

And of the thousand thrills that San Francisco's California has for you, not the least will be the little you need spend!

SAN FRANCISCO

Center of the California Vacationland

Like the cosmopolitan hotels and restaurants that long have famed this city, the great resorts and sports places that glitter in its golden land are dedicated to low costs.

To know precisely what these are . . . to plan your California visit in detail, send for our illustrated handbook today. It tells exactly how to see the things you want to see, and what each day's full cost will be:

For your days in the stupendous Yosemite Valley and in the giant-Redwood forests, at mile-high Lake Tahoe and in the Gold Towns of the Forty-Niners, at Mt. Shasta and volcanic Mt. Lassen, on Russian River and Feather River . . . at Del Monte and in the Monterey Bay country. And your days and nights in storied San Francisco, in the center of it all.

The coupon below will bring the book at once . . . to help you to preview an unforgettable vacation.

A glimpse of the Orient



Tell anyone to come to California for a glorious vacation. But advise those seeking employment not to come here at this time. When opportunity arises California will gladly make it known.

Californians Inc., Room 503, 703 Market Street, San Francisco, Calif.
I am anxious to receive your Vacation Book, free.

Name _____

Address _____

City _____ State _____



"I want to bring the children to your office, doctor. They seem well, but it is time for another examination."

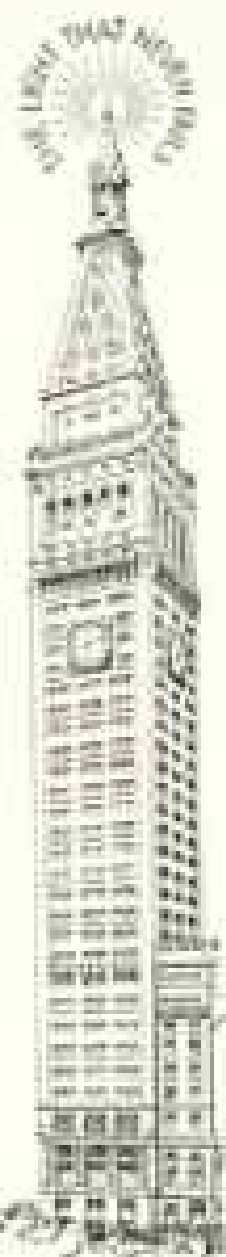
When do you see your Doctor?

If you wait until sickness develops you are taking advantage of only part of your doctor's skill. Make him your Health Counsellor at all times — not only when you are ill, but when you are well. It is the modern way to take care of yourself.

See your doctor at regular intervals. He is familiar with the prevention of various diseases which were once regarded as almost unavoidable, and the control of others that less than forty years ago were often fatal.

Do you know the latest findings of medical science on such subjects as preventive inoculation and vaccination? Do you know that the heart and other organs should be carefully examined, after every attack of an infectious disease, to see whether or not they need temporary or continuing care to lessen the danger of lasting injury?

You and the other members of your family



should have a regular and complete physical check up. Unsuspected impairments, abnormalities, deformities and bad health habits may be discovered and corrected. There are certain conditions which do not produce immediate symptoms, but which will do so in the future if left uncorrected. Let your doctor advise you on matters of diet, rest and exercise.

The Metropolitan from time to time reports how physicians help people to prevent many diseases and ailments which afflict different age groups — Babyhood; Childhood; Adolescence; the Age of Maturity; the Prime of Life; and the Sunset Years.

The Metropolitan will be glad to mail free its booklet on health protection at all ages. Send for your copy of "Taking Your Bearings." Address Booklet Department 336-N.

Keep Healthy—Be Examined Regularly

METROPOLITAN LIFE INSURANCE COMPANY

FREDERICK H. ECKER, PRESIDENT

ONE MADISON AVE., NEW YORK, N. Y.

©1933 M. L. I. CO.

"Mention the Geographic—It identifies you."



A LESSON FROM THE TEXAS RANGERS

ONE of the most thrilling chapters in the history of Texas, which this year celebrates its Centennial, is the story of the Texas Rangers.

More than half a century ago they rode a country where rustlers, desperados and Indians were a constant threat. But every Ranger was prepared for trouble—and he carried with him two potent protectors.

One was his Colt six-shooter. The other was his rifle, for years the Sharps (from which came the word "sharpshooter"). These two trusty companions got him out of many a tight spot.

Today, when a motorist rides the highways, he faces threats at every curve, crossroad and hill. But he too can be prepared for trouble. He too can carry a pair of protectors.

One of them is "automobile insurance"—the insurance every wise motorist carries to cover his liability to others. It stands between him and damage claims that might wipe out his entire resources in case of accident.

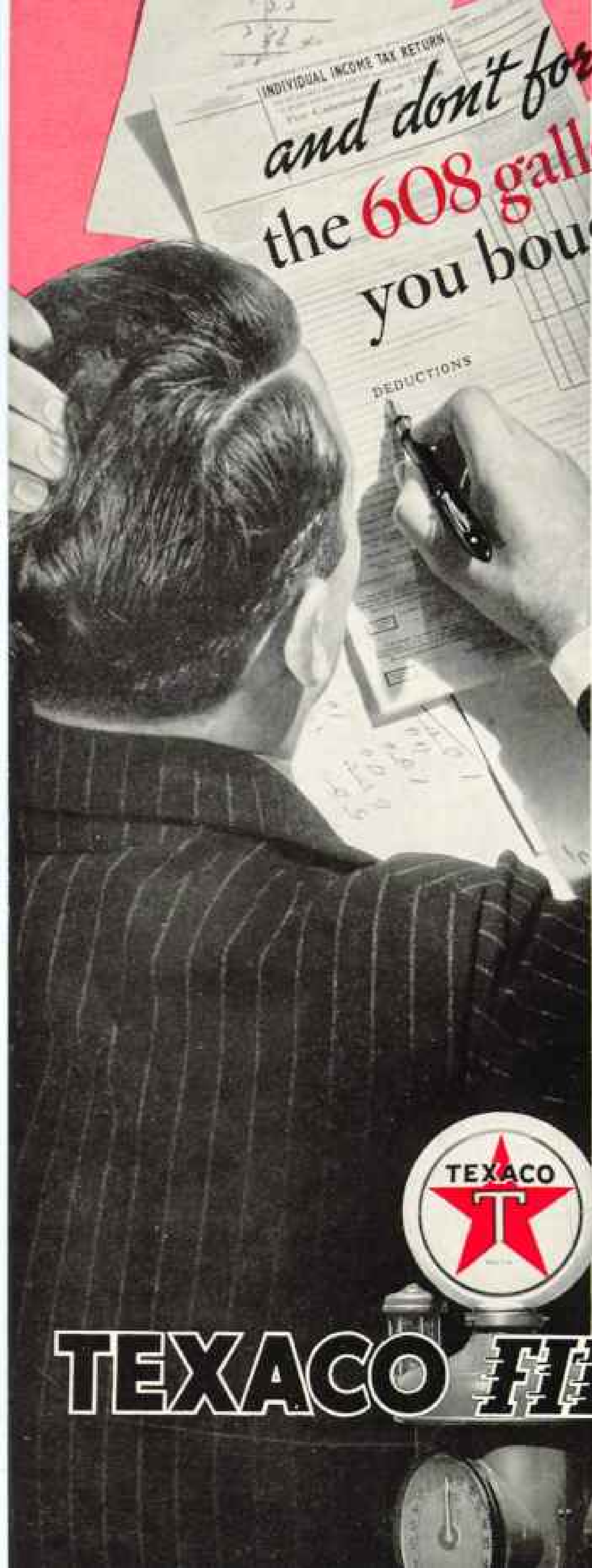
And the wise motorist carries a second protector to cover *himself* in case of accident—personal accident insurance. This pays his own hospital and doctor bills, plus an income while he is laid up.

And like the Texas Ranger, many a motorist looks to Hartford for his two trusty protectors. From Hartford came the Colt revolver and the Sharps rifle. And from The Travelers of Hartford came the first accident and automobile insurance issued in America.

The motorist who carries both types of insurance in The Travelers today is sure of prompt service wherever he goes. For this company has thousands of representatives, and claim stations throughout the United States and Canada, ready to serve policyholders *when and where* they need help.

Moral: Insure in The Travelers.

The Travelers Insurance Company, The Travelers Indemnity Company, The Travelers Fire Insurance Company, Hartford, Connecticut.

A black and white photograph of a man in a pinstriped suit, seen from the side, writing on a document. The document is a tax form titled 'INDIVIDUAL INCOME TAX RETURN' with a 'DEDUCTIONS' section. The man is holding a pen and looking down at the form. The background is a solid red color.

and don't forget
the **608** gallons of gasoline
you bought last year

REMEMBER, in filing your Federal Income Tax Return, that you can deduct any taxes you paid on your 1935 gasoline purchases—a total of \$32 is the national average.

Remember, too, that this year you'll buy another 608 gallons. That's a business-size order. It deserves business-like consideration.

Guesswork . . . that's all that influences a lot of people to buy a certain gasoline. But it takes a great deal more to make the country's leading bus lines and airlines decide what gasoline they'll use.

They believe that the size of their orders entitles them to the true facts about the gasoline they buy.

The Texas Company believes that every motorist . . . even those who do only an average amount of driving . . . those who use only the national average of 608 gallons of gasoline a year . . . also deserve to know these sincere facts about Fire-Chief:

Purposely developed as an emergency grade gasoline, Fire-Chief meets the Federal specifications* for emergency vehicles. Yet it sells at regular prices.

Tourists carried the demand for Fire-Chief into all 48 States. Recent surveys indicate that more tourists now prefer it than any other gasoline.

The bus companies compete each year in a national contest for "efficiency in maintenance." All of the first-prize winners for the last six years have been regular users of Texaco products.

You've probably seen a Texaco station or dealer in your very neighborhood. There are more than 40,000 from coast to coast.

Next time you need gasoline, try a tankful of Texaco Fire-Chief. Let these facts about it speak for themselves in your car.

*Federal Specification VV-M-571 for Emergency Motor Fuel.

A circular logo with a red star in the center. The word 'TEXACO' is written in black above the star, and a large red 'T' is inside the star. The logo is mounted on a silver-colored base.

TEXACO FIRE-CHIEF

TUNE IN ON THE
"JUMBO" FIRE-CHIEF PROGRAM

Direct from New York Hippodrome
TUESDAY EVENINGS AT 9:30 E. S. T.
Coast-to-Coast over N. B. C. Network



Now in effect
SPECIAL SUNDAY RATES
 for Long Distance Telephone calls
AND
REDUCED PERSON-TO-PERSON RATES
 after 7 every evening

The Bell System now extends to all day Sunday the same reduced rates which have been in effect on long distance station-to-station calls after 7 p.m. each evening. The reductions apply to most calls on which the day rate for three minutes is more than 35 cents, and range from about 10 per cent on some of the shorter calls to 40 per cent or more on distant calls.

The Bell System also now offers reduced rates on person-to-person calls every night

after 7 p.m. and all day Sunday. They apply, in general, on calls on which the day station-to-station rate is more than 35 cents. The discount on most person-to-person calls is the same in money as on station-to-station calls between the same places.

In both social and business affairs, these new Sunday and night rates offer you a broader service at a lower cost. They widen your telephone's usefulness.



TYPICAL THREE-MINUTE RATES

FROM	Station-to-Station			Person-to-Person		
	Day Rate	Sunday and Night Rate	Reduction	Day Rate	Sunday and Night Rate	Reduction
New York to Philadelphia	\$.50	\$.35	\$.15	\$.75	\$.60	\$.15
Pittsburgh to Cleveland	.70	.40	.30	1.00	.70	.30
St. Louis to Chicago	1.25	.75	.50	1.65	1.15	.50
Detroit to Boston	2.55	1.40	1.15	3.25	2.10	1.15
Washington, D. C., to Kansas City	3.50	1.90	1.60	4.50	2.90	1.60
Miami to Boston	4.50	2.50	2.00	5.75	3.75	2.00
Denver to New York	6.00	3.50	2.50	7.50	5.00	2.50
Washington, D. C., to San Francisco	8.50	5.00	3.50	10.75	7.25	3.50

BELL TELEPHONE SYSTEM

Come to **CANADA**

The Vacation Wonderland



Canada abounds in pleasant spots where you can camp in the open, cook your meals over wood fires, and enjoy the great outdoors.



Fishing is real sport in every province of Canada. You'll get big thrills in landing trout, salmon, bass, muskies and other game fish.

IN CANADA'S glorious natural playground you will find the perfect setting for your summer vacation. Here are beautiful lakes and streams, bordered by pine-scented forests . . . mountains rising majestically from sea-bound shores . . . great inland waterways that invite you to cruise . . . and historical towns and cities that extend to you a friendly welcome.

So plan now to be a "Guest of Canada" this year. You can be here in a few hours by motor, train or boat—free from any red tape at the border—and you will enjoy the experience of feeling "at home" abroad.

If you fancy the care-free vagabond life, travel along Canada's smooth scenic highways, camp in picturesque spots and adventure in a sportsman's paradise. Or, you may choose the gay life of modern summer resorts where you indulge in swimming, boating, riding and golfing.

We will be glad to help you plan your vacation. Just let us know your preference in the way of summer diversions, and we will send maps and illustrated literature. Write to Department E136.

CANADIAN TRAVEL BUREAU
Ottawa, Canada



His life work is teaching at a modest salary

*... yet he now can afford
home movies as his hobby*

HIS life is a full one—in every sense. Yet the luxuries of life have little or no place in his budget.

He can, however, afford a fascinating hobby—home movies. He keeps a living movie record of his children, trips, activities... at the cost of a few cents a scene, due entirely to the development of a new camera and film. Ciné-Kodak Eight was designed to make economical home movies available to everyone. With the Eight, and its special film, movies are no longer expensive... they are within reach of *your* budget.

Discover the Eight—and you've found the secret of those inexpensive movies that your friends have been making. See a Ciné-Kodak Eight at your dealer's today... Eastman Kodak Company, Rochester, N. Y.



• A new type of camera and film makes inexpensive home movies possible. A twenty-five foot roll of Ciné-Kodak Eight Film runs as long on the screen as 100 feet of amateur standard home movie film. The Eight makes 20 to 30

movie "shots"—each as long as the average scene in the news reels—on a roll of film costing \$2.25, finished, ready to show. Ciné-Kodak Eight is small, sturdy—costs but \$34.50. It is as easy to use as a Brownie.

Ciné-Kodak Eight

...home movies at less than 10¢ a "shot"



from quaint old Holland—
TOMORROW'S THRILLING HEADLINES
 as *Only* the **SCOTT BRINGS THEM**

T—H—L—Huisen, Holland, sending you the world's news—direct from seething Europe—broadcast in five languages! Old traditions—new governments—or the latest Old World folk dances. Hear it all with the magnificent SCOTT!

Bermuda, Brazil—Java, Japan, Germany—Italy, England, France—unbelievable cultures of half a hundred nations are yours to enjoy with a Full Range Hi-Fidelity SCOTT.

Choice of the distinguished in 146 countries. 30 Watts Class "A" Power (five times average) for most beautifully true tone—eliminates distortion on programs at concert volume—Direct Station Separation . . . Foreign Station Locator . . . Three Speakers . . . Higher Usable Sensitivity gives glorious clarity.

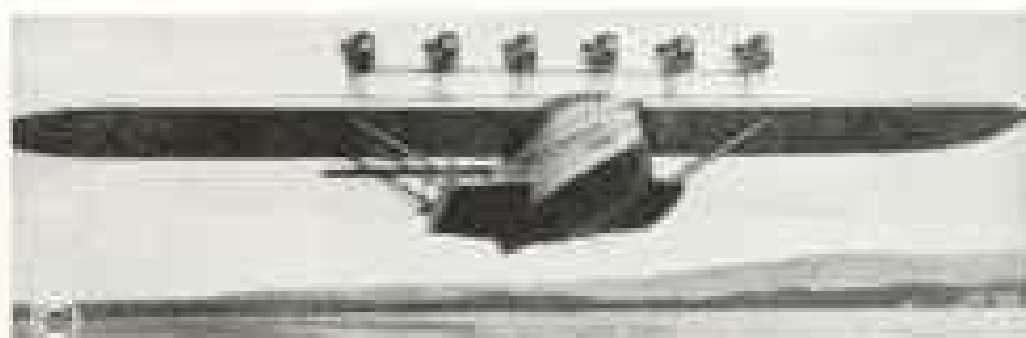
Years ahead. Custombuilt. Nationwide installation service. 30 day trial in U. S. A. without obligation. Mail coupon—today—for radio's most thrilling story of worldwide reception. New York Sales, 630 FIFTH AVENUE, Rockefeller Center.

CLIP HERE

E. H. SCOTT RADIO LABORATORIES, INC.,
 444 Ravenswood Avenue, Dept. 106, Chicago, Ill.

Send "4 PROOFS" of Superior True Tone and DX Performance of 30 tube SCOTT.

NAME _____
 ADDRESS _____
 CITY _____ STATE _____



Dirigible Flying Boat "DO-X"

Are You Interested in Modern Science?

Learn about latest developments in Aviation—transport planes, dirigibles, stratosphere balloons; also Chemistry, Biology, Mathematics, Electricity, Medicine, Astronomy, etc., from the NEW Merriam-Webster! Construction details of equipment, such as, telephone, radio, telescope, microscope, ice-machine and dynamo, shown in diagrams. For authoritative information on every branch of science

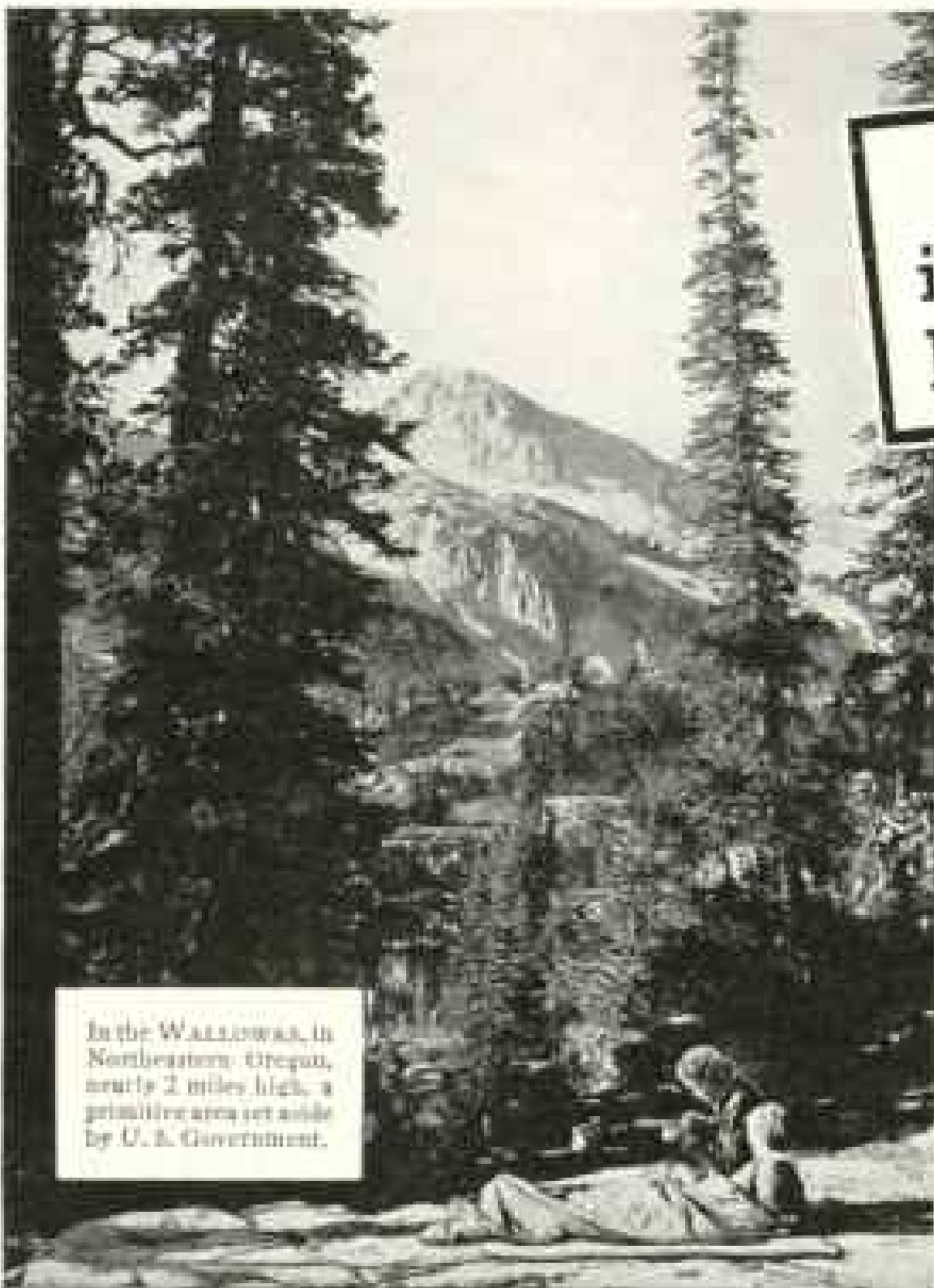
Consult WEBSTER'S NEW INTERNATIONAL DICTIONARY Second Edition



An entirely NEW Creation—from cover to cover—backed by 297 famous authorities. Gives you accurate, clear, comprehensive and up-to-date information on more subjects than any other volume ever published. Over 600,000 separate entries—122,000 more than any other dictionary.

Booklet FREE Examine the NEW Merriam-Webster at your bookstore. Send now for interesting FREE BOOKLET, "101 Questions and Their Answers." "Pronunciation Test." Full information on this great new Merriam-Webster.

G. & C. MERRIAM CO., 631 BROADWAY, SPRINGFIELD, MASS.



In the WALLAWS, in Northeastern Oregon, nearly 2 miles high, a primitive area set aside by U. S. Government.

We wondered
 if anyone had ever
 been here before . . .

Here is unspoiled, unexploited vacation country. It holds all in store for you that it held for the pioneers who followed the Oregon Trail to the setting sun, nearly a century ago. But fine paved highways are yours instead of tortuous trails. The same great forests, jeweled mountain lakes, white-foamed rivers teeming with trout, the antelope herds, the water falls, Crater Lake, the Oregon Caves, the majestic Columbia, Mt. Hood, hundreds of miles of free beaches—all these are easily accessible now over splendid highways. Make this vacation different and inexpensive. Send for illustrated Oregon folder.

Drive
OREGON
 Highways

Travel & Information Dept. A, Oregon State Highway Commission, Salem, Ore.
 Please send me your illustrated folder covering all Oregon.

FLORIDA HIGHLIGHTS

SKETCHED IN AND AROUND MIAMI BY FLOYD DAVIS



THE NATION'S SOCIAL CAPITAL moves South. And social leaders, seeking rest, find Florida's season the gayest since 1929.

MIAMI'S SPORTING CALENDAR is studded with sailing events, which reach their height in the annual St. Petersburg Race.



DANCING AT THE BEAUVILLE... and revealing the mode in wide-cut evening frocks. Slippers in vivid reds, greens, blues are quite the thing this season.


THERE'S STILL NO EQUAL TO THE MOTORING THRILL OF DE SOTO'S AIRFLOW

TWO YEARS AGO, De Soto introduced the famous Airflow car. Today, its scientific weight distribution...equalized springing...seating for six...are still the most talked-about features in cars. And many are the efforts to copy them.

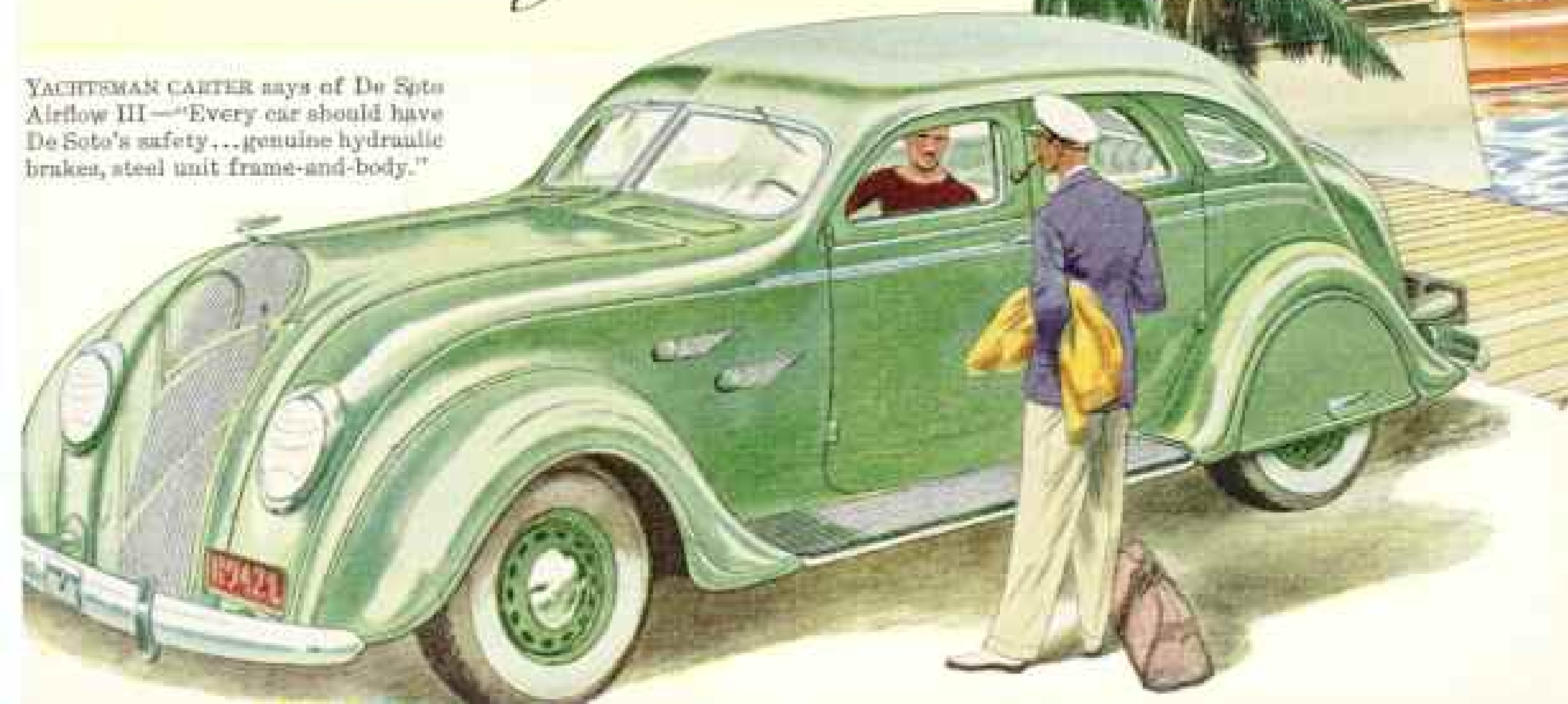
Spend a few minutes with De Soto's Airflow III. Feel the utter relaxation of travel that's silent, swift and sure. Test the economy of its Gas-Saver Transmission. See its custom-styled interiors...the new beauty of its extended front and modern, streamlined trunk. America's lowest-priced Airflow is still years ahead! Sedan or coupe, \$1095, list at factory, Detroit. Special equipment extra. Ask for new 6% Time Payment Plan.

DE SOTO

Product of the Chrysler Corporation

Airflow 
COMPANION CAR TO AIRSTREAM DE SOTO

YACHTSMAN CARTER says of De Soto Airflow III—"Every car should have De Soto's safety...genuine hydraulic brakes, steel unit frame-and-body."





Vacations

in Grand Style

at bargain prices in the Pacific Northwest

ALL the money in the world couldn't create a single one of the thousands of wonders that are yours to enjoy on a Pacific Northwest vacation that costs as little as \$100, all expenses, from Chicago. Snow-clad mountains and golden beaches, racing streams and age-old forests—new sights and new thrills to make you forget the humdrum work-a-day world.

Treat yourself to a trip through glamorous Yellowstone; visit Seattle, Mt. Rainier, Mt. Baker, The Olympic Peninsula and Alaska; cruise on island-dotted Puget Sound. The famous air conditioned OLYMPIAN brings these far places within your reach; low rail fares and travel costs bring them within your budget. Travel independently or with escorted tour parties. Return via Canada or California optional.

FREE! Write for our interesting booklet, "Pacific Northwest Vacation Suggestions" that gives detailed information, sample costs and itineraries.

GEO. B. HAYNES, Passenger Traffic Manager
Room 800, Union Station, Chicago, Ill.

The MILWAUKEE ROAD

The Olympian
The Hiawatha

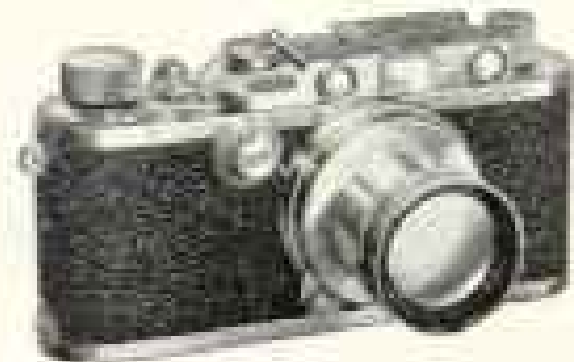


NEWSWEEK PHOTO BY WHEELER MACRAE

ENLARGED 7000 TIMES

The picture shows Ivan Dmitri standing alongside his mammoth enlargement—10 feet long by 7 feet high—shown at the Second International Leica Exhibition at Rockefeller Center.

Are you familiar with the Leica? Would you like to take pictures that are different—action pictures, natural, unposed candid pictures? Then write for our latest illustrated booklet describing The Leica Model G—just out.



Model G with
f:2 Summar
Speed Lens

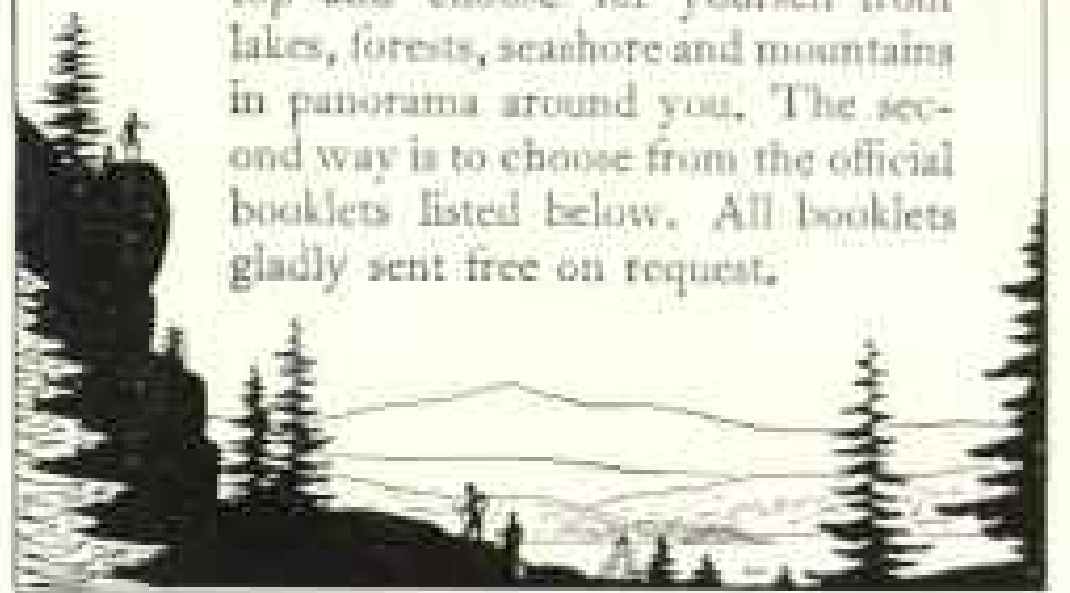
THE ORIGINAL
MINIATURE
CANDID
CAMERA

Leica

PRICES START AT \$99 • U. S. PAT. NO. 1,850,044
E. LEITZ, INC • DEPARTMENT 120
60 EAST 10th STREET, NEW YORK CITY

Two ways to choose your NEW HAMPSHIRE vacation

One way is to stand on a mountain-top and choose for yourself from lakes, forests, seashore and mountains in panorama around you. The second way is to choose from the official booklets listed below. All booklets gladly sent free on request.



PLANNING AND DEVELOPMENT COMMISSION
CONCORD, NEW HAMPSHIRE G-15

Gentlemen: Please send me the booklets checked below to help me plan my New Hampshire vacation.

- Vacations in N. H. Sectional Booklets
 N. H. Ski Trails Recreational Map
 Hunting and Fishing

Name _____

Address _____

RAYMOND-WHITCOMB *Summer Cruise* to *Western Europe* (from Portugal to Norway)

in the French Line's great luxury liner, "PARIS"

JUNE 27 TO AUGUST 3

Never before a cruise like this! Sailing along the western shores of Europe, from Portugal's Tagus to Norway's Fjords . . . visiting fascinating and renowned places that most American travelers never see.

With calls at a score of interesting ports in:

MADEIRA	PORTUGAL	SPAIN
FRANCE	BRITTANY	IRELAND
SCOTLAND	SHETLAND ISLANDS	
NORWAY	SWEDEN	DENMARK

Excursions to beautiful and historic inland places such as Cintra, Biarritz, the Pyrenees, quaint Breton towns, Blarney Castle, Lakes of Killarney, Edinburgh and the Trossachs, and the mountains of Norway.

Sailing from New York
June 27

Rates, exclusive of shore excursions, \$535 up . . . including return on *Normandie* and other French Line steamships at various dates.



NORTH CAPE RUSSIA CRUISE *in the Cunard White Star world cruising liner, "CARINTHIA."* Sailing from New York on June 30.

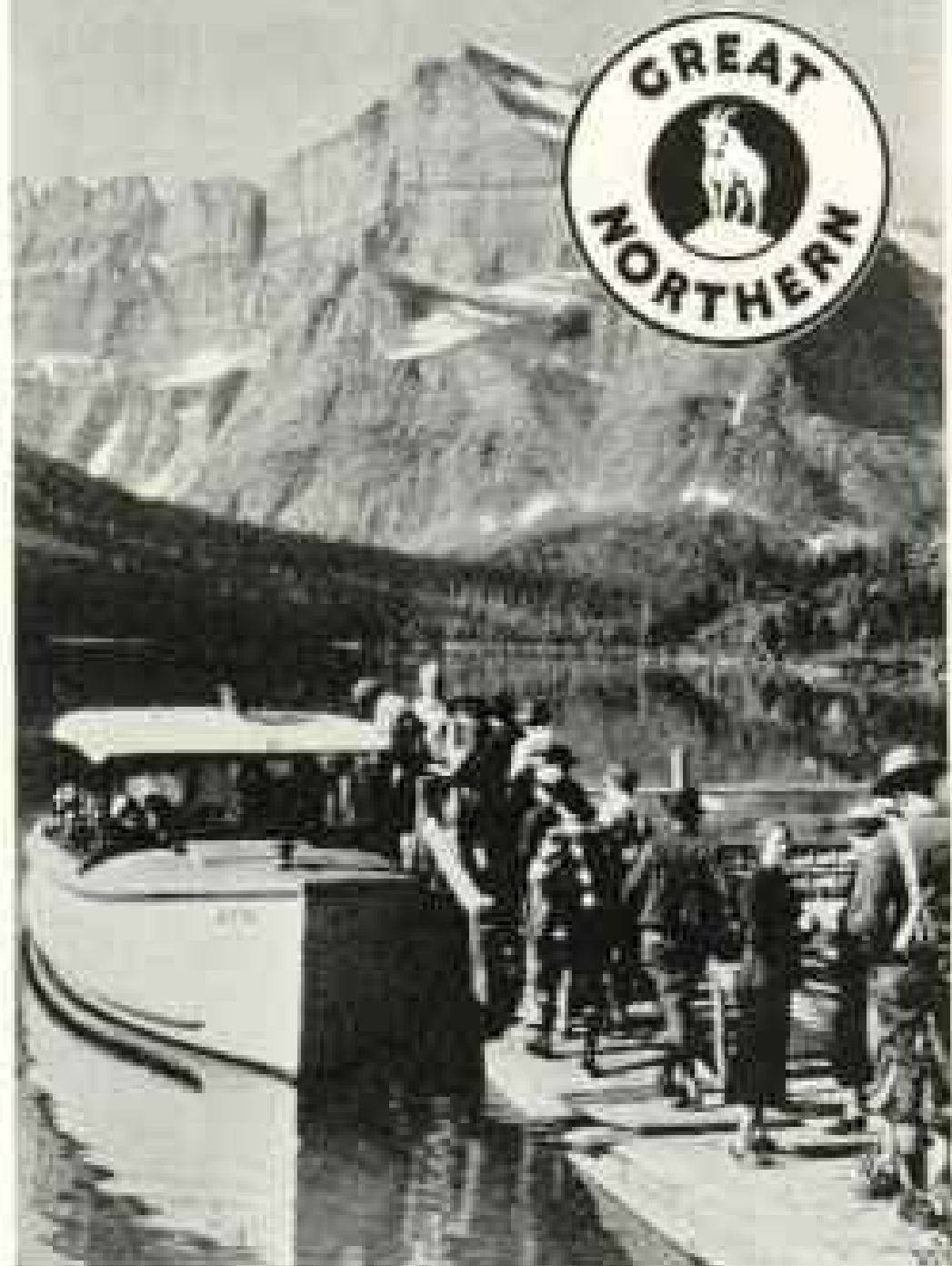
The annual Raymond-Whitcomb Cruise to the Lands of the Midnight Sun . . . a favorite for many summers. This year it will visit Iceland, the majestic North Cape, the grandest of Norway's Fjords, Norwegian towns and cities, Stockholm, Copenhagen, Helsingfors in Finland, and will have four memorable days in Russia. Rates, exclusive of shore excursions, \$495 up — including return on Cunard White Star liners until Dec. 31.

For particulars regarding either Cruise, address: **RAYMOND-WHITCOMB**

NEW YORK	BOSTON	PHILADELPHIA	CHICAGO
670 Fifth Avenue	122 Newbury St.	145 Tremont St.	1517 Walnut St.
			320 No. Michigan Ave.

OR ANY STEAMSHIP OR TRAVEL AGENT

SEE AMERICA FIRST!



Mt. Gould, Glacier Park

for low cost **vacations**

GO GREAT NORTHERN

to *Glacier Park • Pacific Northwest • California • Alaska*

• To get the utmost relaxation, variety and inspiration out of your vacation next summer, take a trip on the famous air-conditioned Empire Builder over the Great Northern Railway and really see America at her best—in Glacier Park for spectacular scenery, glaciers, waterfalls and alpine lakes—in the Pacific Northwest for glorious mountain parks and playgrounds, coast resorts, beautiful cities: Spokane, Seattle, Tacoma, Portland. If you have time, make the ocean trip on the island-sheltered Inside Passage to Alaska, mystic land of the Midnight Sun. Or visit California. Get Great Northern vacation literature. See how little it costs for a Great Northern vacation. And

Ride the Air-Conditioned **EMPIRE BUILDER**

-----CLIP THIS COUPON TODAY.-----

A. I. DICKINSON, Passenger Traffic Manager
Great Northern Railway, Dept. NG-2, St. Paul, Minn.

Please send me literature describing the Great Northern Vacations.

Name

Address

City State

HAWAII



IN 5 PERFECT DAYS

Go on the record-holder . . . and enjoy *complete comfort!* Travel by the *Empress of Japan*, largest and fastest liner on the Pacific, or *Empress of Canada*. For a more leisurely trip, take the *Aorangi* or *Niagara*. From Vancouver and Victoria. First, Cabin, Tourist and Third Class. Details from your OWN AGENT or Canadian Pacific: New York, 344 Madison Avenue; Chicago, 71 East Jackson Boulevard; San Francisco, 152 Geary Street . . . and 38 other cities in United States and Canada.

Canadian Australasian Line

Canadian Pacific



FREE BOOK

about funeral costs and practices

Too many people face the arranging of a funeral with no idea of what to do. We have published "What To Do" as a guide to follow in time of need.

Already more than 700,000 families have asked for and received this information. It answers authoritatively all the questions you are likely to ask at time of bereavement—how to choose a funeral director . . . what a funeral costs and why . . . what sort of casket is best, and so forth.

You should have a copy of this booklet to place with your other important papers. Doctors, lawyers, clergymen say "It is the best book ever published on this subject." Send for one or more copies today. No obligation.

National Casket Co., Dept. N, G. 3
60 Massachusetts Ave., Boston, Mass.

Compare
CORONA
FEATURES
with any other portable typewriter

L. C. SMITH & Corona Typewriters

How much should you pay for a typewriter? There's only one honest answer—pay just enough to get just what you want! That's why Corona offers so complete a line—5 models, priced from \$32.50 to \$67.50—and each one "tops."

L. C. SMITH & CORONA TYPEWRITERS INC.
Desk 3, 103 Almond St., Syracuse, N. Y.

Please send me free copy of booklet checked. Animal Keyboard Corona All Corona models Corona Standard \$49.50.

Name _____

Address _____

City _____ State _____

MSL prices, subject to revision.

The LAST Kind Deed Should be the Best!

THE FINAL OFFERING at the shrine of loving memory should be no less beautiful and enduring than the ennobling emotion that conceived the tribute. Selection of a Rock of Ages Memorial achieves this object with dignity, sincerity and good taste.

That your assurance may be complete, every genuine Rock of Ages Memorial is fashioned by master craftsmen of memorial art, employing only the finest granite

from the famed Rock of Ages deposit at Barre, Vermont. Thus proudly created, each memorial receives the final hallmark of perfection—the etched in stone Rock of Ages seal. With this identifying mark, the National Surety Corp. then issue their bonded guarantee covering every detail of material and finish. Memorials thus endorsed and sponsored are available only through authorized Rock of Ages dealers.

Send for FREE BOOK, "How to Choose a Memorial." A copy awaits your call.

For your protection EVERY ROCK OF AGES MEMORIAL BEARS THIS SEAL etched in the stone.



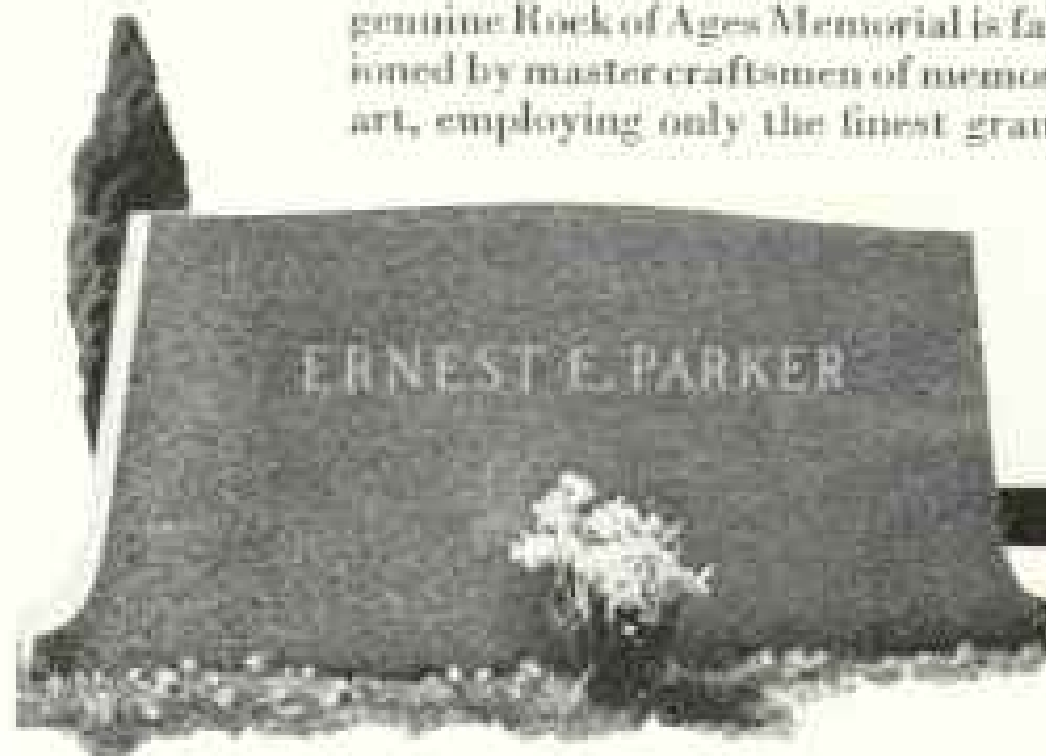
ROCK OF AGES

MEMORIALS

ROCK OF AGES CORPORATION, Dept. D-3, BARRE, VERMONT

Please send me revised booklet, "How to Choose a Memorial" . . . Name _____

with important hints on design. Address _____





Operates on AC and DC

THIS HAPPIEST SHAVER

He sits in a comfortable chair, doesn't even take off his coat or collar, smokes a cigarette and, if he wants, reads a book. Yet he is getting a **QUICK, CLOSE SHAVE**. There is **NO LATHER** to fuss with—no facial preparation whatever. He cannot possibly cut or hurt himself, for the Shaver has **NO BLADES**. Plug into an electric socket and shave—it is as simple as that. If no Schick Shaver dealer is near you to show you one, send \$15 to Department V.

SCHICK DRY SHAVER, INC., STAMFORD, CONN. Western Distributor: Edises, Inc., San Francisco. In Canada, Henry Birks & Sons, Ltd., and other leading stores. (Canadian price, \$16.50.)

SCHICK SHAVER



IF IT'S SPEED YOU WANT!



Get **CLUB PIN** and **FREE BOOK**

Send for certificate of who else wears yours, etc. It's free. If you want beautiful the Gold F, club pin yours for in every setting.

ORDER TODAY! If dealer doesn't carry "CHICAGO'S" refuse others. Order direct! We'll ship postpaid on receipt of \$1.95. Give show size.

CHICAGO ROLLER SKATE CO., 4408 W. Lake St., Chicago, Ill.
Roller Skates with Guard for over 20 years

You'll Get It With **OVERSIZE BEARINGS** + Point Contact

Try the Famous

CHICAGO FLYING SCOUT Roller Skates

Equipped with the fastest, strongest, and longest life wheels made. Patented—no other skate can copy. Over-size bearings of 1/4 inch reduce friction and heat, resulting in longer life. Triple-Thread "Triple-Wash" Wheels also 1/4 inch longer life. No Harpin Skates offer such quality or low cost.



K-Veniences DO AWAY WITH CLUTTERED CLOSETS



The **SHOE RACK**

Classers automatically become neat, tidy and permanently well organized with the installation of K-VENIENCE Closet features. Capacity is greatly increased. Garments kept in better condition. Inexpensive, easily installed. Sold by leading department and hardware stores.

FREE Book showing how to modernize your clothes closets with K-VENIENCE Shoe Racks, Clothing Carous, Suitcase Racks, Bathroom Racks, Garment Brackets, Hat Racks, Trouser Hangers, etc. No obligation.

• **KVAPE & VOET MFG CO - Dept 3 - GRAND RAPIDS - MICH.**

Be Sure the Clothes You Take Away are Marked with CASH'S NAMES

Wherever you go **CASH'S WOVEN NAMES** save laundry losses, positively identify you and your belongings. Easily attached with thread or Cash's NO-50 Cement. Order NOW from your dealer or us.

CASH'S 136 Chestnut St., So. Norwalk, Conn., or 6211 So. Gramercy Place, Los Angeles, Cal., or 36 Gray St., Belleville, Ont.

CASH'S NAMES 3 doz \$1.50 6 doz \$2. NO-50 25¢ 9 - 2¢ 12 - 3¢ Cement 1¢ tube



COMPLETE ELECTRIC PLANTS

ONAN ALTERNATING CURRENT PLANTS furnish same as city current anywhere. Operate on gasoline. Run Radio, Water System, Refrigerator, all Appliances.

SIZES 350 WATTS UP
Easy to install. Available from stock. Ideal for Farms, Camps, Lake Homes, Commercial use. Sizes any purpose. Write

D. W. ONAN & SONS
337 Royalton Ave. Minneapolis, Minn.

CHAMPION-INTERNATIONAL COMPANY

MANUFACTURERS OF

National Geographic Paper

and other high-grade coated paper

LAWRENCE, MASS.



Choose a Hodgson House from our portfolio, or our architectural staff will develop your own ideas. Local labor, under a Hodgson foreman, if you desire, erects the prefabricated

sections. Hodgson delivers anywhere. See our complete exhibits in New York or Boston, or write for new Catalog FH-3, which also shows kennels, garages, camps, garden equipment, etc.

What owners say about Hodgson Prefabricated Houses

- "... they are the nearest thing to perfection in their line, or the nearest thing to 100 per cent plus that I know of."
- "After 28 years, my Hodgson House is still one of the most attractive and well built on the lake."
- "Our Hodgson House, as an all-year-round house, has been perfectly satisfactory—warm in winter, cool in summer."
- "Our Hodgson House is by far the most attractive and practical we have been in, in our 12 years of married life."

HODGSON HOUSES

E. F. Hodgson Co., 1108 Corn'wealth Ave., Boston, Mass.; 730 Fifth Ave., New York

"Mention the Geographic—It identifies you."

ADVENTURE on ALASKA'S sheltered seas



HERE is the sort of spectacular adventure Alaska holds for you: The weirdness of the Midnight Sun—the longest, most scenic, mountain-guarded sea-lane in the world—giant fjords—mightiest of glaciers—greatest mountains on the continent—interesting native lore—a land packed full of experiences to thrill any wandering heart.

Glide along smooth, cathedral-aisled ocean trails—visit fascinating, historic towns of gold-rush fame, of totem ancestry, of Russian descendancy... enjoy thrilling days for fun and laziness aboard informal American ships and on vivid Interior Alaska tours. Thus you vagabond to the "biggest" vacation that money can buy—for so moderate an amount, too, and on regular vacation time.

May to September is the time to board a modern, completely air-conditioned train and travel over smooth rails to Seattle, where smooth Sheltered Seas begin. Plan to answer Alaska's call to Adventure this year.

THE ALASKA RAILROAD
NORTHERN PACIFIC
SOUTHERN PACIFIC
NORTH WESTERN LINE
UNION PACIFIC
THE ALASKA LINE
MILWAUKEE ROAD
BURLINGTON ROUTE
GREAT NORTHERN



KNOW MORE ABOUT ALASKA

For free, interesting Alaska literature, just let your name and address on the margin below—mail to **The Alaska Line, Room 626, Pier 2, Seattle, Washington**, or see any of the companies above. Want an Alaska Good-Natured Map? Just enclose 10c to cover mailing.



To help you

—In your selection of a memorial that it may always be a source of satisfaction to you, to your children, for generations to follow. Facts about design, workmanship, and material, which will enable you to choose wisely this most permanent of all purchases. Facts about **Select BARRE GRANITE*—a material in which superior design and workmanship find the best and most enduring expression. Write for this book today. Address: The Barre Granite Association, Dept. N, Barre, Vermont.

**This word identifies BARRE GRANITE of the finest quality, selected and sponsored by over one hundred leading manufacturers, and quarried by J. K. Piro Estate, E. L. Smith & Co., The Wall-Lansan Quarry Co., and the Wisniewski & Morse Granite Co.*

THIS MAGAZINE IS FROM OUR PRESSES

JUDD & DETWEILER, INC.

Master Printers

ECKINGTON PLACE AND FLORIDA AVENUE

WASHINGTON, D. C.

HITCH-UP and GO!



Four
New
1936
Models

Join the parade of happy families traveling and seeing the country in Silver Domes. The finest of all modes of travel—and inexpensive. Complete living, eating and sleeping accommodations. Four new 1936 models, 16 to 25½ ft. long, with separate bedrooms and rear dinette—also private bath and lavatory accommodations. The biggest coaches at the lowest prices in Silver Dome history. As low as \$465, equipped. Send 10c for 20-page illustrated catalog. • Some available dealer territory. **SILVER DOME, Inc., 444 York St., Detroit, Mich.**

"Mention the Geographic—it identifies you."

Again ~ ~ ~

in the interests of Science,
members of the
National Geographic Society
undertake new researches



While the scientific results of the stratosphere flight are being compiled for members, another expedition is being launched, this one occasioned by a total eclipse

of the sun due on June 19. Weather surveys indicate that along the path of the shadow, scheduled to sweep across Asia, clearest visibility may occur at Orenburg, U. S. S. R.

To this region will go, in a journey half-way round the world, astronomers and photographers sponsored by Georgetown University and the National Geographic Society, and headed by Dr. Paul A. McNally, S. J.

The observations and camera studies which will be made for publication in THE GEOGRAPHIC, will continue the work of the 1932 solar-eclipse expedition into New England, and will add another chapter to The Society's 48-year record of exploration and scientific research.



This remarkable photograph, taken by Dr. Paul A. McNally, 1932, shows the vast extent of coronal light. The corona holds important clues to the mighty forces working within the sun.

As you contemplate these various endeavors in which you—as a member of The Society—share an equal part with every other member, do you not think of friends who would appreciate an opportunity to cooperate in The Society's useful work and to receive THE NATIONAL GEOGRAPHIC MAGAZINE—which brings so much pleasure and information to you?

Members may nominate others for membership. That is the privilege which you have. In fact, the growth of The Society, the extension of its activities, the improvement of your Magazine depend upon your continuous exercise of this privilege. What friends come to your mind?

Nominations for Membership

(DETACH THIS FORM—OR NOMINATE BY LETTER IF YOU PREFER. NOT TO CUT YOUR MAGAZINE)

Secretary, National Geographic Society,
Sixteenth and M Streets N. W., Washington, D. C.

I nominate for membership in the National Geographic Society:

(1) Name _____

Address _____

(Occupation) _____

(2) Name _____

Address _____

(Occupation) _____

(3) Name _____

Address _____

(Occupation) _____

DUES
Annual membership in U. S. \$3.00; Canada, \$3.50; abroad, \$4.00; life membership, \$100. Please make remittances payable to the National Geographic Society. Please remit by check, draft, postal or express order.
The membership fee includes annual subscription to The National Geographic Magazine.

Name and address
of Nominating Member: _____



"I've made many sea voyages... and believe me the Great White Fleet cruises win my vote! Ports aplenty... a fine crowd... and the ships are run the way I'd run 'em myself."

Travel veterans, especially, endorse our cruises... the spotless white liners, personalized service and thoughtful hospitality afloat and ashore. Outdoor swimming pools, sport decks, dance orchestras, delicious meals.

FROM NEW YORK—A wide selection of cruises of 10 to 15 days—variously to HAVANA, JAMAICA, H. W. L., PANAMA, COLOMBIA, S. A., COSTA RICA. Rates from \$35 to \$200 minimum. Sailings Thursdays and Saturdays. No passports required.

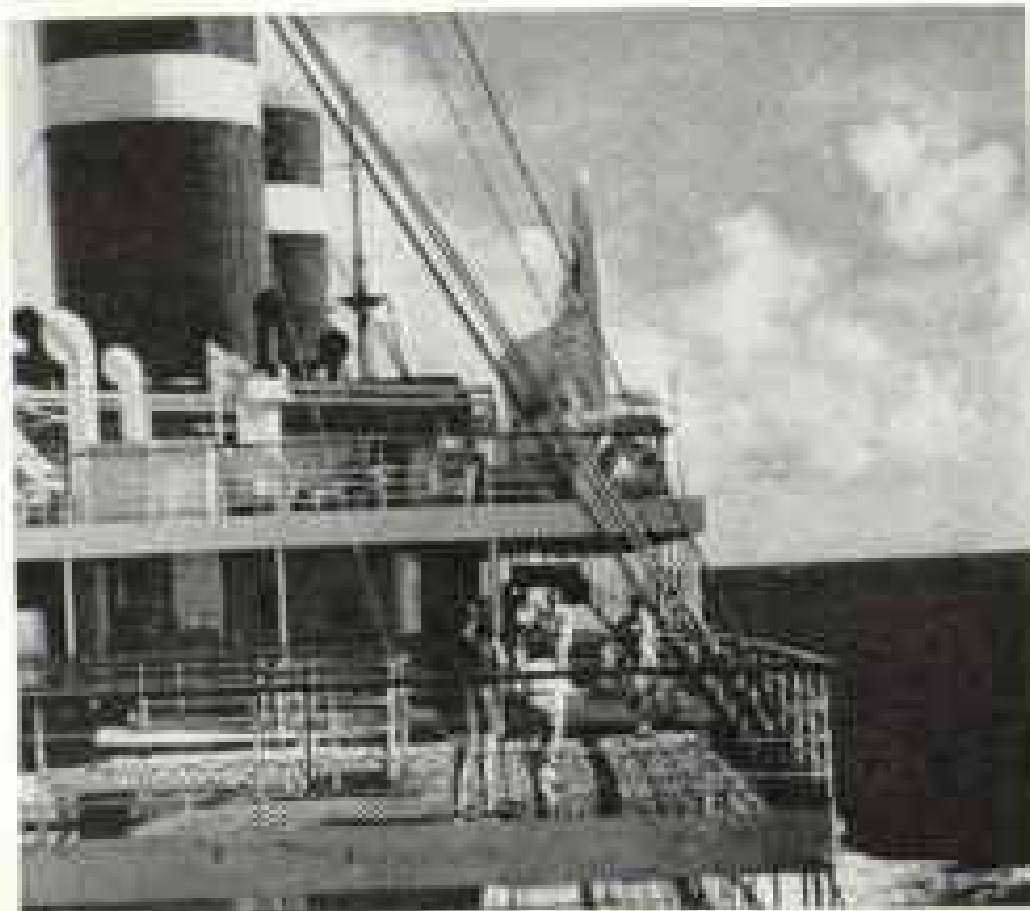
Similar "Guest Cruises" to the WEST INDIES and the CARIBBEAN from NEW ORLEANS, LOS ANGELES, SAN FRANCISCO.

Apply any authorized travel agency or **UNITED FRUIT CO.**, Pier 2, North River, or 601 FIFTH AVENUE, New York; 112 West Washington St., Chicago; 201 St. Charles St., New Orleans.

'Guest Cruises'

GREAT WHITE FLEET

WINTER VACATION TRIPS via the "Big 3" sunshine route



**between New York and California
(or California and New York)
or... visits to colorful Havana
Panama and the Caribbean**

- ★ **Coast-to-coast... From New York, first class from \$185. Tourist Cabin from \$125. From San Francisco (after March 2nd) First Class from \$200. Tourist Cabin from \$125. 25% round trip reduction.**
- ★ **Circle tours, one way by sea, one way rail or air. Special home-town to home-town combination rates. Stop-over privileges on both steamer and rail tickets.**
- ★ **From New York—9 day Havana all-expense cruise tour from \$130. A vacation trip for "busy" people. Rate includes everything aboard ship, also room and bath, meals and sightseeing, for 3 days in Havana.**
- ★ **16-17 day Caribbean all-expense cruise tours... Panama... South America, \$255 up. Wide choice of itineraries. Sailings all year round. Special folder upon request.**
- ★ **From San Francisco (or Los Angeles)—3 week Panama vacation. Inclusive rates for all expenses ashore and afloat. Also Havana round trip and connections for Florida and Mexico.**

See your travel agent for further details. He will help you plan a trip to suit your time and pocketbook.



The "Big Three"
S. S. CALIFORNIA
S. S. VIRGINIA
S. S. PENNSYLVANIA
(33,000 tons each)

Panama Pacific Line

International Mercantile Marine Company, 1 Broadway and 601 Fifth Ave., New York. Offices in principal cities



Mix yourself into this Delightful Formula of Adventure

Sleek N.Y.K. motor liners Japan-bound...splendid staterooms and appointments...good fun and adventure in swimming pools and at deck sports...congenial fellow travelers...and a cuisine that paralyzes our pen. In the Orient, a New-Old World combining American efficiency with the charm of the Far East.

JAPAN, CHINA, the PHILIPPINES
Stop-over at Honolulu
LOW ROUND-TRIP FARES
from San Francisco and Los Angeles to Japan:

First Class... \$542 up	Cabin Class... \$437 up
Second Class \$332 up	Tourist Cabin \$236 up

Also from Seattle—Vancouver direct to Japan. Write to Dept. 93, for information, rates and reservations. New York, 25 Broadway; San Francisco, 551 Market Street; Seattle, 1404 Fourth Avenue; Chicago, 40 North Dearborn Street; Los Angeles, 318 West Sixth Street, or any Cunard White Star Limited office. Consult your local tourist agent. He knows.

n·y·k·LINE
(JAPAN MAIL)

"Mention the Geographic—It identifies you."

A New Nature Book in Two Volumes

Illustrated with 950 Remarkable Photographs, by George Shiras, 3d



WILD DUCKS RISING FROM A LOUISIANA FORD

⌘ HUNTING WILD LIFE with Camera and Flashlight ⌘

THESE pictures and almost a thousand other flashlight and daylight photographs by George Shiras, 3d, are included in his superb new Nature book, "Hunting Wild Life with Camera and Flashlight," in two volumes.

Mr. Shiras, an outstanding field naturalist, has written this beautifully illustrated, 950-page work as a living record of his observations of wild life during his 65 years' visits to the woods and waters of North America. It is published by the National Geographic Society, and made available at cost, because of its permanent value to conservationists, sportsmen, and Nature lovers of all ages. You will find it a rich addition to your library and a delightful gift to friends.

Each of the two volumes is 7x10 1/2 inches, handsomely bound in blue-cloth covers, embossed in gold. Order your set today, for the edition is limited. Descriptive folder will be sent on request.



CANADA, LYON, JOHN SARK, ONTARIO

• \$5 THE SET •

*\$5.00 the set, postpaid in U. S. and Possessions. For mailing to other countries, add 50 cents per set for postage and packing. Please remit by check, draft, postal or express order. A set consists of two volumes which cannot be purchased separately. This remarkable book can be obtained only from the National Geographic Society.

----- ORDER FORM -----

National Geographic Society,
Dept. DD, Washington, D. C.

_____ 1936

Enclosed please find \$_____*

for which send me _____ sets of George Shiras, 3d's, book, "Hunting Wild Life with Camera and Flashlight," in two volumes. [Please write your name and address in margin below.]

NATIONAL GEOGRAPHIC SOCIETY • WASHINGTON, D. C.

Australia

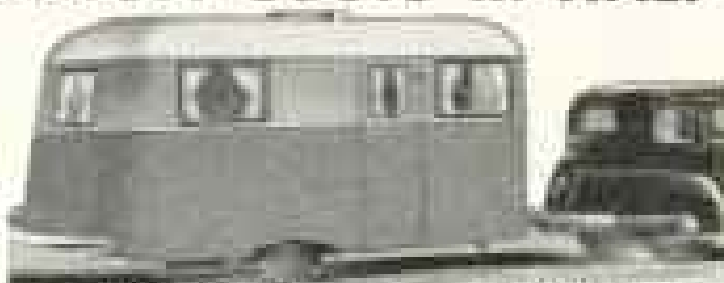
Follow the NEW travel trend to peaceful, pleasure-loving AUSTRALIA! Discover Hawaii, Tahiti, Samoa, Rarotonga, Fiji, New Zealand, en route. ***In the Island Continent it is mid-summer in January... Autumn in Spring... clear winter days when Summer sweeps the North. ***Swift lines and low costs join luxury with economy. ***Details from Travel Agents or



AUSTRALIAN NATIONAL TRAVEL ASS'N
(A non-profit community organization)
Suite 300, Hotel Clark, Los Angeles, Calif.

CUT TRAVEL and VACATION COSTS in HALF

Why do they always say you need a Covered Wagon Travel Coach to get out and go... south in the winter—west in the spring—north in the summer. Here's a recommended alternative—with a very low cost—for you and your family. **\$395-\$785 or \$1185 COMPLETE.** J. P. K. Detroit



costs, steam, carefully equipped and fitted out with every convenience for personal travel. Ideal for day, tour or air. Has stoves, sink, running water, seats for two, jockey, sink, stove, cupboard, roofing and heating covers, dining room, pillows, rug, table, toilet, storage lockers, electric lights, linens or carpeted floor, etc.

FREE Illustrated literature or brochure on request. The purchase of a coach is subject to a 10% down payment.



COVERED WAGON COMPANY
339 Cass Avenue, Mt. Clemens, Mich.
(A suburb of Detroit)

Travel by COVERED WAGON... and Save

WASHINGTON, D.C.



With folders and full information about Washington. Live at Washington's most convenient hotel for sightseeing.

The WILLARD HOTEL

14th and Pennsylvania Avenue
R. F. Sawanville, Managing Director

The Society's New MAP OF THE WORLD

23 x 34 inches, ten colors, drawn in two hemispheres to minimize distortion. Published December, 1935. Paper 50c. Linen 75c, postpaid in U. S. and Possessions. 25c extra elsewhere.

NATIONAL GEOGRAPHIC SOCIETY
Department DD, Washington, D. C.

Tourist Class is Top! EUROPE ROUND TRIP

\$162

ARNOLD BERNSTEIN

\$213

RED STAR LINE

ONE CLASS RUN OF THE SHIP

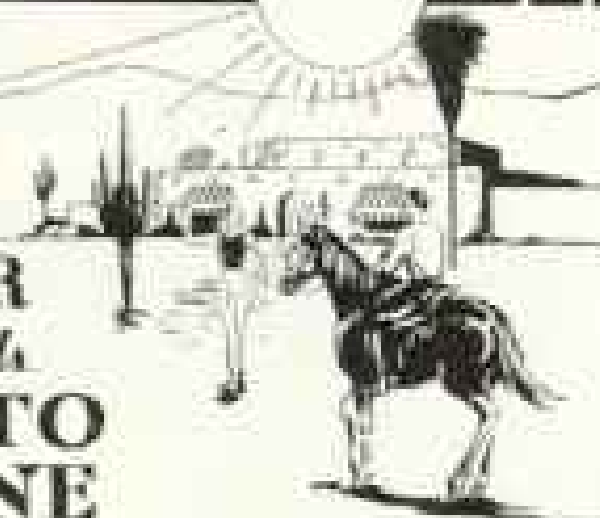
Write for Booklet G for Details

ARNOLD BERNSTEIN ★ RED STAR LINE

17 Battery Place, New York, N. Y.

VALLEY OF THE SUN

"ROAM"
THIS WINTER
where ALL roads
LEAD TO
SUNSHINE



Thrill to the charm and romance of this ideal, warm, dry country. Make this a winter of dreams-come-true! It is entirely different—this sun-splashed land of giant cacti, picturesque Indians and "last frontier." Paved roads lead to date palms, vast orange and grapefruit groves, flowers, renowned scenic wonders. Living costs are moderate in Phoenix and nearby Mesa, Tempe, Glendale, Wickenburg, Chandler and Buckeye. Here are sports for everyone, smart shops and modern, metropolitan accommodations.

Phone calls via Atlantic or West Coast—Southern Pacific and Santa Fe Lines.

Phoenix

CHAMBER OF COMMERCE

100E. Calle del Sol



Please send me attractive, free literature and booklets

Name _____

Address _____

ARIZONA

Plan to Travel

TEXAS

DURING HER

CENTENNIAL CELEBRATIONS

Where to go? . . . is answered for you this year by the Texas Centennial Celebrations! Festas — pageants — and expositions — will add once-in-a-lifetime interest to Texas' historic shrines — scenic contrasts — varied natural resources — sport allures — as this great state goes "on parade." Plan now for a real Texas vacation. Illustrated booklet free.

TEXAS CENTENNIAL
1936



TEXAS CENTENNIAL,
Department 18-A
State Headquarters, Dallas, Texas.
Please send illustrated literature on Texas and the Centennial Celebrations to:

Name _____

Address _____

City _____ State _____

Who buys this stationery?



The "450" Package

300 NOTE SHEETS • 150 ENVELOPES

\$1.00
POSTPAID

Printed
with your
name and
address

PEOPLE in all walks of life buy American Printed Stationery. Ever so many of them are people you know or have heard about—people listed in Who's Who and Social Registers. They send to Peru, Indiana, for the "450 Package" because it is *good* paper and thoroughly correct for everyday correspondence. It permits them to save their costly engraved stationery for formal occasions.

The young generation at college buys American Printed Stationery because it is smart, convenient, inexpensive. And men

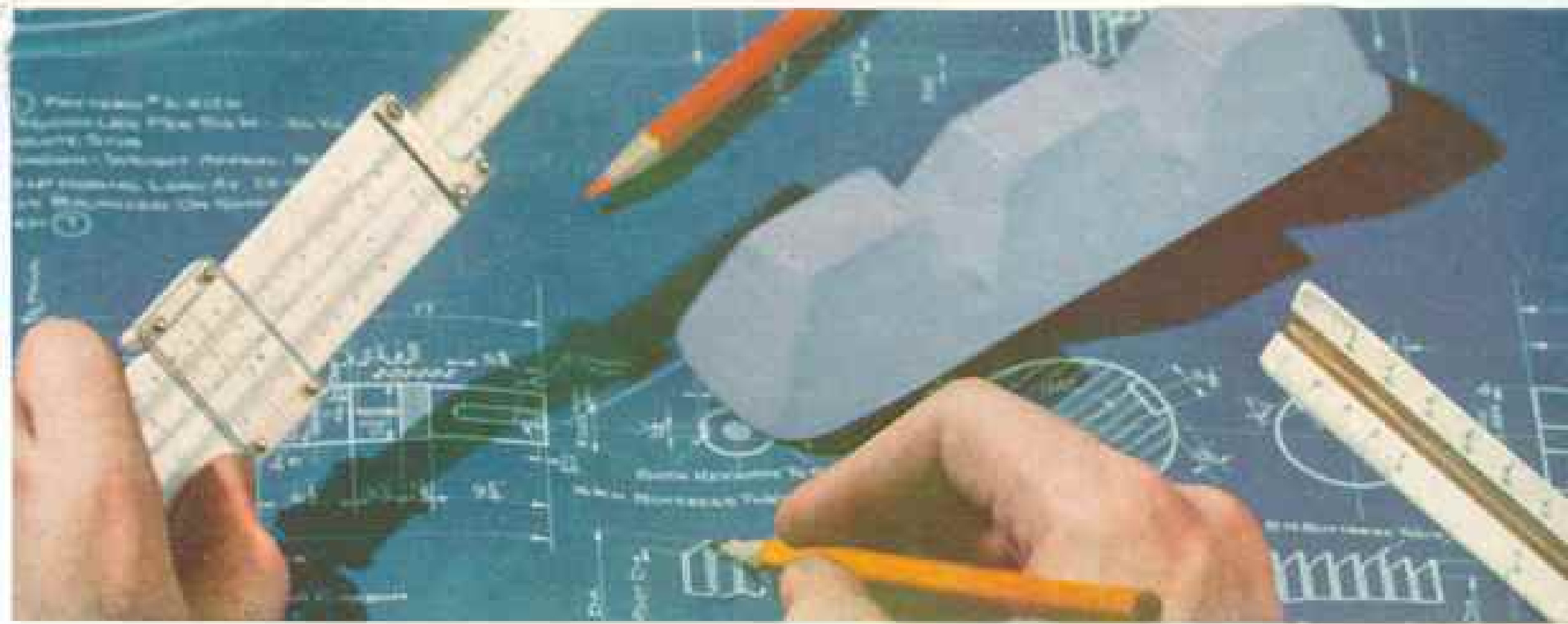


and women everywhere select this paper because it *properly* serves more writing purposes in the home than any other type.

The "450 Package" is one of the country's great bargains—not only because the quantity is so big but because the quality is so **GOOD**. We use only high grade, pure white *rag-content bond paper*. And each sheet and envelope is neatly printed with your name and address in rich Dark Blue Ink. Send \$1.00 for a package. (West of Denver, Colo., and outside of U. S., \$1.10.) If you are not delighted with your purchase your money will be immediately refunded.

AMERICAN STATIONERY CO., 300 Park Avenue, PERU, Indiana

TRIBUTE TO CERTAIN SKEPTICS



NO EXTRAS were rushed to the streets on that February day, fifty years ago, when Charles Martin Hall discovered the commercial process for making Aluminum.

Engineers called no meetings to deliberate on ways and means of utilizing this newcomer to the great family of metals.

Yet it was the engineers, the architects, the designers, who gave Aluminum its first opportunities: their continual challenge and their co-operation made possible the present universal usefulness of Aluminum.

In the beginning, Hall and his associates had the quite understandable hope that they needed only to offer metal to a waiting world at greatly reduced prices, and forthwith there would emerge Aluminum bridges, railroad trains, and whatnot.

Feverishly they worked up their production to the then amazing figure of a ton of ingot-metal a day. But, to their astonishment, nobody wanted as much as a ton of these ingots at any price!

Engineers were interested, but humanly skeptical. And why not? They had command of familiar metals in convenient forms, such as sheets and tubes, rods and wire. Granting all the advantages of Aluminum, it was available only in the form of ingots, a highly inconvenient form of metal from which to build a railroad train.

It was this normal human reaction that forced the

infant Aluminum industry, quite against its will, to invest in costly machinery, and to set up rolling mills, foundries, and fabricating plants for turning Aluminum into the usable forms in which other metals were available.

Now the engineer had something to work with. Here and there a bold pioneer screwed up his courage and began to specify Aluminum for some new use. Others in the profession followed suit. Presently new forms, new shapes, and new and still better characteristics began to be called for.

The engineers were setting the pace!

Their challenge stimulated the development of a versatile range of strong Aluminum alloys; also new forms of Aluminum, such as Alclad sheet; and new and attractive finishes, such as Alumilite. Capabilities were developed in Aluminum that had never been demanded of other common metals.

To solve problems arising out of the widening use of Aluminum, and to anticipate future engineering requirements, this company, as one factor in the Aluminum industry, established Research Laboratories and a Development Division.

That assistance is no less than is due the engineering profession. For it is because of the progressiveness of engineers and designers that Aluminum is now being used for the bridges and railroad trains envisioned by the founders of the industry, in the first flush of their enthusiasm.

A FIFTIETH ANNIVERSARY MESSAGE FROM

ALUMINUM COMPANY OF AMERICA