VOLUME CV NUMBER SIX

THE NATIONAL GEOGRAPHIC MAGAZINE

JUNE, 1954

Ten-Color Supplement Map of California

Eighty Pages of Illustrations in Color

PUBLISHED BY THE
NATIONAL GEOGRAPHIC SOCIETY
WASHINGTON, D. C.

$6.50 A YEAR 65c THE COPY

VOL. CV, No. 6 WASHINGTON JUNE, 1954

THE NATIONAL GEOGRAPHIC MAGAZINE

New Rush to Golden California

Vast and Varied, Our Fastest-growing State Reveals Its Wonders to Eastern Descendants of a Gold Rush Pioneer

By GEORGE W. LONG

Assistant Editor, NATIONAL GEOGRAPHIC MAGAZINE

IN an old family diary I read this faded entry: "Today we reached the Summit of the Rocky Mountains, the dividing ridge between the waters of the Atlantic and Pacific. Now we go down instead of uphill, and the streams run the same way we are traveling. Our men hailed this day with great joy."

The year is 1850; "our men," a band of emigrants from Massachusetts. To reach the Continental Divide, their California-bound wagon train has lumbered two months across the wide prairies. An equal time will pass before it crosses the desert, scales the Sierra Nevada, and descends into the Promised Land.

In an age when men fly faster than the speed of sound, the creaking oxcarts of pioneers seem fantastically remote in time. Yet in this very caravan rode my wife Carolyn's paternal grandfather, then a young man of 20.

Tales of fabulous gold strikes lured Grandpa Barney, as they did countless thousands, out to California. There he panned gravel for months; then, scarcely richer for his travels, he returned via Panama. Nothing daunted, he made the long journey once again before settling down in New England.

A century later his granddaughter and I and our daughters, Margery, 15, and Judy, 12, made the trip too. We were on vacation, and time was limited. So we flew, spanning the continent in the time it often took Grandpa Barney's caravan to go a dozen miles.

Flying the southern route, we had dramatic views of Grand Canyon and Hoover Dam, with huge Lake Mead behind it, giver of life to much of arid southern California.

High over California itself we sensed the vast size, majestic scale, and amazing variety of this second largest State. (See "A Map of California, with Descriptive Notes," a supplement to this issue.)

Country's Highest, Lowest Points

Cutting across Death Valley and skirting stark Mount Whitney, we passed within a few minutes the lowest and highest points in the United States.

Then below us the wide, flat Central Valley unrolled a carpet of green fields where once there was only sagebrush waste. On one side snow-flecked Sierra giants reflected the setting sun; on the other, the crumpled Coast Ranges marched beside the sea.

Fog billowed through the Golden Gate, and a brisk sea wind blew as we landed in San Francisco. Men, we noticed, were wearing winter suits, women sported furs, and toddlers were bundled in snowsuits that summer evening. Only 11 hours from an eastern heat wave, we felt chilly—and conspicuous—in light clothes. Steaming radiators in our hotel rooms were a welcome surprise.

Our cool reception was no whimsical prank of the weather. Thanks to ocean breezes and frequent fog, real summer heat is unknown in San Francisco. It's front-page news when the mercury climbs near 80.

San Francisco Bay, a Deep Arm of the Sea, Embraces a Mighty City

Crowning a peninsula, the city spreads between Bay and Pacific (right). Haze dims Oakland (left) and the San Francisco-Oakland Bay Bridge (pages 727, 737). Grim Alcatraz Island, a moated prison, lies at left.

725 Kodachrome by National Geographic Photographer B. Anthony Stewart

Earth's Longest Suspension Bridge Leaps the Mile-wide Golden Gate

This graceful span links the bare hills of Marin County, gateway to California's redwood empire, and the wooded Presidio, a military reservation founded by Spaniards in 1776 and still used by the U. S. Army.

Winters, too, are tempered. Not the least of the city's attractions is the fact that it lives in a year-round autumn. August days there, crisp and invigorating, reminded us of October on the New England coast.

San Francisco will steal your heart away—and quickly. Both our daughters were born in Boston and are fiercely loyal to the home of the bean and the cod. For them it has always been a city quite beyond compare. So I could scarcely believe it, our second day in California, when I heard them say they would love to *live* in San Francisco!

This Queen of the West has winning ways indeed. She is loved by more people, both casual acquaintances and old friends, than perhaps any other American metropolis.

A Site Few Cities Can Equal

Look first upon her, as we did, from a hilltop, and at once you will discover one of the chief secrets of her charm—a site few cities can equal. Crowning an outthrust peninsula, San Francisco is washed on three sides by the sea. Two mighty bridges, engineering wonders, span the confining waters. Beneath their graceful arcs glide luxury liners and workaday freighters bound to and from the world's sea lanes.

Built on many hills, the city rises, dips, and rises again. The hills keep one's eyes lifted and lend a high, soaring excitement to the scene. Perched on the heights, tall buildings stab the sky. Streets seem upended, and traffic, paced by clanging cable cars, climbs up and down at cautious speeds.

And when the sea-born fog comes rolling in, as it does on summer evenings, this is an enchanted city. Then the streets are veiled in mystery, and familiar landmarks loom like giant phantoms through the mist. Deep-throated foghorns moan, and bridge lights, strung across San Francisco Bay, shine with a strange, unearthly glow (page 736).

But San Francisco's top attraction, whatever the weather, is its own vibrant, many-sided personality. See the sights with us, watch the passing show, and you will begin to understand this city's great appeal.

Gay streamers fluttering over Union Square, heart of the shopping district, call attention to an outdoor art exhibition there. Crowds fill the small park, sauntering past the paintings, stopping now and then to ponder or admire. Craftsmen mold pottery or fashion jewelry, while bearded artists sit sketching. A brass band strikes up a lilting Viennese waltz.

Smartly dressed women, sun-tanned and chic, are everywhere, hurrying by or lingering before countless store windows that are works of art themselves.

Beneath this pleasant square shoppers park autos and meet friends in a huge garage. To build this 4-level carpark, San Francisco removed Union Square and its tall Victory Monument; then, the job done, it carefully restored them as they were.

Sidewalk flower stands splash the scene with color. Shop girls, hurrying to work, buy gardenias for their hair. Other passers-by stop for nosegays and boutonnieres.

Myriad signs in this gateway city invite you to faraway places—South America, Europe, Hawaii, Australia, the Orient. A multiarmed signpost in front of an airline office points to big cities all over the globe and gives the flight time to each.

At the foot of Powell Street passengers help shove a cable car around on a turntable, then scramble madly for seats (page 730). Latecomers hang on wherever they can find room, looking like a swarm of bees. Climbing Nob Hill, where nabobs built palaces long ago, the doughty vehicle rings out a gay, syncopated rhythm on its bell.

This is the city's most familiar sound, the ragtime ring of cable-car bells above the din of traffic. Each car's gripman is a virtuoso, with his own distinctive beat.

Old China by the Golden Gate

Over on Grant Avenue pagodalike rooftops trace Oriental patterns, for this is the main street of the largest Chinese settlement outside the Far East (page 728).

The sinister Chinatown of eerie labyrinths, opium dens, and tong wars disappeared long ago. In its place stand apartments-over-shops, supermarkets, chrome-and-neon eating places, big housing units, and fine schools.

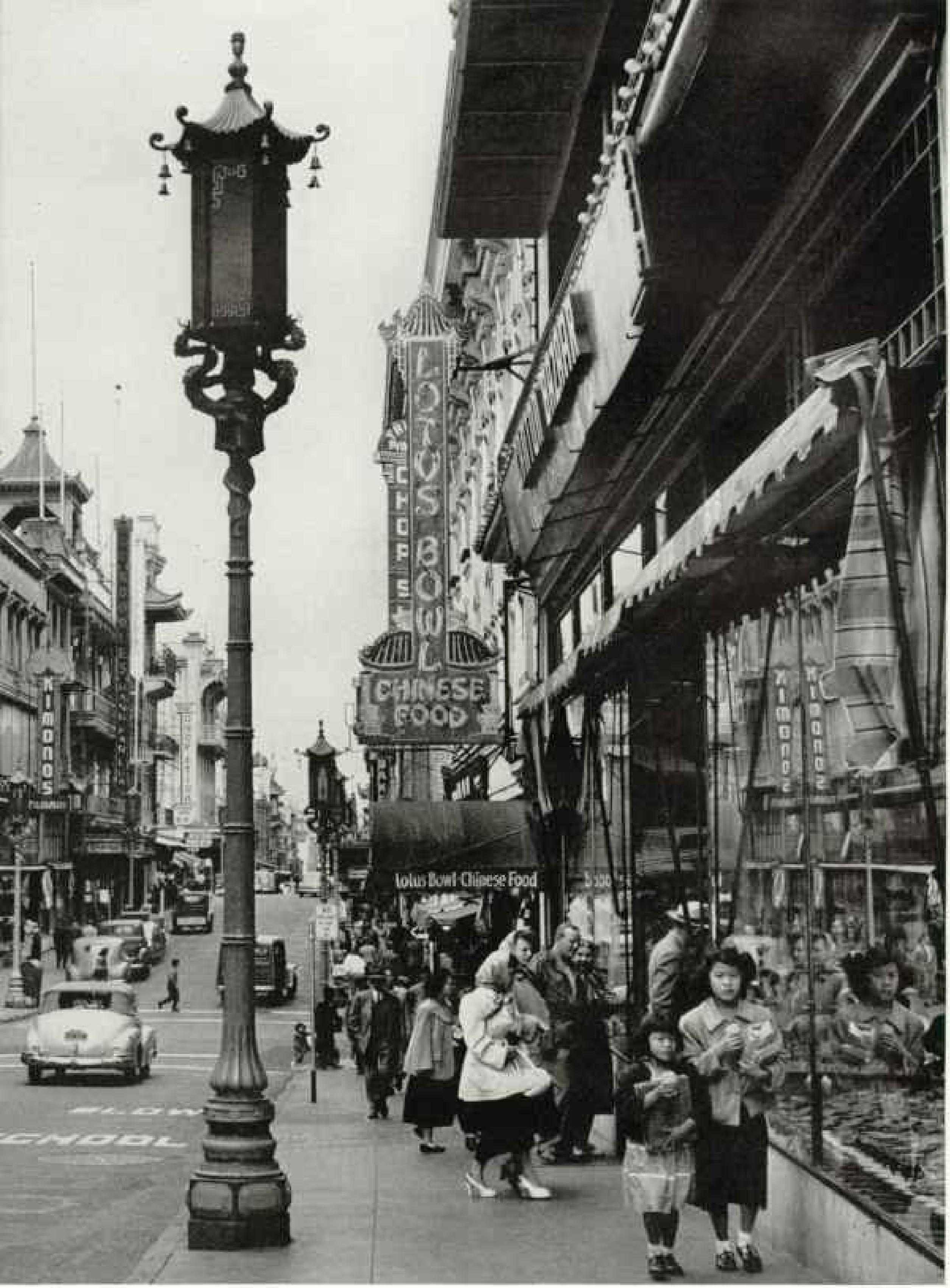
Oriental clothes are out; stores display the latest Western fashions. Teen-agers sport bobby sox and jeans, like their contemporaries everywhere, while their younger brothers and sisters play in sunsuits or swagger about in cowboy outfits.

But singsong Cantonese is heard on every side, and Chinese signs are legion. Shops are crammed with rich brocades, exquisite lacquer work, jade, and delicate porcelain. To the family I pointed out ornate ivory balls-within-balls and handsome camphor-

Kodachrome by Luis Marden, National Geographic Staff

World's Biggest Bridge Vaults 8¼ Miles Between San Francisco and Oakland

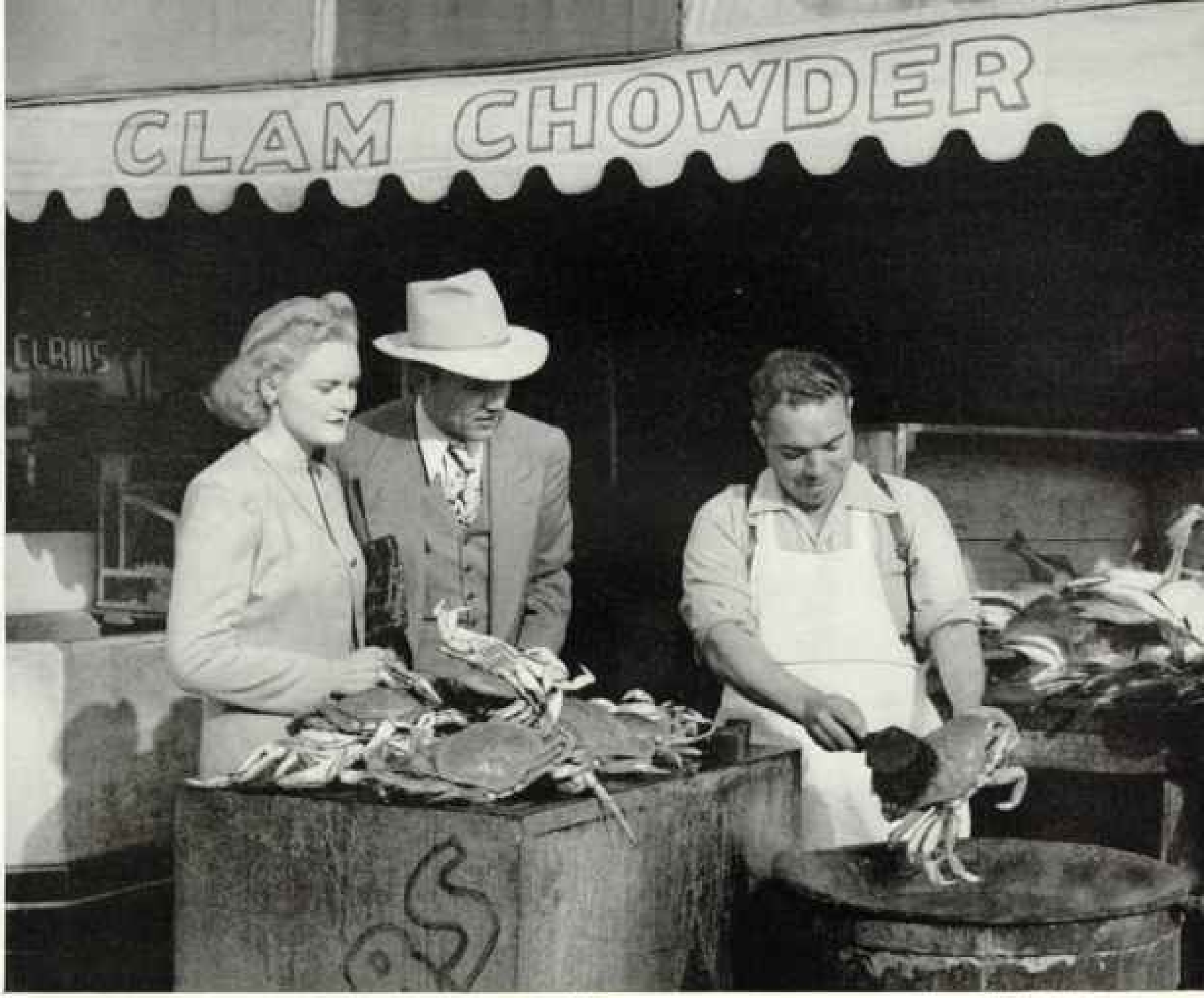
This engineering marvel starts as a suspension span, tunnels through fog-shrouded Yerba Buena Island, and angles to the far shore as a cantilever. A double-deck Pan American Airways Stratocruiser, climbing, heads for Hawaii and the Orient; PAA pioneered this route in the 1930's. San Francisco's waterfront spreads fingerlike below.



728 Howell Walker, National Geographic Staff

Pagoda-roofed Street Lamps with Tinkling Bells Line Chinatown's Grant Avenue

San Francisco shelters more Chinese than any other place outside the Far East. Their ancestors first came a century ago, fleeing famine in China and seeking work in the gold fields. Oriental trimmings seen here were introduced after the great earthquake and fire of 1906, which razed the old Chinatown once famed for opium dens and tong wars. Today's settlement wears Western garb and mixes American slang with singsong Cantonese.



Mendia Studios

Pungent Aroma of Boiling Crabs Stops Gourmets Along Fisherman's Wharf

Sidewalk vendors on San Francisco's waterfront cook seafood delicacies before the customer's eyes. This couple selects market crabs, caught outside the Golden Gate and still hot from the steaming caldron.

wood chests like ones I'd seen men carve in Hong Kong.*

And on side streets we found old-time shops full of the delicacies and remedies of ancient China. There food stores feature whole roast pigs, tiny mottled sausages, and ducks that you blow up with bellows before cooking. Housewives bargain for dried squid, shark fins, octopus dried or fresh, bamboo sprouts, tiny shrimp, and greens.

Moppets clutching pennies line up in candy stores for sugared coconut, preserved ginger, candied melon, and sweet litchi nuts.

Drugstores exhibit dried sea horses, ginseng and other roots, pickled snakes, and strange bits of animal anatomy. As I was explaining these ageless remedies, we heard a sound that brought memories of the Far East rushing back to me. From a near-by theater came the crashing cymbals and the wailing, high-pitched song of Cantonese opera.

We strolled from China to Italy on Grant Avenue, for it also cuts through the city's Latin Quarter. There long loaves of bread, Chianti bottles, and rows of salami and cheeses fill store windows.

Restaurants by the score advertise ravioli, pizza, and spaghetti. Inside, men conduct business over leisurely 3-hour lunches, sealing bargains with California wine. On backyard courts other diners settle meals with games of bowls.

Narrow cobbled lanes climb steep Telegraph Hill in this section. Houses, jumbled together, seem to stand on those below. Neighbors gossip between levels, while youngsters play on step sidewalks. Lines of diapers flap like ships' pennants, and strings of fish and peppers dry in the sun.

In the air there's the yeasty tang of bakeries, the vinous scent of wineries, and now

(Continued on page 735)

* See "Hong Kong Hangs On," by George W. Long, NATIONAL GEOGRAPHIC MAGAZINE, February, 1954.


AIR COACH
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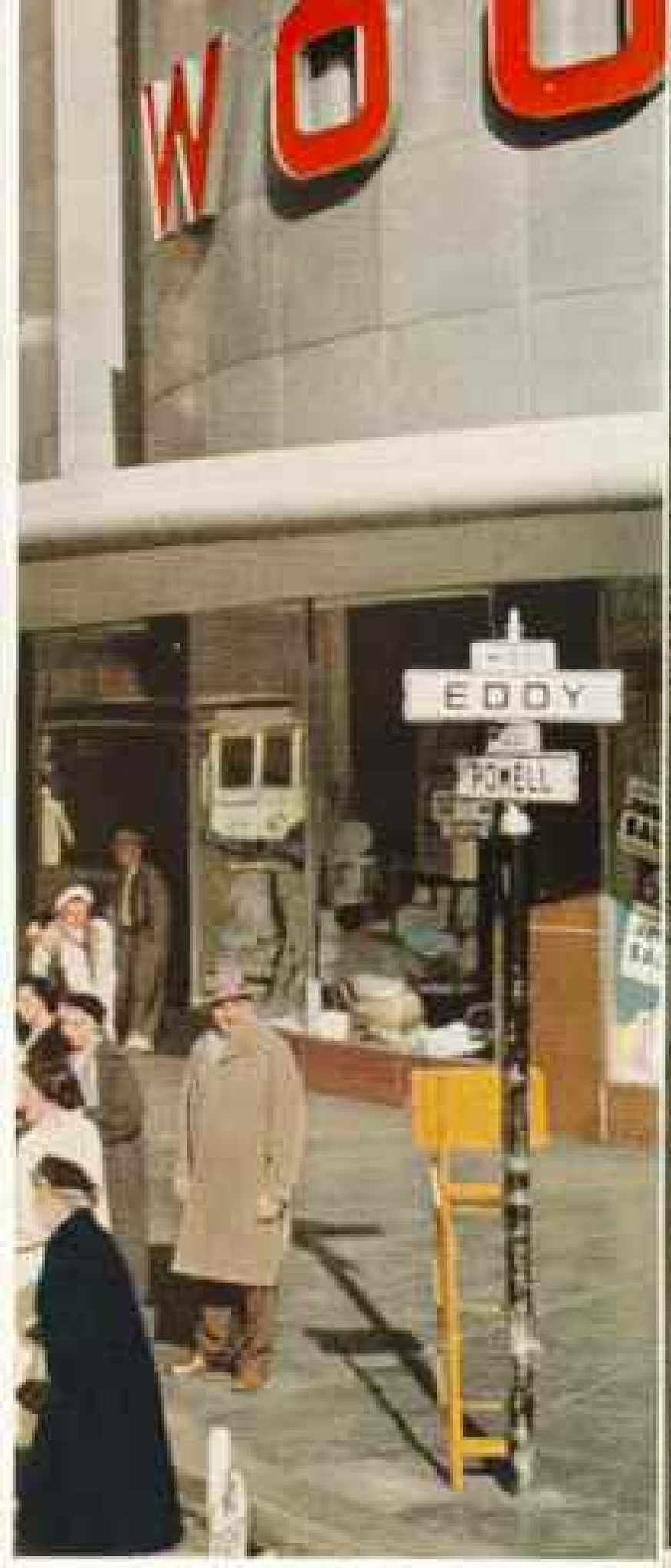
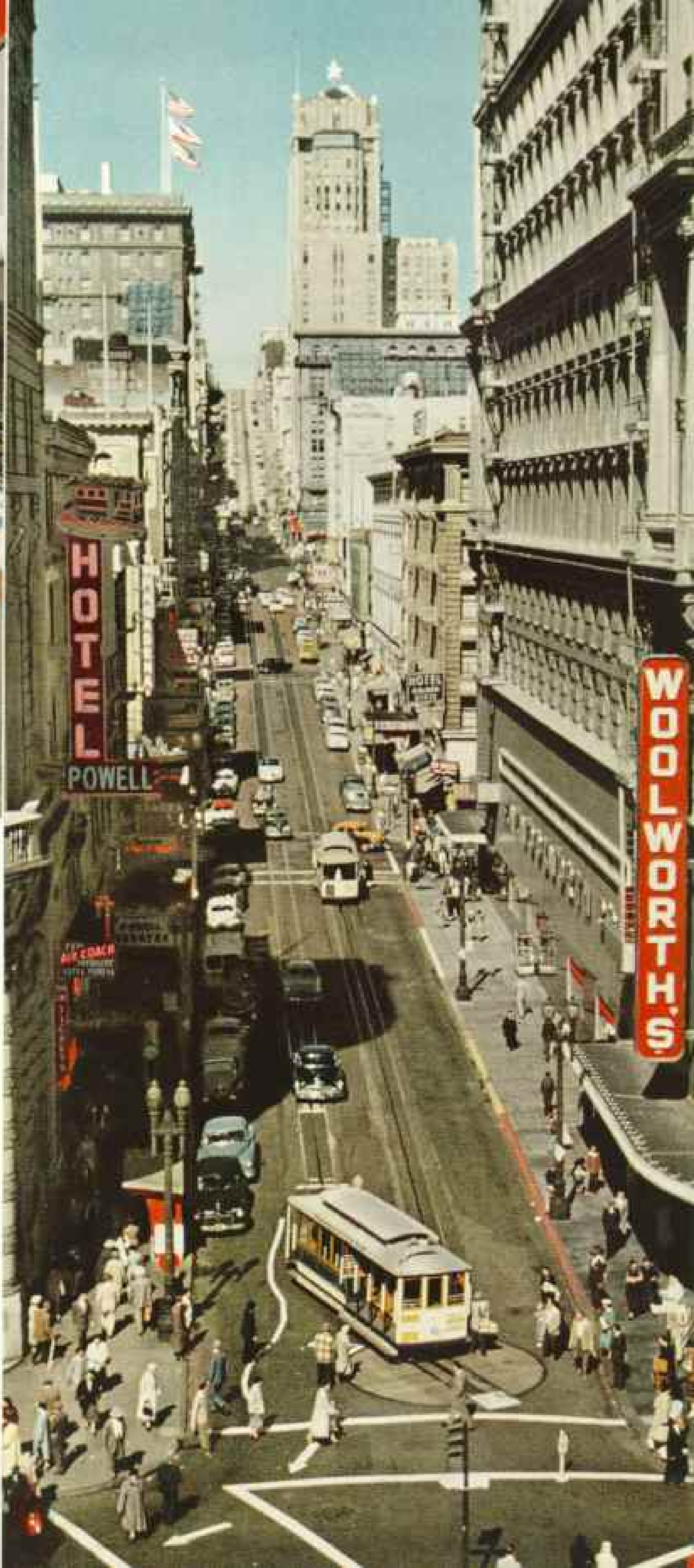
WELLS FARGO & CO. OVERLAND STAGE





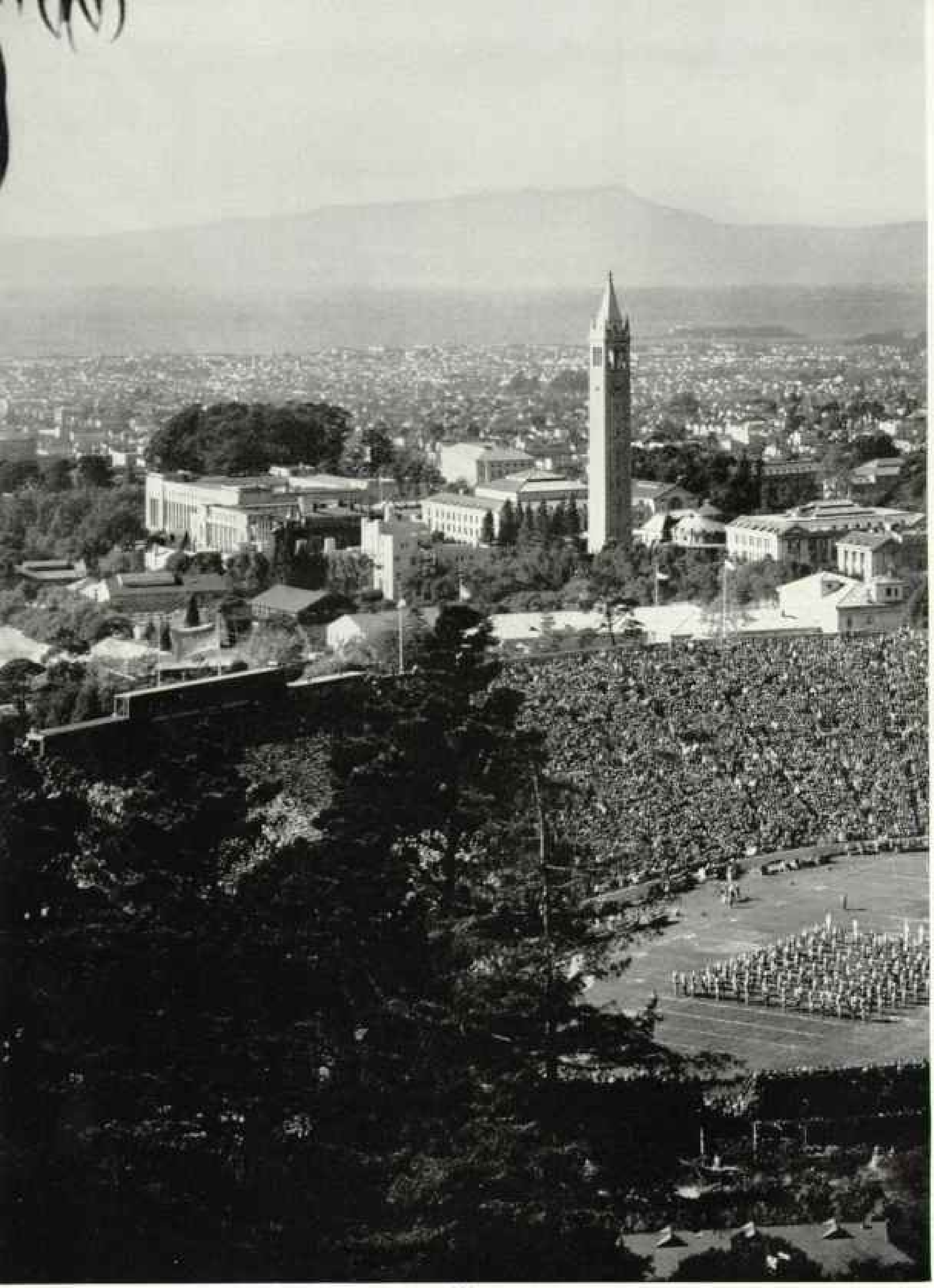
↑ Cable Cars Say → "San Francisco"

Built on steep hills, San Francisco has many upended streets. Streetcars climb the slopes with the aid of moving cables between the rails.

San Francisco's best loved sound is the ragtime rhythm of its cable-car bells. Citizens, rising in wrath at talk of junking the vehicles, forced the city to buy and operate the lines even though they lose money.

Turntables reverse the cars at the end of most lines. Passengers sometimes help shove.

← Eighty-five years ago, Leland Stanford, former Governor of California, drove a golden spike at Promontory, Utah, completing the first continent-spanning railroad. Here the author's family views the relic (in box) at San Francisco's Wells Fargo Bank. Gold rush nuggets glitter in the case. Stagecoach ran between Carson City, Nevada, and Hangtown (Placerville), California.



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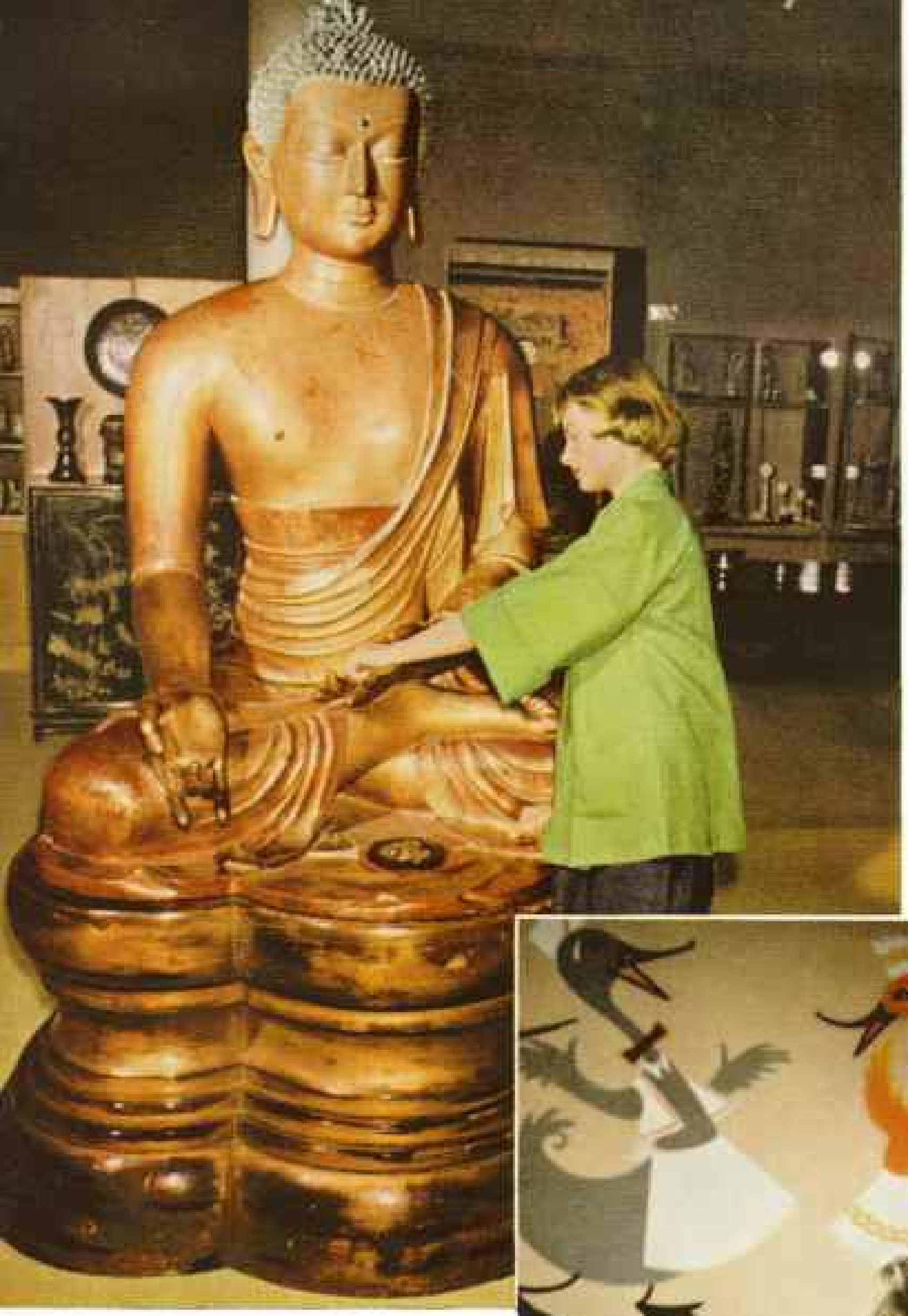
Football Fans Jam the University of California Stadium; a Band Plays at the Half

More than 33,000 full-time students at eight campuses throughout the State make California's university largest in the Nation. This graceful campanile, whose bells regulate student life, identifies the school at Berkeley.

733 Gabriel Moulin

Nestled in Hills, the Tree-shaded Campus Overlooks Wide San Francisco Bay

Medical, engineering, and agricultural research have earned fame for Berkeley as a top-flight scientific center. Here the bevatron, the world's most powerful atom smasher, probes mysteries of the atomic nucleus.



A Golden Buddha Begs for Charity

Bought in Peiping and shipped to San Francisco, the image squats among fabulous jade pieces in Gump's, Inc., a store specializing in art objects. It was carved from wood in the 18th century and lacquered with gold. The lump on top of the head, curled hair, spot on forehead, and long ear lobes signify wisdom to Buddhists.

Most visitors cannot resist the urge to drop small coins into the alms box or an outstretched hand. Some seek a favor or the granting of a wish.

Offerings are given to a center for the blind in memory of A. L. Gump, son of the company's founder, who was blind for many years.

Kodachrome by Jean Shor

Judy Long Consumes a Work of Art

Masterpiece of Drake's Fancy, an ice-cream parlor in the Sir Francis Drake Hotel, is a Swan Lake. Strawberries, chopped almonds, chocolate sauce, whipped cream, and three scoops of ice cream form the bulk. Pastry wings and swan's head transform the sundae into a sugary bird.

San Francisco's international dishes tempt older visitors to forget calories. This gourmet's city offers almost any specialty, from lacquered duck to rose-petal ice cream, from chicken Raphael Weile to the native abalone.

Kodachrome by National Geographic Photographer J. Baylor Roberts

and then a savory whiff of home cooking.

Farther on, Fisherman's Wharf sends up an aroma of steaming lobsters and giant crabs. Seafood shoppers pick out crustaceans and see them tossed into huge sidewalk caldrons (page 729).

When we arrived, the fishing fleet had just come in. Small craft, festooned with nets, crowded the anchorage. Bronzed men in striped jerseys and hip boots were off-loading a big catch. Bantering, they shouted from boat to boat in rippling Italian. Gulls wheeled overhead, and the smell of the sea was strong.

Paradise for Gourmets

We ate dinners fit for sea kings, browsed in souvenir shops, watched menders of nets at work, and fed seals cavorting in a tank.

Taking a harbor tour, we caught something of the thrill travelers feel when they sail through the Golden Gate after a long voyage and see San Francisco loom against the sky.

Circling the grim island prison of Alcatraz, we cruised under the towering San Francisco-Oakland Bay Bridge and skirted miles of docks (page 727). Names of home ports on ships anchored there read like a list of the Free World's great maritime cities.

Sampling the city's famous foreign dishes, we toured the world ourselves on magic-carpet menus. Name almost any foreign specialty, from *shish kabob* to *sukiyaki* or Indian curry, and you will find it somewhere in this gourmet's paradise.

Our daughters are still talking about two San Francisco eating places. One, a French restaurant, overwhelmed Gery with a fancy birthday cake topped by a blazing Fourth-of-July sparkler. The other made Judy's eyes pop with a fabulous sundae shaped like a graceful swan.

To see all of San Francisco's sights could easily take weeks. Like most visitors, we saw the highlights. We visited historic spots and imposing public buildings, strolled in beautiful Golden Gate Park, relived the city's lusty, gold-mad youth in the Wells Fargo Bank museum (page 730), and surveyed the wondrous, glittering panorama of the metropolis at night from the top of the Mark Hopkins Hotel on Nob Hill.

In San Francisco's cavernous Ferry Building we had a spectacular preview of all of California. There a relief map 200 yards long —twice the length of a football field—shows the Golden State in all its vast extent and varied features.

This colossal map made us anxious to be off, to gaze upon the natural wonders of California—its skyscraping mountains, glittering lakes, giant trees, lush valleys, and endless miles of wave-cut shores—and to see first-hand what men have made of the forty-niners' Promised Land.

Seeing just the main attractions of this gigantic State seemed a tall order. California, we discovered, is larger than the British Isles plus Belgium and the Netherlands. It's as big as all New England, New York, and Pennsylvania combined; moved to our east coast, the State would stretch from Boston to Charleston, South Carolina.

Making daylong sorties into the countryside, we drove traffic-filled superhighways that once were dusty Spanish trails, explored mountain byways, skirted fog-veiled shores, and probed secluded valleys.

Everywhere bold hills, tawny brown and dotted with majestic live oaks, sloped to the sea or climbed to tree-clad heights.

On Skyline Boulevard we glimpsed the mighty belt of industry that girdles San Francisco Bay and looked down on busy Oakland, California's fourth largest city. In many places modernistic homes clung to hills like swallows' nests. So steep were some lots that garages perched above the rooftops (page 739).

Near by in Berkeley we paid a call at the University of California and later strolled the cloistered campus of Stanford University in quiet Palo Alto, recapturing for the moment our own New England college days.

Feeling like ants on a lofty limb, we soared 200 feet above the Golden Gate on the world's longest suspension bridge (page 724). In Muir Woods National Monument, right in San Francisco's front yard, we gazed in awe at our first coast redwoods, tallest trees on earth.

Where Sir Francis Drake Stopped

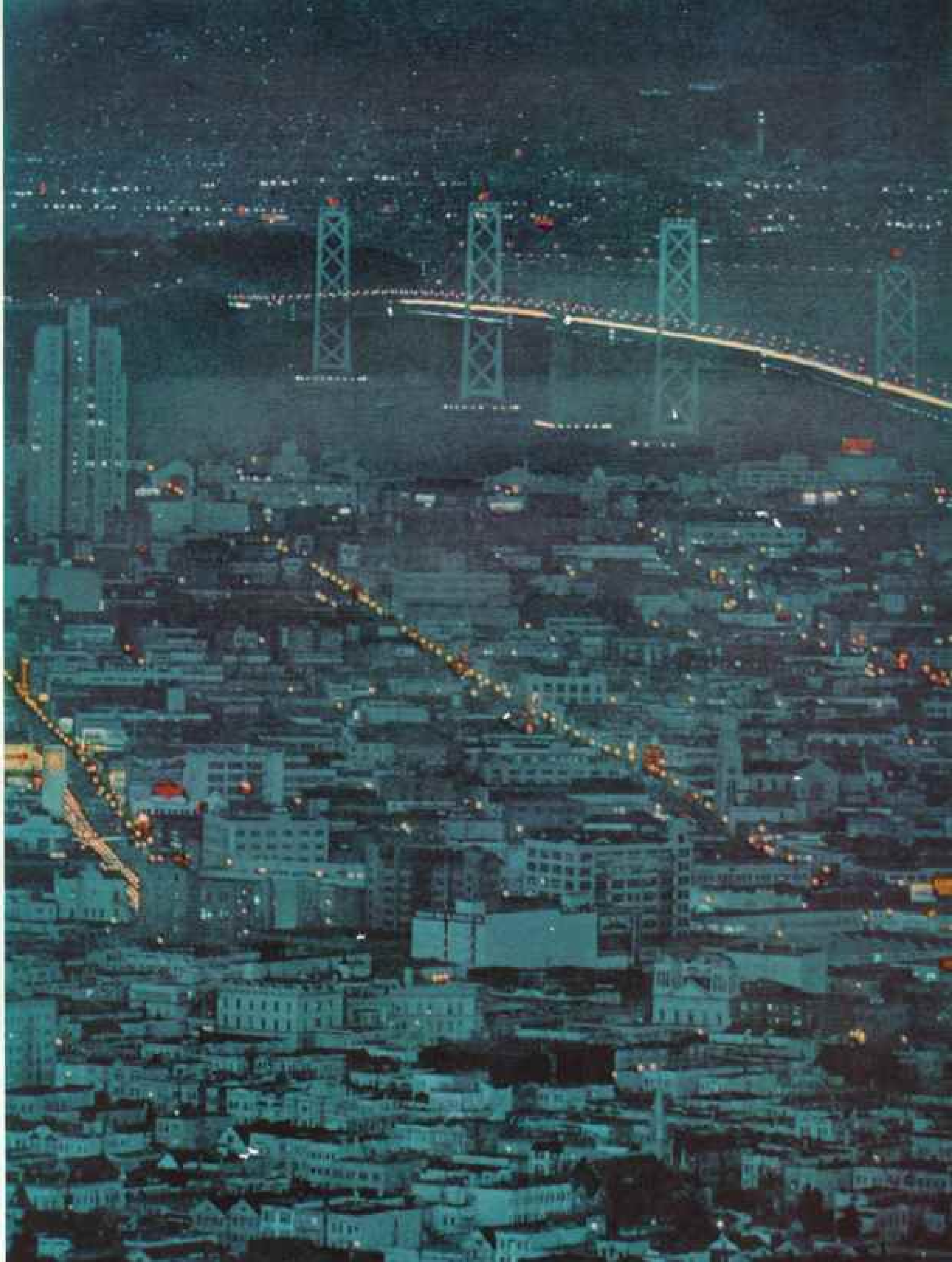
On the near-by shore we found the cliff-lined bay where Sir Francis Drake careened the *Golden Hind* during his epic voyage around the world. Because the white cliffs reminded him of Dover, he dubbed the land "New Albion." Nailing a plaque to "a great and firme post," he took possession of the country for Good Queen Bess.

The plaque, lost for centuries, was found by accident in 1936. Last year Chief Justice

(Continued on page 742)

Ribbons of Light Flood Market Street, San Francisco's Gay Wide Way

This telephoto view from Twin Peaks looks 4½ miles toward the old Ferry Building, whose tower was patterned after the Giralda in Seville, Spain. Twinkling "stars" are picture windows on the steep hills of Berkeley.



737 Kodachrome by National Geographic Photographer B. Anthony Stewart

Bay Bridge's Sparkling Tiara Arches the Harbor's Broad West Passage

The massive Pacific Telephone and Telegraph Building rises 26 stories. Bridge lights disappear into Yerba Buena Island's tunnel. Light tops the campanile of Berkeley's University of California campus at upper right (page 732).

Coit Tower, Crowning Telegraph Hill, Recalls a Fire Lassie

A semaphore station on this height once signaled the approach of sailing ships from around the Horn. In more recent times the hill was raided for rock to build the Embarcadero, waterfront highway.

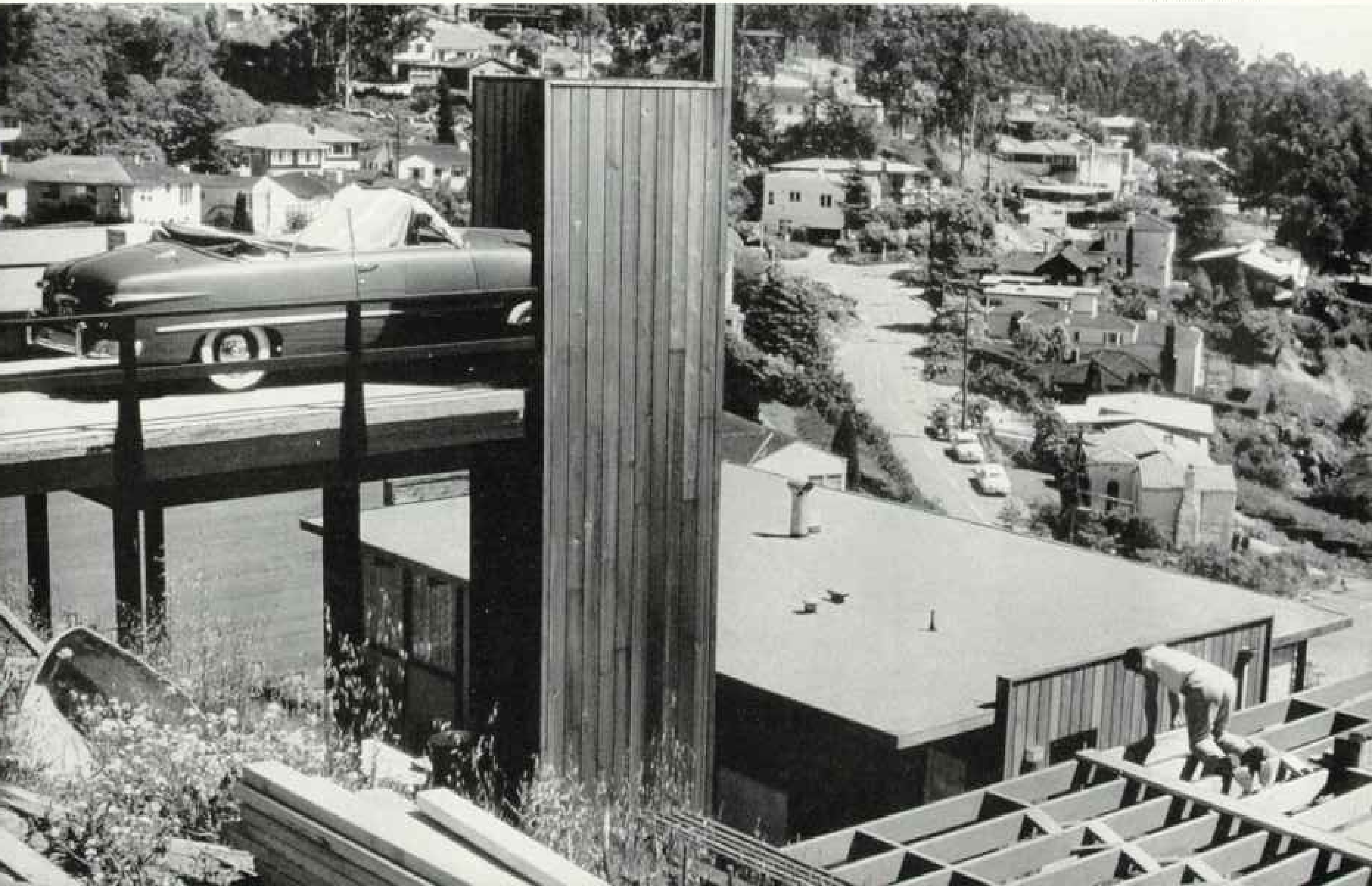
This monument was given by a San Francisco belle of the 1860's who could not resist chasing fire engines. For her zeal she was named an honorary member of Knickerbocker Company No. 5. Thereafter she signed her name Lillie Hitchcock Coit 5 and wore everywhere the diamond-studded gold badge given her by the firemen.

An elevator whisks visitors to the tower's balcony for a majestic cyclorama. The Bay Bridge cuts across the background.

U. S. Navy, Official

↓ Upended Lots Pose Problems for Cliff Dwellers

Roads zigzag high into the hills, and houses perch on sheer slopes in suburban Berkeley. Like others, this builder solved his difficulty by putting his carport at street level and his house below. Every home here has a large picture window affording a spectacular view of the Golden Gate and San Francisco Bay (page 736).



Summer and Winter May Be Only Hours Apart in California

So varied is the Golden State that in many places a comparatively short drive takes sports enthusiasts from palm-bordered swimming pools to snowy slopes.

These skiers enjoy winter fun in the northern Sierra near Lake Tahoe, one of the West's most popular holiday spots. Big blue Tahoe lies among cloud-scraping peaks, 6,229 feet high. Vacationists flock to this lake-and-mountain wonderland all year round.

Near the lake, Squaw Valley's main cable (right) hoists skiers a vertical distance of 2,000 feet. Experts transfer to the jigback, or "crow's fence" (left), for a further 600-foot lift. Then, powered by the tug of gravity, they plummet down the mountain with the effortless ease of gliding birds or sailing ships running before the wind. Some attain speeds of 60 miles an hour.

The lift runs all year. In summer, 30,000 sightseers use it to view sweeping panoramas of the Tahoe district.

Kodachromes by National Geographic Photographer B. Anthony Stewart

← **Tyros Tumble on Gentle Slopes Above Donner Lake**

In 1846–47 the westbound Donner Party spent a horror-filled winter marooned near this lake (page 745). Thirty-four of 79 members perished.

Earl Warren, then Governor of California, presented a copy of it to the second Elizabeth at the time of her coronation.

Farther north on this rocky, cove-indented coast we stopped at Fort Ross, built by Russians from Alaska in 1812. For 30 years the tsar's imperial banner waved above this far-flung outpost, a base for sea-otter hunters.

Today this rustic fort's tall stockade, Orthodox chapel, commandant's house, and frowning blockhouses stand restored as they were 140 years ago.

California's final allegiance was long in doubt and often hung in hair-trigger balance, for here converged the soldiers and settlers of five nations—Spain, Russia, Mexico, Britain, and the United States.

Americans Who Hurried History

Early Americans at Sonoma, in the Valley of the Moon, decided to hurry history. They made a rude flag (now the State's Bear Flag), proclaimed independence from Mexico, and set up a republic in June, 1846. In July the United States took control after war broke out with Mexico.*

In Sonoma we paid our respects to these impatient Americans and saw mementos of their deeds in the town's Franciscan mission, last in that far-flung chain of 21 missions stretching north from the Mexican border.

Near Glen Ellen we roamed the hillside ranch of Jack London, where he lived from 1905 to 1916 and practiced the regular writing hours he recommended to authors.

In other pleasant valleys covered with vineyards we toured modern wineries, explored cask-lined caverns tunneled deep in mountains, and sipped wines that Robert Louis Stevenson called "liquid poetry."

Stevenson married a California girl, and they spent an idyllic honeymoon here on the slopes of Mount St. Helena. Once this mountain and other fiery volcanoes spewed molten lava all over the region. Now hot mineral springs bubble, geysers spout, and vacation spas are everywhere. Near Calistoga a forest of ancient redwoods, smothered by volcanic ash, lies turned to stone.

At Santa Rosa we strolled the flower-filled garden where Luther Burbank worked wonders with plants and trees. Expecting a sizable farm, we were astonished at its smallness.

One misty morning we left San Francisco on a wide swing around the north, our car piled high. Following the lazy Sacramento River, we drove through flat, lush delta land.

For miles the road ran atop a broad levee; past us puffing tugs shoved barges full of sugar beets. Green fields and trim orchards shared the fertile earth.

This countryside smacks of the Old South. Farms are often called plantations, and some homes resemble old-time southern mansions. Until recently paddle-wheel steamers, *Delta King* and *Delta Queen*, plied this western Ol' Man River; other craft called at family landings with mail, produce, and passengers.

So like the ante bellum South are some parts of this delta that Hollywood shot many of the scenes for "Show Boat" here.

Sacramento, the State capital, reminded us of home. Like Washington, D. C., it has a handsome domed capitol, classic government office buildings, numbered and lettered streets, and summer heat (page 750). But tall palms bordering Capitol Park seemed strange to us.

So did Sacramento traffic rules. Pedestrians there wait at intersections until lights turn red both ways. Then they scamper across in all directions. When we tried to cross streets with the green light, motorists scowled and fellow walkers shouted at us.

Pedestrian Is King in California

Visitors soon learn that in California the pedestrian is king. Cars turning at intersections wait patiently for foot traffic to pass. Let a person step into a street almost anywhere, and cars stop.

We had our most striking example of this later in Long Beach. We needed to cross a wide city street, without lights at that particular corner. Four solid lanes of rush-hour traffic filled the highway's farther half. Intending to wait in the middle, we started to cross. Traffic came to a screeching halt.

Sacramento grew up around a pioneer settlement begun in 1839 by John A. Sutter, a Swiss. To his fort rolled the first wagons to cross the Sierra, in the early 1840's. Others followed, and the colony prospered.

Then a glint in the tailrace of Sutter's sawmill caught the eye of James Marshall, carpenter, and history's biggest gold rush was on. Hordes of gold-crazed men poured through the fort, and Sacramento mushroomed.

Today Mr. Sutter's eyes would pop. About

* See "My Life in the Valley of the Moon," by General of the Army H. H. Arnold (Ret.), National Geographic Magazine, December, 1948.

Enlargements by National Geographic Photographer J. Baylor Roberts

↑ Shasta Lake Can Store Enough Water to Give Every American 9,000 Gallons

In general, northern California is rainy, southern California parched but fertile. This huge structure gathers some of the north's excess rain and snow; pumps and canals transfer the water to semiarid southern reaches of the 500-mile-long Central Valley.

↓ A Cutaway Model Lays Bare the Works of the Second Largest Concrete Dam

Shasta Dam rears more than 600 feet; its spillway drops three times as far as Niagara's fall. Only Grand Coulee in Washington State is larger. Shasta's concrete would pave a 5-foot walk around the Equator. A bus could pass through any one of its pipelike penstocks.

Masked Robbers, Performing at the Tuolumne Fair, Evoke Memories of the Frontier

The Sierra Railroad still freights lumber from Sonora's timber camps to the Southern Pacific Lines at Oakdale. Passenger cars, however, now come out of storage only for movie making or special excursions.

the old fort rises a booming city of 157,000, a vast bazaar for all this part of the rich Central Valley. It ships fruit and vegetables by the hundreds of carloads, besides canning or freezing large quantities. Now new industries are moving in fast, and population in the area has jumped 22 percent since 1950.

Sutter's Fort, looking much as it did 100 years ago, brought Grandpa Barney's gold rush days to life for us. Here was a battered stagecoach he may well have ridden on the first leg of his journeys home. Here, too, were scores of everyday tools, weapons, and pioneer belongings of the kind he used.

Old-time fashions interested my feminine family most—Sunday-best clothes, a wedding dress, and the contents of a hope chest—all brought across the continent.

My daughters obed and ahed at the clothes of pioneer youngsters, stitched by mothers as the caravans moved west. There were special sturdy breeches for boys, we noticed, called "covered-wagon pants."

Inside the fort's adobe wall stands a replica of the crude saloon where thirsty miners bought drinks for a pinch of gold dust. Barkeeps were chosen by the size of their hands; big hands meant big pinches.

Near by were James Marshall's wooden pan and rocker for washing gold, and the crude bed on which he died.

At Coloma, northeast of Sacramento in the Sierra foothills, we found the spot where Marshall first saw gold. A statue of the man, looking golden itself in the setting sun, pointed the way.

Ghost Towns in the Sierra

To these rocky hills—the fabulous Mother Lode country—swarmed fortune seekers from all over the world. Rude towns with names like Rough and Ready, Rattlesnake Bar, Poker Flat, You Bet, and Gouge Eye sprang up overnight. Many are now ghosts; a few thrive under newer and less graphic names.

Every hillside, gully, and stream bed here shows the scars of shafts, tunnels, and frantic digging. Some lucky men took out dizzy millions, but they were few.

With the horde came doctors, lawyers, car-

745

U. S. Navy, Official

Mountainous Snows Trap the *City of San Francisco* on Ill-fated Donner Pass

Drifts, piling 25 feet high in spots, nearly cover the train and its three engines. Blizzards raged around this stricken Southern Pacific streamliner for three days and nights in January, 1952. Wheels froze on the tracks. Relief Diesels (right) pulled within yards, then stalled. Snowplows finally cleared U. S. Highway 40 (trench in trees) and rescued 256 passengers and crewmen. A century earlier, such snows doomed the Donner Party (page 740).

Primeval Forests Line the Narrow Redwood Highway

Mile after mile U. S. 101, a major highway north of San Francisco, winds through magnificent groves of coast redwood, *Sequoia sempervirens*.

In summer, traffic often creeps bumper to bumper along this scenic bottleneck. Trees soaring 300-odd feet dwarf lumbermen's noisy trucks and thousands of sightseers' automobiles.

Widening the road would sacrifice hundreds of the centuries-old trees.

Here a truck rolls giant logs millward through Richardson Grove.

←A fallen giant in Hendy Grove shows heavily fluted bark. Some specimens are grooved a foot deep. Redwoods die hard; a toppled tree may sprout green shoots for 10 years.

Coast Redwoods: Tallest Trees in the World

When mighty Rome fell and the Dark Ages eclipsed Europe, some trees in these forests were already sturdy saplings.

Thousands of acres of coast redwoods have been set aside forever from the woodsman's saw. A preserve 35 miles south of Eureka holds the world's highest tree, the Founders Tree, towering 364 feet.

Ancestors of these forest Methuselahs in Hendy Grove go back 100 million years. Awed by time's matchless monuments, most visitors instinctively talk in hushed tones. Ferns and wild flowers carpet the forest floor.

Sequoia gigantea, bulkier first cousin of the coast redwood, grows eastward, in the Sierra Nevada (pages 792, 795, and 798).

penters, cowboys, farmers, teachers. They settled down, cleared land, built towns, sent east for wives, and raised sturdy sons. They boomed California into early statehood and set it ahead 50 years.

Soon the output of the State's farms, forests, and industries far surpassed the value of its gold production. Now the great outpouring of California's horn of plenty makes early gold strikes seem like small change.

Westward Migration Keeps Moving

Actually the big rush never stopped. One boom after another—wheat, railroads, citrus fruit, oil, and two world wars—kept people coming. Today this largest and oldest Far West State has more than 31 times the number of people it had in 1860, when the stampede for gold had ceased. Now, with 12,087,000, the Golden State ranks second to New York in population.

Nor is this westward tide slackening, for just since 1950 a million and a half people have moved to California. Finding a native-born Californian seems as hard as finding a native Washingtonian in the Nation's Capital.

This is still a State of wide-open spaces and vast, thinly settled areas (mountainous Japan, not so large, contains 84 millions).

Rugged mountains thickly clad with forests cover most of California's north. Villages huddle about giant sawmills, and ranches dot upland prairies. Cattle graze in alpine valleys. Sparkling lakes reflect majestic peaks; swift mountain torrents carve deep, rocky canyons. The air is crisp and pine-scented.

This is the land of lumberman and rancher—the paradise of angler, hunter, camper, skier. Here snow falls early, often, and late, sometimes piling 20 feet deep.

We drove the old California Trail, now busy U. S. 40, across historic Donner Pass (pages 740, 745) to Lake Tahoe. Through this gap struggled pioneer wagon trains and gold rush caravans, including Grandpa Barney's. Here the ill-fated Donner Party, trapped by early snows, spent a tragic winter in 1846-47. Only 45 out of 79 survived.

Here, too, Chinese laborers hacked tunnels and rock ledges for America's first transcontinental railroad in the 1860's. Climbing on foot above the pass, we stumbled on the wind-swept site of one of their camps. Poking about, we discovered bits of rice bowls, hand-forged nails, and several old Chinese coins.

Big, blue Tahoe, 6,229 feet up in the Sierra, is spectacular; in all this Western World, few lakes are both larger and higher. Towering peaks by the dozen surround these sparkling waters, shared by California and Nevada. Vast evergreen forests clothe their lower slopes and descend to the lake shore.

Vacationists flock to this mountain wonderland the year round. So deep is Tahoe that it never freezes over, but an average 18 feet of snow a winter keeps skiers happy.

Rustic lodges and resorts dot the lake's 75 miles of curving shore. In summer, campers' tents and trailers fill waterfront pine groves by the hundreds. Bathers laze on small, secluded beaches. Motorboats whine, and aquaplaners skim the lake like water bugs.

We explored the scenic road that girdles Tahoe, watched tourists wrestling "one-armed bandits" in Nevada gambling halls, and found time for a swim. We were warned that the water was cold; used to often freezing surf north of Boston, we didn't think it was.

Campers along the madcap Truckee River were cooking breakfast as we headed north for Lassen Volcanic National Park. In Quincy, gay with bunting, we saw the judging of appaloosa horses at a county fair.

Ancestors of these wiry creatures were the spirited war mounts of Nez Percé Indians. Now this spotted horse, once almost lost, is making a comeback. Appaloosa fanciers at Quincy came from all over the country.

When Lassen Peak Blew Up

On a side trip we probed the wild and rocky Feather River canyon, lowest train route through the Sierra. We found this deep, majestic gorge, snaking through the mountains for a hundred miles, one of California's most spectacular sights.

Lassen Peak, rising starkly to 10,466 feet, is the only recently active volcano within the United States proper. It blew its top several times between 1914 and 1917; one searing blast flattened trees miles away, hurled hot boulders from the cone, and tossed volcanic ash five miles aloft.

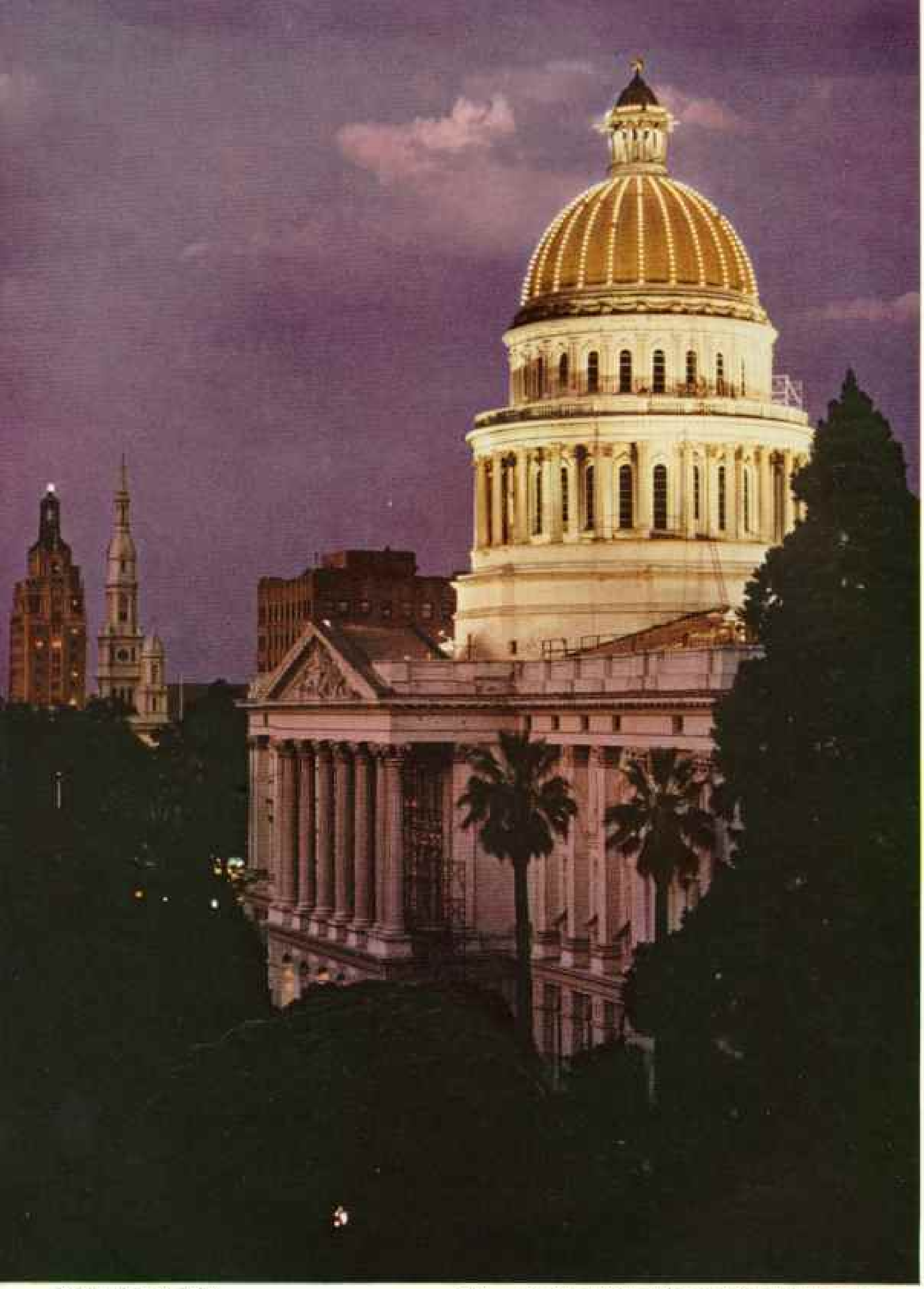
Evergreen forests and flower-strewn meadows cover most of Lassen National Park, but parts resemble a weird Dantesque underworld. There fissures hiss and steam; rocky caldrons bubble and give off the smell of brimstone.

Gingerly we inspected these natural sulphur works, then fed begging trout in a crystal-clear pond. Near by we tossed mid-August snowballs (opposite); crossing the highway's

National Geographic Photographer J. Baylor Roberts

August Snows Patch Lassen Peak, Last Volcano in the United States To Blow Its Top

Forty years ago a puff of steam signaled the boiling of Lassen's volcanic pot. During the following months 150 explosions hurled steam and stone thousands of feet. Hot rock sprayed from the crater, melting snow and sending avalanches of mud into near-by valleys. Lassen's explosive spree ended in 1917, but the volcano still lets off steam. Stiff lava, squeezed like toothpaste from a tube, built this steep dome during an earlier eruption.



Kodachrome by National Geographic Photographer J. Baylor Roberts

California's Floodlit Capitol Glows Against the Sacramento Sky

Begun in 1860, the building was completed 14 years later. Ladder and scaffolding show repairs under way. Several hundred varieties of trees, palms, and shrubs from all parts of the world shade the grounds (page 742).

summit at 8,500 feet, we passed banks of snow twice the height of our car.

Lassen put on a show. Within half an hour we had bright sunshine, a snow flurry, hail, lightning, and crashing thunder that echoed and re-echoed among the cinder peaks.

North of the park we stopped at Burney Falls, one of California's less known beauty spots. There giant springs bubble up, flow a mile, and then plunge 128 feet into a deep, sylvan pool.

We could scarcely believe our eyes when Mount Shasta, dark and brooding, rose suddenly above the forest-covered upland. It loomed so large it seemed completely out of scale, far too big for its setting.

This lordly peak is only California's sixth highest, yet, standing alone, it is more impressive than any other. Reaching above 14,000 feet, the once-fiery volcano dominates the land for a hundred miles around.

We watched the setting sun tint this snow-capped giant; then, staying overnight near by, we saw the glow of dawn creep across its weathered face.

Turning south, we followed the Sacramento River, here a lusty mountain torrent, to Shasta Dam (page 743).

This colossal wall, the second largest concrete structure on earth (after Grand Coulee), holds back three rivers to form huge Shasta Lake. There it can store enough water to provide 9,000 gallons for every man, woman, and child in the United States.

Rainfall Moved 500 Miles

More than 275,000 visitors come to see this engineering marvel every year. As we did, they peer at it through telescopes, drive across its curving top, and descend deep inside by elevator. They study a big working model of the dam and listen in awed silence while recorded voices explain how this mighty bastion was built and why.

"We're movin' the rain south," a worker's voice booms above the roar of a bulldozer.

Therein lies the importance of this dam. It is the keystone of California's vast Central Valley Project, one of the biggest reclamation jobs in history.

As it's needed, Shasta Lake water is released into the lower Sacramento. Near San Francisco Bay, canals and pumps start it toward the great Central Valley's parched southland; there it irrigates dry but fertile acres by the hundreds of thousands.

Thus rain or snow falling on lonely Mount Shasta may end up watering fields and orchards around Bakersfield 500 miles south.

In Redding, "the crossroads of the north," I inquired at a gas station about the route across the Trinity Mountains to the coast.

"Crookedest road in California," the attendant said. "You'll find out if your stop lights are working. On some of them curves you'll see both ends of the car at once."

He scarcely exaggerated. Crossing a particularly rugged section of the Coast Ranges, the road twists, curves, bends, and makes countless sharp U turns. It meanders deep in valleys, zigzags on steep hills, and skirts mountain heights on narrow ledges.

During this tortuous and wildly beautiful ride I dictated a few observations to our older daughter, Gery. Later I found she had put in one of her own. "On my side," it read, "a drop of 1,000,000 feet—straight down."

California's Paul Bunyan Country

Cresting the last hill, we reached the coast near Arcata and headed south on the fabulous Redwood Highway. Seaside pastures, sparkling bays, and hillside stands of evergreens at first reminded us of Maine.

This is big-time lumber country. Forests everywhere echo to the crash of falling trees. Sawmills dot the land; their big scrap and sawdust burners, shaped like salt shakers, never grow cold. Sawn lumber by the acre lies stacked to dry or ship. Diesel trucks hauling gargantuan logs parade the highway, their exhausts hammering the air (page 746).

In Scotia we toured a lumber mill that turns out 100 million board feet a year. There we watched a redwood log eight feet in diameter cut into planks in a few minutes, like cheese on a delicatessen slicing machine.

"There's wood enough in that log alone to build a good-sized house," our guide said.

South of Scotia the road, narrowed by the gigantic trees that crowd on either side, winds mile after fantastic mile through the heart of California's coast redwood empire. Deep in a vast primeval forest, cars and lumber trucks, often bumper to bumper, crawl like ants along this highway of the giants.

Magnificent groves along this route are set aside for preservation, many named for men who helped save them from the woodsman's saw. One honors Franklin K. Lane, President Wilson's Secretary of the Interior, an ardent

Kodachrome by Dan Knight and Kodachrome by National Geographic Photographer B. Anthony Stewart (Inset)

Carmel's Franciscan Mission Was Founded Before the United States Was Born. Visitors Carve Names on a Century Plant in Its Garden

Sea and Wild Flowers Arrest a Strolling Couple near Carmel. California Lures Retired People from All Over the Nation

Modern houses, all glass and angles to admit maximum sunshine, allow indoor-outdoor living. Indian paintbrush and golden yarrow bank the roadside.

conservationist and for many years a trustee of the National Geographic Society.

Strolling in this grove, we were overwhelmed by the immensity of the forest giants towering above us. Many reach higher than 350 feet, their huge trunks rising a hundred feet or more before the first limbs appear.

Off the road, a strange silence fills the forest. Footsteps are muffled, and visitors talk in hushed tones or gaze in silence at the tall trees, feeling a certain awe before these living monuments to time. Slanting rays of sunlight filter through the high, green canopy as through cathedral windows.

World's Tallest Tree

In Humboldt Redwoods State Park near Dyerville we sat on a rustic bench and looked up at the world's tallest tree. Named the Founders Tree to honor those who founded the Save-the-Redwoods League, this stately forest monarch rises an incredible 364 feet, roughly two-thirds as high as the Washington Monument.

Beyond Willits we emerged into hilly pastureland lying golden in the sun. This gold, covering many a slope, comes chiefly from oats that were brought by early Spaniards long ago and then ran wild over the countryside.

Breaking our tour briefly in San Francisco, we drove "down the peninsula," through seaside Santa Cruz, and on to Monterey.

Sebastián Vizcaino, exploring this coast in 1602, dropped anchor in Monterey's wide curving bay; he wrote of the harbor and its shores in such glowing terms that for 167 years no one could identify the spot.

We could easily understand the explorer's enthusiasm, for the bold, evergreen-clad Monterey Peninsula is indeed a place of surpassing beauty. There seas of Mediterranean blue sparkle in the sunlight, and breakers curl lazily on white crescent beaches or crash against wild and rocky shores. Gnarled cypresses, grotesque and weird, cling to outthrust crags. Sea lions bask and bark on offshore rocks; overhead, sea birds glide and wheel.

Monterey was Spanish California's gay capital years before Washington, D. C., was laid out. In its heyday ships called there from the east coast and from much of the Pacific, and ranch owners and rich merchants entertained lavishly. Life was gracious and unhurried. Fiestas were frequent, and balls were held at the drop of a sombrero; for men only, there were horse racing, gambling, and wild bull-and-bear fights.

Adobe houses, with wide verandas and walled gardens, recall Monterey's colorful youth. The old customhouse, turned into a museum, still stands beside the harbor, where now only a few fishing craft bob at anchor. In its early days the building doubled as a social center; gala parties there feted many a Yankee sea captain.

Near by is California's first theater, which began as a sailors' boardinghouse and saloon. On play nights up went its hinged interior walls, and people crowded in to see programs that varied from comic song-and-dance men to Shakespeare. Now on week ends townspeople fill the rustic benches to watch old-time melodramas.

On a side street we found the house where young Robert Louis Stevenson lived in 1879 to be near his future bride. While there he wrote for the local newspaper, worked on manuscripts, and roamed the peninsula. Some think that on these scenic shores he got the inspiration for *Treasure Island*.

Overlooking a parklike plaza stands Monterey's historic town hall, built in classic New England style. In Colton Hall convention delegates hammered out in heated debate California's first constitution in 1849.

Several times we drove the peninsula's Seventeen-Mile Drive, famous for its spectacular coastal scenes, but fog allowed us only tantalizing glimpses of its beauty.

Carmel Is Different

Fifty years ago a group of writers and artists, building cabins in the pines, started a settlement on the peninsula's south shore overlooking Carmel Bay. They sought the simple life, and as the colony grew they fought the introduction of such things as gas, electricity, and paved streets.

Carmel is still a center of the arts and continues to resist change. To this day the town has few street lights, no house numbers, mail delivery, or jail. Neon lights are forbidden; to fell a tree, citizens must get the permission of the City Council, which also must approve the signs merchants hang in front of their stores.

When State legislators were considering a bill to make house numbers compulsory a few years ago, Carmel threatened to secede if it became law!

(Continued on page 763)

↑ Sea Winds Twist Monterey Cypresses into Grotesque Shapes

Rocky coast alternates with white beaches along the Mediterraneanlike Monterey Peninsula south of San Francisco. A scenic drive follows the shore for 17 miles. Here on a wide bay Spaniards built California's first capital before Washington, D. C., was laid out.

↓ Eyes for the Ball Alone, a Golfer Ignores Monterey's Wild Scenery

Tommy Bolt, a consistent money winner, putts during Bing Crosby's 13th golf tournament at Pebble Beach course (page 756). The event, held every January for charity, pairs professionals and amateurs; names of contestants read like a *Who's Who* of golf.

Kodachromes by National Geographic Photographer B. Anthony Stewart

Spectators Crowd the Finish of the Bing Crosby Tournament at Pebble Beach. Others Relax on the Grounds of Del Monte Lodge

Blue-green Breakers Curl Against the Jagged Teeth of Point Pinos, Where Monterey Bay Meets the Pacific

757

Flags, Capes, and Flowers Proclaim Fiesta Time in Santa Barbara

Every August when the moon is full Santa Barbara shuts up shop and puts on pioneer Spanish costumes. Elaborate outdoor pageants revive the colonial town of 150 years ago.

Flags fly everywhere, and bunting decks wide avenues. Gay crowds fill downtown sidewalks; wandering minstrels strum guitars and sing old-time ballads, and rancheros ride spirited palominos through the streets. Merrymakers on all sides shout, "Viva la fiesta!"

At night the town is a carnival of lights. Dances are held in the streets, and Latin songs echo from shadowy courtyards and cabarets.

For three days and four nights the festivities continue; parades, plays, tours, parties, and a rodeo crowd the calendar.

A high point is the historical parade, El Desfile Histórico, shown here. Paraders march down palm-lined State Street toward the haze-softened Santa Ynez Mountains, which all but wall in seaside Santa Barbara.

Here military flag bearers, bullfighters, and horsemen gather at the starting point. Flower-decked floats are ready to roll. Sidewalks, balconies, and windows bulge with spectators.

Kodachrome by National Geographic Photographer J. Baylor Roberts

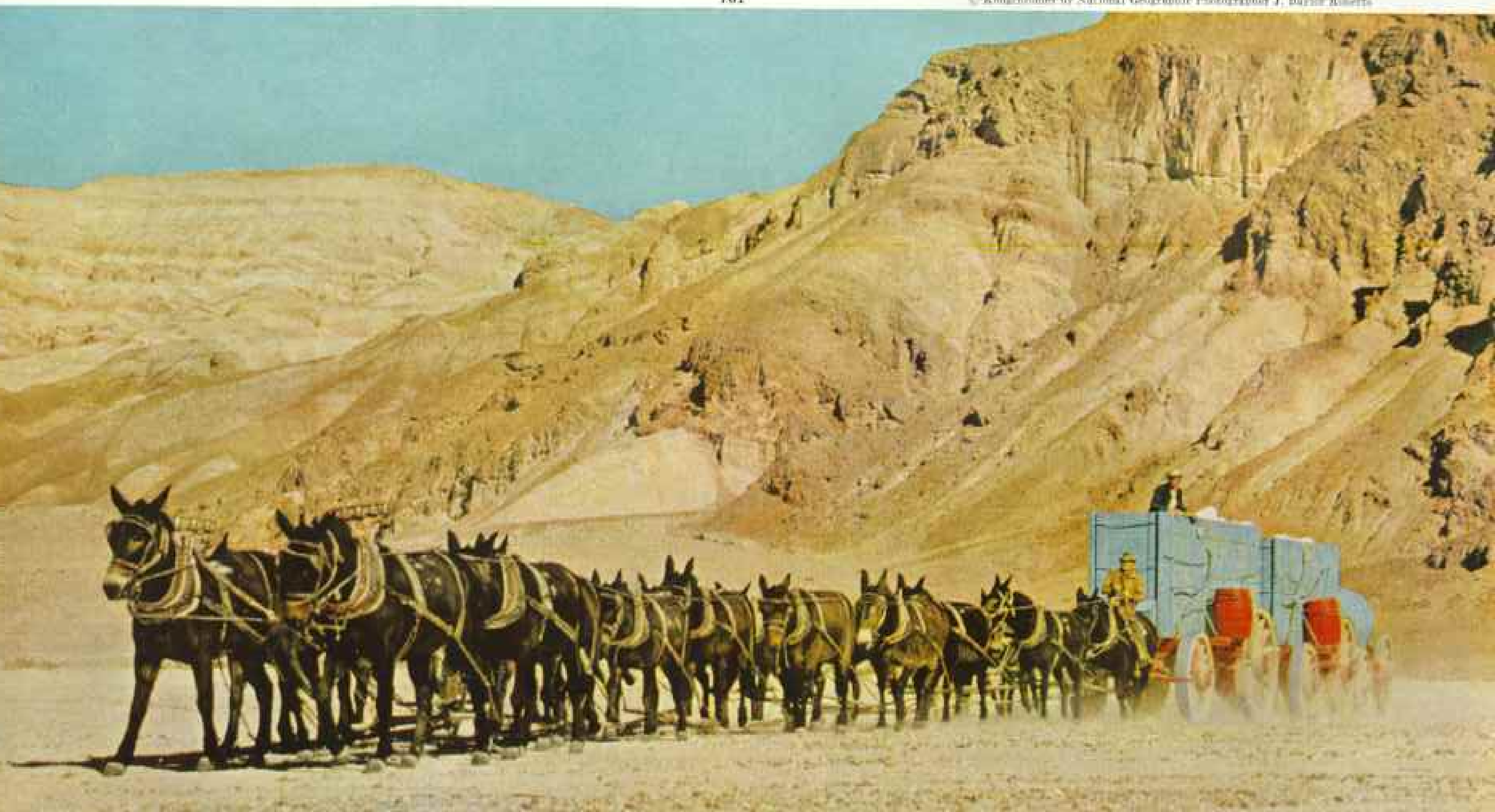
↑ A Radiant Queen Reigns Over Lodi's Grape Festival

The San Joaquin Valley town grows 87 percent of the country's Tokays; each year it ships out carloads of the luscious table grapes. Flame Tokays (above) color vineyards in the fall for miles around.

Right: Golden marigolds set a field ablaze in the Lompoc Valley, a flower-seed center near Santa Barbara.

↓ Death Valley's 20-Mule Borax Team Pulls Again

Two generations ago the mules hauled 36½-ton loads. The original route, Death Valley to Mojave, took 10 days for 165 miles of rocky canyon, salt flats, and sand dunes. Recently the Pacific Coast Borax Company hitched up a new team, here seen against the Black Mountains, for the TV show "Death Valley Days." One pair of mules is obscured in this picture.



Kodachromes by National Geographic Photographer J. Baylor Roberts

↑ Handsome Brady, Forty-niner, Cares Nought for Feminine Wiles

Walter Knott, who started as a berry grower, built Ghost Town, a complete gold rush settlement near Los Angeles. Its old-fashioned bars do a rushing business in soft drinks. Many visitors like to be pictured with the figure, carved to lend atmosphere (page 783).

↓ Boys and Girls Pan for Gold and Find It, for a Price

Youngsters at Knott's Farm get a thrill imitating prospectors. For 25 cents they rent a pan and wash gravel until a few flakes of gold remain for souvenirs. Mr. Knott salts his sluice boxes at Buena Park with $10,000 worth of gold a year.

Smart shops lining the town's pine-shaded main street are picturesque in design; so are the individually styled and attractive homes that flank the unpaved residential streets. Carmel's quaintness seems somewhat contrived, but most visitors, as we did, find it charming.

Junipero Serra, father of California's chain of missions, founded Mission San Carlos Borromeo in 1770 at Monterey; next year he moved it to Carmel. There he labored the rest of his days, administering the Franciscans' early settlements, and there he lies buried before the high altar. His spartan cell, study, and part of his library have been restored as they were 175 years ago (page 752).

Beyond Carmel we traced this dramatic coast southward. Mile after mile, now high, now low, we skirted bold promontories standing in echelon against the pounding sea. In only a few places did they yield to dazzling white beaches or narrow canyon mouths.

Near Santa Maria we saw our first oil wells, a sight that soon was commonplace. From a distance their pumps, slowly bobbing up and down, looked like colossal praying mantises solemnly and tirelessly bowing.

Fiesta in Santa Barbara

Flags were flying and bunting decked wide avenues when we arrived in Santa Barbara. Gay crowds in Spanish dress filled downtown sidewalks. Wandering troubadours, strumming guitars, sang old ballads, and rancheros on spirited palominos galloped in the streets. Merrymakers on all sides were shouting, "Viva la fiesta!"

Every August, when the moon is full, Santa Barbara shuts up shop, dons Spanish costume, and celebrates fiesta time. Three days and four nights the festivities go on; parades, plays, parties, concerts, historic tours, and a rodeo crowd the calendar (page 758).

Our first evening there was like a night in Spain. In a sunken garden we watched a hundred dancers from south of the Pyrenees whirl to fast Latin rhythms and the click of castanets. Colorfully costumed, they danced lively folk steps from a score of provinces. Their backdrop was the town's handsome Spanish courthouse, floodlit and draped with huge red and yellow banners.

Another night we climbed to an amphitheater tucked in the near-by Santa Ynez foothills and saw a symphonic play written for the fiesta by the noted dramatist Paul Green. Complete with horsemen spotlighted on close-in heights, this vivid spectacle brought to life the stirring times when Spanish lands in the New World were winning independence.

We stole time to sun-bathe on Santa Barbara's palm-fringed beach, go swimming, and visit the "queen of missions" (page 764). Here brown-robed friars still chant Latin, for this is the only California mission the Franciscans never left.

Around Santa Barbara southern California begins. Contrast with the north is striking, for here in summer streams dry up and hills are bare and brown. Deserts cover vast areas; mountain ranges loom stark and barren. Palms replace pines almost everywhere, and the long coast takes on a Riviera look.

Where the Seasons Are Reversed

As we did, most eastern visitors miss the shower-freshened greenness of summers at home.

"But here," southern Californians explain, "the seasons are reversed. From June to November it's dry as a bone; plants become dormant, and all but the live oaks and a few shrubs turn golden.

"Later come the rains, gently, and with long stretches of sunny days. Sap begins to pulse, and hills turn green. Wild flowers carpet the ground, and even the desert blazes with color. Come see us late next winter."

Once this whole southland was a semi-desert, suited only to cattle grazing. Then men sank deep wells, dammed streams, moved rainfall hundreds of miles from the Sacramento and Colorado Rivers. Now water flows across deserts in concrete beds, gushes into miles of irrigation ditches, and shoots from countless revolving sprinklers.

Valleys by the dozen, lush and productive the year round, yield tremendous crops of golden lemons, oranges, olives, avocados, figs, and nuts. From such fabulous hothouses as Imperial Valley thousands of carloads of vegetables move east each winter. Out in the desert, big groves of date palms rival ones I have seen along the Euphrates.

More than half of all Californians now live in the State's southernmost quarter. Its warm, sunny climate and booming businesses attract new settlers by the tens of thousands every year. Always there is the problem of where to get more water.

(Continued on page 768)

Santa Barbara: Queen of Missions

Franciscan fathers arrived in California in 1769 to harvest Indian souls. In half a century they built 21 missions, stringing them a day's walk apart from San Diego to Sonoma.

All but one of the missions were ruined after Mexico turned them over to civilian authorities in the 1830's. Santa Barbara alone has continued under the brown-robed Franciscans since the day of its founding in 1786. A 2,000-year-old book on Roman architecture inspired its classic front, now restored.

National Geographic Photographer
J. Baylor Roberts

↓ Bold Ramparts Defy the Mighty Pacific

Along most of California's dramatic 1,200-mile coast, rugged headlands stand in echelon against the ever-pounding sea. Only occasionally do they yield to smooth beaches or narrow canyon mouths.

Here, south of Monterey, State Highway No. 1 skirts the shore for mile after spectacular mile. Now hundreds of feet above the crashing breakers, now at sea level, the rock-cut road shows the traveler breath-catching panoramas at every turn.

National Geographic Photographer J. Baylor Roberts

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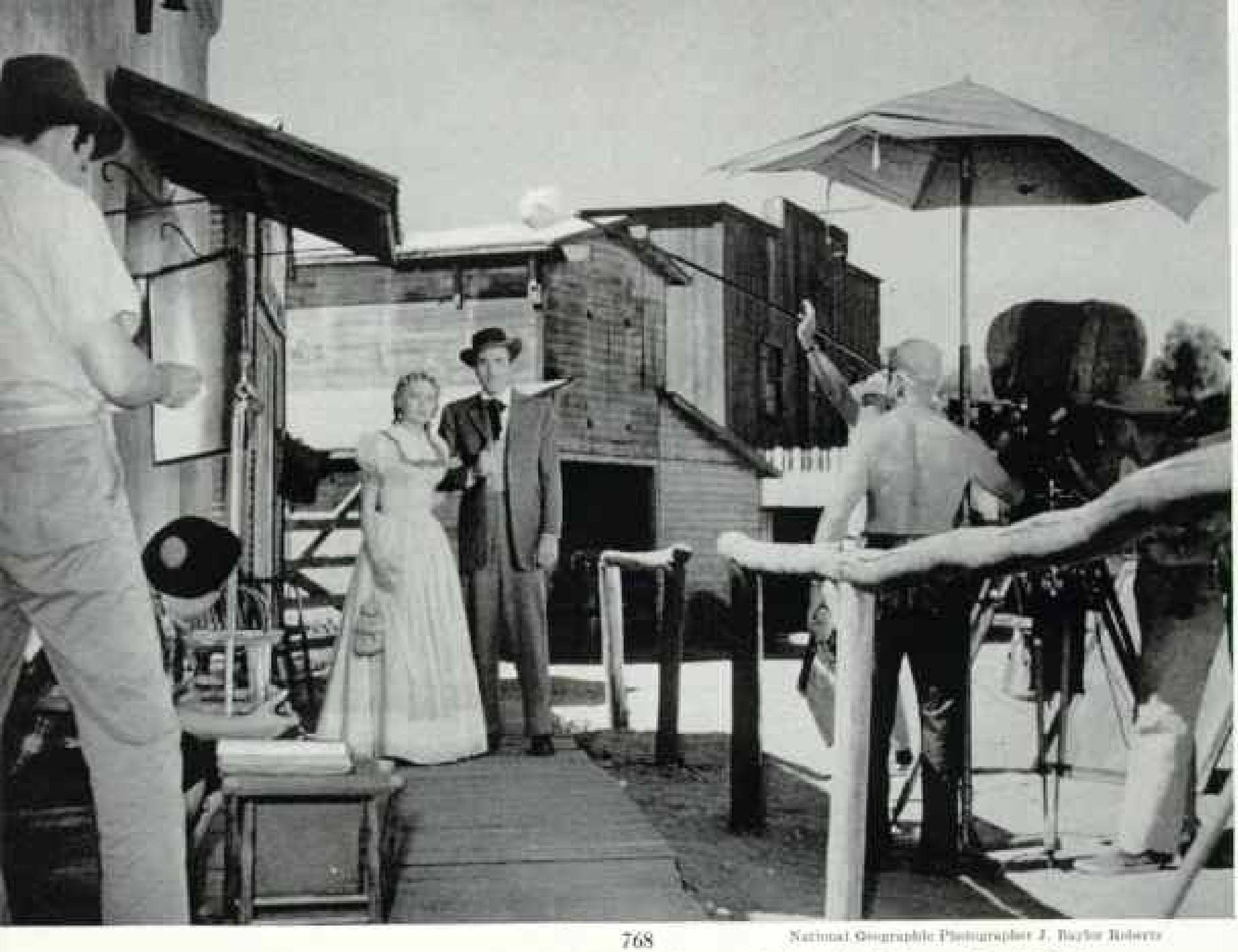
In "The Robe," the Mad Emperor Caligula Again Walks the Streets of Ancient Rome

Hollywood takes infinite pains for accuracy. In this first Cinemascope picture "ancient" lamps burned real olive oil, and Christ's robe was hand-woven and dyed with boiled walnut hulls as in His time. For such detail Twentieth Century-Fox relied heavily on paintings of Roman life in the National Geographic Society's book, *Everyday Life in Ancient Times*. "They were our greatest single source for material on costumes, sets, and customs," a studio representative said.

In this scene the smirking Caligula, soon to become Caesar, bears the royal scepter as he follows a turbaned auctioneer to the slave market, where he will bid on twin maidens. Men in right foreground hold microphones. Background buildings are wood or plaster, covered with cloth painted to simulate brick and stone. In March the film won Motion Picture Academy awards for the color movie with best sets, costumes, and art direction.



National Geographic Photographer J. Baylor Roberts

TV, Filming a True Story of the Old West, Turns California History Back 70 Years

On location in the San Fernando Valley north of Hollywood, a crew shoots a tale of border rivalry for "Death Valley Days" (page 770). Technicians adjust reflectors, microphone, and camera; script girl sits at left.

"Just wait until we can de-salt ocean water on a big scale," people there say. "Then southern California will really boom."

Visions of movie stars danced in our daughters' heads on the drive from Santa Barbara to Hollywood. As we neared the city of glamour, a torrent of traffic filled the 8-lane highway. Eating places, gasoline stations, motor inns, supermarkets, used-car lots, and shops by the thousands lined the road solidly for miles. Just a stone's throw away on either side loomed barren hills.

Movieland's Glittering Capital

Near Hollywood Bowl, known for its spectacular Easter sunrise services and summer concerts, we settled in a hillside motor court. In typical southern California style, we were soon lunching in swim suits beside its pool.

We didn't tarry long—our movie-minded youngsters saw to that. Downtown we stood like country bumpkins at Hollywood and Vine, the busy crossroads of movieland, and watched the crowds stream by. Somehow we hadn't expected such a bustling city.

Little more than a generation ago Hollywood was a sleepy town without a nickelodeon to its name; a law forbade driving big flocks of sheep down its dusty main street.

Then, overnight, motion pictures boomed it into the glittering capital of filmdom. Mushrooming, the new city soon merged with Los Angeles. In time, its stars and bigger studios moved to outlying districts.

But Hollywood never lost its magic, and today it is better known abroad than many a large American city. Radio and then television added to its fame, for here the national networks have their western headquarters, where many big-name entertainers are handy.

More tourists flock there every year. Scarcely glancing at the rest of Los Angeles, they stroll Wilshire Boulevard's "miracle mile" of smart stores and tall buildings and visit Sunset's strip of dazzling night spots after dark. Clutching street maps, they tour the shady avenues of Beverly Hills and other exclusive suburbs where moviedom's great and near-great live (page 782).

Lining up, the sightseers file through

769 National Geographic Photographer J. Baylor Roberts

A Cruise to Santa Catalina Suggests a Magic-carpet Trip to the Mediterranean

Pirates, smugglers, and gold seekers once haunted this mountainous island 22 miles from Los Angeles. Now excursionists come to fish, swim, and sail. Circular casino on Avalon Bay houses a movie and dance hall (page 784).

CBS's gleaming new Television City, the last word in TV centers. Near by they browse for hours in the Farmers' Market, which resembles a gay international fair. They peer into the noisome La Brea tar pits, where prehistoric monsters left their bones, and fit their feet and hands into prints left by film stars in the sidewalk of Grauman's Chinese Theater (page 785).

Only a few of the visitors ever see a star or get inside a studio gate. So most of them go on a diet of first-run movies.

We, too, saw the sights, then drove one day to a ranch in a wild and rocky canyon out beyond the San Fernando Valley. Shots rang out as we opened its creaky gate. Wheeling, I saw two men with smoking guns grimly facing each other. One, clutching his side, slumped to the dirt.

"O.K. Cut," came a voice. "Need more blood. Where's the make-up man?"

The duel we happened on was being shot for "Death Valley Days," a TV series. Studios rent locations at the ranch; sets there, used countless times, include a complete old-time western town, stockaded fort, and Mediterranean village.

Many a hard-riding posse has thundered down this canyon on the Nation's movie and television screens. Pictures laid in England, Africa, Russia, Spain, and dozens of other faraway places have been filmed on these boulder-strewn acres.

The Old West Comes Alive

What we saw there was strictly Wild West (page 768). Long-skirted women and lanky cowmen strolled the frontier town's plank walks; shifty-eyed gunmen, lounging outside the Silver Dollar Saloon, exchanged knowing glances while a Wells Fargo stagecoach loaded gold.

In another corner of the ranch blue-uniformed U. S. cavalry, bugles blowing, charged a camp of hostile redskins. Columbia Pictures was filming a story of early Oregon.

Back in Hollywood later, movie actor Richard Carlson showed us through the Hal Roach Studios. There we watched a tense scene from a cloak-and-dagger melodrama being filmed for TV.

With friends that evening we drove steep, winding highroads through the near-by Santa Monica Mountains overlooking Los Angeles.

Glittering panoramas of this largest city west of Chicago alternated with dark, close-walled canyons that seemed a hundred miles from anywhere. In many places modern homes, seemingly all glass and angles, perched like eagles' nests atop sheer cliffs.

We parked for a longer look at the broad, light-studded San Fernando Valley.

"When I came here 20-odd years ago," said our host, "only a few thousand ranchers lived down there. Land sold for $10 an acre, and the main highway you came into Hollywood on was a country lane.

"Now half a million live in the valley, and more are moving in all the time. You pass an orange grove one day; the next, it's gone and men are building houses there."

World's Fastest-growing Area

This booming valley is typical of the whole Los Angeles area. In Los Angeles County alone more than 700,000 homes have been built since 1940, its population jumping an amazing two million in those few years. Just since 1946 enough homes have been built here to house the population of Detroit.

The tide keeps rolling in. Every day the county gains some 460 people. Every 12 months it absorbs enough new citizens to populate Youngstown, Ohio, or Wichita, Kansas.

For years this has been America's, and the world's, fastest-growing metropolitan area. Now, with well over 2,100,000, L. A. itself disputes third place among cities of the United States with Philadelphia.

As cities go, L. A. is a brash youngster. As late as 1881 it was a little known town of 11,000. Then came the railroads and hectic, history-making land booms. The bubble burst in '88, leaving L. A. with 50,000 people, a headache, and a good lesson.

Since then, the city's growth has been spectacular. A fine climate, the citrus boom, motion pictures, oil, and rapidly expanding trade and industry kept people coming.

Now this lusty young giant turns out more aircraft than any other U. S. city and ranks second in assembling autos and making women's sports clothes. It stands third in income and retail sales, fourth in wholesale trade and banking volume. Recently it became the Nation's fourth largest industrial center.

But this is no all-industry area; only a third of its employed work in factories. The others run small businesses, trade, fish, perform services, and even farm in outlying sections. Los Angeles County catches more

(Continued on page 779)

Photograph by Josef Muench

Bougainvillea Blazes Across a Moon Gate in Sunny Coachella Valley

This popular and brilliant vine, named for an 18th-century French navigator, runs riot across the tropical and subtropical world. In the United States it grows in California, Florida, and on the Gulf coast, thriving in full sun.

Pennants Deck Tuna Boats: San Pedro Celebrates Its Fishermen's Fiesta

Fishing port for Los Angeles, San Pedro counts some 2,000 boats. Each year the commercial catch yields half a billion pounds of fish—a sixth of the world's tuna catch and two-thirds of the United States mackerel crop.

Kodachrome by National Geographic Photographer J. Baylor Roberts

Crowds Milling on the Waterfront Await the Blessing of the Fleet

Following Old World custom, San Pedro's fishermen in September celebrate a successful season with two days of feasting, contests in judo, knot tying and rope splicing, street dancing, and a boat parade (page 774).

↑ **Seagoing Floats Parade Through San Pedro Harbor**

Theme of the 1953 Fishermen's Fiesta was Beloved Stories, a motif similar to that of Pasadena's Tournament of Roses (pages 807 to 814). Owners' families—chiefly of Italian, Yugoslav, Norwegian, Swedish, and Japanese descent—secretly decorated the fishing boats in secluded coves and hide-outs.

↓ **Prize Winners: *Cinderella* and *Hansel and Gretel***

Hansel and Gretel carries a witch's house of flowers and peppermint-stick spars. *Cinderella,* a floating garden of paper chrysanthemums, hauls a fairy coach and pumpkin (not shown). An auxiliary ship of the United States Navy's mothball fleet is moored beneath the cranes (page 789).

↑ Sightseers Marvel at Navy Power in San Diego Harbor

Naval installations extend for miles around this huge landlocked harbor, one of the world's finest. In the 12-mile curve of the bay flotillas of gray fighting ships of nearly every description share a haven with hundreds of fishing craft. Home of the 11th Naval District, San Diego boasts the largest concentration of naval vessels on the Pacific coast, including a billion dollars' worth of the mothball fleet.

Beyond this Star and Crescent excursion boat lie three destroyers and their tender.

Right: San Diego has 3,600 animals and birds in its world-famed zoo. Most of the animals live outdoors the year round in barless enclosures. Visitors tour the grounds in open buses, listening to running commentaries by the drivers.

Here giant grizzlies from the Gulf of Alaska's Montague Island and a polar bear from Spitsbergen beg for handouts as buses halt before their dens.

Kodachrome by National Geographic Photographer J. Baylor Roberts

Touring Yankees Drive a Zebra-striped Burro for a Laugh in Mexico

Travel booms Tijuana, on the California border. Thousands visit the city for the thrill of setting foot on foreign soil. Mr. Long, flanked by his 12- and 15-year-old daughters, fools no one with his "Just Married" hat.

fish than Maine and tends more cows than New Hampshire.

L. A. grew, in part, by annexing its near neighbors. It now spreads between mountains and sea over 451 square miles, more than any other city in America.

To the casual visitor, this sprawling metropolis seems almost incredible. Its huge size and fast pace leave him open-mouthed.

In the metropolitan area there are nearly 70 cities and more than 200 other communities. They form one massive urban maze, with little open land. There you can drive 50 miles or more in one direction and still be in the midst of closely built houses, stores, and city life.

A wit once dubbed Los Angeles "19 suburbs in search of a city." It's probably the world's most decentralized metropolis. Every section, like Hollywood, is virtually self-contained; every neighborhood boasts at least one giant shopping center, over 129 in all.

A vast system of express highways, or freeways, laces this great urban mass together. Traffic roars endlessly on these arteries at 55 miles an hour or more. Cloverleaf intersections and multilevel crossovers abound, to the stranger's utter confusion (page 786).

More Cars Than Families in L. A.

This is a city on wheels. Its metropolitan area has more automobiles per capita than any other anywhere—roughly 2,100,000, averaging five cars for every four families. Just since '46 the population surge has swelled traffic by some 850,000, or more than twice the number of autos in Philadelphia.

Distance seems to contract, to have little meaning for Los Angeles residents. Few think it unusual to drive 50 or 75 miles (all in the built-up area) to go to a dance, dinner party, or even a movie. Friends told us of driving 80 miles one day a week to attend a series of square dances.

For our part, after driving boulevards and freeways all over this far-flung metropolis (and getting lost on every excursion), we decided that Los Angeles, not Washington, is America's "city of magnificent distances."

Afoot downtown, we listened to soapbox orators in Pershing Square, toured the sky-scraping Civic Center, and fed fat pigeons in the old Plaza, heart of the dusty pueblo from which this great city grew.

Near by we stumbled on narrow Olvera Street, which turns time back more than a century. There men ply old crafts, Latin music fills the air, and colored lanterns flicker in the night.

We browsed in countless shops that were gay with bright Mexican wares, posed for a sidewalk caricaturist, and watched Mexican dances while we ate tortillas and enchiladas in a onetime wine cellar.

Mexican jumping beans, the seed-pod homes of nervous, jumpy larvae, entranced our daughters; each girl bought a small bagful.

Next morning I asked them whether the heavy traffic that pounded past our rooms all night had disturbed their sleep.

"We didn't notice it at all," Judy said. "But those beans! They made such a racket we had to shut them in the bathroom."

World-renowned Show Place

Near Pasadena stands a California show place known round the world, the Huntington Library and Art Gallery at San Marino overlooking the lush San Gabriel Valley.

San Marino Ranch was the estate of Henry E. Huntington, a leading western railroad magnate. There he assembled a fabulous art collection and one of the world's most valuable private libraries.

Best known painting in the gallery is Gainsborough's ever-popular "Blue Boy." Perhaps because of their age, the younger members of our family almost ignored this lad to admire Sir Thomas Lawrence's "Pinkie," a portrait of a pert young miss (page 788).

The library holds 150,000 rare books and some 2,000,000 manuscripts, letters, deeds, and diaries. There you can trace the written word from Babylonian clay tablets to Johann Gutenberg's history-making Bible, the first important book printed in Europe with movable metal type.

Among others, there are first editions of Dante's *Divine Comedy* (1472), *Mr. William Shakespeares Comedies, Histories & Tragedies* (1623), *The Compleat Angler*, *Paradise Lost*, *The Pilgrim's Progress*, and *Vanity Fair*.

You may scan the pages of Ben Franklin's *Autobiography*, written in his own hand, or peruse the manuscripts of writers like Pope, Shelley, Keats, Hardy, Swinburne, and Kipling.

If your bent is history, there are letters and documents on many a long-forgotten theme by Mary Queen of Scots, Henry VIII, Ferdinand and Isabella, Capt. John Smith, Penn, Washington, and many another history-book figure.

Kodachrome by National Geographic Photographer J. Baylor Roberts

Trekking Mormons, Who Visioned a Joshua Beckoning West, Named the Joshua Tree

The desert's enormous yuccas, weird members of the lily family, sometimes attain several centuries in age and 40 feet in height. This living candelabrum stands in Apple Valley northeast of Los Angeles.

Here is the only known copy of *Lawes and Libertyes . . . of . . . Massachusetts* (1648), the first collection of laws from any British colony. Here also are original Indian treaties signed by chiefs with their "marks," the only complete list of the men who took stock in the Virginia Company, and the log of many an early ship that helped make sea history.

With librarian Leslie E. Bliss we pored over old maps that helped make California known. One, about 1580, made it appear a long, lanky peninsula. Another, 50 years later, showed it as an island.

Henry Huntington left his home, with its priceless collections, to the public. Like Moslems to Mecca, scholars come to it from all over the world. Visitors flock there by the thousands to see the treasures and stroll in the estate's superb gardens.

There roses, azaleas, camellias, rhododendrons, and orchids bloom in colorful profusion. Acres of exotic trees and shrubs from every continent suggest lush, faraway Gardens of Eden. One garden alone boasts 25,000 desert plants.

Warning: No Gun Play

Next day we took a train for "a scenic trip of less than 1,000 miles all within the State of California," as our tickets stated.

A sign caught my eye as we climbed aboard. "No gun play in the lounge," it warned. Another requested gentlemen to sit next to the windows "so that in case of sudden Indian attack we won't have our women shot."

No ordinary line is the Ghost Town & Calico Railway. In the 1870's its puffing engine and wooden cars shuttled between Silverton and Durango, Colorado. Now they haul some 60,000 visitors a month around Knott's Berry Farm in Buena Park, near Los Angeles.

Walter Knott rented a few acres here in 1920, planted berries, and opened a roadside stand. Later his wife started serving home-cooked chicken dinners. Now their establishment, grown big, feeds an average of 25,000 visitors a week.

Whether they eat there or not, sightseers throng the farm every day to see Ghost Town, replica of a gold-rush settlement. They shop in its general store, line up in saloons for soft drinks, and visit the blacksmith shop, jail, church, old-time firehouse, rustic cemetery, covered-wagon encampment, and one-room schoolhouse from Kansas.

This town is a lively ghost. Among other "residents," a smith hammers out horseshoes and a harness maker stitches saddles. A chipper sunbonneted woman in her eighties plays a dulcimer on her front porch. The schoolmistress, ringing a hand bell, calls her class together. The cluttered store sells hundreds of old-fashioned items, some so long forgotten that people ask what they are.

"My mother came to California in a covered wagon," Mr. Knott told us, "and I don't want people to forget pioneer days. So I built the old town. Folks have a lot of fun here—and so do I."

Back to Covered-wagon Days

Our youngsters certainly did. They talked to "old prospectors," explored a mine, and panned gold in a sluice (page 762). Behind 6-horse teams we jounced on the board seats of a covered wagon and rode atop a lurching stagecoach, gaining added respect for traveling Grandpa Barney.

In the crowded Calico Saloon, lamplit and smoky, we watched a grizzled miner do a buck-and-wing dance and listened to Gay Nineties songs by a goateed entertainer who looked like Uncle Sam. Star of the show was a pert, high-kicking Florodora girl who danced on the bar.

Out near Yermo, in the color-rich Calico Mountains, Mr. Knott gives his hobby freer rein. There he is restoring deserted Calico, a roaring silver town in the 1880's.

In near-by Long Beach we watched an army of men and snorting machines building a new waterfront. Huge cement piers, unfinished, reached seaward like fingers. On many, rows of pumps were sucking oil from beneath the harbor.

These bobbing pumps tell a rags-to-riches tale that is typical of southern California. In 1921 Long Beach was a small seaside town. Then drillers struck oil. Overnight derricks rose like magic forests, cluttering the yards and streets of amazed residents around Signal Hill.

At peak production in January, 1924, this field gushed an average of 246,500 barrels of oil a day. To date, it has accounted for about 8 percent of California's vast oil output, and derricks still bristle everywhere.

Today Long Beach is a booming city of 256,900 people, an important port, industrial center, and Navy base. With miles of beach, it is also a popular resort.

A Touring Family Cools Its Heels at Huntington Beach →

Oil derricks lining the strand once hoisted and joined drillers' long pipes. Unlike modern steel towers, these wooden structures are not worth moving to new prospects.

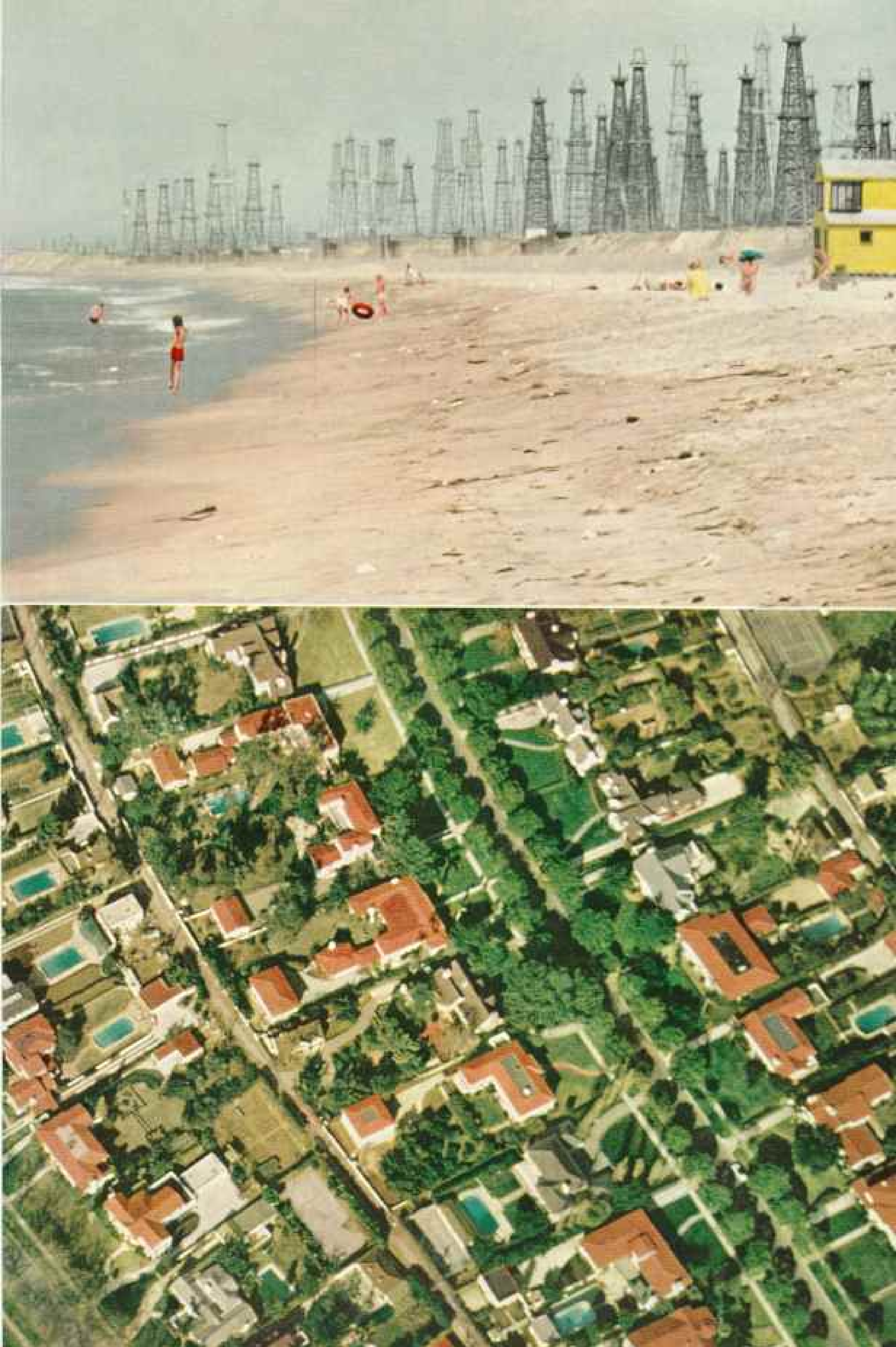
Some 350 tideland wells in this area produce 15 million barrels of oil a year. Drillers start boring straight down, then slant their drill stems oceanward in ever-increasing arcs until they take almost horizontal aim at the oil pool. Some wells extend almost two miles seaward.

Here the author and his family watch the surf come rolling in.

↓ What's Home Without a Swimming Pool?

Seen from the air, pools glitter like turquoises all over the Los Angeles area. Here in Beverly Hills, home of movie stars, it is a rare estate that lacks one. Herbert Marshall, Van Johnson, and Groucho Marx live on the palm-shaded street at far left.

Kodachromes by National Geographic Photographer J. Baylor Roberts



Like Atlantic City, New Jersey, which it resembles, Long Beach is a happy hunting ground for conventions. When it comes to beauty contests, however, it goes the eastern resort one better. Atlantic City chooses "Miss America"; Long Beach gives the world "Miss Universe."

Retired couples, especially from the Midwest, have flocked to Long Beach, as they have to other parts of southern California. So many have come from Iowa to this city that it has been called "Iowa's seaport." A yearly picnic here for "immigrants" from the Hawkeye State often draws 100,000 people.

For a pleasure cruise to storied Santa Catalina Island we joined a holiday crowd dockside in the huge harbor that serves the twin ports of Los Angeles and Long Beach.

Mud flats and marshes only 60 years ago, this man-made harbor handles some 6,000 ships and more than 32 million tons of cargo a year. Wharves, giant cranes, tanks, dry docks, and warehouses line the shore for miles. Fleets of tankers gulp oil at countless piers; docked here are barnacled freighters from all over the Free World.

One of the biggest fishing fleets in America calls this harbor home. Its 2,000 boats, ranging the Pacific north and south, haul in more than half a billion pounds of tuna, mackerel, and other fish each year. The September blessing of the boats, flower-decked and scrubbed for the occasion, is a gay and unforgettably colorful event (pages 772 to 775).

Where the Flying Fishes Play

After weeks of long motor trips, one-night stops, and steady sightseeing, we found the Catalina cruise relaxing. Lounging on deck, we watched porpoises play about our bow and flying fish skim the sparkling blue water in graceful arcs.

The rugged island, looming up, looked like a seagoing section of the Coast Ranges. Trim pleasure craft dotted its harbor, and bathers filled the narrow crescent beach (page 769).

Into this bay sailed Spanish explorers long before the East was colonized. After them, Russian sea-otter hunters, Yankee smugglers, and occasional buccaneers used this island 22 miles off the mainland as a handy base. Gold-seeking hordes invaded it in the 1860's, after gold-bearing ore was found.

Today Catalina's gold comes from the vacation business. In summer its year-round population of 1,600 sometimes jumps to 10,000 or more. Every day the cruise ship brings some 2,000 excursionists. Waters around the island lure sportsmen with abundant tuna, swordfish, barracuda, and other fighting fish.

Ashore, we strolled the narrow streets of bayside Avalon, climbed to breezy heights for sweeping views of harbor and sea, and visited the island's famous bird park. In a glass-bottomed boat we explored fantastic undersea gardens along the island's rocky shore. Exotic fish, strangely shaped and every color of the prism, swam within our sight through gently waving forests of giant kelp. Rubber-clad swimmers with Aqualungs, looking like deep-sea monsters, danced a weird ballet beneath our boat.

Toward Old Mexico

Back on the mainland, we headed next morning for San Diego, only a hop-skip-and-jump from the Mexican border. At Huntington Beach surf and sand looked so tempting we went wading. A forest of derricks lined the roadside; drilled at an angle, their wells draw oil from under the tidelands (page 782).

Southward, long beaches alternated with crag-bound coves and rugged headlands. Here and there attractive towns, like Laguna Beach, straddled the road. We noticed several large trailer camps along the way, a common enough sight in southern California. What attracted our attention chiefly were the tall TV aerials these mobile homes sported.

At La Jolla we visited the renowned Scripps Institution of Oceanography. Peering into glass-walled tanks, we identified most of the fish we had seen through the glass-bottomed boat at Catalina.*

An exhibit that looked like a classical wine jar and bowl caught my eye. Going closer, I read: "Amphora and pottery bowl recovered from a Greek trading vessel which sank about 230 B. C. by the *Calypso* Marine Archeological Expedition, sponsored by the National Geographic Society. The vessel lies in 120 feet of water about 10 miles from Marseille."†

Seventeen centuries after that ill-fated galley sank, a bold Italian navigator struck west from the Mediterranean and stumbled on a New World. Fifty years later the explorer Cabrillo discovered California, making

*See "La Jolla, a Gem of the California Coast," by Deena Clark, National Geographic Magazine, December, 1952.

†See "Fish Men Discover a 2,200-year-old Greek Ship," by Capt. Jacques-Yves Cousteau, National Geographic Magazine, January, 1954.

↑ Golfmobiles Carry Golfers and Bags in Palm Springs

President Eisenhower spent six days golfing in Palm Springs last February. Some 250,000 other visitors a year enjoy the desert resort's hotels, guest ranches, 550 swimming pools, and all but perpetual sunshine.

Batteries power these two-seaters. Some can be recharged by plugging a wire into an ordinary household electric outlet. Helen Dettweiler (right), one of the club's pros, checks a player's score at the ninth hole of the Thunderbird Ranch & Country Club.

The Author Tests → a Star's Footprint

Among Los Angeles movie folk, an invitation to print one's mark in the walk of Sid Grauman's Chinese Theater is almost as coveted as an Oscar. Sightseers fit hands and feet into the prints and gape at impressions left by Harold Lloyd's glasses, Jimmy Durante's nose, Monty Woolley's goatee, Joe E. Brown's mouth, Betty Grable's leg, and John Barrymore's profile.

Freeways Slicing Through Los Angeles Channel the World's Heaviest Traffic

This sprawling metropolis, a city on wheels, drives more cars per capita than any other metropolitan area. To handle its traffic floods, engineers are building a maze of superhighways. Here the 8-lane Hollywood Freeway angles from Los Angeles' Civic Center (large buildings) to the movie capital, nestling under the Santa Monica Mountains at upper left. The freeway cost $55,000,000, but it cuts driving time for the 10-mile distance from 40 minutes to 11. At center this artery meets the Harbor-Arroyo Seco Freeways at "the Stack," a 4-level crossover handling a quarter of a million cars a day. Black-topped Sunset Boulevard (right) winds casually to Hollywood.

California Division of Highways

Kodachrome by National Geographic Photographer J. Baylor Roberts

Gery and Judy Long Admire "Pinkie," a Prize of Huntington Gallery in San Marino

Sarah Moulton-Barrett, the original "Pinkie" and Elizabeth Barrett Browning's aunt, died not long after Sir Thomas Lawrence painted her portrait. She is scarcely less popular than Thomas Gainsborough's "Blue Boy," a better known treasure of this room. Sir Joshua Reynolds's "Jane, Countess of Harrington" hangs at right.

his first landing there on the shores of a magnificent bay.

Spain was in no hurry to colonize her new discovery. More than 200 years passed before Gaspar de Portolá founded California's first settlement beside that bay, which was called San Diego.

Portolá knew a good site when he saw one. San Diego lies on gentle slopes between purple mountains and the bay's sweeping shore. Wide-curving peninsulas, 400-foot Point Loma, and flat North Island (connected to the mainland by a narrow strand) embrace the huge harbor like gigantic arms.

We surveyed this wondrous panorama from the tower of Point Loma's old lighthouse, which for years after 1855 blinked a welcome to ships from around Cape Horn. Near by, on this most southwesterly peninsula in the United States, stands a monument to Cabrillo, who landed on the beach below.

In the part of San Diego called Old Town we stood at the birthplace of California. There Portolá established a camp, and Father Serra founded California's first mission in 1769. Over old San Diego's dusty plaza Lt. Stephen C. Rowan raised the American flag for the first time officially in southern California on July 29, 1846.

Around this quiet square, now a small park, stand half a dozen adobes, most of them still used. They bear the names of the families who built them long ago—names like Machado, Pico, Bandini, Estudillo, Carrillo, Pedrorena, and (of all things) Stewart.

Mother of California Missions

We found San Diego de Alcalá, the mother of California missions, half a dozen miles up the fertile valley of the San Diego River. It was moved there shortly after the colony was founded, for the soil was better and water handier at the new site. Looking around, we found traces of one of California's first irrigation systems, a tile aqueduct that brought water six miles from a dam up the river.

Today California's first colony is its third largest city—and the fastest-growing, percentage-wise. Since 1940 its population has more than doubled. Just since 1950 it has jumped an amazing 35 percent, to 450,000.

San Diego has grown out, not upward; tall buildings and large apartment houses are few. Small homes with sunny patios, the California ranch house, are everywhere. And the heart of this city is green, canyon-cut Balboa Park, 1,400 acres of subtropical trees and shrubs.

People here boast about the shortness of their city's thermometer. Average temperatures vary only 13 degrees all year, from 55 in winter to 68 in summer. Outdoor living is the rule, as it is everywhere in southern California, and life is more relaxed than one expects to find it in a city this size.

Despite its spring-fever weather, San Diego works hard. Four large aircraft companies, employing 36,000, turn out planes and parts in a steady stream. Half a dozen shipyards build fleets of boats, from fishing craft and mine sweepers to seagoing tugs and streamlined ferries. Big modern canneries pack tuna, sardines, shrimp, and shellfish.

Two hundred San Diego tuna clippers range as far as the waters off Panama, the Galapagos Islands, and northern Peru. A thousand smaller craft fish waters nearer home. In summer the harbor is home to 3,000 boats that fish for albacore; they move south from ports as far away as Alaska.

Cruising San Diego Harbor

Gray fighting ships of Uncle Sam's Navy far outnumber all other vessels in this bay, for San Diego has the largest naval base on the Pacific coast. Here are based 100,000 military personnel.

Cruise around this 20-square-mile harbor, and you will see what a Navy town this is (page 776). Your sightseeing boat threads a course among whole flotillas of submarines, destroyers, and destroyer escorts. For miles along the shore it passes towering carriers, rocket-launching ships, tenders, troop carriers, and countless landing craft. In one part of the bay a billion dollars' worth of the Navy's mothball fleet is tied up, its gun mounts encased in gleaming aluminum "igloos."

Your cruise director points out a bewildering array of Navy installations: the Naval Training Center, which turns landlubbers into sailors; the Marine Corps Recruit Depot, where leathernecks are made; North Island's vast Naval Air Station, home for many of the Pacific Fleet's big carriers; and the Amphibious Base, where Navy "frogmen" are taught underwater demolition.

But these are only part of the picture. Also near by are the Navy's big Electronics Laboratory, its largest hospital, Miramar Air Station for jet aircraft, and various schools for specialized training.

Spring's Magic Brush Paints California with Wild Flowers

The Golden State catalogues more than 4,000 species of wild plants; even its southeastern deserts count 700.

Each spring when the rains come, blooms cover fields, hills, and mountain heights, and the land runs riot with solid masses of color.

Most years wild flowers are scarce in the desert, and the floral display is short. But when rain falls in abundance, blossoms spring from almost every foot of sand and rocky soil.

← During such a year, owl's-clover and purple lupines clothe wide, flat, and usually parched areas of the Central Valley near Bakersfield.

Opposite, lower: California poppy is the State flower. Early Spaniards called it "cup of gold" and "drowsy one." Tightly curled in the morning, its blossoms open with the day's heat and close again at evening.

↓ Masses of gold-fields strew the floor of Kern County's Red-rock Canyon.

Kodachromes by National Geographic Photographer B. Anthony Stewart

From San Diego we climbed the "Highway to the Stars" up Palomar Mountain to Palomar Observatory, home of the famous 200-inch Hale telescope, largest in the world.

Under sponsorship of the National Geographic Society, astronomers on this lonely mountain are making a survey of the sky, mapping new frontiers in outer space.*

These men are using, not the giant Hale, but a wide-angle, 48-inch telescope called the "Big Schmidt" for this purpose. It photographs wide sections of the heavens to a depth of more than 500 million light-years.

More than half finished, the Survey will give astronomers the world over a comprehensive sky atlas of 1,700 photographs covering more than three-fourths of the heavens. Already plates made by the Big Schmidt have discovered thousands of new galaxies, vast "islands" of stars and gas.

To study such discoveries, observers "pinpoint" and photograph them with the narrow-vision Hale, which is about three times as powerful as the Schmidt.

Against the colossal scale of its mountain-filled setting, the dome housing the 200-inch telescope at first looked small. Inside it, we were dwarfed to insignificance by the cavernous structure, high as a 12-story building.

"Most people drive up here expecting to look through the telescope," our guide said. "They don't realize that it's just a huge camera, like most big telescopes."

Aiming Astronomy's Biggest "Eye"

We watched a man at a control desk, which resembled the console of a church organ. With a flick of a small switch he started the 1,000-ton dome revolving; with another, the giant telescope, heavier than a freight engine, began to turn.

When moving, the telescope rests upon a film of oil. So friction-free and delicately balanced is it that a $\frac{1}{12}$-horsepower motor can move it.

Setting this 200-inch "eye" on a given star is like aiming a rifle at (and hitting) a rolling penny 20 miles away. Palomar astronomers do it all the time.

We commented on a peculiar, yet familiar, odor. Our guide smiled. "Skunks," he said. "A family of them moved in here somewhere, and we haven't been able to find them."

After a night in Pasadena, scene of the spectacular New Year's Day Tournament of Roses parade (pages 805-816), we headed north up the flat Central Valley on U. S. Highway 99.

Day and night giant Diesel trucks and countless automobiles pound this busy "main street of California." Thrifty farm towns and bustling cities dot the route. Roadside stands offer luscious fruit and freshly picked vegetables at prewar prices.

Palm trees and fields of cotton flank the highway's southern part for miles. Herefords graze in pastures kept green by myriad whirling sprinklers, and mounds of baled hay loom big as houses. Never a horse or mule do you see in this mechanized, man-made garden.

Near Visalia we turned off and climbed through rolling Sierra foothills to Sequoia National Park, home of the Giant Forest. Here grow the world's largest stands of *Sequoia gigantea*, first cousins of the coast redwood (*Sequoia sempervirens*).

Earth's Oldest Living Things

The giant sequoias are the oldest living things on earth. Many were sturdy saplings before Caesar conquered Gaul, had reached maturity when William of Normandy invaded Britain, and were graybeards when Columbus discovered the New World.

In 1916-1920, members of the National Geographic Society helped save these magnificent trees by contributing some $100,000 toward the purchase of this land (page 794).†

First white man to look with wonder at the Giant Forest, in 1858, was Hale D. Tharp, pioneer cattleman. For many summers he returned to graze his herd in Sequoia's mountain meadows, living in the hollow trunk of a fallen giant which he turned into a snug cabin.

We visited this one-log cabin, surprising a doe and her fawns feeding near by. Hiking miles through groves of towering sequoias, we gazed in awe at some of the world's largest trees. King of them all is the General Sherman, 272 feet high and 36½ in diameter at the base (page 795).

No survivors of a dying species are these great trees. Thousands of them are in their vigorous prime, thousands more in all the strength and grace of youth. Seedlings, as large as ordinary trees, grow in profusion.

Leaving, we made an excursion deep into

* See, in the National Geographic Magazine: "Our Universe Unfolds New Wonders," by Albert G. Wilson, February, 1952, and "Mapping the Unknown Universe," by F. Barrows Colton, September, 1950.

† See "Saving Earth's Oldest Living Things," by Andrew H. Brown, National Geographic Magazine, May, 1951.

Glass Boats Glide on Newport Harbor

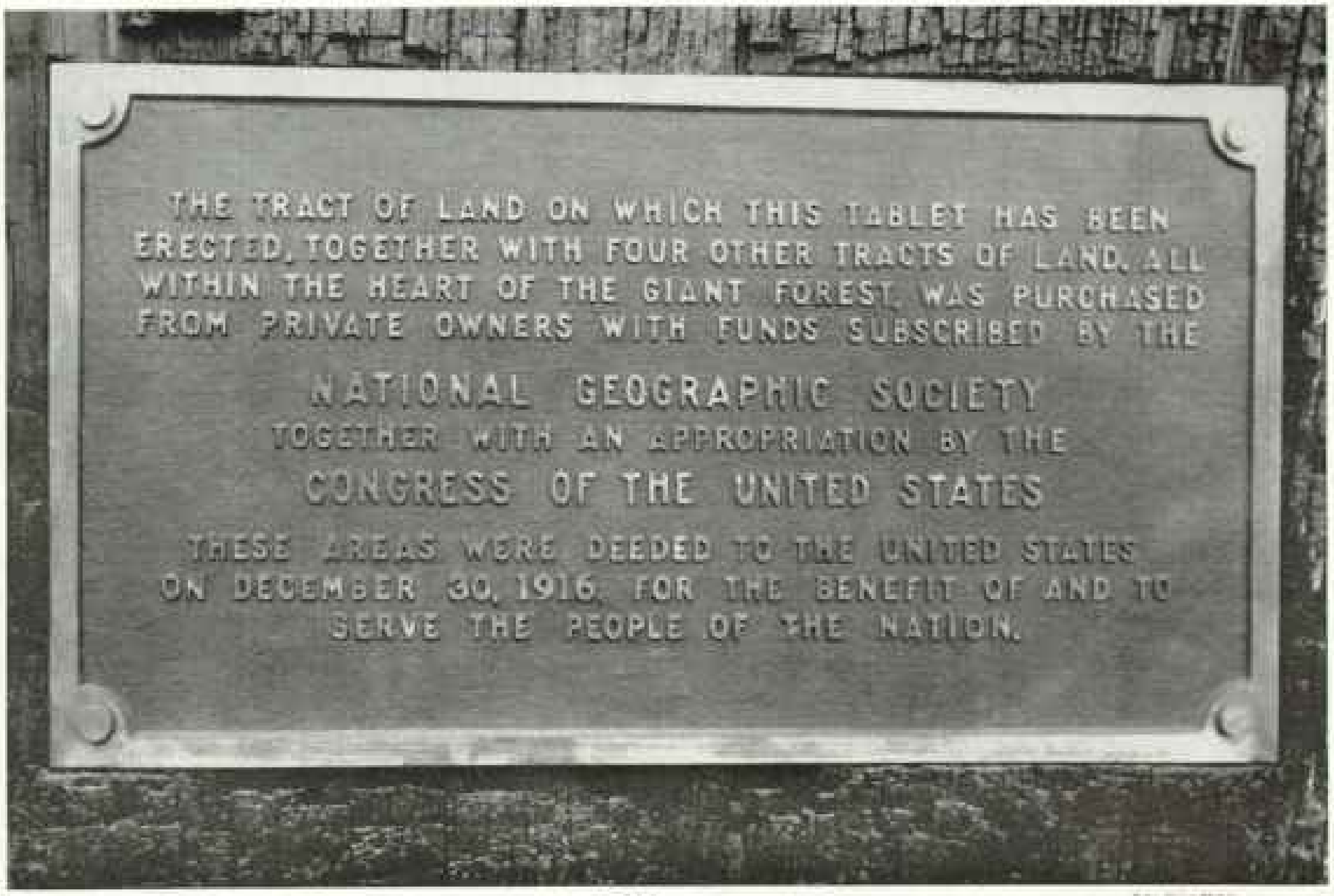
More than 4,000 pleasure craft, from one-man dinghies to seagoing yachts, call this lagoonlike harbor home. It lies 35 miles south of Los Angeles.

Here sun-browned youngsters learn to swim almost before they walk. By the time they are ready for school they sail and maintain their own boats.

The basin boasts three yacht clubs. Boating events take place every week the year round. A long-distance race to Ensenada, Mexico, starts from Newport Beach annually. August witnesses the Flight of the Snowbirds, a race for small catboats. Oars flashing, the shells of college crews sprint across the water in a yearly championship event.

Small craft in both pictures are Lehman Interclub dinghies, about 10 feet over all. Made of fiber glass and trimmed in wood, they carry aluminum spars and centerboards. Newport harbor counts a hundred like them.

Kodachromes by National Geographic Photographer J. Baylor Roberts



794 Landing Kahn

The National Geographic Society Helped Save the Finest of the Giant Sequoias

The Society and some of its members contributed $100,000 to preserve 2,239 acres of *Sequoia gigantea* and other trees in Sequoia National Park's Giant Forest. This plaque commemorates the first donation.

wild and rocky Kings Canyon (one of California's most spectacular but least visited sights), then headed for Yosemite National Park via the Central Valley.

At the park's boundary our radiator was boiling from the climb. While we waited, the family waded in the rock-strewn Merced River and fed tidbits to saucy bluejays.

Titanic chasms, gouged by glaciers of the Ice Age, score the massive ranges of this central Sierra region. Greatest of them all is Yosemite, seven miles long and averaging one in width. Its sheer granite walls rise well over 3,000 feet.

Half a dozen giant waterfalls, the Sierra's melted snow mantle, pour into this colossal trough over cliffs as high as 1,600 feet. Down the flat valley floor meanders the Merced, flanked by slender willows, alder, dogwood, and evergreens.

Not far inside the park the whole canyon, bright in the afternoon sun, burst upon our view. On our left El Capitan, a granite monolith bigger than the Rock of Gibraltar, towered 3,600 feet; opposite and farther up the valley, Glacier Point rose almost as high. In the background the fractured face of Half Dome stood out against the sky, backed by rows of shining Sierra peaks.

Later we gazed upon this stirring panorama from many vantage points, high and low. Each had its rewards; each added new wonders to the scene (pages 796, 800).

We had saved Yosemite till last. Nor were we disappointed. For even a California tour, this Sierra wonderland makes a magnificent climax.*

* For other articles on California, see the NATIONAL GEOGRAPHIC MAGAZINE CUMULATIVE INDEX, 1899-1953.

World's Largest Living Thing: the General Sherman Tree →

Though not so tall as the coast redwood (page 747), *Sequoia gigantea* bulks much larger. This one rises 272 feet, as high as a 25-story building. The base's 36½-foot diameter would span most streets. If cut into lumber, the tree could build 20 six-room houses. Its trunk dwarfs the ranger's horse.

The General Sherman Tree began life as a pinhead-size seed about 3,500 years ago. The giant sequoia, though fire-scarred, has not lost its vigor.

Sequoia National Park officials built a 30-foot platform to enable the NATIONAL GEOGRAPHIC photographer to shoot General Sherman full in the face. He had to work fast, since winter sunlight illumined the base of the tree only 10 minutes a day, at noon.

A Dark Tunnel Leads to This Dazzling Vista: Yosemite's Cliffbound Wilderness

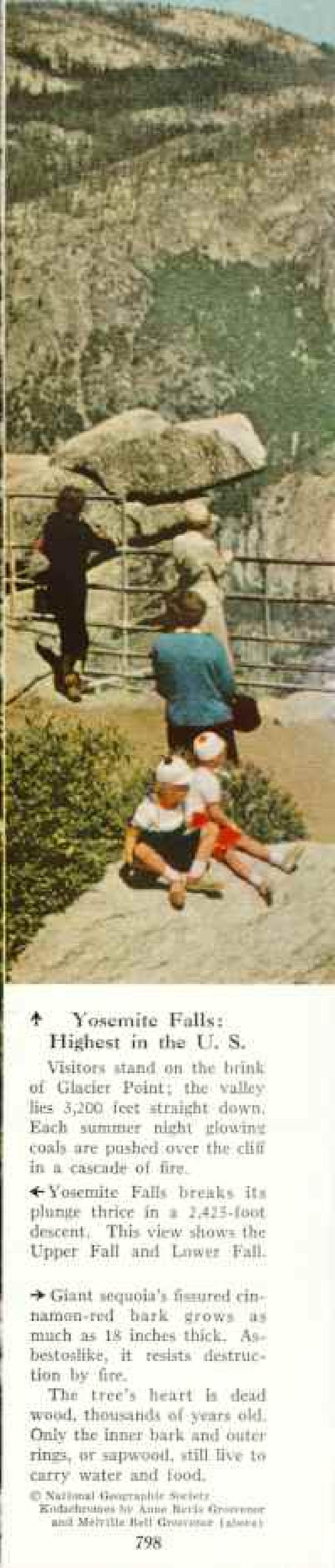
Majestic El Capitan (left) contains enough granite to make three Gibraltars. Clouds Rest peak and Half Dome fill the distant skyline. These visitors motored to the overlook through Wawona Tunnel, cut behind Pulpit Rock.

797

Kodachrome by Melville Bell Grosvenor

Bridalveil Fall's Plume of Mist Seems To Drop Out of a Lost World

The cataract wears a triple crown of peaks known as Cathedral Rocks. Its sparkling waters feed the Merced River. Erosive glacial ice, filling a mountain ravine to its brim, shaped the valley and polished its granite monoliths.



↑ **Yosemite Falls: Highest in the U. S.**

Visitors stand on the brink of Glacier Point; the valley lies 3,200 feet straight down. Each summer night glowing coals are pushed over the cliff in a cascade of fire.

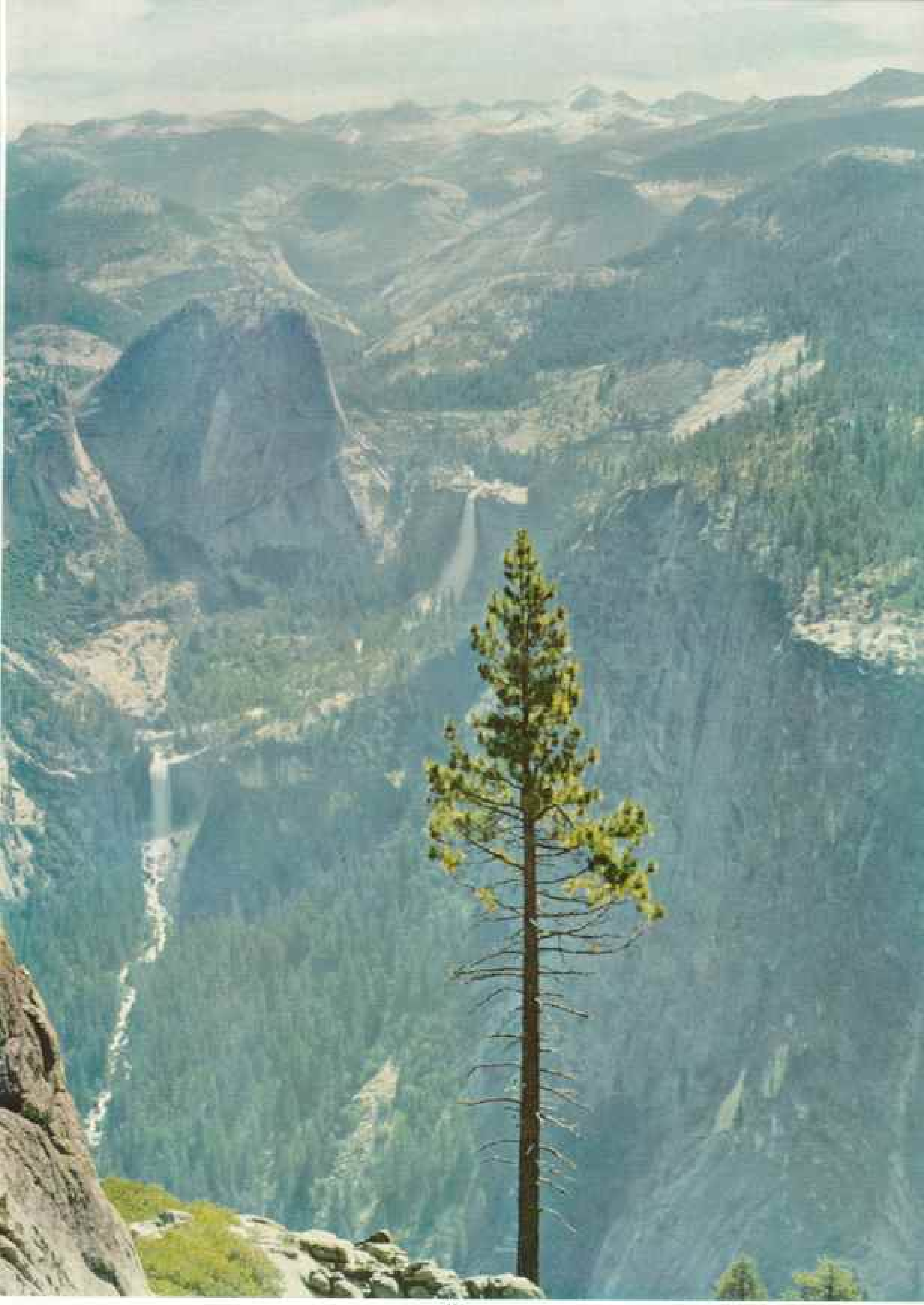
← Yosemite Falls breaks its plunge thrice in a 2,425-foot descent. This view shows the Upper Fall and Lower Fall.

→ Giant sequoia's fissured cinnamon-red bark grows as much as 18 inches thick. Asbestoslike, it resists destruction by fire.

The tree's heart is dead wood, thousands of years old. Only the inner bark and outer rings, or sapwood, still live to carry water and food.

800

Glacier Point Looks Across Two Gaping Miles to Half Dome's Bald Granite



801

Merced River, Passing Liberty Cap, Shoots Down Nevada and Vernal Falls

Ektachrome by Ansel Adams

↑ Yosemite's Living Traffic Tunnel: Wawona Tree in Mariposa Grove

Cut in 1881 for horse-drawn stagecoaches, the Wawona Tree tunnel has been pictured in schoolbooks for three generations. This giant sequoia continues to grow despite its enormous cavity.

↓ A Pictorial Gazetteer of California Decks the Author's Car

George Long, his wife (shown), and their two daughters collected these stickers as they traveled 3,500 miles through mountain, desert, coast, and city in quest of this article.

Kodachrome by National Geographic Photographer J. Baylor Roberts

New National Geographic Map Presents California, State of Superlatives

IN California people can be forgiven an extravagant use of "biggest, best, tallest, longest, oldest." The Golden State is indeed a State of superlatives.

For proof one has only to glance at the new 10-color map of California, mailed to the 2,150,000 member-families of the National Geographic Society with this issue of their Magazine.* There, among scores of descriptive notes pin-pointing California's landmarks, the reader finds cited:

The world's oldest living things, the giant sequoias in Sequoia National Park.

The tallest tree, a coast redwood, the 364-foot Founders Tree in Humboldt Redwoods State Park near Dyerville.

The longest single span, Golden Gate Bridge, stretching 4,200 feet between towers.

The United States' highest point (Mount Whitney, 14,495 feet), its deepest sink (in Death Valley, 282 feet below sea level), its highest free-leaping waterfall (the first drop of Yosemite Falls, 1,430 feet).

Nowhere can one find a greater number of natural masterpieces, more diversity, or sharper contrasts. Here average yearly rainfall varies from 3 to 100 inches; temperature, from far below freezing to almost as high as ever recorded anywhere. Here one can look from desert to sea, from snowy mountain white to lush valley green.

Only about a fourth of the State's land is level; the rest rises in hills, foothills, and some of the continent's most magnificent mountains. This vacationer's dreamland yields more than a fourth of its area to 19 national forests, four national parks, eight national monuments, and 127 State parks. It offers an estimated 20,000 lakes of an acre or more in surface.

Mountains Rim California's Heartland

A careful scrutiny of relief on the new map will show that California's heartland, the 500-mile-long Central Valley, is completely walled in by mountains, except for one outlet at San Francisco. Rimming the east looms the giant Sierra Nevada, boasting 188 peaks over 12,000 feet. To the west, about half as high as the Sierra, rise the Coast Ranges. The Cascade Range and Klamath Mountains close the valley's northern tip; the Tehachapi Mountains, the southern.

Thanks to extensive irrigation, the Central Valley is one of the world's most productive areas. California farmers reap more cash income than any in the Nation. Though they cultivate only a little more than two percent of the country's cropland, they supply the United States market with more than a third of its fruits, nearly a fourth of its vegetables, nearly half of its tree nuts. From this one State come almost all our lemons, almonds, avocados, walnuts, olives, dates, grapes, plums, figs, and apricots.

Not all of California's 269 crops are grown in Central Valley. Imperial Valley, at the southern end of the State, grows grapes, melons, dates, grain, hay, and cotton. This valley, a reclaimed garden spot of the Colorado Desert, hottest part of the United States, gets its rain from the Colorado River via the All American Canal. A note on the map at Calexico, just above the Mexican border, points out a good place for the visitor to see one of the canal's big ditches.

North of Imperial Valley lies Salton Sea. Its water is saltier than the Pacific's; its surface lies 241 feet below sea level.

Arsenal of Air Power

Fabulous as is the State's farm production, its industrial output is worth more than three times as much. California leads all the States as a producer of aircraft and ranks third in shipbuilding. It also catches more fish than any other State. In variety of mineral wealth the Golden State is also unsurpassed. Some 60 kinds of minerals of commercial worth are found within its borders.

Its manufacturing center, of course, is Los Angeles, the world's largest metropolitan area (shown on the map in one of five insets).

For most recent years Los Angeles has been America's leading fishing port; it is our third largest air-freight center. Its city and county spend more money than any one of some 40 State governments. The metropolis contains within its 451 square miles numerous lakes, beaches, and parks, a mountain range, and that world in itself—America's movieland.

* Members may obtain additional copies of the California map (and of all standard maps published by The Society) by writing to the National Geographic Society, Washington 6, D. C. Prices in the United States and elsewhere, 50¢ each on paper; $1 on fabric; Index, 25¢. All remittances payable in U. S. funds. Postpaid.

17th-century Map Makers Drew California as an Island

Earliest maps of North America showed its Pacific coast as a peninsula; many later charts, like this 1625 map from a treatise on the Northwest Passage by British mathematician Henry Briggs, portrayed California as a separate piece of land. The island theory was disproved by Father Eusebio Francisco Kino, a Jesuit missionary, who explored and mapped the lower Colorado River in 1701-2.

There are now 14 metropolitan areas in the United States with populations of more than 1,000,000. One is Los Angeles, and a second is San Francisco. One map inset shows San Francisco, and another the entire Bay region, one of the finest natural harbors on earth.

Whether one's interest is culture or cash, sunshine or snow, peace or frolic, he can find it in abundance in California. There are, for example, myriad different celebrations throughout the State in a year. The map notes Pasadena's Tournament of Roses (pages 805 to 816), San Bernardino's National Orange Show, the big rodeo in Salinas, and Santa Barbara's Old Spanish Days Fiesta.

Several of the State's scenic routes are labeled, and highways are clearly marked in red. They are easy to follow, for the map is done on a generous scale of 20.6 miles to the inch.

Auto drivers who use the map can thank chief cartographer James Darley for having transformed a personal frustration into a helpful innovation for them. On a recent early-summer vacation trip to California, Darley planned his return via Tioga Pass. Not until he arrived there, however, did he learn that it was blocked by snow. Retracing his route, he crossed into Nevada via Donner Pass. The Society's new map clearly shows which passes are open the year round. The names of those apt to be blocked by snow are printed in stop-light red.

It is now only 113 years since the first organized immigrant party passed over the Sierra wall into California. This year the State will receive an estimated 5,000,000 out-of-State visitors. And many of them never will go back where they came from.

California today is outpopulated only by New York. To this distinction the National Geographic Society adds a final superlative: California claims 225,000 members of The Society, more than any other State.

Focusing on the Tournament of Roses

Pasadena's 64-year-old Festival Ushers in the New Year with a Parade of Spectacular Floats Decked with Two Million Flowers

By B. Anthony Stewart and J. Baylor Roberts

National Geographic Magazine Staff Photographers

IT was a chilly December morning at Washington National Airport when our wives saw us off for Los Angeles, and not all the coolness was the kind the weatherman can measure. A fair share of it was being exuded by our helpmates.

"Fine thing!" their attitudes seemed to say. "Leaving us here in the cold to take care of the children and spend the holidays alone while you fly off to Pasadena to take pictures of the Tournament of Roses. We'll probably be shoveling snow while you sit in the sun and watch the parade and the Rose Bowl football game. And then you'll come home and tell us you've been working!"

That evening, as we parked our rented car at a comfortable motel near Santa Anita, we had to admit the assignment was not unpleasant. The thermometer had touched 35° in Washington that morning; now we were comfortable in shirt sleeves as we carried cameras, film, and lighting equipment inside.

Rose-decked Buggies in First Parade

A short drive into Pasadena the next morning brought us to the headquarters of the Tournament of Roses Association, the nonprofit civic organization which has sponsored the fiesta since 1898. From an official of the Association we learned about the festival.

"Like a lot of American traditions," he said, "this one just grew. It started in 1890, when Pasadena was a quiet little village. Members of the Valley Hunt Club decorated their buggies with roses and had a New Year's Day parade. The day ended at the community playground with a sort of track and field meet.

"Some people say they got the idea from the flower carnivals of France. Others think it was spontaneous. Whatever it was, it caught on. Newspapers back east wrote about it. To folks sitting around log fires and plowing through snowdrifts, the idea of a rose parade on New Year's Day must have seemed pretty wonderful. People started coming to Pasadena to see the show.

"Pretty soon it got too big for the Hunt Club to manage. So the Tournament of Roses Association was formed. That was in 1898, and we've handled it ever since, except during World War II, when large assemblies were banned."

That matter of "handling it," we found in the next few days, has become a giant task. This year an estimated million and a half people crowded Pasadena's streets to see the procession. Probably 58,000,000 viewers looked in on television. More than a thousand policemen and sheriff's deputies, many borrowed from neighboring cities, helped keep order.

And the day's sport feature, which began in 1890 as "a sort of track and field meet" and later for a time was a hectic Roman-style chariot race, had been replaced in 1916 with the famous Rose Bowl football game. On that 1954 New Year's Day 100,188 ticket holders and millions of televiewers watched the Big Ten's Michigan State win a 28-20 victory over the University of California at Los Angeles, champions of the Pacific Coast Conference.

Our concern wasn't with figures, however; it was with pictures. If the members of the National Geographic Society were to be given the best possible portrayal of the colorful proceedings, we had to be in the right spot at the right time. The Association gave us credentials permitting us to take pictures along the parade route, and then we were on our own.

In Search of a Camera Site

Now, one of the things which make the Pasadena procession outstanding is its route. Colorado Street, scene of the festivities, runs straight as an arrow through the heart of town, and the parade route extends nearly four miles along the thoroughfare. Many cities would be glad to have an avenue so long, but for the rest of that day, as we studied it from one end to another, checking sunlight and backgrounds, seeking the ideal vantage points, we came more and more to wish that Colorado Street were shorter.

We found one spot, atop the Pasadena Elks Lodge, which seemed perfect. One of us could work from there. But the other ideal location was the roof of the local Sears Roebuck store, and that establishment, like all the others in

Pasadena, would be closed on New Year's Day. Only employees would be permitted to view the parade from its windows and roof. Hopefully we called on the manager.

"The National Geographic Society?" said Mr. D. R. LaMotte. "Why, I've been a member since 1948. Certainly you can take pictures from the roof. We'd be delighted to help The Society. As a matter of fact, we'll be serving sandwiches and coffee at the complaint desk during the parade, and you're welcome to a little refreshment."

The lights of near-by Los Angeles blazed a brilliant invitation to an evening of recreation when we finished our day's work, but our aching feet telegraphed a more inviting message. We were in bed by 9 p.m.

Next day the All-Year Club of Southern California produced two seats for the Rose Bowl game. We drove to the enormous stadium, checked our location and found it good, and went to work taking pictures of the preparations for the parade.

Each Float a Floral Masterpiece

The halcyon days when Pasadena residents tied a few roses to their buggies and wove some colorful ribbons into Dobbin's mane and tail are gone forever. Only 60 floats are allowed in the parade now, 10 entered by commercial firms and the balance by cities, counties, States, and foreign countries; but every one is a production number.

Designers and contractors work for weeks preparing the huge mobile displays. The least expensive entry in the 1954 parade cost $3,000; the most costly topped $20,000.

Each year a theme is chosen by the Association, and all entries conform to the motif. This year's theme was Famous Books in Flowers. Previous keynotes have ranged from Childhood Memories through Joyful Living to Our American Heritage. In 1934 the committee picked Tales of the Seven Seas. Mother Nature obliged with a 6-inch cloudburst.

Most of 1954's floats were built in an enormous warehouse and two circus tents in Pasadena and in an unused aircraft hangar in near-by Alhambra. We spent most of the next 36 hours in those buildings, photographing the trials and torments of the designers and contractors as they directed hundreds of teen-age helpers, working around the clock in 8-hour shifts. Chassis and frames had been a-building for weeks, but the flowers had to be added in the final hours.

It seemed impossible, as we looked at the grotesque frames of wood and steel, that these awkward objects could be transformed in 24 hours into the beautiful floats that we had been promised would grace tomorrow's parade. But as the day wore on and the frames were covered with plastic and chicken wire, coated with glue, and decorated with hundreds of thousands of fresh blossoms and leaves, the metamorphosis was amazing.

No Artificial Flowers Allowed

The buildings were like giant factories where beauty was on a production line. There were enormous piles of fresh flowers—stocks, chrysanthemums, violets, roses, and candytufts. Huge baskets of anthurium, croton leaves, ti leaves from Hawaii, and ferns were used for background greenery. Nothing artificial was permitted. The Tournament committee would inspect every float before the parade began in the morning, and any entry with synthetic blossoms would be summarily ruled out.

Many of the designers have made a business of constructing floats for years. Dean of the experts is Mrs. Isabella S. Coleman, a soft-spoken gray-haired woman. She was supervising work on a breath-taking representation of *The Ice Maiden*, rich with sweet peas, orchids, geraniums, cyclamen, and lilies of the valley. Mrs. Coleman designed her first float in 1904 and has been represented in every parade for the last 50 years. Another of her designs, *Our American Heritage*, the Long Beach, California, entry, took this year's Sweepstakes award.

We were fascinated by the *Bambi* float being prepared by the West Colorado Street Neighbors (page 809). High-fidelity loudspeakers were being installed to carry tape-

(Continued on page 815)

Famous Books Burst into Bloom Along Pasadena's Colorado Street →

Last New Year's Day a million and a half spectators banked a floral tide of 60 floats decorated to carry out the Tournament of Roses theme, Famous Books in Flowers.

Fashioned from poinsettia petals, the huge red rose on the *So Big* entry dramatizes the quick growth of Norwalk, California. *Golden Empire* (second float) shows a chrysanthemum Yosemite Falls cascading past the author of the book, Gordon Norris, into a field of golden poppies. *What Price Glory* carries Medal of Honor winners from Korea sitting outside a flowery French cafe. Camelot Castle towers mark the *Knights of the Round Table* float.

SAVINGS
THRIFT
Tournament of Roses

PASADENA WAI[illegible] DEPTS.

e in Wonderland

Alice and Her Friends Drift in Wonderland

The White Rabbit, blowing his trumpet, obscures the Cheshire Cat. The Mad Hatter discourses beneath a topper showing its price tag. Roses, delphiniums, bachelor's-buttons, and chrysanthemums paint the scene.

Float costs ranged from $5,000 to $20,000. One decorator spent $7,000 on flowers alone.

Bambi, the Adventuresome Deer, Gets a Chrysanthemum Coat

For the ride through Pasadena, Bambi cavorted in a forest glade with his playmates, Thumper the rabbit, Flower the skunk, and Friend Owl. A concealed motor moved the deer's head and a butterfly on his tail. Music from Walt Disney's *Bambi* score poured from hidden sound equipment.

This float won the Mayor's Trophy for the best entry from Pasadena, climaxing a year of planning and work by the West Colorado Street Neighbors. Designs submitted in the spring won approval by midsummer. Construction started in the fall.

During the final 24 hours high-school students worked around the clock, gluing fresh flowers to every inch of the frame. Here they follow a painted color pattern. Bambi's body is a combination of chicken wire, cheesecloth, and plaster of paris.

Although professional float building has become a thriving Pasadena industry, most of the Tournament work is done by volunteers. Citizens gave 40,000 man-hours to this year's parade.

◆ To stake out a vantage point, spectators began arriving the night before. They brought sleeping bags, blankets, cots, camp chairs, vacuum bottles, box lunches, and radios. Two Boy Scouts pitched a tent; some teen-agers danced. These curb sitters combat the predawn chill with a fire.

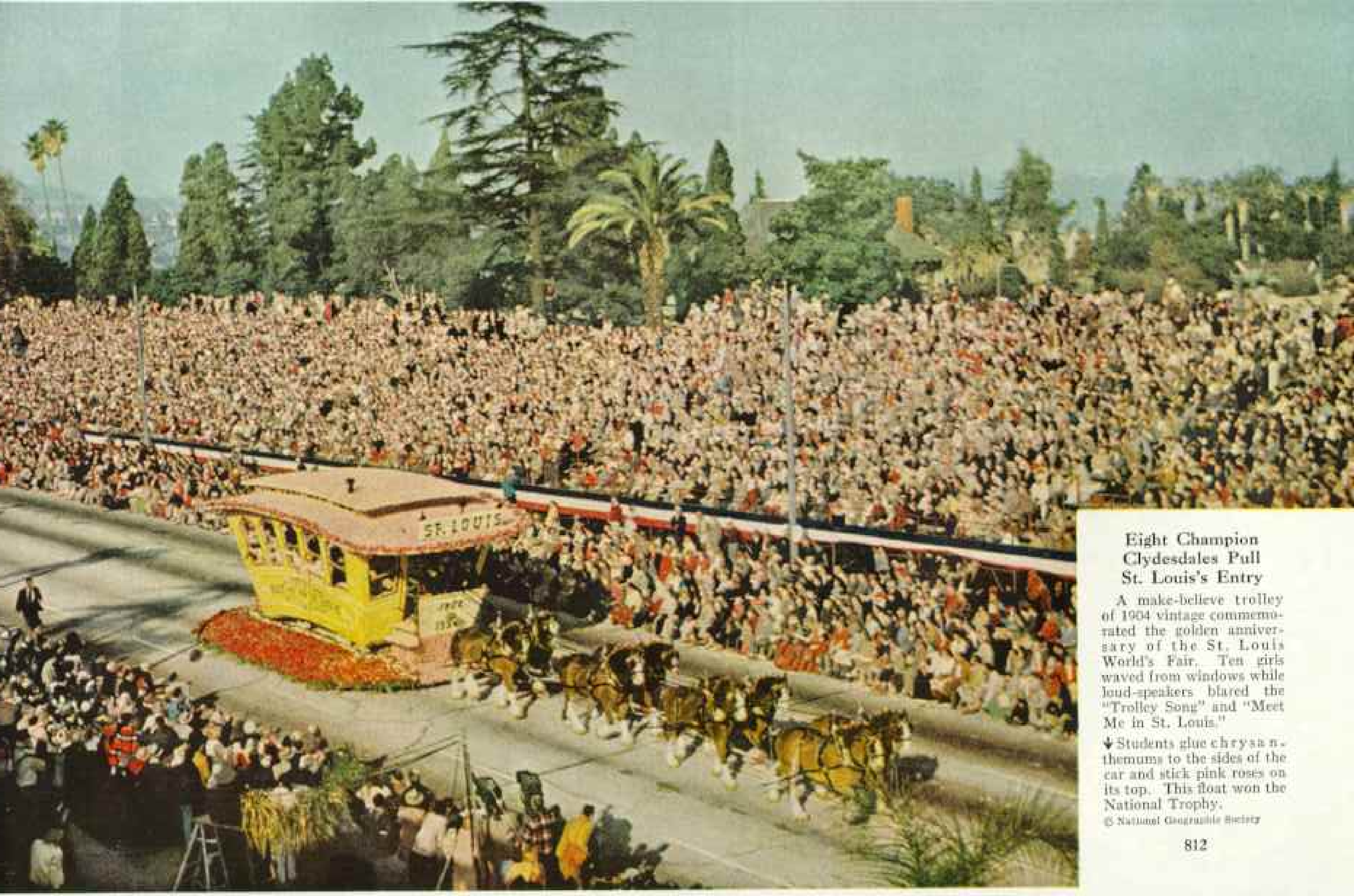
Kodachromes by National Geographic Photographer B. Anthony Stewart

"Heigh-ho!" Carol the Dwarfs Marching Across a Log Decked in Mignonette Blossoms

Snow White, a live beauty, waves as her gnomish friends leave for work. They moved by individual motors. Bashful, the shy one, hid behind the cottage door. Peeping out during the parade, he fell frequently.

Snow White (Inset) Dresses in Red Flannels on Chilly New Year's Morn

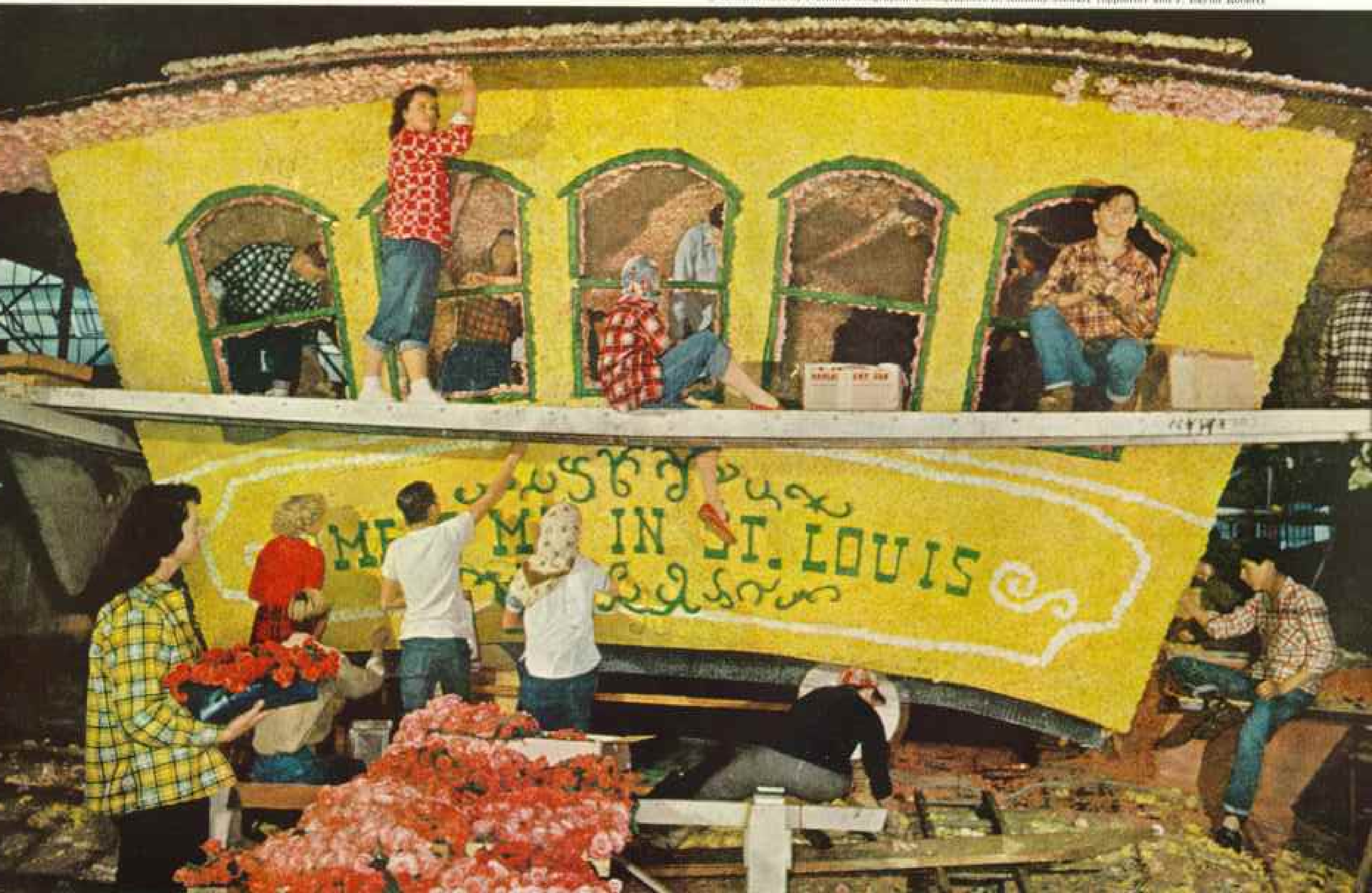
Floats for 1954's parade bore more than two million blooms; the Snow White entry alone carried some 40,000. Decorators fashioned the dwarfs' home from chrysanthemums and the tree from vanda orchids.



Eight Champion Clydesdales Pull St. Louis's Entry

A make-believe trolley of 1904 vintage commemorated the golden anniversary of the St. Louis World's Fair. Ten girls waved from windows while loud-speakers blared the "Trolley Song" and "Meet Me in St. Louis."

↓ Students glue chrysanthemums to the sides of the car and stick pink roses on its top. This float won the National Trophy.



Roy Rogers Rides a Floral "Trigger," His Movie Steed

The cowboy star, riding on the end of the *Covered Wagon* float, fought off petal-clad Indians dashing around him on a circular track. Dale Evans, Rogers's wife, drove the team (not shown), and flowered forty-niners strained to pull the wagon out of a rut.

This Old West drama won the Grand Prize for the most beautiful commercial entry.

← Living Tintypes Peer from a Family Album

Narcissuses frame the pictures in the open album on the Hawthorne, California, entry. White chrysanthemums form the marble table top.

All floats were exhibited for two days following the parade.

Kodachromes by National Geographic Photographers B. Anthony Stewart (above) and J. Baylor Roberts

recorded music from the original Disney movie, and the animals were animated by ingenious devices. Flower, the lovable little skunk in the children's story, gave the builders a bit of trouble. Black flowers are rare. They finally solved the problem, and Flower was covered with 6,000 black pansies, perhaps the only skunk ever to be so adorned!

It was late and we were tired when we returned to our motel. One of us had a letter from his wife. We were both in bed before he opened it.

"I'm sure I don't need to worry about *you* having a gay time New Year's Eve," it read, "out there with all those movie stars and beauty queens and Hollywood night clubs."

"Say," he asked, "what night is this?"

"New Year's Eve," was the answer. "Go to sleep. It's 10 o'clock, and we have to be up at 4."

We were. We dressed in the cold California dark and drove into Pasadena past carloads of merrymakers. At dawn we found Colorado Street already lined with spectators, many of whom had spent the night on the curb to be sure of choice locations (page 808). Whole families were huddled in blankets around roaring wood fires, and mothers were cooking breakfasts over the cheerful flames. We drove to the formation area, on Orange Grove Avenue, where the floats were drawn up.

Heaters Warm Shivering Beauties

In the pink light of dawn the floats were strangely beautiful. But their harried makers were still working frantically on last-minute touches. With paintbrushes dipped in glue and hands filled with blossoms, they were covering bare spots where chilled flowers had dropped off during the journey from workshops or had been knocked askew as models climbed aboard.

Many of the float builders had brought orchard heaters, for the temperature at 6 a.m. was 41° F. Most of the flowers seemed to be surviving, but some of the lightly clad beauties who were to ride the floats were having trouble keeping warm.

The Las Vegas entry featured a simulated swimming pool, surrounded by bathing beauties. Some of their bathing suits were of mink. Even such unorthodox material didn't seem to help, however. The girls were snuggled close around the orchard heaters and wrapped in colorful Indian blankets.

One float represented *Snow White and the Seven Dwarfs* (page 810), and the charming brunette in the role of Snow White had come prepared for the occasion. Demurely she lifted a billowing blue satin skirt to reveal long red woollies (page 811). She seemed the most comfortable girl in the group.

The queen of the tournament, Barbara Louise Schmidt, a student at Pasadena City College, was enthroned on the Tournament Association's float, surrounded by her six princesses, 15,000 roses in individual glass containers, and a sea of snapdragons, gladioli, carnations, mums, and candytufts. As we photographed the spectacle, a Pasadena resident told us how the queen is chosen.

Queen for Life, Not for a Day

"Every Pasadena girl dreams of reigning over the Tournament," he said. "The lucky winner is called 'queen' for the rest of her life. And almost every girl has a chance.

"Girls in the three upper classes at Pasadena City College and John Muir College are automatically entered each year. Early in October the list is narrowed to about 150, all with at least a C average in their studies."

The selected 150 then compete in a series of tests. They are photographed, their voices are tried out over microphones, and consideration is given to posture, poise, diction, and intelligence. Beauty, according to the selection committee, is the least important quality. Still, a surprising number of lovely girls seem to come first in the most important tests.

"At the end of October," our informant continued, "the committee selects seven princesses, one of whom will be the queen. For the next few weeks they are royally entertained, appear everywhere in the city, and are constantly under observation.

"Finally the committee chooses a queen, who is crowned at a Grand Ball in the Civic Auditorium. Three thousand Tournament members and guests attend, and it's the big social event of the year in Pasadena.

"The surprising thing is that most of the girls don't try for theatrical or other public careers. Only two have gone into the movies or on the stage. Most of them get married, live in Pasadena, and raise families."

It was nearing 9 a.m., almost time for the parade. We hurried back down Colorado Street, now banked with spectators, and mounted to our respective rooftops. We had planned to meet at our car and move on to the Rose Bowl together, but one look at the crowd

made it obvious that this would be impossible. We agreed to meet in our seats at the game.

The sun was out in a cloudless blue sky when the procession came into view. A trumpeter in Spanish costume, riding a white horse, led the way. Then came the famed Long Beach Mounted Police Posse on 36 matched palomino horses, each rider carrying a silk American flag.

Behind the mounted escort rode Maj. Gen. William F. Dean, grand marshal of the parade, just returned from more than three years as a prisoner of war in North Korea. The Medal of Honor winner's car was decorated with red roses. His wife sat beside him, smiling.

The general was followed by the Association's president, the Mayor of Pasadena, a large band, the queen, and then the great display of floats (page 807). For two hours the parade moved steadily over the 4-mile route. As float after float rolled past, each seemed more beautiful than the last. Cowboy stars and bands came between them, drawing enthusiastic bursts of applause from the crowd.

Everyone marveled at the 200 fine horses in the parade, most of them elaborately ornamented with silver saddles and trappings representing an estimated value of $2,000,000.

We took pictures and changed film, took pictures and changed film, as fast as our hands could move. People talk a lot about writer's cramp; it seems odd that no one has ever thought of "photographer's finger."

We weren't alone in our camera concentration. As we looked down the long avenue, it seemed that almost every other spectator had a camera.

There were a few hitches in the smooth progress of the parade. Two of the contraptions broke down. The parade committee, however, had thought of that. Jeeps towed recalcitrant entries across the finish line.

"Honor Lines" Hold Back Crowd

One of the most surprising features of the day was the behavior of the gigantic crowd. Police had painted light blue "honor lines" down each side of Colorado Street, eight feet in from either curb. Spectators could crowd against those lines, but were on their honor not to cross. And during the entire parade we didn't see one of the million and a half viewers break the rule.

After the parade the floats were taken to Victory Park, there to remain for two days of close-up examination. The more fortunate spectators went home for a hot lunch. We had a more pressing problem. We had already been at work seven hours, but our day was only half finished. We still had to struggle three miles through a million and a half people to the Rose Bowl.

One of us walked. Loaded down with 30 pounds of dangling cameras, lighting equipment, and flash bulbs, and carrying a cumbersome tripod, he found that a 3-mile struggle through milling crowds is not the easiest jaunt in the world.

The other one braved the traffic and drove our car to the Rose Bowl. He was even less fortunate. The nearest available parking place was more than two miles beyond his destination, and he had to walk the distance back, carrying our heaviest load.

Day of Colorful Spectacles

But the game was worth the struggle. The contest was exciting, and the huge crowd magnificently colorful. The setting was perfect, under a clear sun and a sky marred only by a pall of smoke from forest fires in the near-by San Gabriel Mountains.

All day we had tried to record on film a spectacle which words cannot approach. And late that evening, tired but satisfied with the results, we drove slowly back to our motel.

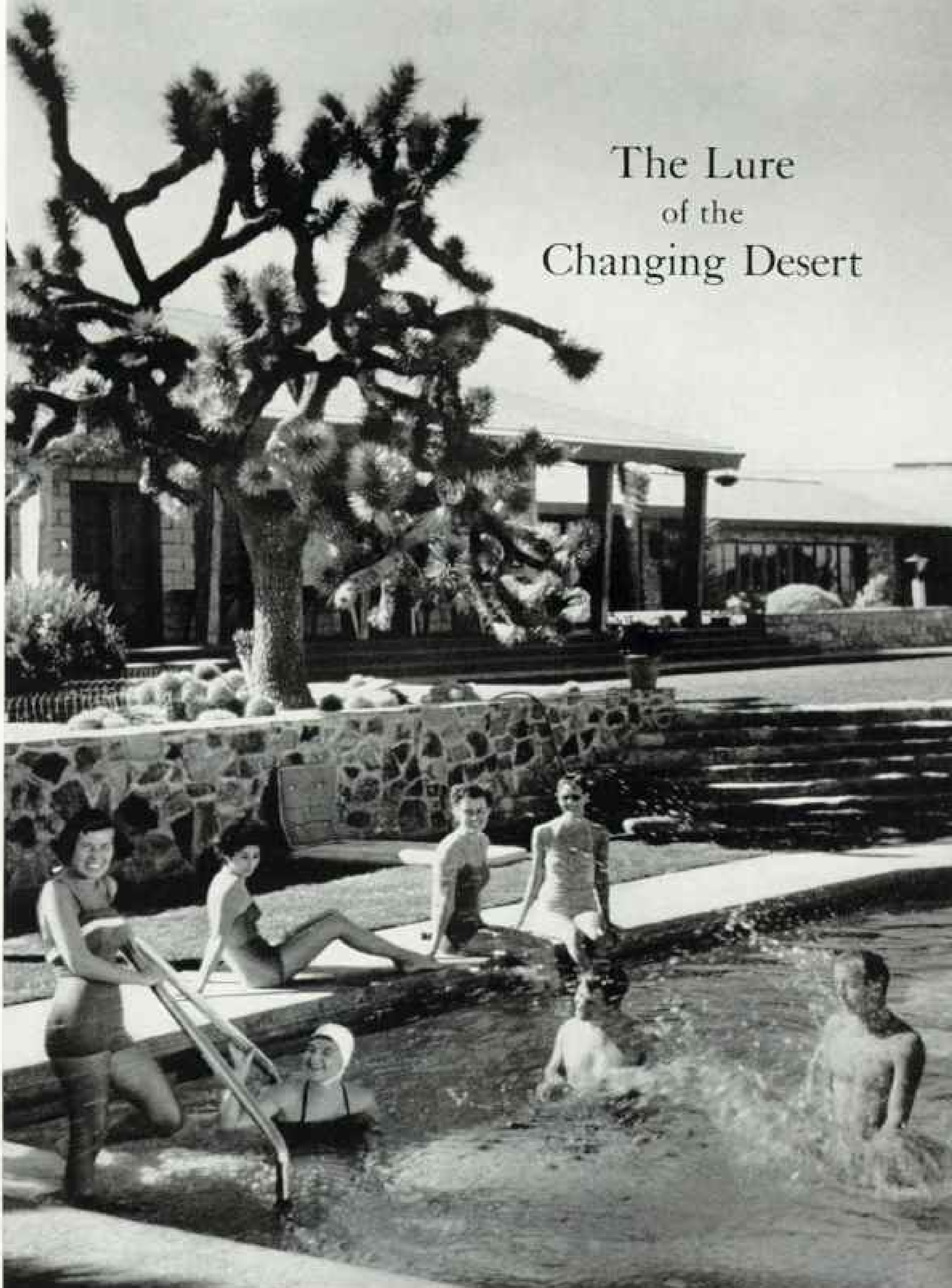
Three weeks later, after making many other pictures in California, we flew back to Washington. We had covered thousands of miles by car and plane, from San Diego to the High Sierra, from Death Valley to Donner Pass. We had been hot and we had been cold, we had been wet and dry, but mostly we were tired. A photographer on assignment has no Saturdays or Sundays off. He has no 8-hour day. When the sun shines, when the subject is there, he works.

Wearily we climbed off the big airplane, our camera bags over our shoulders, our thin topcoats wrapped around us against Washington's 21° cold. Our wives met us with kisses and smiles, and with just a little edge on their voices.

"This will give you a taste of what *we've* been going through," one of them laughed. "Back here working and freezing while you've been out there loafing in the sun, watching parades and football games, and meeting beauty queens. You don't realize how lucky you are!"

And maybe she's right.

The Lure of the Changing Desert



817 National Geographic Photographer J. Baylor Roberts

In the Barren Mojave Desert Man-made Oases Bloom in the Burning Sun

Residents of Apple Valley, 70 miles northeast of Los Angeles, need not pray for rain. Eight years ago engineers discovered a large reservoir beneath the desert crust; today wells tap a generous supply of ground water. Prize cattle graze in fields turned green almost overnight; alfalfa, corn, and truck gardens flourish; attractive ranch-type homes dot the once-arid valley. This comfortable inn with its Joshua tree serves as the community's social center.

818

Death Valley's Briny Pools Mirror the Snow-fringed Panamint Range

A band of forty-niners, stranded in Death Valley's parched wastes, named this 2,000,000-acre tract of eastern California and southwestern Nevada. Uninhabited Badwater's name originated from a 1910 map note which warned travelers of a bitter, salty taste. The sign is no longer accurate; recent surveys show two lower spots (–282 feet) near by. Annual rainfall measures a mere 2.4 inches, chiefly in fall and winter. Furnace Creek, 17 miles north, registered the Nation's all-time record temperature of 134° F. in 1913.

819

Josef Muench

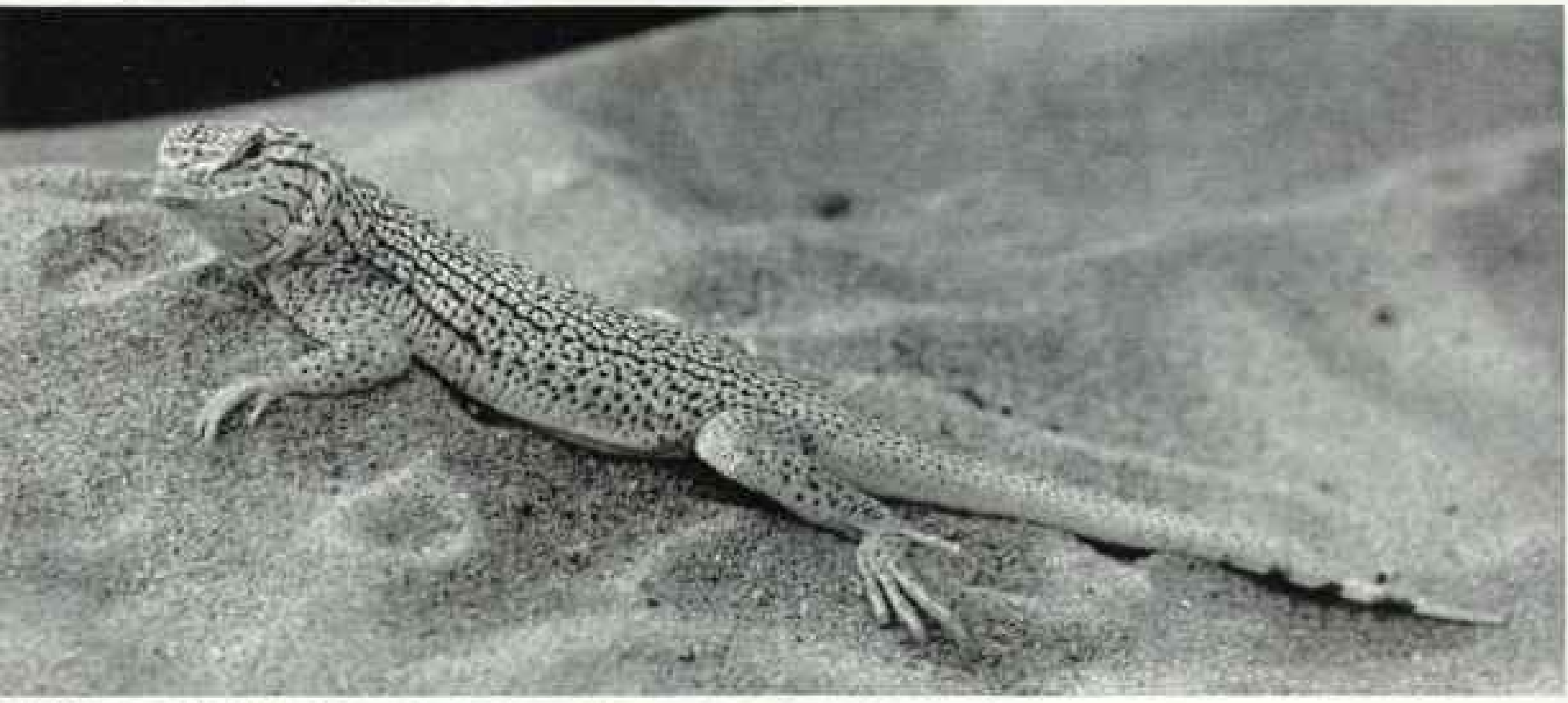
Few U. S. Mountains Can Match the Steep Rise of Telescope Peak

Masking foothills rob many high mountains of impressiveness. Not so with Telescope Peak (center); from its subsea-level base the great upsweep of the mountain can be seen to its full height of 11,045 feet. Nowhere else in the United States can one stand so low and look up so high to a summit. The peak wears its white cap late into May. Deserted mining camps hug the steep slopes; shimmering salt flats on the bed of an ancient glacial lake stud the basin floor below; gravel fans pour from canyon mouths.

♠ **The Spiny Lizard Sports a Prickly Collar**

This common desert creature prefers the shelter of yuccas and cottonwoods to open sand when danger threatens. It munches on cactus flowers if insects become scarce, and hibernates beneath the ground in cold weather. Its brown and yellow intensify in summer heat. A 7-inch tail, slightly longer than the body, rides aloft when the reptile runs.

←While the scarred snout weevil dines on a morsel of creosote bush, its teardrop eyes lend a wistful air. Gray enamellike body scales are marked with black bands and a conspicuous yellow stripe down the back.



A Wary Fringe-toed Lizard Hugs Its Sand Dune Haven

A habitué of the United States' southwestern deserts, the shy *Uma notata* burrows in loose sand to elude enemies or blazing sun. Keen eyesight and sharp hearing alert against intruders. A broad, flat tail accounts for half of its maximum 9-inch length. Black dots mottle sides and limbs; a black network outlines the back.

Scaly fringes on the toes (left) and a sharp, wedge-shaped snout facilitate "sand swimming."

Photographs by Ray J. Prew

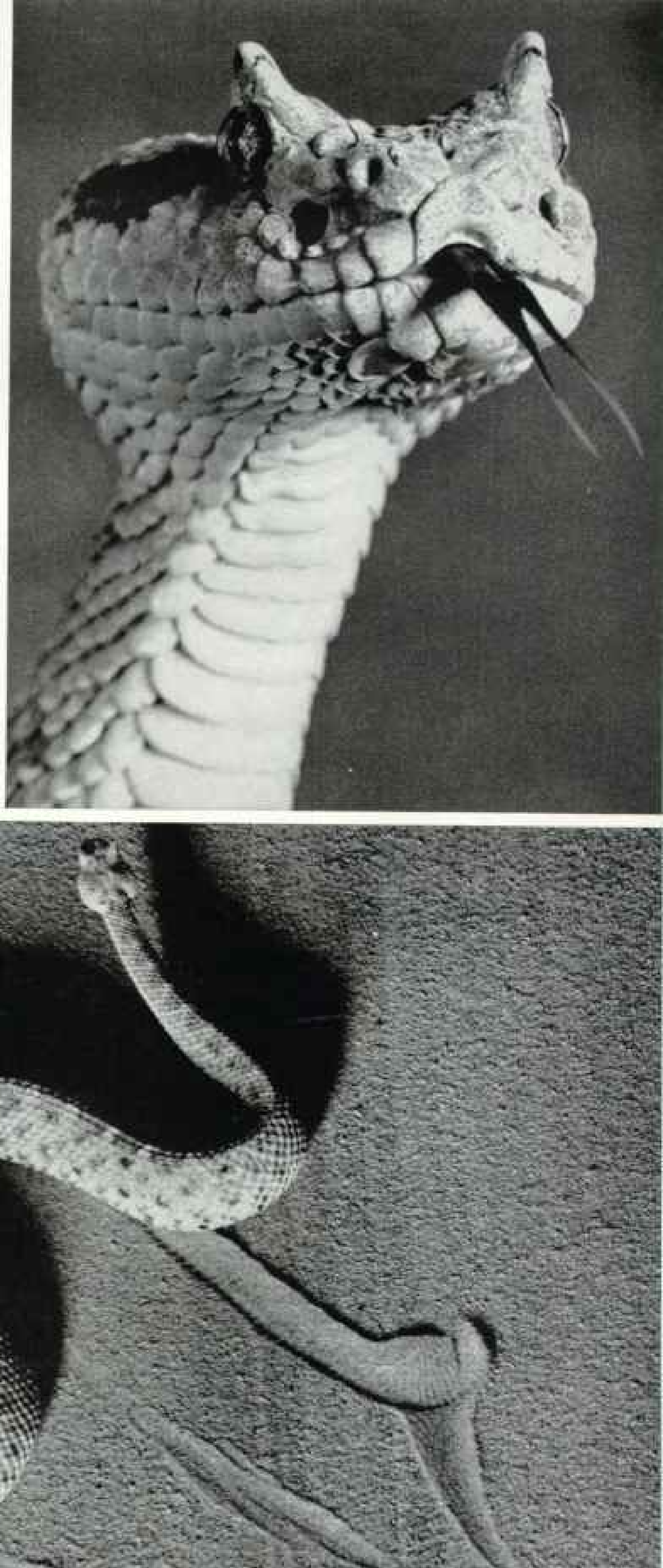
The Horned Rattler, Like an Evil Jack-in-the-Box, Detects Prey with Its Tongue

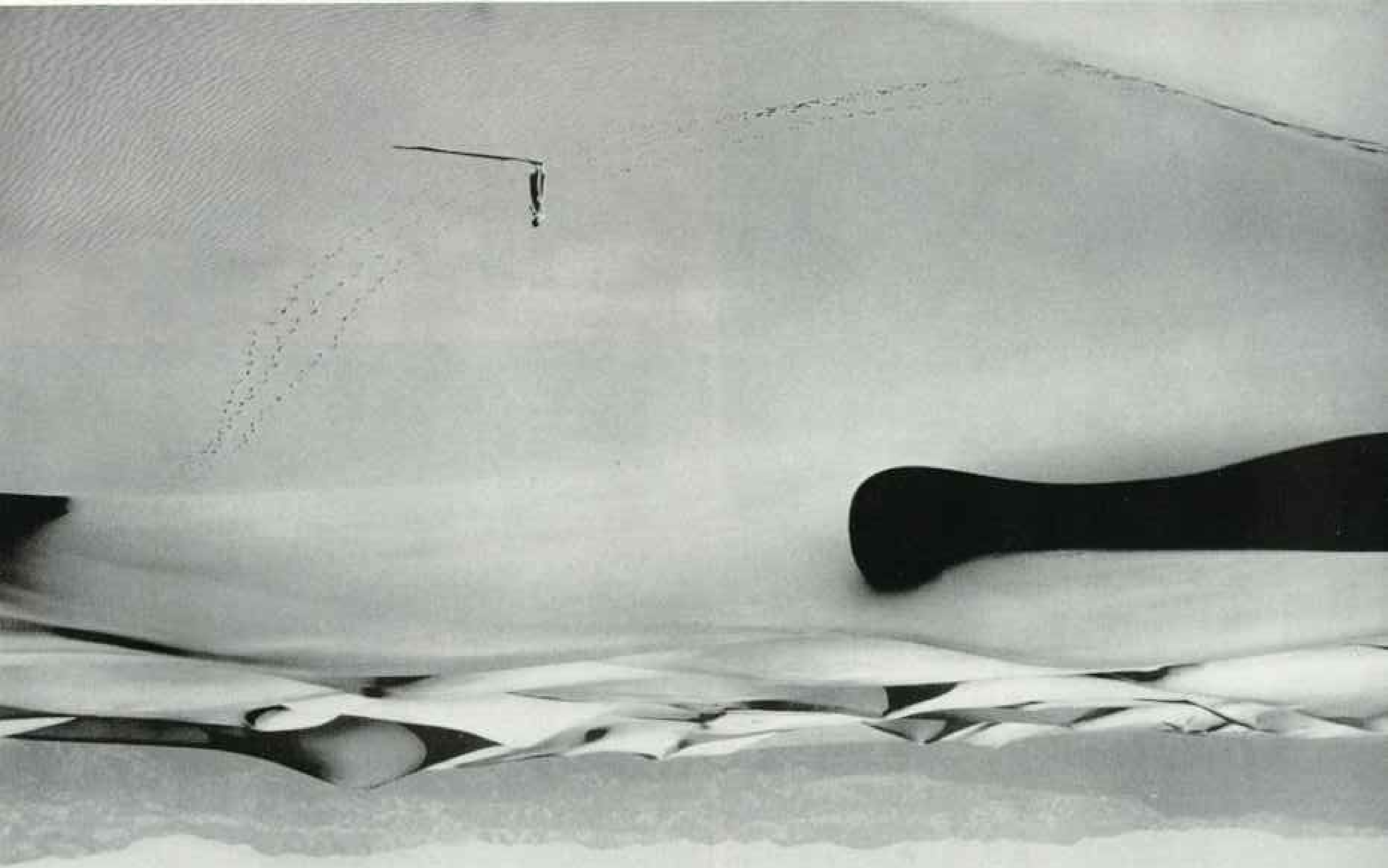
Known popularly as sidewinder (below), *Crotalus cerastes* frequents southern California's deserts. Because it does not coil before striking and gives only a faint rattle warning, victims may feel the fangs first and see the 18-inch snake later. Gray-yellow scales and pale-brown markings camouflage the thick body against the sand.

Scaly, elongated eye shields resemble horns. Pits between nostrils and eyes perceive heat from warm-blooded game. Deaf like all snakes to air-borne sounds, the reptile relies on its tongue to pick up vibrations and scents. Pupils contract to almost invisible slits in the intense desert light; the rattler rarely roves by day.

Sidewinder Loops Crablike over the Soft Desert Sand

The ordinary serpent's glide would soon bog down in yielding sand. A horned rattler, however, can move rapidly in its native desert by "walking" sidewise, throwing one portion of the body after another in a series of large loops that leave parallel tracks; hence the "sidewinder" nickname. Only vipers of the African and Arabian deserts share this peculiar mode of travel.





↑ Swirling Dunes Make a Hollywood Sahara

Converging winds from the Panamint and Grapevine Mountains constantly remold these shadow-pocked slopes, on which movie makers often film desert scenes.

"Scotty's Castle": → Mirage in Concrete

One July day in 1905 an obscure prospector, Walter E. Scott, emerged from Death Valley with his mule and began a historic spending spree in Los Angeles. He scattered large bills like Mardi Gras confetti and hired a special train to make a record run to Chicago. His flair for the sensational, executed in the lusty manner of the Wild West, brought legendary fame. For years he claimed a hidden gold mine as his source of wealth; later, a Chicago millionaire was revealed as his silent partner and benefactor.

The pair built this bizarre Alhambrian castle in the 1920's as a luxurious "water hole." Costing $2,000,000, it perches 1,000 feet high in Grapevine Canyon on the valley's northern fringe. Imported tiling, hand-carved woodwork, crenelated towers, and 3-foot concrete walls make it a desert show place, now converted into a hotel and museum. The 81-year-old self-styled "desert rat" died here last January.

Suspended or Seated, Date Pickers at Indio Harvest Early Fruit

Water from deep wells and from a branch of the Colorado River's All American Canal transform parts of the arid Coachella Valley into a garden. Citrus fruits, melons, and cotton thrive where once there was only desert; huge date groves resemble those along the Tigris and Euphrates.

Although the date palm is one of the oldest of cultivated trees, commercial date raising was not successfully introduced into the United States until 1900. Department of Agriculture plant explorers Dr. Walter T. Swingle and Dr. David Fairchild scoured Near East and African deserts for offshoots of the better varieties. Dr. Fairchild described many of his foreign adventures in the National Geographic Magazine.

Today the Coachella Valley accounts for 85 percent of the Nation's dates. Tractor-drawn hydraulic towers lift workers to treetop level to gather soft Halawy dates (left). Other pickers use the more conventional ladder (above). Safety belts hold them aloft. Waterproof paper cones on date clusters safeguard against sudden autumn showers, birds, and insects.

National Geographic Photographer
J. Baylor Roberts

The Fabulous Sierra Nevada

Millions Each Year Find Challenge, Adventure, and Self-renewal in California's Magical Mountains, Highest in the States

By J. R. Challacombe

FROM a hundred miles away you can see it on a clear spring day—a jagged brush stroke of gleaming snow suspended high in mid-air, endlessly vaulting the horizon from far north to far south. This is the grand wall of the Sierra Nevada, the fabulous, magical mountains of the Far West. They have worked spells over many men and can work them on you.

One hundred years ago the gold of the Sierra Nevada sprung our Nation's dormant energies and imagination, started the greatest continental migration in history, and rolled mellifluous "California" on the tongues of the world's adventurers.

Mark Twain, Bret Harte, and John Muir became famous with their Sierra classics—the extravagant tall tales, the toughness of life in the gold fields, and the rugged individualism of the lone mountaineer.

These mountain fastnesses again and again yielded marvels to astound the world. First it was the fortunes in gold that any hard-working man might find by himself and scoop from the river banks. Then it was the Brobdingnagian forests of red trees so gigantic that the world at first refused to believe their existence. And then it was the discovery of the hidden highland valleys, more fantastically beautiful than any fictional Shangri La, whose meadows are lush and cut with bright rivers and whose surrounding 3,000-foot cliffs are bannered with leaping, rainbowed waterfalls (pages 796-801 and page 832).

In Easy Reach of California's Cities

Though the exciting days of easy gold are long since gone, the great days of the Sierra are now, as well as then. For, with the comforts and diversions of civilization at hand, men are still impelled toward these glittering mountains with an unceasing passion.

Along the eastern border of California, only five to six hours from either Los Angeles or San Francisco, rises this wall of jagged mountains, highest in the country and almost as extensive as the entire Alps. (See the National Geographic Society's 10-color map of California, a supplement to this issue.)

Only 50 years ago the western Sierra was truly formidable and remote; the eastern Sierra, a world apart. Today the Sierra is more approachable, but fortunately still formidable. The 430-mile length of the range is paralleled by high-speed highways on either side, crossed here and there by a few winding mountain roads, and probed at a hundred vital points by short dead-end roads.

But for all these encroachments of civilization—the paved highways, the gas stations, and the motels—some of the finest areas of the Sierra highland from Lake Tahoe south have been preserved reasonably intact in the wilderness areas of the national forests and in the three large national parks, Yosemite, Kings Canyon, and Sequoia.

Pack Mules Wind the High Trails

There are enough roads so that you can get yourself up into the mountains quickly and see a few of the famous canyons, big trees, and waterfalls. If, however, you would actually feel the dizzy greatness of the land, you will have to leave your modern equipage behind and allow the mountains to reduce you again to a simple man. Most of the High Sierra is still a realm of mountain trails, mule pack trains, and friendly hand-led burros.

Because the Sierra is now an approachable wilderness, it has become important to more people than ever before. Today ten million from all over the world enjoy its thousands of square miles every year.

Many come to the Sierra as a hunting and fishing paradise. Others are attracted by resorts advertising the Sierra as an all-year playground. But some come to experience deeply the mountains themselves. Among these are men who are adding to Sierra lore.

Mountain people are where you find them. And men of the Sierra may include a lawyer in San Francisco, a contractor in Los Altos, and a doctor in Los Angeles; or you may find one caring for a sick horse in the darkness of a barn near a Sierra foothill town. There are many foothill communities on the western slope, some replete with fascinating brick-and-stone ghost buildings of the gold era.

Outside the old gold fields, however, there is one engaging little settlement, closer in distance and spirit to the great mountains than any other I know. At the main southwest entrance to the Sierra, the community of Three Rivers may seem like no more than a post office and a few stores lost in a deep, picturesque foothill canyon. But more than 1,500 people live scattered through the three river canyons that meet at Three Rivers.

Overshadowing the community is always the view toward the east, up the broad, open Middle Fork canyon of the Kaweah River. In the distance you can see the high plateau where the largest forest of sequoias grows—those giant trees up to 36 feet in diameter, nearly 300 feet high, and 2,000 tons in weight.* Beyond that you can see Alta Peak's bare granite, and from some places catch exciting glimpses of the secondary 13,000-foot crest of the Sierra, the Great Western Divide.

Packers Reminiscent of Gold-rush Days

Unlike most other foothill communities—which rarely see the great peaks—Three Rivers and its people are intimately bound to the higher mountains. Although only 850 feet in elevation, it has long been a wintering ground for the packers—those salty experts with the diamond hitch—and their large strings of riding horses, pack mules, and burros.

The mountain packer, winding the high trail on horseback, leading his train of laden mules, is a captivating anachronism in the jet age, a leftover from the gold-rush days, and before that, too. Onis Brown is one of them. A short, powerful, barrel-chested, soft-spoken man, he came through Three Rivers on a trip into the mountains in 1904 and decided it was the country for him. Since then he has raised cattle, trained horses, supervised the building of mountain trails, and guided parties into all the principal canyons of the High Sierra.

It is disconcerting to be high on a horse's pitching back, hearing its iron shoes slip and grate, and then to look straight down the cliff to where the trees are like grass underneath you. Once, when the women near Onis became panicky and wanted to walk, he said gently, yet firmly, "Well, I don't think *I* want to. I'd slip twice as easily; the horse has four feet and I only have two!"

Just then a woman far ahead who was walking slipped and fell in the trail. After that quick example, the horses' four feet did seem safer.

While the casual tourist may look with proper awe down or up at the massive walls of the Sierra's glacier-carved canyons, not everyone is overpowered by their sheerness. Since Yosemite Valley is one of the most accessible of these canyons, it has become a Switzerland for rock climbers. Today, after a hundred years of rock climbing in Yosemite and in the rest of the Sierra, the sport has developed great legends and exciting pictures of men grappling directly with the Sierra itself, driven on to conquer another peak or spire.

Yosemite's Spires Challenge Climbers

The earlier rock men relied solely on friction, exquisite balance, and a few fortunate hand and toe holds to take them up the precipitous slopes and faces.

Then, in 1931, the newer "technical climbing," developed in Switzerland, was studied and improved by the Yosemite climbers. Rope techniques, the special steel spikes called pitons, and other aids were added to the older, still fundamental methods.

One by one the awesome spires and towering rocks were ascended by teams of climbers walking up the breezy vertical faces and swinging on slender ropes from piton anchors, like tiny spiders from filaments of web.

One Yosemite pinnacle, however, remained inviolate, and it excited and frightened all imaginations. The Lost Arrow—just east of the Upper Yosemite Fall—is a giant sliver of granite jutting straight upwards alongside an almost vertical 2,900-foot cliff (page 835).

The Arrow begins to rise steeply upwards from a bench in the cliff 1,700 feet above the valley. At 2,700 it separates completely from the cliff and thrusts a final 200 feet into the air—its smooth spear tip a dizzy half mile and more, or two Empire State Buildings, above the floor of the valley.

Who was going to climb that 1,200 feet of granite pinnacle, in many places vertical, polished, and crackless?

One day in August of 1946, John Salathé, a blacksmith by trade, lowered himself from the rim of the cliff to the notch 200 feet below the tip and began what was to have been merely a daring reconnaissance.

Finding a tiny ledge running around to the outside east face, he edged out gingerly, a

* See, in the National Geographic Magazine, "Saving Earth's Oldest Living Things," by Andrew H. Brown, May, 1951; and "Among the Big Trees of California," by John R. White, August, 1934.

thousand feet of air beneath him. At the end of the ledge he discovered a fine crack running upwards. Inflamed by the sudden find, he began to hammer in one piton after another, pulling himself up by a new technique of self-belaying for solo climbing. Before he stopped to rest and realized the terrifying odds against him, he had pioneered a vertical route to within a hundred feet of the top.

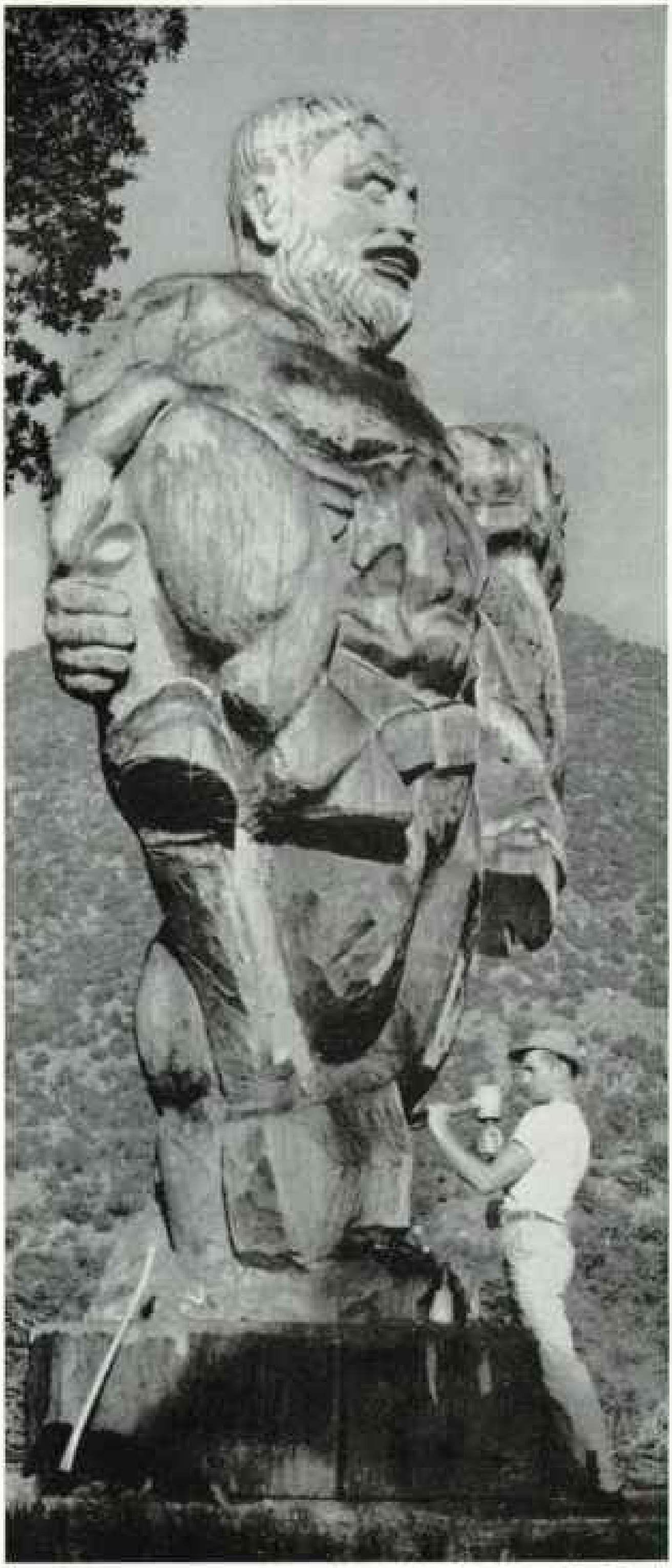
The following week Salathé returned with another climber to belay him and reached the last 30 flawless feet before having to retreat.

Postwar Climbers Conquer Lost Arrow

Now the astonishing news was out: the unseen face offered a possible route. Other Arrow teams made plans, and by the end of Labor Day week end, 1946, the tip of the Arrow was reached. A cord had been cast from the nearby cliff over the Arrow's tip and down the other side. When the two climbers reached the cord, they pulled over the heavier climbing ropes and mounted up the last smooth 30 feet. After more than 10 years of attack, the Arrow had fallen to Fritz Lippmann, Jack Arnold, Robin Hansen, and Anton "Ax" Nelson.

Although the feat was hailed nationwide, it did not settle too well in the minds of some climbers. The clever rope-over-top technique had seemed justified on such an impossible needle, but it was an admission of the Arrow's "inaccessibility." Until it was climbed directly from its base to the top, without rope aid from the adjacent cliff, the Arrow would not have been truly won. And John Salathé thought about this the rest of the year and during the spring of 1947.

Salathé and Ax Nelson had made some memorable first ascents together before, and Ax agreed to undertake the total conquest of the Arrow with him.



Harry Yeoman

Paul Bunyan Shoulders His Blue Ox, Babe

Sculptor Carroll Barnes puts finishing touches on this 17-foot statue cut from a 40-ton *Sequoia gigantea* log at Three Rivers. It brings the legendary lumberjack of the North Woods to the Sierra in appropriate gargantuan guise.

828

The Sierra Wave, Laden with Dust, Rockets Five Miles High Above Owens Valley

Powerful winds surging down the Sierra Nevada's eastern escarpment (right) often shoot skyward in gigantic updrafts. Flying in an ultrastrong one, veteran pilot Bob Symons estimated its rate of rise at 8,000 feet a minute, its height at 10 miles or more. Pancakelike clouds riding the crests tell sailplane pilots Nature's elevator is running.

829

Grand Canyon Service

Winter's Snow Veils Peaks of the Sierra Nevada, Greatest Single-block Range in the U. S.

A century ago gold lured thousands to California's Sierra. Today scenic beauty is the treasure, and millions come to claim it. This tilted chunk of the earth's crust, 430 miles long and 40 to 80 miles wide, displays the highest peaks and waterfalls in any of our States (page 798), and the world's biggest trees (pages 795 and 799).

The two men are totally unlike in appearance. Salathé has large, strong blacksmith hands and terrific endurance. A Swiss who learned climbing in the Sierra, he could lead tirelessly for hours at a time, driving his hand-forged vanadium-steel pitons even into the crackless stone itself on otherwise impossible stretches of dangerously rotten granite. Nelson, a younger man, stands at least 6 feet 4. He is a cross-country runner, powerfully built in a lithe, springy way.

Salathé, who had been nearly dying from a stomach ailment, regained his health by strict dieting and living vigorously on the cliffs and steep trails. To him the Sierra was never just "the mountains" but always "our friends, the mountains." And the Arrow—in a way, his pinnacle, a symbol of his renewal—he referred to as "our *great* friend, the Lost Arrow."

The Salathé-Nelson ascent of the Lost Arrow during Labor Day week, 1947, is now generally conceded to be the classic climb of the Sierra. The two men, trained like Spartans, spent five grueling days and four nearly sleepless nights on the Lost Arrow. It is a long story of many struggles, of looking up smooth granite faces and wondering where the next hold could be found, of bursting into sweat while trying to maintain a precarious balance, and then excitedly jamming a little finger into a tiny "thank God hold" in the rock. Night and day they were creatures of a vertical world, with space above and below them and hard smooth rock before them to which they must somehow cling.

Lost Arrow Falls to 5-Day Assault

It was a climactic moment in Sierra mountaineering when, on the morning of the fifth day, the final expansion bolts were driven into the "flint-hard and flawless Arrow tip" and the two men mounted to the peak amidst cheers and yodels from friends on the near-by cliff (page 835).

With the assault of the Arrow finally achieved, the other new postwar climbers who have learned their skills on the Yosemite walls have been making expeditions to Canada, Alaska, and South America to learn ice climbing and master other mountaineering problems. As a climax to their work, 10 Sierra climbers left last February for Nepal to attack the great Himalayan peak of Makalu, 27,790 feet, fourth highest in the world.

In the Sierra Nevada nothing seems quite impossible. These particular mountains have a mysterious power to inspire continuously new folk legends, new high adventures, new brash attempts to experience and possess their complex grandeur. Sometimes an impelling force comes over a man, taking him into extreme peril almost without his consent. Franklin Dunn, better known in Yosemite as "Kim," once described to me this overpowering urge to plunge into the vastness and power of the mountains:

"You see some place you want to go and you are taken out there, just swept along. You can see yourself going and tell yourself what a fool you are, but you yourself don't have anything to do about it and are amazed at what you are doing."

Behind Yosemite's Roaring Waterfall

Once he was seized with that driving urge while investigating the edges of the great rocky caldron at the foot of the Upper Yosemite Fall. This tremendous quarter-mile-high fall is thrilling when seen from a distance (page 798). But at close range the huge scale of the white, thundering cataract, arched with brilliant rainbows, is enrapturing, overwhelming you with the knowledge of witnessing one of the awesome primal forces of Nature.

When Kim saw some ledges on the face of the cliff leading behind the fall, the sudden idea of crossing from the west to the east side of the caldron, behind the fall, was irresistible. Before he could talk himself out of it, he had made his way over the very slippery wet boulders to the ledges and along them into a "cave" behind the falls itself. There he waited for the powerful gusts of wind that play in the amphitheater to swing the great plume to the west and uncover some of the ledges on the east.

After long, endless moments of the deafening, maddening roar, the deluge was slowly swept aside. Amid showers of turbulent spray, Kim began to run along the ledges that sloped off down to the abyss below, jumping from one to another, sloshing through swift, ankle-deep water streaming off the face of the cliff.

He still had a long way to go when he felt a sudden ominous change in the air. Glancing over his shoulder, Kim saw the fall dropping slowly back toward him, like a great theater curtain. Instantly he turned and raced back into the recess just before the roaring water descended again. Kim did not try a second time—nor is such daring recommended!

(Continued on page 839)

Ektachrome by Josef Muench and Kodachrome by Fred G. Rhea (inset)

Roaring River Tumbles into a Pool So Clear the Fisherman Can See His Prey

In 1904 President Theodore Roosevelt ordered scientists to the Sierra Nevada to investigate a newly discovered golden trout native only to Kern River tributaries. In the Kern's South Fork they found the beautiful and game *Salmo agua-bonita* (inset). Later the species was distributed throughout the high waters of the southern mountains, but it does not occur in Roaring River, here seen flowing through the Cedar Grove recreation area.

A Rainbow Hovers Above Waterwheel Falls Dropping into the Grand Canyon of the Tuolumne, Yosemite Park's Mile-deep Gorge

Merced River Gorge, Seen from the All-Year Highway to Yosemite, Looks Like a Picture Turned Askew. California Poppies Gild the Slope

Man Conquers Lost Arrow, 1,200 Feet of Granite

For five days and four nights John Salathé (top) and Anton Nelson (red cap at lower left) clung to the sheer face, one of America's severest climbs. During daylight they inched their way up; at night they bivouacked on tiny ledges, tying themselves to iron spikes driven into fissures. Buffeted by cold winds, racked by thirst, and barely sustained by raisins, dates, and nuts, they achieved the summit after 103 hours of climbing, on September 3, 1947. They were the first to climb from the base of the spire to the peak.

Yosemite Falls trail zigzags through the trees at upper left.

Kodachrome by David C. Fork

↑ **Glaciers Carved a Moonscape on the Sierra's Roof**

This view from Mount Sill, sister peak of North Palisade, surveys both Kings Canyon and Sequoia National Parks. Many regard the view as the Sierra's finest.

↓ **Spotlighting a Peak, the Sun Makes Mountain Magic**

For three days storms raged across the Sierra. Then at sunset the clouds parted, revealing Mount Russell clad in gold in a frame of somber granite.

Kodachrome by C. E. Mitteer

White Granite Half a Mile High Thrusts a Towering Curtain Behind Hamilton Lakes

Three ancient glaciers converged and carved out this lake basin in Sequoia National Park. Melting, they filled the pool with water and dumped boulders along the shore.

John Muir once had a similar experience, which left him "nerve-shaken, drenched, and benumbed."

Within Yosemite Valley, and in easy hiking range, are four of the world's major waterfalls—Yosemite, Bridalveil, Vernal, and Nevada—and many other cascades or falls remarkable in their own right (pages 797 and 801). To appreciate the Sierra falls to the full, you need to hike on the trails around each one, let its spray and cracking thunder roll over you, and, looking up 500 or 1,000 feet, absorb all the beautiful, intricate turmoil—how the white water springs eagerly into space and how it arches downward, dividing and redividing into whistling comets.

Sierra's Two Faces Totally Different

Seen on a late summer day from an airplane flying high over the western foothills, the Sierra first rises from the flat valley floor as a plateau of rolling hills, yellow with dried wild oats and spotted with gray-green live-oak trees. These foothills, with the mountain rivers cutting down through them, were the roaring gold country of the 19th century.

Beyond the foothills, higher and higher, rise ridges covered with pine and fir forests, cut sometimes with vast canyons and sometimes with deep, narrow gorges. Above the 10,000-foot timberline the great granite ribs of the mountains lie alpine and naked. Higher yet in the distance, dominating all, looms the final great ridge, the Sierra's crest, a frightening array of saw-toothed peaks jutting 13,000 to 14,000 feet in the air and running for 110 miles from Yosemite to Sequoia.

From the eastern side the Sierra is a totally different range. There are no foothills to speak of, nor long ridges rising to the crest. Here indeed, just above the highway, is what we saw at a distance from the other side, the sawtoothed crest itself. One of the giant peaks, an immediate 11,000 feet above the floor of the desert, is Mount Whitney, highest mountain in the United States, 14,495 feet above sea level (pages 847 and 862).

Life-giving Water for California's Cities

By the time the storms from the Pacific rise over this lofty barrier range, they have been drained of most of their moisture, and so effectively that east of the Sierra lies the great American desert—Mojave, Death Valley, and the arid stretches of Arizona, Utah, and Nevada.

To California the Sierra Nevada is an oasis. On both sides of the range huge aqueducts and canals lead out from the canyons and cross wide valleys and lesser mountains, carrying the water of the plunging rivers to Los Angeles, San Francisco, Oakland, and the great agricultural fields and orchards of the Central Valley of California.

The storms that blow over the Sierra, leaving their rains and snow behind, create an unusual job for Bob Symons, a versatile, inventive pilot at Bishop, California. In the late winter and early spring Symons flies a monthly snow survey along a 130-mile length of the High Sierra, photographing from the air the tall depth poles erected in the high meadows and canyons by the water and hydroelectric companies to gauge the amount of water which will be released in spring.

Much as he enjoys the ruggedness of the mountains he knows so well, Symons is perhaps even more fascinated by the mighty rivers of air that sometimes flow over the range and produce that astonishing surge of up- and downdrafts, the Sierra Wave. As the wind rivers roar over the crest, they curve down abruptly and then shoot upward. These currents cause a series of 30,000 to 40,000-foot and higher standing waves extending far to the east (page 828).

Sailplanes Ride the Sierra Wave

Symons discovered the Wave back in 1929 in an old biplane when it suddenly started rising as if it were on an express elevator.

No one knows how high some of the waves might push a glider. Symons himself, with Dr. Joachim Kuettner, long held the two-place sailplane altitude record of 38,650 feet, recently topped by another Wave soarer, Larry Edgar, with Harold Klieforth, at 44,400 feet.

In the winter and spring, when Bob Symons is flying the snow survey, the high mountains are mostly vacated of people. Here and there, though, clustered around Lake Tahoe, at Dodge Ridge, at Badger Pass, and at Mammoth Lakes too, are the ski areas and resorts. Here are the warming huts and lodges, often with great stone fireplaces, the chair lifts and rope tows, the Austrian and Swiss instructors, and the broad white slopes alive with joyous downpourings of racing, brightly sweatered people (page 740).

Skiing is the major recreation of the winter-spring season, following the hunting of fall and giving way in its turn to the camping,

Kodachrome by Arthur Wilmer

Granite-chipping Frost and Thaw Laid Out This Rock Garden on Birch Mountain

One of the Sierra Club's "High Trip" hikers, Rose Marie Balsam, leaps foaming water en route to The Thumb, a peak near the Palisades. Birch Creek surprised the climbers with wild flowers blooming along its banks at 10,500 feet.

hiking, and fishing of summer (page 831).

When the warm winds and intense summer sun melt the winter snows from the high country, thousands of people come to travel the lofty trails.

What is this magic of the Sierra which takes sociable people of all ages off into its distant mountains in small groups, sometimes by themselves, to spend long lonely weeks away from civilization?

From a distance the range looks like an immobile wall, a rigid grandeur, a forbidding remoteness. But the mountains are not austere or dead; everything about them moves, breathes, and lives.

When you enter the Sierra, you burst in upon the private wonderworld of Nature—its teeming variety of life and relentless forces displayed for you as never before.

Think of these great mountains as if they were layers of widely separated regions. Start with a slab of western desert, then gather the rolling Ozarks, the wooded mountains of Oregon and Canada, and finally the sharp peaks of the Rockies (only these peaks must be different, must be Sierran). Take all these areas and much of their corresponding trees, animals, birds, and flowers, stack them one on top of another, so that you can ascend rapidly from one life zone to another—from the desert to the alpine—and you will begin to sense the miraculous concentration and variety of life in the Sierra.

Consider also what are the great, even frightful, powers of Nature: earthquake? volcanic eruption? tremendous storms? raging rivers? ponderous glaciers? All of these elemental creative forces are in evidence in the Sierra, some of them still quite active.

Spring Always Near, a Little Higher

To those of us who live always in one spot, spring comes and goes, and we see nothing of it for another year. But in the great mountains spring is an ascension to the heights, pushing winter ahead of it. Summer comes, but spring is still near, just a little higher.

Coming from the summery fields of the valleys, or the hot, bricked-up, cemented world of man, you might hike out a trail along the edge of a vast canyon toward the back country. In the distance a crest of bare granite juts up out of wintry snow fields. But all around you on the trail it is early spring. The sun is rapidly melting the last patches of snow under the pines, and pungent odors of rich, warm humus fill the air. Twigs are tender and red with new sap, and somewhere the Sierra grouse booms slowly and melodically. You had forgotten spring, that gradual revival of life, but now you are suddenly in the midst of it, seeing it intently as if for the first time ever.

Or you may be resting after a stiff climb up a 14,000-foot peak, such as Mount Sill of the Palisades. The blood is still pounding in your ears as you feast on the vastness of what you see, the Kings-Sequoia climax of the Sierra. White, fluffy clouds line the intense blue sky, moving to the east. Their shadows glide across the peaked, serrated ranges, the snow fields and exquisite blue lakes, down into the cirques and canyons and up again. The whole grand panorama seems slowly undulating, rising in the sunny areas and receding in the shadows of the clouds. By some magic the Sierra is ever in movement, ever alive.

A Swift Whistles by Like a Bullet

The trails are filled with other experiences and sounds and colors that you will remember as long as you live. Who could forget hiking on a trail down the side of a 3,000-foot gorge, doubly intent upon sure footing, and how a whistling body suddenly darted by your head and skittered down into the vast reaches of air? The careless jet flight of the white-throated swift is thrilling to follow, but disturbing, too, on a high trail.

Or who could forget the desperation of losing a cooking pot? And then the thrill of finding a tin can someone had forgotten to bury, washing it, and proudly cooking in it for the rest of the trip? And what about the evening you had dawdled and had to hike the last miles to a new camp in the dark, using your flashlight? There was a little fire waiting, and a man's voice called out, "Heard you coming so I made some coffee. You must need it. Come on over!"

The Sierra presents an intensified exhibit of the grand pageant of life, both natural and human. And many, hiking along the companionable trails, experiencing the long spring, and climbing high, risky peaks, have for a moment caught sight of themselves, not as strangers in this world but as hearty, self-reliant participants in the strong tide of earth's existence. There can be no loneliness when one is discovering life, in and around himself. The Sierra Nevada!—"our friends, the mountains!"

Kodachrome by Judith Chaffee

This Mountain Lake, near North Palisade, Is Doomed by Granite Debris Slowly Slipping from Peaks to Pool

↓ Thirsty shooting stars (*Dodecatheon jeffreyi*) grow amid cloud pictures painted on the mirror of a creek in Kings Canyon National Park. Cerise blossoms, drooping from the ends of long stalks, assume the shape of feathered darts.

Sierra High Trip

Hikers Follow Flowery Trails in an Unspoiled Wilderness and Climb Over Snow and Rock to Mount Whitney's Skyscraping Summit

By David R. Brower

WE rendezvoused by the stream at dusk. Below us lay California's Owens Valley, its few lights glowing in the soft July evening like a scattering of hot coals. Above us towered the peaks of the Sierra Nevada, reaching for the stars.

We had gathered at the end of the road —140 men, women, and children—because we shared two happy convictions: first, the belief that our own two feet, unsupported by horse, car, or plane, could carry us over 14,000-foot mountains, through flower-choked meadows, and across snow-chilled upland streams. Second, a common faith that the rewards of great vistas, bright trails, and good companionship in the High Sierra would long outlive memories of a blistered heel, a twanging tendon.

Even 6-year-olds Go on High Trips

We were, in short, members of California's 62-year-old Sierra Club, grouping for our organization's 48th High Trip along this massive range. For two weeks we planned to hike, climb, and camp in a wilderness still unscarred by roads, unruffled by the auto's honk.

Many of us were "repeaters." I had met the Sierra first at the age of six, introduced by parents who wanted my earliest recollections to include those of sleeping under the stars and watching the moon rise over gray-black peaks. Now I in turn was bringing my sons—Ken, who was nearly nine, and Bob, who was seven—back to the "Range of Light."

First task that engaged us all at our roadhead base on Carroll Creek near Mount Whitney was weighing in. Mules would pack our dunnage from this jump-off point to the various camps we would pitch along our route. But the load limit was 30 pounds apiece. We watched as a latecomer, Don Davis, proprietor of a one-man band, tossed his duffel on the scales and sadly read the result.

"Two pounds over! And I've already taken out everything but essentials. Do you think the packers will notice?"

An old-timer from the group near by snorted. "They'll notice! And they may leave your overweight lying in the trail."

Don sighed and began to sort his belongings again. What could he do without?

He wouldn't need food or cooking utensils; the Club's commissary supplied that. Sleeping bag? Absolutely essential. Change of clothes? Well, a lad had better have something to wear when trying to persuade a comely lass to help him with his laundry. Camera? Pictures of this handsome country would be well worth the sacrifice of other gear. Swim suit, fly rod, guitar? A man must have his pleasures. Air mattress? And his comfort.

Razor? *There* was something to leave in the car. One pound 12 ounces still to be eliminated. Tent? "It never rains at night in the Sierra," someone volunteered. "Why not just take a light tarp for a ground sheet and pitch it as a roof if it does rain?"

Don made the switch, repacked his dunnage bag, and weighed it again.

"Thirty pounds on the nose!" he exclaimed triumphantly—and sat down on his bag to advise those next in line.

The Author

David R. Brower is executive director of the Sierra Club, founded in 1892 "to explore, enjoy, and protect the natural mountain scene." A member of the Club since 1933, he has been on its Board of Directors since 1941 and manager of its High Trips since 1947. He also has edited the *Sierra Club Bulletin* and three of its books, *Manual of Ski Mountaineering*, the Sierra Club *Handbook*, and *Going Light—With Backpack or Burro*. During World War II Mr. Brower saw combat service with United States mountain troops in Italy and is now a major in the Army Reserve.

A Hiker Climbs a Stairway to the Sky in Devils Postpile National Monument →

This formation rises 60 feet high near Yosemite National Park. It took shape about 150,000 years ago when a volcano spewed a mass of fiery basalt. Cooling, the lava split into postlike columns. A quarrying glacier removed most pillars and toppled others, but the heart of Devils Postpile stood firm.

The Sierra Club helped to establish this national monument as well as Kings Canyon National Park and the Sierra's national forests. Led by naturalist John Muir, the group fought in its early days to preserve Yosemite National Park against sheep and cattlemen who wanted it for pasture land.

Kodachrome by Fred G. Hines

Faces radiant but still city-pale ringed our first campfire that evening. Pine smoke rose toward the mountain sky, then blew fitfully downstream. A few newcomers, their lungs not yet hardened to wood smoke and their eyes smarting, scurried out of its path. The smoke, of course, followed them.

In the circle stood Dr. Pat Goldsworthy, one of the trip leaders, a biochemist at the University of Washington. Expectantly the crowd grew quiet as Pat glanced at his watch.

"The official time is 8:47," he began. An immediate checking of timepieces revealed a strange lack of unanimity; but veteran campers knew better than to protest. The leader's time would be the official time.

Two Weeks of Mountain Camping

"Welcome to the 48th Sierra Club High Trip," said Pat. "Most of you know why we're here, but it stands repeating. We're here to enjoy an experience of traveling through a mountain wilderness we've waited at least 50 weeks to see.

"Many of you have seen the Sierra before, and many of you will want to see it again and again. We're going to have fun seeing it. This is a trip that belongs to all of us, through country that belongs to all of us."

The campfire suddenly settled, and one of the top logs rolled off, sending a shower of sparks against the deep-blue sky and urging a few timid newcomers back out of reach. Pat stopped the log with his foot, swung it back in place, then smiled again.

"We'll share the fun of this trip," he went on. "We'll share some of the inevitable problems of pitching and breaking up six different camps, the pleasures of preparing, serving, and eating 26 mountain meals—and the dubious joy of helping the crew clean up after some of the meals.

"More important, we'll share the mountains. Not just with ourselves, but with others who are coming later this summer, and for many summers to come. It's always been the Club's pride to leave the mountains as clean as we find them, or cleaner. We like the Indian's motto: 'Where I go, I leave no sign.'

"Finally, we want to remember why these trips were started in the first place by John Muir and Will Colby, back in 1901. It was to encourage people to learn about mountain country, show them how to use it without abusing it, and get their help in conserving it for our children and our children's children."

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Tulainyo Lake Sits in a Frozen Cup . . .

Sierra lakes range from navigable bodies of 300 square miles to small glacial ponds. Tulainyo at 12,865 feet is the highest lake in the United States. Icebound in winter, it has no visible outlet.

Pat paused a moment. "Tomorrow morning the first call will be at 4:30."

Groans and cheers—the cheers from old-timers who knew that early starts paid off. The sooner we began the long climb up to our 2-mile-high camp in Inyo National Forest, the more ground we could cover before the sun grew uncomfortably warm.

Off as Sunrise Shows the Trail

We were jolted from our sleeping bags next morning by a hideous chorus of wolf calls and would-be yodels: the commissary crew's. They had been up more than an hour preparing breakfast, and now they apparently wanted us to share their misery.

In the Sierra's chill morning air we packed our dunnage, weighed it in again, and gathered in quiet groups around the 20-gallon coffeepot. Slowly the black metallic brew brought us to life. It was light enough to

John W. Hodgkin

...Far Below Mount Whitney (Arrow), Crown of the 48 States

Sierra Nevada snows store California's water. Melting, they feed most of the State's metropolitan areas and a third of its farms. Crop yield varies in proportion to snowfall. Many Californians who saw combat duty with the 10th Mountain Division during World War II learned their skiing techniques here. In winter, snowy slopes attract as many as 20,000 skiers a week end.

travel now, and in the distance the high places beckoned.

Bruce Morgan, our head packer, would supervise the loading of our eight strings of livestock (a packer, his horse, and five mules per string) that would carry our food, dunnage, and commissary equipment. Thanks to the mules, each of us need shoulder little more than his lunch in a light knapsack.

"Slow and steady wins the race," I reminded my boys as we started out. "And if your heels or toes start to hurt even a little bit, let me know, and we'll fix them so you won't get a blister."

I led the way. I knew enough about small boys on trails to feel sure that, left to themselves, they would scamper up, back, right, and left like exploring puppies. We adopted the infantrymen's schedule of movement—hike for 50 minutes and stop for 10.

At our first break on the zigzag trail we picked a good promontory and stripped down to our hiking shorts. The vista's broad sweep was not of much interest to the boys; they were more concerned with details close at hand—a shiny rock, a fluttering bird, a lizard, or a chance to stir up an anthill with a stick.

What caught my eye was the eons-old evidence of the cataclysmic forces that had made the Sierra Nevada the largest single-block range within continental United States.

Sierra Uplifted Two Miles

Ours would have been an interesting spot to watch from in Pleistocene times, a million years ago. For then a series of low ranges—the ancestral Sierra—underwent tremendous uplifting along a 430-mile line at the base of the eastern slope. The huge block tilted upward two vertical miles. To the eastward, broad Owens Valley and the Inyo Mountains rose with the Sierra.

Kodachrome by Edwin L. Braun

↑ Lunchtime Gives Tired Feet a Break; Taped Toes Shed Irksome Shoes

Mule trains on Sierra Club High Trips haul most of the personal equipment needed for each member. These hikers carry only light knapsacks filled with sweaters, rain gear, maps, lunch, and other necessities for one day's travel.

↓ Yellow Monkeyflowers Crowd Against a Trailside Boulder

Ancient Greeks named the monkeyflower for a fancied grin on its face. About 100 species of the flower bloom in the United States. Some 1,200 varieties of flowering plants and ferns give color to the Sierra's rocky complexion.

Kodachrome by Rudolph K. Fink

About 750,000 years ago, as demonstrated in some geological detective work by the late François E. Matthes, Owens Valley dropped until it was two miles below its neighbor, Mount Whitney, highest point in any of our 48 States (pages 862, 864, 865).

Along Cottonwood Creek, just above the great dropoff to Owens Valley, we stopped for a trail lunch of hardtack, cheese, lunch meat, dried fruit, jam, and chocolate.

When the trail pulled us on, we started a game of seeing how many different flowers we could spot in the well-watered meadows. In all the Sierra we had some 1,200 different plants and ferns to choose from (pages 833, 840, 843, and opposite).

Fifty-six varieties and several miles later we heard the cheerful cry, "It's just a quarter of a mile to camp."

It was Dixie Carpenter, mother of two of our commissary crew, reclining beneath a tree just off the trail. A social psychologist, she was now doing her duty as chairman of the morale-building committee (in the Sierra Club it's traditional to have someone stationed to give encouragement near a hard day's end).

Soon we found the commissary, set up by an advance crew the day before, among a grove of trees at about 10,000 feet. Wood was being gathered and pits were being dug. In a short time a stove was in fragrant operation. Promptly my boys whooped it up, greeted old friends, and put on such a display of energy that I wondered if it was really for them I had held the pace down.

1952 Sierra Snowfall: 66 Feet

We faced uncertainties. The previous winter had not been too severe, but spring had been cold, and snows had not melted as they should. There were still drifts left over from the previous Sierra winter (1951-52), when the snowfall totaled 66 feet!

Bruce Morgan had sent a crew up to snow-blocked Army Pass to see what could be done about opening it. Having tried shovel and dynamite to no avail, they were certain they could not move the pack animals across. Our mules would have to circle south.

I counted on being able to devise some system for getting us over Army Pass, but first I wanted to scout the trail. I remembered the High Trip 12 years ago that circled northern Yosemite National Park and learned in tragic fashion the need of respect for any snow slope, no matter how innocent-looking.

"It's snow; it's soft, so let's slide down it" has all too often led to disaster, and in northeastern Yosemite it did.

One man, relaxing his vigilance for a second on Matterhorn Peak, catapulted down the slope and onto jagged rocks below, at the cost of a broken pelvis and some 50 stitches in his scalp. Next day, in the same snowbank, another man paid for the same mistake with a broken leg.

With Phil Berry, our mountaineering guide for this summer's trip, I started out. Three miles of rapid travel took us to Golden Trout Camp. The many Cottonwood Lakes below Army Pass came next. Then we were in high-basin country, a world of granite scarred by glaciers.

Lightning Too Close for Comfort

By the time we had climbed to the last basin under Army Pass, the sky became ominous, and before long we were caught in a shower of half snow, half hail. Shorts were no armor against this, so we pulled on climbing pants and parkas. As we scurried for shelter, lightning struck on the ridges and thunder bounced around the basin walls.

We found a big boulder just as heavy rain set in and crawled under it to eat our lunch. It was a trifle cramped, but dry—for a while. Then rivulets curled in under our overhang and dripped remorselessly down our necks.

We might have weathered the rain, but the electrical display became too dramatic for comfort. California's mountains are not noted for their violent thunderstorms. But this one was out to set a record. Lightning crashed often and close. Finally, when one thunderbolt exploded a few yards away like a 240-mm. shell, Phil yelled, "Let's get out of here!"

The downpour soon found its way through our "waterproof" parkas. Meadows were flooding; trails were streams.

We slopped the five miles back to camp. There our friends told us they had had no rain at all.

Our second day's hike was to be 10 miles—a mile longer than the first. Again we felt it imperative to start early. In the Sierra, storms usually blow up in the afternoon, concentrating on the peaks and ridges; if we could cross the passes during the morning, we might fulfill the Club's proud if exaggerated boast: "It never rains on a well-managed High Trip!"

↑ **Alpenglow at Twilight Inflames the Peaks of Mounts Spencer (Left), Fiske, and Huxley. Hikers Ring a Campfire on Darwin Bench**

Day's end brings rock climbers from the crags, fishermen from the streams, and flower lovers from the verdant meadows to relax around a roaring fire. Shadows deepen across the Evolution Group, and talk yields to song. Sleep beneath the stars finally stills all.

↓ Campers bring mountain-size appetites to a breakfast of hot cakes, bacon, and syrup. Al Carpenter and Paul Kaufmann cook behind a whitebark pine windshield.

Right: Soup's on, and Bob Golden checks the chowline before dishing it up. On his belt hangs a metal cup especially designed to serve Sierra Club members—as bowl for soup, salad, stew, water, and tea; as shovel for sand and snow; and as reflector for mountain-to-mountain signaling.

In most other years, it's true, the weather had made it pretty easy to live up to that claim. But 1952 had given us six consecutive days of rain, and the law of averages, I felt, might well catch up with us this summer.

At any rate, Phil Berry and I pushed up to the top of the pass by noon. Chopping his way up the final snow slope, Phil scooped out bucketlike footholds and planted a rope anchor that could serve as a hand line. The sun was still shining at intervals when the first members came up, speedy people who wanted to ascend 14,042-foot Mount Langley, southernmost of the high peaks along the Sierra crest. In ordinary weather it is an easy climb.

Looking down from the mouth of the pass, I could see now that a lot of our members wouldn't make it before the storm broke. Little groups were scattered along the trail a full two miles back. And somewhere in those miles were my own boys, with Jane Goldsworthy "baby-hiking." Reluctantly I turned my back on them and set off down the other side of the mountain to our next campsite on Rock Creek, where I had work to do. Within moments the storm swept the ridge with a barrage of hail and snow.

Jane told me later how she and the boys fared. As they approached the pass, my son Ken made up his mind the storm would be good fun. But Bob, the younger, became worried and upset. He remembered the warning given the night before—don't get caught on the heights with lightning crackling down.

Hail Mothball Size

"The hail," said Jane, "was the size of mothballs and felt like rocks when it hit. Bob insisted he wasn't going to climb the pass. When I saw that snow had covered your tracks, I was inclined to agree with him. We went on, however, though we could hardly see where we were going. Then I stumbled on the fixed guide rope."

"Didn't you find the bucket holds?" I asked.

"Not at first. They were filled with hail. But Marge Farquhar, one of the morale builders up on the pass, sang out: 'Use the steps and come on up.' So I pawed around, found the holds, dug them out with my tin cup, and up we went.

"There was Marge, sitting there as happily as if she were snug and dry in an opera box."

I might have known it: Marge is a director of the Sierra Club, a first-rate mountaineer, and a mother of three skillfully following their parents' footsteps. She'd packed her rucksack that morning with one eye on the weather, and now she could laugh at the storm, clad as she was in waterproof, windproof outer garments, and inner clothing that was both light and warm. Not everybody would have enjoyed that display of thunder and hail; but when Marge exclaimed, "It was magnificent!" I knew she meant it.

A horse, a mule, a tent, a small campfire, and a huge pile of food covered with canvas marked our campsite in the meadow-floored canyon of Rock Creek, a tributary of the Kern River. In command I found Tommy Jefferson, a full-blooded Mono Indian who has been packing the Club for many years. Tommy and his companion had moved these supplies up ahead of time on pack animals.

Squirrels Raid the Food Cache

"Any visitors?" I asked Tommy.

"No bears," he replied with a grin. "Plenty of squirrels and chipmunks, though. Group of 'em snuck in under the canvas and staged a picnic, until I broke up the party. Getting kind of chilly, isn't it?"

"It is. And in just a few minutes a lot of wet, shivering people will be piling in here. Let's build up the fire."

Quent Stiles and John Blinks, our woodcutting and pit-digging Harvard Medical School students, rounded up volunteers and marched off with ax and saw to a clump of trees. They cut down a dead stump of resin-filled whitebark pine, a type of wood that burns almost like a torch, giving off clouds of black smoke but lots of heat as well—wonderful stuff for kindling. The forest's loose wood they left for parties not equipped to take trees apart.

Soon the last of our stragglers had come in, and our small fire seemed in danger of being smothered.

"Let's get some songs started," someone suggested, and we did. In spite of the wet, spirits were high, and the singing helped to keep them there. Some of us even tried dancing, but stopped abruptly when each movement brushed our damp, chill clothing against our even chillier skin.

The arrival of mule strings with dunnage and cooking equipment set the camp into a frenzy. Each packer tied up his string, threw off the diamond hitches, removed the tarps, and unloaded, one mule at a time.

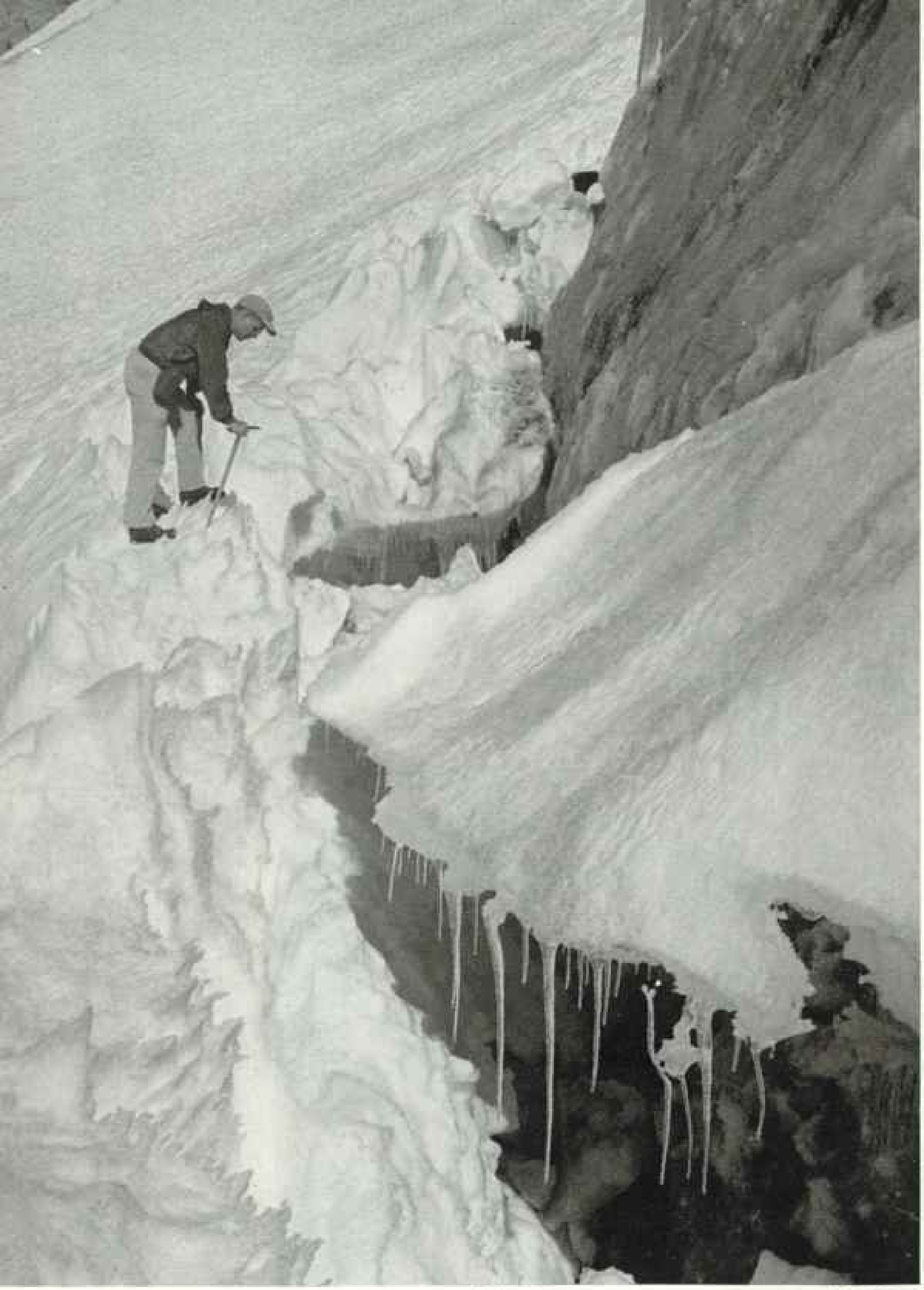
Nature's Own Washer Churns Dust from a Camper's Clothes

Layoff day along the trail is washday. The chore, as usual, falls to the ladies. On Sierra Club outings they are assigned to camp sites downstream from the kitchen so wash water won't get into the soup. If other groups camp in the vicinity, the Club encourages women to wash in pails and throw waste water on the ground.

Granite slabs serve Mrs. Ollo Baldauf as washboard and drying lines; stones as clothespins. Her bandannas sun beside Piute Creek in Sierra National Forest.

←A blister is the hiker's flat tire. To avoid it, experienced climbers break in shoes before a trip, wear two pairs of socks, and often tape feet before the skin is broken (page 848). Here Dr. Robert K. Cutter of Berkeley, California, applies a bandage to Hettie Owen.

Kodachromes by
Fritz E. Baldauf (top)
and Garner Bradsfield



854 Martin Litton

Palisade Glacier: Largest Surviving Sculptor of the Sierra's Face

Only 60 frozen streams continue the work of the ancient rivers of ice that excavated Sierra canyons. Palisade Glacier, a mile long, moves roughly an inch a day. This hiker peers through icy teeth into the mouth of a crevasse.

If his mule was on its first or second trip, the packer blindfolded it before loosening a single rope. Acting like a bronco, it can turn a camp into an impromptu rodeo if some sudden sound or movement alarms it. Taking off at a lope, the mule appears especially happy if its unloading has been only half-completed, giving it a chance to finish the job.

Fortunately, most of our pack animals proved tired enough to stand still, anxious only to be relieved of their burdens and to roll in the nearest pasture. More commotion was caused by hikers milling about in range of those lethal hoofs, searching for their packs and sleeping bags.

From amiable chaos, order gradually emerged. Soon the stove was up and puffing smoke. Fireplaces were built for the big pots of soup, coffee, chocolate, and cereal, and for tubs of wash water, and the aroma of food was presently wafted along by the mountain winds (page 851). The food cache was systematically reassembled under a canvas pitched to give the cooks a dry place to work.

While this was going on, others scouted the woods for bed sites. Old hands looked for a spot on the uphill side of a tree, where the years had gathered enough soil, topped with duff, to make a reasonable couch, once a few pine cones and rocks had been removed. A hat, a bandanna, or a cup was enough to mark such a spot as private property.

The assignment of bed-site territory follows a Sierra Club tradition. Men sleep upstream, women downstream, married couples in between or across the stream. The category "married" includes families—a mother and son, or father and daughter—who would like to camp on the same knoll.

Why Women Sleep Downstream

The packers' camp, usually upstream with the men, must have enough trees on which ropes can be strung to form a corral. Commissary, a term applied to cook crew and their equipment, is central. Woe to the member who camps too close to commissary, unless he does not mind being awakened early.

"But why," a freshman asked me, "do you always put the men upstream?"

"Women are always rinsing out clothes," I explained, "so we put them downstream where they can wash whenever they want to. Since men never seem to wash at all, we feel safe in having them above commissary."

Actually, washing arrangements have suffered some changes even in relatively brief experience. As recently as 1934 I was on the trail for 30 days without seeing another person except my companions. But nowadays the interval is more likely to be 30 minutes.

As a result, commissary today supplies our hikers with plenty of buckets. These they fill at the stream or from commissary's own tubs of hot water, use for washing or laundering, and then toss the water out well back from the bank (page 853).

Food Servers Eat First

The cooks' cry summoned everyone to the commissary area, but only a few to eat. The packers, the crew, and the volunteers who would serve the courses were dining first. They could never otherwise have survived being so close to food, and unfed.

Moments later, servers dished up for the crowd steaming cups of Rock Creek soup, named for the stream from which it was largely composed. A salad of raw vegetables and cabbage, which rides the mules better than lettuce, followed the soup. Then potatoes and meat went on the line. A dessert of fruit and cookies topped the meal.

The kind of meat on the menu depends on the night it is served. Lamb, for instance, is eaten early on the trip because it doesn't carry well; canned ham is saved for last because it does. The first beef night is likely to be a stew from odds and ends off the hindquarter of a steer. Next is roast-beef night. Finally, mellowed to perfection, come the steaks. Several waiting lines are laid out and labeled "still mooing," "rare," "medium," and "well done."

"Life seems neither long nor short," John Muir wrote of Sierra travel, "and we take no more heed to save time or make haste than do the trees and stars." *

That first evening beside Rock Creek we counted some of the heedless stars. But we had to count fast, for rain soon set in.

The next day we stayed at this same campsite, exploring near by and resting a bit. But for the packers this meant no recess at all: in the Sierra Club system, layover days mean nothing but a chance for the packers to steal a march on the rest of the party.

If the following day's hike is to be seven miles or less, the pack train carries commissary

* *My First Summer in the Sierra*, by John Muir. Published by Houghton Mifflin Company, Boston and New York.

supplies and equipment up to the new camp in the morning, returns in the afternoon for dunnage, and packs up again. If it's more than seven miles between camps, the party is split. Half the climbers and half the commissary department move on the first day, with the stock returning to carry gear for the other half on the morrow.

Such split moves and three-way moves are complicated; nevertheless, the system allows one head of stock to serve three people, an amazingly favorable ratio for a pack trip. Luxurious private trips often take three or four animals to serve one person.

Our next hike was to take us to Crabtree Creek, with headwaters near Trail Crest (page 864), and it would be a split-move operation. Bruce Morgan went over the maps with me.

"Timberline Lake," he said, "is the best place to camp. Put your packers at the upper end of it, just where the trail starts up to the next bench. There's lots of room for the people over in the trees to the south."

A Trail Across Three Giants

Our first group of climbers struck out on a route that lay near the Sierra's crest. Their trail would lead them directly to the new camp, but would include ascents of Mount Le Conte, 13,960 feet; Mount Mallory, 13,870; and Mount McAdie, 13,800, on the Sierra ridge leading to Mount Whitney.

Ken, Bob, several other hikers, and myself chose instead a longer but less strenuous route that lay in the Kern River basin. Al Carpenter broke trail at a 5-mile-an-hour pace to place Sierra Club arrows at confusing trail junctions. My boys and I strolled along at half that speed.

This was Bob's second High Trip and Ken's third, so I was probably conservative in holding them back to 2½ miles an hour that day. The year before, they climbed 2,500 feet to 12,000-foot Baxter Pass and descended 8,500 feet, covering 15½ miles in all.

This I recite partly out of parental pride, but primarily to show what youngsters are capable of doing if their energies can be focused on the trail. It is well worth pointing out, if only to persuade hesitant parents how much children can do. Bob, who was only six years old at the time, had had no mountain experience; yet he pushed along tirelessly and happily.

Our path lay along a plateau fascinating to geologists. Before the Sierra block was tilted, an uplift caused most of the streams to change their north-south flow and cut westward into San Joaquin Valley. The Kern River, however, entrenched itself in its original bed and continued to run south. With the aid of glaciers it excavated the deep U-shaped canyon it now occupies; yet many of the old, broad valley's features are still preserved.

The boys pushed me along at a good clip. We soon rounded one of the lateral moraines of the ancient glacier that crept down to the Kern from Mount Whitney. From here we dropped into Crabtree Meadow, a garden spot with views of Whitney framed through lodgepole pines, only to find that we must still climb 1,000 feet in three miles.

This would have seemed a simple task early in the morning. But in midafternoon, at the end of a long trek, it was not exactly inspiring. I expected Ken and Bob to voice a protest or two. They fooled me, however. Beyond a few questions about how much ground they had covered, they plugged up that trail as if their legs were built for that purpose alone.

We topped the ridge at last and ambled down the slope to Timberline Lake. Rounding its grassy shore, we trudged up to its eastern end, where Bruce Morgan had told us to camp.

We found a somewhat worried Al Carpenter surveying the layout. "It looks rugged," he said. "Wood's really scarce, and there aren't many bed sites. A good place for commissary would be over behind that big rock."

Rains Wash Away Sleeping Places

Pickings were thin indeed. If there had once been bed sites, the heavy rains had washed most of them out. Even lumpy benches of gravel were sparse.

"I'm going down to the lower end of the lake to see if it's any better there," I said.

Up on a granite ridge just to the north of Timberline Lake I found a series of broad ledges with scattered trees. On the crest itself bed sites abounded. Still farther stretched a broad verdant meadow watered by springs. If we could spread out more than we usually did, I decided, this might prove to be one of the best campsites of all.

And it did. Our campfire we put on the topmost ridge, giving us an expansive, heart-lifting view toward the west. Distant storms staged an everchanging drama before us, with full lighting and sound effects. My eldest was impressed enough to write his mother:

"Up on Mount Whitney the clouds are

A Hiker's Burro Asserts His Independence on the Bank of Evolution Creek

Gentle, strong, and incomparably surefooted, the burro is the favorite beast of burden for many campers. He can relieve human backs of up to 100 pounds of food and gear. His notorious stubbornness often comes from fatigue, old age, or fear, though downright cussedness sometimes leads an animal to see what he can get away with. This hiker will not easily move his companion by tug of war; a bit of psychology, however, may do wonders. Once the donkey gets his feet wet, he will forget his objections and trot amiably across.

smoke. Down at camp the reflection shows everything. It rained and hayled. I saw a clap of lightning a little bit away."

The smoke on Whitney cleared at the last possible moment, giving the sun just time to come in beneath the spectacular overcast and show fire burning on the peaks. Timberline Lake faithfully repeated much of what it saw.

Up on the ridges our amateur photographers dashed over granite slopes, trying to capture for a lifetime a moment of mountain magic.

The Crabtree layover day gave us a chance to fish, botanize, and swim. In addition, some 50 people, well distributed below granite cliffs near the men's camp, participated in quite a show—the Polemonium Club in action. This club, named for the handsome flower of the highest peaks, teaches rock climbing and rope management to beginners.

"We don't expect to teach you enough about mountaineering to get you up the Lost Arrow or Mount Everest," Phil Berry announced, "but we do expect you to learn enough to make it safer for you to explore a bit on the High Trip. We can show fishermen, for instance, enough about balance climbing to help them on slippery rocks."

For all his youth—he is a Berkeley high school senior—Phil has learned a lot about mountaineering, and about teaching it, too.

Polemonium antics appear inane—people all over the cliffs with ropes in every direction, struggling to climb to places they could easily walk to. But it all has its purpose. Just such practice as this, held on High Trips and in rocky parks around San Francisco, led to the first ascent of such frightening spires as Yosemite's Lost Arrow (pages 830, 835).

This achievement required five days and four nights of extremely difficult climbing and bivouacking on tiny ledges. Since the total height attacked was only 1,200 feet and climbing time was 103 hours, that meant an average upward speed of only 11½ agonizing feet per hour.

Mount Whitney has only two things in

common with Lost Arrow. It is built of granite, and its top is higher than its base. Otherwise, it holds no terrors. A horse trail leads up the western slope to the 14,495-foot summit.

We couldn't agree on the best time of the day to be on top. I had thought that watching dawn from the pinnacle of the United States would be the most dramatic experience. Cedric Wright drew on his years of work as a photographer to proclaim that sunset had it all over sunrise.

The upshot was that for the next two days the Whitney trail was as busy as a highway. Several strings of mules went over Trail Crest (page 864), the pass south of Whitney, and dropped down into Lone Pine Creek to bring in more provisions. A few hardy souls started out at night so they could see the first streaks of red dawn from the summit. One large group left camp at 4 in the morning, others early enough in the afternoon to reach the peak by sunset. They came down by moonlight.

Phil Berry persuaded me that we, too, should take in Mount Whitney while scouting a cross-country route to our next camp. We started at a lazy 9 in the morning. As we crossed the final crest, we decided to detour over to the 14,025-foot summit of Mount Muir just north of Trail Crest. This peak was named in honor of John Muir, who, more than any other man, awakened Americans to the importance of preserving in national parks such natural wonders as Yosemite and the Sequoia High Sierra.

Teetering on the Top of a Spire

Phil and I dropped back to the trail and took a second side trip to a rakishly overhanging spire on Muir Crest that had caught his fancy. The final pinnacle, which seemed to project by about 1,500 feet from the top of the eastern escarpment, was more than I cared to tackle. Phil, however, was all for standing on it—there was just room for his feet—and he did so in spite of a high wind.

I was content to assume the more conservative role of a married man with four children, and settled back to a secure anchor position. I wanted to let youth have its fling—but to make sure, with a good belay, it wasn't flung too far.

Phil's pinnacle may have been a trifle constricted. But the top of Whitney has all the space one could desire. Indeed, it was so spacious as to deceive Clarence King when he first saw it in 1864. King had his glimpse from the top of Mount Tyndall while serving with the California Geological Survey. The Survey was then exploring the Sierra under the direction of Josiah Dwight Whitney, whose name our highest mountain bears.

Glaciers Carved Whitney's Walls

Upon seeing the broad plateau of Whitney's summit, and other summits in the High Sierra not unlike it, the geologists decided that at one time the peaks must have been 1,500 feet higher and that some unknown force had sheared them off. We know now that these plateaus are merely remnants of ancestral rolling hills, deeply sculptured by glaciers.

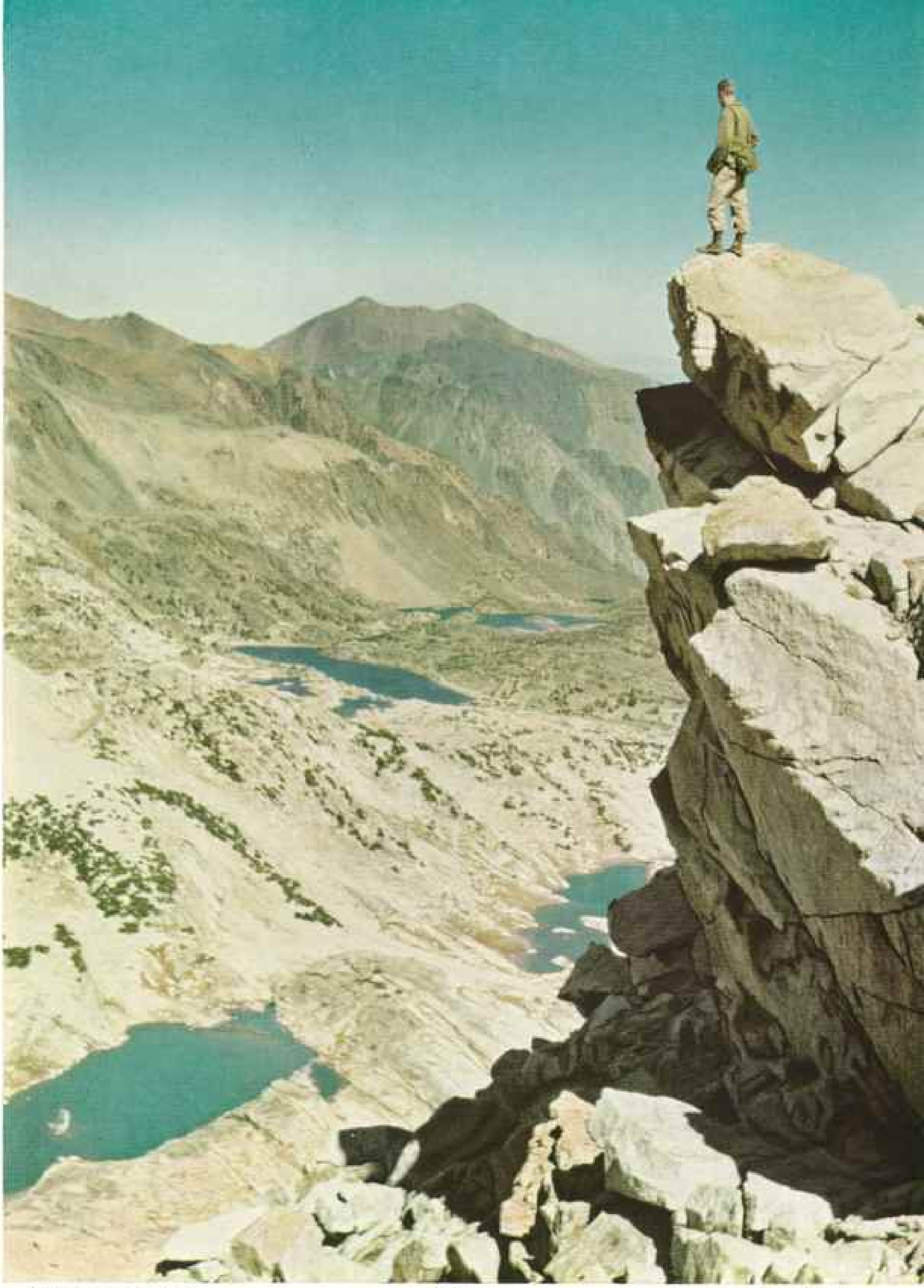
From the top we could look down the terrifying east face of Whitney, the rock climbers' route pioneered in 1931. Here, as from few other places in the Sierra, we could see not only where we were going but where we had been. One dominant peak was Mount Brewer. Another was Mount Tyndall, to which Clarence King traveled in one of the most dramatic of early Sierra exploration trips, described in his *Mountaineering in the Sierra Nevada*.

On Mount Whitney we could stand, if we stood with care, on the boundary between Sequoia National Park and the High Sierra Primitive Area of Inyo National Forest. We could be thankful the Sierra's explorers had determined that this climax of California's scenic resources should not be destroyed by the wave of exploitation that swept westward in a day when the wilderness was something to destroy, simply because it was an obstacle.

But Phil and I had work to do. Checking the *Climber's Guide to the High Sierra*, we learned approximately at what point we should leave the summit to descend the north face, the mountaineers' route. From its base we could explore the headwaters of the stream leading back to camp for our cross-country route into Wallace Creek, to the north.

We soon wished the *Guide* had been more explicit, for we discovered in our exploration that there were in reality several chutes down the north face, and all were worn too smooth by the avalanches of centuries to look very inviting from above. We worked westward, hoping other chutes or ridges between them would look more tempting. Finally, with no more to choose from, we started down.

(Continued on page 867)



Reclaimed by Douglas Whiteside

A Sentinel on Mount Conness Surveys the Sierra Nevada, John Muir's "Range of Light"

Dunderberg Peak, 12,374 feet, etches the sky. Steep walls rimming the canyon spawn late winter's crashing snowslides. Mill Creek connects a series of glacier-born lakes on the valley floor.

Sierra Hikers Carry 30-pound Packs for a 5-day Trip

The Sierra Club's first High Trip in 1901 took members into the mountains to see the wilderness they were struggling to preserve. This mountain venture has been repeated annually except during war years. Accompanied by pack mules, some 10,000 high trippers have explored the range from Mount Whitney to Yosemite.

The club also sponsors backpack trips on which members carry all their own equipment. Minimum supplies for a 5-day mountain walk include sleeping bag, poncho, change of socks, mess gear, and about 10 pounds of food.

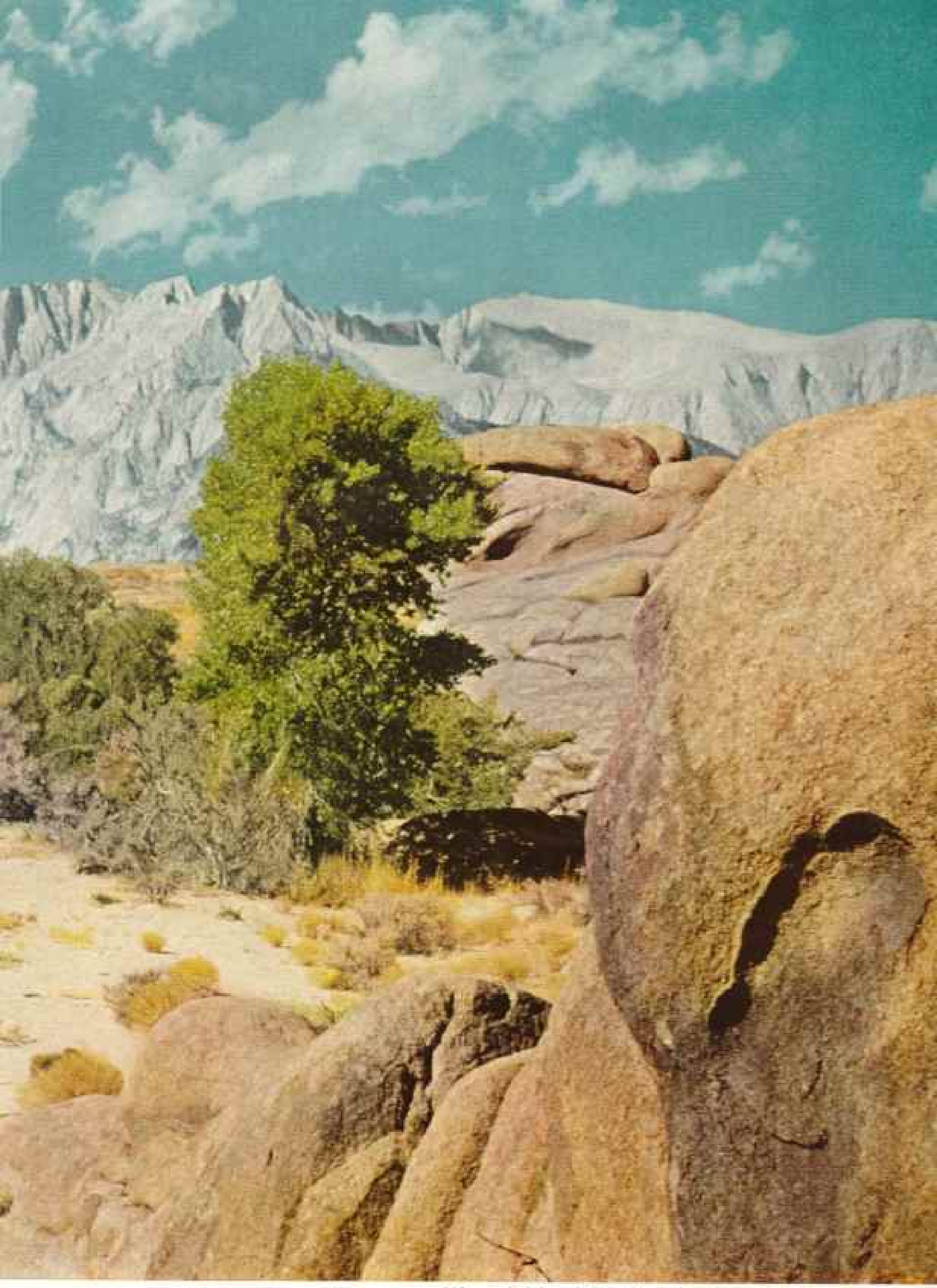
These backpackers approach one of the Treasure Lakes, beside which rests a tired mule. Their trail breaker carries an ax to cut steps in ice. They plan to climb North Palisade.

↓ A shallow arm of Bench Lake, Kings Canyon National Park, proves just warm enough for an aquacade by mountain-tanned young people. Two miles high, the main body of the lake is too cold for more than a quick dip.

Kodachrome by Arthur Wilson

Mount Whitney (Dark Peak in Center) Looms Like a Fortress Above Owens Valley

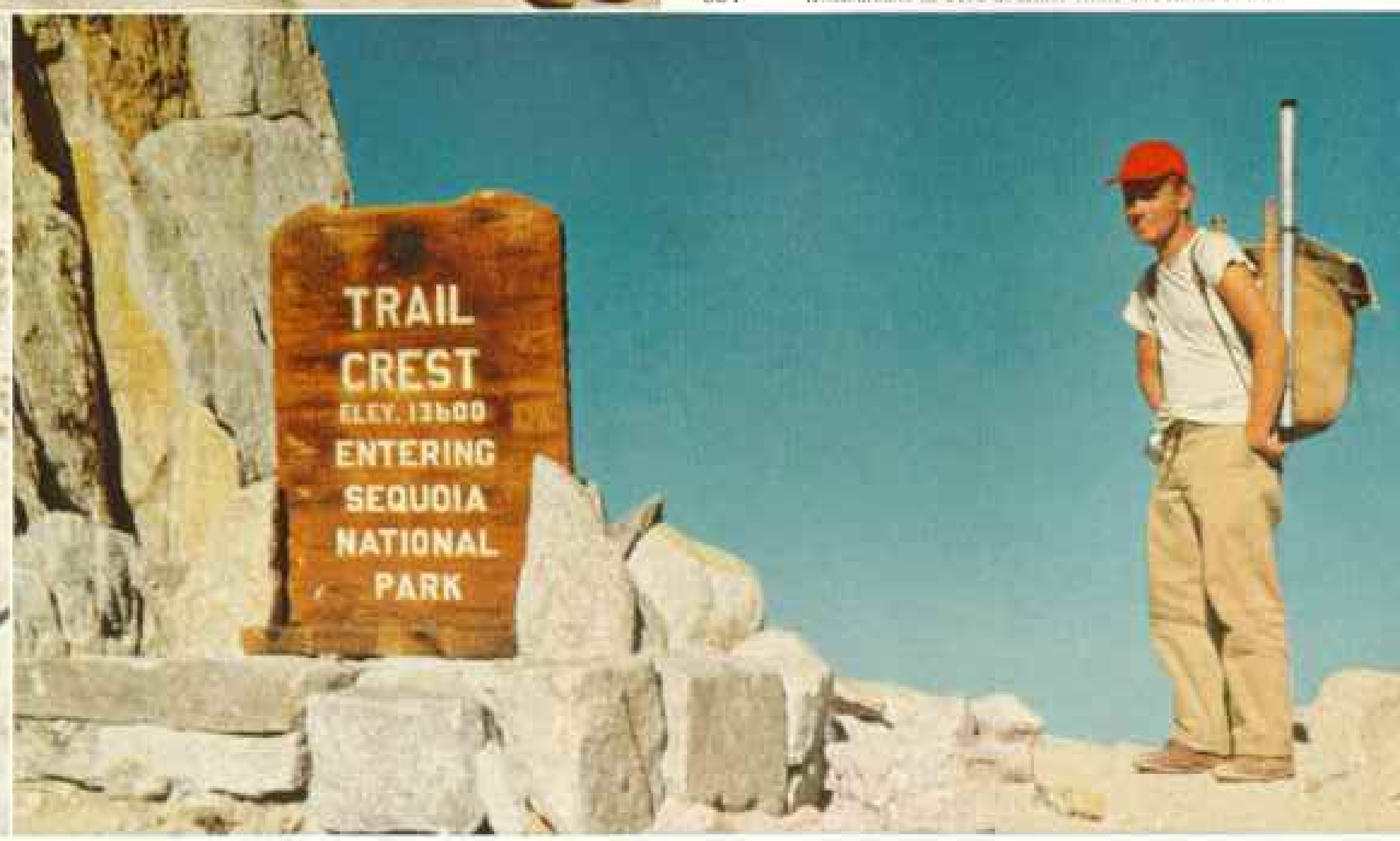
About 750,000 years ago cloud-high Owens Valley sagged thousands of feet along fault lines between the Sierra Nevada and Inyo Mountains (page 865). Later the Alabama Hills (foreground) sank along other fractures.



863 Kodachrome by Walter Meayers Edwards, National Geographic Staff

Sierra Nevada Peaks Wall Off the Pacific's Rain Clouds, Leaving the Valley Dry

Only desert shrubbery grows here. Elsewhere in Owens Valley rushing mountain streams provide water for irrigation. Mount Russell fills the skyline to the right of Whitney, pinnacle of the continental United States.



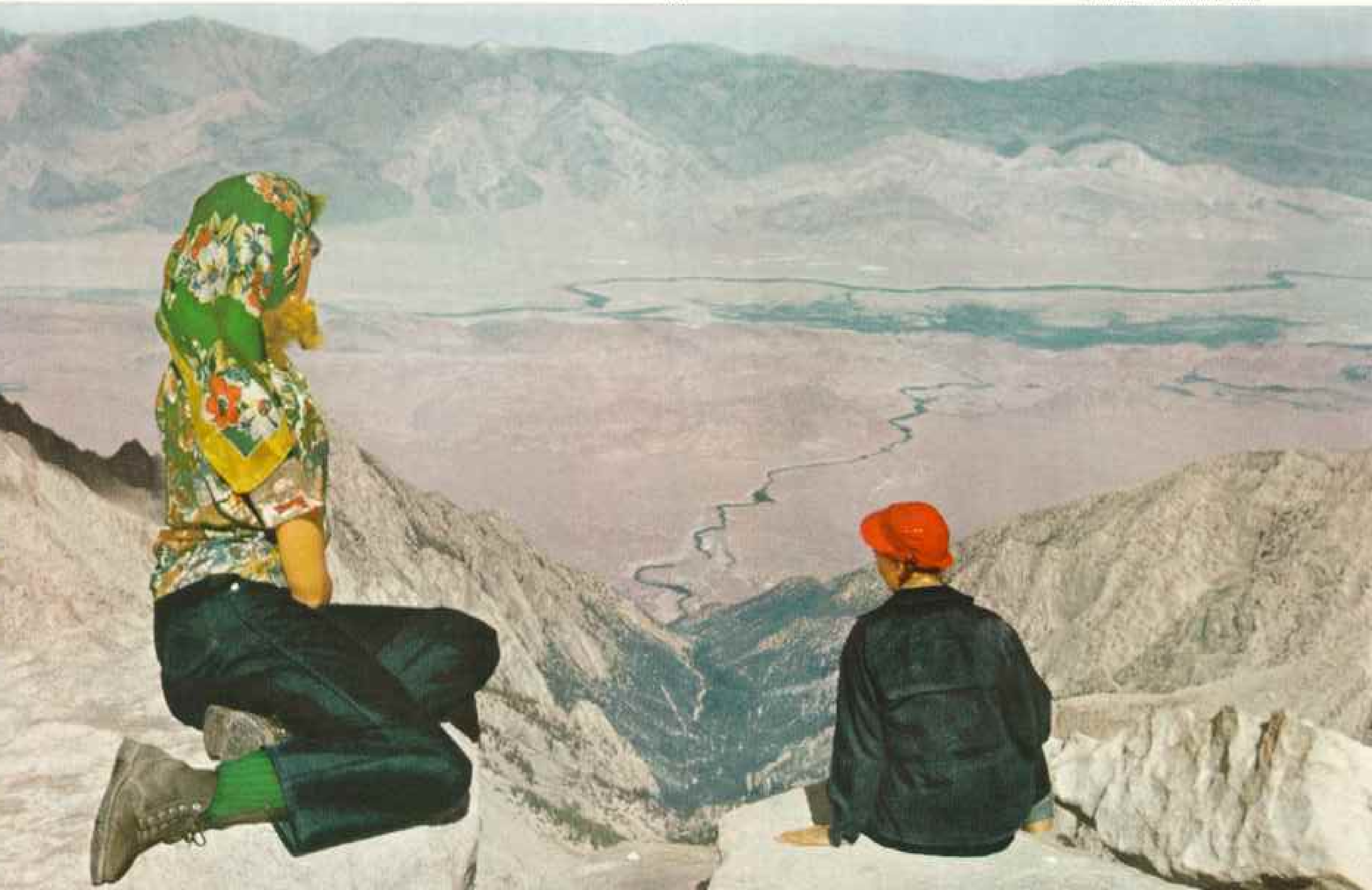
← Despite the Plaque, Mount Whitney's Height Is Now Reckoned at 14,495 Feet

Left: Rock climbers manhandle a compartmented aluminum knapsack in Enchanted Gorge, Kings Canyon National Park.

Below: Trail Crest, the Sierra's highest pass, shows the way to Sequoia National Park, famed for its giant sequoias (page 795).

Opposite: Mount Whitney looks across Owens Valley to the Inyo Mountains. Flowing past Whitney Portal, Lone Pine Creek snakes through the Alabama Hills toward the town of Lone Pine (in dark patch). Owens River parallels the mountains.

Kodachromes by Fred G. Hilton (left) and David C. Fox



Kodachrome by Wendell Otey

♠ **Taut Rope Helps a Backpacker Ford Turbulent Woods Creek**

In the summer of 1952 heavy snows melted on the peaks and flooded streams with icy water. Mrs. Eleanor Otey, loaded with her big pack, shuffled across this torrent with both feet touching bottom. Swift water would have upset her had she lifted a foot.

♦ **Campers Shrouded Against Rain Huddle Around a Campfire**

Sierra Club trip directors like to boast that "it never rains on a well-managed High Trip." Thunder showers sometimes catch hikers unexpectedly, but clothes dry quickly in the summer air. Here a log tepee protects and feeds the flames.

Kodachrome by Edwin L. Braun

A slip could cause embarrassment and no little pain. But we could see no reason to slip. The holds were all there, even if we did have to look hard to find them. All we had to do was stand up straight and rely upon the friction of our rubber-soled sneakers, aided now and then by a handhold. The one requirement was that each movement be precise. There was no opportunity to relax as one does on the trail. It was a matter of knowing exactly where a foot was going.

Once down at the level of Russell Creek, we spent an exhilarating but unsuccessful two hours of searching for a cross-country route across a notch that looked good on the map. The south side of the notch had been difficult going, but the north was just one horrible precipice. Retreating, we stopped for a drink at one of the high, partly frozen lakes and walked on down toward camp. Several times flurries of hail overtook us.

At our next camp, on Wright Creek, northern branch of Wallace Creek, we built our campfire on top of a little knoll just above camp, about three minutes' walk from the serving line.

Not all our group were gathered around the fire. One party of intrepid souls had struck out for Milestone Creek, northwestern source of the Kern River.

Collecting an assortment of dehydrated food at commissary, they added a few lightweight pots and cans, sleeping bags, cameras, fishing equipment, first-aid kits, a flashlight or two, and set out for two days along the west side of the Kern River. They were headed, as I well knew, for some of the pleasantest scenery in the Sierra: Milestone Bench is set in a meadow, near a meandering stream and a timberline forest, with jagged peaks as a backdrop and a matchless view of the range's crest.

Sierra Bighorns Now Number 400

Yet I could not truly envy them. From our own camp on Wright Creek, east of Bighorn Plateau, we could look up at Whitney, Russell, Barnard, Tyndall, and Williamson, all the fourteen-thousanders. They towered above the open Kern basin, down which Wright Creek made its musical way from snow-bordered lakes.

The sharp peaks of the Great Western Divide punctuated the far sky, bathing their shadows in deep purple. This range divides the Sequoia National Park at its narrow waist. The sky itself reflected the scene below, if not too accurately, with range upon range of cloud mountains.

But long after these distant vistas had lost recognizable detail in the dusk, Bighorn Plateau still held our fancy. It would have been nice to see a band of Sierra bighorn, but there are only about 400 of the animals left in all the range. The few roving bands must have detected the presence of our group long before we arrived. By now they would be on the high crags or over the Sierra crest. We could console ourselves with the thought that these great sheep, protected from man's depredations, are apparently slowly increasing.

Silhouetted on top of Bighorn Plateau was the frontier forest of the Kern River. North of the Sequoia Park boundary the whitebark pine, *Pinus albicaulis*, holds the forest outpost of the Arctic-Alpine zone.

Centuries-old Pines Three Feet Tall

In its lower reaches this pine grows in clumps 30 feet high. In its uppermost range, where the snows lie longest and deepest and winds blow practically all the time, the trees are forced into low-lying thickets to protect themselves. They may be hundreds of years old, yet no more than three to six feet high, their mat of needles so dense that you could walk over the tops.

But in the Kern River area below the whitebark pine it is the lodgepole pine that dominates the scene, and there is no gradation from big trees to small. They advance, full size, to their upper limit, then stop short.

We could see this on Bighorn Plateau, and we could also see, quite detached from the others, the still more rugged pioneers which had succumbed during the ages. These trees had been struck dead but not down. Some, of course, had fallen, but whether fallen or defiantly upright, they were perfectly preserved by dry, sterile air and were beautiful things to contemplate.

I made a quick count of the rings in a weathered piece of root eight inches through. It was just a few years short of 1,000 years old!

Finally, all that could be seen was the fire itself, flickering on the faces of the campers. The "program" was relaxed, informal. Someone spoke on wildlife; another filled in the history of the region. Music from an accordion sounded, and we sang: first, rollicking marching songs; then, as the fire died, the haunting melodies of the mountains. Finally we trailed

Don Levy

Rock Climbing, Like Baseball, Sometimes Calls for the Big Stretch

Miss Grace Quimby of Washington, D. C., spans a crevice on Mount Stewart. A fellow High-Tripper, Larry Moss of Los Angeles, sits by to lend a hand if necessary. Rock climbing requires no great strength but demands good balance. On this descent falling stones posed the greatest danger.

away to our sleeping bags beneath the stars.

Still another beautiful campsite awaited us across the most spectacular of the park's passes —Forester Pass, 13,200 feet high. There a bubbling stream, circled by great crags and buttresses, cascaded merrily past the scene of our last layover and our last campfire.

Then our two short weeks were over, and we stood on Kearsarge Pass looking out, envying the second two-weeks group which would soon stand there looking in. In taking leave of the Sierra, we felt we were parting with a friend. For that is the impact of this approachable range. Its peaks stand close. Its forests are open and parklike. Its only troublesome reptile, the rattler, stays away from the high ranges. Only an occasional pioneering bear ever perturbs the camper.

And the Sierra's weather—this is the most friendly aspect of all. For the Sierra invites one out of doors to enjoy wild things in weather that is not wild at all.

Thinking of why I had come, and the thousands before me, I knew it was not for the fishing (though it can be good) nor for the hunting (which in season is superb) nor for the lure of unclimbed peaks (no major ones remained unscaled). Rather, it was to renew myself in the wilderness, to lift up my eyes to the timeless hills, and to sense again what John Muir meant when he wrote:

"The last days of this glacial winter are not yet past, so young is our world. I used to envy the father of our race, dwelling as he did in contact with the new-made fields and plants of Eden; but I do so no more, because I have discovered that I also live in 'creation's dawn.' The morning stars still sing together, and the world, not yet half made, becomes more beautiful every day."

Members who wish additional copies of this issue, with its 146-page presentation of California, may obtain them for themselves or their friends from the National Geographic Society, Washington 6, D. C., as long as the limited supply lasts. Prices in the United States, U. S. Possessions, and Canada 65¢ each; elsewhere 75¢. Postage prepaid.

Twelve National Geographic Society Scientific Projects Under Way

THE 2,150,000 members of the National Geographic Society are sponsoring in 1954 explorations that range from our neighbor planet Mars and the distant reaches of outer space to hitherto unknown depths of the sea, and from primitive tribes of Australia and New Guinea to prehistoric Eskimos of the Far North.

This summer astronomers will obtain a comparatively close look at the planet Mars, which at that time will come nearer the earth than it has since 1941—a mere 40 million miles away. Mars will ride too low on the horizon for ideal observation in the Northern Hemisphere, but in the Southern Hemisphere it will pass directly overhead.

Probing the Mysteries of Mars

Studies of the red planet will be carried out at Bloemfontein, South Africa, by the National Geographic Society–Lowell Observatory 1954 Photographic Study of the Planet Mars, using the Lamont-Hussey Observatory's powerful 27-inch refracting telescope.

The Mars Expedition, headed by Dr. E. C. Slipher of Lowell Observatory, Flagstaff, Arizona, is expected to make the most important contribution to a round-the-world study in which 18 observatories are taking part.

By measuring the exact diameter of Mars, Dr. Slipher and his colleagues hope to determine more accurately than ever before its density, which will help indicate whether Mars has an iron core like that believed to exist within the earth. If Mars has no iron core, it could not have originated as molten material. This in turn would cast doubt on the theory that solar system planets were formed from liquid material torn from the sun.

The mysterious lines known as "canali" seen on Mars will be studied in the hope of photographing them satisfactorily for the first time. In past years some astronomers believed the lines were canals built by supposed Martians to bring irrigation water from the melting snow of the polar caps. Now it is generally believed that, if the canali exist at all, they are natural markings or vegetation.

Studies will be made also of areas that show greenish-blue in the Martian summer and brown in winter, indicating they may be some form of plant life. If the presence of vegetation is confirmed, it will indicate that life in some form is not unique to the earth. This would help support the possibility that life might exist on now unknown planets that may be circling about other suns far out in space.

In northern skies, a new lens acquired by the National Geographic Society is photographing a weird phenomenon of earth's atmosphere, the aurora borealis. The Society has long aided Dr. Carl W. Gartlein of Cornell University in studying these "northern lights."

Just before sunrise on June 30, astronomers at stations in Nebraska and Colorado will attempt the first observation of zodiacal light made while the sun is in total eclipse below the horizon. This eerie phenomenon is a hazy band of sunlight believed to be reflected from ionic or fine dust particles.

Scientists sponsored by the National Geographic Society, and headed by Dr. George Van Biesbroeck of the University of Chicago's Yerkes Observatory, will sweep the horizon with fast photoelectric scanners which they hope will catch the elusive zodiacal light during the eclipse-darkened dawn.

On Palomar Mountain in California astronomers are pushing toward completion the National Geographic Society–Palomar Observatory Sky Survey, a monumental photographic map of the heavens. All the celestial bodies visible from Palomar far out into the depths of space will be recorded by the Survey, a joint project of The Society and the California Institute of Technology (page 792).

Plans are under way to publish in 1955 the first section of a Sky Atlas that eventually will contain all the Survey photographs. These will provide astronomers the world over with a wealth of material for years of study.

Dr. Martin A. Pomerantz, continuing his study of cosmic rays, is evaluating important data obtained on a recent 9-month expedition to India financed by the National Geographic Society and the Franklin Institute's Bartol Research Foundation.

From Heavens to 2½ Miles Under Sea

In contrast to these celestial studies, two projects sponsored by The Society are exploring ocean depths, the last stronghold of geographical secrets. One brings together again Capt. Jacques-Yves Cousteau, co-inventor of the Aqualung and leader of the National Geographic Society–*Calypso* Oceanographic Ex-

peditions, and Dr. Harold E. Edgerton, inventor of the stroboscopic speed light.

With a research grant from The Society, Dr. Edgerton built special deep-sea photographic apparatus being used by the French Navy's bathyscaphe in which two intrepid officers, Lt. Comdr. Georges Houot and Lt. Pierre Henri Willm, last February made a world's record descent of 13,287 feet. Captain Cousteau will use Dr. Edgerton's equipment in a series of bathyscaphe dives this summer.

In a new National Geographic-*Calypso* expedition, Captain Cousteau this spring has been investigating a submarine ridge northeast of Madagascar which forms a western basin of the Indian Ocean.

To free *Calypso* for this and other research, a new ship, *L'Espadon*, took over the task of excavating the world's oldest known cargo vessel on the floor of the Mediterranean near Marseille. Its investigation by Captain Cousteau with the cooperation of the National Geographic Society was reported in the January, 1954, NATIONAL GEOGRAPHIC MAGAZINE.

Research in "Ocean Pastures"

For research in Florida waters that may profoundly affect the world's supply of sea food, The Society has extended for another year its support of the University of Miami Marine Laboratory study of ocean fish.

Marine biologists directed by Drs. F. G. Walton Smith and Hilary B. Moore are examining plankton, the minute plant and animal organisms on which many fish depend for food, and studying the way "ocean pastures" of planktonic life change depth as light and water temperature vary.

Fish larvae found in plankton nets are providing clues to life histories of important ocean fish previously little known. Research has already revealed much more of the life history of the western Atlantic sailfish, prized by sportsmen.

In Labrador the National Geographic Society is sponsoring, with Toronto's Royal Ontario Museum, an investigation of a newly discovered crater suspected of being meteoritic in origin. Leader of the expedition is Dr. V. Ben Meen, the Museum's director, who in 1951 headed a similar expedition to investigate Ungava's vast Chubb Crater in Quebec.

The National Geographic Society flag flies over four island fastnesses this year as expeditions explore little-known Melville Island off the northern coast of Australia, the wilderness of New Guinea, and Southampton and Coats Islands in Canada's Hudson Bay.

Charles P. Mountford, Australian ethnologist, heads a National Geographic investigation of the art, mythology, and tribal characteristics of Melville Island's Stone Age aborigines. Mr. Mountford led a 1948 expedition to near-by Arnhem Land under Society, Smithsonian Institution, and Commonwealth Government of Australia auspices.

In the mountains of New Guinea ornithologist E. Thomas Gilliard is exploring probably the largest region left in the world where animal, bird, and plant life remains uncharted.

Mr. Gilliard has contributed unusual color photographs of New Guinea's rare birds and primitive natives to the NATIONAL GEOGRAPHIC MAGAZINE. His present expedition, aided by The Society, is sponsored by New York's American Museum of Natural History.

During the brief Arctic summer an expedition sponsored by the National Geographic Society, the National Museum of Canada, and the Smithsonian Institution will attempt to solve an outstanding problem of Eskimo anthropology. Led by the Smithsonian's Dr. Henry B. Collins, Jr., the expedition will investigate extensive Eskimo ruins on Southampton and Coats Islands in Hudson Bay, called the most promising archeological sites in the Canadian Arctic.

Tracing Lost Eskimo Cultures

Here are ruined villages and cemeteries representing three distinct cultures: the Thule Eskimos; their supposed descendants, the Sadlermiuts; and the older, even more mysterious Dorsets. The last Sadlermiut died only 52 years ago. Even the appearance of the prehistoric Dorset Eskimo is unknown; he remains as mysterious as when the first Dorset relic came to light a quarter-century ago.

Establishing the relationship between these three cultures would be a major archeological accomplishment. The discovery of Dorset skeletal remains would be an equally significant contribution to our knowledge of the prehistory of North America.

In addition to assisting in these important researches, members have the satisfaction of knowing that their loyal support makes possible the constant growth and improvement of their NATIONAL GEOGRAPHIC MAGAZINE.

For background and details on most of these projects, see the NATIONAL GEOGRAPHIC MAGAZINE *Cumulative Index, 1899-1953.*

NATIONAL GEOGRAPHIC SOCIETY

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ORGANIZED FOR "THE INCREASE AND DIFFUSION OF GEOGRAPHIC KNOWLEDGE"

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

Articles and photographs are desired. For material The Magazine uses, generous remuneration is made.

In addition to the editorial and photographic surveys constantly being made, The Society has sponsored more than 100 scientific expeditions, some of which required years of field work to achieve their objectives.

The Society's notable expeditions have pushed back the historic horizons of the southwestern United States to a period nearly eight centuries before Columbus. By dating the ruins of vast communal dwellings in that region, The Society's researches solved secrets that had puzzled historians for 300 years.

In Mexico, The Society and the Smithsonian Institution, January 16, 1939, discovered the oldest dated work of man in the Americas. This stone is engraved, in Mayan characters, November 4, 291 B. C. (Spinden Correlation). It antedates by 200 years anything else dated in America, and reveals a great center of early American culture, previously unknown.

On November 11, 1935, the stratosphere flight of the world's largest balloon, *Explorer II*, sponsored by The Society and the U. S. Army Air Corps, reached a world-record altitude of 72,395 feet. Capts. Albert W. Stevens and Orvil A. Anderson took aloft a ton of scientific instruments and obtained results of extraordinary value.

A notable undertaking in the history of astronomy was launched in 1940 by The Society and Palomar Observatory of the California Institute of Technology. This project will photomap the vast reaches of space and provide for observatories all over the world the most extensive sky atlas yet made.

In 1948 The Society sent seven expeditions to study the sun's eclipse on a 5,320-mile arc from Burma to the Aleutians.

A Greek cargo ship sunk in the Mediterranean 2,300 years ago was found and investigated in 1952–53 by the National Geographic Society-Calypso Marine Archeological Expedition led by Capt. J.-Y. Cousteau of the French Navy.

The National Geographic Society and the Royal Ontario Museum in 1951 explored and measured newly found Chubb meteor crater, 11,500 feet in diameter, in northern Quebec.

The Society and individual members contributed $100,000 to help preserve for the American people the finest of California's sequoias, the Giant Forest in Sequoia National Park.

One of the world's largest icefields and glacial systems outside the polar regions was discovered in Alaska and Yukon by Bradford Washburn while exploring for The Society and the Harvard Institute of Exploration in 1938.

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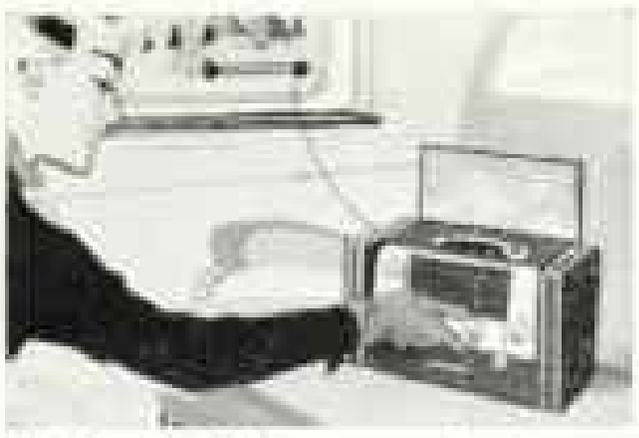

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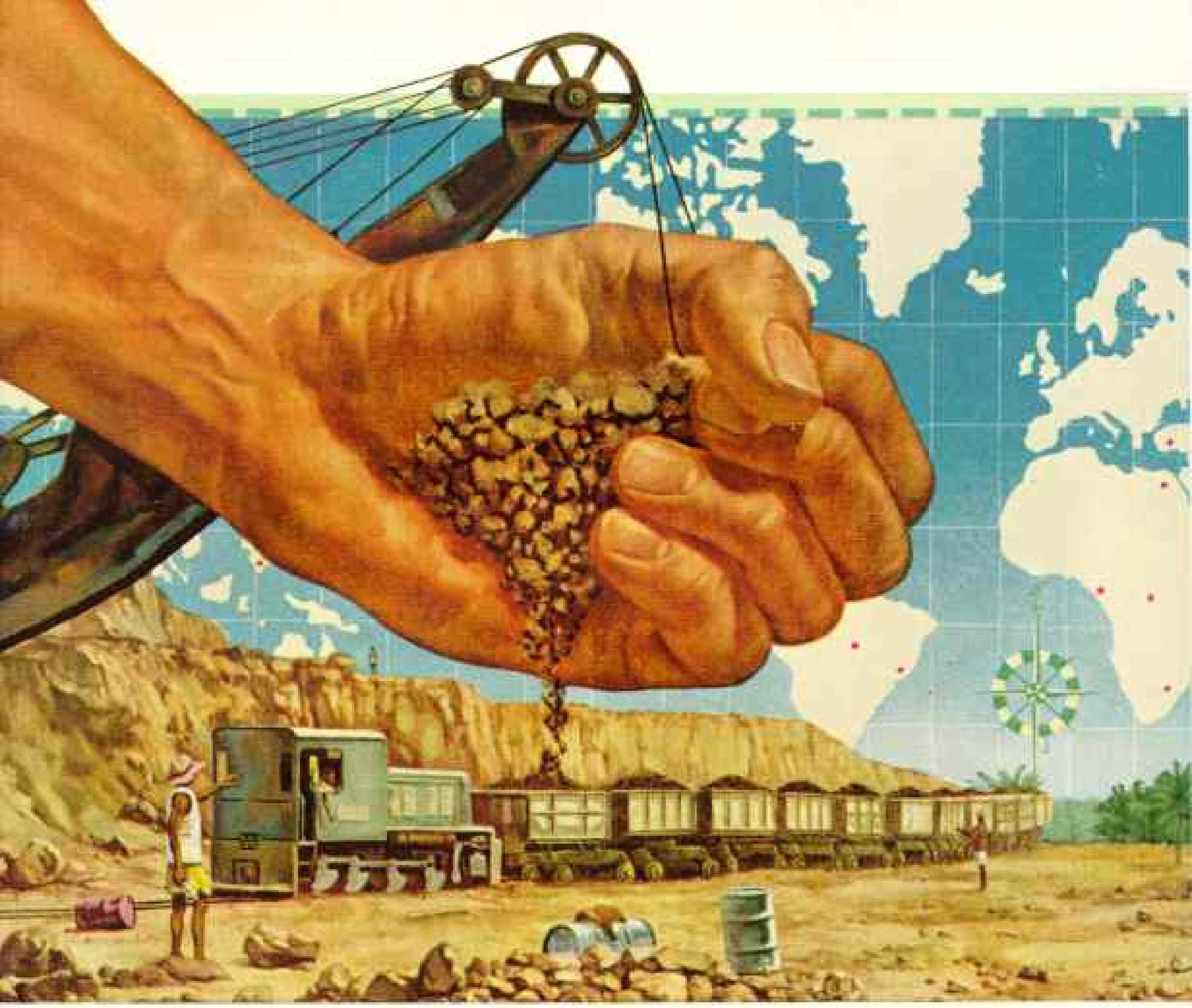

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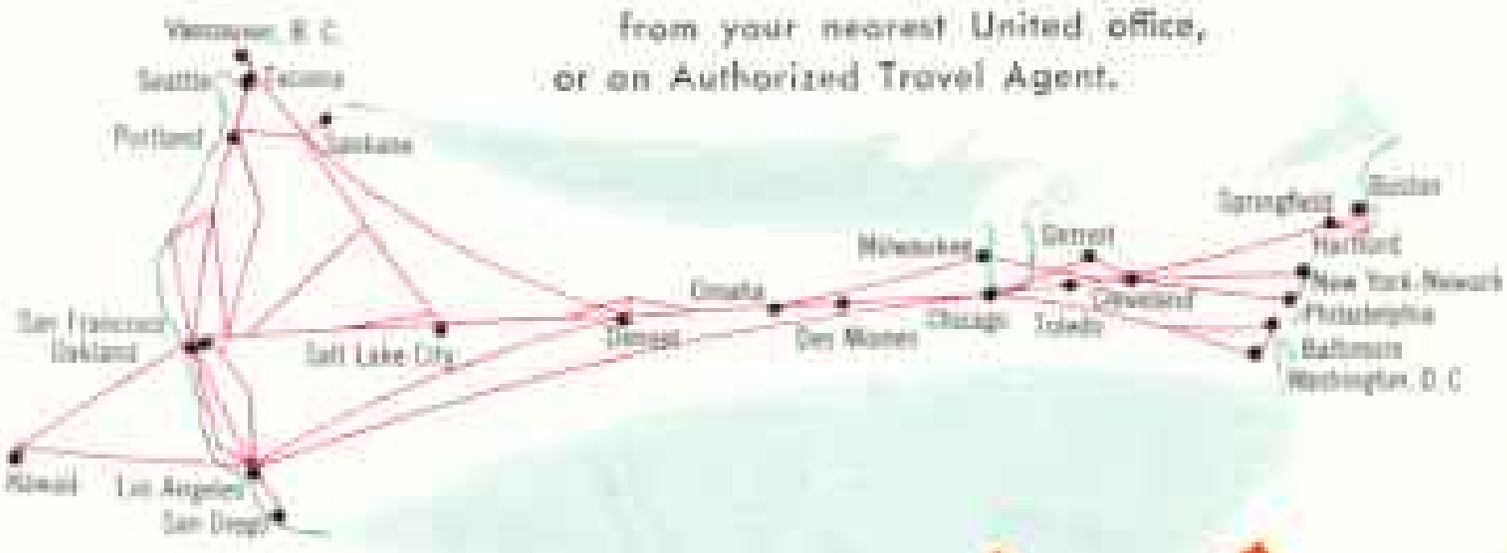

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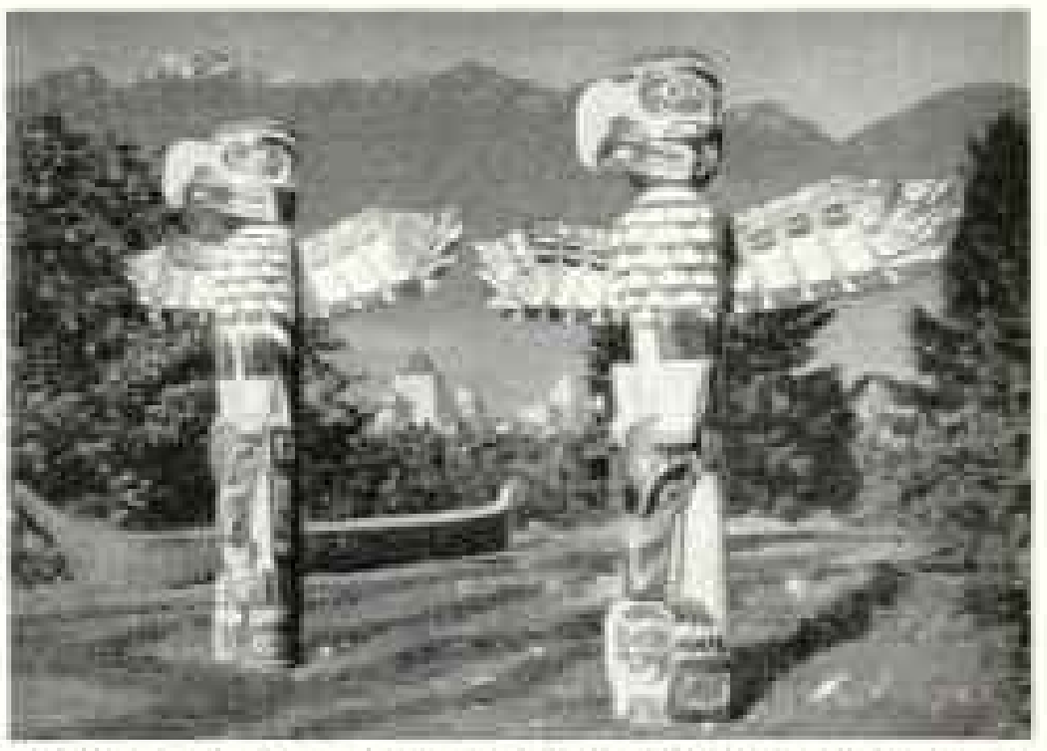

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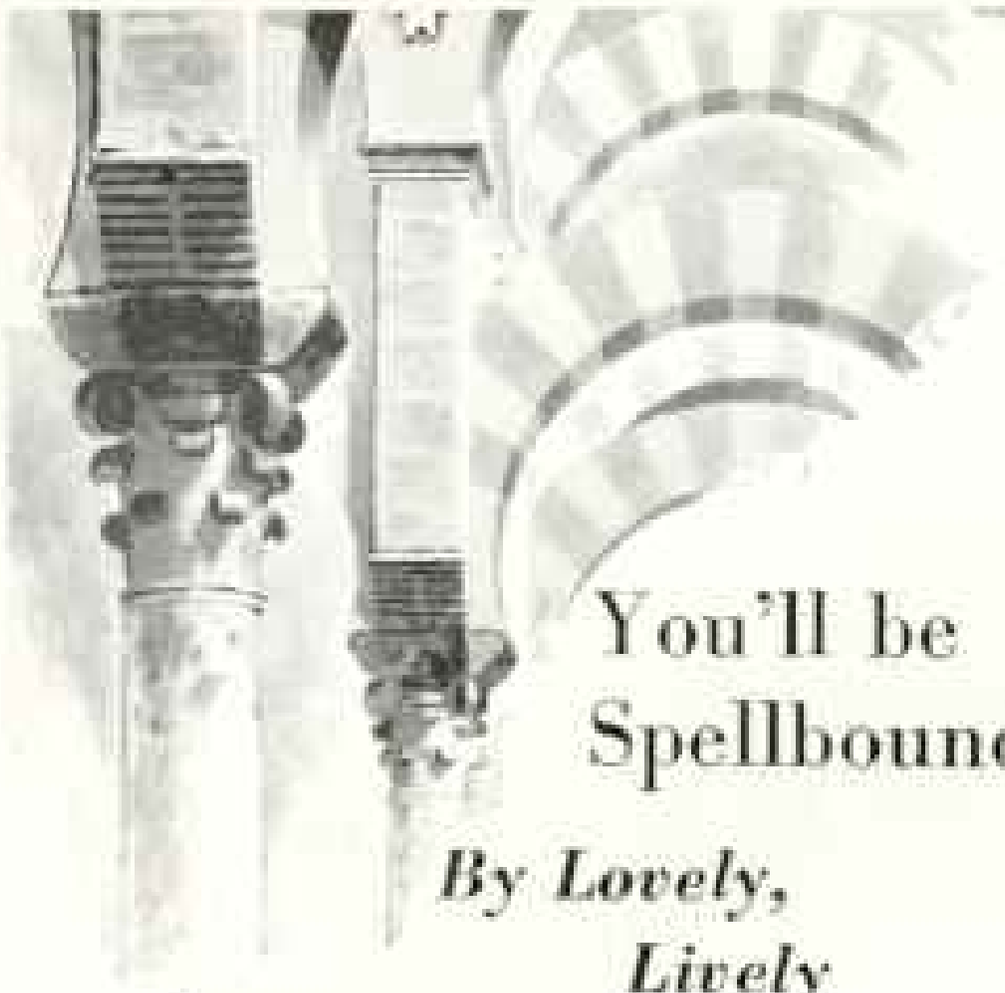

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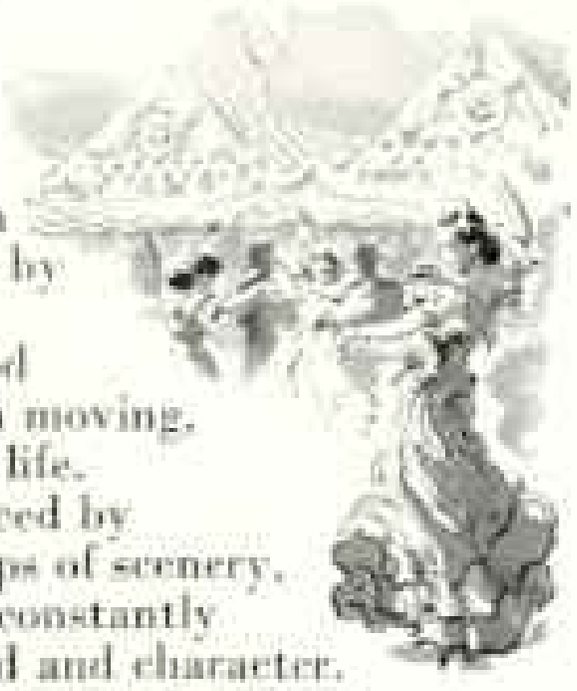

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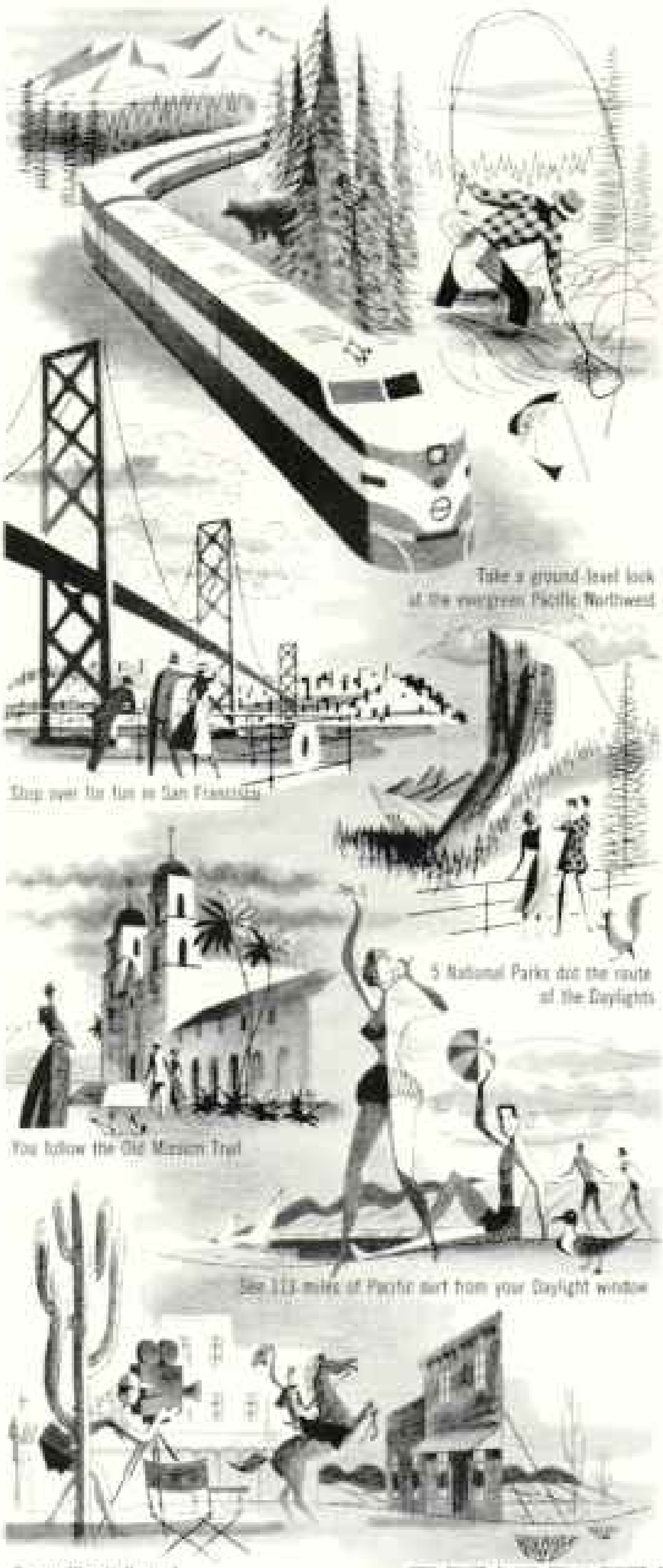

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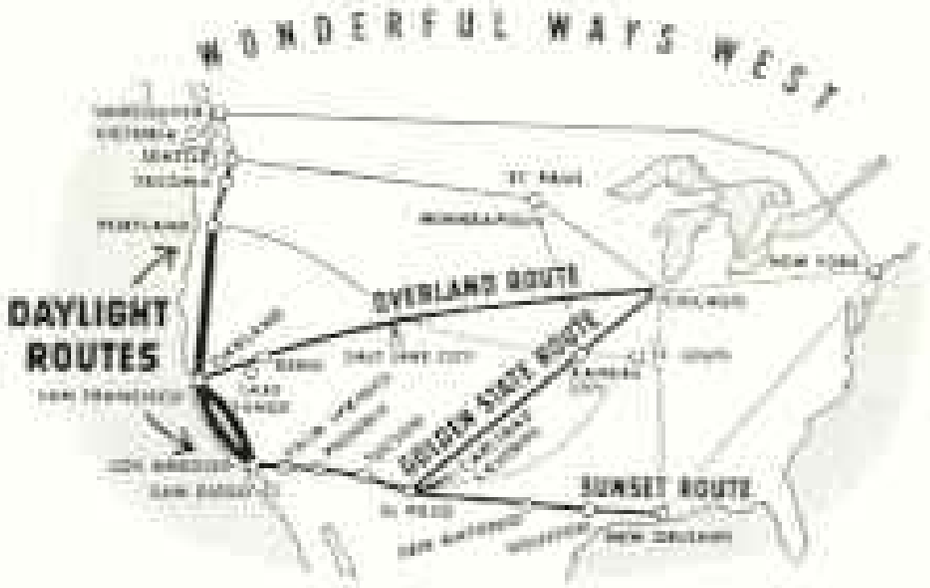

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INSIDE BRITAIN . . . by John Gunther

"WHEN a man is tired of London," said Samuel Johnson, "he is tired of life." The good doctor, of course, had a lifetime in which to capture *all* of his native land, while the average American visitor has a few short weeks at best. That's why it's wise to leave London behind and get to know the true character of this fascinating country—and its hospitable inhabitants.

The further off the beaten path you get, the more you treasure your trip to Britain. And since all of England, Scotland, Wales and Northern Ireland is smaller than the state of Oregon, a great many of its hidden attractions can be seen during a two-week vacation. Especially if you hire a car to take you around (cost, including gasoline, is only $5 a day).

In Britain, the very names of many villages beam with rare good humor. Sixpenny Handley, Nether Wallop, Adel cum Eccup, Cold Christmas, Piddletrenthide, Plwmp and even—excuse it—Bwlch. But it's the "look" of Britain's ancient villages that wins you over completely. In East Anglia, for instance, cottages are thatched with straw, the walls gay with the old pink wash. Steep, winding streets often lead up to a massive, 12th-century cathedral. Cathedrals dominate the Fen country like great ships at sea.

In the Cotswolds, buildings are made of honey-colored stone and there's a saying that there is not an ugly village, not even an ugly house in this unspoiled heart of England. I concur, for I explored every rolling mile of the Cotswolds. Then, there are the tiny, romantic hamlets of the Scottish lowlands—like friendly Ayr, which inspired Robert Burns to write: "Auld Ayr, wham ne'er a town surpasses, for honest men and bonny lasses."

There are downy villages that cast their magical, sleepy spell over you. Ballymoney, in Northern Ireland, is one of the drowsiest. And there are medieval towns in Wales whose ancient legends live on and on.

One other thing about Britain worth noting at this time. *It's a foreign country without a foreign language.* Here and there, the accents may be delightfully thick—but you'll always feel "at home" abroad in Britain. See your Travel Agent and come to Britain.

For further information, see your Travel Agent or write British Travel Association, Box 100, 336 Madison Ave., New York 17.

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I get all the sleep I need!"

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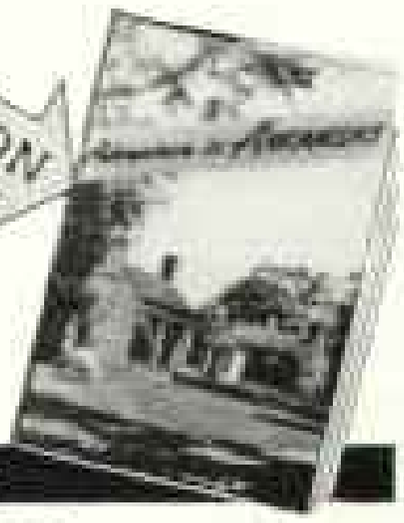

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THE FIRST SIGNS of "getting stout" are nature's warning to start reducing immediately. For when you bring your weight down and *keep* it down, you are likely to gain some mighty important health benefits.

There is the distinct possibility, for example, of lengthening your life. Here are the facts which are based on an extensive study of men:

> *The death rate from all causes was found to be about a fifth higher for men who were from 5 to 14 percent overweight than for those of proper weight. Moreover, among men who were 25 percent or more overweight, the death rate was about 75 percent higher.*

Why do overweight and long life seldom go together? Simply because overweight is frequently associated with many diseases, including high blood pressure, heart and kidney disorders and diabetes. Extra weight is especially bad for the heart because it makes this vital organ work harder.

Excess pounds usually begin to accumulate when we reach middle age, and in 98 percent of the cases the cause is simply due to overeating. Thus, after age 35, it is especially important to follow proper habits of eating.

Your doctor is the best judge of what your desirable weight should be. He will caution against quick, drastic reducing methods that may undermine health rather than improve it. With his advice, you can reduce without making radical changes in your diet, or resorting to strenuous exercises and other ineffectual measures for the *permanent* control of overweight.

In addition to the health benefits of proper weight, you may enjoy other advantages by keeping "in trim." The chances are that you will look and feel better, and get more fun out of life.

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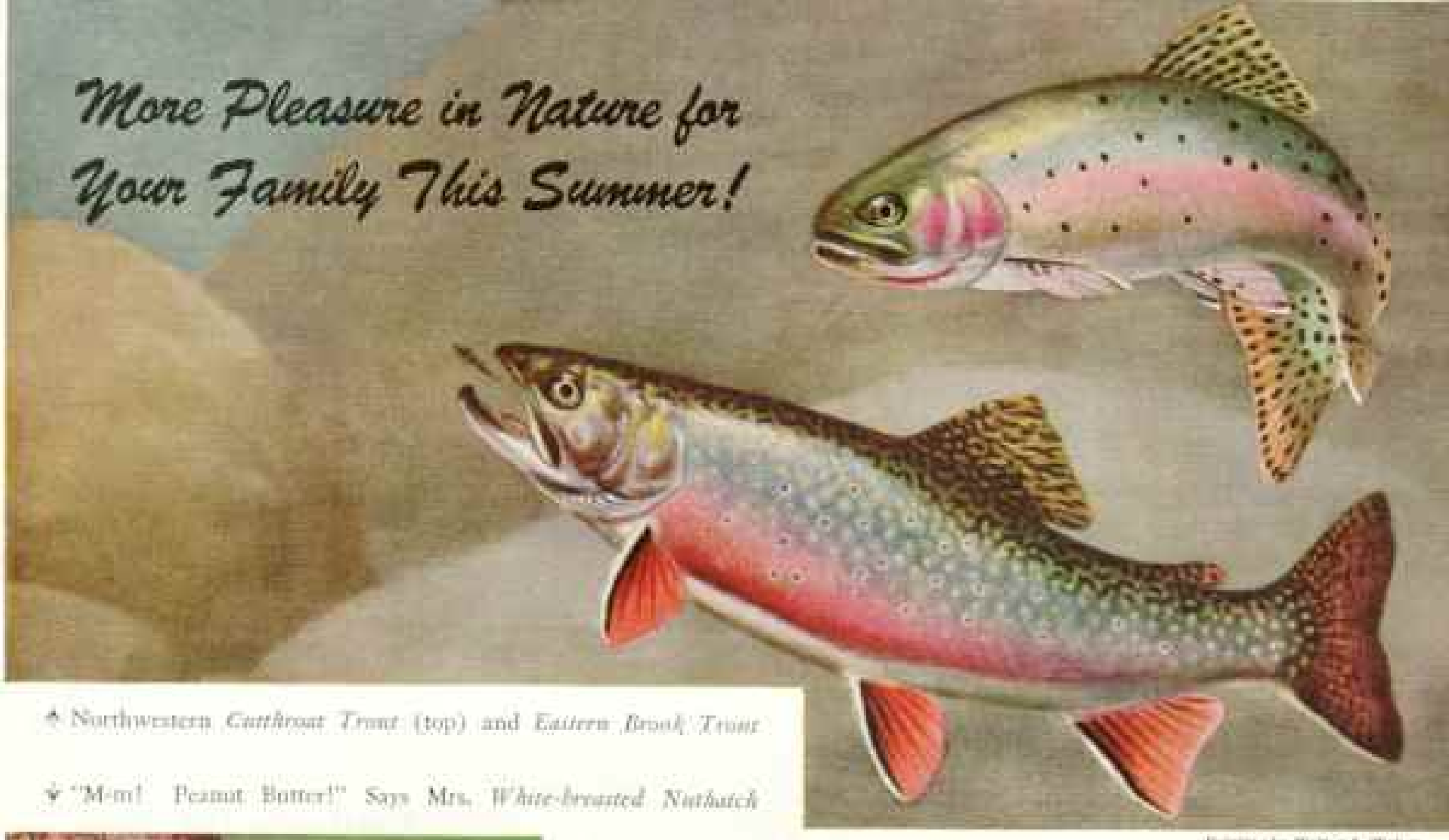

♠ Northwestern *Cutthroat Trout* (top) and *Eastern Brook Trout*

♀ "M-m! Peanut Butter!" Says Mrs. *White-breasted Nuthatch*

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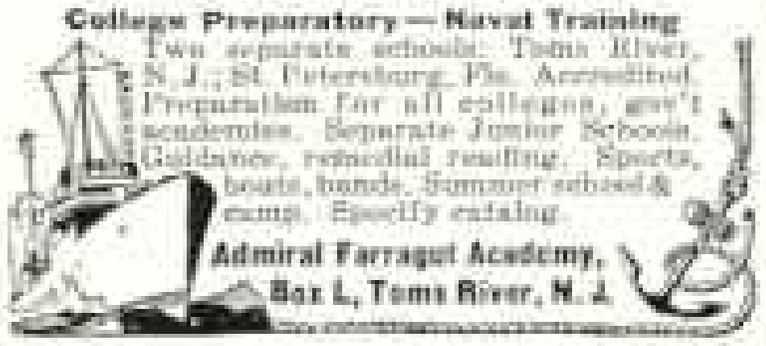

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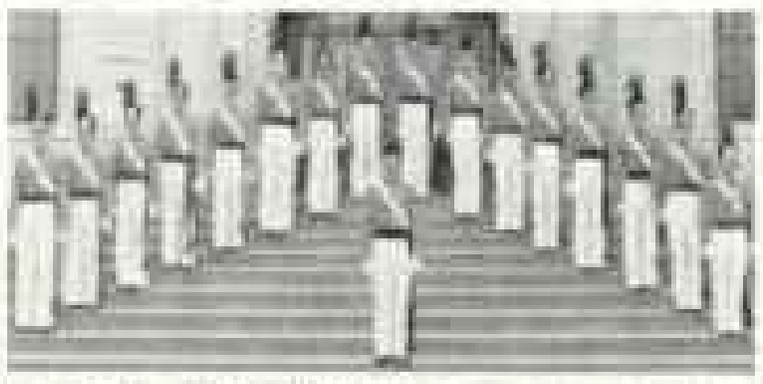

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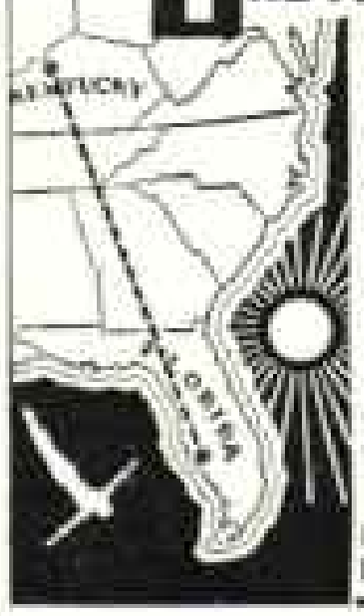

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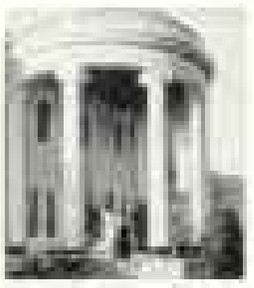

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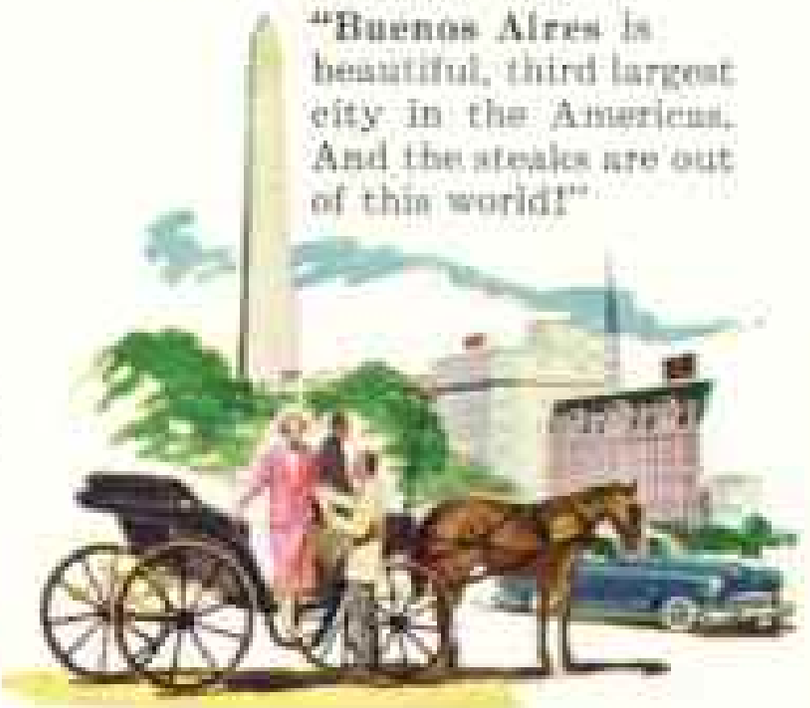

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