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California, Horn of Plenty

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30 Natural Color Photographs

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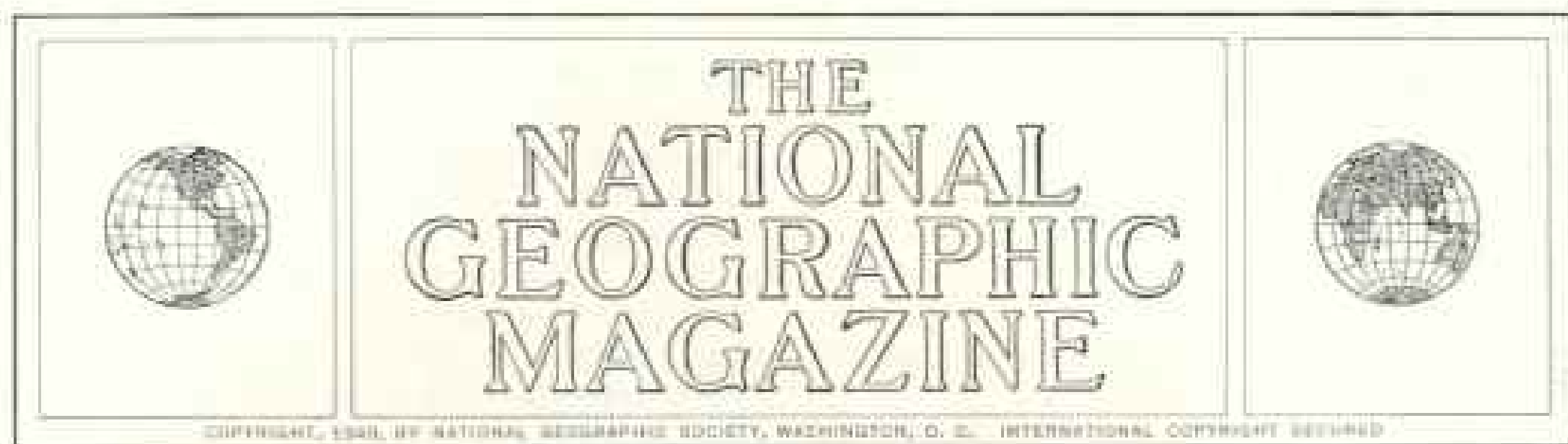
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## California, Horn of Plenty

BY FREDERICK SIMPICH

*With Illustrations by National Geographic Photographer Willard R. Culver*

**H**OW CALIFORNIA rose from rags to riches is melodrama unique in our annals. Naked Indians ate acorns where now men may pay \$55 for a tailored shirt and movie queens nibble \$10 steaks.

Not one white lived here till after Ben Franklin flew his kite and George Washington fought in the French and Indian War.

It was 1769 before Spaniards moved from Mexico to found San Diego and settle what's now Los Angeles County. Today it is richest in agriculture of all our 3,069 counties. Assessed property value of all California, for taxes, equals about half Uncle Sam's gold stock.

### Gold from Factories, Farms

Since that 1849 gold rush mines have yielded about \$2,300,000,000 in golden treasure. But now the State's cash income in only one year is six or seven times all the gold mined in the last hundred.

Much cash still comes from farms and orchards; yet today factories rise so fast that bulldozers rape orange groves to get more building sites. Los Angeles complains that all this new factory smoke dims its sunshine.

This State has no climatic unity, like Massachusetts or Pennsylvania. With its 1,190-mile Pacific coast line, it stretches from cool, wet Oregon beaches south to dry, scorching Calexico on Mexico's border. Here in this Imperial Valley 60,000 people live below sea level; prosperous Brawley is so hot in summer that pool bathers paddle under electric fans. Yet within 300 miles Mount Whitney's snowy head rises 14,495 feet high.

So divergent is California, its own people

have talked of cutting it in two. Its rainy north, with fir, redwood, and ponderosa pine forests, Mount Shasta, and Lassen volcano, is so different from its arid south.

There's a blasphemous fiction that the Lord and the Devil threw dice for California, against a trader. The Lord won Yosemite Valley, the Big Trees, all that's beautiful. The Devil won Hollywood and the race tracks. The trader won San Francisco, with the world's richest bank, the Stock Exchange, and steamships to the Orient.

Just now the State revels in a three-year fiesta, celebrating 1848's gold discovery, the rush of '49, and statehood in 1850.

To dramatize this past, a Centennials Commission uses rolling museum buses showing faded documents and rusty relics depicting State history. Included is that metal plate believed left by Sir Francis Drake when he landed in 1579, north of what is now San Francisco, to repair his *Golden Hind*, and claimed California for his Queen.

### The Wild West Rides Again

About some old mining regions, in this boisterous pageantry, stagecoaches are robbed in mock holdups, bandits "lynched," crooked gamblers exposed, and tenderfeet hoaxed; brawling make-believe bullies in big boots shower coins on dance hall gals singing "Oh! Susanna," all as in the lucky days of *The Outcasts of Poker Flat*. At Angels Camp they run that jumping frog contest, as told by Mark Twain.

But back of this horseplay lies partial recapture of pioneer times, at once bawdy, melodramatic—and grim.

Pioneer fun was scant: from sheer boredom men fought, wrestled, foot-raced, and had shooting scrapes. Music was often a fiddle with one string missing.

Now Hollywood's costly radio shows, music of "name bands," and lavish movies help entertain the world. Such films as *Gone with the Wind* may cost \$4,000,000 to produce; yet box-office receipts can total anywhere from \$25,000,000 to \$30,000,000.

As long as 35 years ago Hollywood was paying one pantomimist \$10,000 a week; to a young actress whose first films were shown in the nickelodeons went an annual salary of \$500,000. Today even free-spending California marvels at Hollywood producers' extravagance.

The way motion pictures are made, how they affect human behavior, is another story. How they affect California architecture, patterns of furniture, and styles in carloads of sport clothes made here is part of this story.

#### Buckskins to "Aloha" Shirts

One woman to fifty men was the score in gold rush camps. Some pioneer women walked barefoot into California in frayed skirts and faded sunbonnets, trudging beside covered wagons.

Now women here are among the world's best dressed. "California fashions" in slacks, sweaters, pedal-pushers, sun, swim, and play suits sweep the land (page 590). Some 1,600 Los Angeles firms use around 30,000 workers.

Sport clothes for men also originate here, and eastern buyers come in droves. Here is "a test tube for the men's clothing industry," says the *Wall Street Journal*. When "hot items" click, they spread from Pacific coast to Virginia beaches.

What pioneer bullwhackers in faded jeans would say to these "palest pastel and deep antique shades," or to "Aloha" shirts printed with monkeys, palm trees, or hip-twitching hula girls in grass skirts can't even be imagined. Had a playboy so garbed shown up at a stag dance in early-day "Hangtown" (Placerville), the miners would likely have ridden him on a rail or shot at the floor about his feet to make him dance, a stunt I saw when the West was wild.

On a far bigger scale, conventional clothing made here sells for millions. Look at Apparel City, Inc., in San Francisco. Built to order, it covers 34 acres and is one of earth's largest garment-making centers, "the most startling advance in clothes-making since the advent of power machinery."

Till the last war, cash came largely from oil, farms, lumber, the sea, motion pictures,

tourists, and the wealthy who retired here for easy life and lush climate.

Now the State becomes industrialized; most newcomers are skilled workers, and population is more than 10,000,000.

Loading up scores of employees and their families, 1,116 people in all, the Prudential Insurance Company of America hauled this group from New Jersey out to Los Angeles and installed its staff in its new western home office, a Taj Mahal-like edifice two blocks long, on Wilshire Boulevard. Cornerstone here is a 3,000-pound rock cut from Gibraltar, a gift from the British Government, remindful of that advertisement *not* painted on this Pillar of Hercules!

Metropolitan Life Insurance Company turns Ingleside golf course at San Francisco into a model residence town.

Rexall Drug Company moved offices from Boston to Los Angeles; from the East came headquarters of Carnation Company.

Many big automobile makers have assembly plants here; more aircraft manufacture is carried on in or about Los Angeles and San Diego than anywhere else in the country.\* Shipbuilding slumped when war ended, and people thought airplane building would too. But now Douglas, Lockheed, Consolidated Vultee (pages 574 and 575), Northrop, Ryan, North American, and others are almost 100 percent occupied with Army and Navy orders.

Makers of farm machinery, food-processing equipment, and electric motors join the growing parade.

You simply can't list all the nationally known and State industries which have built new factories here or expanded old ones. They run into hundreds; plant investment reaches astronomical sums.

From new plywood plants and sawmills in the Redwood Empire near Eureka to Holly Sugar Corporation's new plant in Imperial Valley industry marches on.

#### New Steel Mills Rise in California

To California, nothing is so important as its growing steel industry.

Without local sources of steel, many new industries wouldn't pay; they couldn't afford freight on steel from eastern mills. But now from the Kaiser plant at Fontana, Bethlehem Pacific's mills at South San Francisco and Los Angeles, Columbia's plants at Pittsburg and Torrance, a converted aluminum plant at Los Angeles, and a few smaller mills the State draws increasing lots of steel.

\* See "San Diego Can't Believe It," by Frederick Simpich, NATIONAL GEOGRAPHIC MAGAZINE, January, 1942.



D. B. Bureau of Horticulture.

### Like Tiny Tents of a Lilliputian Army, Paper Caps Protect Infant Squash Plants

A branch of All American Canal, from the Colorado River, now waters Coachella Valley. This turns a quondam desert into one of America's richest garden spots. Date groves, background, are descended from suckers imported years ago from the Middle East.

From dry Searles Lake on Mojave Desert American Potash & Chemical Corporation extracts chemicals for farms and factories (page 585).

#### Sugar Output Is Stupendous

That giant refinery at Crockett and another at the foot of Market Street, in San Francisco, handle Hawaiian raw sugar. In an average year they make 17,000,000 bags, or about 850,000 tons.

From its sugar beets California made in the 1947-1948 season nearly 9,000,000 bags of sugar (page 578).

By-products make stock feed. Admiral Byrd once took live cows along on an Antarctic expedition and kept them in good condition on beet pulp.

Nothing edible grew here in Indian days that is bountiful now; no wheat, rice, barley, pears, apricots, oranges, grapefruit, potatoes, cantaloupes, olives, asparagus, prunes, avocados; no chickens, sheep, hogs, or cattle.

The road to orchard riches started with the orange (page 559). Its tale in California shows man's horticultural legerdemain. It takes 1,250 glasses of water to make one glass of orange juice, counting irrigation, water used by workers, etc.

Man brings water hundreds of miles. Nature wraps a rind around it and sweetens it, man ships it out and sells it! But water is the most precious thing in southern California; some say she can't afford to export it, even in oranges.

Here works that great cooperative, California Fruit Growers Exchange. Its general manager, Paul S. Armstrong, says 1948 was tough for growers in all citrus States; their 450,000 carloads could not be sold at adequate profit. Reason? Rising costs of labor, materials, and freight.

Last year about 35 percent of the national citrus crop, or 62 million cases, reached the market in cans.

This canning job vastly extended use of



About Spectacular, Panoramic San Francisco Bay Is Strung a Necklace of Glittering Cities  
San Francisco (foreground) looks across to Oakland, Alameda, Berkeley, and Richmond.



Such Incredibly Heavy Traffic Crowds This Bay Bridge That Another Is Planned  
Golden Gate Bridge (to left but unseen) also carries heavy travel streams.





Jules Malin from Los Angeles Times

### San Diego County Oranges Start on Their Long Ride to Distant Breakfast Tables

Water from the upper Colorado, hundreds of miles away, finally reaches California irrigation ditches. A share of it goes into oranges, re-exported as fruit and juice. Some may reach the very spots where the Colorado River rises.

juice, but it was only a salvage operation. Growers made no money; many lost. Yet now, use of citrus fruit in all forms is at the highest level known.

Sales to Europe, once a good market, decline because Europeans lack dollars with which to pay.

California's farming is diverse; 212 different crops move out by carloads. No other State sells such heaps of almonds, walnuts, lemons (page 580), navel oranges, raisins, dates, prunes, and dried figs; clingstone and canning peaches (page 571), artichokes, and special types of melons and beans.

Here only top quality produce can pay dividends. The western grower can't pay freight across the country to eastern markets on any output except the best.

Supplying chemicals to ranchers is specialized. Research on new materials and better use of those already known is done by Shell Oil Company, Inc., in a laboratory at Modesto

in San Joaquin Valley (page 587). Similar studies are made by Standard Oil Company of California.

Farming here is more than planting and harvesting. Science still looks for a cheap, easy way to kill such weeds as the morning-glory, star thistle, and puncture vine.

### Work in a Giant Farm Laboratory

Toxic soil, tree decline, plant blights are all problems. Against insect pests war never ends (pages 564 and 587). At the University of California a staff of more than 100 wages timeless combat. In one campaign they brought in Australian beetles to eat up the evil Klamath weed which poisons cattle.

Across the Bay from San Francisco, at Albany, is our Department of Agriculture's Western Regional Research Laboratory, where Uncle Sam studies new uses for western crops.

During World War II, Albany lab's main job was with dehydrated vegetables and eggs.



Now much of its work is aimed at better frozen foods and new food products.

Albany scientists also seek new uses for wastes such as chicken feathers and pulp or waste juices from canneries.

Subtilin, an antibiotic now being tested experimentally in treating tuberculosis, was discovered at Albany. Its organism is grown in juice from waste asparagus butts.

#### Most Cotton Per Acre Grows Here

Except tobacco, peanuts, and soybeans, which are not produced commercially, this State grows nearly everything raised elsewhere in the Union.

Most cotton per acre grows here; the 1948 crop was about 960,000 bales. In season, carloads of spring lambs are exported. Yet, the year round, the State is so short of meat-bearing animals that in 1948 it imported 3,858,000 head.

Lard, frozen and canned meats are also heavily imported. California pays for these imports with things shipped out.

Rice grown here is not the type Americans prefer; so it's sold abroad. This State makes more wine than any other; it picks heaps of hops and dries them in specially constructed kilns.

While not a great apple State, California grows kinds that dry well; so 40 percent of our dried apples come from here.

Of all our avocados, more than three-fourths grow here; San Diego County alone has 3,363 avocado groves (page 565).

I once saw a solid 55-car trainload of raisins move into Stockton, there to load an ocean vessel for London, a vessel that steamed away by ship channel through truck gardens for the Golden Gate. Of prunes, peaches, apricots, figs, apples, pears, etc., the State annually dries about 600,000 tons. Last year 240,000 tons went to help feed Europe.

Petaluma is world-famous for chickens, but from 25 other States and Canada dressed poultry moves in.

With California's population growth of 45 percent since 1940, no wonder statisticians get a headache trying to figure the State's changing trade balance!

Ever since Muscovites chased sea otters here, this State has reaped rich ocean harvests (page 583). From Alaskan waters packers bring shiploads of salmon; to gourmets no tasty dish is more tempting than big fat crabs boiled over wood fires in open-air pots along San Francisco's Napleslike Fisherman's Wharf.

Men of Galilee never drew in bigger netfuls than Monterey sardine crews. But they can

work only in the dark of the moon, when the sardine's phosphorescent wake makes him visible!

Recently, when sardines suddenly grew scarce, some irate fishermen blamed sea lions. Sometimes a sardine net costing maybe \$20,000 is ruined when sea lions get tangled in it; then fishermen are allowed to shoot them.

Tuna capital of the world is San Diego. With San Pedro it scours the seas for 2,400 miles away. In iced holds some boats carry 400 tons of tuna and on some cruises are gone for three months. Six major canneries operate in the San Diego area.

I watched one man at work here who smells fish for a living. He smells more fish than anybody on earth. As a conveyor belt carries tuna from ship to packing plant ashore, he stands beside the moving stream, and smells each fish. If he doesn't like the smell of one, it's thrown aside.

Any fine day from April to October blue waters off Point Loma, as far out as Islas Coronados, are dotted with powerboats of parties fishing for sport. Speeding through these depths go tuna, barracuda, yellowtail, sea and kelp bass, and others. During late summer months the mighty marlin and broadbill swordfish cruise these waters in numbers; then charter boats, with their special rigs, carry sportsmen out to battle.

#### No Other Region Wraps So Many Things in Paper

Some 200 factories make paper and paper items, from roofing to packing boxes. Just now a new pulp and board mill is being completed at Antioch, but most pulp comes from the Pacific Northwest.

Crown Zellerbach Corporation of San Francisco owns five mills in Oregon and Washington and tree farms of 500,000 acres. It uses helicopters to plant tree seeds, employs 35 graduate foresters, cuts tree crops like farmers cut hay, and with a powerful water spray can debark a 42-inch log 20 feet long in 30 to 40 seconds!

Fibreboard Products, Inc., of San Francisco, alone makes about 290,000 tons a year of boxboard products.

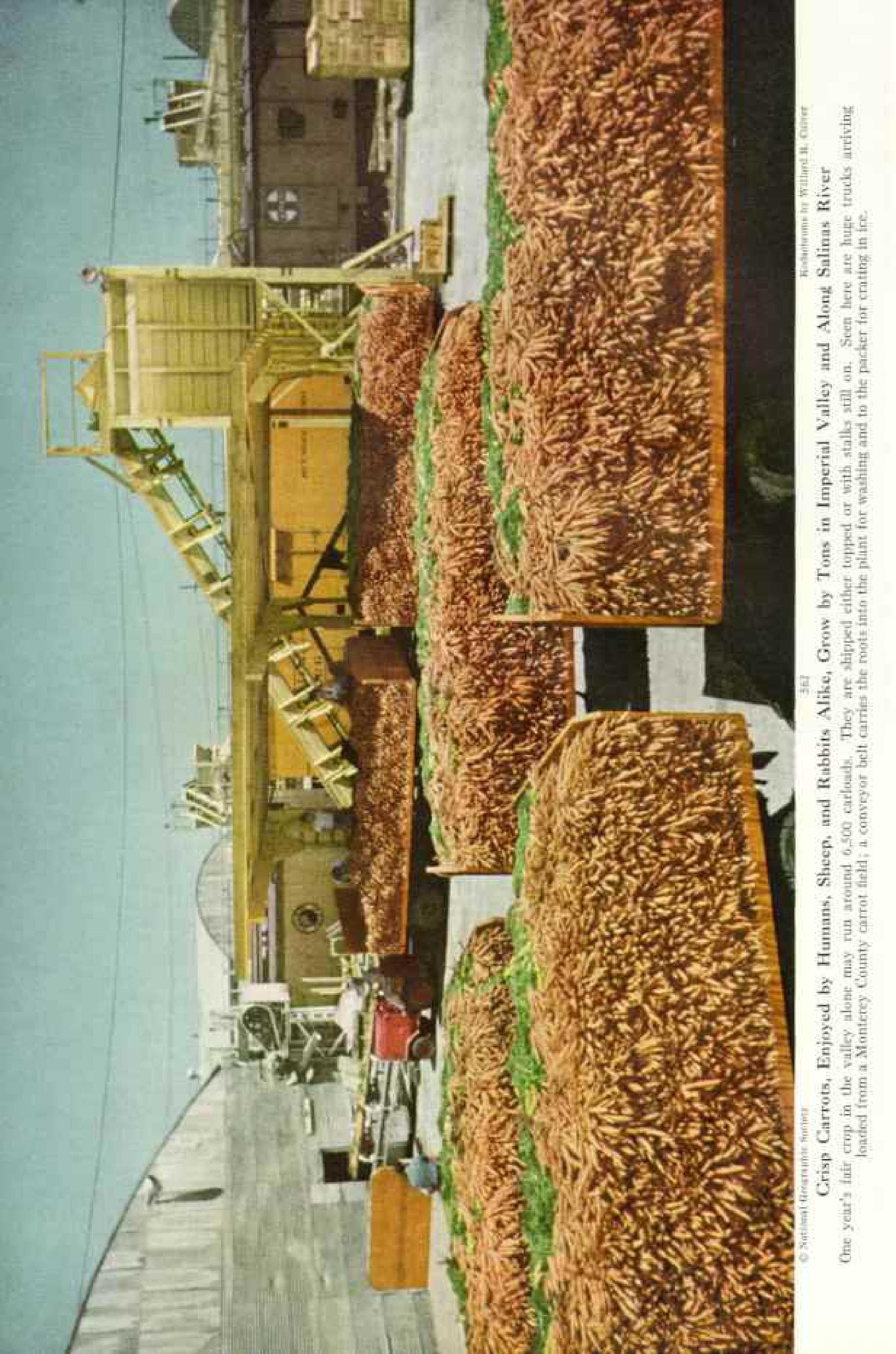
Mountains of waxed paper wrap bread, candy, potato chips, and frozen-food containers. Acres more are used as "hot caps" for tiny plants (page 555). Hundreds of miles of freight cars loaded with fruit and canned goods, all wrapped or boxed in paper, leave here every year. Towels, napkins, and tissues consume scores of tons.

Some national weeklies print their West Coast editions in California; lithographers,



### Big Bicyclelike Wheels of 1912 Helped Puny Man Recover Gold

Electric motors turned these 60-foot "sand wheels." Buckets on their rims lifted old tailings from Kennedy Mine near Jackson and dumped them into chutes that led down to a mill, where gold was recovered.



**Crisp Carrots, Enjoyed by Humans, Sheep, and Rabbits Alike, Grow by Tons in Imperial Valley and Along Salinas River**

One year's fair crop in the valley alone may run around 6,500 carloads. They are shipped either topped or with stalks still on. Seen here are huge trucks arriving loaded from a Monterey County carrot field; a conveyor belt carries the roots into the plant for washing and to the packer for crating in ice.

**"Pear Tomatoes," Introduced Commercially from Italy in 1926, Are Packed Mostly as a Paste in Flotill Company's Stockton Cannery**

On a carrier belt tomatoes enter the plant, to be washed and graded. Then they reach these women peelers, who also pack them in cans. Bells again move filled cans to capping machines. Pinned on each woman's back is a work card. Tomato paste goes largely to Italian consumers.

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Illustration by Willard B. Carter



## Not Collapsed Parachutes— But Tents to Fumigate Orange Trees

These tents, made of nylon, are raised over orange trees near Los Angeles; then Hydro-Cy, hydrocyanic acid, a liquid made by Du Pont, is pumped under the trees from a gunlike machine. This fumigates against pests.

To "pitch" this tent, a truck is fitted with two long arms (upper left). It passes between rows of trees, lifts the tent up like an umbrella, and lets it down over the tree to be treated. Nylon is light and stout, does not become heavy with rain or dew, and is not weakened by mildew.

Few crops or fruits cultivated by man require such laborious and constant attention as the orange. Pruning, irrigation, insect control, picking, sorting, packing, advertising, shipping, finding a market for fruit and juice, as well as occasional battles against frost are all part of the endless task.

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## ← Fresno Gains World Fame for Its Giant Raisin Industry

Raisins are dried grapes. Cut from the vines, they are spread on wooden trays to dry in the sun. These men are turning the grapes in a tray to expose their other side and dry them evenly.

For years, tiny packages of "Sun-Maid" raisins were sold by tons in far-off China. Even in medieval times Spanish raisins were exported to England.

In some Mediterranean raisin lands, the dried grapes are dipped in olive oil, boiling water, or potash lye to soften their skin.

## Californians Dote on → Oily Avocados

Known also as "alligator pear," this delicious tree fruit is soft and buttery. The original Aztec name for this fruit was *ahuacatl*, still sometimes heard in Mexico; there, however, more often the Spanish word *aguacate* is used.

In California, for advertising purposes, the made-up trade name "Calavo" has been applied to a market grade in San Diego County, leads in avocados. Over half are consumed in California, to which State the tree was introduced from tropic lands.

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Illustrations by William D. Carter





### Specially Built California Juggernauts Help Workers Gather Lettuce So Housewives Across America Can Toss a Quick Salad

The State is noted for variety of its farm machines, many built locally. Vehicles shown here are simply long conveyor belts on wheels. Workers trail the slow-moving device, cut prime lettuce heads; the belt carries them to trucks. This field near Gonzales yields 350 crates per acre. Salinas Valley is world-famous as a truck garden.

With Long-handled Wooden Hammers, Workers Knock Surplus "Apples"—Also Called "Pears"—from Cacti in a Field near Lakeside

In Mexico, Arizona, and other cactus lands both men and beasts eat shiny cactus pears, first rolling the fruit in sand to clean off the spines. If water is short, these pears quench thirst. Thinning down to only 8 or 10 on each branch produces better fruit. These improved spineless apples are nearly all shipped to New York.

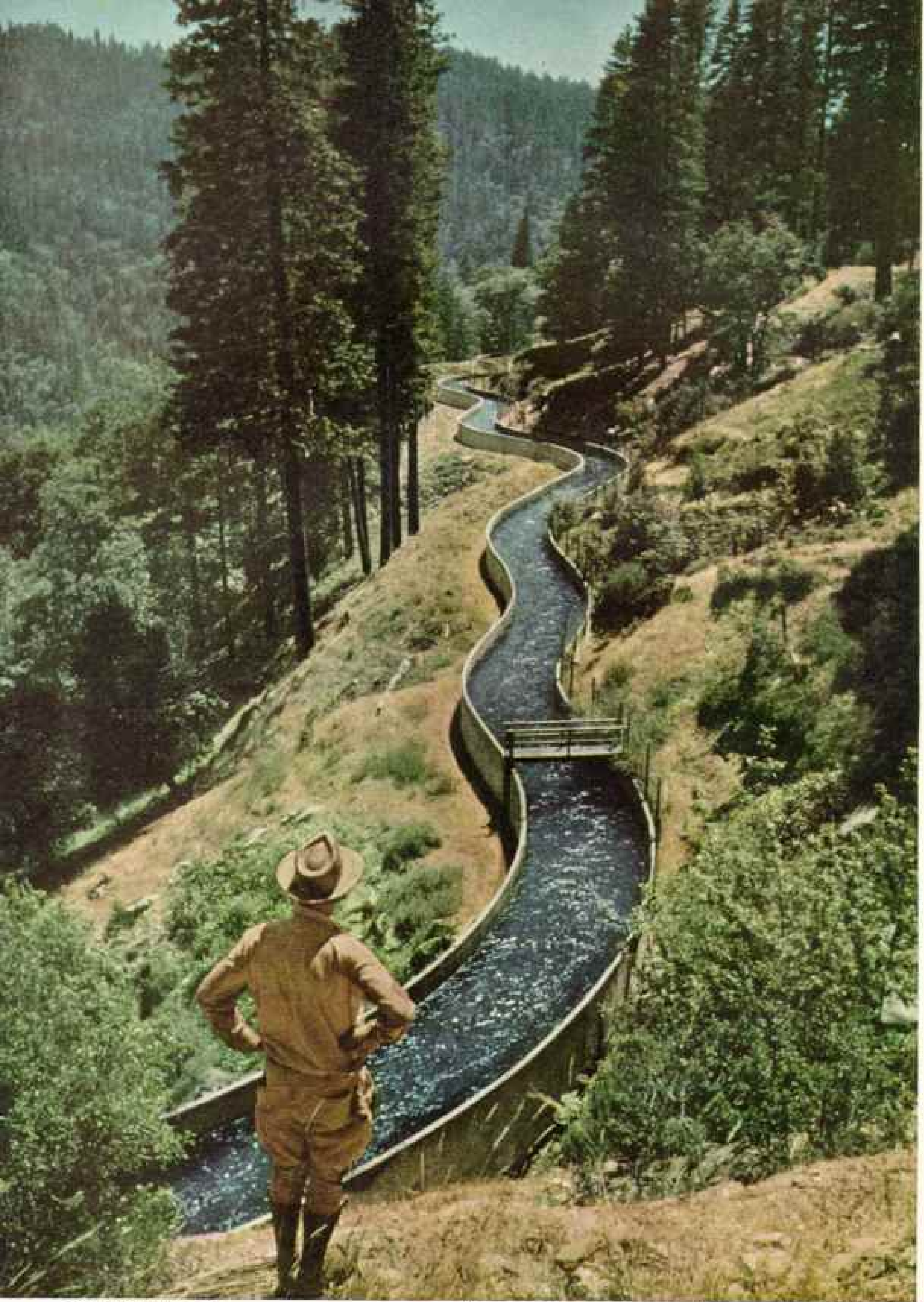
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making labels for cans, and job printers use still more. The NATIONAL GEOGRAPHIC alone circulates nearly 190,000 copies in California.

In lumbering, the State saws logs at the highest rate in history (page 588). Most houses are wooden, and new buildings rise by thousands because of population growth.

#### What They Do Here with Electricity

California has 122 hydroelectric plants and 29 steam electric generating plants.\*

Normally, 70 percent of energy used is hydroelectric; the only out-of-State source is Hoover Dam, which sends power to Los Angeles. Systems interconnect with 85,000 miles of transmission and distribution lines.

In 1947 (latest records available) energy used was equal to labor by 257,000,000 men working a 40-hour week for a year.

More than 90 percent of all farms are electrified, using some 60,000 electric pumping plants.

Poultrymen use power to hatch, clean, and grade eggs, brood chicks, and stimulate egg laying by prolonging day with artificial light.

Stockmen clip sheep and groom cattle with electricity. Electric fences cut fencing costs. After one or two harmless shocks animals learn to stay away from electrified wire fences.

Orchardists shake nuts from trees with electric vibrators. Large propellers stir the air to repel frost. Electricity is used to sort, clean, and wax citrus fruit.

Men sterilize soil with this energy to prevent infestations and kill weed seeds, and heat soil to aid plant growth. Violets so grown have matured in 20 days instead of taking all winter.

Nearly all power used in manufacturing is electric. One machine in San Francisco makes sandwiches at the rate of 3,000 an hour.

In natural gas pipes, pressure and rate of flow are measured and the data sent to distant control stations by a telemetering system.

Along the coast, foghorns operate with air compressed by electric motors. Planes flying to and from Hawaii keep on course with the aid of Loran beams from coastal stations.

At the San Francisco Naval Shipyard a new crane, world's most powerful, lifted a weight of 630 tons, the greatest load ever hoisted by man, and set it down again upon an egg so gently that the shell was cracked but the yolk not broken.

At the University of California at Los Angeles a mechanical brain called a "differential analyzer" can accomplish 17 man-years of mathematical work in two weeks.

Since miners paid gold dust for picks, blankets, and coffee, San Francisco has been a

free-spending money center. Sailors love it!

When I was a reporter under Fremont Older on the *Bulletin* we always got paid in gold coin; to this day, Californians like "hard money"—big silver dollars, rather than paper that folds.

Some walls of the San Francisco Stock Exchange Building are vivid with bold murals by Mexican artist Diego Rivera. Today this Exchange holds a leading position among regional markets, and here by the Golden Gate the *Wall Street Journal* publishes a Pacific coast edition.

In turbulent days when Wells Fargo stage-coach guards shot it out with bandits while drivers lashed their four-horse teams into a dead run, that company started a bank here. Now it's the Wells Fargo Bank & Union Trust Co., and its museum of pioneer relics and early-day documents is one of California's most interesting exhibits.

#### World's Biggest Bank Grew Up in California

Then there's A. P. Giannini, onetime produce dealer, who started the Bank of Italy for little people. His bank helped school children open accounts; they could start—and still do—with as low as one cent!

When earthquake and fire hit the city in 1906, Giannini hid his bank's funds under a load of fruit to fool looters and hauled them safely off to San Mateo.

Today, with about 4,000,000 deposit accounts, the present Bank of America National Trust and Savings Association has become the world's biggest bank.

No western city ever felt the financial frenzy that thrilled San Francisco when Nevada's Comstock Lode boom was at its peak. It spawned millionaires who built palaces on Nob Hill, helped build railways, and start this city into its glittering, golden age.

Slickers crept in, too. One group salted a Rocky Mountain mine with uncut stones bought in Rotterdam and sold stock in this "diamond mine"—till some victim found a few cut stones that had been accidentally mixed with the rough ones!

Frantic men scoured the seas for ships and more ships to rush gold seekers and supplies here in the hectic days of '49, and by July, 1850, ships in San Francisco Bay deserted by crews who went gold mining numbered around 500! Till then, few vessels cut these empty waters, except when a New England wind-jammer came trading Yankee goods for hides

\* See "The Fire of Heaven—Electricity," by Albert W. Atwood, NATIONAL GEOGRAPHIC MAGAZINE, November, 1948.



National Geographic Photographer J. Harlan Roberts

### Like Pool Balls on a Table, Turkey Eggs Crowd This Rack

Feast-day turkeys hatched from such eggs in 1948 brought growers from 10 to 15 dollars each. From around Turlock and Modesto thousands of eggs are shipped to Midwest hatcheries.

and tallow. Yet in time many San Francisco fortunes grew from sea trade through Golden Gate.\*

In the heyday of sail, San Francisco Bay was sometimes so crowded with masts that it looked like a forest. Between 1872 and 1888, when California was the world's biggest wheat exporter, more than 5,000 sailing ships left the Golden Gate with grain.

#### How War Affected Far East Trade

Today, under our flag, luxury liners of the Matson and American President lines, as well as big fleets of fast, sleek freighters and tankers, now serve San Francisco and Los Angeles-Long Beach, the busy man-made harbor built with that opulent city's typical audacity.

Before the war, trans-Pacific cargoes were enormous. They'll be bigger than ever now, because most of the major eastern industries which have "decentralized" to California are exporters. Literally scores of these giants already have export sales offices of their own in this State, or have local export-import houses handling their products.

Tea, sugar, coconut and wood oil, silk, hemp, pineapple products, tin, copra, crude rubber, Latin-American coffee and nitrates—

even Tibetan yak tails to make beards for Santa Claus—California gets them all from overseas. To pay for them, it exports lumber, motorcoaches, tin dredges, road-building machinery, Diesel engines, trucks, drugs, flour, rice, canned and dried fruits, radios, motorcars, iceboxes, motion-picture film—many things.

But the Japs? They once bought nearly a third of our West Coast exports, including cotton, oil, and scrap iron. Jap ships hauled at least half of all goods that rode the Pacific. Now that fleet is at the bottom of the sea, and Japan is too broke to buy much from us. Now she's neither competitor nor customer; that means some kind of new detour over Pacific trade lanes.

It's significant, too, that the last war brought California close to 19 billion dollars in war contracts, and her shipments to Army and Navy bases in the Pacific, computed in ton miles, formed the biggest single freight movement in the history of the sea.

Commercial airlines link this State to the whole world. By air and sea it draws closer

\* See, in the NATIONAL GEOGRAPHIC MAGAZINE: "Out in San Francisco," by Frederick Simpich, April, 1932; and "San Francisco: Gibraltar of the West Coast," by La Verne Bradley, March, 1943.

and closer to Asia. With that ancient land, inevitably, its destiny is involved.

#### California Helps the Navy's Pacific Tasks

How best to use this Pacific is a Navy problem studied here. Mare Island Naval Shipyard launched our first aircraft carrier, the *Langley*, lost in World War II. It built the battleship *California*, too, known to sailors as the "Prune Barge."

From this pioneer yard came also the heavy cruiser *San Francisco*, which led our force to bloody victory off Guadalcanal in 1942 under California-born Admiral Daniel J. Callaghan of Oakland. He died in that action.

Two other California yards are also in use. One of these is in San Francisco.

Latest and newest job is the Long Beach Naval Shipyard; in addition, the Naval Station at San Diego does ship upkeep and repair work.

Navy's first seaplane pilots were trained at the Curtiss School on North Island, near San Diego. I flew on an early trip along the Mexican coast; we had few instruments. To keep us from losing our way, Admiral William F. Fullam sent a string of destroyers ahead. They put up big pillars of black smoke to guide us.

Now this State, from Arcata in the north to Ream Field near the Mexican border, is dotted with naval aviation spots of various kinds, while carriers and tenders frequent its harbors.

Night and day, research goes on. The Ordnance Test Station at Inyokern, on Mojave Desert, covers 1,000 square miles, and its Michelson Laboratory is one of the world's finest.

There's also the Navy's guided Air Missile Test Center at Point Mugu; its electronics laboratory is at Point Loma and its variable-angle launcher at Morris Dam.

Experiments in fog dispersal and blind landing aids and techniques are also studied in this State. So is work with supersonic jet planes, wind tunnels, etc.

Navy's oil reserves, as set aside by President Taft back in 1912, include 43,815 acres at Elk Hills and 30,181 acres at Buena Vista Hills, both in Kern County.

Powder enough to fight a fair-sized war is exploded here as engineers tamper with physical geography.

I went across the Bay from San Francisco



National Geographic Photographer Willard R. Culver

#### Had Eve Been a Californian, She Might Have Tempted Adam with a Peach!

They're so big, it takes only a few halves to fill a can. This girl works in the Oakland plant of the gigantic California Packing Corporation. Empty tins that once held Del Monte brand foods are scattered on city dumps and in the wake of our Army and Navy all over the world.

(page 556) to see the isolated plant of the Hercules Powder Company, but they wouldn't let me in. Too dangerous. I got only to the office. Out in their "powder orchards" I could see the many Chinese-gravelike mounds under which explosives are stored, separated for greater safety.

Powder changes California's face. It helps dig canals and blast deep cuts and tunnels



Garrison Smith

Disemboweling Santa Clara County's Hills, Kaiser's Permanente Plant Can Make Enough Cement in Seven Months for a Hoover Dam



National Geographic Photographer Willard B. Carter

### Raisins Look Like This Before Grapes Are Cut and Dried

This Mexican girl is one of thousands of field workers who, with the consent of Mexico and the United States, migrate to California each season. Often, on their return home, they carry new clothes, shoes, wrist watches, radios, and other things bought with their wages. One wore three hats, one atop the other!



National Geographic Photographer H. Anthony Bennett

### Cutting Lettuce Pays Better than Picking Luzon Coconuts

Most lettuce and asparagus cutting, and similar "stoop labor," is done in California by Filipinos, Japanese, and Mexicans. At piecework, many earn astonishingly high daily wages. This man is working in a vast lettuce patch near Salinas, from which come trainloads of truck-garden crops.



### Consolidated Vultee's San Diego Plant Covers About 50 Acres

The colossal 6-engine craft is the Convair XC-99 military transport and cargo plane. The mythical roc carried Sindbad; this world's largest landplane can transport 400 soldiers with their equipment.



### The Giant Plant Since 1935 Has Turned Out More than 10,500 Planes

About 95 percent of all output has been large multi-engine military planes. On the apron are Convair liners. To January, 1949, the company had delivered 110 of these fast, 40-passenger, pressurized-cabin ships to airlines.



through mountains for highways, railways, and irrigation works; mines, rock quarries, and oil fields use tons of it.

#### Building Boom Reaches Even into Deserts

Los Angeles in 1888 lay flat on its back, knocked out by the collapse of a get-rich-quick land boom, in which railroad rate wars cut tickets so low there was one day you could ride from Kansas City to the coast for a dollar.

Newcomers fled by thousands; jack rabbits moved back to where, months earlier, promoters served free lunches and auctioned off lots while bands played.

That boom failed because all the town had was people, mostly speculators. Those who survived, and stuck, remembered this lesson. For years they fought to get water, industry, skilled workers, real farmers and fruit men, not just land gamblers.

From 33,381 in 1880 today's population has grown till Los Angeles County has close to 4,000,000.

Today most newcomers skilled in some kind of work can find jobs. But housemaids? Cooks? Try to find one! Shops, stores, canning plants, factories take them all; hence the boom in machines that clean, wash clothes, dishes—everything but the baby.

In the period 1941-48 about 1,480 new Los Angeles factories have been built and 2,860 others expanded. Of these projects, 160 of the largest represented outside, nationally known firms. Metal products and foodstuffs led in recent years.

More than 700,000 motorcars enter the downtown district daily, and a gigantic freeway program is underway to unclog the crowded streets.

This unparalleled building boom stretches through coast towns all the way to San Diego, whose population has more than doubled during the last ten years. But houses are still so scarce that thousands live in trailers.

Even out on dry, once hated Riverside and Imperial County deserts burros and prospectors flee now before the builders. In Borrego Valley, northeast of San Diego, I talked with old-timers who remember the homestead days, when some land hereabouts might be bought for as little as a dollar or two an acre—maybe \$50 for the very best, that had water. Now here a luxurious resort hotel has risen; vast vineyards flourish, and even potatoes come out clean and white from what was a veritable Sahara of sand—till they put water on it.

Lots in Palm Springs, a dusty little Indian village when I saw it first, may sell now for \$1,000 a front foot. Its Desert Inn is known around the world. Dozens of movie stars

have built Hollywood-style homes here, private planes arrive in flocks for week ends, and there are more than 200 private swimming pools. One I saw, in Borrego Valley, had a plate glass wall about it to keep out wind but let in sun!

From Palm Springs to Indio, with its vast date groves, new desert colonies spring up. Even the shores of Salton Sea, so long a silent, salty waste broken only by coyote howls, echo now to the wails of beach club saxophones.

Then there's Tunisianlike Twentynine Palms. Tenderfeet simply can't believe that such an oasis, with all-year residents, churches, theaters, schools, and even its own airport, could possibly emerge from this dust-blown wilderness. But here it is! Again, water does it—underground water from living springs.

What such settlements, with abundant food and water, would have meant to hungry, thirsty Spanish explorers like Juan Bautista de Anza—or that real California pathfinder, Jedediah Smith!

And what a Smith! When a grizzly bear chewed his ear off, a pal sewed it on again, and Smith mounted his horse and went on to explore the country.

#### Oil and Gas Have Yielded Billions

This State's fat breast, milked for oil and gas, gives life to industry.

California now has 26,676 producing oil and gas wells, of which 297 are exclusively gas wells and the remainder yield oil.

There are three major oil-producing areas: the San Joaquin Valley, the Los Angeles region (page 586), and the Coastal region.

"Petroleum reserves in California are estimated at 3,600,000,000 barrels," said Don E. Gilman, then executive vice president of the Western Oil and Gas Association. "At present rate of production, this oil would last ten years. However, our reserves are being added to, either through discovery of new fields or extensions of present fields, so that the State has for many years been holding its own.

"Because of heavy demand created by California's great increase in population, it is expected that it will be necessary to import crude oil within the next few years, unless there are important discoveries of new fields."

Natural gas is in short supply, partly because of the need for using an increasingly large amount for repressuring oil fields to get the most oil out of the ground, and partly because of the heavy demand created by population growth. So a long pipeline brings in an additional supply from Texas and New Mexico. In theory, a rabbit could now run



◆ "They'll Skin You Anyway! So Why Not Your Soft Fur for My New Coat?"

Chinchillas for breeding purposes bring fabulous sums. On this ranch near Lakeside, some 900 such furry creatures live in an air-conditioned concrete cave; similar to their wild native lairs in the rocky Andes.

✦ In a Good Year Pear Sales Yield About \$28,000,000

About 40 percent of all American pears grow in California. With nimble fingers women peel, pit, and halve choice-grade fruit for canning at a busy plant near San Jose. Softer pears can be eaten with a spoon.





**This Clawing Machine Digs That Valuable Sugar Beet Crop Which Grows Around Below-sea-level Brawley, in Imperial Valley**

What is generally regarded as America's first factory for successfully making sugar from beets was built at Alvarado, near Oakland, way back in 1870. Now California ranks first in this beet production, and one recent annual sugar output sold for more than \$35,600,000.

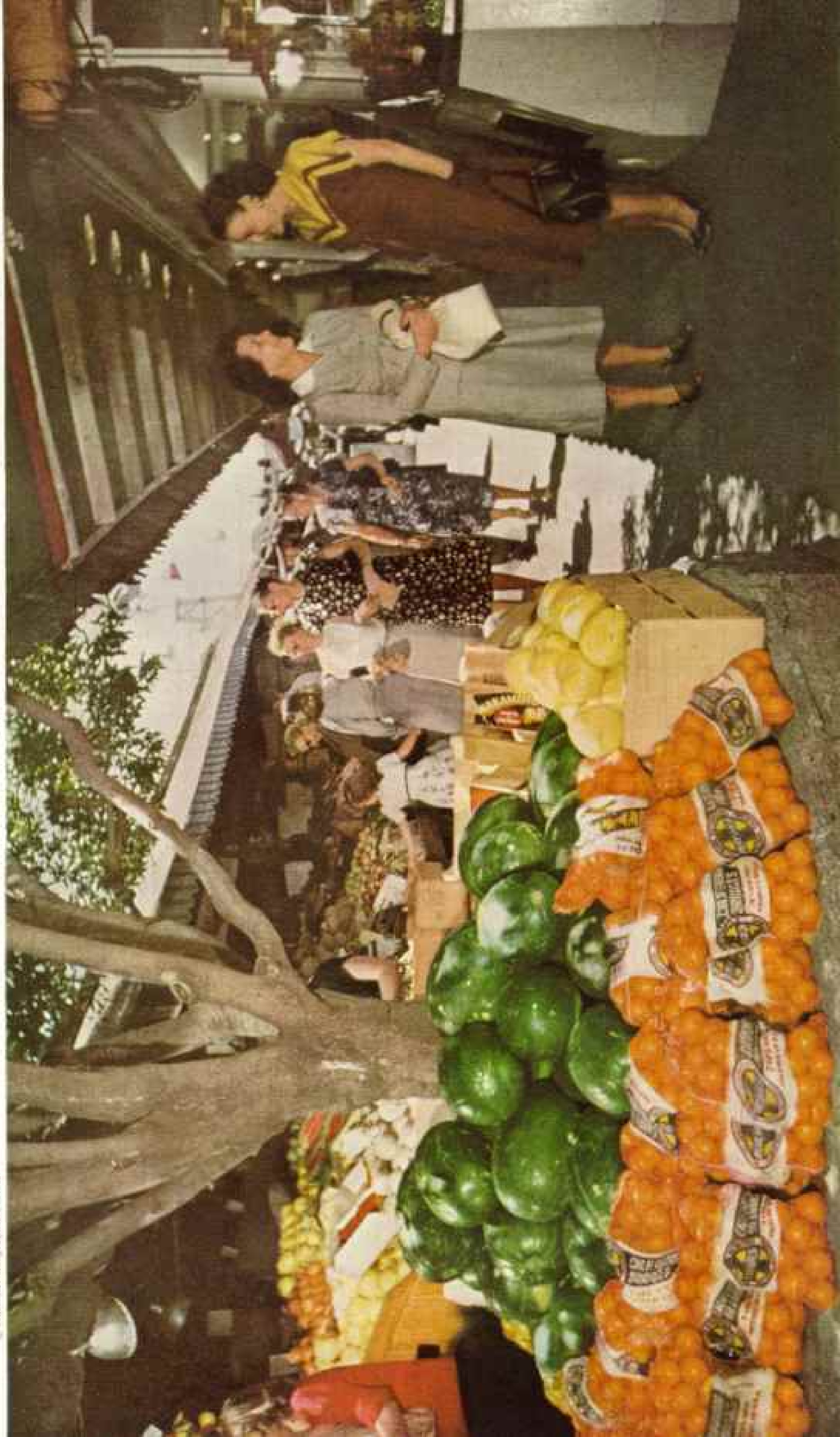
### Los Angeles' Farmers' Market, with Its Spectacular Display of Unexpected Things, Rivals an Oriental Bazaar

In 1934 this mart began with only 18 curvaw-covered booths, where farmers sold their produce. Now, with many permanent buildings, the crowded stalls, besides showing fruit and vegetables, offer almost every kind of merchandise, even to wares imported from across the seas.

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Photographs by WILLARD H. CUTNER





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Photodrama by Willard R. Culver

#### ♣ Fragrant Lemons Are a Huge Source of Citric Acid

They are also used in candies, beverages, in cooking, and as an antiscorbutic. California yields nearly all our supply—amounting to from 12 to 14 million boxes a year. Crusaders took lemons to Europe, after finding them in Palestine.

#### ♣ Eve Wore a Fig Leaf; Moderns Prefer the Fruit Itself

About 15,000 carloads of dried fruit, or say 600,000 tons, are packed in California yearly. This Fresno woman fits each fig in the wooden mold before wrapping. All figs dried in U. S. A. are from this sun-drenched State.





SALINAS USES  
4,200 TONS OF ICE  
DAILY IN ITS VEGETABLE  
PACKING INDUSTRY

### Ice Makes Possible California's Prodigious Export of Fresh Fruits and Vegetables

In one year, 1947, she marketed 70 million boxes of citrus fruits. Salinas alone makes 4,200 tons of ice a day, for use in refrigerated freight cars. But Jean Emery, "Miss California of 1947," seems to feel no chill!



**Instead of Longhorns as in Richard Dana's Day (*Two Years Before the Mast*), Cowboys Round Up Black Angus in San Diego County**  
Once such vast haciendas as Rancho Jamul were common, each a self-contained unit with its own rambling ranch house, chapel, vineyards, corrals, cowboys' quarters, and repair shops. Now, increasing population and expanding irrigation systems tend slowly to cut big ranches into smaller holdings.

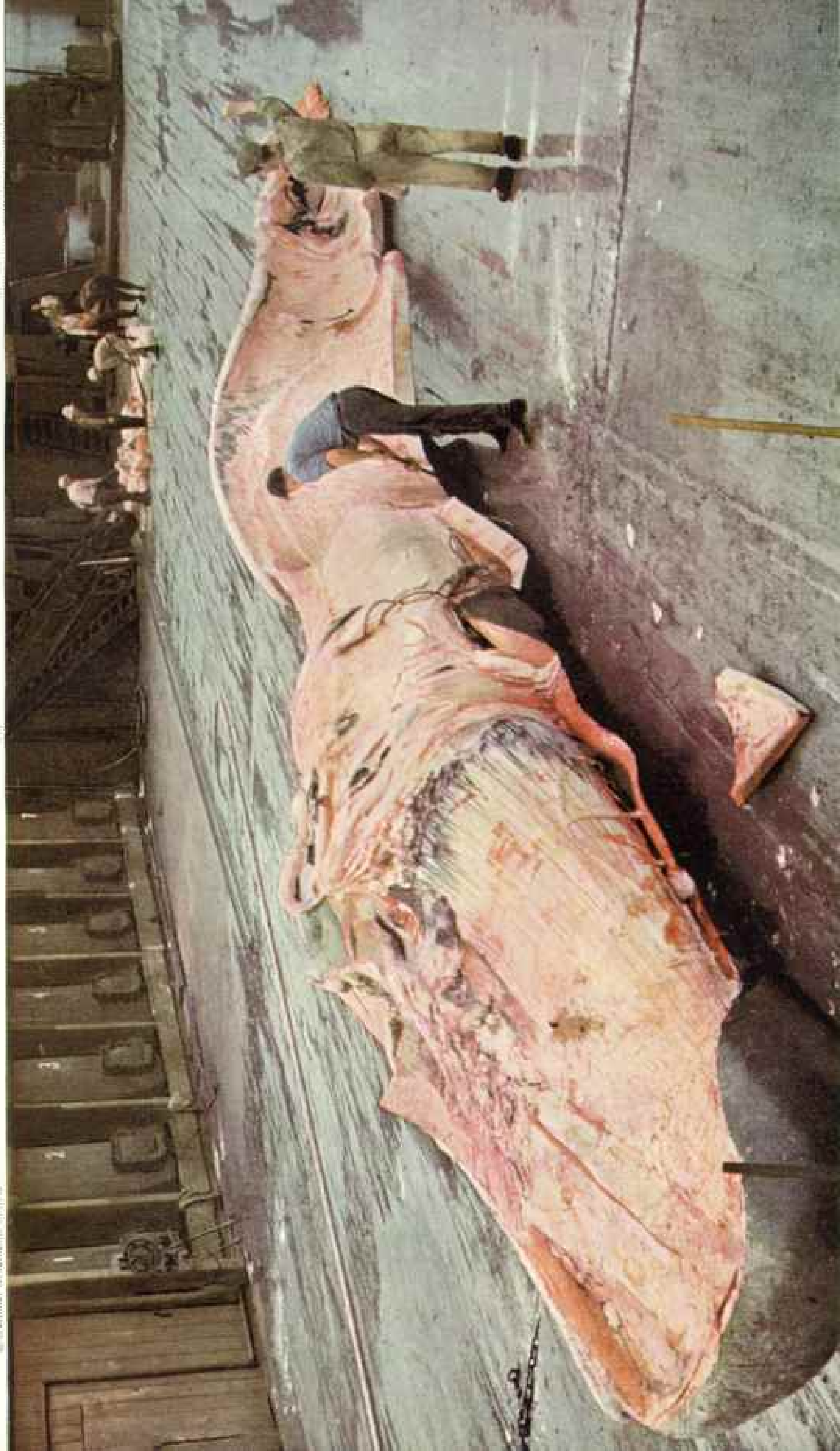
**Behold This Ruin! 'Twas Once a Spouting Whale, Full of Vim, Vigor, Whale Oil, and Blubber—Till That Harpoon Got Him!**

After a halt of some years, Californians again go whaling. This 44-ton sperm whale is being cut up at Field's Landing, near Eureka. Workers use razor-edged flensing tools. Oil goes into pharmaceutical products; from the liver come vitamins; meat is frozen and used for pet food. In some countries whale meat is food for humans.

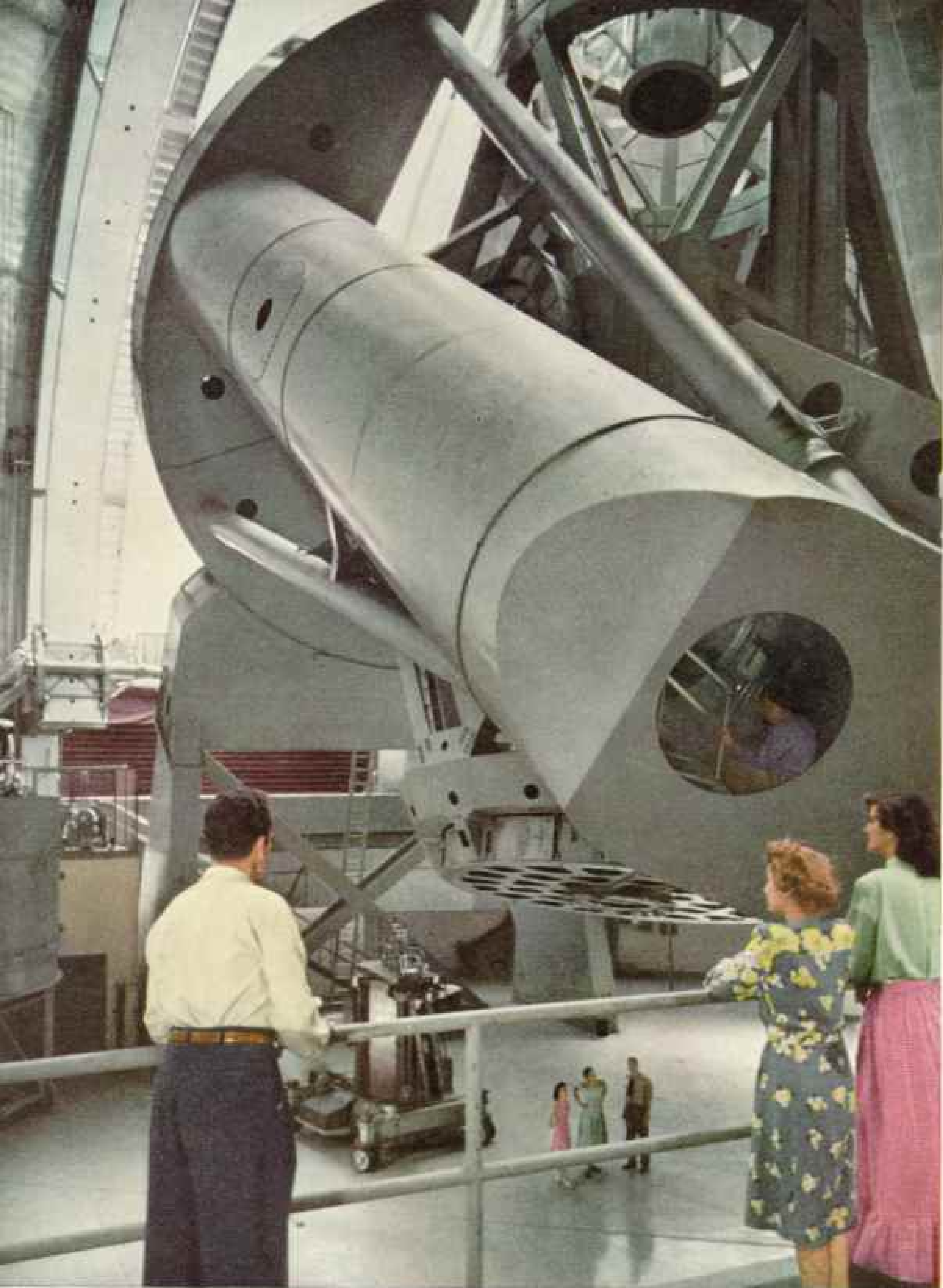
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Illustration by Willard B. Carter







### Palomar Telescope near San Diego Can Pick Up the Light of a Candle 40,000 Miles Away

Its 200-inch mirror, largest and most costly ever made, hangs at bottom of telescope, above the three people. Man inside support tube adjusts controls. Palomar Observatory is operated by the California Institute of Technology in close harmony with the Mount Wilson Observatory and the Carnegie Institution of Washington.



### 20-mule Teams Once Hauled Borax from Death Valley; Now It's Mined on Mojave Desert

In a surface shed hot concentrated borax liquid cooled on iron rods takes the form of big white candles. Much borax goes into soap, antiseptics, enamels, and soldering metals. California also obtains potash by burning kelp cut by a giant "seagoing lawn mower."



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Reproduction by Willard R. Carter

**Had You Once Lived near Long Beach's Signal Hill, You Might Have Seen Such Oil Derricks Rise in Your Own Garden**

Men have made fortunes here, not only plowing the earth but boring into it for oil and natural gas. Some even venture offshore, to drill into the ocean bottom. In 1948 the State had 26,676 producing wells. Though second in petroleum yield in 1948, the State now pipes natural gas from Texas and New Mexico.

### ← Nitrogen Is Distributed Through Irrigation Water

From the cylinders dry ammonia gas, largely nitrogen, passes through the hose into the water in the standpipe, thence into the main stream. Thus fertilizer reaches the tree roots. Such highly active fertilizers must be carefully metered, lest too concentrated a dosage injure the plants.

This is an apricot orchard on the Shell Agricultural Laboratory farm near Modesto. Nearly two decades ago scientists developed this easy method of supplying orchards, truck farms, and field crops with needed nitrogen.

### War on Pests Is Grim, Uncensing

Here a mobile sprayer squirts 15 strong streams against orange trees near Los Angeles. Oil and chemical firms and State scientists experiment constantly to develop new and more efficient insecticides.

If left to breed uncontrolled, certain pests could in time become numerous enough to devour every growing plant and fruit tree in the State.

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Rechromin for Willard R. Cyber

**In Northern Humboldt, Mendocino, and Del Norte Counties 335 Redwood Empire Mills, of All Sizes, Saw Trees Faster than Ever**

Here grows nearly all redwood, some trees reaching a height of 364 feet. Near Scotia tractors drag in big logs from where they fall, for loading on trucks. Boards, shingles, shakes, barrels, ties, sashes, and doors are all made from redwood. Near Ukiah the Masonite Corporation is building roads to reach its new plant.

#### ← California Begins to Grow Its Own Cork

Here, near Davis, men strip the corky bark from a tree, which is a kind of oak native to western Mediterranean lands.

For many centuries the world's cork has come from southern Europe and North Africa. Though cork was introduced into California some 90 years ago, the State still has only about 8,000 mature trees.

The U. S. A. is world's chief user of cork, not only in stoppers but in household appliances, insulation, and acoustical equipment.

#### Eureka Girl Holds → \$500 Bowl Carved from a Burl

On many old redwood trees this hard, heavy cell growth occurs. Burls range from pea size to giants weighing 78 tons.

The table was cut from one huge burl; it consists of seven pieces. Finished objects include vases, salad bowls, and trays.

In the background is a sawed and unpapered piece of burl valued at \$400.

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Illustrations by Willard B. Carter





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Kodachrome by Willard B. Colver

### California Styles in Golf Togs, Ski, Sun, and Swim Suits Influence Designers and Manufacturers All Over the United States

Hundreds of shops also send millions of dollars worth of clothing to eastern markets. San Francisco has one new development, "Apparel City," built exclusively for this business. Cole of California, Los Angeles stylist, made the suits shown here. Girl at left simply slipped a skirt over her bathing suit and lo! a dress!

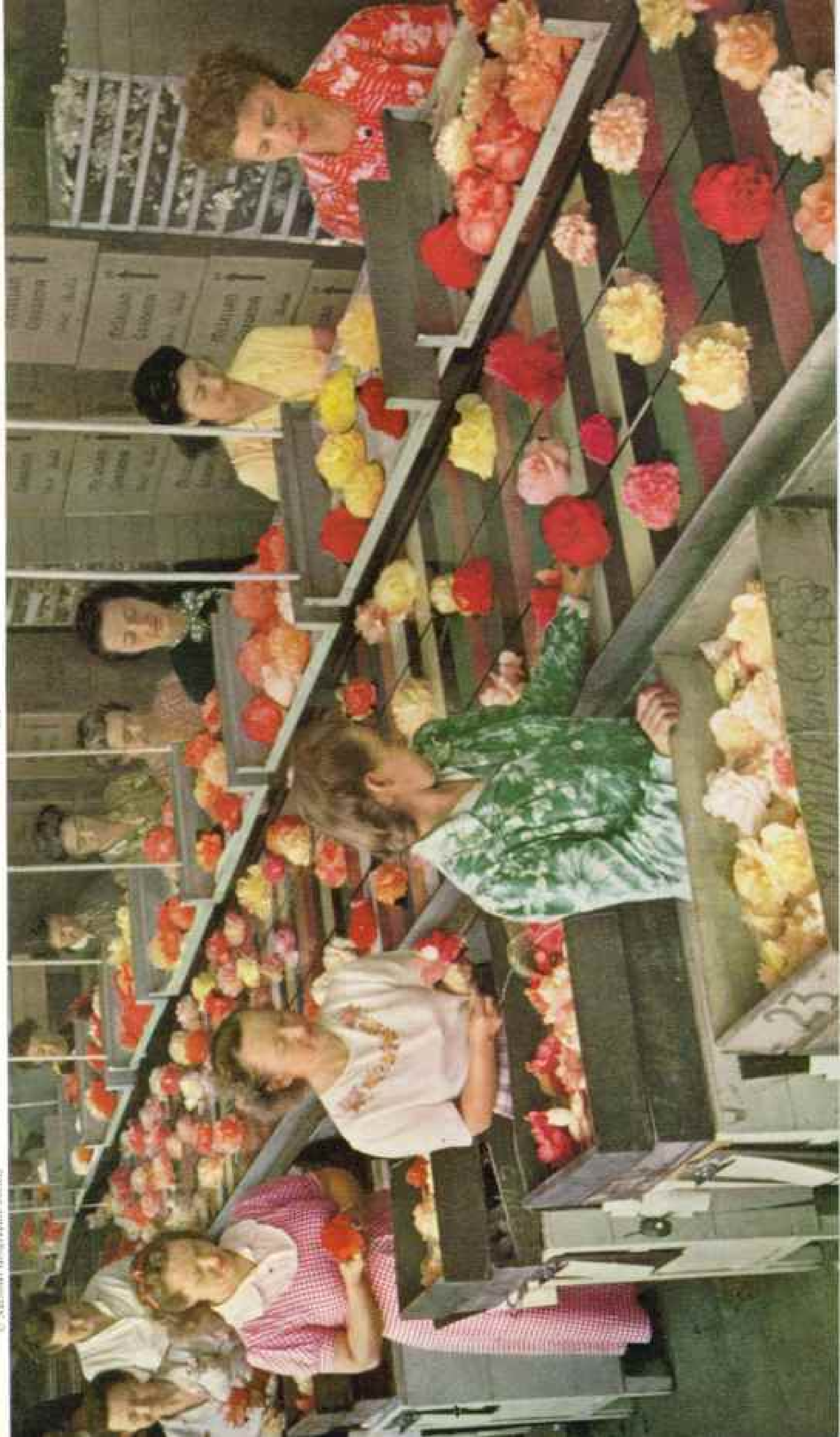
### From California Hand-tailored Flowers Are Flown by Air Express to Dealers in Many Eastern Cities

At the flower-growing town of Colton, these girls trim and arrange a special type of begonia. To the blossom they attach gardenia leaves and use a wire on the stem for stiffening. A conveyor belt, center, carries the finished product to the packing room.

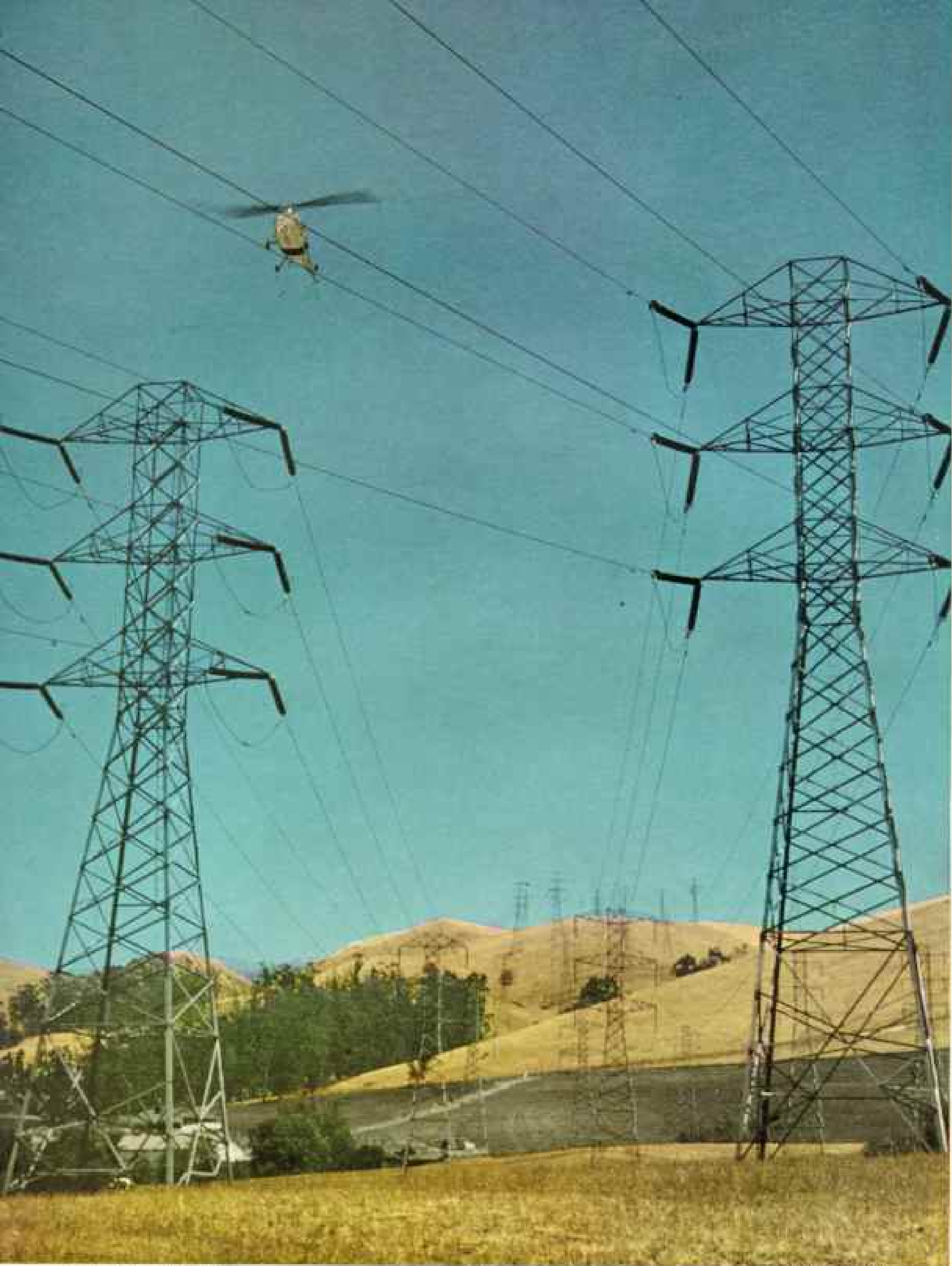
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Illustration by WILFRED B. CULFEE







### A Patrol Helicopter Is Used by Pacific Gas and Electric Company to Inspect Its Lines

California, counting farm use, is among our most highly electrified States. Such steel towers, carrying high-tension wires, march for hundreds of miles about the State. Besides big city and industrial use, current goes to 97 towns of over 10,000, and country people use the energy for many jobs from shearing sheep and pumping water to fighting frost with big propellers that keep air in motion.

all the way from California to New York—in an underground gas pipeline!

Far more than oil and gas, however, comes from these holes in the ground. Waste gases yield sulphur.

Oil yields floor finishes, animal dips, explosives, synthetic paints, and plastics. It yields "soapless soap," too, and waxes, printing inks, dyes, drugs, cold creams, candles, and wire and cable insulations.

From Standard Oil Company of California, the State's largest oil concern, you can still buy axle grease and the same old harness oil as used by famous stage drivers like Hank Monk of Hangtown.

History is loaded with eulogy about spade-work done here by Spaniards. But Sacramento, State capital since 1854, is Spanish in name only. It was built by and for *gringos*. Here was the State's first great trading post, Sutter's Fort, begun in 1840. Capt. John A. Sutter, a Swiss adventurer, got rich trading with Yankee fur trappers and covered wagon caravans.

#### Trade and Gold Boomed Sacramento

Right under Sutter's nose that event occurred which started modern California on its road to riches. He sent a hired hand, James W. Marshall, out to locate a good millsite, and Marshall found gold. That was January 24, 1848; the rush that followed startled the world, but ruined Sutter. Stampeded miners robbed his store of food, blankets, hardware, arms, and stripped his vast ranch of cattle, horses, hogs, and sheep.

Sutter died poor. But he lived long enough to see Sacramento turn into a wild, wide-open roaring camp, where it cost \$64 to shoe a horse, and eggs brought \$6 a dozen.

Excited miners stumbled into town with gold in salt sacks, yeast cans, or old socks. One, digging a grave to bury a dead "partner," found a \$22,000 nugget.

In 1864 Sacramento spaded up earth to start the western section of our first transcontinental railway, the Central Pacific, now part of the Southern Pacific lines. The gold spike driven at Promontory Point in Utah, when east and west sections met, is being exhibited in the Historical Caravan celebrating the State's Centennials.

Thousands of Centennial visitors swarm through Sacramento now to visit near-by Mother Lode's historic diggings (page 561). One is Coloma, with a bronze figure of Marshall pointing to where he found those nuggets. Another is Placerville, formerly Hangtown, so named when three men were hanged on one Main Street oak.

A marker identifies the old blacksmith shop where John M. Studebaker built wheelbarrows and wagons. Later, with money earned here, he helped found the automobile family's fortune.

Modern Sacramento enjoys tales of its past—when it can stop canning fruit, shipping livestock, or otherwise making money long enough to listen.

#### But This "Horn" Could Hold More Water!

How much more this State can grow depends on water. That bad drouth early in 1948 opened peoples' eyes to this grim fact.

From its own rains, snow, and wells California could enjoy vastly more water if it was better distributed in seasonal and geographic ways. All this has been told in earlier issues of the NATIONAL GEOGRAPHIC.\*

Most of us have read, too, about man's incomparable irrigation feats here (page 568), and such herculean jobs as turning the Colorado River's water and power into southern California; or that giant undertaking by which the San Francisco-Oakland area brings water by long cross-country aqueducts from the Sierra Nevada.

Redistribution projects, diversion of water from water-surplus to water-short areas within the State, such as the partially completed 440-mile system from the upper Sacramento River to the upper San Joaquin Valley, are among the most astounding feats in all hydraulic engineering history.

But how to get *more* water for all these invading millions, the growing towns, and the rise of hundreds of new factories? How to stop so much valuable water from rushing out through the Golden Gate in flood times and hold it on the land for use when and where needed?

Feasible plans of the U. S. Reclamation Bureau seem to hold partial answers. But to carry out such long-range plans will take years and two or more billion dollars. Even then, if the State continues to grow as population students estimate, it will still be short of water.

Audacious, fantastic are some proposals for bringing more water into the State.

One plan says bring water from the Columbia River, hundreds of miles to the north; another says bring it from the Mississippi!

"Our biggest natural waterhole," others say, "is the Pacific Ocean itself. Let's find a way to de-salt it."

I asked the California Institute of Technology at Pasadena about this. Its president,

\* See "More Water for California's Great Central Valley," by Frederick Simpich, NATIONAL GEOGRAPHIC MAGAZINE, November, 1946.



National Geographic Photographer Willard B. Carter

### California Makes Delivery; Argentina Accepts a Giant Douglas Passenger Plane

Southern California fruits and flowers are showered on Argentine Consulate officials as this DC-6, one of six on order, leaves the Douglas plant in Santa Monica. The pilot stands aboard, ready to take off for Buenos Aires. His line is the government-sponsored Flota Aerea Mercante Argentina.

Dr. L. A. DuBridge, says this is not now feasible.

"At the present time," he said, "there appears little possibility of converting sea water at a price anyone could afford.

"A study of the problem," he added, "shows that energy required to evaporate one ton of sea water is equal to energy required to lift a ton of water to a height of 147 miles.

#### De-salting Ocean Water Now Too Costly

"Present cost of Colorado River water delivered in California is \$15 an acre-foot. Power costs alone for converting sea water would at the lowest estimate run \$50 to \$100 per acre-foot; actual costs, with development of suitable techniques and building of plants, might run the cost to two or three times that much.

"About the only way out, in so far as power is concerned, would seem to be to find a cheap way of using solar heat. Nuclear power is far in the future, if at all possible."

Water? Yes, a sour note in the Horn of

Plenty. Yet from that Horn what a cornucopian avalanche still pours! Its warm sun still shines, and its rich, friendly soil still yields 100, even 1,000 fold (pages 562, 566, 581, and 591). It has to, for men to ship out 70,000,000 crates of citrus fruit in one season!

And that mightiest westward tide of migration our land ever saw is still flowing. So many have gone from Iowa, settling around Long Beach, that men nickname that place "Iowa Seaport."

Into Los Angeles area alone new settlers come at the rate of 10,000 a month. Since the All-Year Club of Southern California began to keep records, says Director Don Thomas, about 30,000,000 tourists have come to look—and some to stay. They like what they see in the Horn of Plenty.\*

\* See also in the NATIONAL GEOGRAPHIC MAGAZINE: "Southern California at Work," November, 1934, and "Northern California at Work," March, 1936, both by Frederick Simpich; and "California's Coastal Redwood Realm," by J. R. Hildebrand, February, 1939.

## Airlift to Berlin



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Vernon Jarrett from Black Star

### Another Ten Tons to Berlin: Each Airlift Plane Means Fuller Stomachs, Warmer Homes

**N**EAR Tempelhof Airport, young and old Germans crowd a rooftop to watch a United States Air Force C-54 roar in with vital supplies for 2,100,000 people of the blockaded Western zones.

Every three minutes around the clock, in fair weather and foul, an Operation Vittles transport lands to disgorge food, fuel, clothing, medicine, building materials. Within 17 minutes it is empty and ready for another flight.

Schedules are timed as precisely as a railroad's. If an arriving plane "aborts," or fails to land on one "pass" at the runway, it must return to base, refuel, and wait its turn for another attempt.

Besides Tempelhof, in Berlin's American sector,

airlift planes land at Gatow in the British area and at French-controlled Tegel. Leading to the three fields are 20-mile-wide air corridors from USAF bases at Wiesbaden and Frankfurt and from RAF fields in the British Zone (see map, page 599).

After unloading, all flights return by a one-way central corridor. Pilots are instructed to "stay in the corridors. Period."

Operation Vittles started on June 26, 1948, five days after Russia cut off rail, highway, and barge shipments into shattered, hungry Berlin. By late February, 1949, the USAF and RAF were delivering nearly 8,000 tons some days—the equivalent of about 530 German rail carloads.



Four Jacobs from Black Star

### No Wonder They're Happy! In Airlift Planes Needy German Children Fly from Berlin's Winter Hardships

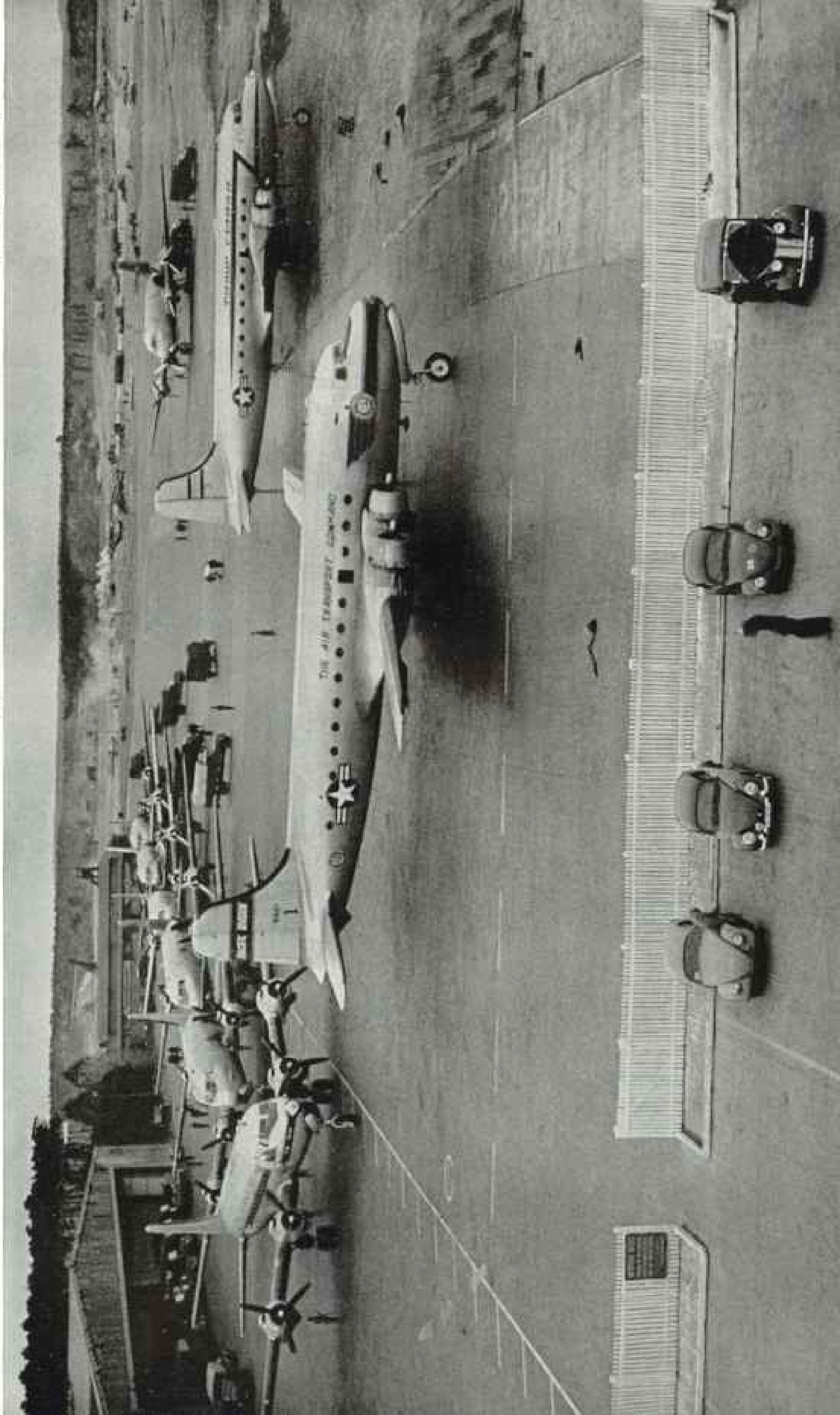
In holiday mood these youngsters wait to board RAF Dakotas at Gatow Airport. Awaiting them are homes with German families in the Western zone. British forces have evacuated more than 10,000 children, elderly Germans, and displaced persons selected by the Berlin City Health Department.

Lined Up Nose to Tail, Like Elephants, Airlift's Fat-bellied Freighters Crowd the Ramp at Gatow

USAF and RAF use this Berlin field. One C-54 (foreground) flew from the Pacific, others from Alaska and the Caribbean, to join Operation Vittles.

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Photo: Zappala from Black & White



## Willing German Hands Toss Bags of Ruhr Coal into a Berlin-bound C-54

These stevedores at Fassberg, RAF base in the British Zone, decorate a truck with branches and a sign proclaiming the 100th load they have placed aboard Sky-masters.

Coal, to heat homes and keep Berlin's utilities running, makes up about 40 percent of the supplies hauled by the Combined Airlift Task Force.

Like Operation Vittles's "fly boys," ground crews and traffic experts, freight handlers are on the job around the clock at bases in the British and U. S. Zones and at the three Berlin airports. Sometimes a 10-ton cargo is shifted from C-54 to trucks in 10 minutes.

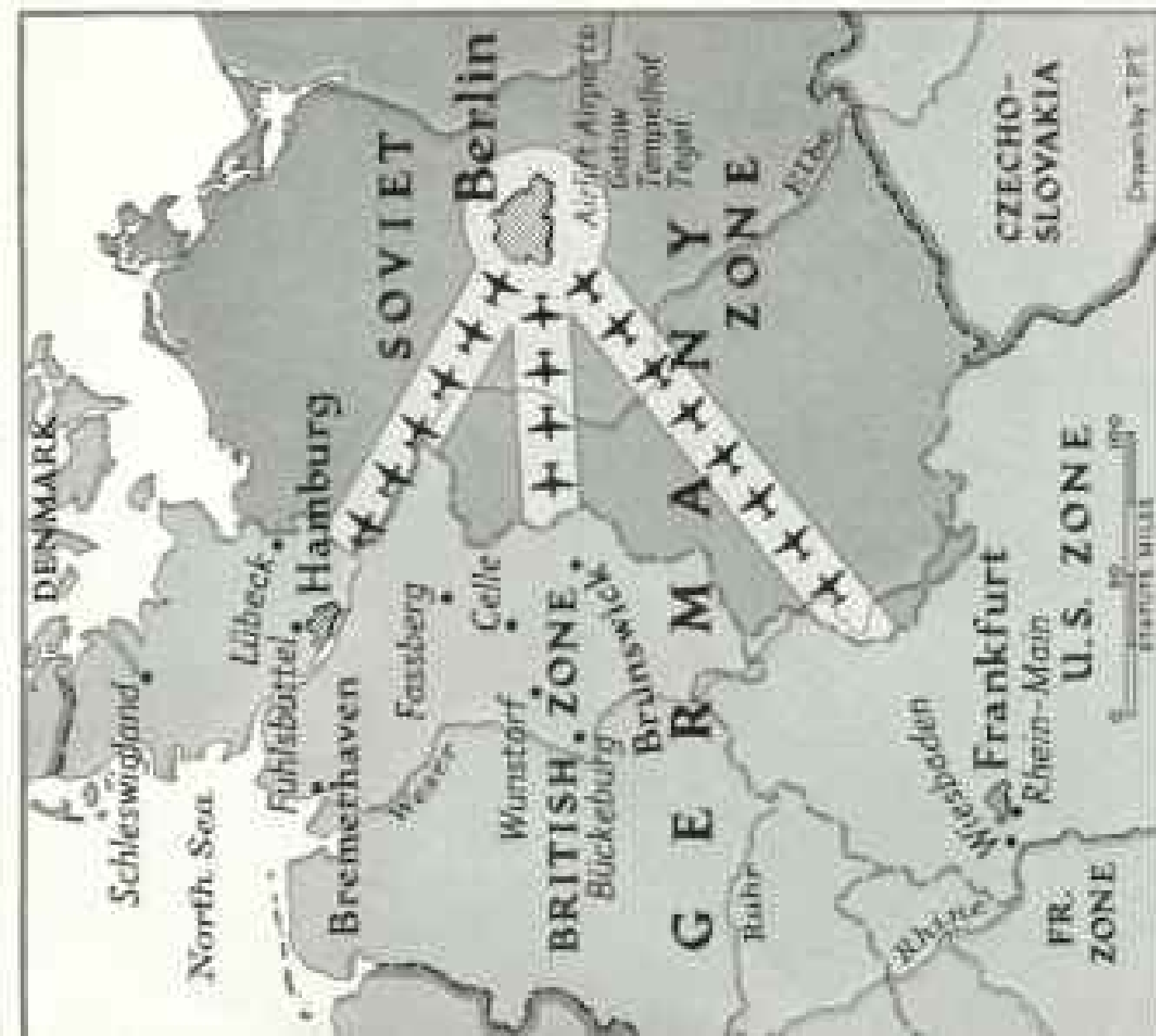
To keep airlift planes flying, the United States Navy sealfit, a parade of tankers shuttling between American ports and Bremerhaven, hauls 12,000,000 gallons of high-octane gasoline a month. From the North Sea port fuel moves to airbases by rail, highway, and barge.

Much heavy equipment, such as new engines to replace those worn out in the airlift's relentless grind, is flown to Germany aboard giant C-74 Globemasters capable of lifting 25 tons (opposite page).

Navy crews, flying C-54s taken off transport routes in all parts of the world, also have joined Operation Vittles.

C. B. Air Force, mounted





Airlift's traffic pattern funnels planes from widely separated USAF and RAF bases into two 20-mile-wide corridors leading to Berlin. Returning planes keep to the one-way central corridor, turning north or south after leaving the Soviet Zone near Brunswick. A large percentage of air freight is Ruhr coal. At Bremerhaven, Navy tankers unload gaso-line for the airlift.

**Like a Barn with Wings, a Giant C-74 Hauls 23 Tons of Flour**

Six Globemaster flights carried 120 tons of supplies from Frankfurt to Berlin. Says Maj. Gen. William H. Tunner, Operation Vittles's commander: "A task force made up of only 68 C-74s could haul the 4,500 tons needed in Berlin daily."

Key-stone





U. S. Air Force, Official

### "Like a Hot Dog?" Rolling Snack Bar Serves Airmen

As soon as an Operation Vittles plane parks for unloading at Berlin, a tiny wheeled restaurant speeds to the ramp with refreshments for the crew.

Seventeen minutes later, after a sandwich, a cup of coffee, and a smoke, the plane is bound back to base for another load.

Many airlift crews first saw Berlin through a screen of flak when it was a target for bombs rather than coal and flour. Far from the devil-may-care fly boys of the "wild blue yonder" days, they now regard themselves as unglamorous "airplane drivers" or "us peasants."

Their original name for Operation Vittles was the "LeMay Coal and Food Company," in honor of the airlift's organizer, Lt. Gen. Curtis E. LeMay.

At Great Falls, Montana, Air Force trains 100 new airlift crews a month.

U. S. Air Force, Official

### "Give Me a Piece of Sky," Says the Leader of a C-54 "Block"

Not one but 47 Skymasters are the responsibility of Capt. Louis W. Baker (center). As block leader, he obtains a blanket clearance at Frankfurt for his midnight procession of coal-laden transports.

Under the airlift's block system, USAF and RAF bases take turns dispatching aircraft into the two corridors leading to Berlin.

To prevent air-traffic jams en route and over the city, C-54 cruising speeds are coordinated with those of the other planes used by the RAF. Careful staggering of altitudes guards further against collision.

At Berlin's three airdromes, GCA (ground-controlled approach) in sunshine or pea-soup fog pulls planes down like kites on a string. Airlift's safety record is so high that the Civil Aeronautics Board has urged U. S. airlines to study its procedure.





### Roaring into Tempelhof, Airlift Pilots Look Down upon Roofless Fire-blackened Ruins

Ninety minutes by air from Frankfurt, Tempelhof is one of three fields where trucks meet incoming planes and speed their life-giving cargoes to 2,100,000 Berliners threatened by cold and famine.

In hundreds of USAF and RAF attacks on Berlin during World War II, many bombs aimed at Tempelhof missed their mark and smashed buildings surrounding the airdrome. Between the shattered structures are dark patches of ground where rubble has been cleared to make way for vegetable gardens.

Major landing hazard is a 7-story apartment building (not shown in picture) which looms up just as pilots let down to hit the runway (upper right). Another obstacle is a 400-foot brewery smokestack which remains standing despite Allied raids and the earlier efforts of Marshal Hermann

Goering to remove it when Tempelhof was a Luftwaffe base.

Tempelhof's administration building (center) contains 5,000 offices. Connecting with it and forming an arc at one end of the field are dozens of waiting rooms, shops, and hangars where C-54s and larger planes can park under cover.

When the airlift started, engineers warned that Tempelhof's single runway would not last more than 60 days under the pounding of heavily loaded planes. Bulldozers, graders, and other heavy machinery were shipped to Frankfurt and cut up with oxyacetylene torches. Then the pieces were flown to Tempelhof and welded into the machines that built two more runways and began a new airfield at Tegel, in Berlin's French sector.



### Jobs Are Scarce in Berlin. This Couple Halts Its Hunt to Eat Lunch by the Roadside

Near the Brandenburg Gate they rest on their small wagon and open briefcase and vacuum bottle for a frugal snack. Occasional hauling jobs earn them tiny sums.

For the man, aged and ill from years in a concentration camp, there is little hope of steady employment.

Many Berlin industries closed when Russia's blockade cut off their supplies. Serious unemployment even among the able-bodied resulted.

Most jobless get unemployment compensation; special cases are helped by welfare agencies. Relief payments are in money rather than goods or

food; Operation Vittles stocks markets with basic requirements.

Berlin's food situation improved so greatly in January, the first all-winter month of airlift operations, that "eats" were reduced to make more room for fuel, clothing, and building materials.

Though blockade problems are thorny, Military Government authorities feel that Russia's blockade is doomed to failure.

As one of the most heartening signs of the people's spirit, officials point to the city election of December 5, 1948, when Berlin voted overwhelmingly for Western policies.



♣ **Vegetables Are Scarce; Buyers Abound**

Seldom does Operation Vittles deliver fresh produce like this meager offering in a Berlin market. Planes carry foods, mostly precooked or dehydrated, which provide the most calories and take up the least space. Occasionally, householders eke out their rationed supplies with greens raised on plots cleared of war's rubble.

♣ **Onions! Cheese! But the Prices . . . !**

Such wares can only be admired by most Berliners, like these boys gazing into a delicatessen window. Though acres of former parks have been converted into vegetable gardens, their output is far below the demand. Even this paltry supply is cut off during the winter months, for Berlin lacks storage facilities.





### Long Search Sometimes Uncovers Needed Goods, but Few Can Afford Blockade Prices

In an open-air shop in Halensee, residential suburb in Berlin's British Zone, householders carefully examine a display of hard-to-get hardware.

Articles marked "Made in Germany" are on the move to the world's markets again, but seldom do they reach Berlin. Buyers for New York department stores order toys, leather handbags, glassware, gloves, clocks, and tools. There are bicycle lamps for Singapore, machetes for Cuba, special saws for the Orient, and textiles for France. But Berlin does without, because of the Russian blockade.

Though its effect in Berlin is limited, Military Government's new currency has rejuvenated the

economy of Western Germany. The new mark, worth 30 United States cents, is for use only in Germany. No German is allowed to possess any foreign money. Since German exporters cannot collect personally for their goods, this is done for them by the Joint Export-Import Agency.

Until "reform" currency appeared in June, 1948, merchants hoarded goods and farmers bartered on the black market rather than sell for the old Reichsmarks, worth so little that a workman's monthly wage would not buy a carton of American cigarettes.

But when the new money came, long-hidden goods appeared as if by magic.



### Beside a Bullet-scarred Column, They Dream of the Old Berlin and Wonder About the New

Life in Germany's capital offers little to elderly women like these sunning themselves on the Charlottenburger Chaussee (boulevard), near the Brandenburg Gate.

Around them are stark, shattered buildings, symbols of Germany's defeat, and their future lies in the hands of four victorious powers.

Overhead roars a steady procession of airlift planes hauling in vital supplies.

On fair days before the war, the women could have strolled in the Tiergarten, visited the zoo, toured art galleries and public buildings, or relaxed in sidewalk cafes along the Kurfürsten-Damm.

Today, much of the Tiergarten is given over to vegetable gardens, with only a few stone figures reminding of past splendor. Thousands of the park's trees have been cut down for firewood.

The zoo, once among the world's finest, houses but a few animals; the rest were destroyed to prevent their escape during Allied air attacks.

Museums and public buildings, including the Reichstag (page 614) and the Chancellery where Adolf Hitler ended his dream of world conquest, are in ruins.

Sidewalk cafes open occasionally, but offer meager food and drink at exorbitant prices.



### Bomb-torn Brick and Twisted Steel Frame a Drab Panorama of South Berlin's Desolation

From the ruined Karstadt, once the city's largest department store, the camera looks down into the Hermann-Platz, formerly the hub of a busy shopping section.

In the old days the Karstadt was crowned by two tall towers and a roof-garden cafe, where shoppers relaxed and enjoyed the view. The building was six stories high and covered half a city block. Today, only two floors in a small central part are open.

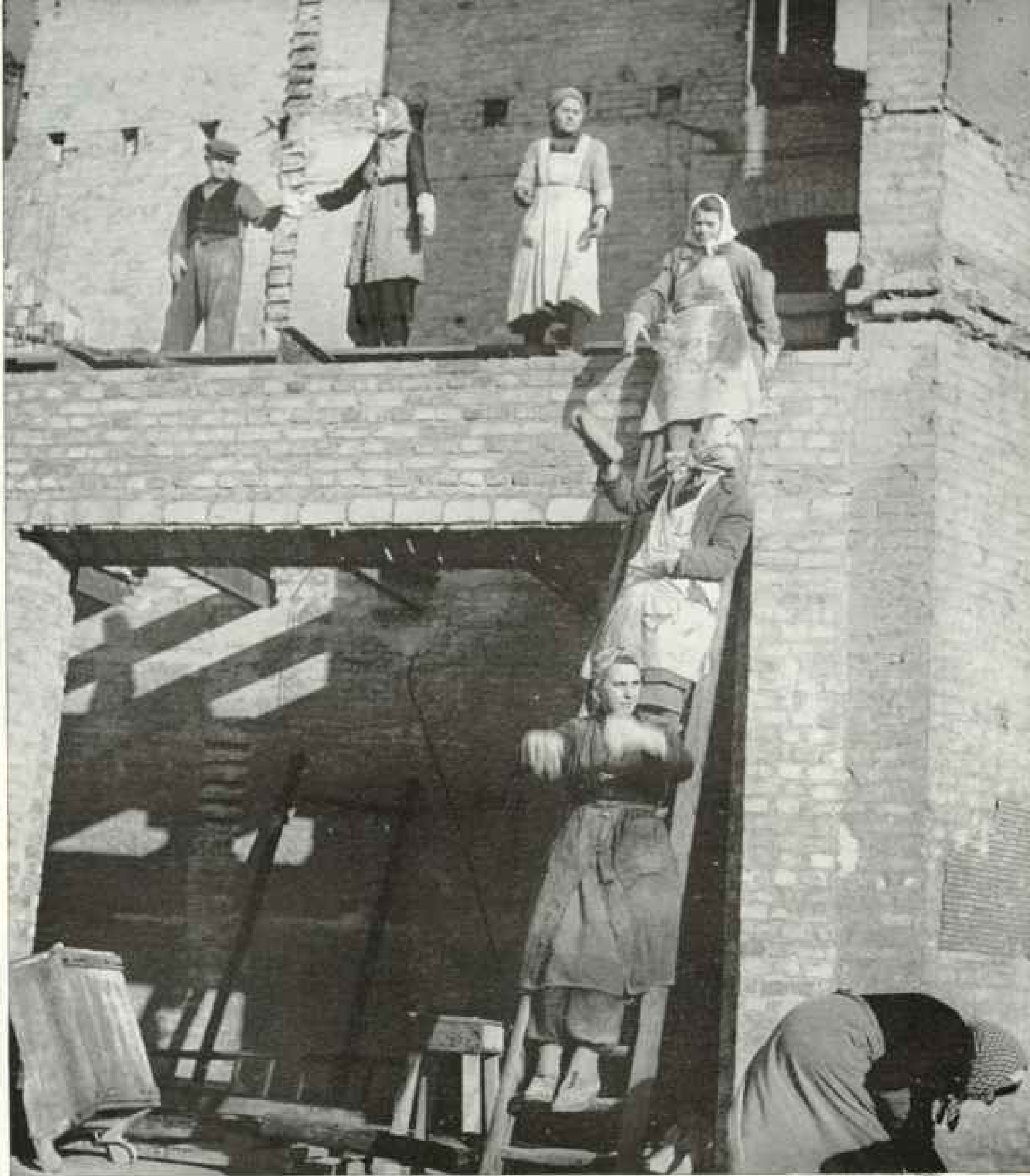
Despite their daily hardships amid the shells of once-proud buildings, Berliners have shown a tough spirit that has gratified Allied authorities.

By leaving the American, British, or French sec-

tors and crossing into the Soviet Zone, Germans may register for larger food and fuel rations than can be supplied by airlift. Few have taken this step.

Occupation authorities view last December's election result as proof of Berlin's desire for democracy. A few days before the plebiscite, Russians banned election preparations in their sector and proclaimed a new *magistrat* and assembly with authority over all Berlin. The Russians also promised more food and fuel.

By an overwhelming vote, Berliners rejected the Communist bid and supported their own parties.



### Bricks, Salvaged from Ruins, Pass from Hand to Hand to Rebuild a Bombed-out Shop

Joining in this project on the Kurfürsten-Damm, formerly Berlin's Fifth Avenue, are the shop owner, his wife, and their daughters.

Until June, 1948, reconstruction had made rapid progress, but the blockade halted the flow of materials into Berlin. The airlift, facing a gigantic task in feeding and heating the city, has no space for bricks, lumber, and bulky equipment.

With such work at a virtual standstill, the occasional bits of bright newness make a strange contrast amid the square miles of desolation.

Many Berliners who would otherwise be idle are employed on demolition projects. Salvaged mate-

rials go into repairs and new homes and industries.

One of the largest work-relief projects was the Tegel airstrip, in the French sector, which was rushed to completion in November to provide a third Berlin terminal for Operation Vittles's planes. Much of it was built with rubble.

In the Soviet Zone demolition crews recently dynamited the wreckage of the lavish Chancellery which was Hitler's pride.

Crashing with it went the small balcony where the Führer sometimes made personal appearances and reviewed the mechanized armies of his "1,000-year Reich."





♣ **To Eke Out Meager Fuel Rations, Berliners Hunt Firewood in the Grune Wald**

Shouldering full sacks and with more on their wagon, this couple trudges home from a day of foraging in the 7,000-acre forest bordering the River Havel on the southwestern edge of Berlin. Though a large percentage of airlift tonnage is in coal, allotments to individual families barely meet minimum needs.

♣ **"Your Permit, Please." Police Keep a Close Watch on Autoists**

Halted on the Kurfürsten-Damm and asked to show her papers, this girl greets officers with a confident smile. Because of the gasoline scarcity, Berliners are allowed to use cars only on essential errands. Spot checks are frequent. When illegal drivers are caught, their cars are searched for black market goods.





### Always Room for Another Dozen! Sardines Might Enjoy Streetcar Travel in Berlin

On the Schloss-Strasse a trolley halts to unload a few passengers and take on twice as many more. Wooden panels replace the car's window glass, destroyed by bombs.

Berlin's transportation system suffered heavy war damage. Even though repair work was rushed, it was far short of adequate when the blockade began. Since then there has been virtually no improve-

ment. Power failures frequently halt all lines.

To get to or from work, Berliners sometimes wait hours. When a car stops, there is a confused struggle, with those trying to get aboard bucking a tide of others seeking to get off.

When the car moves on, it bears dozens of passengers who jam the interior, cling to steps, hang from windows, and even perch on the roof.



### To Help Berlin's Needy, Americans Send Thousands of CARE Packages by Air Freight

From a program originally designed for Americans eager to aid relatives and friends in Europe after the war, CARE (Cooperative for American Remittances to Europe, Inc.) has grown into a huge general relief agency.

Here a Seaboard & Western Airlines Skymaster unloads some of the 20,000 food parcels that reach Berlin every month. Since Russia blockaded the city, all such shipments have been flown in. Commercial airlines handle this task independently of Operation Vittles.

CARE's standard food packages contain 22½ pounds of supplies, including tinned meats, bacon, margarine, lard, preserves, dried eggs, powdered milk, coffee, rice, flour, chocolate, and soap. Other

types of packages contain baby food, layettes, blankets, shoe-repairing equipment, woolen suiting, knitting wool, and household linen.

Most packages to European countries cost donors \$10, but for gifts to Berlin \$2.50 has been added to cover air-freight charges.

CARE, operated without profit by 26 American welfare agencies, buys supplies in bulk, packs them in Philadelphia and New York, and ships them to 600 European warehouses for distribution.

The organization guarantees delivery of parcels to anyone designated by the donor. Some recipients are named; others are described merely as "a blue-eyed orphan boy," "a needy paralytic," or "the children's ward of a hospital."



▲ **If Someone Cares—CARE Does the Rest**

Despite Russia's blockade, gift parcels pour into Berlin in a steady stream. Here Germans queue up in a warehouse to claim packages of food and clothing sent by Americans. A standard food package, planned with the aid of health experts, provides 42,649 calories.

▼ **"All Right, Lady, Change the Light!"**

Near the Brandenburg Gate, two lucky Berliners, trudging home with precious CARE packages, wait for the policewoman (left) to turn the hand crank and give them a "Go" signal. Many German women fill such jobs; men are saved for heavier work.





From Jacobs from Black Star

### Her Favorite Airlift Pilot Is the One Who Drops Candy Bars

Smiles like hers bloomed on thousands of young Berlin faces as a result of "Operation Little Vittles," a project invented by Lt. Gail S. Halvorsen, the "Chocolate Flyer."

Shortly after he reported for duty as an airlift pilot, Halvorsen was besieged near Tempelhof by ragged urchins pleading for candy. Dismayed at having only a small supply, he told the youngsters he would drop some from his C-54 the next time he came over.

The children didn't forget; neither did Halvorsen. As his plane approached the Tempelhof runway, he saw the urchins waiting below. Down went Halvorsen's candy ration in handkerchief parachutes.

Thereafter, the "chocolate drop" became a daily ritual. Other airlift crews joined in, and at the Wiesbaden Air Force base a GI hobby club spent one night a week making tiny parachutes.

By January, when Halvorsen returned to the United States on leave, more than 250,000 midget parachutes had been dropped, each bearing from two to four candy bars. American confectioners and private citizens sent tons of gifts to be dropped.

From Jacobs from Black Star

### With These Berlin Youngsters, It's "Hi, Yank!" Instead of "Heil Hitler!"

Their clothes look warm and durable, but shoes are leaky affairs of worn-out imitation leather. Most important for the moment, however, are a candy bar and a rag doll.

Millions of such children represent the material from which the Allies hope to build a democratic, self-supporting nation.

The program of GYA (German Youth Activities) aims to teach trades to boys and girls, change their thinking habits, and set them new goals in life.

Said General Omar N. Bradley, Army Chief of Staff: "Hitler might never have gained power, and World War II might never have been fought, if German boys had been brought up in our more free, democratic way, instead of being regimented and trained as a mass of embryo soldiers."





### "The Schmoos Are Coming!" Hopeful Berlin Youngsters Wait for a Shower of Gifts

Operation Vittles always draws a big audience, but on a bright Sunday last fall it seemed that all Berlin was perched in trees and ruins around Tempelhof.

The reason: between 1 and 3 o'clock, it was announced, candy bars attached to tiny parachutes would be dropped. Around some of the candy bars would be wrapped balloon replicas of the schmoos, the little animal familiar to readers of the *L'il Abner* comic strip.

For every schmoos turned into its Berlin office, CARE offered a 10-pound package of lard, one of postwar Germany's scarcest food items.

Children began taking their posts at dawn. By noon the crowd had grown to thousands. Whole families watched anxiously as each plane roared overhead, hoping that lucky chance would find them in the right place for snaring a gift.

At 3 o'clock the parachutes floated down from a C-54—and the scramble was on. Next day, CARE announced that 85 packages of lard had been handed out in exchange for schmoos.

CARE's stunt made a huge hit with the Berlin populace, although one Soviet-licensed newspaper told its readers that sandbags, rather than candy bars, were dropped.



### Past the Reichstag's Charred Skeleton Stride Russians on a Peaceful Invasion of Britain's Sector

Though they belong rightfully in the Soviet area, these sight-seeing soldiers are unmolested as they pass Germany's former Parliament on their way to visit the Russian war memorial, also in the British sector.

The memorial, an imposing statue honoring the Red Army's entry into Berlin in 1945, stands next to the Reichstag and is guarded constantly by a solitary Soviet soldier.

Fire gutted the Reichstag on February 27, 1933, less than a month after Adolf Hitler became Germany's Chancellor. Hitler's Nazis blamed the fire on a Communist plot, and the ensuing trial was one

of a long series of dramatic events leading to absolute power for Hitler and eventual disaster for his country.

The Reichstag's fire damage was never fully repaired and its walls bear scars from the battle for Berlin. Tank battles were fought almost at its very doors as the Germans struggled desperately to hold their capital.

On September 9, 1948, 250,000 men and women of the Western sectors massed before the Reichstag to protest Soviet tactics in Berlin. Although there was some rioting, the demonstrators did not disturb the Russian war memorial.

# Goggle Fishing in California Waters

By DAVID HELLYER

*With Illustrations from Photographs by Lamar Boren*

AS I slipped from the reef into deep, clear water off La Jolla for my first goggle-fishing adventure, my diving companion shouted a friendly warning.

"Prepare for a shock," he cautioned, swimming alongside. "Your first look at the ocean's innards will give you a jolt!"

My nose was tightly encased in the rubber housing of an unfamiliar face plate. I tried to inhale before submerging. This created a strong suction which pressed the mask against my cheekbones, but gave me no air at all.

"Breathe through your mouth," my colleague advised.

Swimming breast stroke, I gingerly submerged my head until the cool water lapped my ears. Instinctively, I kept my eyes shut. Half dreading what came next, I opened my eyes and—wonder of wonders! My goggle-fishing friend was right—my first impulse was to paddle for shore as fast as possible!

## A Submarine Wonderland

Even Alice, fresh from Wonderland, would have gasped at the landscape spread below me. Long, brown tentacles of kelp, waving weirdly in submarine currents, appeared to clutch at me. Eelgrass danced on the ocean's floor; every grain of crystal sand, each little animal and fish stood forth boldly like images in a stereoscope. First I was amazed, then enchanted; the spell never has been broken.

Color abounds along these reefs. Incredibly orange garibaldi, the goldfish of the sea, dart from rocky holes on the bottom. This inquisitive denizen frequently will swim to within arm's length of a goggler, his comical face gaping into the diver's face plate. Perhaps the goggler appears as ridiculous to the garibaldi as vice versa!

Acres of sea urchins carpet rocks and reefs, their purple and red spines at stiff attention like hatpins in grandma's pincushion. Sand dollars dot the ocean floor, partially buried and standing vertically like wheels from some abandoned prairie schooner.

Countless sea anemones blanket the reef walls like beds of chrysanthemums, their fingerlike tentacles waving a fatal invitation to small marine animals on which they feed. Spider crabs dart in and out of dark crevices, and pink and white starfish cling to rocks like decorations on a Christmas tree.

Occasionally a diver discovers a group of

strange, cone-shaped objects, like leather corkscrews four inches long, lying on the bottom. These are eggs of the ugly bullhead shark.

Tide pools teem with interesting specimens. Sculpins, "little old men of the sea," lie at rest on the bottom.

Tide-pool blennies swim jerkily from rock to rock, looking for a fight, for this pugnacious, eellike little fish always has a chip on his scaly shoulder. Sea hares, fantastic, sluggish specimens which look like animated puddings, slither over the rocks. An occasional long-jawed goby swims by. This mudsuckerlike fish will live out of water for a day or longer, if kept covered with damp seaweed. Fishermen covet them for bait.

## Anchovies Flash Like Mercury

We were swimming in a narrow channel, walled in by reefs, in water perhaps 15 feet deep. A school of anchovies flashed by, their scales sparkling in the morning sun. In tight formation, they cut through the blue water like an errant river of mercury. Suddenly their ranks were shattered by a lightning-quick flash of white.

"Halibut feeding," my friend called, as he took a deep breath to dive. Down, down he swam, almost to the bottom of our private pool. Over a sandy patch in the weeds he poised his spear, then lunged the five-tined weapon into the sand.

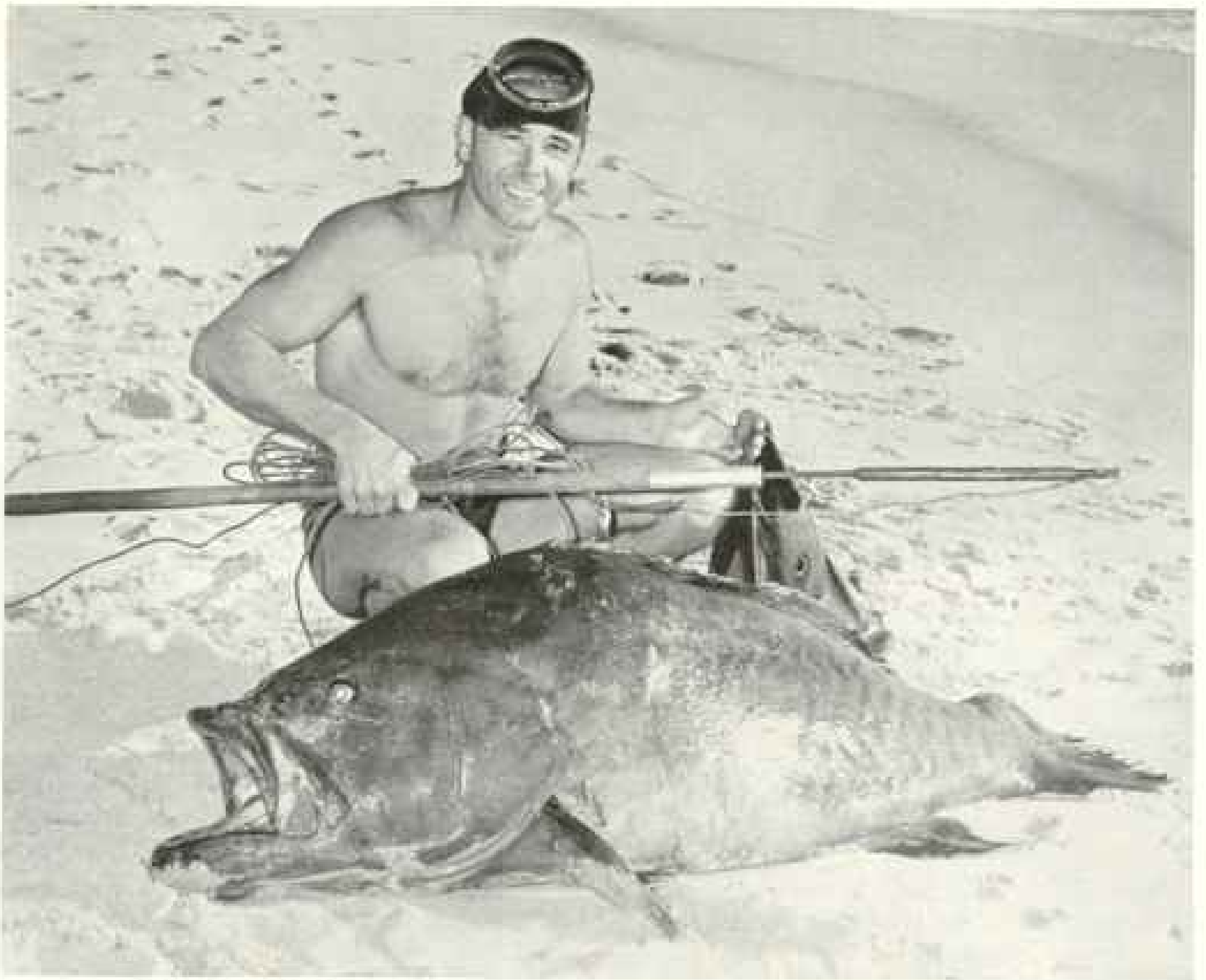
A cloud of roiled water muddied his spearhead, and when the sand settled I saw that he had transixed a beautiful California halibut, much prized by anglers and goggles alike as table fare.

This species, a member of the flounder family, is frequently taken by divers. One recently speared at La Jolla weighed 30 pounds, though commercial fishermen have taken specimens weighing up to 60 pounds. Pacific halibut may weigh 500 pounds!

My only equipment for this underwater adventure was a face plate and a pair of swimming trunks. But my experienced companion wore swim fins—black rubber "feet" somewhat suggestive of a duck's (page 625).

"Fins allow us to utilize the tremendous driving power in our legs," he explained. "The human foot is very inefficient in water because its area is so small in proportion to the muscle power of the leg. Wearing fins, a good 'skin diver' can travel 70 to 100 feet





**If Fish Could Talk, They'd Say, "Give Jack Prodanovich a Wide Berth!"**

Off La Jolla, this king-sized black sea bass, or jewfish, was "knocked out" by a thrust of the goggler's spear. Prodanovich then mounted his stunned prize and paddled it ashore. Beached, the fish revived and struggled furiously until subdued. Its captor's spear has a detachable point with a long line for playing fish.

under water in half a minute! And even a dub wearing them can outdistance an Olympic champion."

These men who "live with fish" form a fast-growing group. Ten years ago the sport was virtually unknown, save to a few hardy individuals who made their own crude goggles and broomstick spears and explored the surf alone. By 1949 over 8,000 enthusiasts had joined the ranks in southern California alone, with other groups forming on Gulf and Atlantic coasts and in inland waters.

One manufacturer has shipped goggles throughout the world, and during the war sent them to RAF pilots in Egypt, to Pan American Airways employees in the Pacific islands, and to goggle enthusiasts in the East Indies. I saw members of our armed forces using California-made goggles on Waikiki Beach, Honolulu, and on Johnston, Kwajalein, Eniwetok, and Manus islands in the Pacific.

Most experienced goggles have their own

favorite fishing holes, secret spots in reef or surf where granddaddy lobsters lie, or where abalone or fish are especially large and abundant. A good skin diver can keep his family well fed on his submarine efforts. During depression times one goggler supported his family for two years in this fashion.

**The Bottom Scratchers Club**

Seasoned divers are the eight men comprising San Diego's unique Bottom Scratchers Club. Each is a veteran of several years' underwater fishing; each has passed rigorous tests. So difficult are these trials that only nine men have qualified for membership in the 15-year history of the group!

As a starter, you must swim alone through the heavy surf, navigating your way over a treacherous reef covered with razor-sharp coral and white with foaming combers.

Later you must dive in 30 feet of water, bringing up three abalone in one dive. If your



Penny Hillyer

**"I'd Be Just as Happy," She Says, "If You Had Left That One in the Ocean"**

Yvonne Hellyer holds a starfish in one hand and with her other gingerly pokes an octopus brought in by a spear fisherman. Despite their reputation, the eight-armed cephalopods are not feared by California gogglers. Dangerous, however, are sting rays, with barbed tails, and moray eels that bite like marine bulldogs (page 623).

wind holds out, you then go down 20 feet for a spiny lobster—and they have been known to measure three feet in length!

Surely your prowess has been proved by now? Wrong. A final test challenges. You must seek bottom at 20 feet and bring up two sharks, one at a time! That test doesn't sound too formidable until you learn that said sharks are to be captured by the tail, *barehanded!*

At least two women divers have done it. Admittedly, the captives were harmless pointed-nosed guitarfish, frequently called shovel-nose sharks. They attain a length of four feet (page 621).

"I once grabbed one of these four-footers by the tail," said Jack Prodanovich, veteran goggler. "He was lying in eelgrass when I cinched onto him. He gave me a swell ride, jerking me through the weeds for about 10 feet before shaking me off!"

This same diver recently made goggling

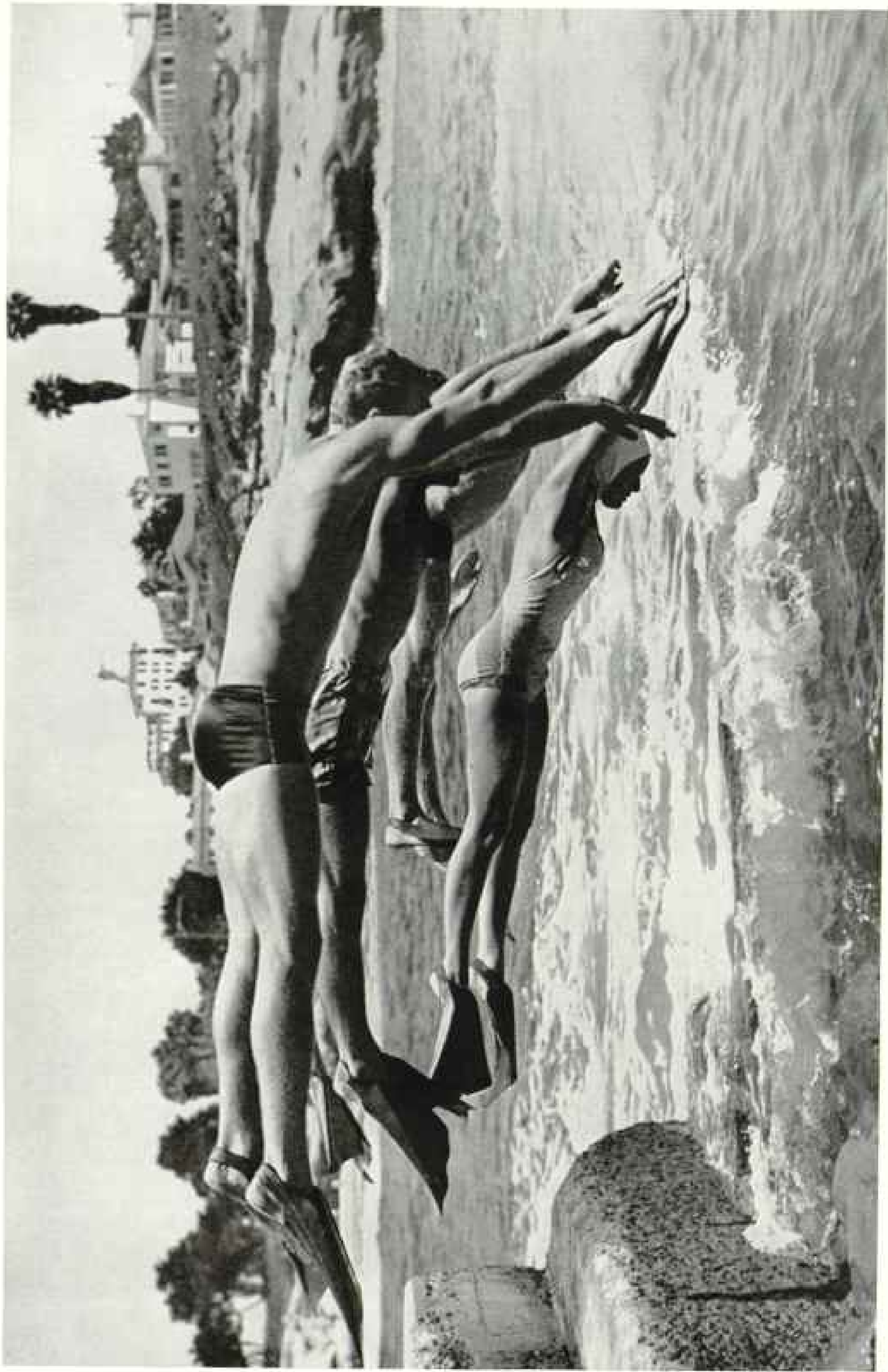
history by spearing and landing single-handed what is credited with being the largest fish ever taken by a goggler.

**A 500-pounder Lurks in Depths**

"About four years ago, Wally Potts and I took our wives out fishing near the La Jolla caves," Jack related. "We were swimming 'battle formation,' about 50 feet apart, and I held the inside position nearest the cliffs. From experience, I knew we would swim over a channel where we usually found good fish.

"Suddenly I spotted a reef I knew didn't exist. The 'reef' moved, and I backed water and yelled for Wally. Together we peeked into the depths and spotted a monster—a black sea bass, or jewfish, that must have weighed 500 pounds!"

The boys held counsel of war. Armed only with five-pronged spears on short shafts, they must have felt like Don Quixote in his classic encounter with the windmills. Undaunted,



**With Swim Fins to Boost Speed, a Quintet Takes Off in a Racing Start from a La Jolla Breakwater**

Lovers of other water sports besides juggle fishing find fun at San Diego's seaside suburb. Homes, hotels, and apartment houses (background) overlook the Pacific. La Jolla is famed as the seat of the Scripps Institution of Oceanography.

Ernest Kirtland



**Three Fish Make Two Handfuls. Powerful Thrusts of Rubber-finned Feet Drive a Goggler Shoreward with His Catch**

In his left hand the swimmer holds a halibut and a bass; in his right, another halibut, with spear attached to his wrist by a strap of inner-tube rubber. Some goggles are fish to their belts.



### Barehanded, He Makes a Seagoing Toughie Say "Uncle!"

Spotted under a reef, this bullhead shark was pulled out by its fin and tail. Captors must beware of the fish's powerful teeth, designed for cracking mollusks, crabs, and other hard-shelled prey.

they decided to take a stab at the jewfish.

"Wally was to hit him on the right side, while I smacked him on the left," Jack told me. "We took deep breaths and dove. We had to swim farther than we anticipated, and Wally ran out of air, leaving me alone with this deep-sea citizen. I speared him just back of the head. Three prongs penetrated, and I saw them bend over at right angles.

"Mr. Jewish suddenly remembered an appointment in deeper water and tore out of that channel like a PT boat, his tail whipping up a froth of sand and kelp en route. Our wives reported that the spear shaft went past them like a sub's periscope, bound for Japan. We didn't see big boy any more that year."

All winter the boys discussed strategy for

their spring and summer hunting. They designed stronger spears for their return bout with this Dempsey of the deep.

"One morning we were exploring underwater caves near the cliffs," Jack recounted, "when we met 'junior,' just a little fellow—maybe a hundred-pounder. Through a hole in a reef we peered right into his underwater nursery. All I could see was one of his big eyes—it looked like a flashlight! Just a little fellow!"

### Two Years of Effort

They experimented with the idea of spearing him through the window in the rock. That didn't work—the spear just bounced off his armorlike scales.

For two years they experimented and failed in attempts to capture one of the giant fish. Finally they built a slip-point spear, powered with a high-tension spring, and prepared for the showdown.

In September, 1945, Prodanovich was cruising the waters off La Jolla on his paddle-

board; by his side lay his new spear, not yet tried in battle. Searching the depths, he suddenly caught his breath as a monster swam into view below him.

With his spear cocked for action, he dove. Within range, he struck, his spear entering the fish squarely between the ribs, completely penetrating its body. The goggler quickly surfaced, and mounted his paddleboard as the fishline from board to spearhead whipped the water to froth.

"He towed my heavy paddleboard as though it was a piece of driftwood," Jack related. "Sometimes both board and I were completely submerged. Finally the fish wore itself out, and I started the long tow to the beach. But every time I thought the sailing was smooth,

he'd take off for Honolulu again!"

Finally the huge fish was beached. It weighed in at 207 pounds. The catch caused excitement among local marine biologists, who identified it as the first broom-tailed grouper known to have been taken in California waters.

Since then, Prodanovich has speared and landed seven of these monsters, though none outweighed his first.

His last catch provided a dramatic reverse twist to the old "big one that got away" story. Off La Jolla he spotted a deep-sea behemoth lolling under a weed-covered shelf.

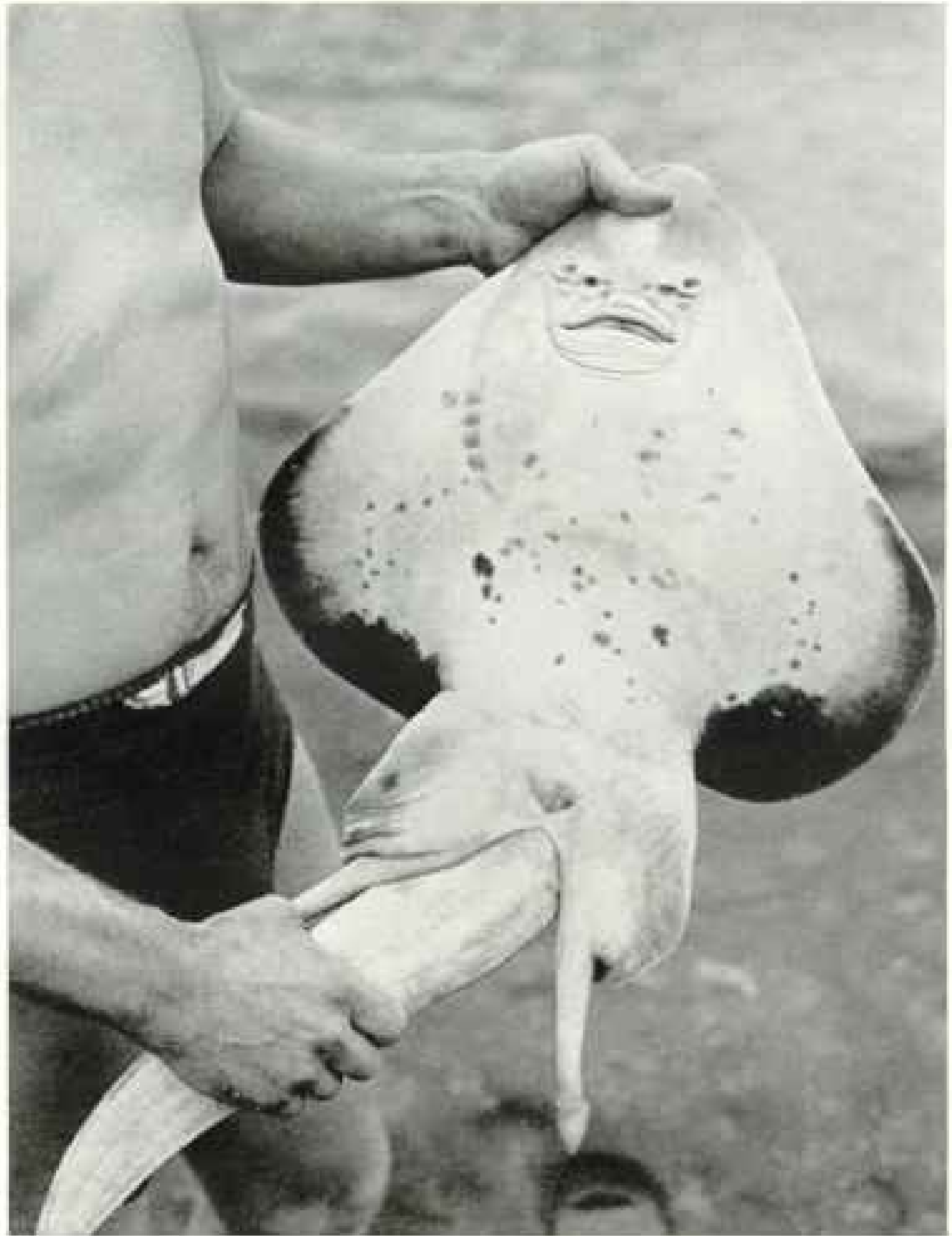
#### Another Big One

Aiming carefully, he drove his powerful, spring-driven spear-head into the creature. The line sang and zipped through the water as the fish took off. To his dismay, Prodanovich realized that the bass was taking his line *under* the reef—almost sure death for any line. And so it proved; the line soon parted, probably cut neatly by a piece of coral.

Sadly the champion spear fisherman returned to shore, with nothing but a broken line to testify to the big one that got away.

But he who laughs last sometimes is a good fisherman. One month later, Prodanovich again spied a big one. He knew that these big bass sometimes like to lie in kelp beds. Skirting one bed, he saw the tail of a giant protruding from the forest of brown weeds. Quickly he drove home his spear, aiming through the kelp at the fish's concealed body. Then began a fight which ended one hour later with Prodanovich the victor.

As he dragged the 112-pound gulf grouper onto the beach, Prodanovich gasped with surprise. *Two* spear points were embedded



#### Only Another Guitarfish Could Love Such a Face

Gogglers find these creatures, harmless, though of nightmare aspect, half buried in sand on the Pacific floor off La Jolla. Twin reproductive organs project from the fish's body near the root of the thick, powerful tail.

in the giant's back. From one hung the remains of the spear he had lost the month before, a remnant bent and twisted by the efforts of the grouper to dislodge the barb. Prodanovich had the last laugh with his "big one that got away"—almost (page 632).

Many jewfish, or black sea bass, have been caught by gogglers and hook-and-line sportsmen in the area (page 616). An inventory of the stomach of one specimen recently caught revealed five fishhooks, several feet of line, leaders, and a six-ounce sinker!

Abalone, a mollusk much admired for its meat, must be taken by surprise, for once warned of danger it clamps itself firmly to the rock and is very difficult to pry loose (page 631). One diver nearly drowned when



Ernest Kleiberg

#### Afloat in a Rubber Life Raft, She Scans the Pacific Depths for Rock-clinging Abalone

To avoid long swims and to rest between dives, many gogglers drift over the hunting grounds in such craft. Others use paddleboards or inner tubes. After sighting abalone through her face plate, the girl slips overboard and swims down to pry them loose with the flat iron bar fastened to her wrist.

an "ab" clamped down on his prying iron, which the goggler had carelessly tied to his wrist with a leather thong. Thereafter, he followed the usual custom of fastening the iron loosely to his wrist with a strip of inner-tube rubber.

#### Big Lobsters Are Protected

Knowing that abalone clamp down when touched, one waggish diver played a trick on his fellow gogglers. Finding a good bed of the mollusks, he tapped each abalone with his iron. When his companions tried to pry them loose they couldn't dislodge a single one! Noting the location of his private stock, the practical joker later returned to reap a rich harvest.

Gogglers find spiny lobsters good sport, and good food, too. Specimens bought in the markets are midgets beside those brought in by the Bottom Scratchers. One member tells a tale which would sound "fishy" if others had not verified it.

"This old granddad was so long I was afraid to tackle him," said the diver. "I stretched out my arms to measure him as he lay in a crevice on the reef, and I could just reach both arms wide enough to measure his length!"

Lobsters are protected by law; none over 16 inches or under 10½ may be taken (632).

Lobsters fall easy prey to an experienced goggler. Being a natural scavenger, the "spiny" can be tricked into revealing himself if tempted with a meal. Some gogglers use one hand as bait to lure the crustacean from his lair, then grab him securely as he emerges. Some, as if aware of the housing shortage, resist eviction by bracing their legs so firmly against the walls of their rocky homes that they cannot be captured.

Many fish are weird. An example is the "horned" bullhead shark (page 627).

"I spotted one of these ugly fellows under a reef," reported Lamar Boren, one of the Bottom Scratchers. "All I could see was a big red mouth and two long, white horns. I shouted for Jack, who was hunting near by. He dove, and came up laughing with the report that it was nothing but a bullhead shark.

"Jack has always wanted to catch one with his bare hands. So he handed me his spear and dove, surfacing a minute later with the brute thrashing around in his hands. He was holding it by the tail and one flipper (page 620). We put a stick in his mouth when

we got him ashore, and you could hear him crunch down on it with those strong teeth 20 feet away!"

Moray eels are vicious, too. Specimens up to six feet long have been taken. These salt-water horrors are especially fond of abalone meat, and often mistake the hand of a diver for their favorite food. One goggler had just pried an abalone loose when an eel darted from its crevice and snatched the meat right out of his hand, leaving the diver with an empty shell!

"Eels will follow you with their teeth bared if you threaten them," one diver disclosed. "We always check carefully when diving for abalone. Some day one of these submarine bulldogs may strike and clamp onto an arm, hand, or leg, and we'll have to come ashore to pry him loose!"

Other dangers lurk in the underwater world. Contrary to popular notion, however, octopuses, sharks, and rays are not considered perils by divers in these waters.

"Our worst enemy is carelessness or misjudgment," explained one veteran. "Hunting abalone or lobster, we sometimes dive under ledges or into crevices. A strong current could catch a man in such a position and keep him there until he drowned."

Like aviators flying in rarefied air, divers must beware that they do not run out of oxygen. Once a pair of goggles were diving in kelp beds, in search of grouper. As customary, one man mounted watch on the paddleboard while his companion dove (629).

#### Submerged Almost Four Minutes

"My friend had been down nearly four minutes before I sensed danger," related the watcher. "Most of us can manage a two-minute dive, but even the best of us is no four-minute man. I was just getting ready to go down after him when I saw him floating to the surface, face down and arms outstretched.

"Somehow I managed to get my friend's body across the paddleboard. By beating him mercilessly on the back, I finally got him to take a deep breath of air. He gasped and gulped for several minutes before regaining consciousness."

The unfortunate goggler afterward related his recollection of the incident.

"I had spotted a good fish and followed him into the weeds. I knew my oxygen was running low, but thought I had a few seconds more to go. But I didn't reckon with the fact that 25 feet of water lay between me and the surface. On the way up I suddenly blacked out. It was very peaceful!"

Most goggles bear the scars of encounters with coral. Frequently a diver will be swept against coralline reefs by a strong wave or current, and emerge from the engagement badly cut and bleeding.

Encounters with sea lions are not uncommon. One pioneer diver was prying abalone from a reef when something hit him in the back.

"The pain was so terrific it bent me double," he recounted. "I thought a moray eel had hit me. But my enemy soon made another pass at me, and I saw then it was a large seal, probably a mother with young. It took several stitches to close the wound."

Sometimes big seals just feel playful!

#### Swimming with a Seal

"One afternoon, after fishing all day, I decided to take a swim, for the exercise," related one diver. "I dove in without any weapons, wearing only face plate and fins. I submerged several times for the scenery, and each time I surfaced I noticed a crowd had gathered on the breakwater. This was not unusual, so I kept on diving."

What he did not know was that a big seal cavorted beside him, submerging and surfacing with him like a shadow.

"Finally I spotted the monster streaking along under me like a torpedo. I decided this was no place for me and headed for shore, with Mr. Seal swimming alongside. Then he dove, and surfaced right in front of me, between me and salvation. He stopped me cold, his beady-eyed face so close to mine I could count his whiskers!

"I lived and died fifty times during the next few seconds, remembering what had happened to another goggler in similar circumstances. But just as I was about to double up and kick him in the face out of sheer desperation, he took off."

These underwater sportsmen make important contributions to marine biology and frequently contribute specimens of interest to experts at Scripps Institution of Oceanography, located at La Jolla.

"According to the textbooks, certain fish grow to certain maximum lengths and weights," one goggler observed. "We have helped correct many of these ideas. For example, one manual says sheepshead attain a maximum weight of 25 pounds. I personally speared one weighing 27 pounds, and have seen many larger specimens. And the texts tell us that moray eels grow to five feet. We know of a goggler who brought in a six-footer measuring seven inches in diameter!"

Goggles have learned to relate certain fish



to specific types of bottom, much as hunters seek their quarry in definite kinds of cover. California halibut, for example, most frequently are taken in sandy patches surrounded by eelgrass or other weed. Sheephead inhabit rocky bottoms where plenty of crevices and holes provide protection.

#### Lobsters Hide in Crevices

Lobsters seldom venture into the open, and are found only where cracks and crevices furnish safe hiding places. They do come out at night, however, to prowl the bottom for food. Black sea bass, or jewfish, lie in kelp beds, while croakers often are found feeding in a few inches of surf, right on shore. Game fish sought by deep-sea anglers—the barracuda, bonito, tuna, yellowtail, and other rod-and-reel favorites—seldom ranging out of deep water, are not often taken by gogglers.

Because of their delicious flavor, California halibut are prized catches, and divers have perfected halibut spearing to a high degree. Hard to spot as it lies on sandy bottom, the California halibut has a chameleonlike capacity for changing color to suit his surroundings. On clean sand he adopts a sandy hue; near rocks his coloring becomes mottled. But his underside always is snow white. Oftentimes the fish buries itself completely in the sand and can be detected only by its outline.

Not gifted with the rakish lines of some of his underwater brethren, the halibut appears sluggish, an appearance which proves very deceptive. Actually this fish is lightning-quick, capable of flashing through the water with incredible rapidity when feeding or frightened.

Several kinds of rays are common along the California coast. Many of these biological nightmares have saw-toothed barbs in their tails—a fact which an occasional bather discovers to his misfortune. Stepped on, such a ray instantly whips its tail upward, burying its tiny serrated sword in calf or ankle.

Poison glands exist in many rays and, like the earthbound rattlesnake, such rays are venomous. While the sting is very painful and may be dangerous unless cared for promptly and properly, it is rarely lethal. Cases of death from such punctures have been recorded, however.

Rays thrive on sandy bottoms. On one goggling adventure I swam over a large sandy area in eight feet of water. Dark, dime-sized spots covered the sand. Curious, I prodded one with my spear. A sting ray shook off its blanket of sand and swam away. There were literally hundreds of such spots within an acre or two of sandy bottom, and

each marked the bed of a sleeping ray!

Once I noted a curious, diamond-shaped outline in the sand, measuring nearly two feet across. Prying with my spear, I dislodged a sluggish guitarfish, which reluctantly swam off.

Gogglers frequently find "treasure" in their underwater adventures. Tackle boxes, rods and reels, all sizes of anchors, rings, bracelets and other jewelry, knives, and tools are among their booty.

I once found a revolver on a reef. While swimming at Waikiki Beach, I spotted a beautiful ring sparkling in the coral. Retrieving it, I found it to be a class ring of a famous eastern academy. I wrote the academy, disclosing the initials and year engraved on the ring, and was given the name of its owner. The ring was then sent from Honolulu to Rhode Island, and another friendship was born!

During the war special teams of gogglers were formed by the Navy to scout reefs and beaches for anti-invasion obstacles. The Underwater Demolition Teams, recruited in part from peacetime sportsmen, are credited with saving the lives of thousands of Allied soldiers and sailors by removing barriers in the face of heavy enemy fire.

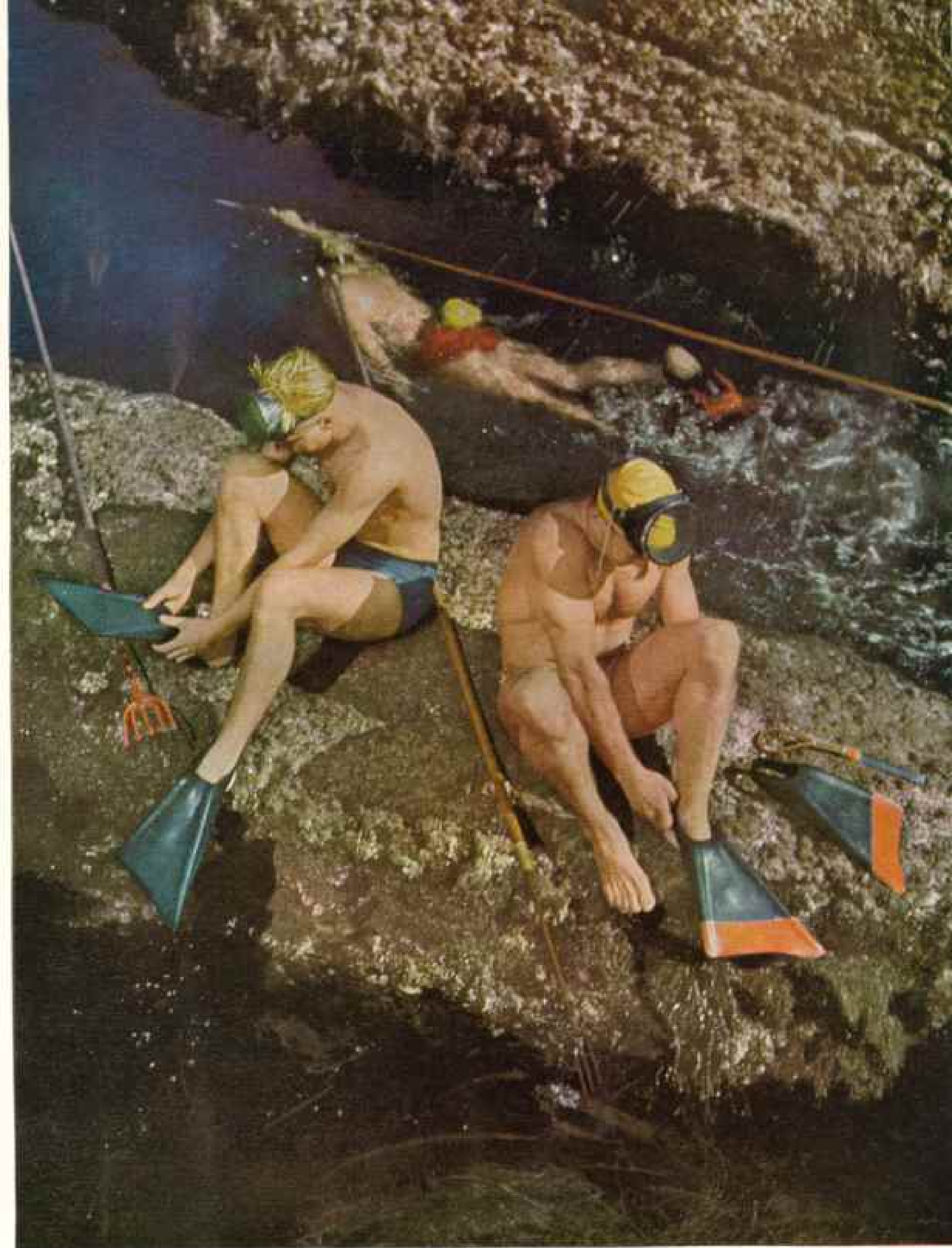
#### UDT Performs Underwater Miracles

Units operating off Guam destroyed more than 1,000 large obstacles, making troop landings possible. Frequently these divers, equipped only with face plates, fins, and steel courage, worked right in the wake of Jap divers who were installing obstacles. When our boys had set their high-explosive charges, they retired to safety while time fuses blew obstacles and Japs into oblivion.

UDT crews performed underwater miracles on Omaha Beach in the Normandy campaign, suffering heavy casualties in the process. Their mission: to slash sixteen 50-yard gaps through three principal lines of obstacles. Working under devastating machine-gun and sniper fire, they sapped over 85 percent of the German-placed traps on the beach within two days.

Until recently it was illegal to spear game fish in California's ocean waters—and it still is, for everyone except a goggler! In recognition of this new sport, and in tribute to the divers who put themselves on a par with their prey, the California legislature passed an amendment to the fish and game code making the goggler an exception to the spear-fishing rule.

"Anyone who wants a fish badly enough to hunt him out in his own element deserves to spear him," one legislator observed in voting "aye."



### With Heavy Rubber Fins, Gogglers Kick Themselves Down to Eerie Deep-sea Hunting Grounds

Two members of the Bottom Scratchers Club don their swim fins to explore the depths off La Jolla, California. A third (background) churns the surface of a rock-walled pool, ready to submerge when he sights his quarry. Fishermen, wearing rubber-and-glass face plates, carry five-tined spears. With prying irons (right) they dislodge abalone from rocks. To qualify for the club, candidates must capture two sharks, barehanded, in 20-foot dives.



### Web-footed Sportsmen, Spears Poised, Wade Out to Battle Marine Giants in Davy Jones's Locker

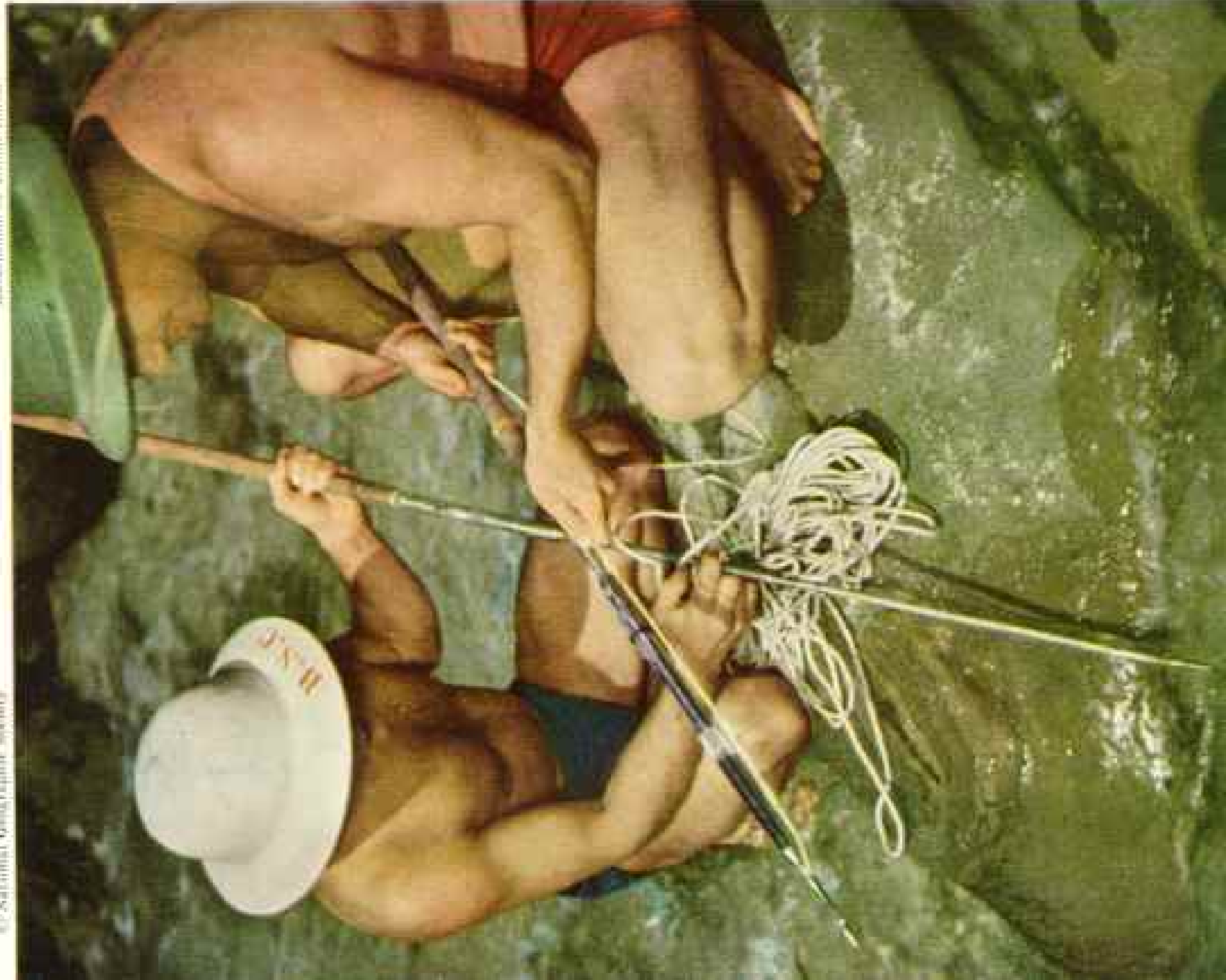
Within sight of La Jolla's hotels (right), "skin divers" plunge into boiling surf to capture big bass, halibut, sharks, and spiny lobsters.

### With Gun Spears, These Underwater Hunters Seldom Miss

On contact with a fish, a .38-caliber shell drives the spearhead into the quarry. The goggler hangs on by a line attached to the point.

© National Geographic Society

Illustration by Lamar Boren



### Behind Bullhead Shark's Silly Grin Are Powerful Teeth

Erect spines on its back gives this creature another name—horned shark. Goggles call it the "fish with the lipstick mouth." It was caught by hand.

Illustration by Mrs. Linné Boren





© National Geographic Society

Kobalivona by Ernest Kleinberg

### Who Needs Scales and Tails? These California Mermaids Would Make a Goggler of Anyone

On a jaunt to Baja California (right), members of the Bottom Scratchers Club and their companions risked broken bones but found fish and spiny lobsters plentiful. More and more girls, like the one resting on a rock near La Jolla, are taking up spearfishing.



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Palmitos by Lamar Bepp

### Good Hunting! As One Goggler Goes Down, Fins up, Another Surfaces with Abalone for His Comely Board Tender

The girl on a plywood paddleboard follows the divers to spare them long swims to unload their catch. California law lets sportmen take 10 abalone a day from high-tide mark to a depth of 20 feet. Commercial fishermen wear diving suits and work in deeper water.

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Photograph by Luther Jones



## After a Day of Diving, Gogglers Feast on Tasty Chowder

Into the pot go fish, spiny lobsters, abalone, and clams cooked with a spicy tomato sauce. Also popular are abalone "burgers."

Among these spear fishermen and friends gathered around a fire on La Jolla beach are boys wearing the sting-ray insignia of the Mantas, a high school and college age diving club.

Ten years ago goggling was known only to a hardy few. Today thousands follow the sport. From their ranks, in World War II, came many of the Navy's "frog men," or underwater demolition experts.

On Guam these specialists destroyed more than 1,000 obstacles, to make troop landings possible. Others, on Omaha Beach in the Normandy Campaign, suffered heavy casualties while sipping within two days 85 percent of the German underwater traps.

© National Geographic Society

Illustration by Lamar Beers



## No Matter How Thin You Slice It, It's Still Abalone

After bringing "abs" up from the depths, gogglers gouge the animal from the shell (right) and trim viscera and outer surfaces from the edible "foot," or muscle.

Then the meat, tough as a rubber tire, is cut into half-inch strips and "tenderized" with a wooden mallet (left). Steaks are fried or cooked in chowder. They suggest the oyster in flavor.

Abalone are marine gastropods, or snails. When clamped to rocks, they take in oxygen by pumping water under the edge of their shells and discharging it through a row of holes.

Pacific coast Indians once used abalone shells as ornaments and as currency. Later, curios made from them sold so readily that shells were worth twice as much as meat. Today, while some are polished and sold as souvenirs, some are used to build retaining walls.

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Endorsement by Ernest Inoué

Illustration by Lamar Boen







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Illustration by Lamar Dixon

### ▲ A Goggler Drags In "the Big One That Got Away"—Almost!

When Jack Prodanovich landed this 112-pound gulf grouper, he found it carrying a spear point he had lost a month earlier. Prodanovich, crack diver of the Bottom Scratchers Club, has caught other fish weighing up to 267 pounds.

### ▼ "Hey, Ma, Come Look at This Big Bug Pop Caught!"

Junior holds the antennae of a 12-pound spiny lobster speared by a goggler in a rocky den off La Jolla. The Pacific coast crustacean, *Panulirus interruptus*, lacks the pinching claw of its northeastern American cousin. The tail yields rich meat.

Illustration by Bruce Kleinberg



# Flags of the Americas

BY ELIZABETH W. KING

*Paintings by Carlotta Gonzales Lahey, Irvin E. Alleman, and Betty Haynes Baker*

WHEN American troops stormed ashore in Africa, a force attacking toward Port Lyautey, Morocco, found its advance blocked by the citadel near Mehdia.

Fresh supplies of gasoline and explosives were needed, and soon after they were landed the fort fell. Then many a GI was mystified to see a strange flag raised over the fort—a blue and white flag with five stars in the center.

How and why did it get there? The answer is eloquent of the unsung deeds performed under all-too-little-known flags of our sister republics of the Western Hemisphere.

## Flag Honors a "Roman Candle" Ship

Carefully prepared invasion plans had called for a vessel with draft shallow enough to navigate the channel of the Sebou River up to Port Lyautey.

The little Honduran freighter S. S. *Contessa* was under contract to the United States Maritime Commission and was chosen for the unenviable job.

Delayed in preparing for the voyage, the *Contessa* missed the convoy and sailed alone across the U-boat-infested Atlantic.

When the ship caught up with the convoy off the coast of Africa, her deadly high-explosive cargo led Vice Adm. Henry K. Hewitt to call her a "Roman candle."

Under enemy fire the former fruit boat landed gasoline and munitions for the attack on the citadel. When it fell, the officer who commanded the attack asked the captain of the *Contessa* for the ship's flag. Then, in honor of the little craft, he ordered it raised above the fort—the five-starred blue and white Merchant Flag of Honduras (page 654).

Not many North Americans could have identified that flag—this was back in 1942—nor the green, yellow, and blue banner of Brazilian troops who fought in Italy in World War II.

Yet the National Flag of Brazil, with its "Order and Progress" motto and the stars of the Southern Cross (page 647), became the third flag from a New World nation to be flown in battle in Europe—preceded only by those of the United States and Canada.

To help acquaint its world-wide membership with the flags of the 21 American Republics, the National Geographic Society presents the accompanying eight pages of color plates con-

taining accurate paintings, by its own staff artists, of 172 different flags and devices.

This marks the beginning of a series of articles in which it is planned to present the flags of the world in color. The ambitious project has been undertaken because the famous flag numbers of the NATIONAL GEOGRAPHIC MAGAZINE (October, 1917, and September, 1934) are out of print and because of the many changes caused by war and time.

Flags of Canada and the possessions of Great Britain, France, and the Netherlands in the Americas will be included with those of their parent nations as articles on the flags of the other continents are presented from time to time.

A flag, says the dictionary, is "a light, flexible cloth . . . bearing a device or devices . . ." During the greatest of world wars even the most unsentimental learned there is more to a flag than cloth and color. One might as well try to define the soul by telling what it is made of. Like the Cross to a Christian, like a ring to a bride, the flag of one's country stands as a symbol of something too deep for words.

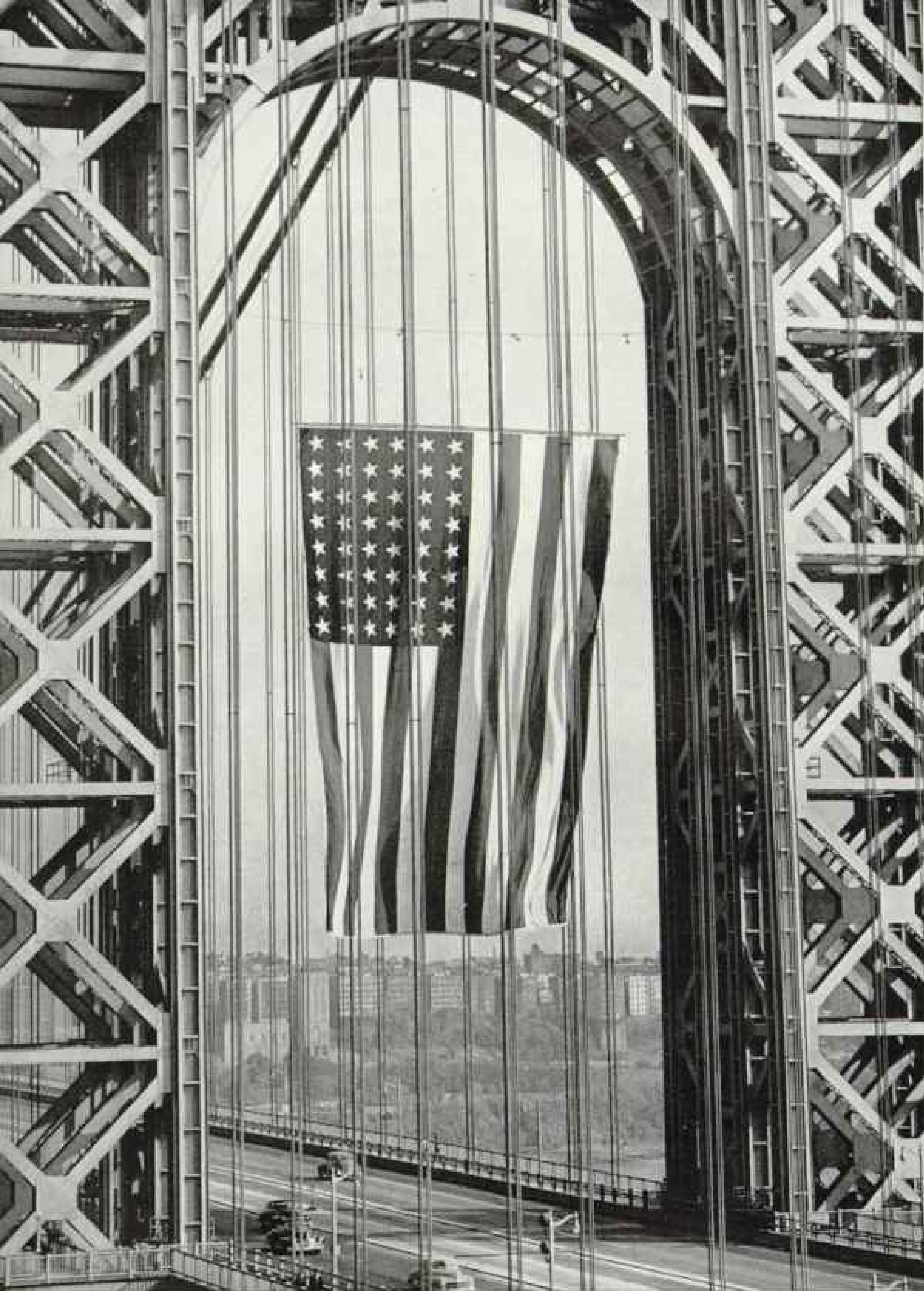
## Symbol of Corregidor

On the cold dirt floor of a Japanese prison in the Philippines, a seriously ill American general called a brother officer and with every precaution of secrecy passed him half of a small bit of red cloth. It was a piece of the Stars and Stripes.

When Corregidor fell, Brig. Gen. Paul D. Bunker, then a colonel, had been given the painful duty of hauling down the flag of the United States and burning it to keep it from falling into enemy hands. He saved one small piece from the flames and sewed it under a patch on his shirt. Then came the terrible ordeal of a Japanese "victory parade" and prison.

Foreseeing his death, General Bunker charged his fellow-prisoner, Col. Delbert Ausmus, to deliver the bit of precious bunting to the Secretary of War. The half which he kept was presumably still hidden on his person when he died later in a prison on Formosa.

Through the years of the island-to-island fight toward victory over the Japanese, Colonel Ausmus hid the remnant from his captors by keeping it sewed in his shirt cuff. Eventually the day came when General Douglas



### A Flag as Big as a Building Lot Flies Over George Washington Bridge

It takes 13 men using four hand winches 15 minutes to raise this giant Flag of the United States. Guy ropes and aluminum supporting pipe weigh 850 pounds and the flag itself, 60 by 90 feet, 250. New York beyond.

MacArthur stood again at Corregidor and said, "I see that the old flagpole still stands. Have your troops hoist the colors to its peak and let no enemy ever haul them down."

Shortly after V-J Day, as soon as he could get himself released from the hospital, Colonel Ausmus came to Washington and asked to see the Secretary of War. From a canvas bag he took a tattered army shirt, slit a cuff, and took out the piece of the martyred flag. Today it is preserved in the Pentagon at Washington as a priceless symbol of patriotism—and as a reminder of the cost of being caught unprepared.

#### "Distress Signal" Breaks the Ice

Despite the world-wide odyssey of the Stars and Stripes in the war against the Germans, Japs, and Italians, catching a glimpse of Old Glory was a rare experience for the combat soldier. The days of battle flags streaming over charging cavalry or infantry were gone. Generally the soldier saw his flag only when far enough behind the lines so that its bright presence could not betray a position and draw an attack.

An observant eye and a little knowledge of flag usage helped a World War II correspondent in an unexpected way. Visiting one of our big training camps, he tried in vain for an interview with the commanding general. "Too busy" was always the answer.

Then, passing the post flagpole one morning, the correspondent idly looked up—and did a "double take." Old Glory was flying upside down!

Hurrying into headquarters, the correspondent rushed straight into the general's office.

"I have come to offer my services," he said. "I saw your post flag flying upside down, the international signal of distress."

The embarrassed general had the flag righted. The ice was broken and the interview was easy.

Although nearly everyone knows of this universal signal of distress, many are lacking in specific knowledge of the usages and customs of flags, even their own, and are unable to recognize the flags of more than a small percentage of the countries of the globe. Yet failure to recognize a flag can still mean death or capture in war, especially for airmen forced down behind enemy lines, and unintentional misuse of a flag can cause an "international incident." \*

Over the 21 American Republics float flags of red, white, blue, yellow, and green—all

\* The code for display of the Flag of the United States by private citizens is contained in Public Law No. 829—77th Congress, approved December 22, 1941. Available from the Superintendent of Documents, Washington, D. C.



Thomas W. McKnew

#### "Every Flag in the Locker" Honors Chile

Signal flags used for decoration flutter above the U. S. battleship *Wisconsin*, "full-dressed" in Valparaiso harbor for the inauguration of President Videla in November, 1946. Sailors manned the rail as the President came aboard. Dr. Thomas W. McKnew, Secretary of the National Geographic Society, was a guest at the colorful ceremony.



National Geographic Photographer Richard H. Stewart

### "Order and Progress," as on the Flag, Prevail in a Brazilian School

While a geography student traces the river basins of her vast country, two boys proudly display Brazil's green, yellow, and blue flag, designed 60 years ago (pages 647-8). The school is in Bocaina, base of the U. S. Army Air Forces-National Geographic Society Eclipse Expedition to Brazil (see "Eclipse Hunting in Brazil's Ranchland," by F. Barrows Colton, in the September, 1947, NATIONAL GEOGRAPHIC MAGAZINE.)

different, yet all alike in the freedom they symbolize. Several flags which are relatively new in design or in official adoption are based on tradition dating back to the battles for freedom in the Americas.

Oldest of all is the Stars and Stripes, prescribed by the Continental Congress on June 14, 1777; "Resolved, that the Flag of the United States be 13 stripes alternate red and white, that the Union be 13 stars white in a blue field, representing a new constellation."

#### Washington's War-long Fight for Flags

Warships of the young nation flew the new flag, and history records that John Paul Jones hoisted "the American Stars" when his *Ranger* met and conquered the British warship *Drake* on April 24, 1778.

But the Army was not so fortunate. From the correspondence between General Washington and the Board of War, it appears that the infant nation planned to follow the mother

country's example and use a different design for Army and Navy.

Amusing now but no joke to General Washington were his efforts throughout the Revolution to obtain official flags for his troops. Every Army man who has ever tried in vain to get an urgent requisition filled will sympathize with the great commander in chief.

Some nine months after Lord Cornwallis had been defeated at Yorktown—when the Revolution to all intents had been won—General Washington was still repeating his request to the Secretary of War. From his headquarters at Newburgh, New York, he wrote on August 2, 1782:

"Sir: As it is highly essential to the Discipline, as well as the Appearance of the Troops that they should be furnished with Colours, I could wish they might be forwarded as soon as possible, for I am informed they are already purchased."

The Secretary's reply to a similar request,



National Geographic Photographer Howell Walker

### Gleeful Little Aborigines Surround a Far-traveled Flag

Modern Stone Age youngsters of northern Australia had a good laugh at Howell Walker's beard and the obvious danger of getting it caught in the camera. Mr. Walker, 38-year-old staff writer and photographer for the NATIONAL GEOGRAPHIC MAGAZINE, achieved the adornment during weeks of rough, adventurous exploring as a member of the National Geographic-Smithsonian-Commonwealth of Australia Arnhem Land Expedition of 1948. He ignores flies on his back. Sky, earth, and sea are symbolized by the blue, brown, and green stripes of the flag, carried on every continent and ocean since it was designed by Mrs. Gilbert Grosvenor in 1901.

made in early spring of the following year, must have caused some red faces around Washington's headquarters. To a certain colonel the general wrote, on March 10, 1783:

"Sir: In Answer to a Letter written by the Comr in Chief a Week or two ago (several havg been written before on same Subject) to the Secty at War, respectg the Standards for the Army. The following reply has been made.

"The Standards are in the Hands of the Q Master at Camp, and have been there for some Time.' The Commander in Chief requests your Explanation of this Matter."

Thus in March, 1783, the long-desired flags turned up—only to be lost again, since history does not record what design they bore.

Meanwhile, impatient fighting men had used many different flags. In at least two cases they devised their own versions of the Stars

and Stripes. Such a flag appears to have been flown in the Battle of Guilford Courthouse, North Carolina, on March 15, 1781, and one may have been used in the Battle of Cowpens, South Carolina, two months earlier.

### Plates Remade to Show Late Changes

Besides the national flags of the United States, the flags of its major officials and agencies and of the armed services are pictured and described in the pages that follow.

These reflect the most up-to-date official information available. For example, after the plates were engraved, page 643 had to be remade to show the new flag of the Vice President of the United States and to give the latest designs of Air Force and Army flags.

Each country, individual, and organization represented by a flag supplied detailed official information.



National Geographic Photographer B. Anthony Stewart

### "Broad Stripes and Bright Stars" of This Famous Flag Still Thrill Americans

Visitors to the Smithsonian Institution in Washington view the "Star-Spangled Banner" that fluttered over Fort McHenry at Baltimore during bombardment by the British on September 13-14, 1814. Inspired "that our flag was still there," Francis Scott Key wrote the song that became the country's national anthem. Bearing 15 stripes and 15 stars, this flag measures 28 by 32 feet, somewhat less than its original size.

In the Latin-American section, five main flags for each country have been considered—that of the Chief of State (the President in the American Republics); the National Flag, which officially represents the Nation; the Ensign, a special national flag used by the Navy; the Merchant Flag, flown by merchant ships; and the Jack, a small flag flown from the jack staff at the bow, most commonly by government vessels when not under way. Armies almost invariably use the National Flag.

In the United States a single design, the Stars and Stripes, serves as National Flag, Ensign, Colors and Standards for military use, and Merchant Flag. The only variations are in the dimensions (page 640). The Jack is the flag's blue union with its 48 stars.

Flags in this series are shown in their correct proportions. Their relative sizes, however, cannot be indicated. Some are as large as 20 by 38 feet; others as small as 10 by 9½ inches.

In the descriptions of individual flags, effort has been made to avoid technical terms. In heraldry, for example, *dexter* and *sinister* mean the right and left of the design itself. In the descriptions in this article, the words "right" and "left" indicate the position of objects from the reader's point of view. *Proper* is the heraldic term for natural colors.

#### Six Other Red-white-blue Flags

Six of the 20 National Flags of Latin American Republics are red, white, and blue, like our own—those of Chile, Costa Rica, Cuba, the Dominican Republic, Panama, and Paraguay. Their appearance, however, is wholly different.

Argentina's flag is blue and white because those were the colors of the uniforms of a regiment of fighters for freedom more than 140 years ago. The many-rayed "man in the sun" is Argentina's "Sun of May," a reminder of the nation's birthday, May 25, 1810. The

day dawned rainy and cold, but while crowds in the plaza of Buenos Aires were demanding resignation of the Spanish viceroy the sun broke through the clouds and was hailed as a symbol of success (pages 647-8).

Uruguay, which won independence from Argentina, also uses the "Sun of May," and its flag is blue and white (pages 656-7).

Paraguayans salute a flag which bears one device on the front and another on the back (pages 654, 656-7).

Bolivia's red, yellow, and green, symbolizing animal, mineral, and vegetable, emphasize the importance of its animal life—specifically the alpaca—its wealth in tin and other metals, and the produce of its fields (pages 647-8).

The blue and white in the device on Brazil's green and yellow banner came originally from the flag of the Portuguese parent land, the stars from Southern Hemisphere skies as seen from the magically beautiful capital, Rio de Janeiro (pages 647-8).

Chile's red, white, and blue flag has two stripes and a single star (pages 647-8, 650).

Colombia, Ecuador, and Venezuela—neighbors in northern South America—all get the yellow, blue, and red of their flags from the banner borne by General Francisco Miranda, precursor of the revolution which led to independence from Spain (pages 650-3, 656-7).

"This day the Columbian colours were displayed on board for the first time," wrote James Biggs, an American officer with General Miranda on an ill-fated expedition to free Venezuela in 1806.

"This ensign is formed of the three primary colours which predominate in the rainbow. We made a fete on the occasion—a gun was fired and toasts were drunk to the auspices of a standard which is expected to wave to the triumph of freedom and humanity in a country oppressed."

Later the same colors were used in the flag of General Simón Bolívar's extensive Republic of Colombia, which subsequently broke up into Colombia, Ecuador, and Venezuela.

Blue and white in all the flags of Central American countries except Panama stand as a reminder that all of these nations—Costa Rica, El Salvador, Guatemala, Honduras, and Nicaragua—once formed the United Provinces of Central America under a blue-white-blue-striped flag.

In the coat of arms on the Nicaraguan flag appears a century-old symbol of Central America—a series of volcanoes (page 654). Surprisingly, this was once used as an argument for the building of the ship canal across Panama instead of Nicaragua.

In 1901, when rivalry between the Nicara-

gua and Panama canal routes was at its sharpest, Philippe Bunau-Varilla, a French engineer who had worked on the Panama Canal when the French were trying to build it in the 1880's, published a pamphlet in which he emphasized the danger of possible volcanic eruptions on a Nicaraguan canal. He wrote:

"Young nations like to put on their coats of arms what best symbolizes their moral domain or characterizes their soil. What have the Nicaraguans chosen to characterize their country on their coat of arms, on their postage stamps? Volcanoes."

Congress was circularized with Bunau-Varilla's pamphlet, and its influence, while not decisive, was admittedly effective. Although official studies showed that the danger of volcanic eruptions in Nicaragua was greatly exaggerated, the "big ditch" was constructed across Panama.

Panama's coat of arms shows the two oceans it united "For the Benefit of the World" (pages 654-5).

#### Cuba's Flag First Flew in New York

The flag of Cuba, strangely enough, waved over New York City before it was flown over Cuban soil.

Narciso López, Venezuelan-born adopted son of Cuba, was forced to flee to the United States in 1848 for engaging in an attempted revolt against the Spanish Government. At his request the design for the flag was drawn by Miguel Teurbe Tolón, Cuban poet, in a New York rooming house in 1849 (pages 650, 651).

Tolón's wife Emilia made the flag, which flew for the first time on May 11, 1850, from the top floor of the New York *Saw* building. López, on his revolutionary expedition, took the new design to Cuba and flew it at Cárdenas on May 19, 1850. The flag was used during the last War of Independence, which began in 1895. But half a century intervened between the making of the flag and the day when it flew above a free Cuba.

Blue and red in the flag of Haiti represent the Negro and Mulatto people. The neighboring Dominican Republic has used the same colors, plus white (pages 650-4).

Birds played an important part in the symbolism of three flags—those of Guatemala, Mexico, and Peru (pages 652-7). According to tradition, both Guatemala's quetzal and Mexico's eagle led the people to the lands they occupy today. Mexico's harpy eagle—"winged wolf" of the Aztecs—now appears devouring the serpent of oppression. Inspiration for the red and white flag of Peru came from a flock of red and white birds, presumably flamingos.



# The Flag of the United States and the Jack

Page 641

**A**LTHOUGH the Colonies became the United States on July 4, 1776, nothing was done about a flag until June 14, 1777, when Congress adopted a flag resolution (page 636).

In the Revolution the Stars and Stripes was carried officially in battle only by the Navy. It was flown early over permanent military establishments, but it was not included in Army Regulations as a garrison flag until 1834. The same year it was prescribed for Artillery, for the Infantry in 1841, and for Cavalry in 1895. The Marine Corps prescribed its use in 1876.

The designer of the Stars and Stripes is unknown; present consensus is that Francis Hopkinson at least made the drawing for the flag.

Early flags had the stars arranged in circles, circles around a center star, quincunxes, ovals, great stars, etc.

After the admission of Vermont and Kentucky to the Union, the flag was changed from 13 stripes and 13 stars to 15 stripes and 15 stars by the law of 1794, effective on May 1, 1795. In 1818 a third flag law returned the design to the original 13 stripes and provided for a union with 20 stars, to which a new star would be added upon the admission of every new State.

The law did not specify arrangement of stars or proportions of the flag. Irregularities in the flag prompted President Taft in 1912 to prescribe its proportions for governmental use and permitted special sizes for the Army and Navy.

In referring to the flag, all the acts of Congress have called it the "Flag of the United States," never the "United States Flag" or the "American

Flag." First to call it "Old Glory," probably as early as 1824, was William Driver, a sea captain living in Nashville, Tennessee, when Union forces took the city in 1862.

Functional names for the Flag of the United States, together with proportions or sizes, are:

The *National Flag* for Government buildings; 1 to 1.9.

The *Ensign*, the National Flag in Navy usage; and for airships, ships, and boats of the Army, Air Force, and Marine Corps; 1 to 1.9.

The *National Color* used by dismounted units: for Army and Marine Corps, 4 feet 4 inches by 5 feet 6 inches; for Navy, 5 feet 1¾ inches by 6 feet 6 inches. The Army uses fringe.

The *National Standard* used by Army and Air Force for mounted, mechanized, and motorized units: 3 feet by 4 feet, plus fringe.

Designs of *Organizational Colors* and *Standards* differ from the National Flag. These are described with the services to which they belong.

For the *Merchant Flag* no size is established, since it is not for Government use.

Manufacturers make the Flag of the United States in a variety of proportions, for no official sizes are fixed for nongovernmental flags.

The union of the Flag of the United States has served as the country's *Jack* since 1777. The term "Union Jack" is frequently used, but many flag authorities feel that it is undesirable because the Union Flag of Great Britain was unofficially called the "Union Jack" before the United States was established. While the Navy regards the Jack as a flag for Government vessels, some merchant ships also use it (page 635).

## Flags of the President, the Vice President, and Heads of Executive Departments of the United States

Pages 641 and 643

**T**HE PRESIDENT of the United States, Vice President, and Heads of Executive Departments all use personal or distinguishing flags.

Four stars represent civilian rank as Heads of Executive Departments. Thus the Secretary of the Army with a four-star flag presides over five-star generals, whose rank is military.

Ten of the 12 secretarial flags bear reproductions or adaptations of official seals.\*

*The President of the United States.* The first special use of a flag for the President was in 1888. The current design, adopted in 1945, replaced the design of 1916. The 1916 flag showed the President's seal with a white star in each corner. The flag was criticized because the eagle faced *sinister*, that is, to its own left. The new flag not only changes the eagle's head to *dexter* but also encircles it with 48 white stars.

*The Vice President of the United States.* A special design for the Vice President was not adopted until 1936, when he was given a flag like the President's with colors reversed. With the adoption in 1945 of a new design for the

President, a change for the Vice President was also required. A design was approved on November 10, 1948, but a drawing of the flag was not available until so late that it was necessary to show it on the second plate. As illustrated, page 643, the design is a "color" (that is, for ceremonial use) and therefore has a blue fringe; when used as a "flag" it would not have fringe.

*Secretary of Agriculture.* Adopted in 1941, the flag carries the Departmental seal; 1862 is the date of establishment of the Department; 1889 the date of its elevation to executive rank.

*Secretary of the Air Force.* This flag, which carries the Air Force Headquarters star on gold pilot wings, was approved in 1947.

*Secretary of the Army.* Taken over when the Secretary of War became the Secretary of the Army, his flag carries the United States coat of arms. The Under and Assistant Secretaries use the same design, reversing color background.

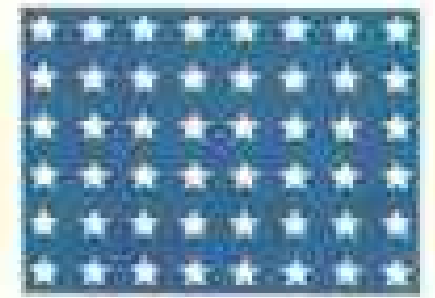
\* Detailed histories of the seals of Government Departments appear in "Seals of Our Nation, States, and Territories," by Elizabeth W. King, NATIONAL GEOGRAPHIC MAGAZINE, July, 1946.



*The President*



The Flag of the United States



*United States Jack*



*Secretary of Agriculture*



*Secretary of the Air Force*



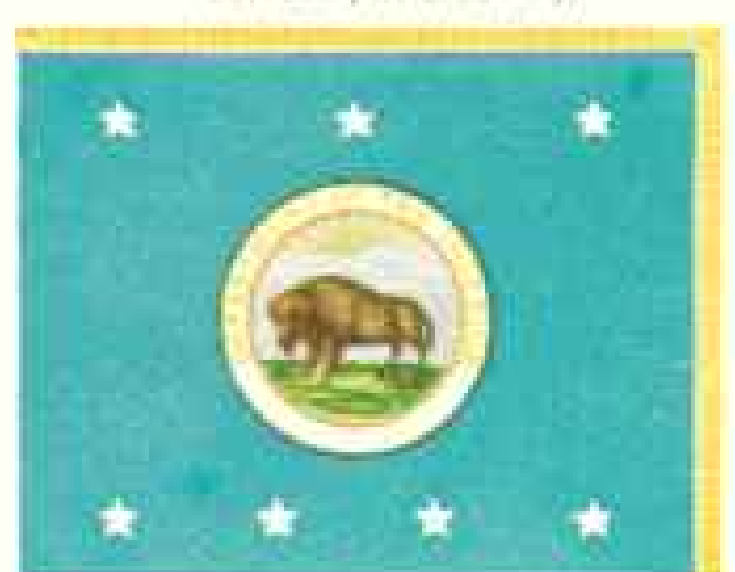
*Secretary of the Army*



*Secretary of Commerce*



*Secretary of Defense*



*Secretary of the Interior*



*Attorney General*



*Secretary of Labor*



*Secretary of the Navy*



*Postmaster General*



*Secretary of State*



*Secretary of the Treasury*

Flags of the President and Heads of Executive Departments of the United States

*Secretary of Commerce.* A flag for the Secretary of Commerce and Labor was authorized in 1910. When a separate Department of Labor was created in 1913, a flag with the new Commerce seal was adopted. The Assistant Secretary has the same design with colors reversed.

*Secretary of Defense.* Approved in 1947, the flag has a design from the Departmental seal. The arrows represent Air Force, Army, and Navy Departments.

*Secretary of the Interior.* Replacing the original of 1917, this flag was adopted in 1934. Seven stars represented the principal activities of the Department when the flag was chosen. A white flag with blue stars was authorized for the Under Secretary in 1943. Both carry the Departmental seal in proper colors (page 638).

*Attorney General.* Adopted in 1932, this flag carries the seal of the Department of Justice. The motto may be translated as "Who prosecutes in behalf of our Lady Justice," or "He who seeks justice for the people."

*Secretary of Labor.* First used in 1913, this is considered the "Department Flag," rather

than the Secretary's personal flag. The stars represented Departmental bureaus at the time the flag was established. The design is the seal.

*Secretary of the Navy.* This design was adopted in 1866. Flags for the Under Secretary, the Assistant Secretary, and the Assistant Secretary of the Navy for Air, have the same design in the following color combinations: white design on red field, blue on white, and red on white.

*Postmaster General.* The central design of this flag, adopted in 1921, is from the Post Office seal, which shows a galloping post horse.

*Secretary of State.* Authorized in 1933, this flag replaced the 1920 design. The coat of arms of the United States as it appears in this flag has a white, not the usual buff, background. The Under Secretary's flag has blue stars on a white field and the arms on a blue disk.

*Secretary of the Treasury.* Destruction of records by fire makes it impossible to date this flag, but it was used as early as 1914. The Under Secretary has the design in white on a red field; the Assistant Secretary blue on white. The design is from the Departmental seal.

## Flags of the United States Armed Forces and Government Agencies, Pages 643 and 645

### Flags of the United States Air Force, Page 643

THE DEPARTMENT of the Air Force was created in July, 1947. Flags were designed for the Secretary of the Department (page 641) and for the Chief of Staff and General Officers.\* Other flags used by the Air Force when it was part of the Army were retained. These have ultramarine-blue fields, with golden-orange fringe when fringe is indicated.

The *Chief of Staff's* design is based on the Air Force seal. *General Officers' Flags* use the appropriate number of white stars on a horizontal line; fringe is gold (yellow).

*Command Flags* carry a designation, such as Training Command, illustrated.

*Group Standard.* The Air Force Group is on a staff level comparable to an Army regiment, which is the lowest echelon having a standard. The shield of arms on the breast of the eagle and the crest over its head reveal the unit's history. Fifth Reconnaissance Group is illustrated.

*Guidon* illustrated is basic design to which unit designations (numbers or letters) may be added.

### Flags of the United States Army, Page 643

Army Regulations provide for hundreds of flags, but the group shown is representative of the various types.†

The Flag of the United States used by dismounted troops is called the *National Color*; by mounted troops, the *National Standard* (page 640).

The Army uses *Distinguishing Flags* for individuals, such as the President of the United States,

the Secretary of the Army, etc. (page 641). It also has *Distinguishing Flags* for the Chief of Staff and General Officers. Formerly, different designs were prescribed for Line and Staff Generals. Now only one pattern is used—a red field with the appropriate number of white stars to indicate grade. Five-star generals have design shown; others have stars in horizontal line. Two exceptions are made to the rule: General Officers of the Medical Corps use stars on a maroon background, and the General Officers of the Chaplains Corps use stars on a purple background. All of these General Officer flags are silk *Standards* and have gold-color fringe.

*Distinguishing Flags* are also used to identify headquarters of larger bodies which do not have an Organizational Color or Standard; Army Ground Forces Headquarters shown.

Distinctive designs for the *Adjutant General* of each State in the National Guard were adopted in 1947; Maryland illustrated.

In addition to National Colors and Standards, the Army uses *Organizational Colors* and *Standards* to identify the headquarters of regiments and battalions. These Colors and Standards have the same sizes as National Colors and Standards, page 640. The Color shown is for the 140th Infantry Regiment and the Standard for the 3rd Armored Field Artillery Battalion. The unit's

\* Information in this section was supplied by Robert D. Ewin, Heraldic Consultant, Department of the Air Force.

† Information in this section was supplied by Arthur E. Du Bois, Chief, Heraldic Branch, Military Planning Division, Office of the Quartermaster General, Department of the Army.

The National Geographic Magazine



Vice President of the United States



Chief of Staff



General, U.S. Air Force

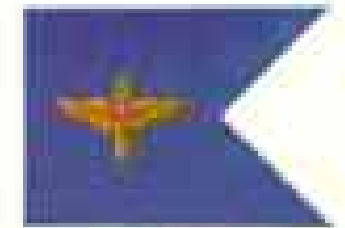


Command Flag



Group Standard

Flags of the United States Air Force



Guidon



Chief of Staff



General of the Army



General, U.S. Army



Major General, Medical Corps



Major General, Chaplains Corps



Headquarters, Army Ground Forces



Adjutant General, Maryland National Guard



Organizational Color



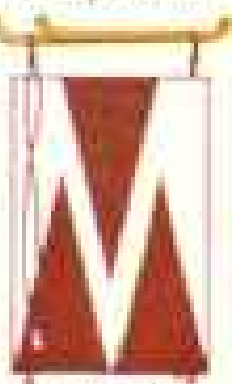
Organizational Standard



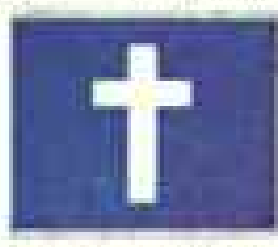
Headquarters, U.S. Military Academy



Color, U.S. Corps of Cadets



Tabard



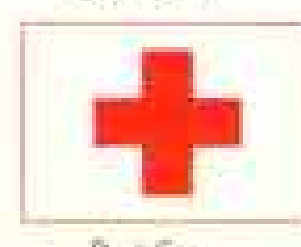
Chaplain, Christian



Chaplain, Jewish



Guidon, Women's Army Corps



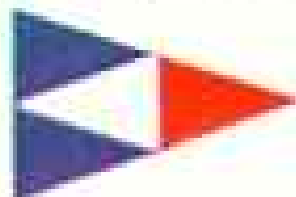
Red Cross



Veterinary



Transportation Corps



Marking Pennant

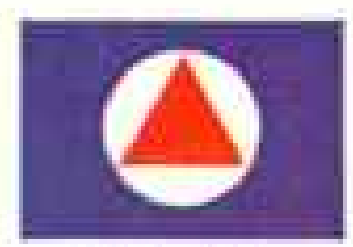


Commission Pennant

Flags of the United States Army



Director



Survey Flag



Pennant



Compass Boat Flag



Automobile Flag



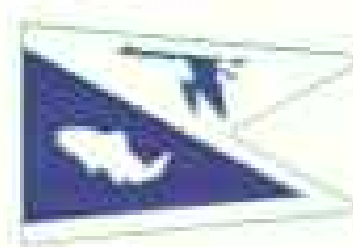
Customs Service



Masthead Flag



Director, Fish and Wildlife Service



Bow Pennant



Geological Survey



Immigration Service



Commission Flag



Service Ensign



Surgeon General, Public Health Service



Yacht Ensign

Flags of the United States Government Agencies

FLAGS OF THE AMERICAS

history is heraldically portrayed on the shield of the eagle and by the crest over the eagle's head. The organization's motto is inscribed on the scroll above and its designation on the scroll below the eagle.

Two special flags for display at divine services are provided. The Christian has a Latin cross; the Jewish carries the six-pointed Star of David and a tablet bearing Roman numerals representing the Ten Commandments.

*Tabards* are displayed from crooks of trumpets. Regiments with coats of arms use the shield from the arms on the Tabard. Regiments with badges use that design. The example is in the maroon and white of the Medical Corps.

The *Headquarters, U. S. Military Academy*, was given a Distinguishing Flag in 1940. The *Color, U. S. Corps of Cadets*, originally adopted in 1898, was redrawn in 1923.

The *Red Cross Flag* marks neutral ground for those nations subscribing to the Geneva Convention. The *Veterinary Flag* marks the way to veterinary hospitals during combat.

*Guidons* are swallow-tailed flags used to identify companies, troops, and batteries; example shows head of Pallas Athene, insignia of the Women's Army Corps.

The *Commission Pennant* is used on Army vessels in commission. The *Marking Pennant* is used to mark parade ground limits. The *Transportation Corps* has its own flag.

#### Flags of United States Government Agencies, Page 643

Functions of certain Government Agencies require the use of special flags.

The *Yacht Ensign* is placed in this group merely for convenience, since it is for use by private yacht owners.

*United States Coast and Geodetic Survey* (Department of Commerce). Established as the Coast Survey in 1807, this service charts our coasts and airways. The triangle symbolizes the basic surveys conducted by the Bureau; the two stars, the Director's rank of Rear Admiral.

*United States Foreign Service* (Department of State). Authorized by the Department in 1903 and adopted by the Navy in 1909, the *Consular Boat Flag* is still recognized for use by consular officers using small boats in foreign harbors, but occasions for its use are rare. In 1946 the *Jack* (page 641) was authorized for use with the Flag of the United States on cars of Chiefs of Missions. Other diplomatic and consular officers use the *Automobile Flag* in place of the Jack.

*United States Customs Service* (Department of the Treasury). This flag was authorized in 1799 for the Revenue Cutter Service. Its sixteen stripes represent States in the Union in 1799. From 1874 to 1910 the flag was used on all custom houses. Since 1910 it has belonged to Customs. The Revenue Cutter Service adopted a new flag by adding to the original a distinctive emblem (see Coast Guard, page 646).

*United States Fish and Wildlife Service* (De-

partment of the Interior). Designed by John R. Stacy of the Service's Alaska Fisheries Division and approved in 1940, the fish and wild goose flags symbolize the work for preservation of the country's natural resources.

*United States Geological Survey* (Department of the Interior). Although frequently referred to as a "pennant," the Survey flag has always been rectangular. The crossed pick and hammer on a triangle are a slight modification of the design made prior to 1906 by Dr. François E. Matthes of the Survey staff.

*United States Immigration and Naturalization Service* (Department of Justice). Early pennants had only the initials "U.S.I.S." Since 1903 the Service's changes in affiliation have been revealed by the seal used: after 1903, Department of Commerce and Labor; 1913, Labor Department; since 1940, Justice Department.

*United States Maritime Commission*. Two of the three flags authorized for the Commission are shown. The *Maritime Commission Flag*, established in 1936 and designed by the Bureau of Engraving and Printing, Treasury Department, carries the Commission seal. The *Maritime Service Ensign*, designed by Comdr. W. N. Derby, USCG, and Rear Adm. Telfair Knight, USMS, in 1938, carries the Service seal.

The Merchant Marine Academy at Kings Point, New York, flies a blue flag, designed by Adm. Richard R. McNulty, USMS. It has the Academy's designation, motto, and eagle device.

*United States Public Health Service*. The Surgeon General's Flag carries the Service's corps device, the caduceus (Mercury's staff entwined with serpents) crossed upon a foul anchor. The device represents the oldest function of the Service—operation of Marine Hospitals for merchant seamen. The *Quarantine Flag* is similar in design but with the device in blue on a yellow field.

*United States Yacht Ensign*. Congress authorized the Treasury to license yachts in 1848, and the Secretary of the Navy was instructed to prescribe the Ensign to be used by them. The New York Yacht Club suggested a design which was approved in 1849 and is still in use.

For additional yacht flags, see page 645.

#### Flags of the United States Navy, Page 645

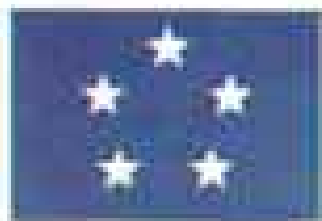
Most flags and pennants used by the Navy are made in various sizes.\* A large aircraft carrier generally uses larger flags than a destroyer; smaller sizes are used on boats and automobiles. Sizes of flags as well as times and position for display are established by *Navy Regulations*.

The Flag of the United States, when used by the Navy, is called the *Ensign* (page 640).

*Flags of Command*. Blue flags with white stars are for flag officers eligible for command at sea. A new set of flags, identical in design but with colors reversed, is prescribed for other flag officers.

\* Information in this section was supplied by Comdr. T. R. Kurtz, Jr., and William R. Knapp, QMC, Fleet Section of the Office of Naval Communications, U. S. Navy Department.

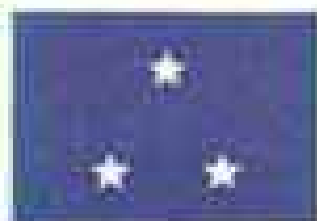
The National Geographic Magazine



Fleet Admiral



Admiral



Vice Admiral



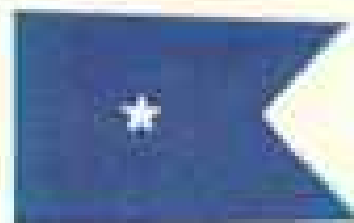
Battalion Flag - Infantry



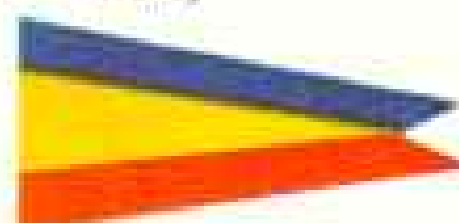
Battalion Guidon - Infantry



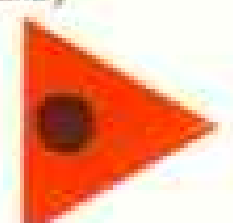
Rear Admiral



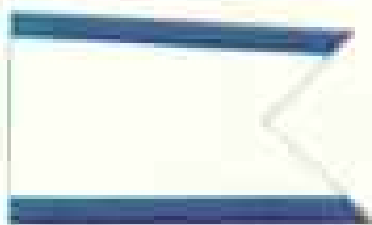
Commodore



Presidential Unit Citation



Battle Efficiency Pennant



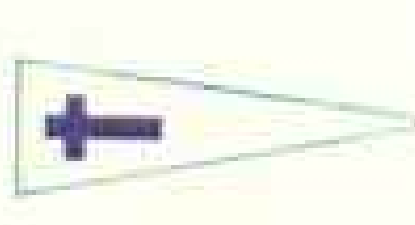
Broad Command Pennant



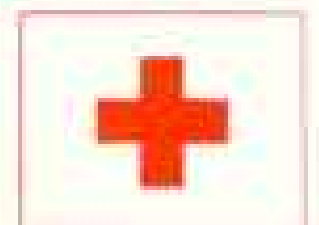
Bugle Command Pennant



Senior Officer Present



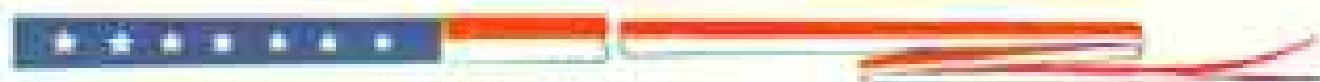
Church Pennant



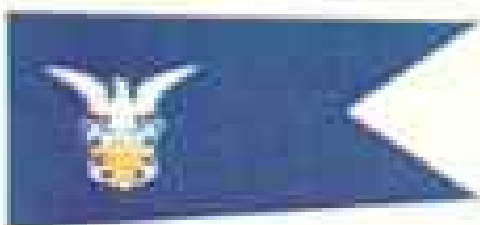
Red Cross

FLAGS OF COMMAND

MISCELLANEOUS FLAGS



COMMISSION PENNANT



Merchant Marine



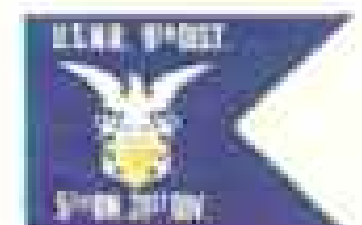
Yacht Pennant



Yacht Owners Pennant



Officers Training Corps Flag



Guidon - Infantry, Aviation

NAVAL RESERVE

Flags of the United States Navy



Guidon - Organizational



Commandant



Lieutenant General



Marine Corps Standard



Major General

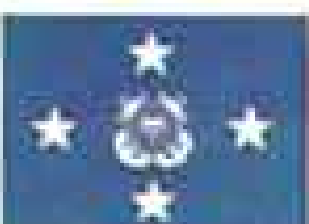


Brigadier General

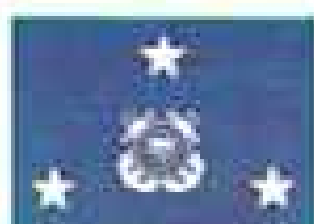


Guidon - USMC

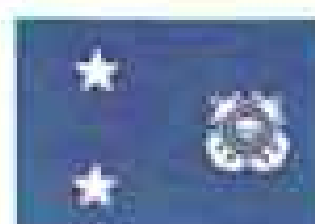
Flags of the United States Marine Corps



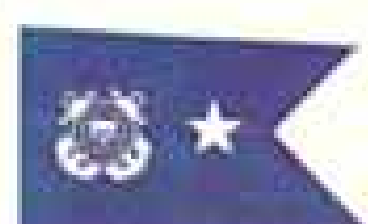
Admiral



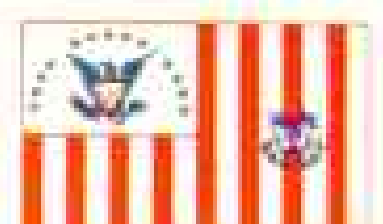
Vice Admiral



Rear Admiral



Commodore



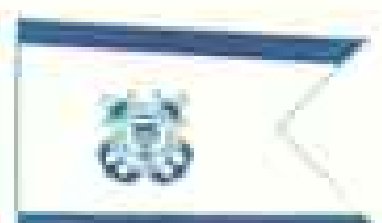
Ensign



Pennant



Senior Officer Present



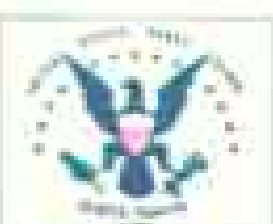
Broad Command Pennant



Bugle Command Pennant



Anchorage



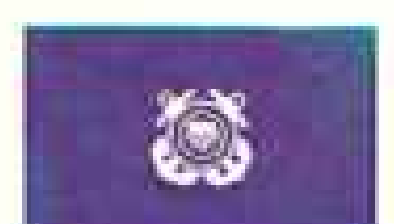
Standard Battalion Flag



Guidon - Small Arms Detachments



Guidon



Coast Guard Auxiliary

Flags of the United States Coast Guard

FLAGS OF THE AMERICAS

*Broad Command, Burgee Command, and Senior Officer Present Pennants* are also symbols of specific command. Recent Regulations omit the Senior Officer Present Pennant, which has served this function for almost 75 years.

The *Commission Pennant* is flown by all ships in commission unless replaced by the flag or pennant of an officer in command.

*Battalion Flags (Battalion Colors)* are carried by a naval force organized as a battalion to identify the organization. There is also an Artillery Battalion Flag, with red field and anchor. The example shown is that for the United States Naval Academy, which has no special design.

*Guidons* are carried as unit markers by Battalion companies. Infantry and Aviation use blue guidons; Artillery and Machine Gun companies, red.

The *Presidential Unit Citation Pennant* is flown by ships cited for outstanding performance in action. Blue stars on the yellow stripe signify additional awards. The *Battle Efficiency Pennant* is awarded a ship of each class with the highest annual rating during peacetime.

The *Church Pennant*, flown over the Ensign during church services conducted by naval chaplains on ships of the Navy, is the only flag which is ever flown above the Flag of the United States.

The *Red Cross Flag* indicates that the area is entitled to protection under the rules of the Geneva Convention. In wartime, hospital ships display the Red Cross Flag in place of the Commission Pennant.

*Flags of the United States Naval Reserve.* The *Merchant Marine Flag* is authorized for seagoing merchant vessels which are suitable for naval auxiliaries provided half the officers belong to the Reserve. The *Yacht Pennant* is displayed by yachts and similar vessels suitable for auxiliaries if commanded or owned by Reserve Officers. The *Yacht Owners Distinguishing Pennant* is a personal pennant for individuals who made craft available to the Navy during World War II. *Naval Reserve Battalion Flags (Colors)* and *Guidons* are used in the same way as Battalion Flags and Guidons of the Navy (see above). A *Naval Reserve Aviation Flag* (not illustrated) is authorized. This is blue with a white border; gold letters for "U. S. Naval Reserve" are above and

the name of the station is below the aviation wings, which appear on the center of the flag.

Certain administrative branches of the Navy have flags authorized; these are for the Medical Department, Bureau of Ordnance, Bureau of Ships, and Bureau of Supplies and Accounts.

#### Flags of the United States Marine Corps, Page 645

The word "Color" in the Marine Corps always refers to the Flag of the United States that is borne by Marine Corps organizations authorized to carry that emblem.

A *Standard* is a distinguishing flag carried by certain units of the Corps. The *Marine Corps Standard* was approved in January, 1939, as the "Regimental Flag" and redesignated as the Marine Corps Standard in the following November; it replaced the blue flag formerly used. Organizational and Battle Standards are the same as the Marine Corps Standard, except that the unit designation is shown on the ribbon under the Corps emblem.

A *Guidon* is a small flag carried by companies, batteries, and similar units, as unit markers. The "Guidon U. S. M. C." is sometimes called "Dress Guidon."

#### Flags of the United States Coast Guard, Page 645

The United States in 1790 established a Revenue-Marine Service to enforce customs laws. Nine years later the Service was given its first flag (page 644, Customs). This flag is the basis of the present *Coast Guard Ensign*.

The name Coast Guard was adopted in 1915 when the Revenue Cutter Service and the Life-Saving Service were merged.

The Coast Guard is under the Treasury Department in times of peace, but since 1799 it has been attached to the Navy in times of war.

Flags of the Coast Guard show the effect of association with the Navy as well as the similarity of organization.

While the Senior Officer Present Pennant is still required under Coast Guard Regulations, the probability exists that it may be abandoned following similar Navy action.

## Flags of the Latin-American Republics

Pages 647-657

**F**LAGS AS SYMBOLS of government are necessarily closely allied with political movements. In 1776 the successful revolt of the American Colonies against England was shocking or thrilling, according to one's point of view. In 1789 the French Revolution with its cry of "Liberty, Equality, Fraternity" awakened new hope of a better world for the common people.

Policies in distant Europe brought on a crisis in 17 of the 20 present Latin-American countries.

In 1808 Napoleon put his brother, Joseph Bona-

parte, on the throne of Spain. The news that Ferdinand VII, their "legitimate" king, had been removed from the throne gave impetus to the cause of independence among Spain's colonists in America.

By 1814 the people in Spain succeeded in forcing Joseph out and restoring Ferdinand to the throne, but it was too late to save the colonies. Many of the countries did not win their freedom without additional years of hard fighting, but it was certain that they would never again be subject to Spain. The effective struggle for freedom gave birth to most of the flags in this series.



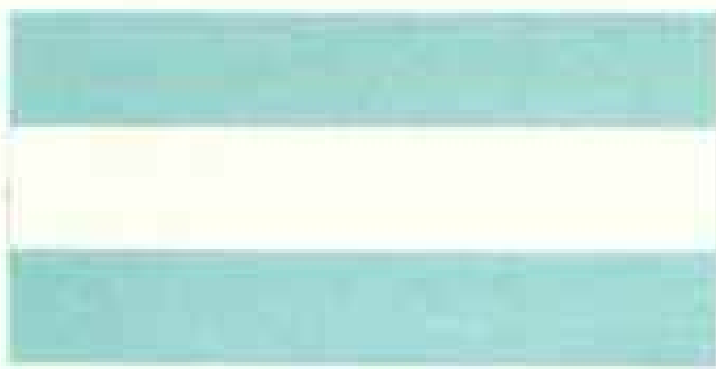
Argentina  
President's Flag



Argentina  
Coat of Arms



Argentina  
National Flag, Ensign



Argentina  
Merchant Flag



Argentina  
Sun Badge



Argentina  
Jack



Bolivia  
President's Flag, National Flag



Bolivia  
Coat of Arms



Bolivia  
Merchant Flag



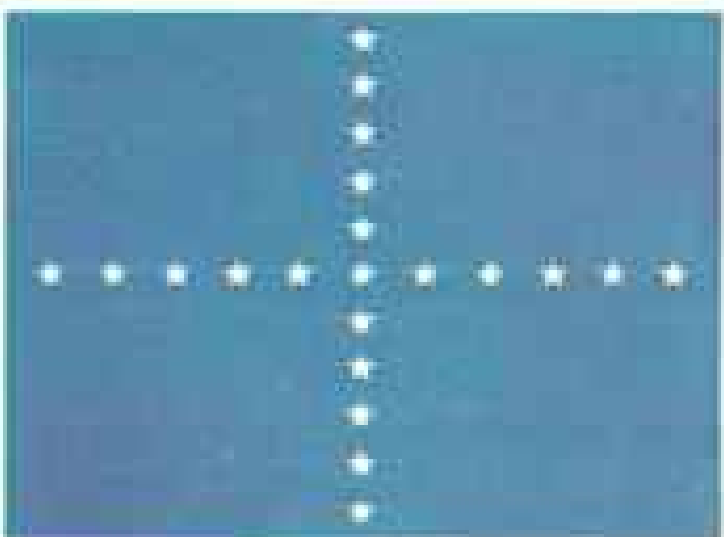
Brazil  
President's Flag



Brazil  
Coat of Arms



Brazil  
National Flag, Ensign, Merchant Flag



Brazil  
Jack



Chile  
Coat of Arms



Chile  
President's Flag



**Argentina, page 647.** In 1807 the famous native Argentine regiment, the *Patricios* (literally "Patricians" but usually called "Patriots"), wore blue and white uniforms. On May 25, 1810, considered the day when Argentina as a nation was born, many of the revolutionaries were wearing blue and white ribbons.

A resolution on February 18, 1812, made the national cockade blue and white. Nine days later the Argentine Flag was born in Rosario. Gen. Manuel Belgrano, the patriot who created the flag, combined the colors of the cockade. The flag was approved in 1813, and again in 1816 and 1818.

Lack of uniformity led to the resolution of April 24, 1944, which based the flags upon the law of 1818.

The "Sun of May" on the flag and coat of arms is a symbol of success in memory of May 25, 1810 (pages 638-9). The sun is from the first Argentine coins made under the law of 1813.

The flag with the sun is officially called *bandera de guerra*, or war flag. But its use makes it the National Flag and Ensign.

The flag without the sun is used by citizens as well as by privately owned merchant vessels. It is in a sense a "private flag," but its use also makes it the Merchant Flag.

The President's Flag carries the coat of arms of the Republic, approved in 1813. The liberty cap is a symbol of freedom. The clasped hands represent fraternity and union. The laurel wreath is a symbol of honor.

**Bolivia, page 647.** The proclamation of independence made by "Upper Peru" at La Paz on July 16, 1809, began 15 years of warfare. On January 30, 1825, Gen. Simón Bolívar entered the city and proclaimed the country's independence.

The flag, adopted in 1825, was of green-red-green stripes with the arms in the center. The following year yellow was substituted for one of the green stripes. Red, gold, and green represent the animal, mineral, and vegetable kingdoms. The flag and arms now used were adopted by the law of July 14, 1888. Private citizens use the Merchant Flag.

The shield of the arms has a landscape with Mount Potosí, symbolizing mineral wealth. The alpaca is the source of famous fleece. The vegetable kingdom is represented by a sheaf of wheat and a breadfruit tree. A rising sun represents the future.

Nine gold stars on the rim are for the Departments of the Republic. Bolivian flags symbolize love of country; cannon and rifles, armed strength. On the left is a liberty cap and on the right an Inca battle ax. In a wreath of laurel and olive for victory and peace, a condor is the crest of the arms.

**Brazil, page 647.** Unrest in the Empire of Brazil led to a bloodless revolution on November 15, 1889. Four days later the National Flag was decreed.

The flag's designer was Décio Villares, a painter

who worked under the direction of Miguel Lemos. The design bears some resemblance to the Empire Flag. Tradition now suggests green for forests and yellow for gold, or the vegetable and mineral kingdoms.

The sphere is a conventionalized picture of the sky at Rio de Janeiro with the Southern Cross at the meridian. Blue is for the sky and fraternity. The white band is the path of the earth through the heavens.

The sphere represents the country's history. It is reminiscent of the astronomical instrument called an armillary sphere; this, and the Southern Cross, were guides for explorers. Blue and white, originally from the Portuguese flag, are for colonial and monarchical periods. The 21 stars represented political divisions at the time the design was approved and are a symbol of civic independence and cooperation. The motto on the flag is for the future: *Ordem E Progresso*, "Order and Progress."

The President's Flag has the national coat of arms near the staff.

Superimposed on the large star is a blue band with 21 white stars. The five silver stars in the center are the Southern Cross; the large star represents unity and territorial integrity. The golden rays denote the rising sun, or confidence in a glorious future.

The large star is supported on a vertical sword; a star appears on the hilt. The branches of coffee and tobacco are symbols of commercial wealth. The blue ribbon carries the name of the country and the date of the foundation of the Republic.

**Chile, pages 647-650.** Chile's early flags were horizontal tricolors. The first, blue-white-yellow, was officially raised on September 30, 1812.

In May, 1817, a blue-white-red horizontal tricolor, the "Flag of Transition," was established. In September the present flag was decreed. The designer was Carlos Wood, an "Anglo-North American artist contracted by the Chilean army as a military engineer."

The star may have come from the pennants of Chilean Indians, and it represents them. It may also refer to Chile's geographic position. A patriotic sentiment states the star represents "Independent Chile."

Source of the colors has several explanations. The one generally accepted by Chilean historians is that the colors were inspired by the Flag of the United States.

The President's Flag is like the National Flag with the addition of the arms. Chile's third coat of arms, now used, was designed by Don José Ignacio Zenteno in 1834. The Chilean star appears on the shield. The supporters are a huemul and condor. The crest is three plumes, blue, white, and red.

The motto *Por la Razón o la Fuerza*, "By Right or Might," was a patriotic slogan during Chile's War of Independence.

The Jack is the canton of the National Flag, but the star is proportionately smaller.



Joe Rosenthal from *Wide World*

### Six Fighting Americans—Three Were Soon Killed—Raise the Flag Over Iwo Jima

Battling the Japs to the top of Mount Suribachi, five Marines and a Navy Medical Corpsman planted Old Glory despite enemy fire on February 23, 1945. Photographer Rosenthal recorded the moment in a picture that stirred and inspired the Nation. Heroes all, the men were (left to right): Pfc. Franklin R. Sousley, Flemingsburg, Kentucky; Pfc. Ira H. Hayes, Bapchule, Arizona; Sgt. Michael Strank, Conemaugh, Pennsylvania, and PhM/C John H. Bradley, Appleton, Wisconsin (both obscured by comrades), Pfc. Rene A. Gagnon, Manchester, New Hampshire; and Cpl. Harlon H. Block, Weslaco, Texas. Sergeant Strank, Corporal Block, and Private Sousley were killed in action before the island was secured. The Iwo Jima flag is now in the Marine Corps Museum, Quantico, Virginia.



Chile  
National Flag, Ensign, Merchant Flag



Chile  
Jack



Colombia  
National Flag Jack



Colombia  
Coat of Arms



Colombia  
Ensign



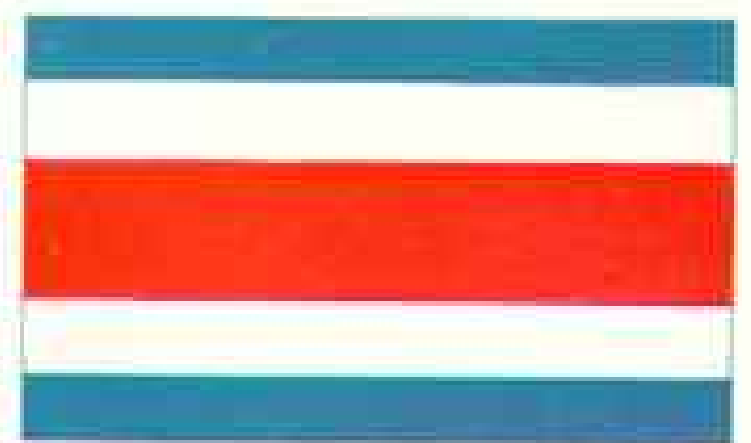
Colombia  
Merchant Badge



Colombia  
Merchant Flag



Costa Rica  
Coat of Arms



Costa Rica  
National Flag, Merchant Flag



Costa Rica  
Government Flag, Ensign



Cuba  
Coat of Arms



Cuba  
President's Flag



Cuba  
National Flag, Ensign, Merchant Flag



Cuba  
Jack



Dominican Republic  
National Flag

**Colombia, page 650.** Bolívar believed in the possibility of a great South American union, and he united Venezuela and the Intendencia of Quito (Ecuador) to New Granada to form a country which he named the Republic of Great Colombia.

The federation used the flag designed by Francisco Miranda and carried by the Bolivarian armies (page 639). It also used the coat of arms of Venezuela with a few minor changes.

Bolívar's hope for a United States of South America was short-lived. The formal dissolution of the union was recognized in 1832. With the breakup of "Greater Colombia," the Republic of New Granada kept the tricolor flag, using a badge with nine stars in the center until 1889.

The National Flag of Colombia used on Government buildings is the tricolor. The flag of the Colombian Navy (Ensign, page 638) adds the Colombian coat of arms. The Army also uses the tricolor with the arms and the name of the body of troops.

The top of the shield of arms has a pomegranate, or *granada*, a heraldic pun on the name "New Granada." Cornucopias overflowing with fruits and old coins show agricultural and mineral wealth. The lance supports a liberty cap. The picture portrays the Isthmus of Panama, with one ship on the Pacific Ocean and another on the Caribbean Sea. The condor is a symbol of independence. The motto on the scroll is *Libertad y Orden*, "Liberty and Order."

A new drawing of the arms supplied after the color plate was made shows the condor facing *dexter* (its own right); badges on the supporting flags are omitted.

The Merchant Flag carries a badge with an eight-pointed star.

**Costa Rica, page 650.** Costa Rica gained its independence in 1821. In May, 1823, the new nation adopted a white flag with a red star.

This flag was replaced when Costa Rica joined the other four provinces under the name of the United Provinces of Central America. The flag of the Federation, adopted in 1823, had blue-white-blue horizontal stripes. From this flag five of the six Central American countries derive their flags.

The present flag, established in 1848, is the old Federation flag with a center red stripe.

The National Flag of Costa Rica is also the Merchant Flag. Government buildings use it with the addition of the coat of arms. The flag with arms also serves as the Ensign; the Army uses this flag with gold numerals.

Essentially, the coat of arms as in present use was established by decree in 1848, but in 1906 the trophies on each side of the shield were dropped.

The scene on the arms shows three volcanoes (Turrialba, Irazú, Poás) connected by a valley between the Atlantic and Pacific Oceans. A merchant ship appears on each ocean. Five stars symbolize the Republic's original five Provinces. Above, myrtle branches are half covered by a ribbon carrying the country's name. A ribbon

tied like a crown has the words *América Central*.

Individuals may adorn their houses only with streamers and pennants in the national colors.

**Cuba, page 650.** Narciso López, who had fought in his native Venezuela against Bolívar, led the first significant fight for Cuba's independence; he was garroted in 1851.

López was the originator of the flag of Cuba (page 639). The Cuban poet Miguel Teurbe Tolón drew the flag in 1849. Blue, white, and red are the colors of liberty. Blue stripes represented military districts; white, integrity of purpose; red, the blood of patriots. The triangle symbolizes force and order. The "Lone Star," originally selected to light the way toward freedom, now represents Cuba's glory and independence.

Carlos Manuel de Céspedes used a flag with the López colors in the Ten Years' War, which started in 1868.

Cuba's freedom from Spain resulted from the long struggle the Cubans carried on for their independence during the 19th century, which was brought to a victorious end with the Spanish-American War. López's flag, *La Estrella Solitaria*, "The Lone Star," was first raised as Cuba's official emblem on Morro Castle on May 20, 1902.

Cuba's coat of arms was also drawn by Tolón. Rocky capes represent North and South. The Golden Key between the capes represents Cuba, the key to the Gulf of Mexico. The sun shows that Cuba was freed by the blood of heroes and that she has a bright future. The shield also has stripes from Cuba's flag and a landscape with a royal palm in a valley. The fasces typify unity and fraternity, and the cap, liberty.

The President's Flag bears the arms. López's flag is now Cuba's National Flag, Ensign, and Merchant Flag. The Jack is similar to Céspedes' design.

**Dominican Republic, pages 650-652.** Spain ceded to France the eastern end of the island of Hispaniola in 1795. Returned to Spanish control in 1814, the Dominicans declared themselves independent in 1821. From 1822 until 1844 they were under the rule of their western neighbor, Haiti. Juan Pablo Duarte formed in 1838 a secret society called *La Trinitaria*, "The Trinitarians," which achieved independence for the Dominicans in 1844.

Duarte's design for the National Flag has been used consistently except for the period from 1861-65 when the Dominicans were again under Spain.

The coat of arms, also designed by Duarte, reveals a book of the Gospels, surmounted by a cross. The motto *Dios, Patria y Libertad*, "God, Country and Liberty," was the Trinitarian password. Red is for the blood of heroes; white, ideals of redemption; blue, liberty.

The stripes on the Army Flag are green for infantry; white, aviation; red, artillery; yellow, cavalry. The Army Flag is raised with the National Flag.

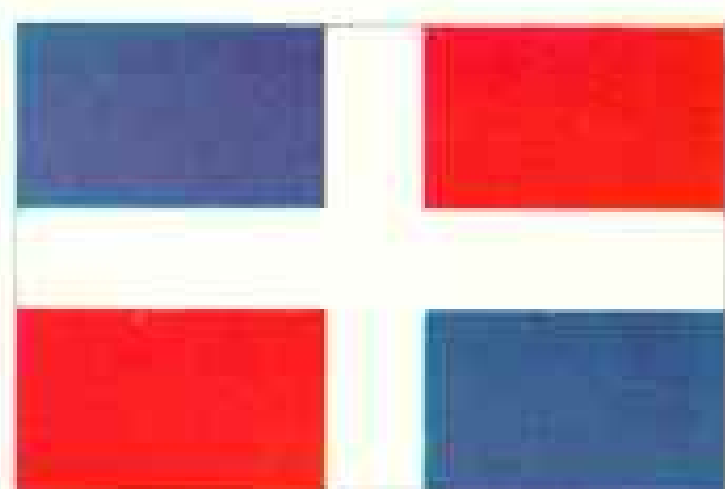
The Flag of the National Police, not shown.



Dominican Republic  
*Army Flag*



Dominican Republic  
*Coat of Arms*



Dominican Republic  
*Merchant Flag*



Dominican Republic  
*Jock*



Ecuador  
*Coat of Arms*



Ecuador  
*President's Flag National Flag Ensign*



Ecuador  
*National Flag for Municipal Buildings*



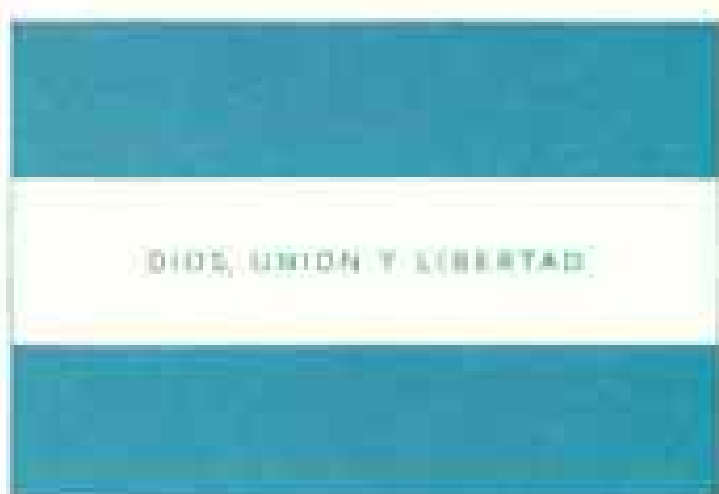
Ecuador  
*Merchant Flag*



El Salvador  
*National Flag Ensign*



El Salvador  
*Coat of Arms*



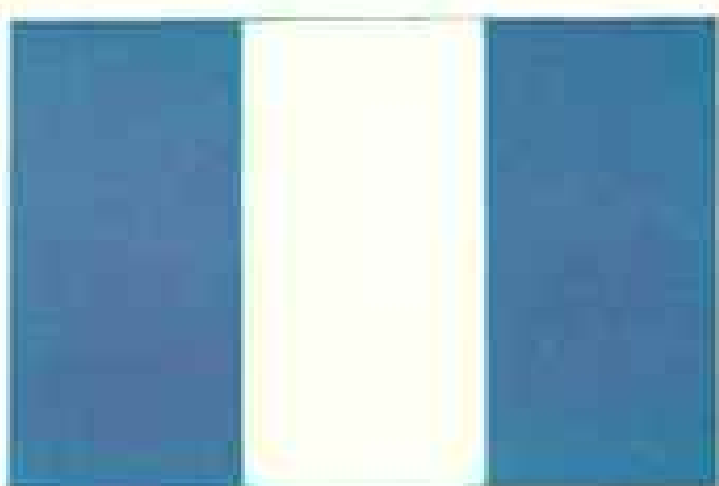
El Salvador  
*Merchant Flag*



Guatemala  
*Coat of Arms*



Guatemala  
*National Flag*



Guatemala  
*Merchant Flag*



Haiti  
*National Flag*

has three stripes. The National Flag is in the top stripe next to the staff; the remaining section of the stripe is blue with five white stars. The middle stripe is white; the bottom, emerald green. This flag is flown with the National Flag.

**Ecuador, page 652.** In August, 1809, Quito, now capital of Ecuador, attempted to throw off the yoke of Spain. That first night the yellow-blue-red colors were mentioned, and later much fighting was done under them, although they were not officially Quito's flag until 1822 when she became part of "Greater Colombia." Withdrawing from Colombia in 1830, Quito, renamed Ecuador, retained the colors, which she has used since, except for the period between 1845 and 1860.

The National Flag of Ecuador is the tricolor with the arms. This design is also the President's Flag, Ensign, and Jack. The Army uses the National Flag, adding numbers for units. Municipal buildings use the tricolor with 17 stars representing the Provinces. The plain tricolor is the Merchant Flag; it is used by citizens.

The arms have been substantially the same since 1845. The sun appears with signs of the zodiac representing March, April, May, and June (Ram, Bull, Twins, Crab) of 1845, when Ecuador was trying to ward off foreign domination.

At the left is Mount Chimborazo, where Bolívar first thought of a South American union. Mountain and river symbolize the union of interior and coast. A steamboat recalls that the first ocean-going sailing vessels built on the west coast of South America were constructed in Guayaquil.

The ship's mast is a caduceus, symbol of Mercury, god of commerce. The fasces represent the republican institutions of the country. The lance-tipped flags mean that the citizens will defend their country. The condor represents strength and valor.

**El Salvador, page 652.** El Salvador withdrew from the United Provinces of Central America in 1838, but she kept the Federation flag (page 651, Costa Rica) until 1865. In that year she adopted a flag, but in 1912 the old Federation flag and arms, slightly modified, were restored.

Since 1916 both the National Flag and Ensign have been the Federation flag with arms. The Army uses the flag with the arms, but places the motto *Dios, Union y Libertad*, "God, Union and Liberty," on the top stripe and the number of the unit on the bottom. The Merchant Flag uses only the motto in silver letters on the center stripe. Unofficially the motto is sometimes shown in blue, as silver or gray is hard to show on white.

The present-day shield of arms of El Salvador has five volcanoes. The desire to retain a design similar to the Federation arms explains the presence of the two oceans on the arms of a country bordering only on the Pacific. The rainbow is a symbol of optimism. In the rays from the liberty cap appears the date "15 de Septiembre de 1821," commemorating independence from Spain. The month is sometimes abbreviated.

The shield is supported by five flags. Below is the motto, *Dios, Union y Libertad*; sometimes the "y" is omitted.

**Guatemala, page 652.** With the dissolution of the United Provinces of Central America in 1839, Guatemala kept the Federation flag (page 651, Costa Rica) but changed the coat of arms. A seven-stripe flag—blue, white, red, yellow, red, white, blue—was adopted in 1851. In 1871 President García Granados ordered that the flag have the United Provinces' colors in vertical stripes. The National Flag of Guatemala has the coat of arms, while the Merchant Flag is plain.

Guatemala adopted new arms in 1845. The arms now used were decreed in 1871. Swords and rifles indicate that the people are willing to risk their lives for freedom. The scroll bears the legend, *Libertad, 15 de Setiembre de 1821*, "Liberty, September 15, 1821," the date of independence from Spain. Recently it was discovered that Guatemala's national bird, the quetzal, used on the arms as a symbol of freedom, could survive captivity.

In pre-Conquest times, only nobles were allowed to have badges, robes, headdresses, and wall decorations made from the feathers of the brilliant male quetzal.

Legend tells that the quetzal led the people of Guatemala through mountains, deserts, and forests and divided the waters of the sea so that they could cross to the land which was to be their own. (See Mexican legend, page 655.)

**Haiti, pages 652-654.** At the beginning of the war for independence from France, the Haitians used the French Tricolor, but in 1803 Gen. Jean Jacques Dessalines adopted a distinctive flag—the French Tricolor from which the white stripe was torn. White was omitted because it was considered a symbol of good will toward France. Red represented the Mulattoes and blue the Negroes. Later black replaced blue.

After Dessalines' assassination in 1806, Haiti was divided between Henri Christophe and Gen. Alexandre Pétion. Christophe adopted the black and red vertically striped, or Empire flag. Pétion adopted blue over red with the arms in the center, the flag of the Republic.

When Gen. Jean Pierre Boyer united the Dominican Republic to Haiti (1822-44), he used the horizontal-stripe flag. In 1843 the Constitution described the horizontal bicolor of blue and red with the arms as Pétion had used it in 1807.

When union with the Dominican Republic ended (1844), Haiti retained its flag and arms. Thus they have been in continuous use since 1807, although a slight change was made in the arms from 1849 to 1859 when Haiti was an empire.

The 1920 decree describes the arms as a palm tree for pride surmounted by a liberty cap. Implements of war surround the tree. The size of the arms on the flag is not set by law; size illustrated is that used by the Army.

*L'Union Fait La Force*, "Union makes strength," is sometimes attributed to Pétion.



Haiti  
Coat of Arms



Haiti  
Merchant Flag



Honduras  
Coat of Arms



Honduras  
National Flag Ensign



Honduras  
Merchant Flag



Mexico  
President's Flag National Flag Ensign Jack



Mexico  
Coat of Arms



Mexico  
Merchant Flag



Nicaragua  
Coat of Arms



Nicaragua  
National Flag Ensign Merchant Flag



Panama  
Coat of Arms



Panama  
National Flag Ensign Merchant Flag



Paraguay  
Coat of Arms



Paraguay  
President's Flag



Paraguay  
Treasury Seal

**Honduras, page 654.** Upon its secession from the United Provinces on November 5, 1838, Honduras raised the Provinces' blue-white-blue flag, with a distinctive device in the center.

The National Flag and Ensign have the coat of arms with five blue stars in an arc below. The Army also uses it. The Merchant Flag has the stars, placed in a different arrangement.

White symbolizes the aspiration for peace; blue, the nation's hope of attaining the highest degree of culture and civilization.

The five stars depict the ideal that the countries of Central America may again be united (page 651).

Changed only slightly in a century of use, the arms preserve the triangle, symbol of equality and justice, from the arms of the United Provinces. Circling the oval are the name of the country; the motto *Libre, Soberana e Independiente*, "Free, Sovereign and Independent"; the date of independence. Above is a quiver of arrows, flanked by horns of plenty; the horns mean that the country's wealth is attained by the labor and union of its people.

Water around the triangle is for the two oceans; the rainbow is for hope; the castles stand for the sovereignty and integrity of the country. The oaks and pines are tokens of the strength of the people and their hope for the development of their country. The tools—wedge, spalling (stone) hammer, sledge hammer, stone drill, and square—signify the country's call for its people to mold their national conscience with honor and labor.

**Mexico, page 654.** Fr. Miguel Hidalgo, who led the fight for freedom from Spain in 1810, used a picture of the Virgin of Guadalupe on his flag. Fr. José María Morelos's army had a blue and white flag with the first Mexican arms in 1811. In the final struggle a white-blue-red horizontal tricolor was the emblem.

Gen. Agustín de Iturbide, a royalist officer, joined the insurgents and forced the Spanish to accept the Plan of Iguala in 1821. Later he had himself crowned as Emperor Agustín I, but was forced to abdicate in 1823.

Iturbide decreed a white, green, and red flag—the "Flag of the Three Guarantees," for the colors symbolized "Religion, Independence, and Union," guaranteed by Iguala. The Supreme Provisional Council added the arms.

After Iturbide's dethronement the flag was retained, but the order of the colors was changed to green, white, red. There have been many variations in the arms, but the 1934 law decrees that they be identical with those of 1823.

The eagle has two legends. Searching for a place to settle, the Aztecs in 1325 came to a lake; beside it they saw an eagle perched on the stem of a nopal, or prickly pear cactus, growing out of a rock. In its talons was a serpent. Taking this as a good omen, the Aztecs founded Tenochtitlán, site of Mexico City. Another version is that Montezuma was borne on the eagle's back from his birthplace to the site of the future city.

The harpy eagle, the Aztecs' "winged wolf," is depicted killing a serpent, thus symbolizing the

triumph of freedom over the evil of oppression.

Italy now uses a plain green-white-red tricolor as its National Flag. Since Mexico has used this as a Merchant Flag for almost 100 years, confusion between the two should be avoided.

**Nicaragua, page 654.** Nicaragua joined the federation of the United Provinces of Central America in 1823. After withdrawing from it in 1838, Nicaragua continued to use its flag and arms, changing only the name of the country around the arms, until April 21, 1854.

The new flag was a yellow-white-red horizontal tricolor. In the center was a coat of arms, adopted by the same act. Merchant vessels replaced the arms with the name of the country in gold letters.

Just how long this flag was used is not known, but custom re-established the flag of the United Provinces, and in 1908 a law established the arms and flag as nearly like the old as possible.

The five volcanoes (page 639) honor the States in the United Provinces. The sides of the equilateral triangle indicate that the bases for republican organization of the State should be Justice, Truth, and Right.

Since 1908 the flag design has served for National Flag, Ensign, and Merchant Flag. The only difference made in it is that the lettering is in gold for offices of the State, embassies, legations, consulates, naval and merchant vessels, and the Army; it is in silver for lesser Government offices.

**Panama, page 654.** Panama declared her independence from Spain in 1821 and joined the Republic of Colombia. Thus from 1821 until 1903 Panama's flag history is identical with Colombia's (page 651).

After failure of the French attempt to build a canal across Panama, the United States and Colombia negotiated a canal treaty in 1903. The Colombians refused to ratify the treaty, and Panama declared its independence.

Manuel E. Amador, son of Manuel Amador Guerrero, Panama's first President, designed the flag. It was first raised on November 3, 1903.

In the Constitution of 1904 the flag of 1903 was approved provisionally, and the Constitution of 1946 confirmed it. White represents peace; red and blue, the union of liberal and conservative parties; stars, faith and strength in the future.

Like the flag, the coat of arms was approved in 1904 and 1946. The green field symbolizes vegetation. The landscape shows the Isthmus. The moon rising from the sea and the sun setting over the mountains indicate that independence was born when afternoon and evening met.

The abandoned sword and gun mean "farewell to the civil wars which have heretofore been the cause of our ruin." The spade and hoe represent labor. The cornucopia is for plenty; the winged wheel, for progress.

The motto is *Pro Mundi Beneficio*, "For the Benefit of the World." The nine gold stars represent the Provinces.





Paraguay  
National Flag, Ensign, Merchant Flag



Paraguay  
Jack



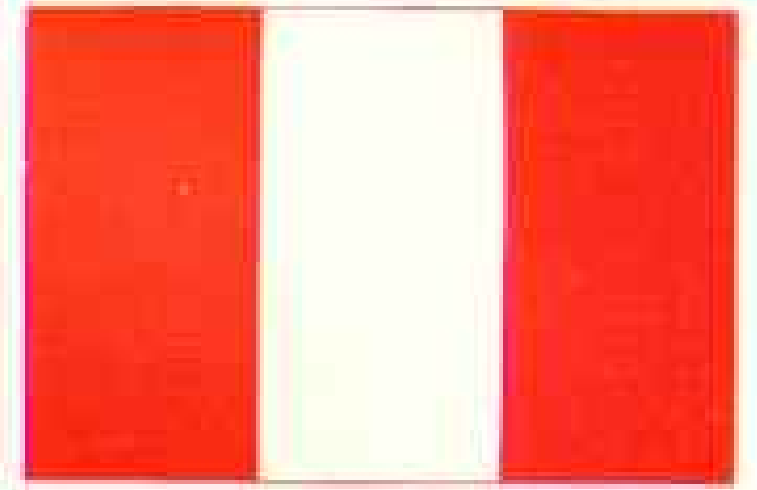
Peru  
President's Flag



Peru  
National Flag, Ensign



Peru  
Coat of Arms



Peru  
Merchant Flag



Peru  
Jack



Uruguay  
Coat of Arms



Uruguay  
President's Flag



Uruguay  
National Flag, Ensign, Merchant Flag



Uruguay  
Sun Badge



Uruguay  
Jack



Venezuela  
President's Flag, National Flag, Ensign



Venezuela  
Coat of Arms



Venezuela  
Merchant Flag

**Paraguay, pages 654, 656.** Paraguay is the only American republic which has both an obverse and reverse for its National Flag.

Contemporary records show that in June, 1811, a month after Paraguay declared her independence, a blue, flesh-color, and yellow tricolor bearing the arms of the King of Spain was raised in Asunción. In August a year later this flag was replaced by a red, white, and blue flag; one side carried the arms of Asunción and the other the arms of the King.

A law in 1842 stated that the National Flag should be the "same as hitherto used by the Nation . . . On one side the national Coat of Arms with a Palm and Olive tied together, a Star being shown between them. On the reverse a circle with the inscription *Paz y Justicia* [Peace and Justice], and in the center a *Lion*."

Thus the flag's colors have remained unchanged since 1812. The reference in the law to the National Arms is confusing. Many historians feel that the design was new in 1842; others that the law confirmed a design in use. The lion badge is from the Treasury Seal. The devices on the flag, however, have been used more than 100 years, although the drawings of them have varied during the period. No official explanation was given for the star; the lion and the liberty cap it guards symbolize liberty.

Only the arms appear on the President's Flag, and details of the design are slightly different.

**Peru, page 656.** When he landed in Peru to liberate its people, Gen. José de San Martín, according to legend, disturbed a flock of birds with white breasts and brilliant red wings, apparently flamingos. He hailed them as the "flag of Liberty."

The San Martín Flag, created in 1820, was diagonally divided into four triangular sections—two white, two red—with a coat of arms in the center. Since San Martín's design was difficult to make, the flag was changed in 1822 to three horizontal bands, red-white-red, with the sun from San Martín's arms in the center. Battlefield confusion with the Spanish red-yellow-red flag led to the use of the colors in vertical stripes.

When Peru established its sovereignty in 1825, the vertical red-white-red flag with a new coat of arms was approved by Gen. Simón Bolívar as the National Flag and Ensign. The Merchant Flag was without the arms.

The arms, adopted in 1825, are used in different forms on the National and President's Flags.

The llama and the cinchona tree are native to Peru. Gold coins pour from the cornucopia. Together the three symbolize wealth in the animal, vegetable, and mineral kingdoms. The civic crown of laurel used as a crest and the palm and laurel wreath are for patriotism and glory. The crest and laurel crowns on each side of the shield are for Lima, "City of the Three Kings."

**Uruguay, page 656.** José Gervasio Artigas, Uruguay's hero, helped free Argentina from Spanish rule. When the Uruguayans in turn

wanted to be free from both Spain and Argentina, they found themselves forced to fight Argentina. In this struggle Artigas created Uruguay's first flag, the design of which survives today in the Jack. After freeing themselves from Argentina, the Uruguayans were invaded by the Portuguese of Brazil. By 1828 full independence was achieved. The last fighting was done under a blue-white-red horizontal tricolor.

Uruguay created its flag as a sovereign nation in December, 1828. It was white with nine blue stripes and with a sun in a white canton.

In July, 1830, the flag was changed to have four blue stripes. The sun on the flag is supposed to be the sun from the arms with the rays completed; this makes 20 rays, although many flags have 16-ray suns.

The nine stripes represented political divisions of the country when the flag was established; the colors show the country's former relationship with Argentina. The "Sun of May" (page 638) here symbolizes Uruguay's independence.

Originally created in 1829, the coat of arms assumed its present form as a result of rulings made in 1906 and 1908. The scale is for equality and justice; the Cerro (Mountain) of Montevideo with the fortress at its top is a symbol of strength. The horse running free is for liberty; the ox is for plenty in a land primarily devoted to cattle raising. The crest is the sun.

**Venezuela, page 656.** Francisco Miranda, "Precursor of Independence," attempted unsuccessfully in 1806 to stir his countrymen to revolt against Spain. Miranda and Simón Bolívar, "Liberator of South America," succeeded in 1811 in having Venezuela proclaimed independent. The government survived only a year; not until 1824 were the last royal troops expelled.

Miranda flew a yellow-blue-red tricolor, presumably designed by himself (page 639), and Bolívar used the combination so consistently that it is frequently called "Bolívar's colors." At the time they were interpreted to mean that golden America was separated by the ocean from Spain.

When Bolívar united New Granada (Colombia), Quito (Ecuador), and Venezuela to form the Republic of Colombia, these colors were adopted for the flag.

Withdrawing from the union in 1829, Venezuela kept her colors; they appear today in the flags of all three countries which once formed the union.

The stars were originally six in a circle and one in the middle to represent the seven Provinces which joined to declare their independence. Since 1930 the stars have formed an arc. Established in 1836, the arms were changed by subsequent laws, the latest in 1930. A bundle of wheat stalks symbolizes both the union of the Provinces and the fertility of the country's soil; a trophy of arms and flags indicates triumph. The untamed horse is for independence and liberty. The ribbons are inscribed, *19 de Abril de 1810—Independencia* and *20 de Febrero de 1859—Federación. E. E. U. U. de Venezuela*, the "United States of Venezuela," is below.



### A Woman at a Monastery Is the Cynosure of a Hundred Monkish Eyes

Beyond the curtained entrance of the main temple in Gyangtse, Tibet, the author-artist spent several days sketching. "At first the monks ran from me," she reports. "Here on the fourth day fear has turned to friendliness."

# A Woman Paints the Tibetans

BY LAFUGIE

I WAS a girl in Paris, barely out of art school, when I grew bored with painting cows in meadows and flowers in bowls. The Orient tugged with such fascination that I resolved to paint its peoples, no matter what the handicaps or dangers.

My devoted parents, both conventional French people, considered their ambitious daughter mad. Passport officials, upon learning the forbidden places I wanted to visit, laughed at me.

Nevertheless I went. Since the day I left home, I have pictured the racial types and costumes of Ceylon, India, Tibet, French Indochina, Burma, Siam, China, Japan, Java, Bali, Borneo, Iran, Iraq, Trans-Jordan, Palestine, and Syria. I have traveled by foot, automobile, bullock cart, yak, donkey, elephant, pirogue, and bamboo raft. Though I went armed with nothing more than a paintbrush, no Oriental bad man molested me.

## Kibitzers Watch the Artist Paint

My safety, I am convinced, I owe to the tools of my profession. My brushes, pencils, and pigments, when applied to canvas, plywood, or paper, disarmed the suspicions of the ignorant and whetted the benevolent curiosity of the powerful, making friends everywhere.

Let me set up an easel in jungle or desert, a crowd appears as around a sidewalk artist in Paris. If I have a model before me, my audience tells him what I am painting by pointing to their own faces, limbs, or garments.

Three years of painting India's maharajas left me weary of their marble palaces, golden dinner services, and silver-trimmed automobiles.\* Forbidden Tibet, behind its closed doors, sounded the call of the unknown.

English officials were shocked at the idea of a woman traveling alone in Tibet. Just as I was beginning to despair, I received permission to go, with the understanding that His Majesty's Government declined all responsibility for my safety.

To visit the places I wanted to see, I was compelled to make three expeditions into lofty central Asia, setting out each spring when thaws opened the mountain passes and returning each autumn before snow blocked them.

From Srinagar, capital of Kashmir, I made my first trip to Ladakh.†

Politically, Ladakh is a part of the State of Jammu and Kashmir, of which it occupies the eastern section. In everything else the two parts of the State are as far apart as

the poles. Kashmiris, predominantly Aryan and Moslem, live in a green, watery vale. Ladakhis, Mongoloid and largely Buddhist, dwell in a cold, lofty waste (map, page 661). Ladakhis acknowledge the Dalai Lama of Lhasa as their spiritual leader; they speak a Tibetan dialect and dress in Tibetan style.

In Srinagar I hired as guide and interpreter a Tibetan boy who knew Hindustani, with which I was familiar. To meet expenses, I packed a chest with silver rupees. I bought blankets, folding cot, sleeping tent, kitchen tent, and food for seven months. In addition to such staples as potatoes, dried beans, flour, tea, coffee, canned meat and milk, I selected jams, cakes, and chocolate candies—and very useful these sweets proved to be.

My last preparation was a haircut, man-fashion, a precaution taken for sanitary reasons. Leaving dresses behind, I set out in boots, riding breeches, a man's shirt, and coat. Later, many a native of the Himalayas never could puzzle out whether I was man or woman (page 688).

*Shikaras*, Srinagar gondolas, ferried us up the Sind River to Gandarbal, where we hired porters. Supplies, packed in skin-covered crates, were lashed across the backs of five little Tibetan pack ponies.

Our caravan set out one April morning, and did not pause until sundown, a routine we followed thereafter. Eating lunch was not as important as making rest camp before dark. I learned to limit the midday meal to a few crackers munched in the saddle.

## Ponies Bog Down in Snow-clogged Pass

At Sonamarg we confronted the western Himalayas, which divide Kashmir into two parts. The gap through this range is the 11,580-foot-high Zoji La (la means pass).

Winter's barricade of snow still lay in the pass. Soon our ponies, floundering in snow up to their hips, could carry human cargo no longer, and I proceeded on foot. Where our horses stalled in deep drifts, the porters pulled them out by head and tail.

Each icy stream compelled us to pack and repack. Snow bridges trembled above deadly

\* See, in the NATIONAL GEOGRAPHIC MAGAZINE: "Feudal Splendor Lingers in Rajputana," by Volkmar Wentzel, October, 1948; and "In the Realms of the Maharajas," by Lawrence Copley Thaw and Margaret S. Thaw, December, 1940.

† See, in the NATIONAL GEOGRAPHIC MAGAZINE: "The Idyllic Vale of Kashmir," by Volkmar Wentzel, April, 1948; and "House-Boat Days in the Vale of Kashmir," by Florence H. Morden, October, 1929.



National Geographic Photographer Volkmar Wustard

### Ladakhi Schoolboys in Leh "Learn a Sentence" of Knowledge Every Day

The teacher is a Christian convert of a Moravian mission in Leh. His blackboard contains a sentence in Tibetan, and his map of Africa employs letters of both the Arabic and Devanagari alphabets.

crevasses. Biting winds howled through the pass as through a wind tunnel. Sunlight dancing off the snow strained my eyes despite dark glasses.

#### Fantastic Shrines Dot a Weird Landscape

In 14 hours we covered eight miles, and by night we reached a primitive rest hut. Exhausted, I rolled up in blankets and instantly fell asleep.

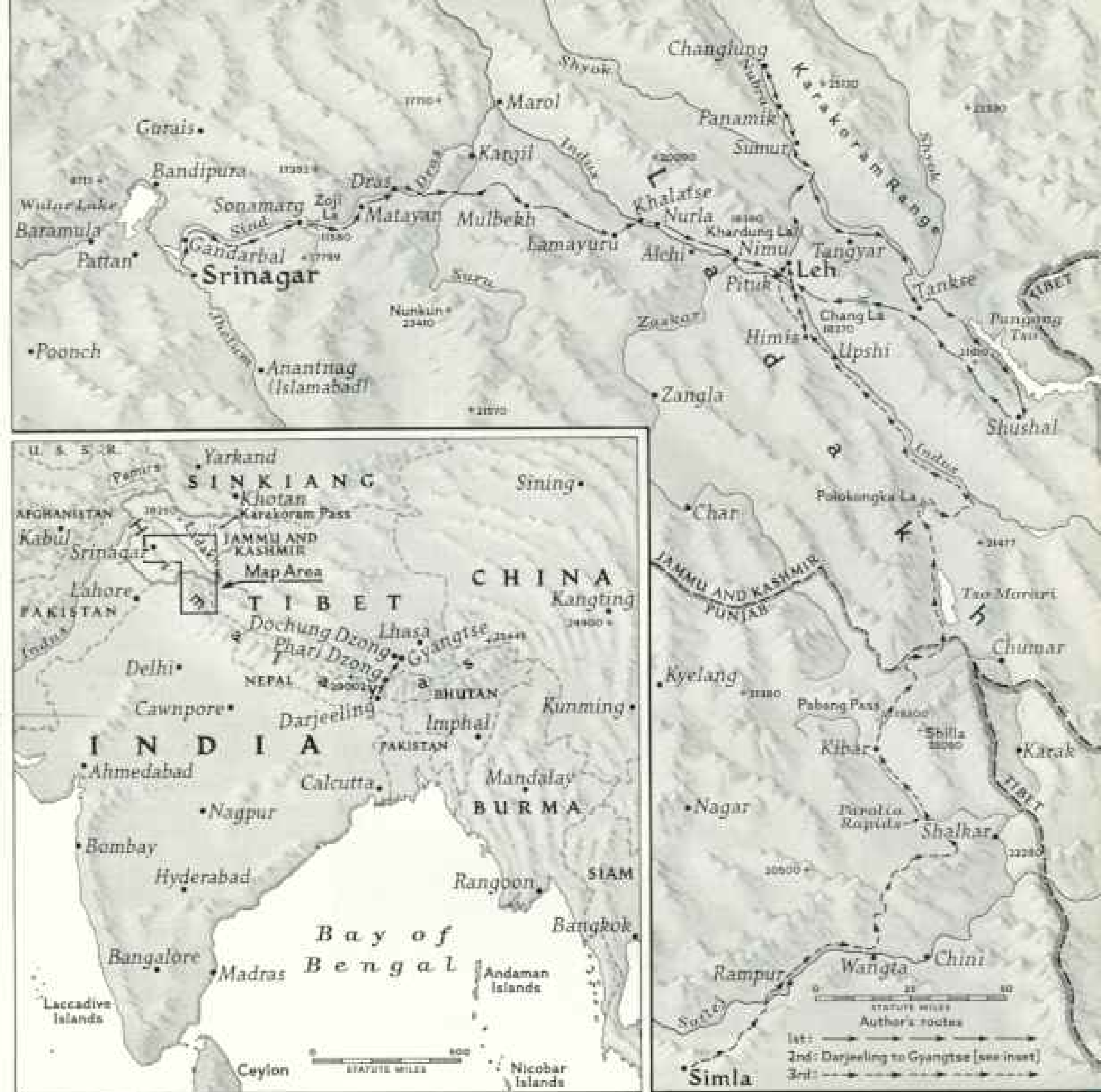
Entering Ladakh, we followed the Dras River, a tributary of the Indus, our trail a narrow cut along the canyon wall. When we passed westbound caravans, our ponies performed miracles of balance to save us

from tumbling down the frightful precipices.

The road continued up, up until we reached a desert of bare crags, simultaneously scorched by the sun and chilled by the wind. The farther we advanced, the more unreal became the scenery. Days passed without the sight of grass; here and there a canal carried glacier water to a village's patch of green.

As if Nature had not made this country weird enough, man had made it more fantastic still. Lamas, as Tibetan Buddhist monks are called, had marked the trail with uncanny *chortens*, *manis*, and lamaseries.

The approach to each village usually was signaled by a long mani, a wall of praying



Drawn by H. K. Eastwood and Irvin E. Allenman.

### Skirting 25,000-foot Peaks, the Author-Artist Explored the Glacier-capped Roof of Asia

Imagine a stony desert thrust some 15,000 feet into the sky. Such is Ladakh, by race and religion an arm of Buddhist Tibet, by politics a unit of that Kashmir for which Hindu and Moslem vie (inset). An afraid-of-nothing Frenchwoman, accompanied only by her servants, the author rode ponies and yaks across the western Himalayas to the Karakoram Range. She made three expeditions, the first and third to Ladakh, the second to Tibet. She illustrates in her paintings the strange sights she saw (pages 665-680).

stones, each inscribed with the prayer, *Om mani padme hum*, meaning, "Oh, thou jewel in the lotus, amen."

#### Where Prayers Are Said by Machines

Prayer wheels, turned by hand or stream, and prayer flags fluttering in a breeze ground out the same supplication automatically.

Stones in a mani are carved and set by pious monks. Their magic power is supposed to lessen the periods of purgatory for the spirit after death until it reaches Nirvana, the "perfect peace" of complete extinction.

On divided trails the traveler is supposed to keep the mani on his right hand. I always followed the custom, though my weary porters, trudging beside their beasts, sometimes neglected it (page 676).

When you are dead tired at the end of a day's journey, a mani makes a welcome sight, and you say to yourself, "We are near a village." Your wise little ponies seem to sense the fact, too. Neighing, they sniff the air, as if scenting friendly stables.

Mani walls, some a mile in length, generally end with chortens, the dried-mud or stone



National Geographic Photoarchiver Volkmar Westend

### Himis's One-man Band Bangs Cymbals and Drum

His concert ended, the monk will read Buddhist prayers from the manuscript before him. Sheets of handmade paper are printed in big block letters. At Himis Monastery the artist painted the Devil Dancers (pages 678 and 680).

towers built to contain the ashes of pious Buddhists. After cremation the ashes are mixed with clay and molded into a figurine. These little images—some traveler long ago dubbed them "potted lamas"—fill the hollows of many a chorten.

In architecture, too, the Ladakhi lama loves the grotesque. Scorning level foundations, he builds his lamaseries on pinnacles or cliffs, striving to dwell close to heaven (page 682).

We saw all three examples—manis, chortens, and eagle's-nest dwellings—about a dozen marches out of Zoji Pass. We were rounding a turn on the trail when suddenly the spectacle of Lamayuru burst upon us (page 679).

Twilight was falling across the canyon, and the sun's last rays turned the snowy

Himalayas to gold. Across the gloomy trail stood a mani wall and hundreds of weird chortens. Above us, Lamayuru, town and lamasery, sprang out of the crags like a Crusader's castle—a perpendicular marvel suitable to dreams and fairy tales.

Awe-struck, I stopped my horse and said, "I must paint this."

Riding on, we wound through the labyrinth of mausoleumlike chortens, keeping the mani on our right hand. We rode through gateways in chortens and camped outside the village.

### First Visit to a Monastery

The next morning I visited the monastery, my first experience with lamas. To reach their sky-high citadel, we dismounted and climbed a narrow path of steps hewn out of rock. People stared at us from rambling, eccentric buildings leaning over the lane.

I found the lamasery, built above precipice and crevices, perched on the apex of the crag. Water and food, I ob-

served, were hoisted by rope and pulley up the face of the vertical cliff. A jolly lot, the lamas received me hospitably and posed readily.

Just as the sun was setting, I returned to the trail to paint the gilded snow peaks. I had barely started when a band of monks, young and old, came racing down the trail to peer over my shoulder and to finger my belongings. Hoping to evade them, I retreated to my tent, but all came crowding in, and the atmosphere became stifling.

I was saved by the bell; at that moment the monastery's supper gong rang, and all the monks scampered back uphill.

On the eighteenth day of our journey we rode into Leh, capital of Ladakh, 250 miles

by trail from Srinagar.\* The great white palace of a deposed raja hung over the town from a mountain peak.

An avenue of poplars led us to the market place, where indolent merchants squatted among their wares; from it a lane led us to a meadow, where we pastured our ponies and pitched our tents.

Since lofty Leh is approached only by trails, it is a metropolis without wheels, the terminus of caravans from Khotan, Yarkand, Lhasa, Srinagar, and other romantic places whose very mention excites the dullest imagination.

Here men from Sinking unload bales of brick tea and felt rugs and trade with Indians for spices and manufactures.

Later, when Leh was bustling with summer's greatest activity, the streets were a babel; and yaks, ponies, and asses crowded the caravansaries (page 683).

What a gallery of costumes I sketched! What types! Fair, blue-eyed men from the north rubbed shoulders with bearded, turbaned Kashmiris, almond-eyed Tibetans, crafty Mongolians. All were in a hurry to sell, buy, and go home, 30 to 60 days away, before snows blocked the passes.

Part Buddhist, part Moslem, with a sprinkling of Hindus, the town is a melting pot.

#### Women Wear the Cobra Headdress

Ladakhi men wear their hair in pigtailed and, to make it appear longer, add braids of black wool. Above their trousers, tight at the ankles, they drape long homespun robes girded at the middle with purple belts, to which they attach knives, needle kits, wooden bowls, toothpicks, and copper carpicks. Cloth caps have winglike earflaps of sheepskin.



National Geographic Photographer, Vilmar Westral

#### These Boys Have Renounced Sons of Their Own

Novices at Alchi Monastery, Ladakh, they have given their lives to Buddha. In return for food, lodging, and education they perform a daily round of chores. Patched frocks are of homespun. As it is summer, earflaps are turned up like wings. From a distance, these muffs give the ears a long, pointed look.

Women dress in the same shapeless fashion, but the most ragged is generally laden with necklace, bracelets, and earrings. Their headdress, winged with two enormous earmuffs of hair, is crowned with a broad leather strap studded with Tibetan turquoises (page 671).

This ornament, called the *peyrak*, is known to travelers as the cobra headdress, since it is shaped like the snake's spreading hood. Since a woman's dowry may be invested in her *peyrak*, a fortune-seeking suitor may estimate her worth at a glance.

I liked the Ladakhis, a simple, harmless,

\* See, in the NATIONAL GEOGRAPHIC MAGAZINE: "On the World's Highest Plateaus," by Helmut de Terra, March, 1931.



hospitable people who do not seclude their women or refuse to eat with a Christian.

One day I visited the home of a prosperous Leh family, one which had three breadwinners to support five mouths (page 666).

#### Wife Cooks for Her Three Husbands

To see the family at dinner, my interpreter and I climbed a ladder to a well-furnished parlor-dining room. A stove, on which soup was simmering, clouded the room with the suffocating smoke of *argol* (dry cow dung), the common fuel in these wood-scarce regions. A hole in the roof expelled a little smoke and admitted less air and light.

Behind her pots sat the mistress of the house smiling sweetly as she welcomed me.

Seated at the dinner table, grinning in sweet felicity, were the lady's husbands, three brothers, fur caps pushed back on their shaven heads. Slapping their thighs, as if at some joke, they laughed loudly, obviously unaware of jealousy, fatal passion, or their extraordinary marital status.

From the dining room I peered through an open door into a small bedroom. On the door the chosen spouse of the night had hung his belongings to show that the place was taken. His brothers had to sleep elsewhere.

The only child, a small boy, sat beside his mother, the supreme authority. He was a wise child indeed if he knew his father, the eldest husband serving nominally in that capacity. The word "papa" did not seem to have a niche in the boy's vocabulary; he addressed the three brothers as "uncle," a greeting he applied to all men.

Having served the soup, the wife followed with the main course, tea and *tsamba*.

Compressed-brick tea, caravan-borne across China and Tibet, was boiled for an hour; then the contents of the pot were poured into a bamboo churn, together with a lump of rancid yak butter aged in a sheepskin, and salt.

Now the *tsamba*, a parched ground barley, was molded into balls and dunked, doughnut-fashion, into the bitter tea.

This repast is served daily all over Ladakh and Tibet. Aside from an occasional meat dish and a few vegetables, many Tibetans subsist on tea and *tsamba*, and relish it. I liked the barley, but could never stomach the butter tea.

In the painting you will see two churns. On the wall are tiers of metal dishes.

Among Occidentals, none of my oriental paintings excites as much interest. Polygamy (more than one wife) the Westerner has learned to accept as the practice of some Moslems; but Ladakhi polyandry (more than

one husband) never fails to astonish him.

This system, no matter how it shocks the moral senses, does have the virtue of limiting population pressure against an unproductive country. The Buddhist church does its share by keeping approximately every sixth person, male or female, in a convent. As a result, genuine poverty among Ladakhis is rare.

In the Orient, where women's liberties are few, the polyandrous code places the wife in a commanding position. She supervises children, food, clothing, and money. Permanent guardian of the home, she seldom is left without a man in the house. When she marries, she is privileged to take as minor husbands two of the bridegroom's younger brothers—never the older brothers.

Children are adored and spoiled by everyone in the house.

Even husbands have advantages. One may be a caravaner visiting distant lands; another a herdsman summering on lofty, grassy plateaus; the third a traveling merchant. When his job in the merciless outdoors is done, each has a blissful shelter at home. And think of the money he saves!

#### Merry Pilgrims Go to Devil Dances

For my next assignment, my interpreter and I rode to Himis Monastery, 25 miles from Leh, to see the monks' annual mystery play, commonly called the Devil Dance.

As we approached the monastery, our trail was thronged with merry pilgrims, some on horse, some on foot, all dressed in their gayest woolens and silks. Jokes sped from lip to lip. From Ladakh came lamas of the Red sect, an order following many weird practices of an older Nature worship. Tibet contributed monks and nuns of the reformed Yellow sect. Elegant Hindus and scornful Mohammedans joined the procession. The tolerant Red lamas welcomed all.

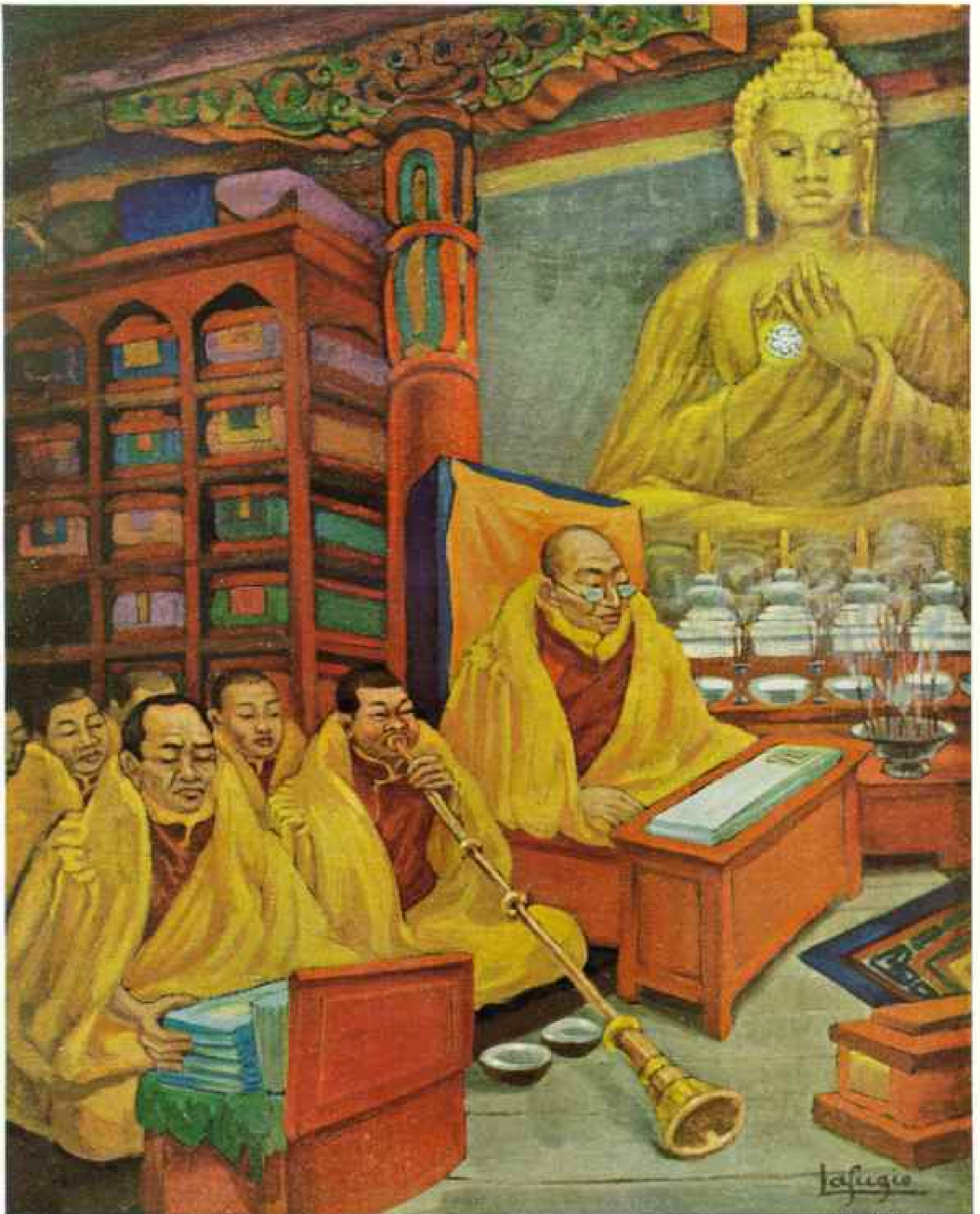
We arrived at Himis, a vast lamasery perched on a rugged mountainside, on the eve of the ceremony. Prayer flags fluttered from the rooftops of houses rising in terraces.

On the grounds wandering salesmen set up stands and sold confections. Others exchanged India's saffron and sugar for China's tea and incense sticks or Tibet's turquoises. Himis Fair, as the joyous occasion is called, reminded me of a country carnival.

Red lamas in their dark rags prowled the premises overseeing arrangements. One of them assigned a level space for my tents.

At dawn a blast of trumpets and conches from the temple roof announced the opening of festival. Echoing from the cliffs, the music floated beautifully on the mountain air.

A Woman Paints the Tibetans

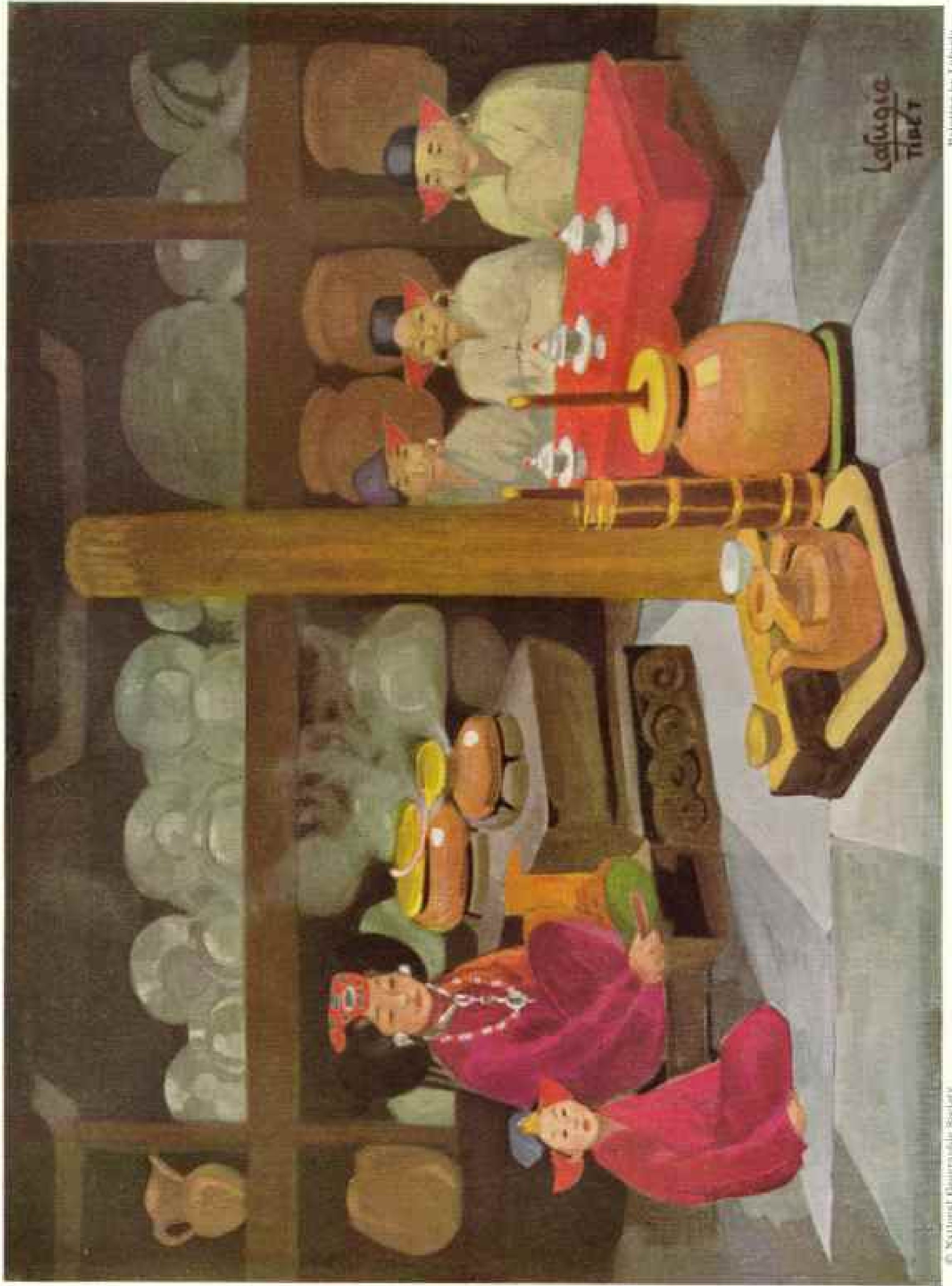


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Painting by Lafugie

Tibetan Lamas of the Yellow Sect Intone Daily Lessons in a Gyangtse Library

With this painting the NATIONAL GEOGRAPHIC MAGAZINE introduces a series of 21 done by Madame Lafugie, a French artist, in Tibet and neighboring Ladakh. Trumpeter and spectacled teacher prompt the scholars, who read from manuscripts stored in lacquered boxes. Incense sticks burn before a golden Buddha.



© National Geographic Society

Painting by Lobsang Tashi

The Head of the House Cooks Dinner for Her Three Hungry Husbands; Her Son Calls His Fathers "Uncle"; Leh, Ladakh



© National Geographic Society

**Lady from Lhasa in Enormous Wig Counts Her Rosary Beads**

False hair, so heavy it has to be hung from a frame, was imported from China. The skirt is wool; sleeves are silk; rosary stones amber and coral. This Tibetan noblewoman took an hour to adjust her finery.



Published by Lathrop

**Gyantse Governor's Wife Wears Her Province's Headdress**

This elaborate creation is lighter than it appears because the mounting is thin bamboo. Pearls and coral adorn the red cloth cover. Hair, dressed in pigtail fashion, drops in twin strands ending in silk tassels.



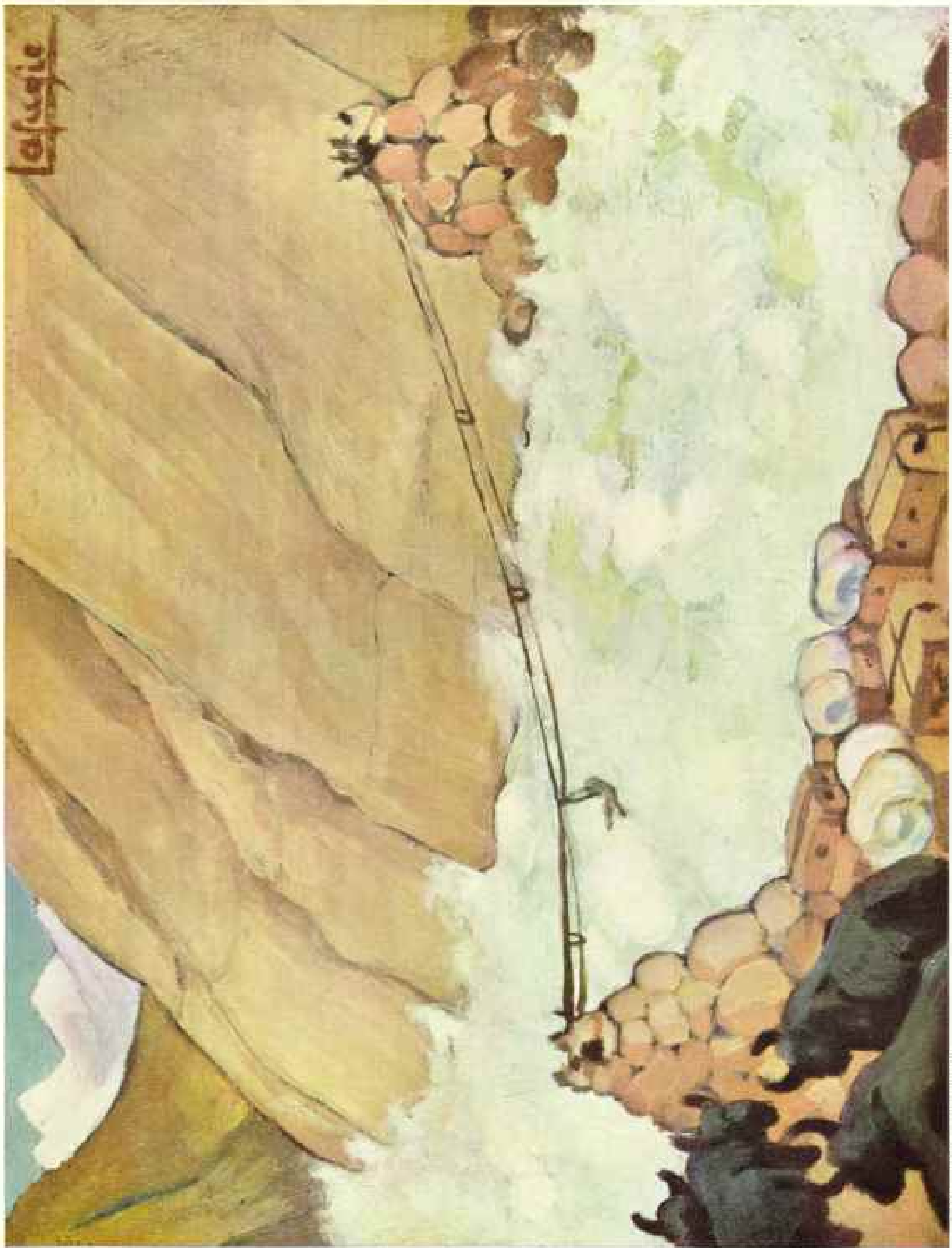
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In a Hut Close to Heaven Dwells a Hermit of the Himalayas



© National Geographic Society

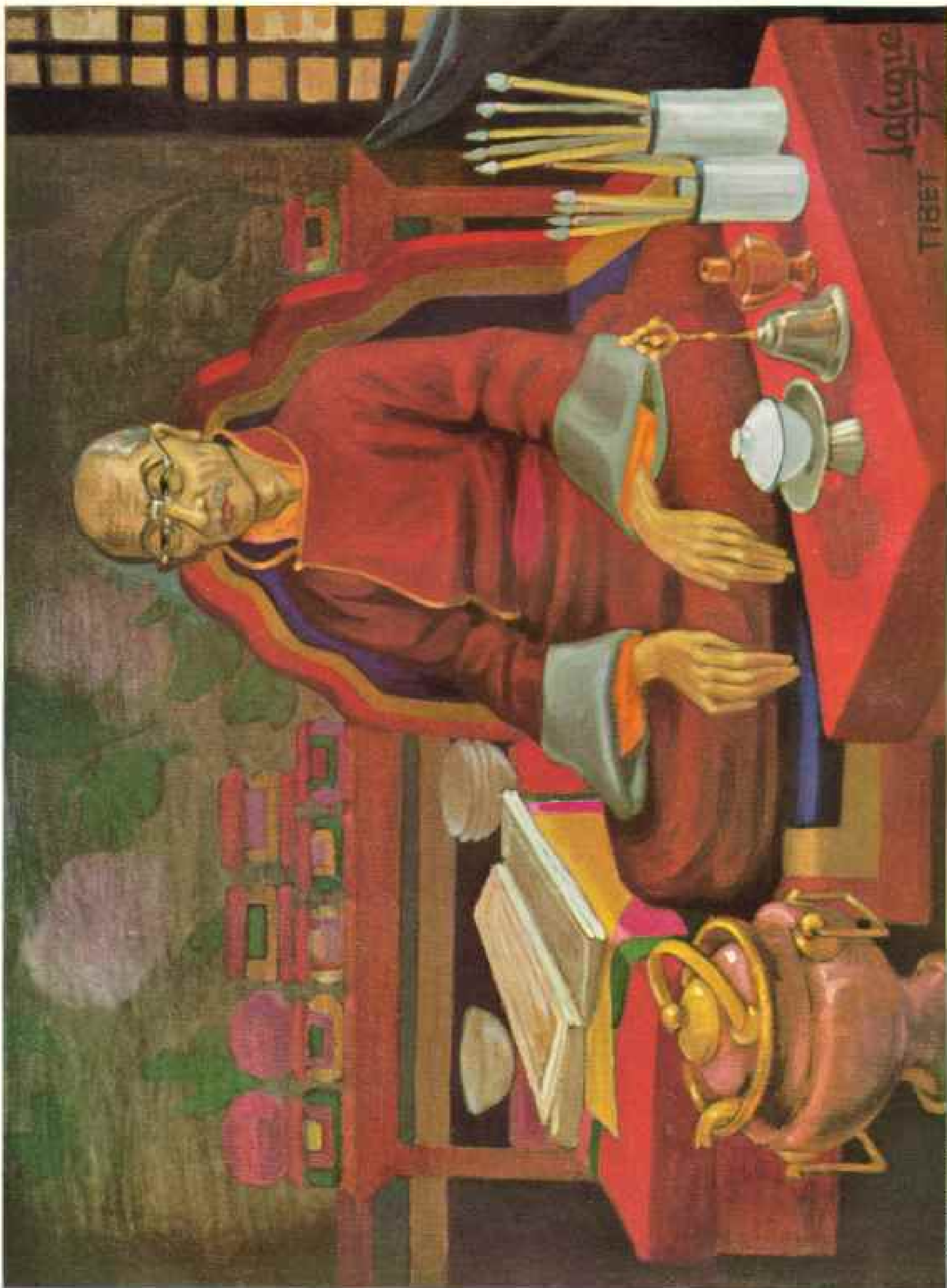
Candles Flicker, Flames Rör: the Cremation of a Lama



Painting by Lafuqie

© National Geographic Society

Caravaneers Cross a Rope Bridge Like Spiders on a Web. Yaks Must Swim a Mile Down the Icy Gorge



© National Geographic Society

Painting by Lafinle

At Ease Among His Books, Brushes, Teapot, Cup, and Bell Sits the Benign Abbot of Sumur Monastery



© National Geographic Society

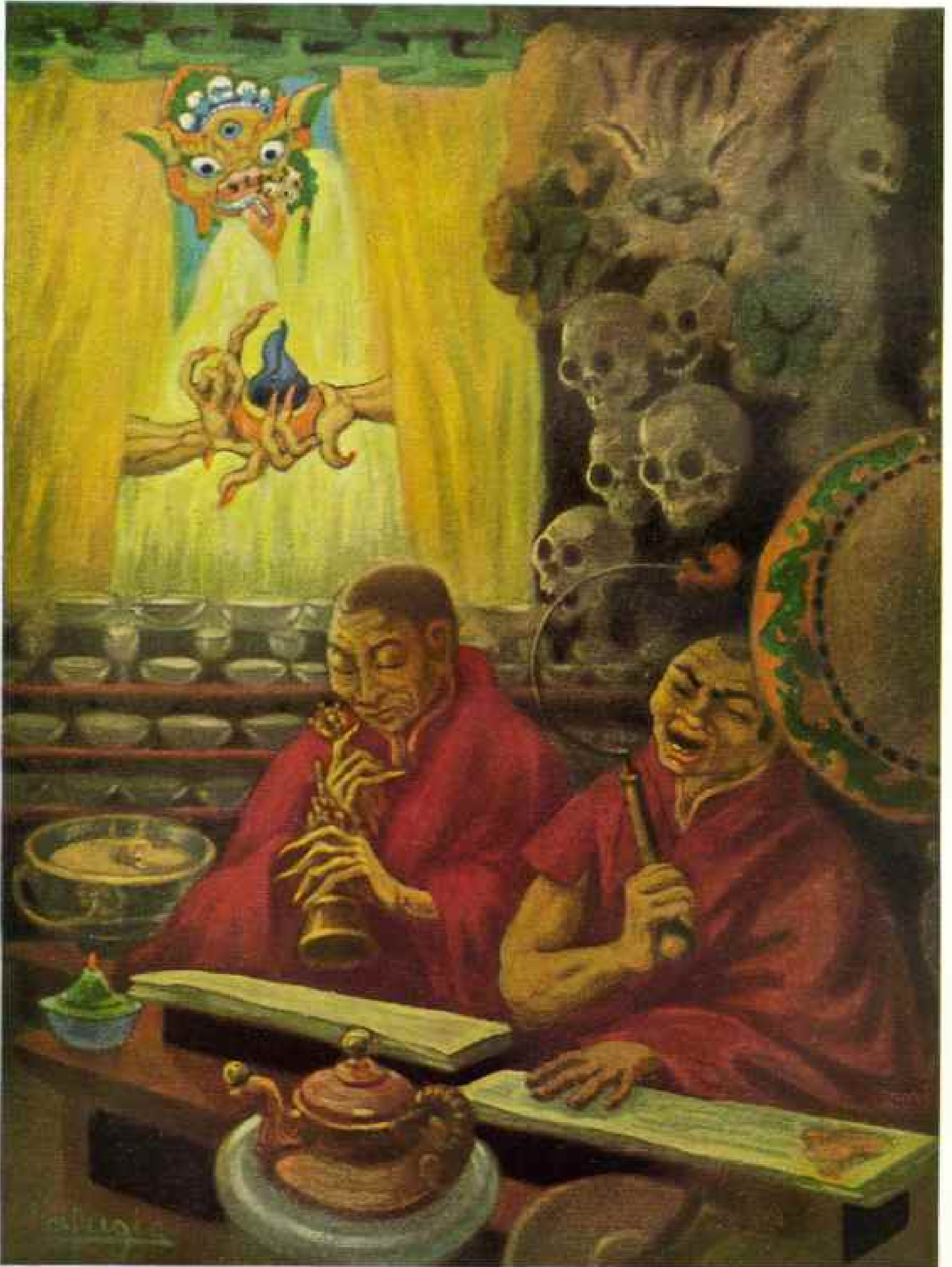
Turquoise-crowned Lambskin Muffs Protect Tibetan Ears



Paintings by Latmin

Gyangtse's Governor Drapes Pigtail and Pendant from His Ears





© National Geographic Society

Painting by Lafuze

Tibetan *Guru* Teaches a Novice to Exalt Skulled Death Above Life's Clasped Hands

A Woman Paints the Tibetans



© National Geographic Society

Painting by Lafage

Wizard Jeweled with Human Bones Beats a Skull Tambourine and Blows a Femur Trumpet



© 2010 The Metropolitan Museum of Art

Painting by J.M.W. Turner

Trumpeters and Chanters Alternating in an Hours-long Antiphony: Morning Mass at Himeis Monastery



© National Geographic Society

**Caravan Outfitter Strikes a Crafty Bargain with the Artist**

This village headman's surprise at getting his asking price for yaks is still evident as he sits for his portrait. His straggly hair he never combs, but in vanity he wears a wild flower in his soiled cap.



Paintings by Lafu

**Governor of Dochung Writes His Name in Tibetan and English**

This man came calling on the artist, asking her to add his portrait to her gallery of "important people." To his other accomplishments he added a European handshake with butter-smears fingers.



© National Geographic Society

Painting by Ladoga

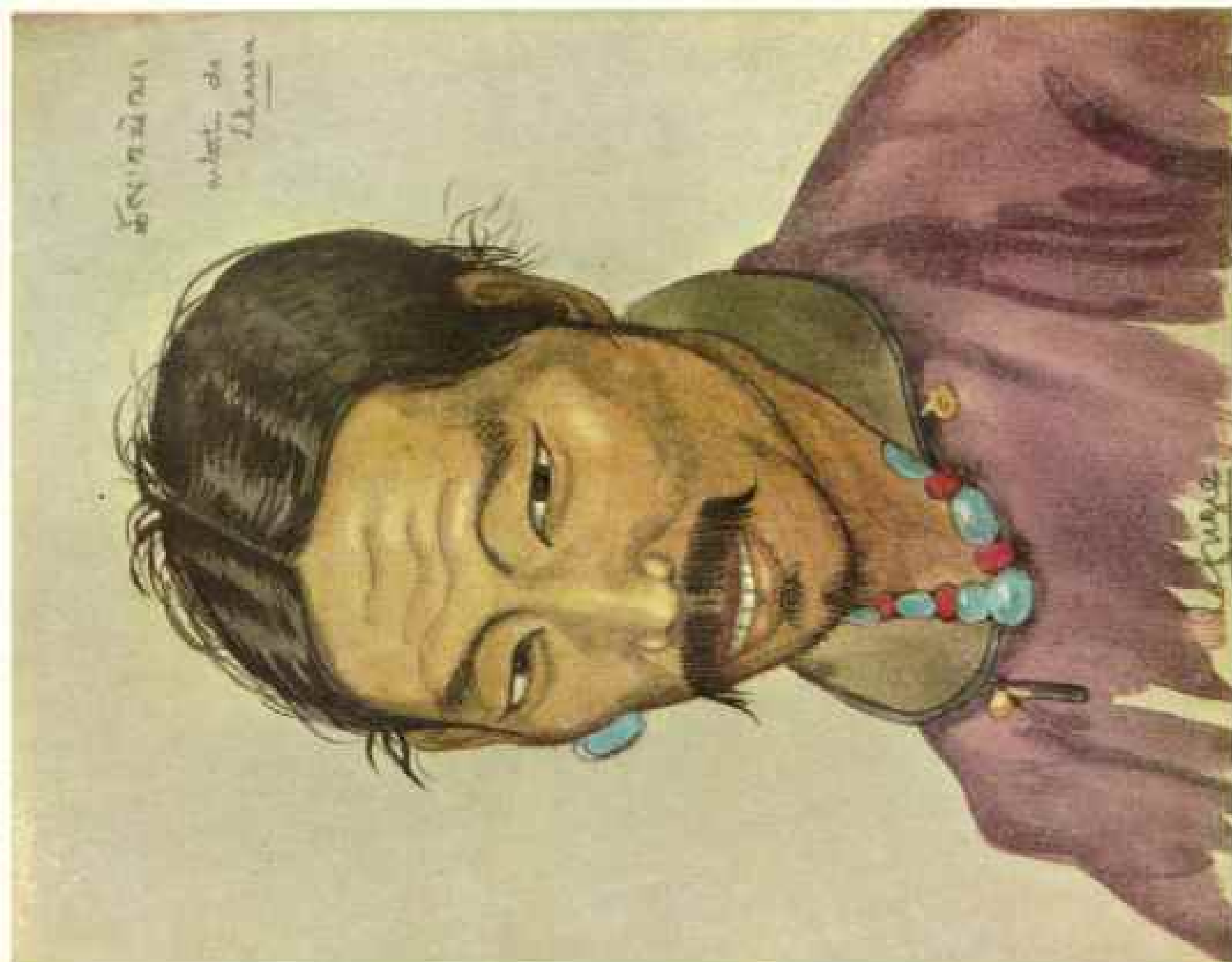
Lake Pangong Glows Pale Blue Beneath Snow Peaks. The Artist's Party Passes a *Moni* Mound



© National Geographic Society

**Beardless Tibetan Youth Leads His Father's Caravan to India**

This monastery-trained boy, encountered at a caravansary outside Gyantse, was almost too timid to face the artist. He wears a purple scarf, the gift of a high priest, as charm and comforter.



Paintings by Lafuque

**A Fellow Artist Smiles His Thanks for a Paintbrush Gift**

This Lhasa-trained painter was discovered decorating a temple in Hims. A copyist of conventional church art, he was astonished to see the author portray his own features. He never dreamed of using live models.

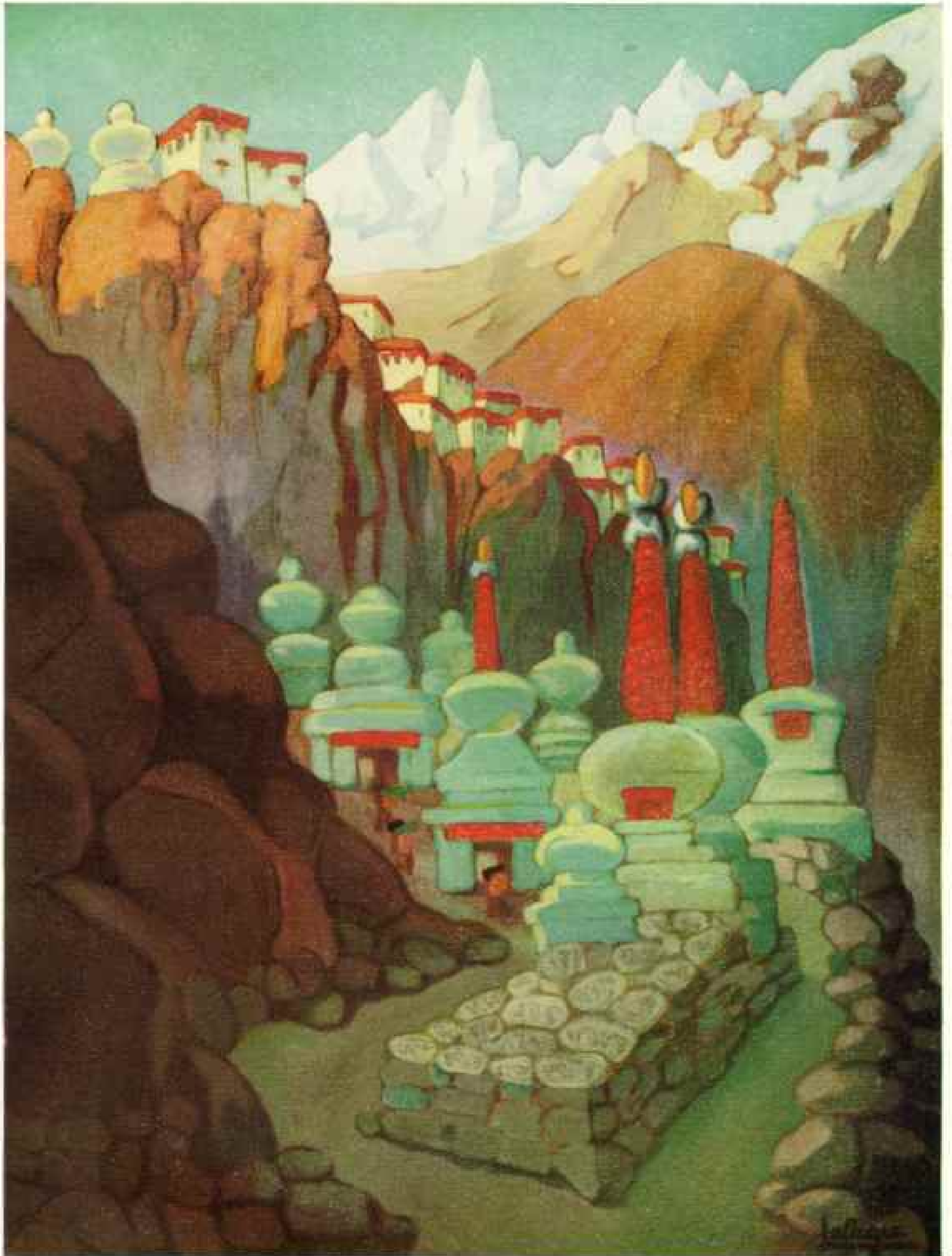


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Painting by Lafugio

Lama Musicians Blowing 10-foot Trumpets Marshal Devil Dancers into Line at Himis

A Woman Paints the Tibetans

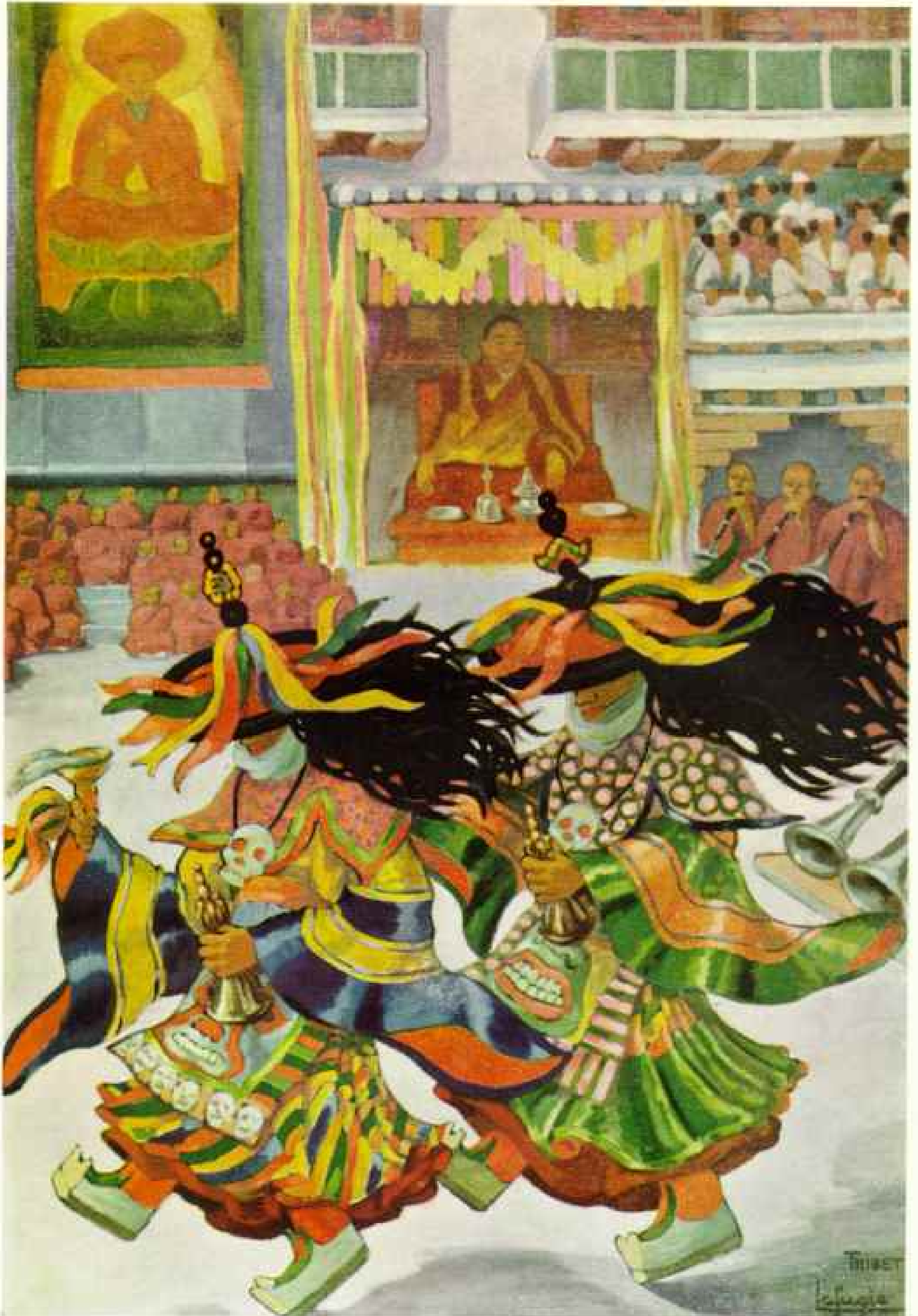


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Painting by Ladurie

Perpendicular Lamayuru Springs Out of Crags. Tomblike *Chortens* Are Its Guideposts





© National Geographic Society

Painting by Lafuiga

Death's-head Dancers Ring Bells and Sprinkle Holy Water Before Himis Balconies

Ascending the main stairway, I arrived at a courtyard where sunshine beat down on a flagstoned dance floor. From my painting platform, a ringside seat assigned to me by the lamas, I could see the galleries filling with men in winged caps, women in huge festive headdresses (page 678). Like circus-goers, they nibbled food.

Monks not taking part in the ceremony took seats below the 30-foot-long picture of a divinity and counted rosary beads. Monitor lamas, armed with poles and scourges, kept spectators in place.

Soon the abbot, or *Skushok*, took his throne beneath a ribboned canopy. There he squatted, legs curled under him, not moving once all day to my knowledge (page 680).

Now a blare of barbaric music was sounded by a lama orchestra whose 10-foot trumpets were so heavy they had to be rested on wooden blocks. The sacred dances commenced.\*

All year long the spiritual monks, those engaged in meditation rather than in mundane chores of the monastery, had rehearsed their mystery play. Before us they spread an outlandish spectacle of saints and sinners.

#### Savage Demons Harass Helpless Souls

Troupes of demons and monsters danced across the stage of an unworldly realm. Monks masked and costumed themselves as grinning satyrs, multiple-eyed monsters, savage tigers, and animated skeletons.

Comic demons, laughing insanely, beat one another with slapsticks and, in a sort of black mass, burlesqued their own religion.

Saintly lamas scattered the evil forces. These holy men wore miters, carried pastoral crooks, chanted hymns, swung censers of incense, rang bells, and sprinkled holy water.

These Buddhist saints appeared to be demonstrating that man's helpless soul, wandering between incarnations in a demon-ridden purgatory, could be succored only by a lama's exorcisms.

I painted two half-veiled dancers frocked in such gorgeously embroidered China silks that I, attired in plain khaki riding breeches, felt a tinge of jealousy. Cascades of ribbons floated from their hats; artificial hair jiggled with every movement. Each dancer rang a bell and splashed holy water (page 680).

Their costumes, I observed, were worn above their everyday monkish habits. Extra garments were not amiss, for the day was cold, despite the sun. Toward evening I felt so chilled I could barely handle my brushes.

When the dance stopped at sunset, I was happy to lay down my work, but one more sketch was in store. Some curiosity-indulging

monks introduced me to a native artist, in the hope, I suspect, of observing our reactions.

My Tibetan colleague was an exponent of Lhasa's sacred arts, engaged by Himis to decorate a new addition.

#### The Author Sketches a Lhasa Artist

I watched him painting his murals, all conventionalized divinities and demons; and when he saw me transferring his own face to paper he was amazed (page 677). Never, he said, had he dreamed of working with live models. Always the copyist, he reproduced the ancient, stylized sacred subjects.

A shy little man, he smiled wistfully when I gave him some of my paintbrushes. Using his Tibetan script, he signed his portrait.

At 7 o'clock one morning I painted the monks at *puja*, their mass (page 674).

To reach their choral hall, I was conducted through gloomy, cavernous passages. As we approached, the muffled beat of gongs, trumpets, and drums sounded like the murmur of running water deep in a dark abyss. As we entered, hundreds of monks started intoning their hymns, reading words from silk-bound manuscripts.

The odor of incense and melted butter, the scene's lurid vermilion and gold, and the orchestra's strange discords all taxed my senses.

Through the thick fumes hundreds of glowing eyes seemed fixed on my hand as it moved across the sketching pad. I was watched no less closely, I imagined, by the enormous Buddhist deities on the walls, whose features were lighted by butter lamps.

At the close of a psalm a tea bearer filled the wooden bowl in front of each man. Into their butter tea the monks dipped their *tsamba*, kept beside them in a small bag. With his fingers each monk wiped his bowl, cold-creamed his face with the residue, and dried his hands on his gown.

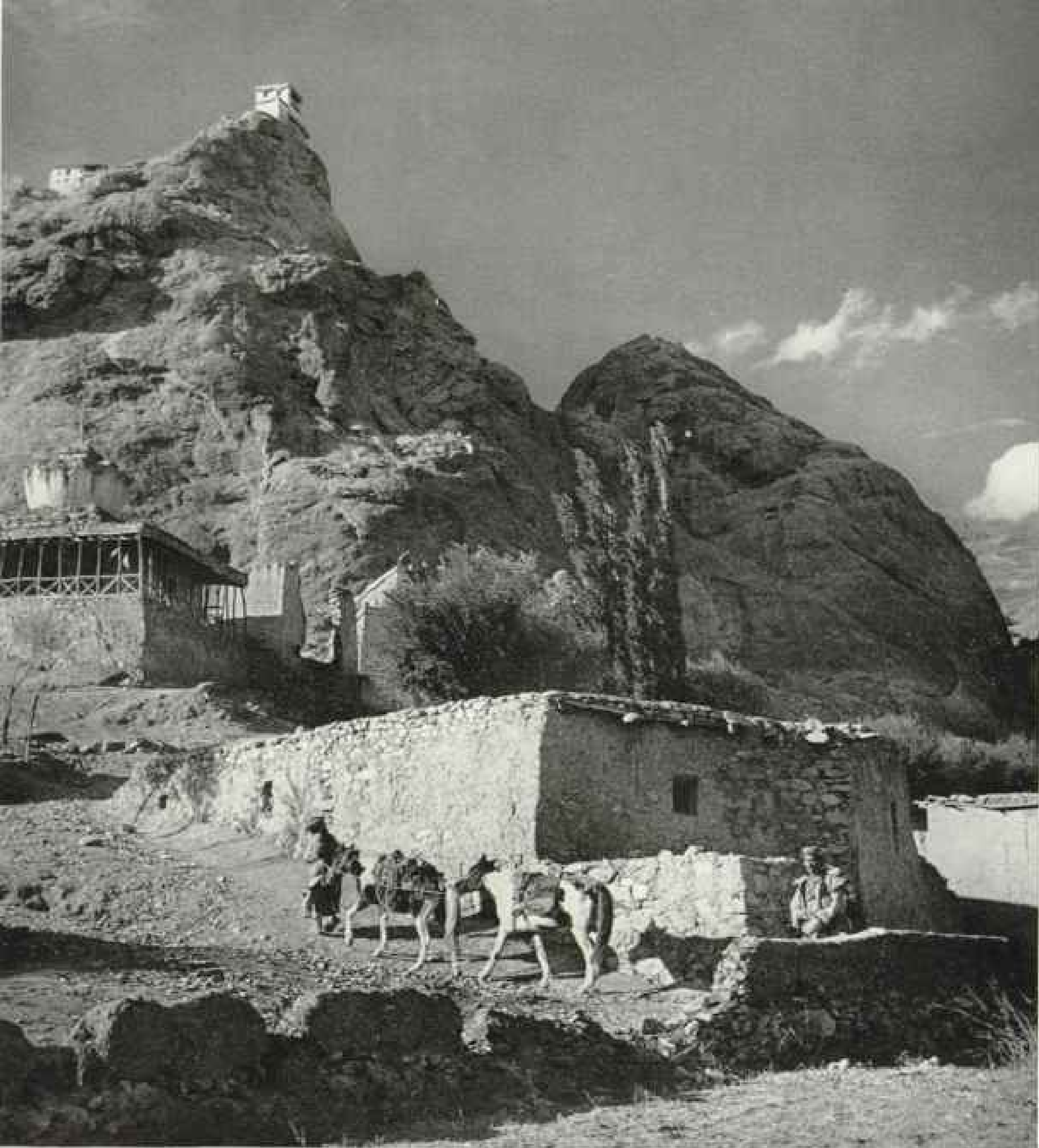
#### Artist Calls on the Skushok

On a high throne sat the abbot, presiding. As the *Skushok* of Himis, he was revered as the incarnation of his predecessor; a holy man who, entitled to Nirvana, preferred rebirth on earth that he might lead his fellows.

Since my visit the *Skushok* has died and has been succeeded by a child, presumably his own soul clad in new flesh.

Having seen me twice at work, the abbot invited me to call on him. I found him in a reception room decorated with cascades of silk ribbons. The *Skushok*, clad in several

\* See, in the NATIONAL GEOGRAPHIC MAGAZINE: "With the Devil Dancers of China and Tibet" (43 illus. in color), by Joseph F. Rock, July, 1931.



National Geographic Photographer Volkmar Wintzell

**Where the Wind Howls Fiercest, the Lama Builds His Monastery Atop a Fantastic Crag**  
In Mulbekh, Ladakh, a caravaneer leads his ponies into the caravansary (right). The rotund top of a chorten (left) guards an entrance to the village. Green willows (right) indicate an irrigation canal.

red robes, squatted Buddha-fashion on a cushion.

He rose, bowed, and pointed out a cushion for me. At the summons of his gong, servants brought butter tea and dried apricots.

The abbot's eyes were riveted on my portfolio as I opened it. He was delighted by my sketches of his lamas and laughed at some.

This amiable man not only gave me permission to roam the monastery; he agreed to sit for me.

As I sketched him, the room was crowded with pilgrims, some having trudged from Mongolia to kneel for his blessing. To all he gave the red ceremonial scarf, which they wore thereafter as a sacred talisman.

When I completed the portrait, the Skushok affixed his seal and signature. Thereafter his likeness, which I carried with me, opened many a monastic door.

The governor of Leh, who received me on my return to the capital, was so impressed



Natural Geographic Photographer Volkmar Weinstel

### Hotel and Stable for Man and Beast Is the Caravansary in Leh, Ladakh

At this caravan crossroads, traders from India, Tibet, and Sinkiang exchange spices, wool, and manufactures (page 665). The inn caters to Yarkandis, who, having crossed the Karakoram Range with felt rugs, now blanket their ponies for the long trip home. Two men load American-made tires, which were stock-piled in Leh while the Burma Road was closed. Soldiers stand on the balcony.

by the Skushok's seal of approval that he gave permission to travel north into the Karakoram Range and its tremendous glaciers. Either the Pamirs or Sinkiang, whence come caravans to Leh, was my goal.

To guide me, the governor assigned one of his men and hung on his chest a copper plate, the symbol of authority to commandeer pack animals.

My new porters I outfitted with snow glasses, felt-lined boots, and heavy blankets. For myself I bought a sleeping bag, for I faced nights in altitudes up to 15,000 feet. To enjoy fresh meat, I purchased crates of live chickens.

#### By Yak-back Toward the Karakoram

My ponies I sold and in their place acquired six yaks, Tibet's domesticated wild ox and beast of burden in the high places.

Yaks, I learned, bore domestication lightly. Moody and unpredictable, they loved to mill around in tight corners, spilling baggage. Single file they rejected, preferring to walk abreast, even in narrow places, doubtless so as to scrape my knees against rocks.

Yaks I never understood; never knew what they would do next. I preferred to walk wherever I could; but when I grew tired I would mount my wooden saddle, sit cross-legged, grab the ropes to the yak's nose ring, and try to guide him. It was to no avail; the wilful beast paid little heed. I learned to give way to his whims.

#### Toiling Up Walls of Snow in July

On our first evening out of Leh we camped at the foot of Khardung Pass. It was bitterly cold, and the stars were shining brightly when my boy awakened me at 2 o'clock on a July morning. Our yaks grumbled as the men packed them.

As my mount toiled up walls of crusted snow, I grasped his shaggy hair to keep from falling backward. To relieve him on the steeper slopes, I dismounted and continued on foot, at times on all fours.

At 7 a.m. I was the first to attain the summit of the pass (page 686). Turning, I saw other yaks' black heads rising above the snow, eyes bloodshot, muzzles drooling. Unloaded, they stretched out on the snow.



From *Marchal from Mustang*

#### Cause for Smiles: Fashion Never Changes

To Tibetan ladies, their own almond eyes, flat noses, and high cheekbones were infinitely more beautiful than the author's European features. "We consider your noses too big; they stick out like kettle spouts," one Tibetan woman has written. "Your ears are too large, like pigs'; eyebrows too simian."

The porters kindled a fire of argol and brewed tea. I tried to cook dried beans, but at 18,380 feet the water boiled off before it reached cooking temperature. All the chickens, I found, had perished of the cold.

By 1 o'clock our party began the descent. Two men with pickaxes went ahead to hack steps in the ice, but they could not save the yaks from provision-scattering slides. We halted at 11 that night.

Now we entered a wild, precipitous country of indescribable grandeur. Once as I lagged behind in a bleak mountain valley, my men and beasts looked like ants lost in infinity.

We reached the valley of the Nubra, a stream descending from Karakoram glaciers.

#### Porters Stick Out Tongues, Hiss Thanks

Proceeding, we found barley growing at 15,000 feet on the outskirts of a village, the first seen in days. Here we camped while my servants washed clothes and baked bread.

I paid off my porters, giving each a handful of rupees. To express thanks, each man touched his head to the ground, stuck out a long tongue, and hissed.

I climbed to Sumur Monastery, perched above the village, and arranged a sitting with the kindly abbot. Himself an artist trained in Lhasa, he had painted the wall of his study (page 670). In return for one of his drawings, done in Tibetan style, I gave him new paintbrushes and pencils.

So grateful was the good man that he gave orders I should have anything I needed. My request was for fresh yaks.

The village chieftain was obliged to round up the animals, and, when he named his price, I agreed at once, provided he sat for his portrait. Surprise at getting his asking price was still evident as I sketched his crafty eyes and cat-that-ate-the-canary smile (page 675).

#### Grisly Signs Warn of Blizzards

Now we advanced into a monotonous country, taking stony marches across glacial moraines. Here and there we encountered the bones of men and beasts perished in blizzards.

The sight sickened my porters. We could not hope to cross Karakoram Pass, they argued, and return in time to escape the snows.

Forced to turn back, I chose a new route, one that would carry us past Lake Pangong.

We advanced across barely defined trails and skirted 20,000-foot peaks. Chill night winds from the glaciers overturned my tent and pinned me beneath the canvas.

We scaled an 18,000-foot pass. As always when I rise above 17,000 feet, my ears rang insufferably and my breath failed. I could climb only a few minutes without pausing. Most of my men were equally ill. I handed out aspirin to everyone.

We struggled onto a high plateau. Never had I imagined such desolation as this desert



National Geographic Photographer Vulkanar Weibull

### Postmaster-Telegrapher Doubles as Meteorologist. He Has Plenty of Weather to Watch

The Kashmir Government stations this Hindu in Ladakh to take care of the mail, which comes in by runner. One of his jobs is to measure glacier ice breaking into the Dras River, and thus foretell floods in the Indus, to which it is tributary. Assisted by his wife and children, the weatherman here takes his daily readings of wind and temperature. As a telegrapher in the town of Dras, he will wire his report to Srinagar.

on top of the world. Not a bird, insect, or blade of grass broke the monotony; only sand, snow, and marble.

#### Marble Mountains Dazzling White

A ravine through which we passed was lined with shining marble. Amid its dazzling white we suddenly sighted the emerald-green and sapphire-blue waters of Lake Pangong.

Walking on rose-hued sand, we followed the lake shore three days, to our right the mountains, to our left the jeweled lake (page 676).

One noon I could not resist the temptation to take a bath. Sending my caravan ahead, I

plunged into the lake's icy, salty waters, nearly 15,000 feet high. It required all my energy to keep from freezing. Now I appreciated the Ladakhis' disinclination to bathe.

A few days later we cleared Chang Pass (18,370 feet) and descended into the valley of the Indus. We returned to Leh without further adventure.

The following year I undertook the second expedition, having obtained permission to visit Tibet, but not Lhasa, the forbidden city.\*

\* See, in the NATIONAL GEOGRAPHIC MAGAZINE: "Across Tibet from India to China," by Lt. Col. H. H. Tobstoy, August, 1946.

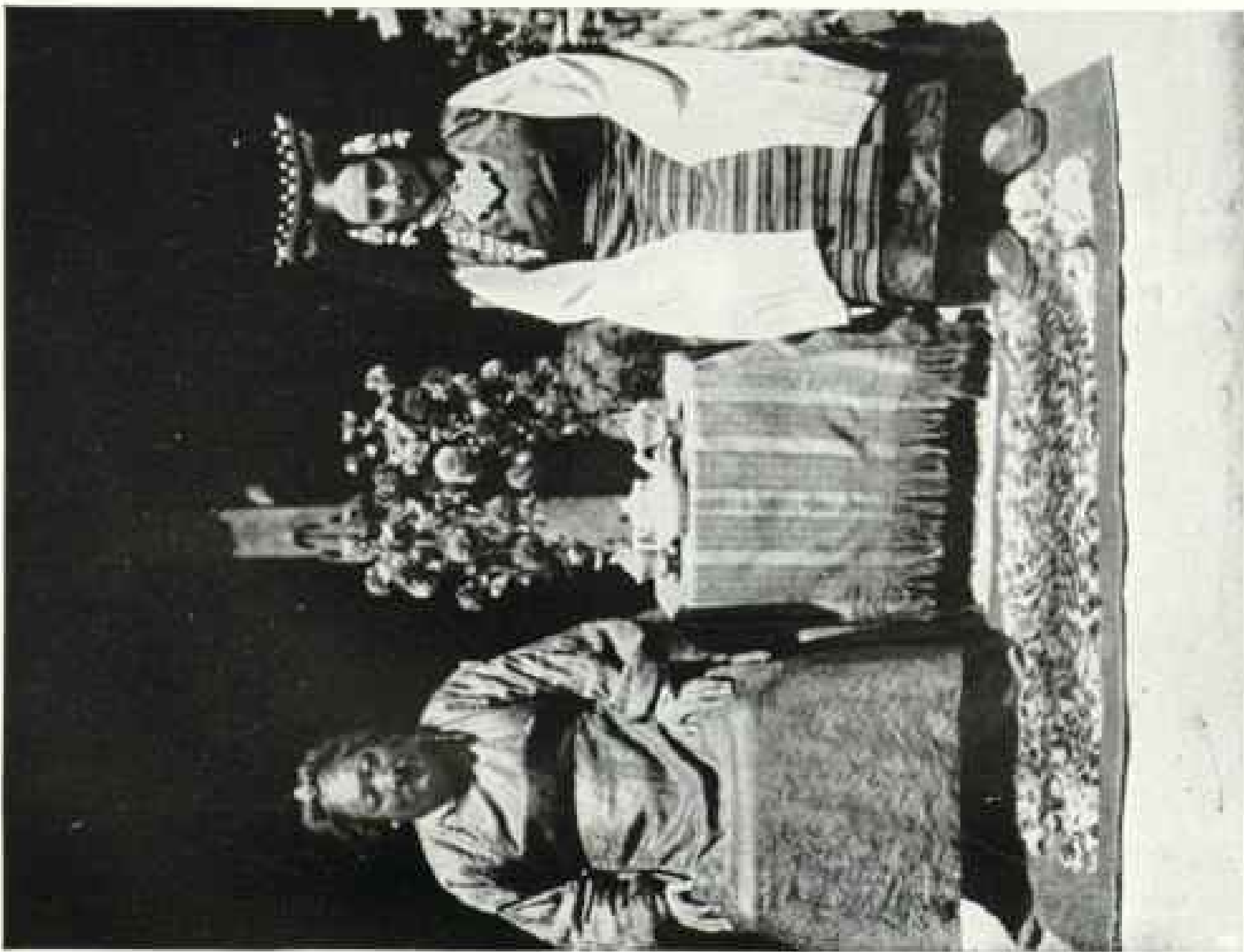


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Lafayette

Up Here Hearts Labor and Legs Falter, The Author Arrives by Yak-back in Khardung Pass, 18,380 Feet in the Sky

Water boiled off before it reached cooking temperature; crated chickens perished in the cold; and yaks slipped on the ice; scattering provisions (page 684).



Lathuin

#### Gyangtse's Governor Entertains a French Guest

This Tibetan gentleman loved strong yak-butter tea, here served in chinaware, but could not abide the author's thin brew sweetened with canned milk. Chocolate candies he distrusted until he tasted one; then he and his wife finished a boxful, saving each tinsed wrapper (page 691). The floral piece is paper.



Lathuin

#### The Author Doffs Riding Breeches for Tibetan Gown

From her Lhasa-style headdress falls a long braid of false hair (she clipped her own hair short). Long silk sleeves bundle the hands against cold. The transformation delighted the wife of the Gyangtse governor. "Now you look like a real Tibetan lady," she said (page 671).





Lafayette

Of Gyangtse's Odd Sights, the Strangest to Tibetans Was a White Woman in Man's Garb

Here in the market place the artist sketched merchants, monks, pilgrims, and hobbled prisoners (page 690). Children, some in pigtails (right), followed in her wake for the candy she kept stuffed in pockets. If they pressed in too closely, her interpreter officiously shooed them away. He took the picture.

From *Murali* from *Murkmeier*

### A Tibetan Coiffure. First the Hair Is Buttered, Then It Is Plaited Like Twine

The elderly beautician suspends from her throat a jewel-studded charm box to protect her from misfortune. It contains the image of a deity and a few magic words written by a lama. Few Tibetan women go without a charm box (another example, page 684).

Leaving Darjeeling, at the foot of the Himalayas, I crossed into Tibet, sketching a hermit's hut and a lama's cremation on the way (page 668).

At Phari Dzong, a caravan stop on a windy plateau, I painted my first subject in Tibet.

I was wandering among the stables, looking for material, when I heard a wild chant issuing from a temple. Entering uninvited, I found a lama practitioner of magic performing a grisly ceremony. Attired in an apron of human bones, he was blowing a trumpet made of a thighbone and beating a tambourine formed by the halves of a skull (page 673).

Employed by a wealthy yak breeder, the wizard was praying for an increase in the herd's numbers. He readily consented to pose with his ominous implements.

Unlike most of the monks, who shave their heads, this man had let his hair grow past his shoulders.

Tools of his art were arrayed around him.

On a red-lacquered table he kept two candlesticklike trumpets, teacup, butter lamp, and beehive-shaped barley cakes, his symbol of food. Occasionally he stirred bowls of molten butter with a silver spoon. Sculptured balls of butter he stacked in pyramids. Incense sticks smoldered.

Behind the magician stood the statues of three divinities clad by pilgrims in ceremonial scarfs. One had all but disappeared beneath its shower of ribbons.

I established headquarters in Gyantse, a monastic center close in importance to Lhasa, the seat of the Dalai Lama, spiritual and temporal chief of Tibet's theocratic government.\*

A house was assigned to me. The authorities did not object to my roaming the Gyantse countryside, but they stipulated I must not

\* See, in the NATIONAL GEOGRAPHIC MAGAZINE: "Most Extraordinary City in the World," by Shao-ching H. Chuan, October, 1912; and "World's Strangest Capital," by John Claude White, March, 1916.



From *Memories from Mongolia*.

### A Gyangtse Lady's Crowning Glory Is Her Wooden Hat

Bamboo framework, covered with red cloth, arches like the yoke of a Russian harness. On this the milliner mounts coral, turquoise, skins of seed pearls, and sometimes gold. Coiled tresses emerge from either end (page 667).

remain away from my quarters overnight.

I spent mornings in the business section, sketching porters, farmers, and tradespeople (page 688). Hobbled prisoners, ankles joined by an iron bar, roamed at will.

Each evening saw my sketch box crammed with drawings. One of my subjects was a youthful caravan leader (page 677).

### Gyangtse's Governor Presents His Scarf

My first call on a state official was paid to the governor of Gyangtse, a Lhasa nobleman quartered in a fort commanding the city (page 671).

As the hour of our appointment neared, the governor sent ponies for me and my inter-

preter, and two soldiers to accompany us to the fort. At the reception I took off my white scarf and gave it to the governor, and he presented his to me, an exchange of courtesies customary among polite Tibetans.

When I asked permission to do his portrait, the governor appeared so flattered that I ventured to beg permission to visit Lhasa. "Impossible," he replied gruffly.

Following a Tibetan-style lunch, I invited the governor and his lady to my house the next day for a European tea.

Keeping lookout for their arrival, I was dismayed to see them followed by 20 servants.

"How can I ever feed so many?" I asked my Tibetan interpreter.

"It's all right, mem-sahib," he replied. "It is the custom to feed the guests' servants. I invited them, and I have bought food for them all."

My two guests enjoyed the French cakes I had carried so far, but shied from my tinsel-wrapped chocolates. Not until I sampled one

did the governor try a candy, first depositing the silver wrapper in his robe. His wife then dipped in. The pair did not stop until they consumed a pound box, saving each wrapper.

Strawberry jam they liked so much that I presented a tin to each, but my guests nearly gagged on my watery European-style tea, served with canned milk.

As they departed, I went to the roof to take their photograph. They proceeded only a hundred yards when they paused to brew their own thick rancid-butter tea.

To show his appreciation of the jam and chocolates, the governor next day sent me a basket of eggs, a bag of sugar, and a lamb.

As agreed, he posed for me, dressed in

his official traveling clothes. On his felt hat he wore a gold and turquoise jewel denoting his rank, so that people might recognize his authority. When he removed the hat, I noticed an identical jewel in his topknot.

After I finished his portrait, his wife dressed me in her own clothes and took my picture (page 687).

Attempting a joke, I said, "Disguised in these clothes, I shall go to Lhasa, where no one will know me."

The governor's smile froze with horror.

"Don't!" he implored. "If you do, I shall lose rank, position, and property."

Later the governor's wife invited me to be the guest of honor at a ladies' garden party in the fort. A hired orchestra made such a din that my poor interpreter could scarcely understand a word. Menservants carried relays of food into an elaborately furnished tent. The repast was topped off with *chang*, a barley beer, served in a silver pot.

Each of the 15 ladies insisted on drinking my health, and, as I had to respond to each, I felt dizzy by the time the fourth bowl was emptied. Cheeks bright, tongues wagging, the ladies were gay and friendly.

#### Visitors Too Noble to Walk

When I admired their silks and jewels, they reacted like women all over the world. Some insisted that I try on their finery, but no one wanted to put on my plain riding breeches, boots, and beret. All were puzzled by my mannish haircut. We looked one another over from head to foot and laughed.

At sunset the visitors rode home, each followed by her servants. They were far too noble to walk.



From *Mandalai* from *Mecklinger*

#### As Woolly as His Herds Is the Nomadic Tibetan Shepherd

Living in a yak-hair tent high above timber line, the herdsman follows his ponies, sheep, goats, or yaks. As a rule, he protects his camp, not with a pup, but with a savage Tibetan mastiff straining to fly at the stranger's throat. Once a year he goes to city market to sell his wool and buy tea and salt.

Later I painted the governor's wife in Gyantse headdress and one of her friends in Lhasa style. Such primping! It took them an hour or more to adjust their elaborate hair-dos and costumes (page 667).

My fame as a painter spread. Often my kitchen was filled with low-caste visitors who wanted to see their faces on paper or canvas.

One day a nobleman came to my door, asking to have his portrait added to my gallery of important personages.

My caller turned out to be the governor of Dochung Dzong. He was so young, apparently, that he had not earned the right to wear the turquoise of authority in his hat, but he did have the official's ear pendant (page 675).

His natural corpulence he exaggerated by wearing several robes beneath his brocaded silk coat. His arms, cramped by these layers of garments, bulged out like a crab's legs.

I was surprised, on asking for my visitor's signature, to see him sign the picture in Tibetan and Latin script. D. G. Dingja was his name, as you will observe. Afterward he proudly shook hands European-fashion, an accomplishment he could have spared me, as his fingers were smeared with butter.

I made numerous visits to the religious quarter, which contains temples and dormitories enclosed within a high red wall (page 658). Pilgrims, making a four-mile round of the monastic city, proceeded like inchworms, falling flat on their faces, stretching out their arms, praying, rising, and repeating the routine every few feet.

The lamas, getting to know me, never failed to invite me to their important ceremonies. One day I painted student monks of the Yellow sect reciting their lessons in a magnificent library (page 665).

#### Weird Sight Within a Locked Room

On another day I visited Dongse Monastery, west of Gyangtse. As I was touring the place, I heard muffled voices coming from a locked room. My guides obligingly fetched the keys. The opened door revealed a small chapel lit by a butter lamp. Skulls, tiger skins, and stuffed animals covered the walls. Bowls of holy water stood on an altar.

On a cushion sat two lamas, one a novice beating a gong, the other his *guru* (teacher) ringing a bell. The instructor, I gathered, was teaching the scholar to renounce the pleasures of life for the tranquillity of Nirvana. Life was symbolized by a statue veiled to show only the head and a man's and a woman's clasped hands (page 672).

I spent half a day in the dark chapel, completing a water color by the light of the butter lamp. Though my guides left the door open, the odor of incense, stuffed animals, and unwashed garments almost suffocated me.

Not once did the chanting lamas look up to see what I was doing. Had they not paused now and then to pour tea, I should have thought them in a trance.

#### Interpreter Awed by High Lama

Afterward I visited the high lama of Dongse and showed him what I had done. My interpreter was so awed by this holy man that he kept his face on the floor during the entire interview.

That evening I was the guest of all the monks at a generous dinner which included

meat. Having galloped our horses all the way to Gyangtse, my servant and I arrived dead tired long past midnight.

As summer wore to an end, I went back to India, keeping my pledged word, but I had permission to return the next spring.

I started the third expedition from Simla, crossing lofty mountains by the Pabang Pass, following the course of the Indus River for many miles, and eventually returning to Ladakh (map, page 661).

In the wild, remote region I traveled, settlements were widely scattered and trails barely defined. Small glacier streams we forded hand in hand to prevent our being washed away in the rapids.

Larger streams we spanned by rope bridges. We spent two days crossing the Parolia Rapids (page 669).

One of the villagers, for a price, swam the icy river while towing a twine attached to a heavy cable rope. When this cable had been stretched, my men ferried the stream on a chair operated by rope and pulley. It reminded me of a ski tow.

All the people of the village gathered to cheer my crossing. Gusts of wind screaming down the gorge swung me back and forth, and as I looked down into the swirling, rumbling rapids, I wondered what would happen should the rope break. I nearly fainted at the thought.

Our pack boxes went across in the same manner, but the yaks, poor beasts, were pushed into the gorge. Bobbing like apples, they succeeded in making the crossing nearly a mile downstream.

Without further incident we crossed into Ladakh and, following the Indus, made our way to Leh.

#### Asia's Gorgeous Costumes Are Passing

Thus ended my experiences on the roof of the world. I have forgotten scarcely a detail because my brushes and pencils etched in memory every scene painted.

As a result of all my travels, I have a gallery of Asiatic types which has interested students of ethnology everywhere.

I doubt that any artist will ever duplicate my work, for the reason that he will be unable to find the gorgeous embroidery and fanciful silks which even the simplest peasants in Asia used to wear. Within recent years the native, aping the European, has adopted trousers and skirts of the cheapest cotton. His folk costumes are fast becoming museum pieces.

For additional articles on Tibet, see "NATIONAL GEOGRAPHIC MAGAZINE Cumulative Index, 1899-1948."

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

Articles and photographs are desired. For material The Magazine uses, generous remuneration is made.

In addition to the editorial and photographic surveys constantly being made, The Society has sponsored more than 150 scientific expeditions, some of which required years of hard work to achieve their objectives.

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

In Mexico, The Society and the Smithsonian Institution, January 16, 1930, discovered the oldest work of man in the Americas for which we have a date. This slab of stone is engraved in Mayan characters with a date which means November 4, 241 B. C. (Spinden Correlation). It antedates by 200 years anything heretofore dated in America, and reveals a great center of early American culture, previously unknown.

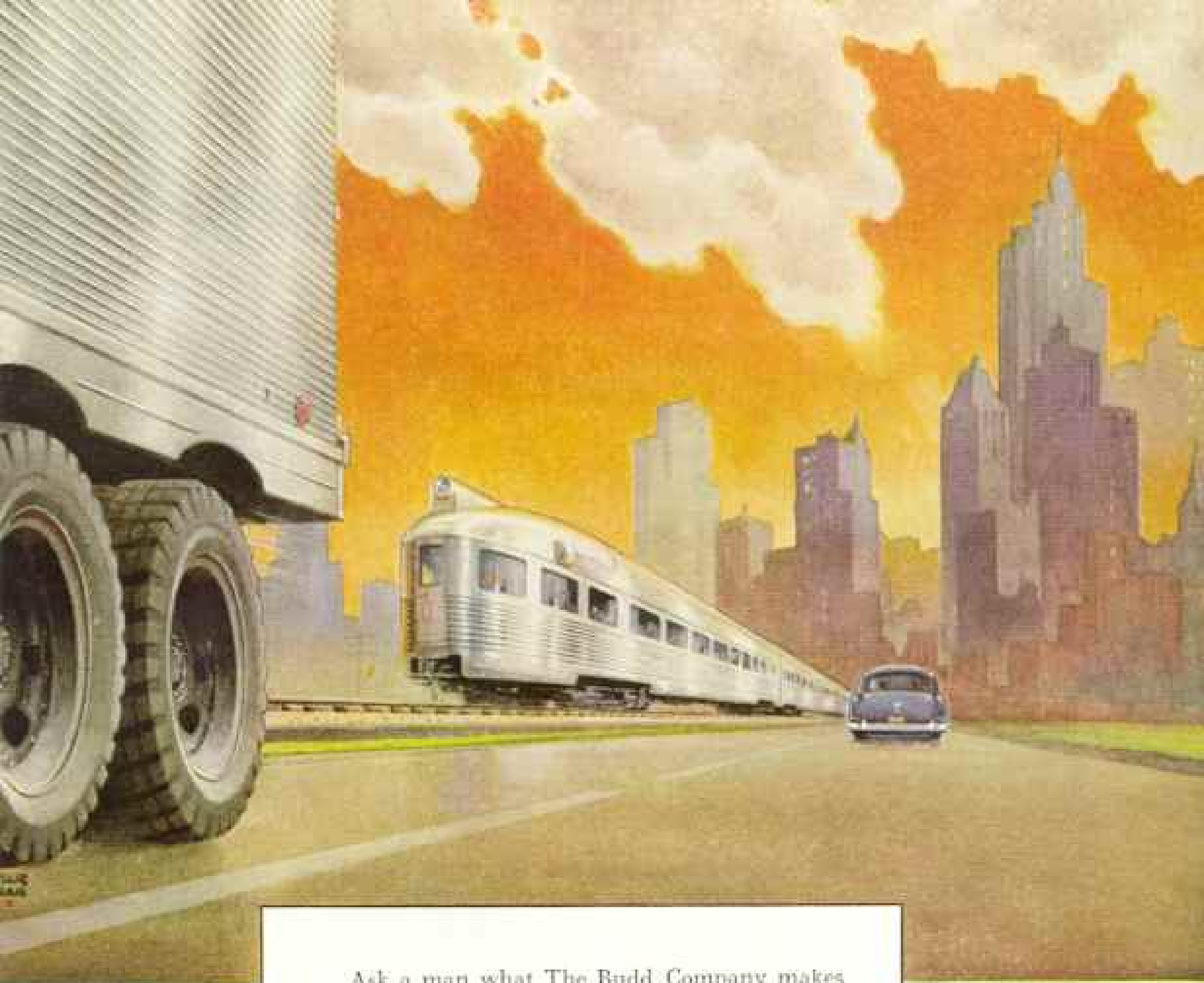
On November 11, 1935, in a flight sponsored jointly by the National Geographic Society and the U. S. Army Air Corps, the world's largest balloon, *Explorer II*, ascended to the world altitude record of 72,395 feet. Capt. Albert W. Stevens and Capt. Orvil A. Anderson took aloft in the gondola nearly a ton of scientific instruments, and obtained results of extraordinary value.

The National Geographic Society-U. S. Army Air Forces Expedition, from a camp in southern Brazil, photographed and observed the solar eclipse of 1947. This was the seventh expedition of The Society to observe a total eclipse of the sun.

The Society cooperated with Dr. William Beebe in deep-sea explorations off Bermuda, during which a world record depth of 3,028 feet was attained.

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

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## *First Star of the Night*

### *I wish...I wish...*

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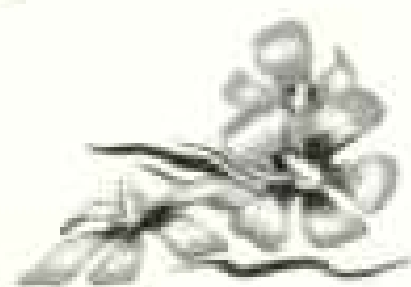
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The increased glass area is nice to look at from the outside. But it's there to look out of from the inside. Both windshield and rear window are larger. You get a clear, undistorted view of the road.

*Just your style!*



Special De Luxe 4-Door Sedan with Longer 118" Wheelbase

*the great new* **Plymouth**

**For More Safety**

New body construction makes the New Plymouth a sturdier, safer car. Frame and body are 33% more rigid. The New Plymouth has a lower center of gravity. It hugs the road better. And it handles with ease.

**Beauty for Performance**

There's a more powerful engine. This is the result of a newly designed cylinder head, increased compression ratio and a new intake manifold. New chrome compression ring gives even longer engine life.

**Beauty for Value**

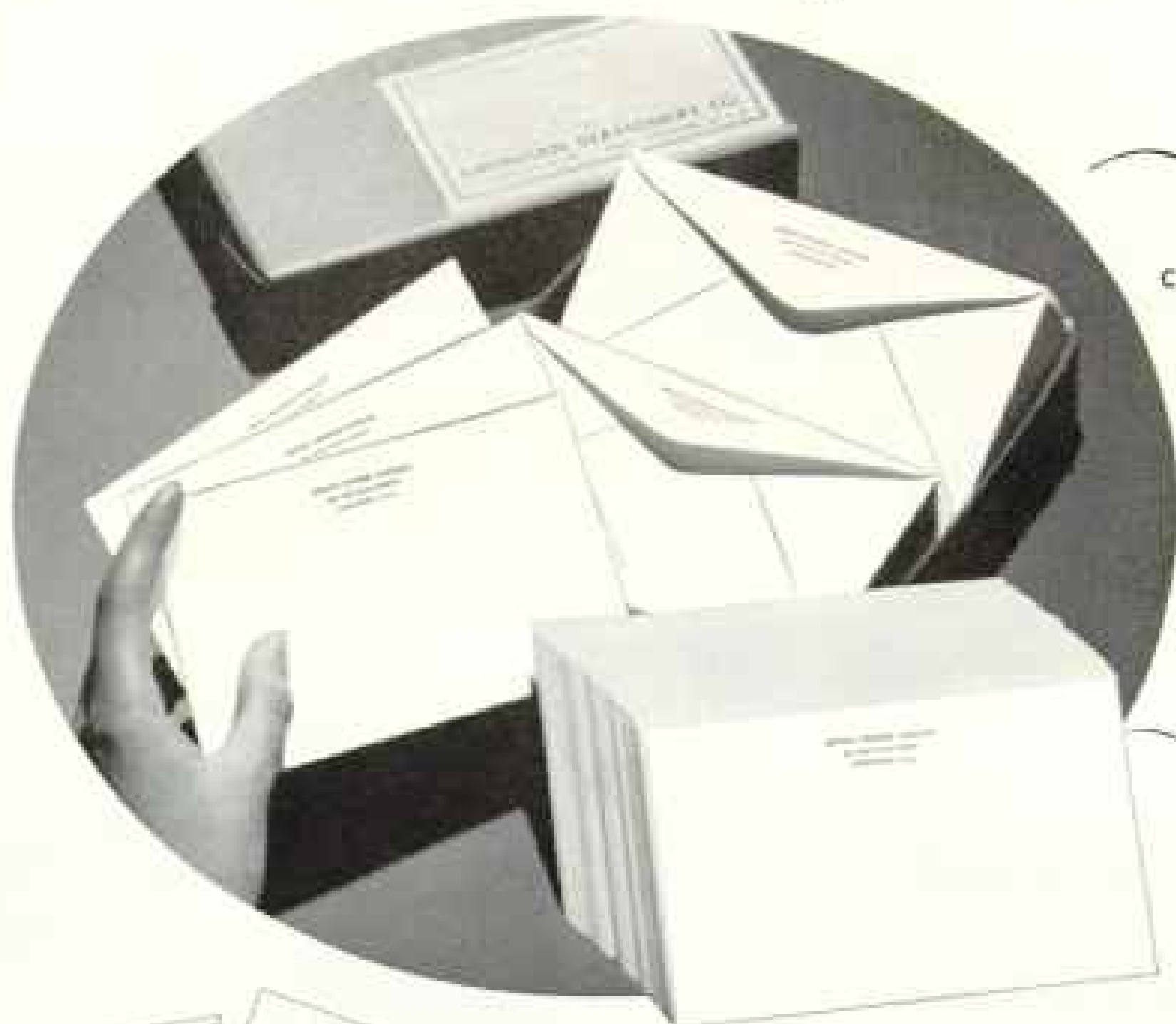
To see how new car beauty helps make a better new car—see your Plymouth dealer now! You'll find that the great New Plymouth—feature for feature, dollar for dollar—hits a new high in automobile value!

**NOW** there's more difference than ever in low-priced cars—and the great New Plymouth makes the difference. See this new car at your Plymouth dealer's now.

PLYMOUTH, Division of CHRYSLER CORPORATION, Detroit 31, Michigan



# If You Prefer Correspondence Cards...



CORRESPONDENCE  
CARD  
PACKAGE

100 Correspondence Cards  
100 Envelopes

All printed with your  
name and address

**\$1.50**



STANDARD  
PACKAGE

200 NOTE SHEETS (size 6 x 7) and  
100 ENVELOPES. Printed with your  
name and address in rich  
blue ink. Crisp, white  
rag content bond paper

**\$1.00**



ENVELOPE  
PACKAGE

200 ENVELOPES ONLY (envelopes  
as in the Standard Package). For  
those who need lots of  
envelopes for paying by  
check, etc. Neatly printed

**\$1.00**



TABLET  
PACKAGE

200 SINGLE SHEETS, tableted, and  
100 ENVELOPES. Identical to Stand-  
ard Package in size and  
quality. All printed with  
name and address . . . . .

**\$1.25**



DELUXE  
PACKAGE

125 LONG STYLE SHEETS (size  
6 1/2 x 10 1/2) and 125 LONG STYLE  
ENVELOPES in *Aras-*  
*ier* rag content bond  
paper. All Printed . . .

**\$2.00**

Many American Stationery users complement their informal and household business stationery with the handy-size (3 1/2 x 6) Correspondence Cards. These cards are so convenient for shorter notes and for ordering merchandise by mail.

The cards are high quality white vellum. All are neatly printed in rich blue ink with your name and address, as are the envelopes. Your mail is clearly identified. It can't go astray.

They are correct in size, color and weight. And they're so inexpensive — 100 quality cards and 100 envelopes, printed, for only \$1.50. Another great American Stationery value! Try a package.

Order in quantities as listed. No "split" orders accepted. Maximum printing — 4 lines, 30 characters per line. Remit with order. West of Denver, Colo., and in U. S. possessions add 10% to prices. We pay postage. *Satisfaction guaranteed.*

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STATIONERY**

THE FINE STATIONERY  
IN THE PLAIN BOX

# The New BROADWAY LIMITED

NEW YORK • CHICAGO

*Now in Service*

THE NEWLY-EQUIPPED Broadway Limited presents a completely new conception of travel . . . with new styling, appointments, riding ease and beauty . . . more comforts and conveniences than ever before, representing the finest that modern design and engineering can offer.

Beautiful new Lounge and Observation Cars . . . attractive new Dining Cars . . . distinctively new, all-room sleeping cars . . . plus the Broadway Limited's traditional hospitality—all for your personal travel pleasure! We invite you to make a reservation for your next trip.



**NEW MID-TRAIN LOUNGE AND OBSERVATION LOUNGE CARS**—Richly appointed for leisure. Magazines, buffets.

**NEW MASTER DINING CAR**—Attractively furnished and decorated. Enjoy delicious food . . . meticulous service. Entire car reserved for dining.

**ROOMETTES** for one. Full-length bed, wardrobe, complete toilet facilities.



**DUPLEX ROOMS** for one person. Full length bed becomes comfortable divan during day. Toilet facilities.

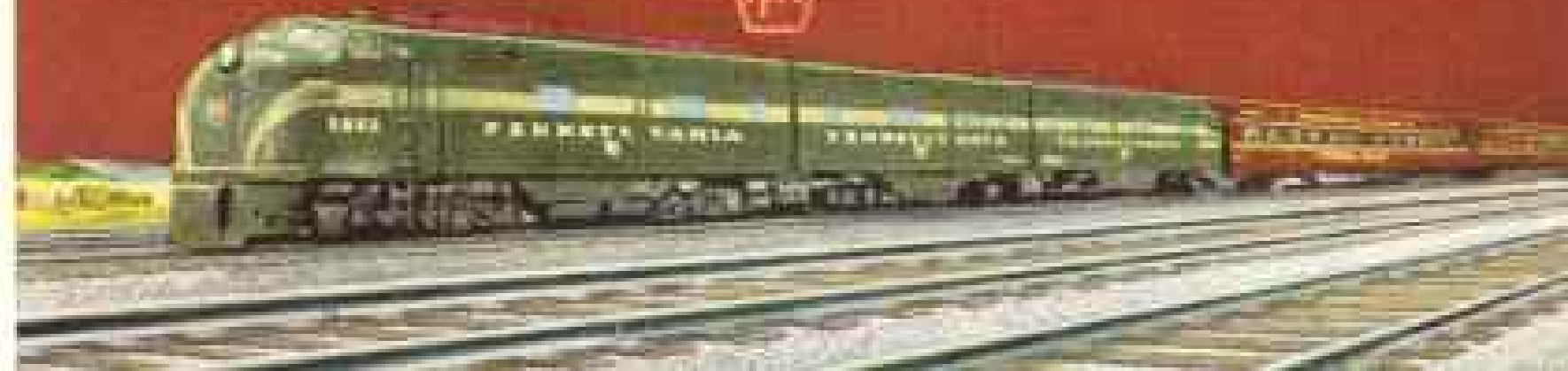
**COMPARTMENTS** for two. Sofa-seat and lounge chair. Lower and upper beds. Wardrobe, enclosed toilet annex.

**BEDROOMS**—for one or two—in three new styles. Lower and upper beds, wardrobe, enclosed toilet annex.

**DRAWING ROOMS**—for three. Sofa-seat and lounge chairs . . . three beds. Wardrobe, enclosed toilet annex.



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The State of New York invites the readers of *The National Geographic Magazine* to send for its new official 196-page, full-color vacation guide.

You can obtain this handsome free book—the most complete ever published by any state—by mailing the coupon below.

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For graduate *Eleanor Morgan*, Mount Holyoke '49

...an *Elgin*


*Charming daughter of Mr. and Mrs. Alva B. Morgan of Darien, Conn., Eleanor is the second member of her family to graduate from Mount Holyoke.*

**"SO BEAUTIFULLY STYLED,"** says her **MOTHER.** "Eleanor's is the most beautiful of many Elgin Watches owned in our family from generation to generation."

**"THAT DURAPOWER MAIN-SPRING MEANS BETTER PERFORMANCE,"** says her **FATHER.** "She won't be bothered with mainspring repairs in that watch."



For your graduate . . . the extra thrill of owning a beautiful star-timed *Elgin* Watch! Beneath its beauty is Elgin's DuraPower Mainspring that eliminates 99% of all repairs due to steel mainspring failures; gives a *permanency* of timekeeping performance never before possible in any watch.

See at your jeweler's now these outstanding examples of America's creative and productive genius . . . Elgins with the DuraPower symbol  on the dial. They're truly distinctive.



*The genius of America to wear on your wrist*

*Lord and Lady Elgins are priced from \$67.50 to \$3,000. Elgin De Luxe from \$47.50 to \$67.50. Other Elgins as low as \$29.75. All prices include the Federal Excise Tax.*

\*Patent pending. Made of "Elginus" metal.

*Only an* **ELGIN** *has the DuraPower Mainspring*

# 11 all on one trip

*via*



**.. all the way**

You can see all these great western wonderlands—easily—on a trip to or from California via Santa Fe (route of *The Chief* and *Super Chief*).

Just ask your railroad or travel agent how to include them in a vacation trip this summer.

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Please send me the free literature I have checked:

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| <input type="checkbox"/> Divide Ranches   | <input type="checkbox"/> Time Table   |

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*Paradise for picture takers—Land of Pueblos, New Mexico*



*Trail ride—Grand Canyon, Arizona*



*Underground fairyland—Carlsbad Caverns, New Mexico*



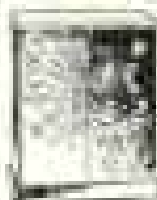
*Sandy beaches of California*

# DuMont

the yardstick  
of television



The DuMont Colony — 11½ square-foot direct-view television screen, AM and FM radio, and automatic record player. One of a complete line of television receivers.



Before you buy any television receiver—see DuMont.

Know what you should expect. **compare** screen size. And be sure the rated size is all usable picture area. **compare** picture quality.

**compare** brightness, clarity, detail, freedom from flicker and distortion.

**compare** tuning. Will it receive all 12 channels? **compare**

cabinet design. Will you feel proud of its appearance.

**compare** reputation. Is it a make with a good reputation

for performance and dependability?

**compare** services. All DuMonts give you static-free FM radio.

Many also include AM radio and a record player.

**compare** price. See if DuMont doesn't give most for your money.

**DUMONT** *just with the finest in television*

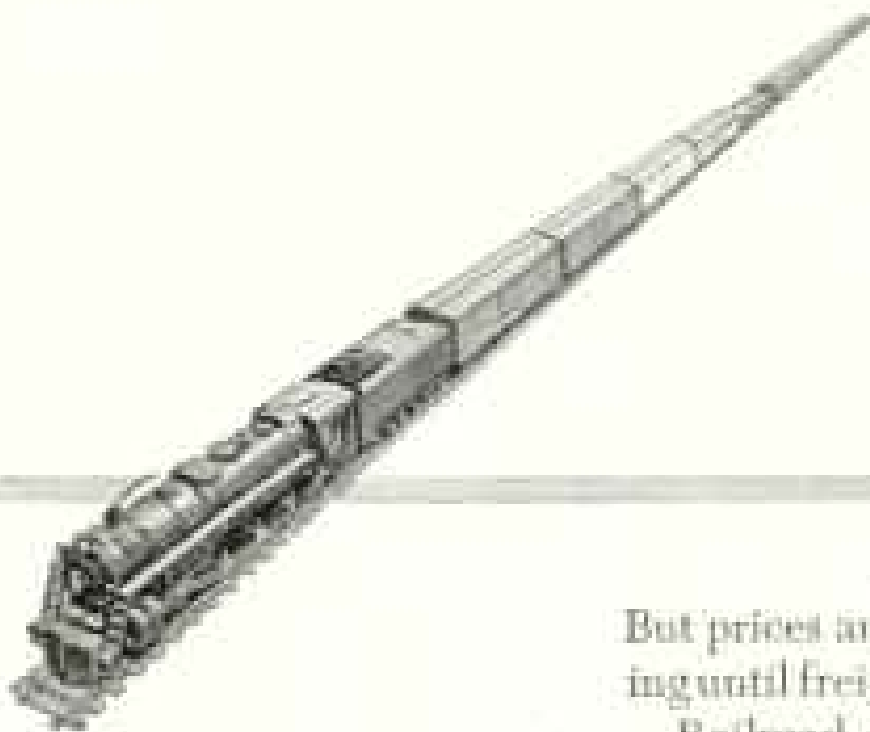
Cabinets designed by Herbert Rossignol

Allen B. DuMont Laboratories, Inc. • General Television Sales Offices and Station WDD, 575 Madison Avenue, New York 22, N.Y. • Home Offices and Plants, Passaic, N.J.



*and the  
most thrifty*

## The most popular car in America!



Yes, that's it—the familiar freight car, which brings you most of the things you eat, wear, and use.

It does its vital job for you so thriftily that it carries freight for charges which average only about 1½ cents for moving a ton a mile—taking all kinds of freight over all distances.

When the war ended, these charges were no higher—and in many cases were lower—than when war began back in 1939.

But prices and wages kept climbing until freight rates had to go up.

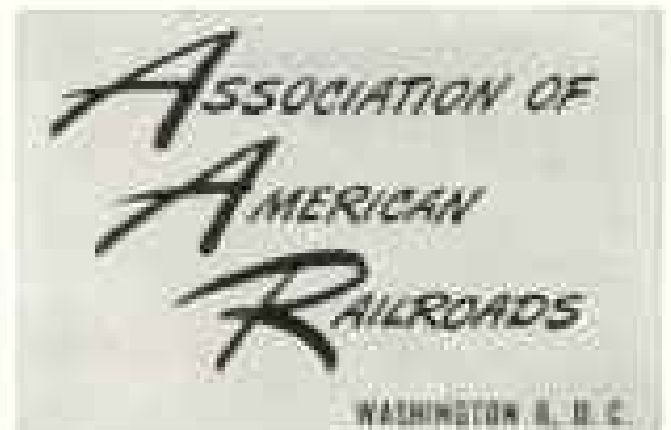
Railroad rates, though, went up *later* than other prices. By the time of the first small increase in freight rates, in the middle of 1946, the average level of other prices had already gone up more than 40 per cent above 1939.

And freight rates have gone up *less* than the average percentage increase of other prices—in fact, only about half as much.

So railroad freight charges now represent an even smaller fraction of the prices you pay for

the things you buy than they did before the war.

Today, the railroad freight car is not only the most essential car in America—it is also the car that provides the world's thriftiest transportation.



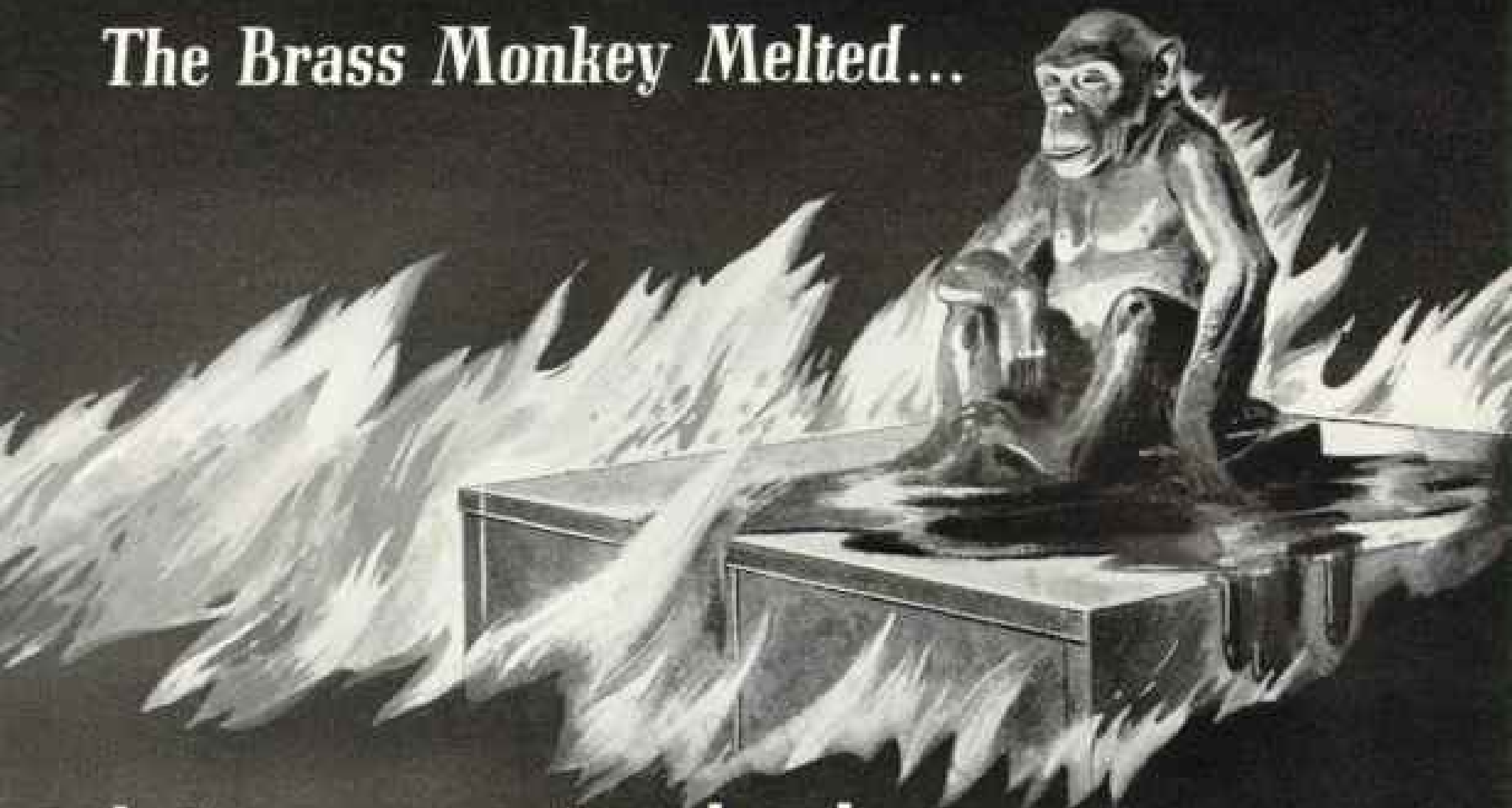
### Listen to THE RAILROAD HOUR

Every Monday evening over the ABC Network, 8-8:30 Eastern, Mountain, and Pacific Time; 7-7:30 Central Time.





# The Brass Monkey Melted...



**but my papers stayed cool  
and I stayed calm...and collected!**



"That little melted monkey opened my eyes. How fast an office fire can start and how *hot* it can get!

"It made me realize the importance of my records—and my safe. Imagine what it would be like to try and do business without accounts receivable, tax records, deeds and contracts . . . and inventory records, needed to collect fire insurance." Think it over—what would you do? "Thank heavens, I traded in my old, obsolete heavy walled model for a modern Mosler "A" label safe . . . it kept me in business!"



**4 out of 10** firms never reopen after losing their records by fire. That's why you can't *afford* any less than the best safe you can buy. For years, the world's finest safes and vaults have been Mosler. Ask your own banker. Mosler is the builder of the famous U. S. gold storage vault doors at Fort Knox, Ky.

There's a Mosler safe to suit your needs exactly—and every Mosler safe is *dependable*. All carry the label of the Underwriters' Laboratories, Inc. Yet they cost less than you'd expect.

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**Mosler**  
**Safe Co.**

Main Office: 320 Fifth Avenue  
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Largest Builders of Safes and Vaults in the World

The Mosler Safe Co., Dept. 45  
320 Fifth Ave., New York 1, N. Y.

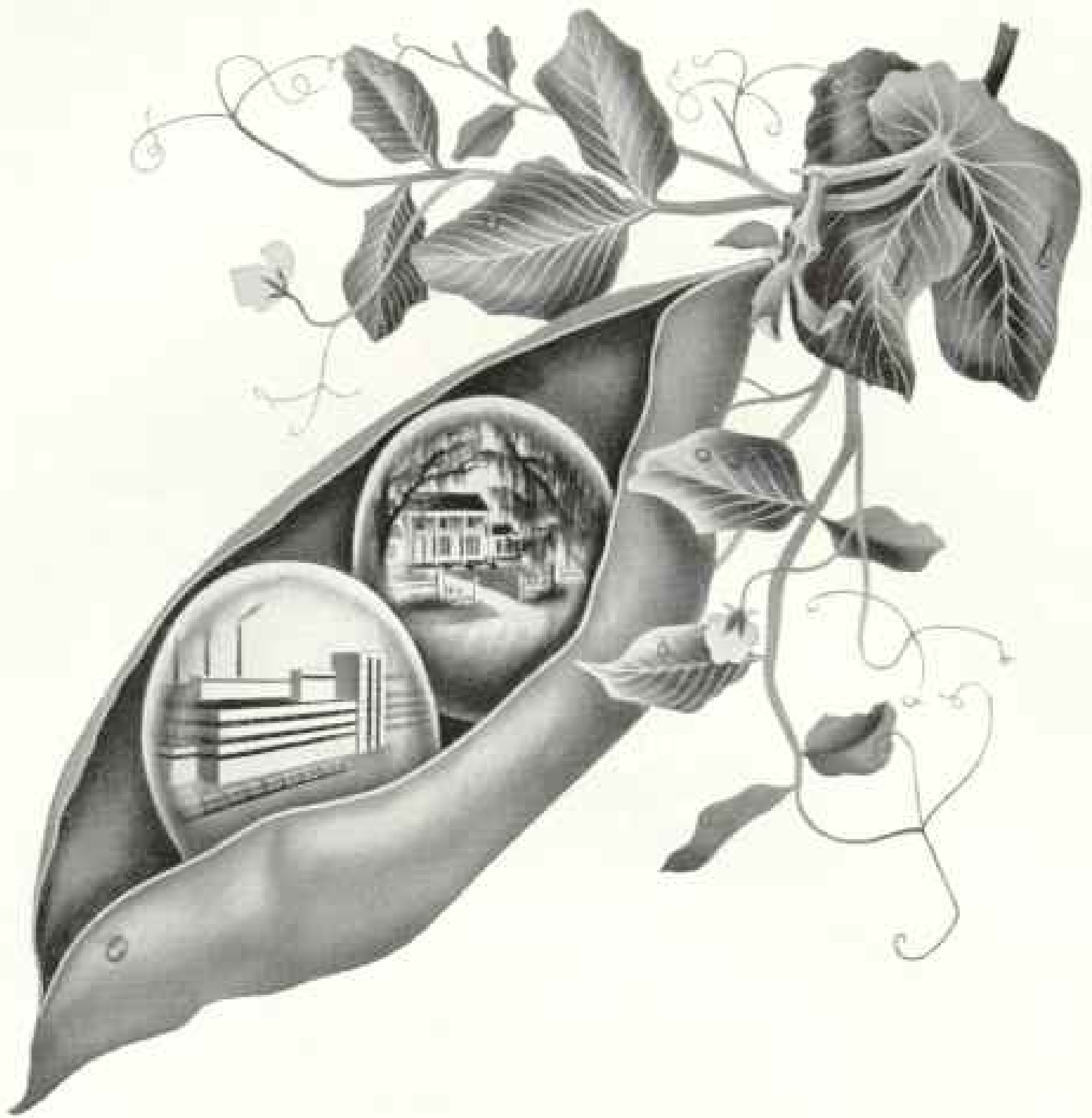
- I'd like to discuss your free Record Protection Survey with my nearest Mosler representative.  
 Please send free booklet: "What You Should Know About Safes."

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Firm.....

Address.....

City..... Zone..... State.....



## In the Same Pod

**F**RAGRANT magnolias . . . towering smokestacks. Dreamy plantations . . . wide-awake factories.

Like two peas in a pod, historic charm and dynamic history-making industrial growth "go together" all along the 3,000-mile Southern Railway that "Serves the

South." For this is a friendly land of limitless raw materials . . . of skilled and willing workers . . . an optimistic, fast-growing, vigorous land of unlimited opportunity.

*"Look Ahead—Look South!"*

*Ernest E. Harris*

President



# SOUTHERN RAILWAY SYSTEM

*The Southern Serves the South*

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## Revolution on a desk top!

*This revolution can free you, too! Free you from all the bother and inefficiency of old-style dictation. For this is the Dictaphone TIME-MASTER Revolution.*

The streamlined TIME-MASTER is the electronic dictating machine practical businessmen are talking about—and talking to. Men who get things done take to the TIME-MASTER and its plastic MEMOBELT record—naturally.

And men who use the TIME-MASTER naturally get things done! Because the TIME-MASTER is so easy to use . . . is always instantly ready to catch your thoughts and take your dictation on a MEMOBELT that guarantees voice-perfect recording and reproduction, faster, pleasanter transcription. Because it helps you get much more done, much more easily, in less time and at less cost!

## **Dictaphone** *Electronic Dictation*

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### **Only the Dictaphone TIME-MASTER offers all this:**

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- Dictaphone dependability, nationwide service!

For a TIME-MASTER demonstration, call your local Dictaphone representative or fill in coupon.

Dictaphone Corporation  
Department H-39, 420 Lexington Ave., N.Y. 17, N.Y.

Please show me the new TIME-MASTER.  
 Please send TIME-MASTER literature.

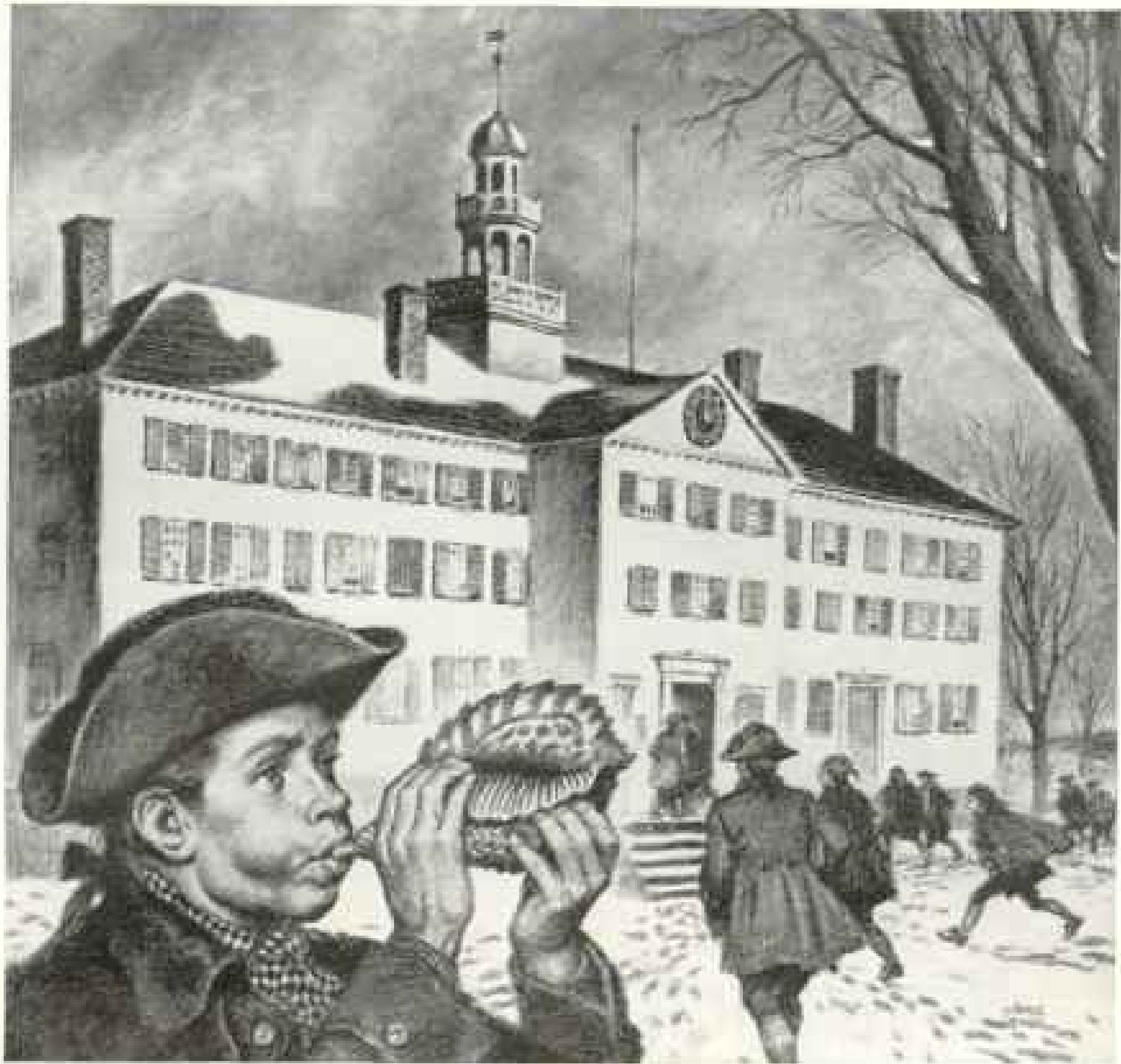
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"PROTECTING THE AMERICAN HOME"



### *A warning note for parents, too*

TO THE founder of Dartmouth, a college bell was a luxury that could wait on more important matters. Students were warned of approaching classes by the booming notes of a conch shell, sounded by a stout-winded freshman. And in almost every other way, too, the simplicity of early university life bore little resemblance to what we know today.

The modern university, with its libraries and laboratories, its trained staffs and its vast educational and athletic opportunities, is expensive to maintain and operate. In the face of rising living costs of all kinds, parents must

also pay more for their children's education. Yet, in this competitive world of ours, higher education is even more necessary than ever before, if our children are to succeed. The wise parents, bending breathlessly over the crib of their firstborn, will start planning now for the future.

"Your Plan for Security" offers a helpful, down-to-earth approach to intelligent planning — not only for college education but for all your family's future financial needs. A post-card request will bring you further information about this new family service.

*"See your National Life underwriter  
at least once a year"*

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*Insurance Company*  
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SOLID AS THE GRANITE HILLS OF VERMONT

one of  
Canada's **10** most popular  
VACATIONS



**CANADA IS FISHING COUNTRY.** Ontario alone has more than a million lakes. From the glacier-fed waters of the high Rockies to the famed salmon pools of New Brunswick and Nova Scotia, real trophies, real relaxation call sportsmen north.



**IN THE HEART** of the majestic Canadian Rockies nestles the "village" of Jasper Park Lodge—luxurious center of "out-of-this-world" trail-riding (Tonquin Valley, above), fishing, golfing; starting point for the spectacular Columbia Icefield Drive.

Here they are, the 10 Top Vacations as revealed in a 1948 survey of U.S. travel preferences: Alaska Cruise • British Columbia • Canadian Rockies • Cross-Canada Rail Tour • Eastern Cities and the Laurentians • Gaspé and the Saguenay • Lake of the Woods Maritime Provinces • Highlands of Ontario • Winnipeg and Hudson Bay. Choose your vacation—then have your nearest Canadian National office plan it for you.



**ABOARD THE CONTINENTAL LIMITED** you ride the Scenic Route across Canada, guest of the largest railway system in North America. Other "name" trains give easy access to all Eastern Canada. To California and anywhere West, to New York and anywhere East, go Canadian National. "We'll tell you where and take you there."

*"Come the easy way—  
to Canada's North Woods"*

YOU TRAVEL in armchair ease by Canadian National into famed sporting playgrounds and resort areas, you stop over to sightsee Canada's friendly cities. Ask today at your nearest Canadian National office (listed below) for details on *your choice* among the 10 most popular Canadian vacations.

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THE RAILWAY TO EVERYWHERE IN CANADA

Canadian National offices in U.S.—Boston, Buffalo, Chicago, Cincinnati, Detroit, Duluth, Kansas City, Los Angeles, Minneapolis, New York, Philadelphia, Pittsburgh, Portland, Me., San Francisco, Seattle, St. Louis, Washington, D.C. Offices also in Montreal, Canada; Sydney, Australia; and Wellington, New Zealand.

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UNIVERSAL GENÈVE WATCHES  
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*Studebaker's*  
*the '49 buy word*  
**for a welcome new kind**  
**of low-cost mileage**

**A**LL America knows that Studebaker sets the pace in distinctive styling—but many don't realize how much a Studebaker cuts operating costs.

The gasoline savings a Studebaker makes help to keep many an income in balance with outgo.

Owners of new Studebakers hardly ever face the problem of finding the money for costly repairs.

Even the brakes of a new Studebaker save you money—seldom need a service mechanic's care.

It's smart to be fussy this year in buying a new car. Check up on Studebaker's low-cost mileage. Make it your measure of real money's worth.

White sidewall tires, wheel trim rings and license plate frames, available on all models at extra cost.



You're delighted by the luxury of refreshingly different decorator fabrics. Pictured here is interior of the Studebaker Land Cruiser—nylon upholstered over foam-rubber seat cushions.



You use amazingly little gas in a postwar Studebaker. On the open road, or in city driving, you can always count on your Studebaker engine to give you brilliant, low-cost performance.



Your brakes adjust themselves with lining wear—an exclusive postwar Studebaker origination for safety and economy. You have the firm brake pedal feel of a new car for thousands of miles!



Trustworthy structural soundness is built into every Studebaker by painstaking master craftsmen. Many are members of unique father-and-son teams. Studebaker, South Dear 27, Ind., U.S.A.



# MAINE

Is the answer to the question: "So you're planning to camp out this summer?" Not only is Maine's scenic beauty a breather, but there's every kind of sport and every form of loafing for lovers of the outdoor life. Guides are plentiful—so are lakes for fishing and canoeing. And Maine "cooked-out" meals are made for those with hearty appetites.

? Are camping sites in Maine easy to reach by car or train?

Yes, indeed! Everything needed for a pleasant vacation in Maine is easy to reach by train or first class roads. Pines are near the shore, shore is near the lakes, lakes are near and in the mountains. Maine is large enough to have everything and small enough to have everything nearby.

? Suppose a man wants to camp, but the rest of his family wants to stay at an inn?

Just as the mountains are near the shore, so the most rugged outdoor life in Maine is within easy reach of friendly inns and smart hotels. Maine is vacationland for everybody in the family—even if nobody agrees on how a vacation should be spent.

MAIL THIS COUPON TODAY FOR COMPLETE VACATION FACTS.

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MAINE DEVELOPMENT COMMISSION  
Travel Service  
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Please send me the 36-page illustrated Maine Vacation Guide for 1949.

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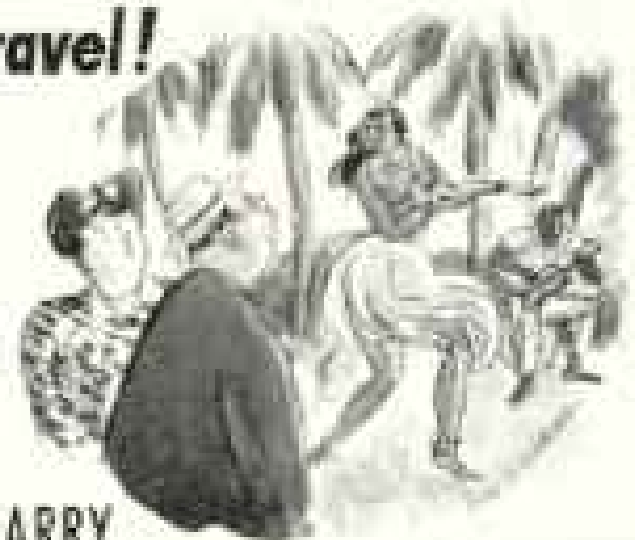
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**Miles and miles** of solid comfort...that's the vast Canadian Pacific Railway network. East or West across Canada...enjoy every service on smooth-rolling Canadian Pacific trains! Stop over at luxurious Canadian Pacific hotels like the Chateau Lake Louise in the Canadian Rockies.



**Superb service!** Such comfort...aboard sleek Canadian Pacific Princess ships, sailing the Inside Passage to Alaska and the Yukon. Canadian Pacific White Empress ships will sail you to Europe. Soon, Canadian Pacific will fly you to Hawaii, Fiji, New Zealand, Australia, and later—the Orient!

**There's no place** like Eastern Canada for vacation fun! And you can't beat hospitable Canadian Pacific hotels like Digby Pines in Nova Scotia for gracious service! Or visit The Algonquin in New Brunswick. (These are two of nineteen Canadian Pacific hotels and lodges across Canada.)

*Canadian Pacific*



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where Summer days and nights are cool-cool-cool!



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Get started right away on your San Diego vacation plans!

Ask your Travel Agent. Be a "San Diego wise" and can add much to your trip at no extra cost. Ample accommodations of all types. No seasonal increase in rates.

## San Diego

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## astrograph

TIME FROM MONTH TO SECOND,  
PHASES OF THE MOON



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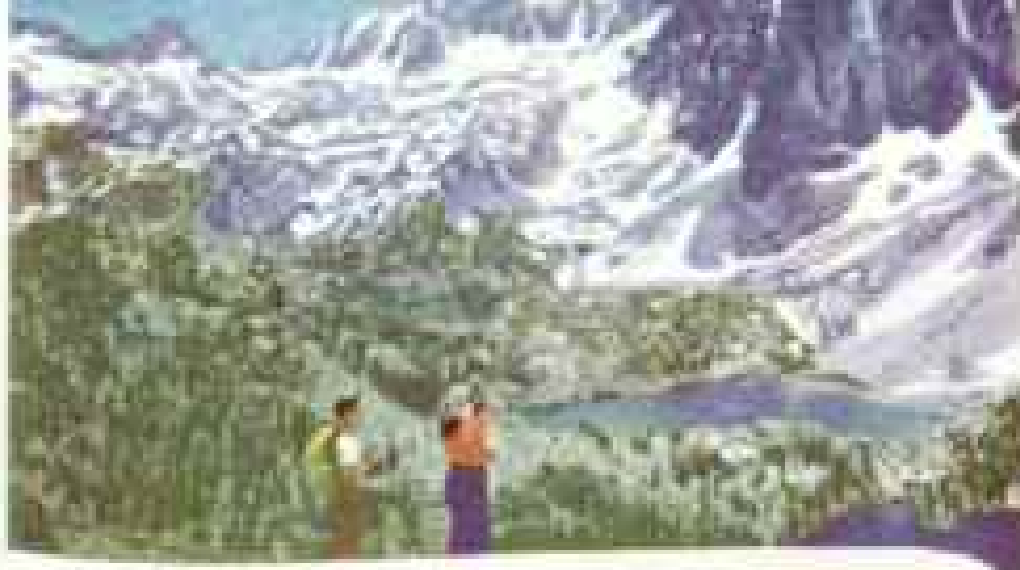
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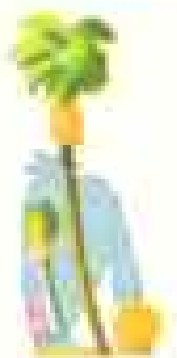
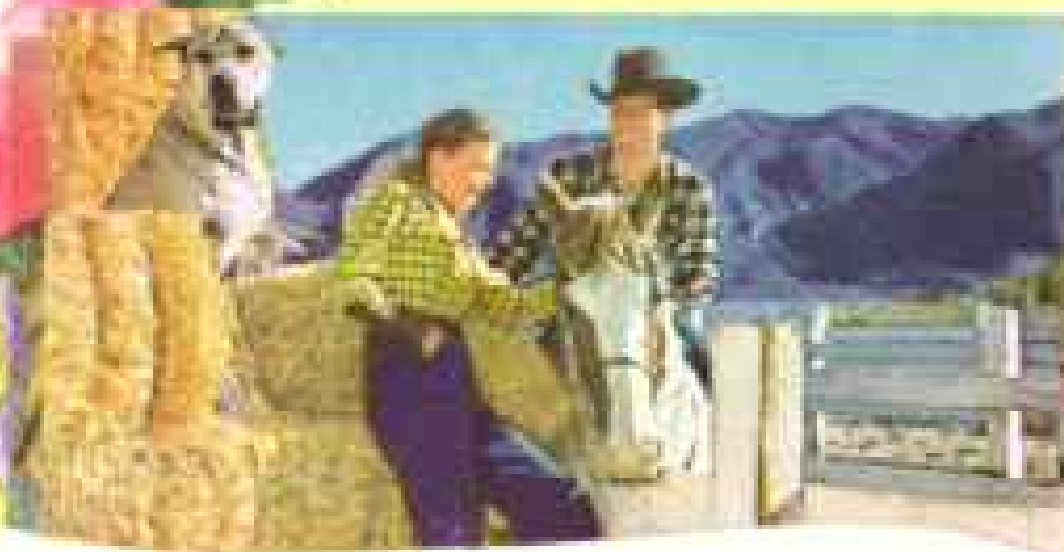


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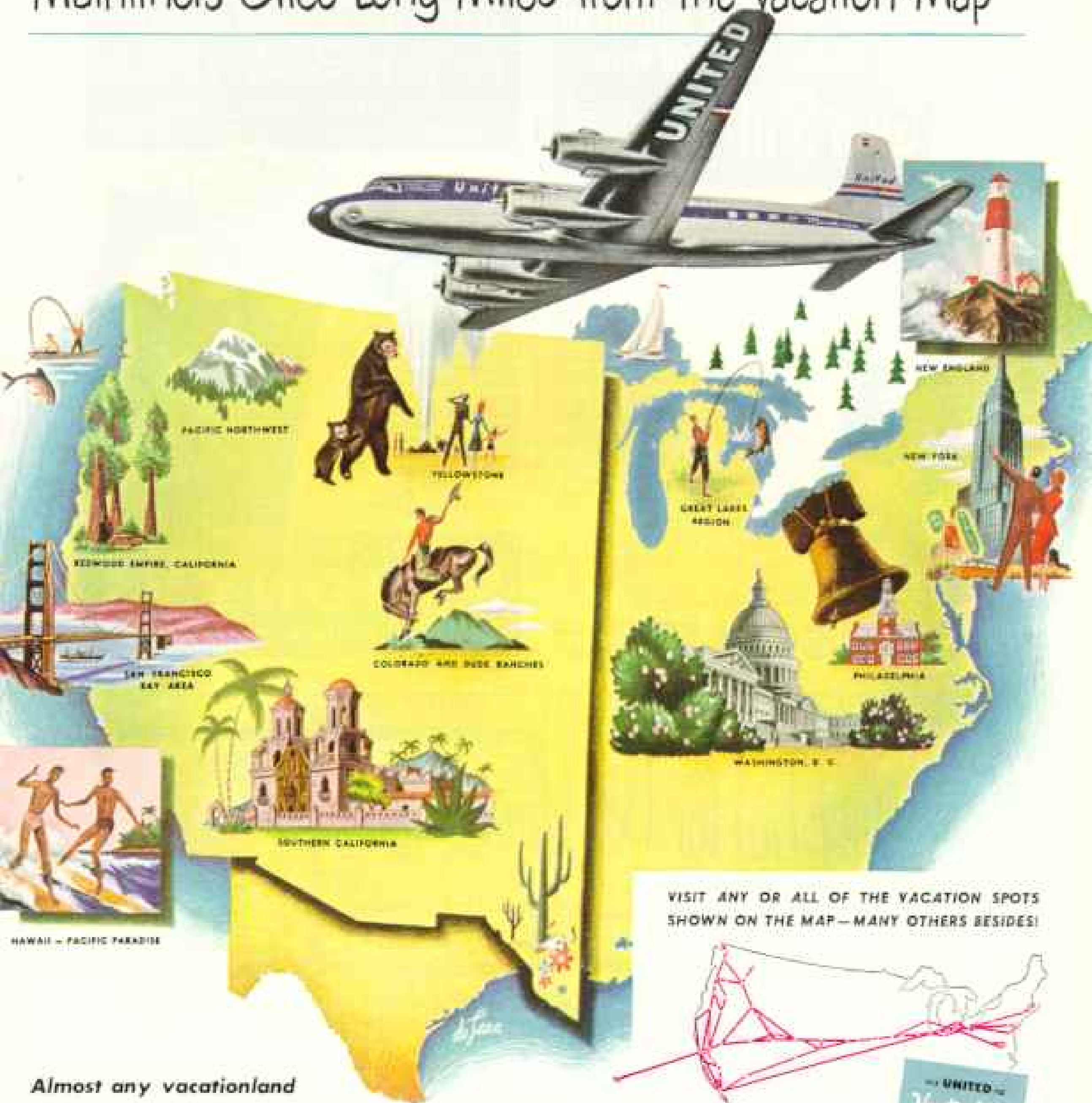
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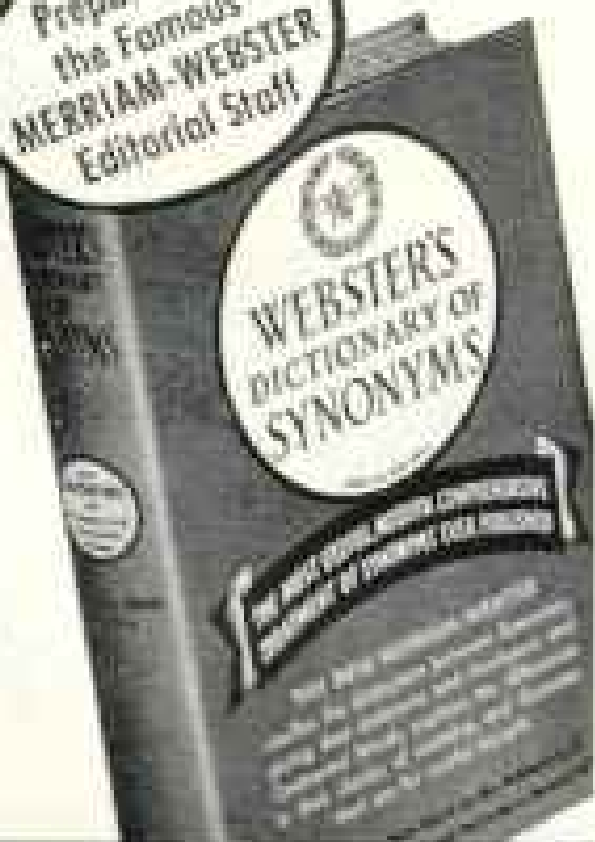
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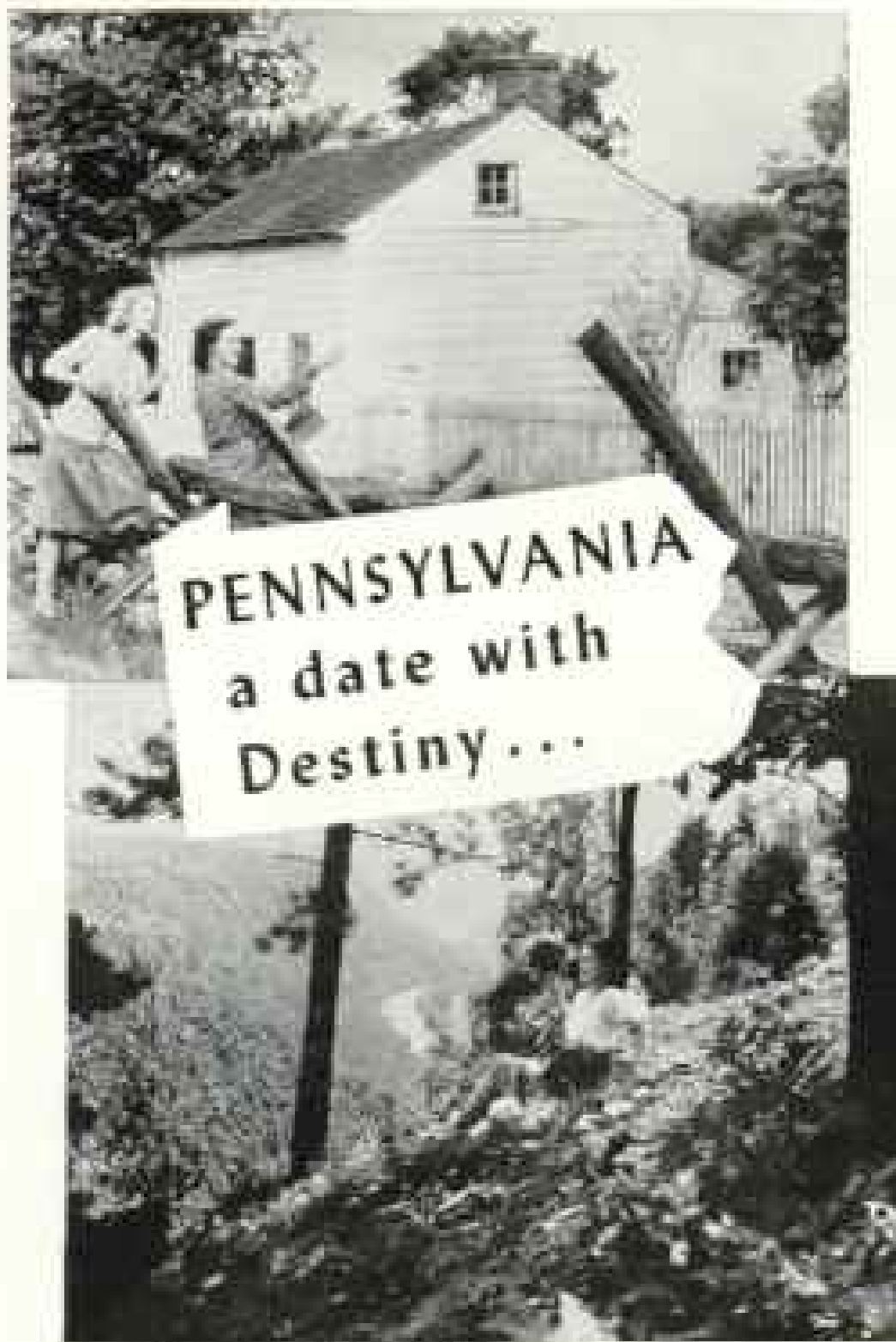
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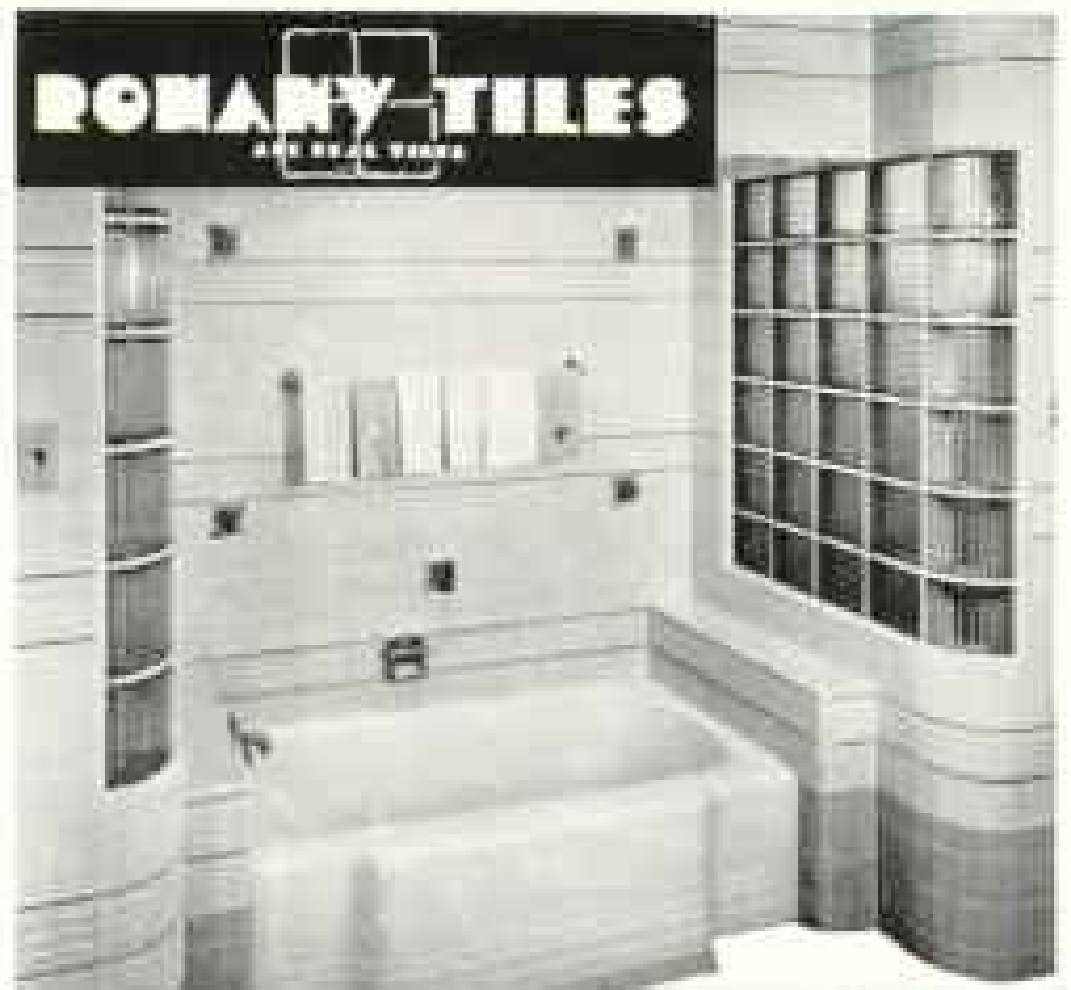


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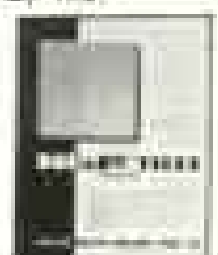
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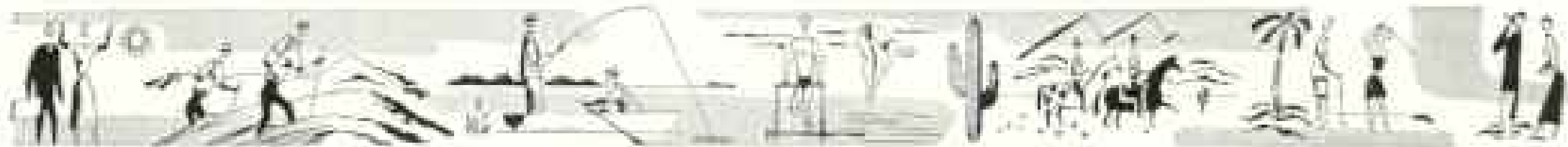
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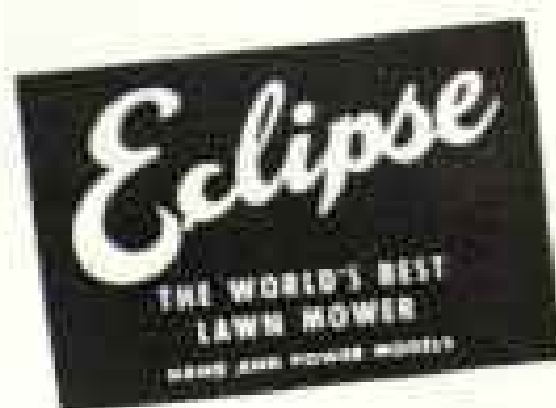
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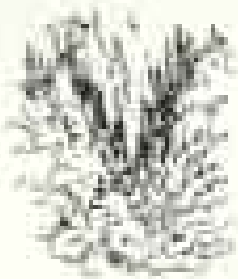
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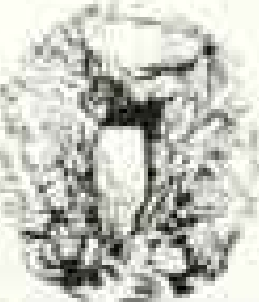
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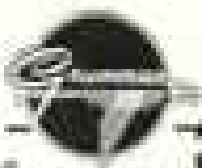
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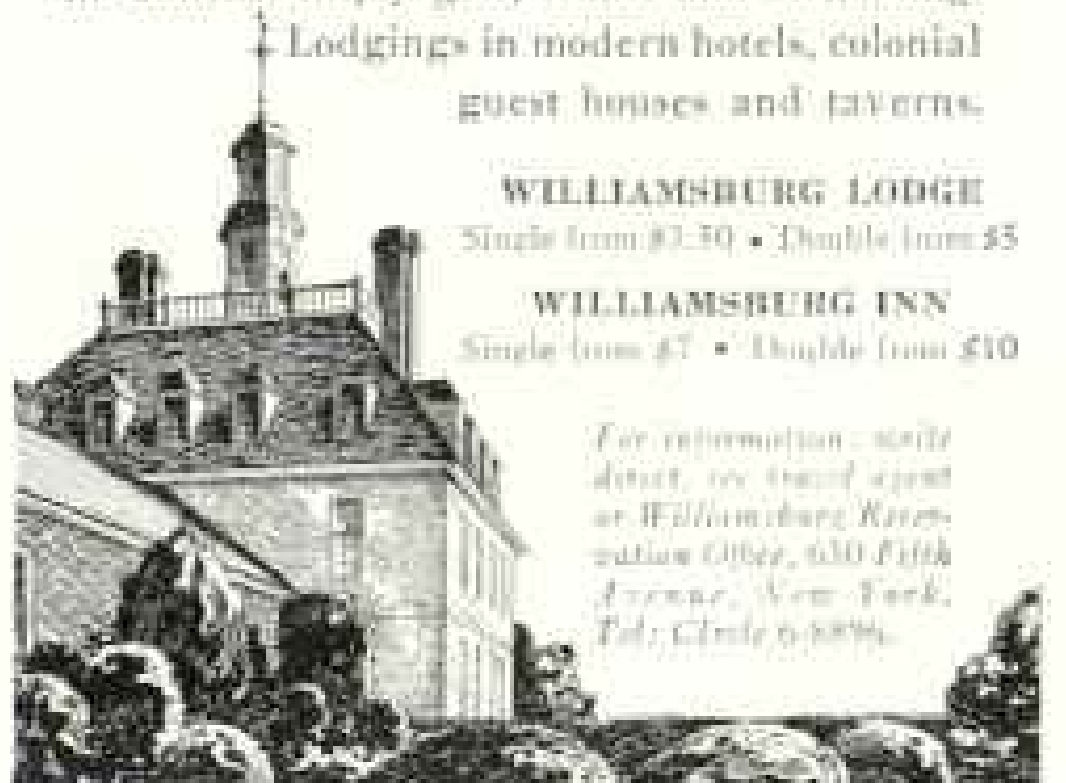
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# Some Facts About HIGH BLOOD PRESSURE

BLOOD PRESSURE rises when a person is active. After the strain has passed, the pressure generally returns to its regular level. If it is persistently and excessively above normal, however, that condition is called hypertension—or high blood pressure. This affects the circulatory system and may lead to serious conditions of the heart, brain, and kidneys.



High blood pressure itself is not a disease, but a symptom of some underlying disorder. Medical science is constantly increasing its knowledge of this condition, and is striving for improved methods of treating it. Special diets have sometimes proved effective. In a limited number of cases, surgery has been used. Additional research is concentrating on mental and emotional factors. There is also hope that newly discovered drugs may prove beneficial.



Periodic physical examinations help reveal hypertension early, when doctors say that chances for control are best. Such checkups may also discover possible infections which may be causing the condition.

As a result of physical examinations, the doctor may make suggestions for improving your health, such as eating wisely and *keeping weight down*. The latter is especially important, for high blood pressure is more than twice as common among fat people than it is among persons of normal weight.

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In many high blood pressure cases, the best "medicine" is often simply *moderation in every physical and mental activity*. The patient may be advised to work and play at a slower pace, to avoid emotional strain, and to get plenty of rest and sleep. This helps to lessen the demands on the circulatory system, and may lower blood pressure.



Today, under good medical guidance, the outlook for people with high blood pressure is better than ever before. By carefully following the doctor's advice, they can often avoid complications and look forward to long, useful lives.

• • •

Aiding in the development of more effective measures to help combat high blood pressure is the Life Insurance Medical Research Fund, supported by 148 Life Insurance Companies. This fund is making grants for research in diseases of the heart and blood vessels, including high blood pressure.

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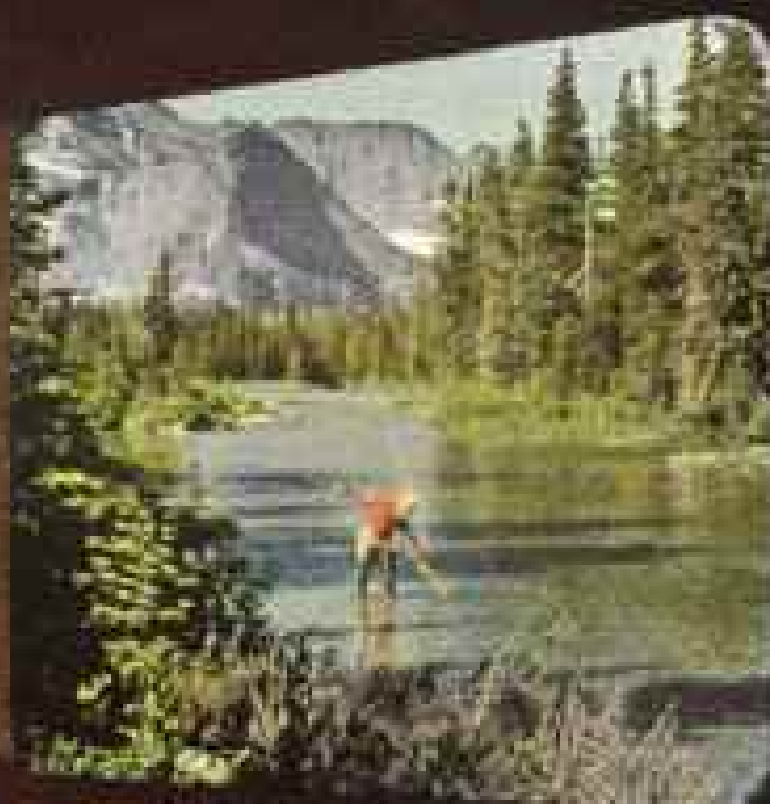


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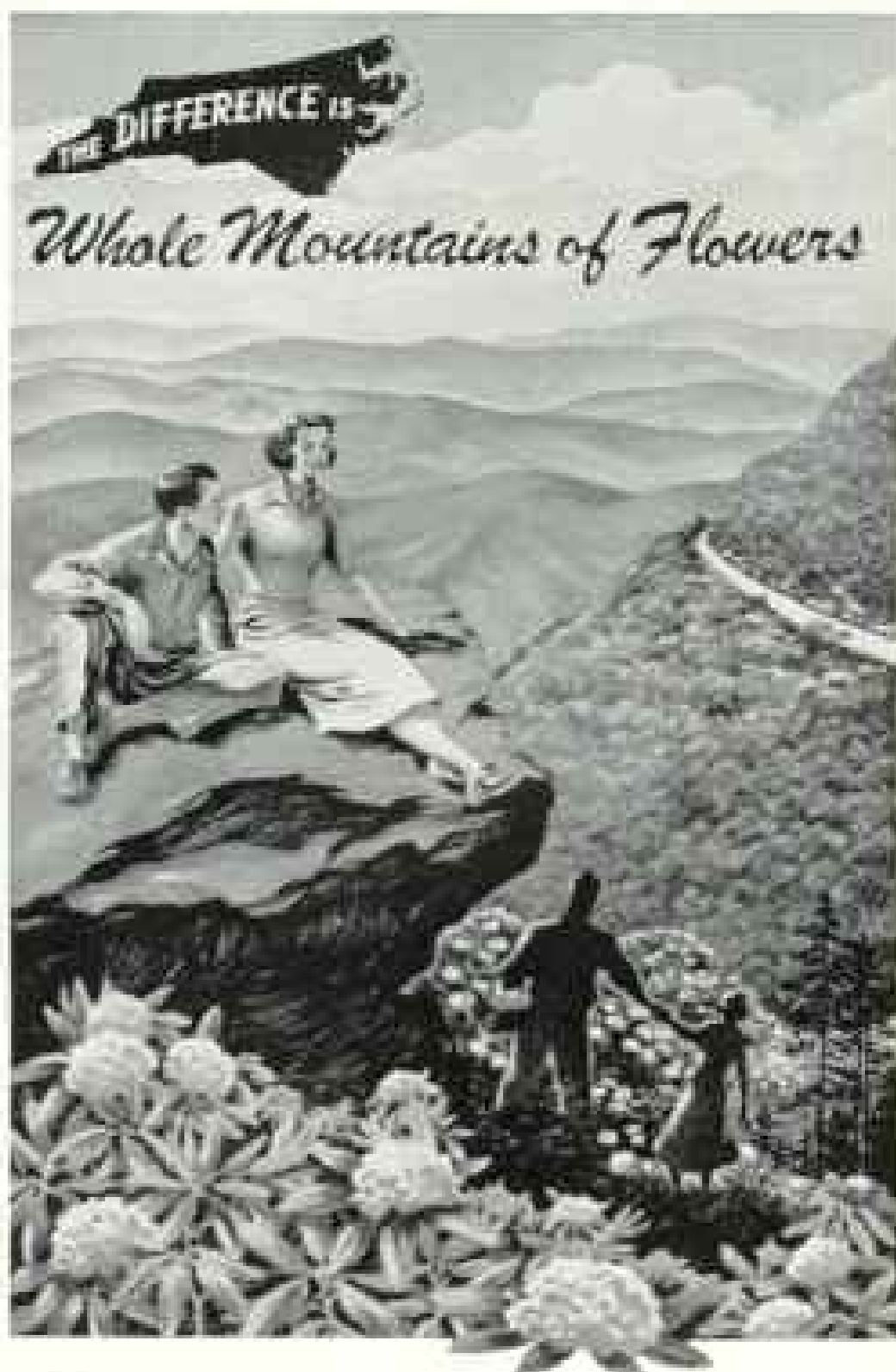


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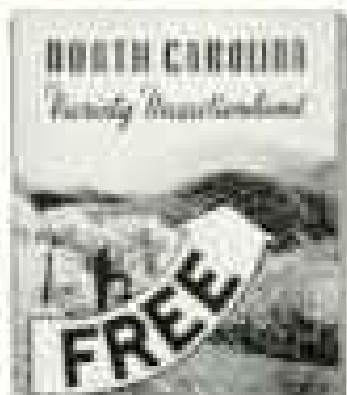
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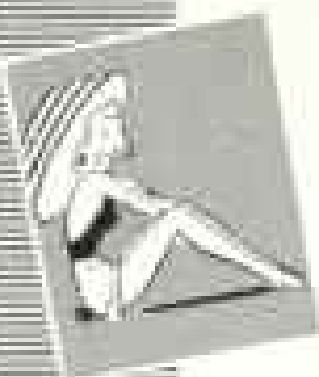
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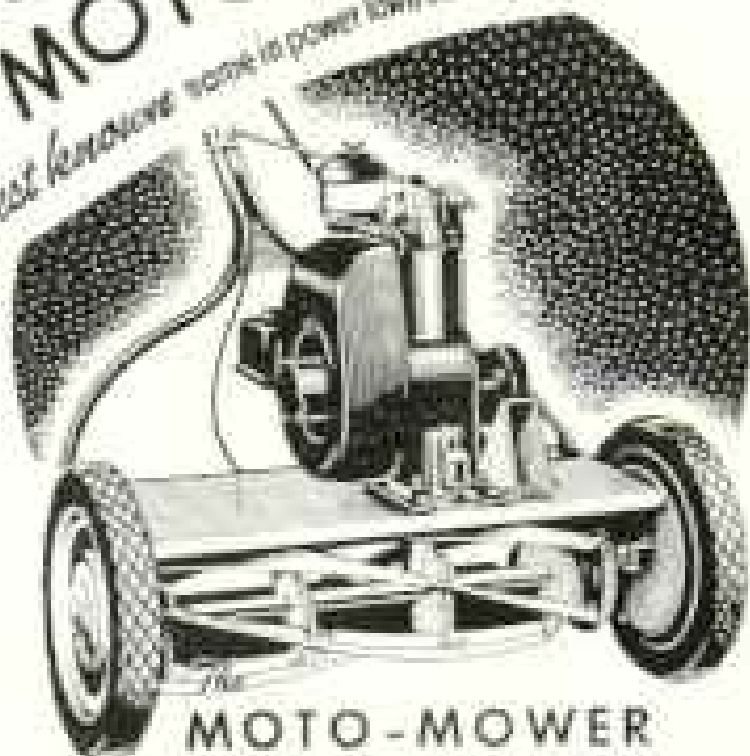
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**American Masters in the National Gallery:** This FULL-COLOR reprint from the September, 1948, NATIONAL GEOGRAPHIC presents 24 paintings by America's greatest masters. An article by John Walker, Chief Curator of the National Gallery of Art, Washington, D. C., evaluates these masterpieces from the Gallery's American collection. Gray paper covers; 50 pages; 7 x 10 inches. 50¢ in United States and elsewhere.

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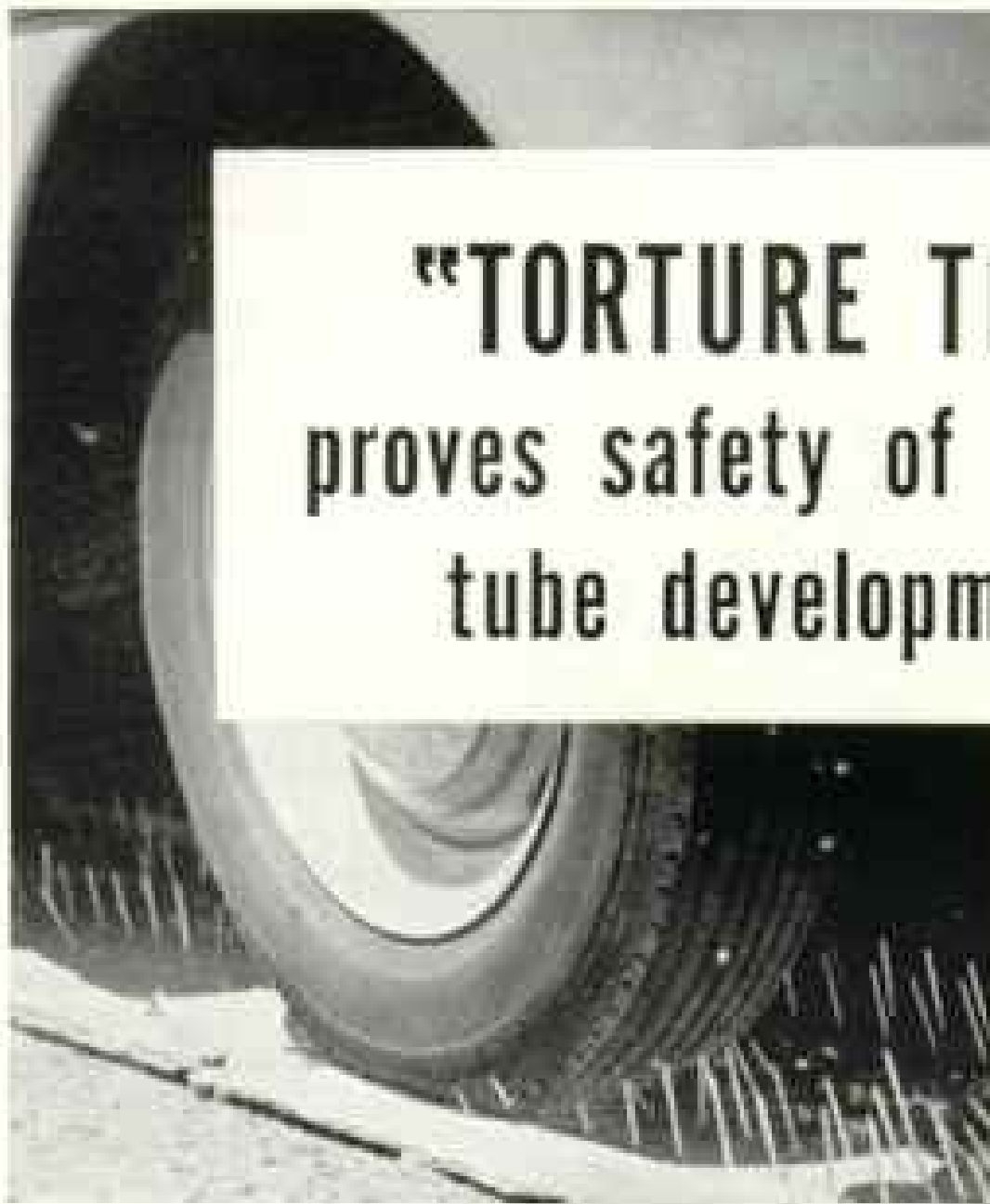
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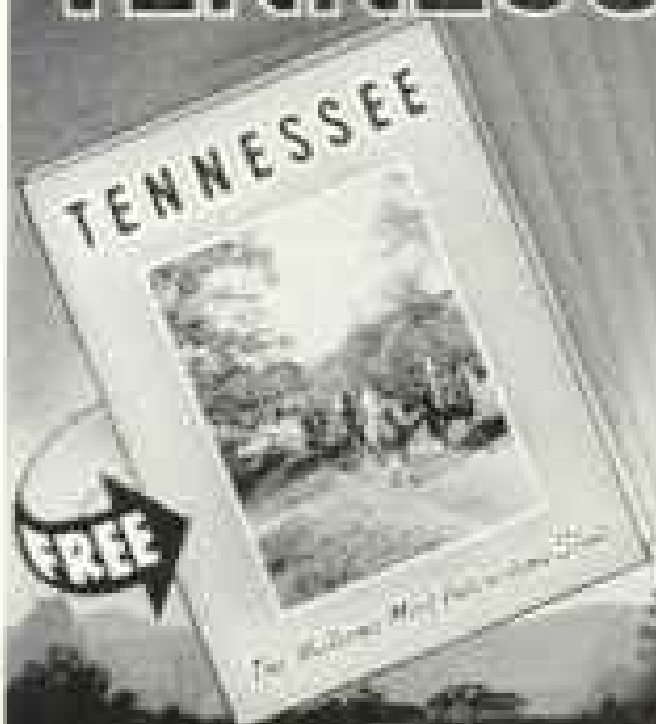
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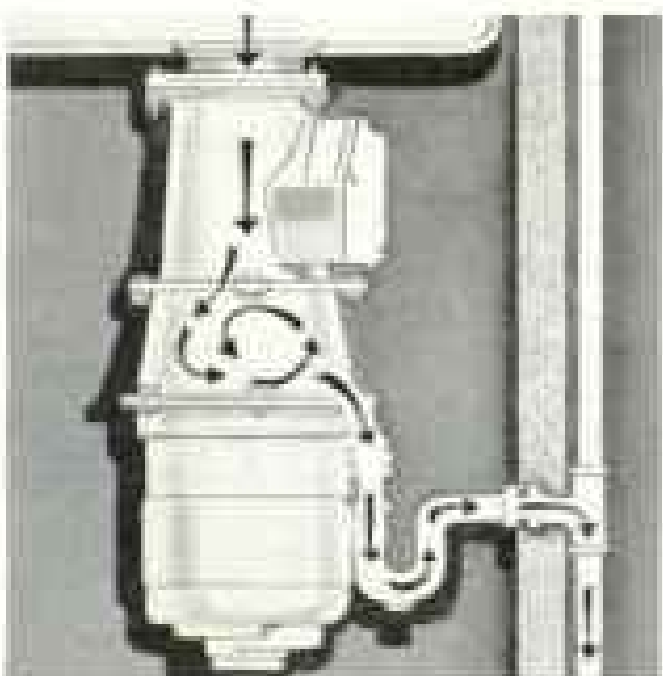
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