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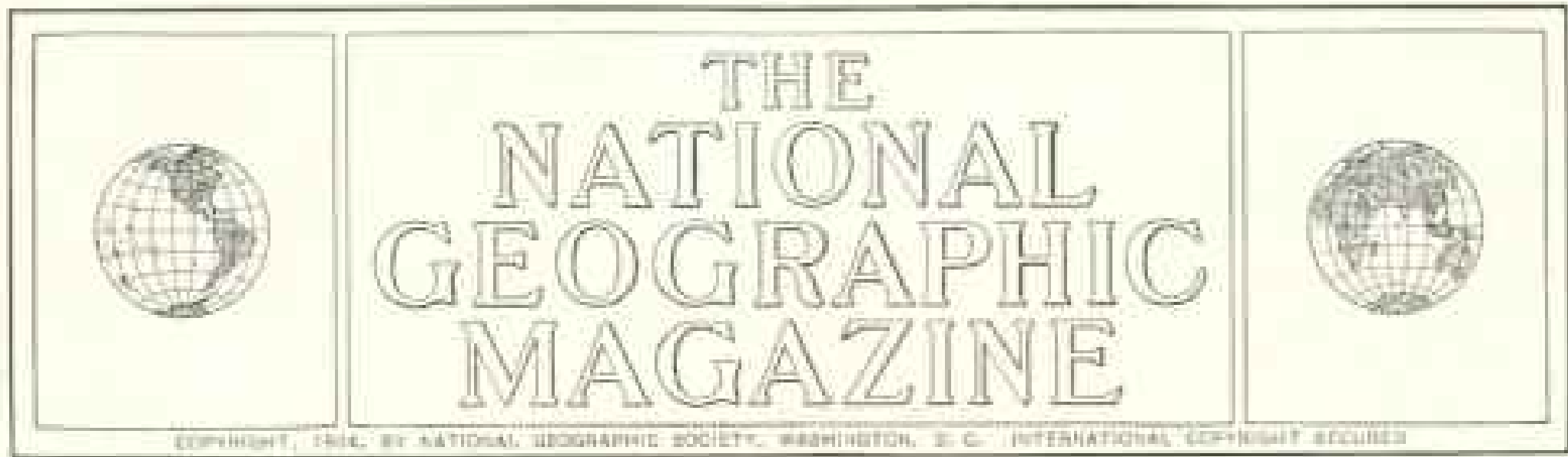
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ALICIA O'REARDON OVERBECK

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## SOUTHERN CALIFORNIA AT WORK

BY FREDERICK SIMPICH

**P**EOPLE here say "water" about as often as Moslems say "Allah." Next to "money," they say it more than any other one word.

With water, work, and money, men are reshaping the destiny of this land, as did Nebuchadnezzar with the plains of Babylon.

More than 3,250,000 people live now in regions which were, until long after our Civil War, largely dry and empty. This mass movement of settlers, and the huge total of previously earned wealth they brought with them, are without parallel in the annals of migrations.

Cash spent by its visitors and the income that many residents enjoy from money earned somewhere else pay much of southern California's running expenses. You see why this is so when you stop to think that nearly a million people are lured here each year by soft, warm climate, and that over a long period an average of about one tenth of this annual army has settled here with its life savings.

From news, pictures, romantic railroad folders, their own visits here, and the talk of others who have made similar pleasure trips, many in the East think of southern California as a lotus land where life is easy. It *is*, for those who come to play, to rest, or just to enjoy laziness in a lush, subtropic climate. Yet the truth is that here, by the sweat of his brow and with infinite pains, man has turned what was a desert into that Eden which visitors see now as they ride over smooth paved roads through miles of fragrant orchards.

Outwardly, it all seems so complete: every trim green field, neat grove, and bright flower bed is in place, as the world

might have looked after the six days of Creation. Yet man's work is never done. Behind the ease and glitter of lavish resort hotels, country-club life, and idle beach crowds of sun worshipers from the Middle West, the rhythm of pick and shovel, of daily routine in stores and factories, in oil fields and orchards, is constant and unbroken.

### A SUPREME ENGINEERING EFFORT

Back of all this routine, in 1934 another task goes on, a stupendous, unprecedented effort. Its clatter echoes through long-silent canyons; empty deserts are dotted now with workmen's camps, and the shock of exploding dynamite rocks the hills as armies of men dig, drill, and blast, boring 91 miles of tunnels and excavating leagues of giant aqueducts to reach and tap the mad Colorado River and bring still more water to this ever-thirsting soil.

For 10 years experts figured, surveyed, drew maps, and planned, and for six years more thousands of men must toil, often stripped naked, in the stifling heat of tunnels shot through solid rock, to finish this gigantic undertaking.

This is southern California's supreme effort. It has never tried a task of such magnitude. In all the history of great waterworks, the whole world has seen nothing like it. These huge canals and reservoirs will be needed, the people say, to take care of growth in population, which has increased more than 1,400 per cent since 1890.

Los Angeles and 12 neighboring cities, forming the Metropolitan Water District, are building and paying for this vast water



Photograph by Clifton Adams

A MONUMENT TO THE SPANISH PRIEST WHO FOUNDED CALIFORNIA'S FIRST MISSION

At San Fernando Mission stands this memorial to Junipero Serra. One of the many missions scattered from Mexico City to the Golden Gate, this one also had its herds, farms, shops, and Indian vassals (page 584). Digging onions, a peon once found gold nuggets here, starting a mild gold rush.

system; but its safe, steady supply will depend on Boulder Dam, being erected by the Federal Government in the Black Canyon of the Colorado River at a point on the Arizona-Nevada frontier.

Boulder Dam itself will impound the world's largest artificial lake. Unreal, hard to believe—that here, in this dry waste of dust and mirage, there should suddenly appear a vast lake of cool, clear water, fringed by resorts and dotted with pleasure craft! About 125 miles downstream from Boulder Dam is another, known as the Parker; it is the diversion dam, where water will be taken off for use in southern California (see map, pages 534-5, and page 579).

Fly east from Los Angeles any weekend and look down on the highways that cross the deserts. Trains of scurrying motorcars raise league-long dust clouds, like Army wagons on the march.

"Where are they all going?" you ask the pilot.

"Out to see Boulder Dam. They go by thousands, month after month."

No wonder. Among river dams of all time it is incomparable. Set between the steep walls of a deep canyon, widening toward its top, the dam's towering bulk, as you look up, makes you think of one mountain tipped upside down between two others.

WORKERS GLIDE THROUGH THE AIR

Here the river bed is dry now, for the temperamental Colorado is routed around the dam site in diversion tunnels bored through solid rock, tunnels big enough to admit a Rhine steamer; or, fantastic thought, even for airplanes to fly through. The dam structure will be 1,200 feet across its top, and over this top will pass a highway, giving men and wheels their first chance in history to move directly between Arizona and Nevada.

Yet, massive as the dam is, its size is less amazing than the strange way they are building it. So much work is done from the air, overhead. Stand below the dam, in what used to be the bed of the Colorado, and look up. You see the air



Photograph from Andrew R. Doone

A DIZZY SWING OVER BLACK CANYON IN THIS "SKIP" AFFORDS A SPECTACULAR VIEW OF RISING BOULDER DAM

In these wood platforms with hand rails workmen are conveyed to and from their tasks. The large cables overhead are some of the many suspended from rim to rim of the giant gorge. On the far side is seen a narrow wooden stairway which leads down the canyon wall to an end of the dam (see text, opposite page, and illustration, page 537).



Photograph by Clifton Adams

**HEAVY LOADS OF EXPRESS ARE HANDLED AT BURBANK'S UNITED AIRPORT**

Large offices, built in Spanish style, and the spacious waiting rooms attest the activity of this aerial depot. Major western air lines converge at the place where, almost 100 years ago, the Mexican army yielded to Frémont.



Photograph from Universal

**"INDIANS" REHEARSE A MOVIE ATTACK ON A PIONEER WAGON TRAIN**

Such covered wagons brought hordes of early settlers to the West. Menaced by hostile Indians, firing as they rode, whites drew their wagons into a circle, when there was time to do so, and fought from behind the improvised rampart.

filled with men flying about like trapeze performers. They swing dizzily about on the ends of long cables dangling from aerial trucks that ride around the sky on fat steel ropes stretched from rim to rim of the vast abyss.

On the canyon rims are towers, to which these long steel ropes are anchored; and, to let the aerial trucks travel up and down the canyon as well as across and back, the towers themselves move along under their own power. This is so that men, tools, cement, and steel can be moved from the canyon rims and lowered at just the right spot where they are wanted on top of the rising dam.

#### "HIGH-SCALERS" CHIP LOOSE ROCK

Still more ropes hang down close to canyon walls, with a man seated in a boatswain's chair swinging on the lower end of each rope. These men are "high-scalers." Their task is to chip loose rock off the face of the cliffs.

Among these were some 50 Apaches, picking away at lofty niches where even the cliff dwellers of former days would have felt giddy.

"Our high-scalers have worn out nearly 300 miles of rope," said Superintendent Frank Crowe, who represents the contractors and has built dams all over America.

"How do you pick dare-devils for that ticklish job?" I asked.

"We watch an applicant's face the first day he's ordered over the rim and down a rope. If he's nervous, we call him back."

Like high-scalers and other workers, we, too, wore the iron helmets issued to every-



Photograph by Clifton Adams

#### A STUDIO MAKE-UP ARTIST ADJUSTS AN ARTIFICIAL EYELASH

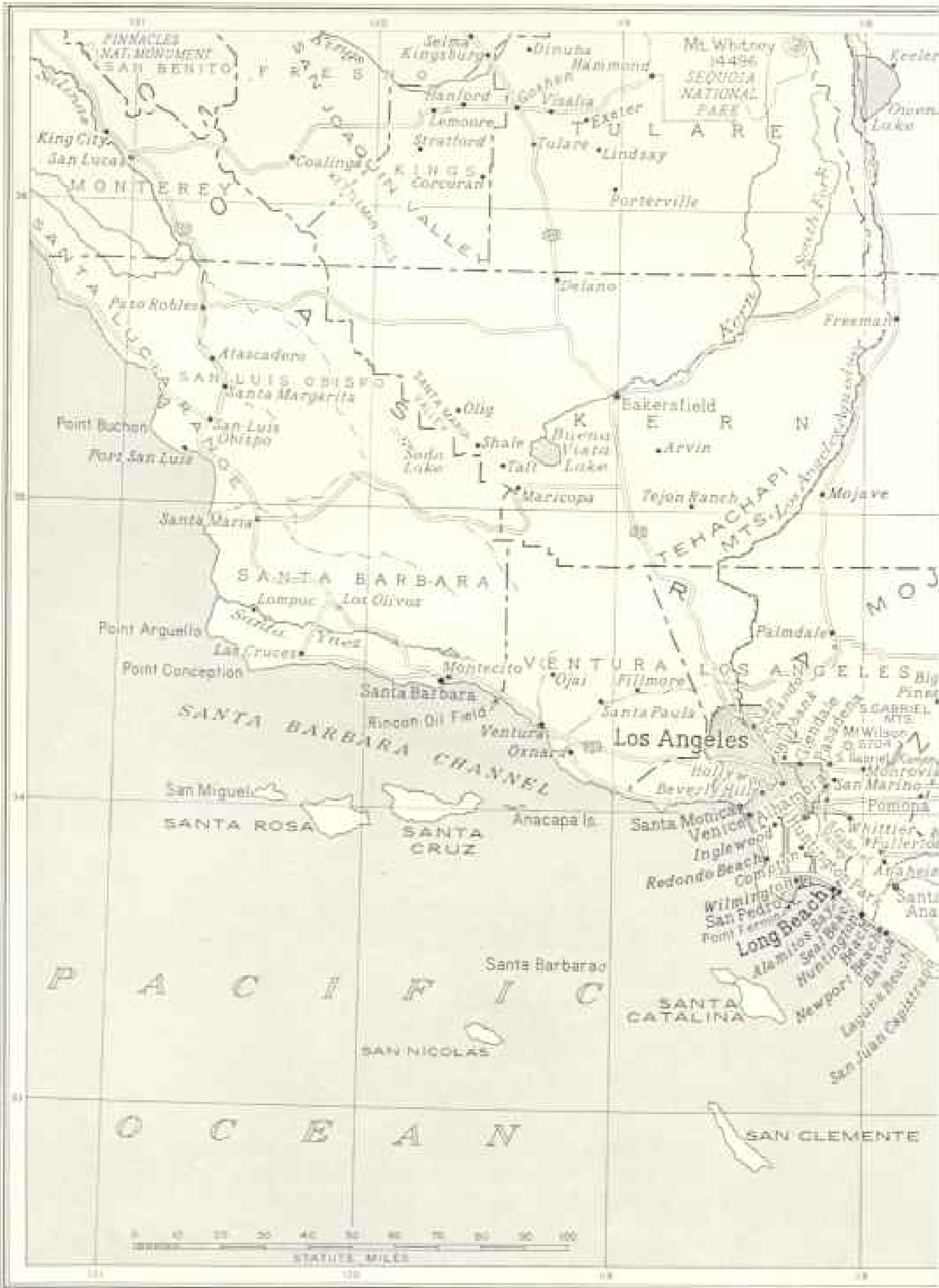
By the wizardry of make-up, as when young women are "aged," or sound men made into disfigured veterans for war films, an experienced artist can utterly change the character of a face by a few deft tricks, paint, imitation skin, and collodion (see text, page 577).

body here, to save heads from falling stones.

High above us, as we talked, came sailing a giant humming creature, for all the world like a 10-ton bumblebee, with two men riding on it. A flying concrete "agitator" it was, run by its own motor and stirring the cement inside to keep it liquid till the machine swung to the place where it was to be dumped.

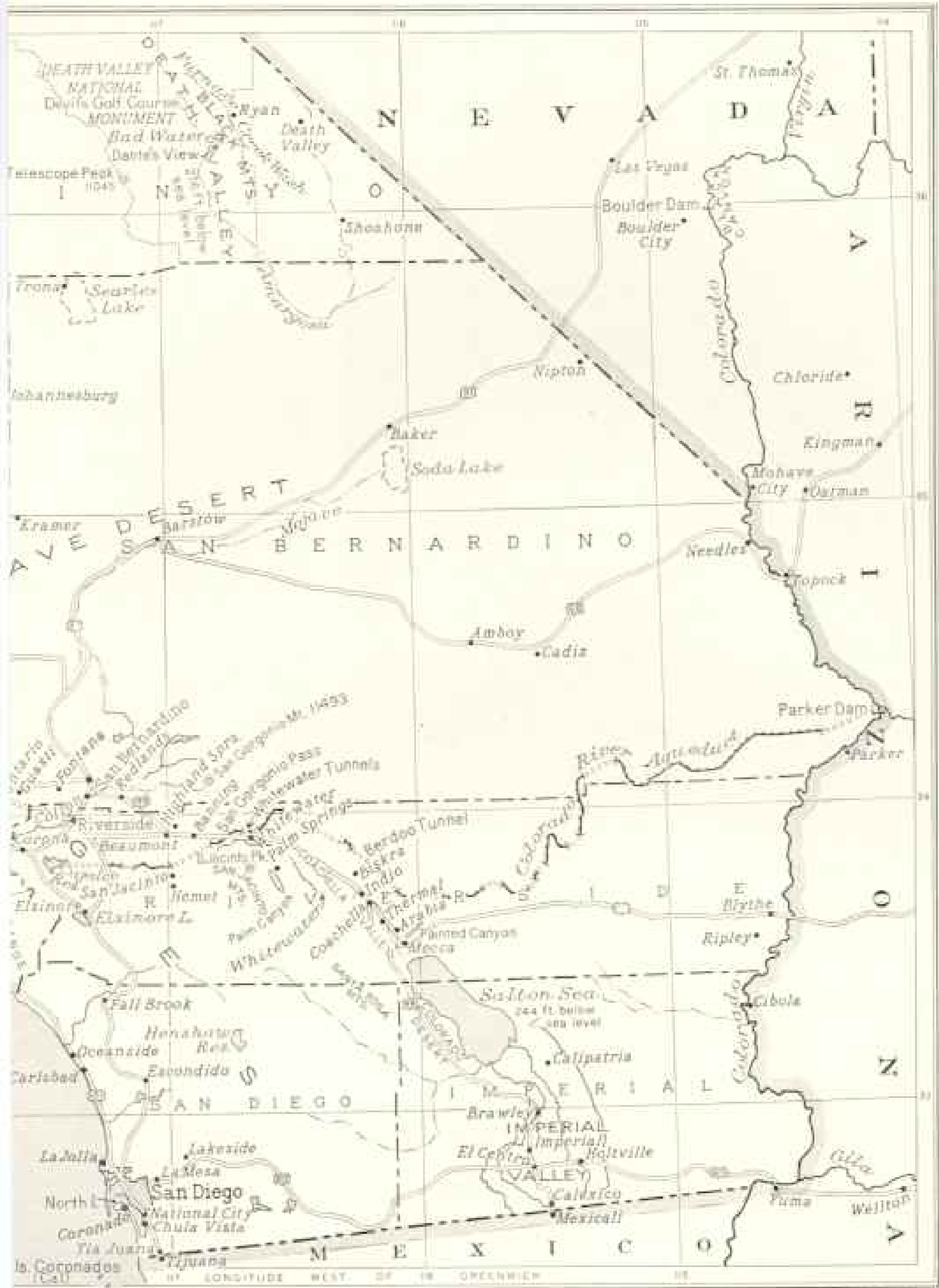
"You call it a big bumblebee," said Mr. Crowe. "To me it's more like a mud dauber."

"What is your hardest problem here?" I asked the Superintendent.



SOUTHERN CALIFORNIA ALONE IS TWICE THE AREA OF PORTUGAL;

In this southern half of the State appear the highest peak in the United States, Mount Whitney, and the River Aqueduct, which writes toward Los Angeles, typify the part that hard work and water are playing in Angels' is world-famous Hollywood. Near the Mexican border lies San Diego, once a refitting place for



Drawn by A. E. Holdstock

LOS ANGELES IS LARGER THAN THE ISLAND OF MARTINIQUE

lowest point in North America, near Bad Water, in Death Valley. Giant Boulder Dam and the Colorado caring for the rapid increase of population (see page 529). Only a dot on the sprawling "City of the Spanish galleons and now a base for the United States Navy.





Photograph by Clifton Adams

OLVERA STREET, LOS ANGELES, OFFERS THE ATMOSPHERE  
OF A MEXICAN MARKET PLACE

This short street near the old plaza of pioneer days strives for realistic fidelity. Sales girls and waitresses wear Mexican dress; shops display sombreros, pottery, blankets, and clay toys; men garbed as peons and town dandies play guitars and sing Mexican folk songs, as odors of chile con carne rise from sidewalk cafés.

"To keep our work in tune with the whims of this mad river," he answered.

Draining seven States, the Colorado is about 1,650 miles long, and may rise or fall with dramatic suddenness.

A NEW FRESH-WATER LAKE

The lake made when the dam is finished will cover some 227 square miles of land, and hold so much water that each person in the world could dip 5,000 gallons from it.

No water will run over the dam. Excess floods will be carried off through spillway tunnels. The rest, guided through other

tunnels against the water wheels, will be ample to generate 1,835,000 horsepower, more power than any other hydroelectric plant has ever developed.

"Horsepower" is merely an engineer's phrase. It does not mean the measure of any horse's actual strength. Yet, in imagination, to sense the enormity of this plant, just think of a herd of 1,835,000 horses running forever through these tunnels!

Every day 330 carloads of cement and gravel go into the rising dam. When finished, the structure will contain enough material to build a fair-sized city, or to make a 60-foot paved highway from California to Chicago!

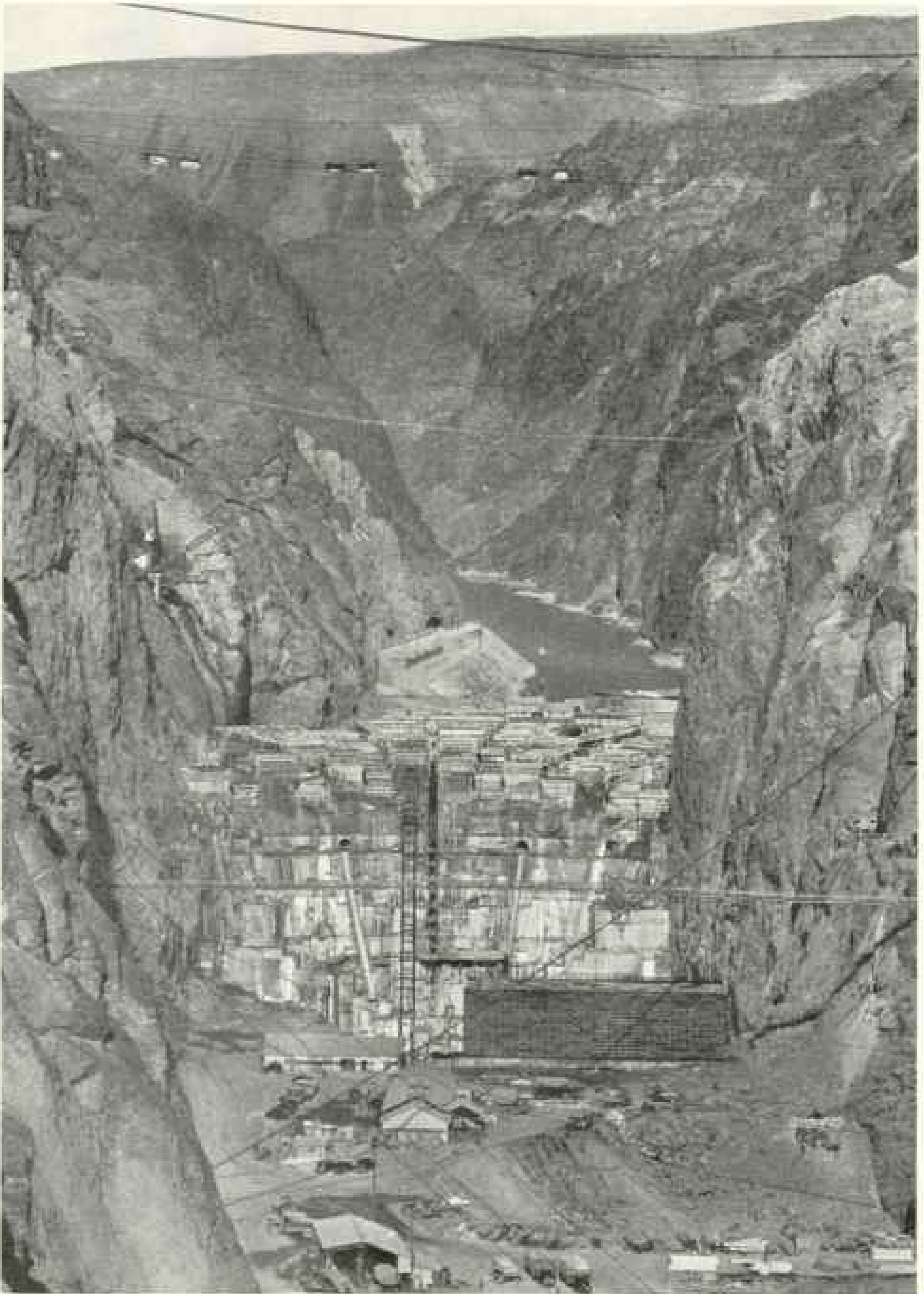
Left to cool naturally, it might take this mass more than a century to acquire a normal temperature, for freshly poured concrete is hot. And then it might crack or settle unevenly. To avoid this, and insure a solid structure, some 600 miles of one-inch water pipe are being built

into the body of the dam, and through these, as work advances, ice water is steadily pumped.

For those with nerve to ride it, a giant "skip," a sort of airship swung on cables, flies about above the work. It can lift 170 tons. Hundreds of men daily ride to and from work in this skip, as in the basket of a great balloon (see page 531).

From the dam we went back at night to near-by Las Vegas, Nevada, to catch next morning's return plane for Los Angeles.

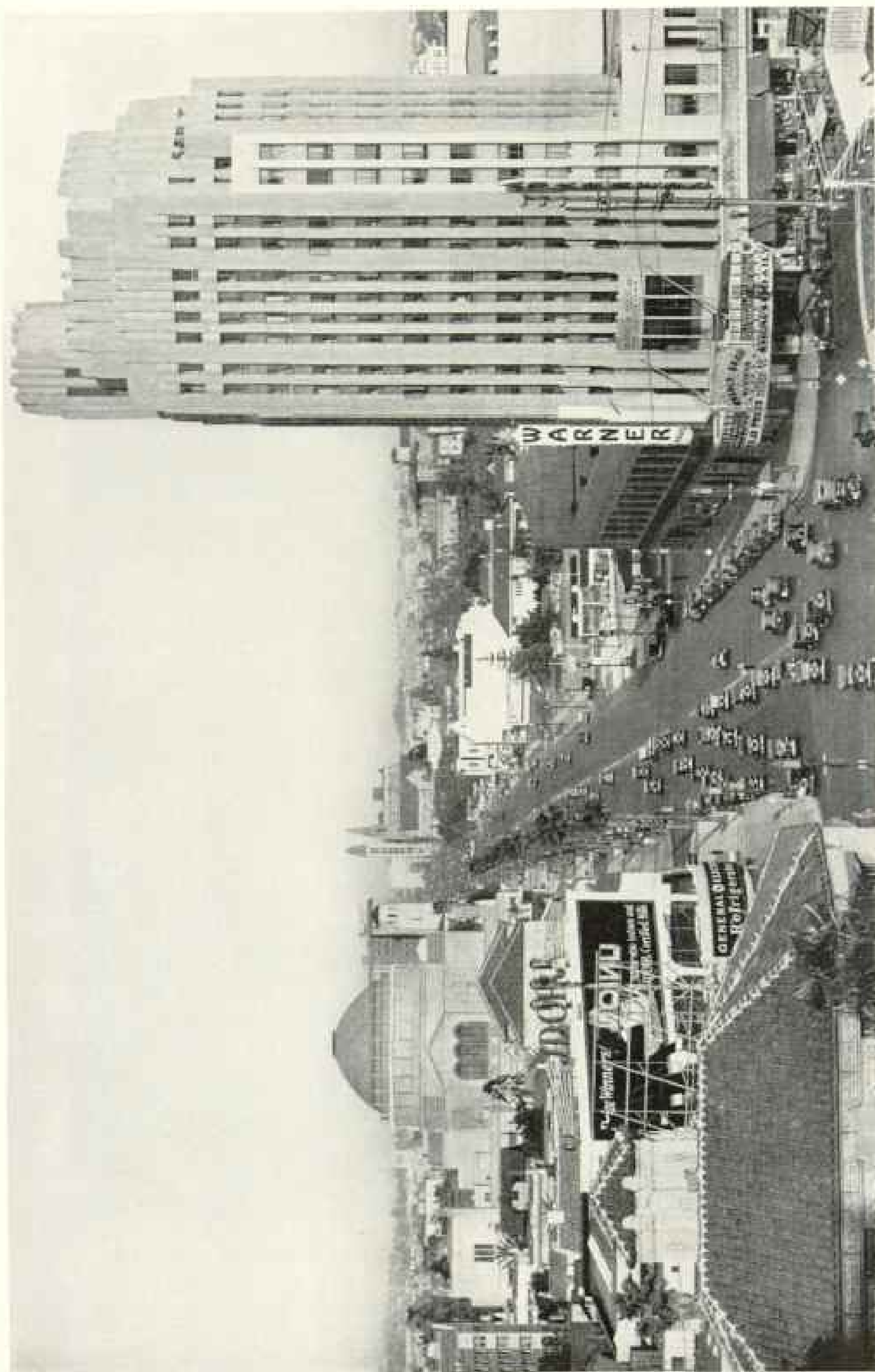
"We're the busiest town in America now. People pour in here from everywhere,"



Photograph by Clifton Adams

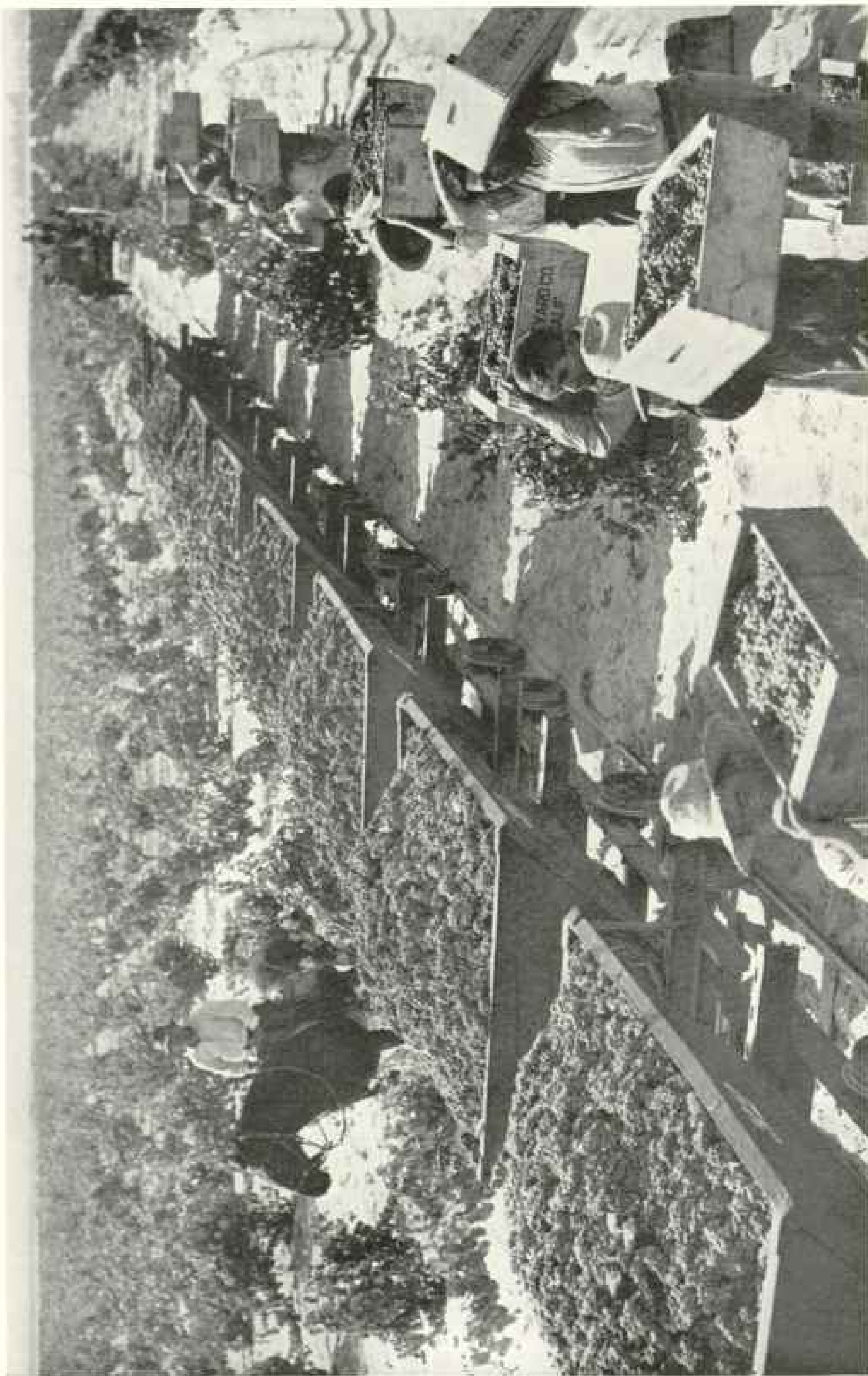
**COLOSSAL BOULDER DAM RISES IN BLACK CANYON TO ENSLAVE THE TURBULENT COLORADO**

Huge tunnels, invisible here, are bored through solid rock to carry surplus water around the dam; others shunt streams to power plants below. Men, with their trucks and workshops, make themselves at home in the now dry river bed below the dam which will rise to plug the gorge (page 531).



WILSHIRE (BOULEVARD) AND WESTERN (AVENUE) FORM THE BUSIEST CORNER OF LOS ANGELES

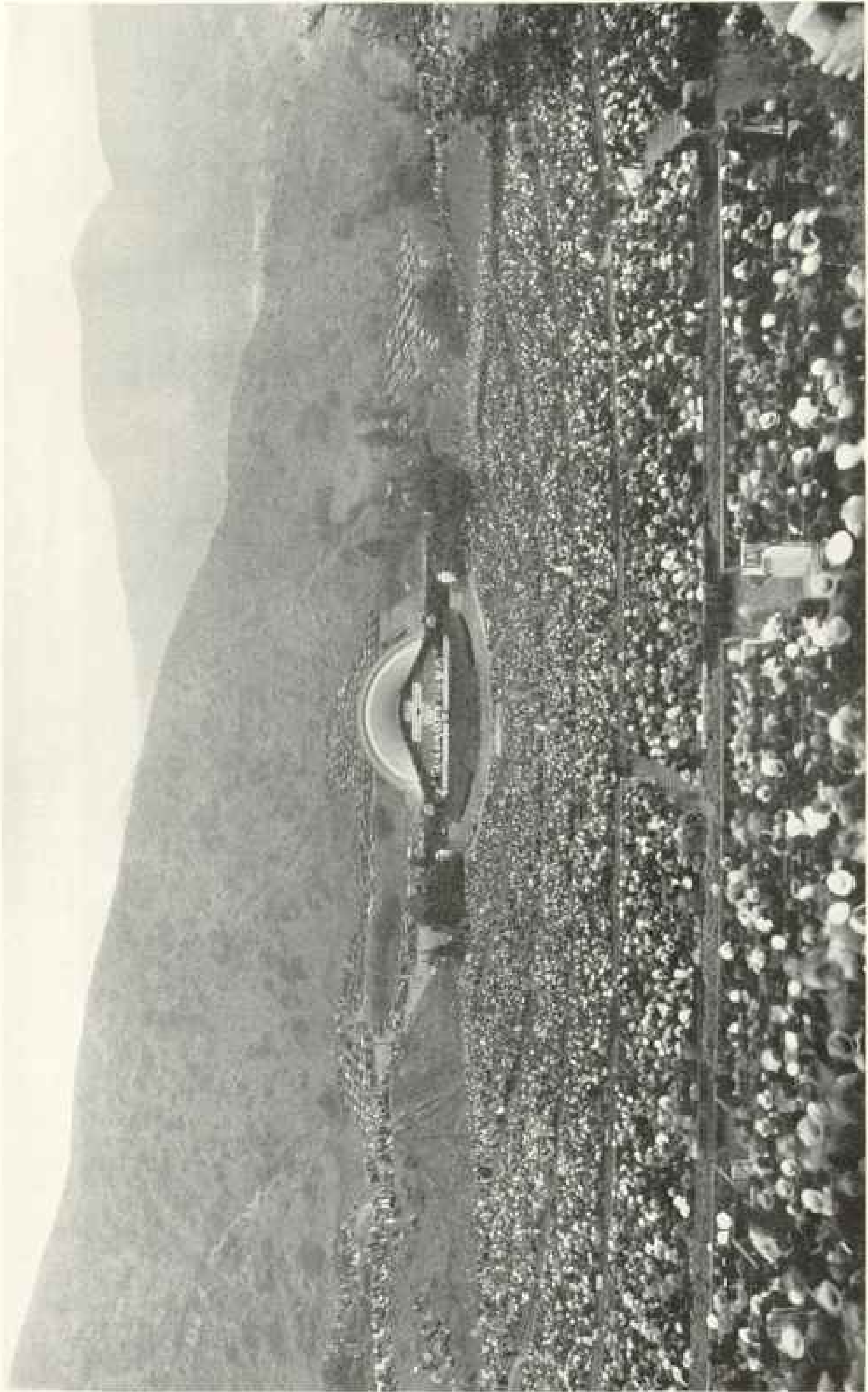
Some streets in the older parts of the city are narrow and congested; but, with wide avenues and fast bus and street-car lines to the many outlying towns now included in the corporate limits, an enormous movement of vehicles is handled with comparative ease and speed.



Photograph from Keystone-Underwood

**GUASTI VINEYARDS ARE SYMBOLS OF ABUNDANCE**

Astonishing to travelers in this vast sandy plain, near Los Angeles, on which grow veritable square miles of grapevines. "How can men make such fine grapes grow in that dry, white sand?" ask passengers on passing trains. "Work and water," says the conductor.



Photograph by Clifford Adams

**AN EASTER SUNRISE SERVICE BRINGS THOUSANDS TO THE VAST HOLLYWOOD BOWL**

This spectacular amphitheater is famed for its concerts, the "symphonies under the stars." Hollywood, municipally, is a part of Los Angeles, but it has its own lavish hotels, cafés, business center, and sumptuous homes.



Photograph by Clifton Adams

CROWDS ARRIVE IN A BLAZE OF LIGHT AND PUBLICITY FOR A HOLLYWOOD PREMIERE

Throng pack the streets for blocks around on these gala nights. Stars and other distinguished visitors are announced through loudspeakers as they reach the brilliant entrance, and often a famous guest is coaxed to the "mike" to "say a few words." The "Chinese" name of the theater refers to the architecture.



Photograph by Spence

THE CURVING SAN PEDRO BREAKWATER, IN THE FOREGROUND, SHELTERS BUSY LOS ANGELES HARBOR

Naval vessels and others are anchored behind the breakwater. At the right center, seen as a white rectangle, is a 48-acre area whereon the United States Government plans to erect buildings for the Immigration and Public Health Services. This spot was once locally known as Dead Man's Island because many sailors were buried there about the time of the War with Mexico. Above this rectangle is Fish Harbor, where scores of fishing boats, some operating as far south as the Galápagos, are anchored. To the left is the San Pedro district; to the extreme right is part of the city of Long Beach. Round, white tanks of oil fields appear farther inland; beyond lies Los Angeles, and in the extreme background rise the San Gabriel Mountains (see illustration, page 556).

said an excited hotel keeper as we stepped among the prostrate forms of tired sight-seers from the dam. Some slept in lobby chairs, some on the stairways, others on temporary cots in hallways. That night 300 visitors could not find beds. Many huddled in parked cars or spent the night in gambling houses that line the main streets of Las Vegas. One such ornate hall is named "The Golden Camel."

My bedroom window looked down on a crowded gaming house, and all night long

I heard the hoarse, owl-like cries of the dealers. People were still playing at sunrise, when we left for the airport. Flying back, we looked down again on the long lines of cars. Many were returning now to Los Angeles. They had seen the dam, just as Egypt's sight-seers probably went out on holidays to watch Pharaoh's slaves piling up the Pyramids.

"Don't misjudge all these apparently idle men," warned a banker friend, as we walked through Pershing Square, Los Angeles, past



© International News

IT TOOK 1,500 COLLEGIANS TO COMPOSE THIS PICTURE IN THE OLYMPIC STADIUM, LOS ANGELES

The routers in darker clothes are arranged to portray a Trojan, representing the University of Southern California, holding the Washington State cougar by its tail.

rows of crowded benches. "This park is a kind of public forum. Some of this group I know by sight; they have snug deposits with us. Some are newcomers and will eventually get into business."

#### LOS ANGELES GREW FROM A MEXICAN VILLAGE

Sunning itself, reading the papers, whistling to half-tame quail that idle about the shrubbery, this park crowd, typical of other southern California cities, forms a sort of social clearinghouse. It includes the usual park pedants, who argue earnestly on every theme from war and taxes to labor laws and religion.

But most men, as you listen, seem to be telling where they came from back East, how long they've been here, and that it was mainly the fine climate that lured them. Still others read the Help Wanted columns. When you think that more than half of all the people in Los Angeles came here within the last six or eight years, you can see what a task of assimilation the city has faced.

Frenchmen say the story of Paris is the history of France. That is true of Los Angeles and southern California. The magic growth of the city, after almost a century of village stagnation, is closely related to the development of all southern



California. Between Santa Barbara and Bakersfield on the north and San Diego on the south are many other flourishing cities, with adjacent oil fields, orchards, farms, and ranches; yet all are dominated by a city greater than any west of Chicago.

About Los Angeles there is something unblurred and youthful—a certain exuberance and eagerness to be occupied that show through its pleasure-resort make-up.

It is young, as cities go. Settled about the time Washington and Lafayette were advancing on Cornwallis at Yorktown, it remained a dusty Mexican pueblo for more than another half century.

The gold rush of '49 passed it by. It was still a village when Lincoln freed the slaves, and as late as the 1870's many of its official documents were written in Spanish. It had a bad name in early days; people called it the world's wickedest place. One mayor resigned, temporarily, to help with a public lynching! In one wild night a mob hanged 18 Chinese, and preachers closed their churches in despair.

When nearly a hundred years old, the pueblo still had only about 7,000 people. Though American settlers multiplied, the place kept its frontier air, with its ox-carts, pack trains, family surreys, men on horseback, and stagecoaches carrying armed express guards. Bony steers and scraggly, half-wild sheep bawled and bleated through its dusty streets on their way to market.

At hitching racks the pine bars were gnawed by restless mustangs. Cockfights, bullfights, bear-baiting, and horse races amused the crowds, and 110 saloons quenched the thirst of mingled races.

#### IN LAND-BOOM DAYS

Then the railroads came, the Southern Pacific in 1876 and later the Santa Fe, and a rate war broke out. Round-trip tickets from Chicago or St. Louis sold for \$15. At one time, in the eighties, such tickets sold for *only one dollar!*

Hectic, history-making land booms followed. Passengers gave away or burned their return tickets. Lots were sold and resold, often several times in one day. "Millionaires of a day went about sunning their teeth, with checkbooks in their outside pockets."

Veteran speculators, wise from experience in mob tactics with Iowa and Kansas land booms, came also. Some had cash to

buy raw lands, subdivide, and sell to those who followed. "But, alas!" says one writer, "many were penniless or inexperienced, or out-and-out rascallions. These did the mischief."

Against riffraff of this ilk the Los Angeles *Times* cried out that "dudes, loafers, paupers; those who expect to astonish the natives; those afraid to pull off their coats; cheap politicians and business scrubs are not wanted."

#### A WESTERN "CITY OF MAGNIFICENT DISTANCES"

But they came, anyway, and brass bands with flags flying led all and sundry to the slaughter. On one 36-mile stretch along the Santa Fe Railway 25 new "town sites" were sold to those who fought to buy.

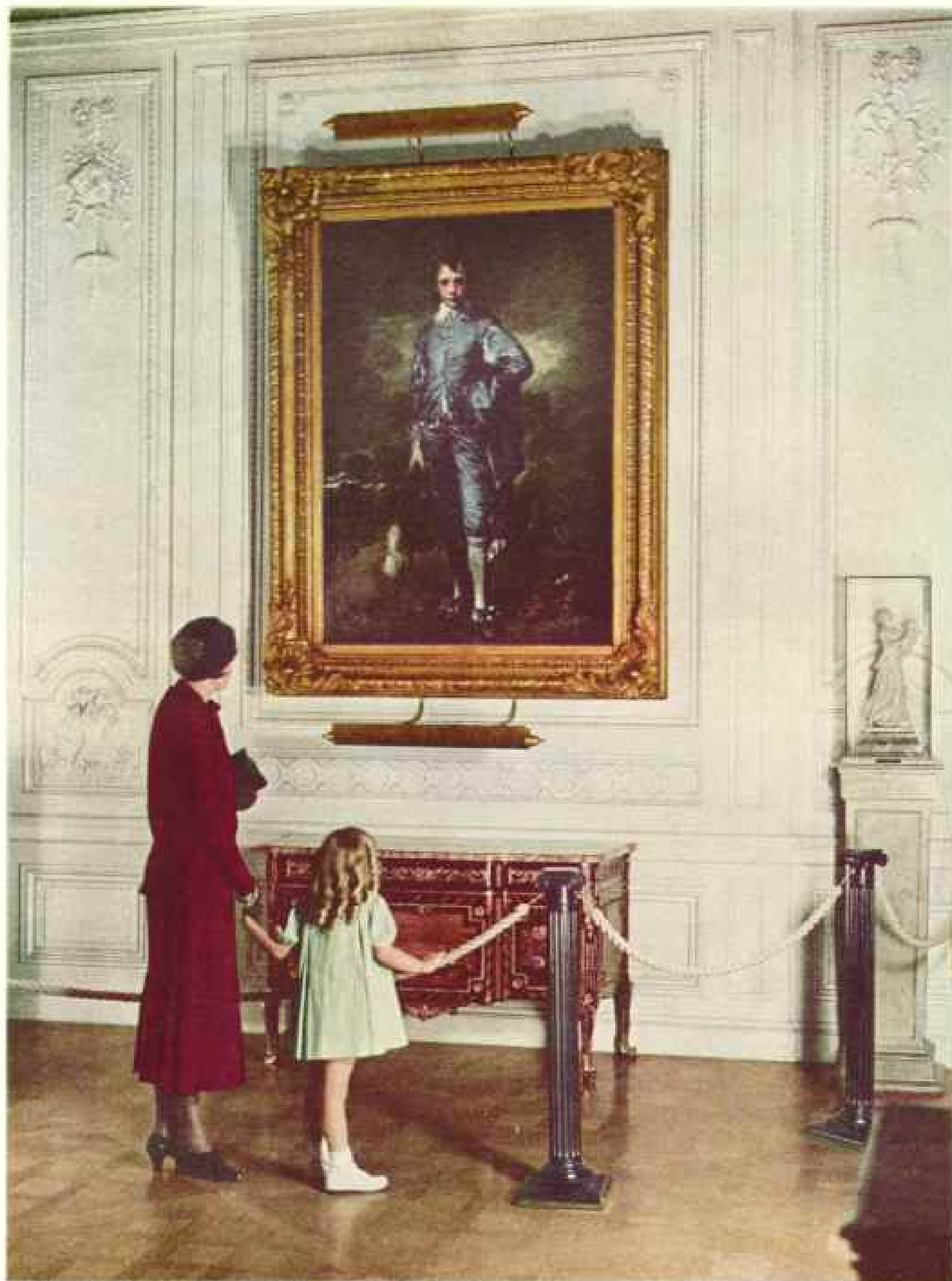
By the end of 1888 the great boom, wildest the city ever knew, had blown over. It left Los Angeles with 50,000 people, a headache, but a good lesson. It got its breath, flocked to hear the evangelists Moody and Sankey, then started putting its house in order. In ten years it doubled its population, trebled it in the next decade, and to-day it shelters more than 1,200,000 people.

Sprawling over 450 square miles, it covers more ground than any other American city of equal population. It grew, in part, by devouring its neighbors.

Seeking a gateway to the sea, it annexed a shoestring of land 2,500 feet wide and 15 miles long, reaching south to Wilmington. Then it swallowed Wilmington and San Pedro and got its water front (see page 542).

It gives no sense of solid mass, like Philadelphia, as you fly over it; rather, a series of towns netted together by street-car lines and motor roads. Contrasts in architecture, from faded wooden houses with "bay windows" to ultra-modern, air-conditioned structures of classic beauty, emphasize its swift, haphazard growth.

Grotesque, indeed, are scores of startling, Coney Island-like buildings wherein food and drink are sold. Some are shaped and painted to represent giant owls, derby hats, shoes, airships, dogs, teakettles, windmills, mosques, wienerwursts, zeppelins, and igloos (see illustration, page 554). One café is built like a roundhouse, with a life-sized locomotive emerging from its front door. Another, the last word in realism, is a replica of a jail, bars and all!



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Finlay Photograph by Clifton Adams

THE BLUE BOY—CLASSIC RESULT OF AN ARTISTS' ARGUMENT

Few paintings are better known than this vivid portrait now in the Huntington Gallery at San Marino. Gainsborough painted it after a discussion with Sir Joshua Reynolds, who contended that blue should not be massed in a picture.



HOME, IN SOUTHERN CALIFORNIA, EMBODIES SHADE AND FLOWERS.

Tiled roofs, plastered walls, wide verandas, stone walks, and a jungle profusion of trees, plants, and shrubs are common. Hordes visit Riverside in winter. At the Inn a certain guest has registered annually for 50 years.



© National Geographic Society

Friday Photographs by Clifton Adams

ONE OF MANY SUMPTUOUS GARDENS ON MONTECITO'S SCENIC SLOPES

Overlooking the sea near Santa Barbara, the parks and gardens of luxurious mansions, enriched with pools, fountains, statuary, trees, and shrubbery, suggest Potsdam and Versailles.

A SUNSHINE LAND OF FRUITS, FLOWERS, MOVIES, AND SPORT



"SHORTS" NOW, WHERE PIONEERS IN LEATHER BREECHES WRANGLLED MUSTANGS

Palm Springs, a fashionable resort, stands in Coachella Valley, under the afternoon shadow of San Jacinto Peak. All winter long, adults and children ride bicycles, bask in the sunshine, and compare their deepening tans.

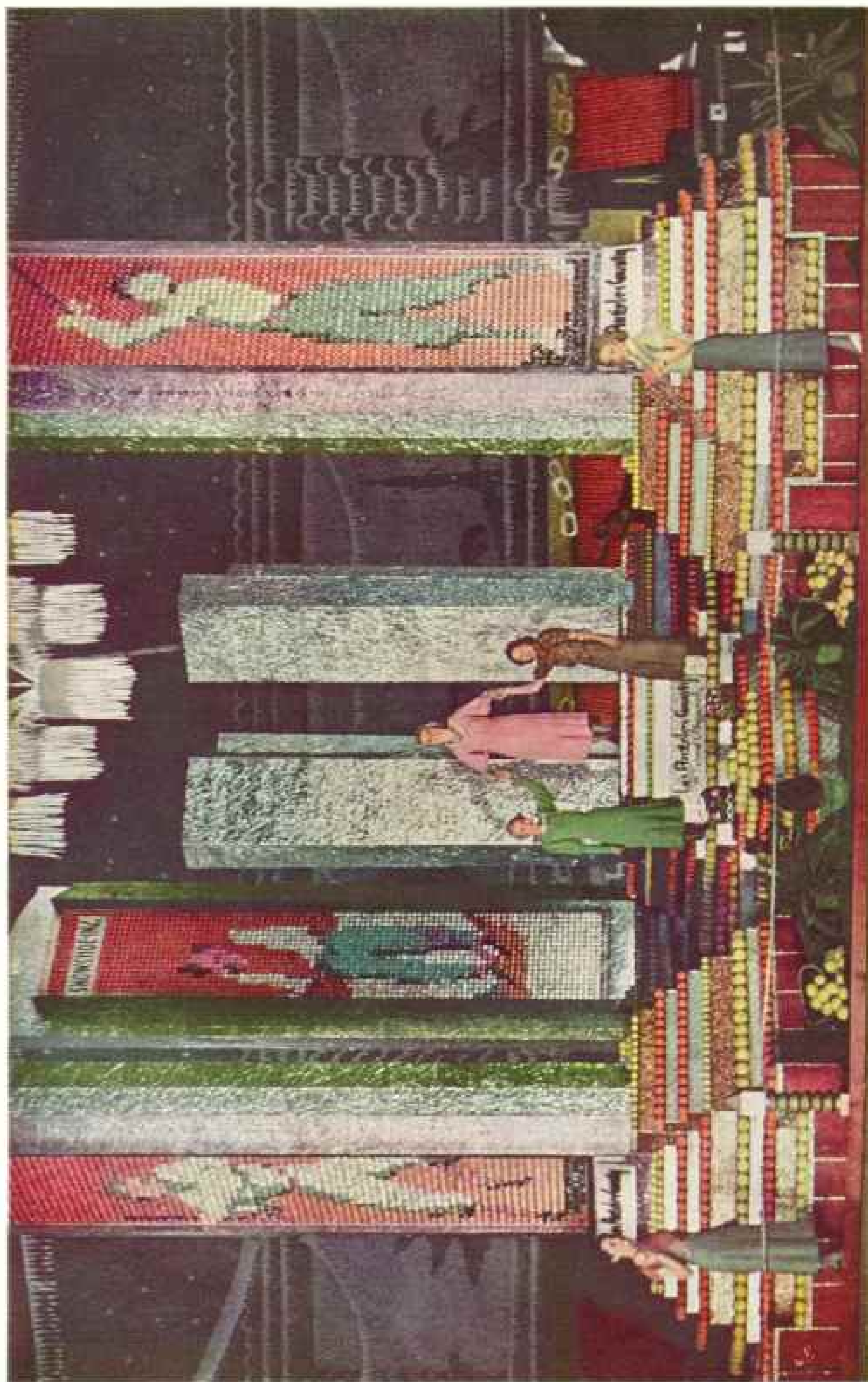


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Finlay Photographs by Clifton Adams

REST AND PEACE IN THE ANCIENT PATIO OF SAN JUAN CAPISTRANO MISSION

Pioneer priests, struggling with pagans, laid this mellow mission's first stone in 1797. Though floods and earthquakes later smote it, the ruins persist as a symbol of the days of Spanish power.



© National Geographic Society

Friday Photograph by Clifton Adams

LIKE A MODERN POMONA, THE GIRL AT THE TOP, QUEENS OF THE NATIONAL ORANGE SHOW, REGIONS OVER THIS TEMPLE OF FRUIT  
 To enjoy its county-fair spirit and sports—from side shows to throwing rings over canes and knives—huge crowds attend the orange show held at San Bernardino each February. Citrus fruits form this imposing display.



© National Geographic Society

**HER ORANGE JUICE IS FRESH FROM THE TREE**

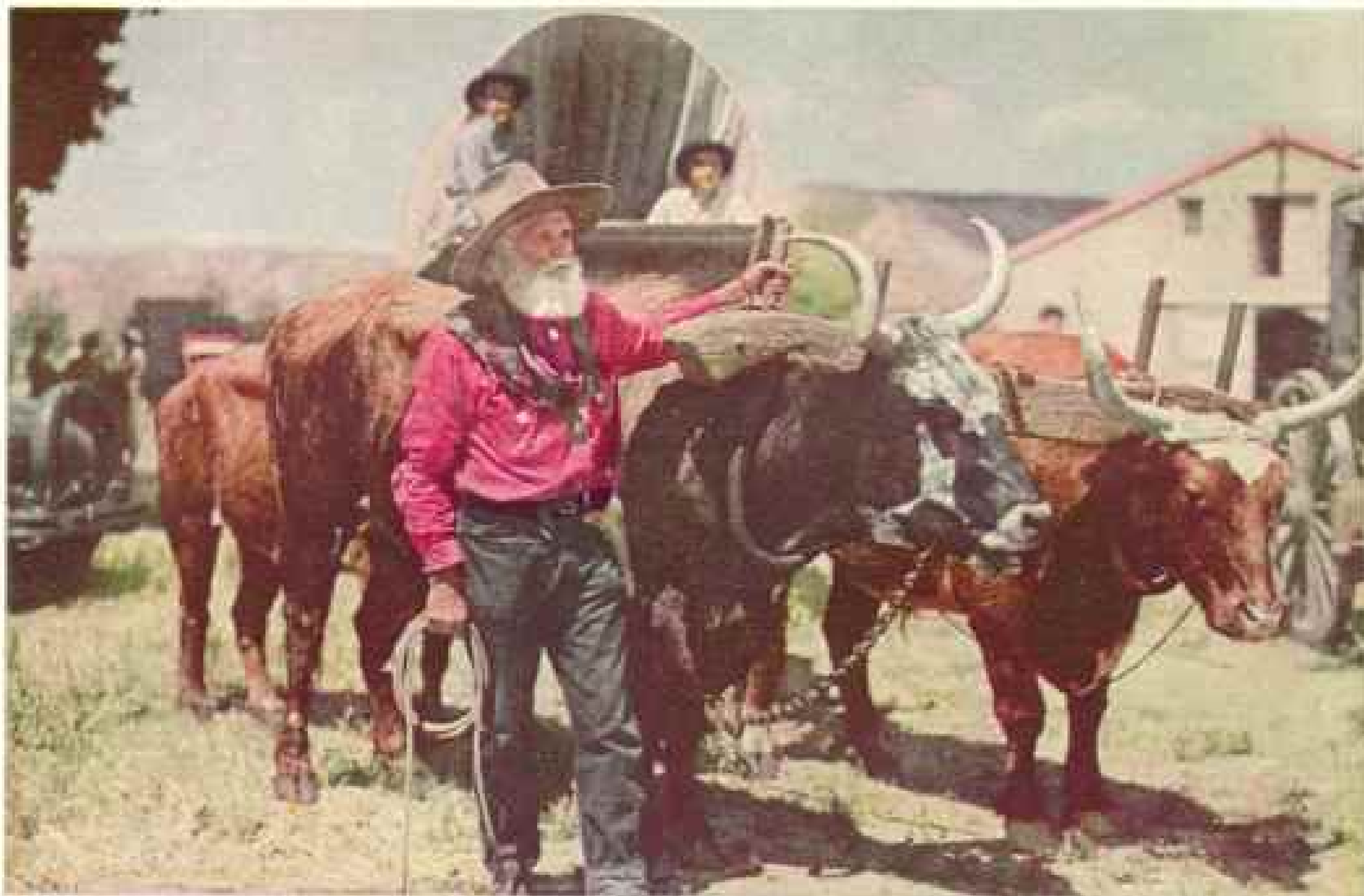
Prices from year to year affect thousands of family fortunes throughout the citrus belts. Hence even children soon learn the fruit grower's language, for on prices may depend that new bicycle, or that trip east.



Friday Photographs by Clifton Adams

**THE CITRUS EMPIRE ENCIRCLES THE WORLD**

On the big globe, made of oranges, our Western Hemisphere is mapped in darker-colored fruit. The golden spheres, set on racks in designs of birds, animals, houses, golf players, etc., are features of every show.



BULLWHACKING FOR THE CAMERA RECALLS THE GOLD RUSH DAYS OF '49. Hollywood is full of covered wagons, stages, ox yokes, saddles, guns, old Army uniforms, and similar relics, useful in recapturing the spirit of the West when it was wild.



© National Geographic Society

Friday Photographs by Clifton Adams

SPECTACULAR ANEMONE FIELDS BLAZE WITH COLOR IN MARCH AND APRIL.

Here at Carlsbad, in San Diego County, and around Los Angeles, the cut-flower industry flourishes. Orchids, gardenias, violets, sweet peas, and orange blossoms are shipped by airplane to New York.

A SUNSHINE LAND OF FRUITS, FLOWERS, MOVIES, AND SPORT



CHINESE YOUTHS FLY KITES AMID WILD FLOWERS ON THE COAST NEAR SANTA BARBARA. The contrivance contains pointers for American boys. Look at the odd shape, the "bridle," and the tail of paper plates and cross-sticks.



© National Geographic Society

Finlay Photographs by Clifton Adams

MEXICANS EXHIBIT AT THE PASADENA GARDEN CLUB SHOW

Ignore straw hats, serapes, parrots, and the Villa effigy on horseback. Look only at abundant food, and think what cornucopias are filled by California's fertile fields!





© National Geographic Society

Finlay Photograph by Clifton Adams

A FLEET OF PLANES LANDS ON THE 1¼-ACRE DECK OF THE "LEXINGTON"

When this 888-foot naval aircraft carrier is under way, she "makes a wind over her flight deck," against which planes rise or land. An elevator, its platform outlined in the open space, lowers planes into a hangar in the hold, or lifts them when wanted.

Captive balloons hang in the sky, advertising this or that. Giant effigies of men, chickens, fish, and machines are also used. Stuck upright in the ground, far out in open fields, are huge red arrows, long as Pullman cars, advertising something else. Man's skill here in drawing attention to the city, or his own particular product, is truly astounding (Plate XI).

#### THE "FRIENDLY LETTER" CONTEST

Not long ago a leading newspaper induced thousands to write personal letters to acquaintances back East, painting the charms of Los Angeles. Prizes up to \$1,000 were offered in this "Friendly Letter" contest, and pictures were published of all kinds of letter writers, from policemen to stenographers. One banker wrote 80 letters!

Men without work walk the streets here now, as everywhere else; and the city publishes warnings that no more job hunters are wanted.

Yet to a singular degree its immigration has been highly selective. Detroit grew swiftly, too, but that is more simple to understand. Men flocked there to get work at good wages in factories, and they made Detroit grow. But a million plus had settled here before the golden calf of industry was lifted up. Why did they all come?

Trite as it sounds, the answer is climate. "But we can't sell climate forever," says the city. "We've got to find something productive for these newcomers to do!" And that, exactly, is what happens; except that in most cases the settlers find it for themselves. Inevitably, when a million or more people settle together, they make business for each other.

Accept the fact, first, that it is the lure of a soft, languorous climate which, till now at least, brought most men here. "This place is air-conditioned," people say. "The sea breeze, the fog, and warm sunshine do it."

#### RISE OF NEW INDUSTRIES

To enjoy it, the rich come and build mansions, as at Pasadena. It lures farmers from the harsher climate of the Middle West, mechanics from Pittsburgh, and waiters from Milwaukee.

Each brings his savings. Some have enough to live on; some must add to income by labor here. Many of ample means soon get bored and look for some-

thing to do, for some local investment. The rise, in late years, of so many new industries is proof of this; for the capital is mostly local.

A proof of selective migration is the experience of one large tire factory. It easily found enough people, already here, with previous experience in rubber work, to fill its ranks.

It is so with other trades. "An 'ad' in the Sunday paper will get us any kind of trained worker we want," said a movie executive, "from taxidermists and trombone players to tightrope walkers."

Listen to the swarming sight-seers and you learn what interests them.

"How can we get out to see the warships?"

"I want to pick an orange myself and eat it."

"Let's go out to Hollywood and watch them make a movie."

Others would see the giant telescope on Mount Wilson, or the "Blue Boy" painting in the Huntington Galleries, or the sumptuous homes of movie stars in Beverly Hills. Many who are trade-minded, thinking of investment, make tours of the factory regions and the busy water front.

#### WHERE THE PEOPLE SEE THEIR NAVY

Out here on the west coast, tied by sea lanes with the Orient, you hear much about the "dawn of the Pacific Era," and a dozen reasons why so many warships are stationed in these waters.

Our Navy is close to civilian life here, notably at San Diego. Hosts of California women are married to men on the ships.

Last April, when 113 vessels with 35,000 men aboard sailed for a visit to the east coast, almost half as many Navy women and children packed up and crossed the States to meet husbands and fathers on the Atlantic seaboard.

When "the fleet is in," steady streams of visitors, largely from the Middle West, go out to see the ships.

No other section of our coasts so serves to keep the people, especially those from inland, informed about what the Navy is, its uses and needs, simply because so many inland visitors come here. San Pedro, Long Beach, and San Diego afford these points of instructive contact.

On its operating base at San Diego the Navy has spent millions for its air and training stations, its Marine Corps and



Photograph by Alexander Wiederseder

#### AN ARCHITECT'S ROADSIDE NIGHTMARE

Lunch stands and soft-drink parlors shaped like animals, fowls, jugs, old hats, shoes, and similar odd objects astonish the newcomer as he rides about the suburbs of Los Angeles (see text, page 544).

destroyer bases, fuel and supply depots, radio and direction-finding stations, and an excellent hospital. This keeps thousands on shore duty, with huge sums spent on materials, supplies, food, and payroll.

Calm days and clear skies make these Pacific coast waters ideal for training. Target practice at sea, up to 90 miles away, sometimes breaks windows on shore.

Fleets of planes from both Army and Navy fields on North Island roar constantly over San Diego, the scene of many historic achievements in aviation. Here Glenn Curtiss flew a seaplane in 1911; Lincoln Beachey "looped the loop" here in 1913; our first experiment with aerial bombs was made here, and the first refuel-

ing trials. The city airport, western terminus of major air lines, is named "Lindbergh Field" because here was built the plane in which Colonel Lindbergh made that non-stop flight to Paris.

Some 165 planes flew 50 miles out to sea and landed on the two-and-a-half-acre deck of the carrier *Lexington*, from where I saw the fleet maneuvers of February last (see Color Plate VIII).

Steaming rapidly ahead (she can make 40 miles an hour), the 888-foot carrier "makes a wind over her deck" against which the planes land or take off, like ducklings from a mother's back. Dressed in asbestos from head to foot, a sailor, fire extinguisher in hand, and nicknamed "The Hot Papa," is always near by, "just in case." Yet nearly 20,000 plane landings have been made on this giant floating airfield without a fatality.\*

When not parked on deck, planes are lowered by elevators into a hangar 500 feet long and 100 feet wide, the largest open space ever built into any ship. Here, too, "talkies" are shown at night.

#### SHIP IS LIKE A BUSY TOWN

To explore this carrier is like a trip through a small manufacturing city. She is at once a mobile fort and an airport, with a population of almost 2,000 people. It's a 190-foot climb from the engine room up one steep, slippery ladder after another to the gunnery officer's lofty control station, and, after my breath-taking struggle,

\* The Navy has two such carriers, practically identical. The other is the *Saratoga*, known to sailors as "Sister Sarah" (see page 558).



Photograph from California Fruit Growers Exchange

#### EXPORTING FRUIT FROM BUSY LOS ANGELES-LONG BEACH HARBOR

Miraculously, in a few years, sea trade came to southern California when long-idle San Pedro mud flats were dredged and the present water front developed. In the four years following 1919 commerce multiplied 17 times. Besides fruit, much cotton and oil are exported and valuable cargoes of silk and crude rubber come in (see text, pages 559 and 593).

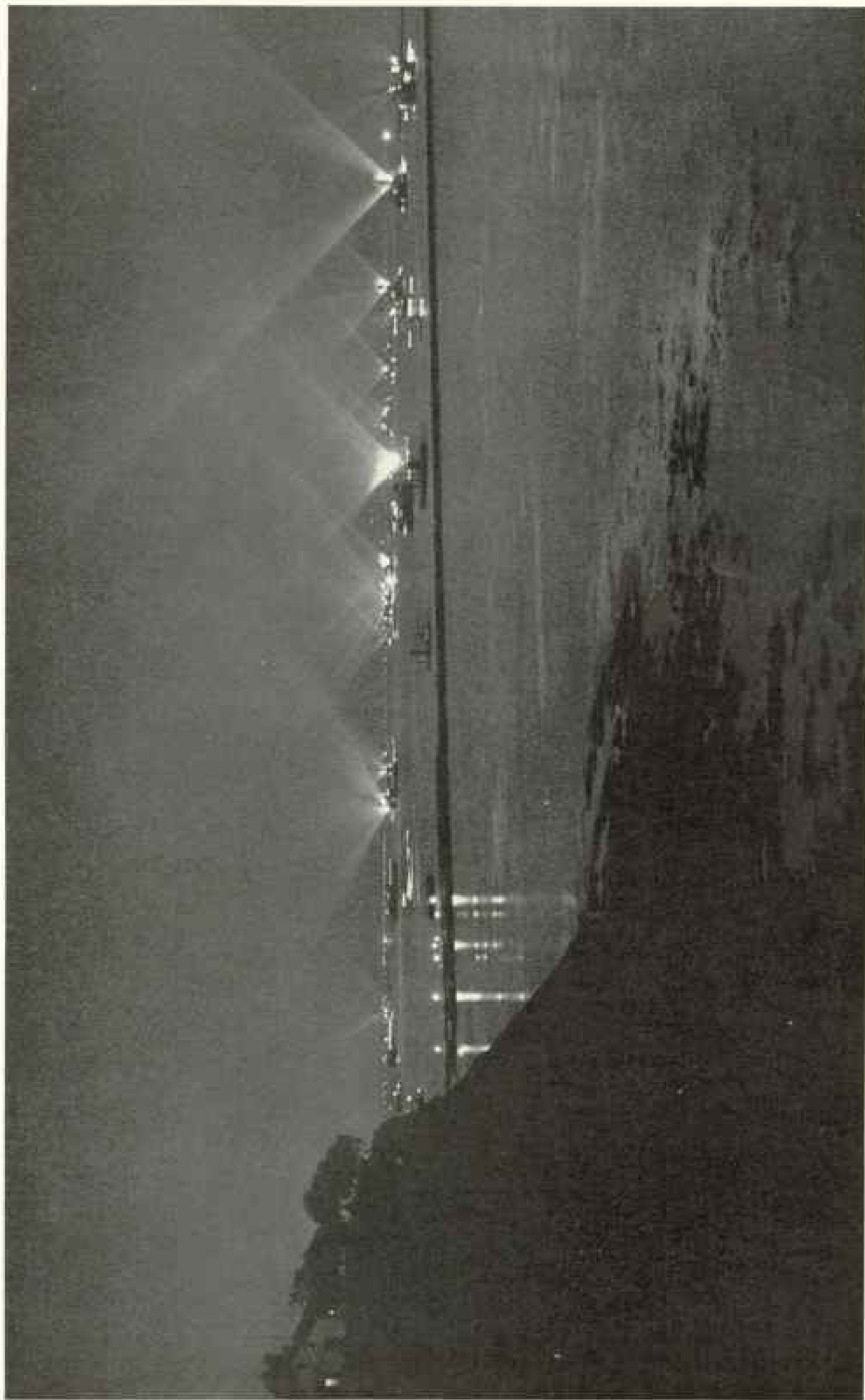
I can testify that it's no climb for a fat, swivel-chair sailor.

It takes 53 separate offices to direct the various activities on this ship, 23 shops, and dozens of other facilities you would also find in a busy town with ten times as many people. Besides hospitals, laboratories, and even a jail, there are separate shops for repairing radios, batteries, torpedoes, optical instruments, airplane wings and engines, instruments, guns, parachutes, etc., and also shops marked "Barber," "Baker," "Blacksmith," "Printer," "Tailor," "Cobbler," "Carpenter," "Painters," "Laundry," and many more. Here they publish both a weekly and a daily news-

paper, and officers run a regular school preparing sailors for the Naval Academy.

"You've seen it all except my work," said the chaplain. And I went with him to choir practice. Too stormy that day for maneuvers, the ship rolled and wallowed and was full of those mysterious squeaks, groans, and slams from movable objects common to all big ships in rough weather.

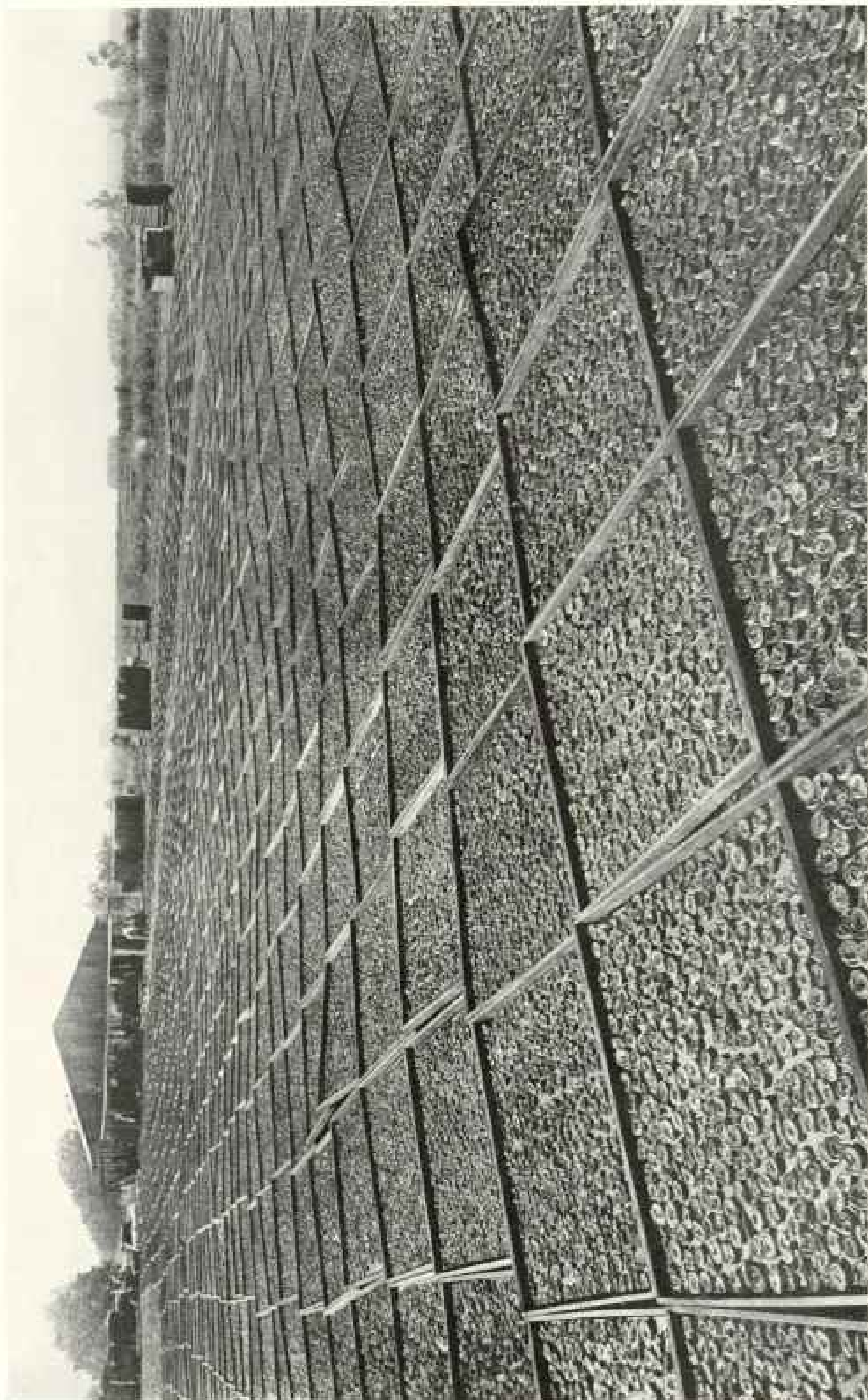
We passed the barber shop, where "ton-sorial artists" in green smocks powdered sailors' necks and sprayed them with fragrant pink fluids, and came to the choir room. One sailor played a small organ, and, as the ship gave an extra-long roll, the boys—quite unconscious, I am sure, of



WASPS WITH FIREFLY LIGHTS DANCE AGAINST NIGHT SKIES BEYOND SAN PEDRO'S BREAKWATER

© Karl Trostler

Seen as a dark line just below the United States Fleet at anchor, this sea wall is more than two miles long, about 200 feet wide on the bottom of the ocean, and about as high as a four-story building (see illustration, page 542). The shore lights at the left center are those of Long Beach, Alamitos Bay, Seal, Huntington, and Newport Beaches, and Balboa (see map, pages 534-5). The view was taken from Point Fermin.



Photograph by Edward W. Cochran

**NOT OYSTERS ON THE HALF SHELL, BUT APRICOTS DRYING NEAR SANTA ANA**

Orange County, whose chief city is Santa Ana, ranks among our Nation's most productive areas. Other than oil and oranges, its chief source of income is from beans, walnuts, berries, avocados, chili peppers, and sugar beets. Ample power, labor, and pure water, natural gas, four railways, and a short haul to Los Angeles harbor—all help this county earn normally about \$90,000,000 of annual income.



© International News

LIKE A BIG FLOATING BIRDHOUSE, THE "SARATOGA" CARRIES HER MOBILE BROOD

Scout, combat, and bombing planes are seen aboard the Navy's carrier, as she makes ready at San Pedro for maneuvers. At the stern is the ramp, over which planes drift with motors cut, when returning to the ship to land on deck. The *Saratoga* is sister ship to the *Lexington* (page 554).

its peculiar appropriateness—began to sing, "Master, A Tempest Is Raging."

Day and night the huge ship is full of sounds strange to landlubbers, the sounds of insistent metallic voices calling for this or that officer, or broadcasting intelligence of general interest through 336 loudspeakers scattered about the boat. This shouting never ceases.

To stand on the wind-swept "flight deck" of this vast, rushing monster; to see planes go roaring over this deck and then jump off into space, one after another, only a few seconds apart; to watch them vanish in the upper clouds and then come diving down from 10,000 feet, in wild-goose formation; then to see the line flatten out, circle about the ship, and glide back on board, one at a time as wig-wagged on with a flag by day and neon light by night, is a never-to-be-forgotten experience.

Laughing girls in sailor suits, boat-club regattas, music, crowded liners docking,

actors' yachts, gambling ships and police patrol boats, seaplanes taking off like flying sampans for Catalina, silk boats from Japan, tankers, tramps, freighters from the Seven Seas, a "mother ship" of Norwegian whalers with a brass band on board, the low gray shapes of American warships, their launches bringing bluejackets ashore—that is Los Angeles harbor. Protecting it all is a breakwater mightier than a section from the Great Wall of China, as you might see could you drain the salt water away (see page 542).

EMPTY MUD FLATS TURNED INTO A  
WORLD PORT

Yet Los Angeles has no sense of kinship with the sea, like Boston or Baltimore. Its sea trade has come so suddenly that those who fry hot dogs, pick oranges, sell autos, or work on the movie lots are not conscious of it. To them the Pacific is still just an ocean with sandy beaches to play on.

When Cabrillo ventured up this coast, some 50 years after Columbus discovered America, all he found were the mud flats, now dredged to make the Los Angeles-San Pedro harbor. For nearly 250 years hardly another sail was seen. Feeble reminders of that halcyon age of exploration are a few dirty, sullen old sailing craft, fat guns frowning from their portholes, used by movie crews playing pirate.

In "Two Years Before the Mast," Dana, visiting here in 1835, said the only structure on what is now the crowded San Pedro water front was an adobe shed where men from the cow ranches slept, and stored their hides and tallow, to meet Boston ships that came trading for these things.

Even the gold rush of '49, with the busy generation that followed and made San Francisco the largest city then west of St. Louis, had little effect on sea trade here, except to send a weekly steamer down from the Golden Gate. But this period set forces in motion that were in time to bring great changes. Wagon teams met the steamer, and freighted goods far across the deserts to mines in Arizona, even to Utah Mormon settlements. Railroads followed, with land booms and tidal waves of settlers. Though sea trade lagged, a slowly growing number of ships arrived, anchoring beyond the mud flats.

By 1912, when Los Angeles had acquired more water front and vast sums had been spent, she really began to get a modern harbor. Advent of the Panama Canal stimulated trade from coast to coast. The World War drew most shipping to the Atlantic, but in the four years following 1919 Los Angeles sea trade *multiplied 17 times*—a record unique in peace-time commerce.

This huge rise in cargo came from oil yields around Los Angeles. Lacking storage and refining facilities, there was nothing to do but pipe the oil out to the harbor and ship it as fast as vessels could carry it away. Sea lanes from San Pedro to Panama were crowded with tankers.

With the new harbor came more factories and assembling plants, and trade grew with the Orient. Cotton exports in December last were more than oil. Silk and crude rubber arrive in vast quantities.

Not a ship sailed from here direct to the Far East 15 years ago. Now 40 or more may sail in a month. In the last three years, Japan has built about 30 fast motor

vessels, called "silk ships." They come from Yokohama to Los Angeles in 11 or 12 days; some go on to New York, a new silk route.

Ships of some 150 other lines now touch here, tying the port with nearly every part of the globe.

Overstuffed gulls, too lazy to earn their own living, crowd the harbor rocks, crying and fussing, waiting for the return of the fishing fleet, which chases everything from sardines to whales. You sense this after the olfactory ordeal of a walk past sheds wherein mysterious operations are performed on fish—to the delight of the greedy gulls.

Here again man's newfangled machines upset an old order.

Roving the seas as far south as the Galápagos, Japanese and Yugoslavs go after the schools of fish as relentlessly as hounds after rabbits.

Some boats use nets, but large tuna are caught in a peculiar way. Three men have each a pole, but all lines run to one hook, to give greater lifting power. Tuna often get so ravenous and excited that they strike at a hook bare of bait. The instant a tuna strikes, the men jerk it high and heave it on board. During a good "run," the three men may catch a fish every five seconds.

So many cans of fish are sold from here each season that no man could live long enough to count them.

#### MAKING A HOLLYWOOD MOVIE

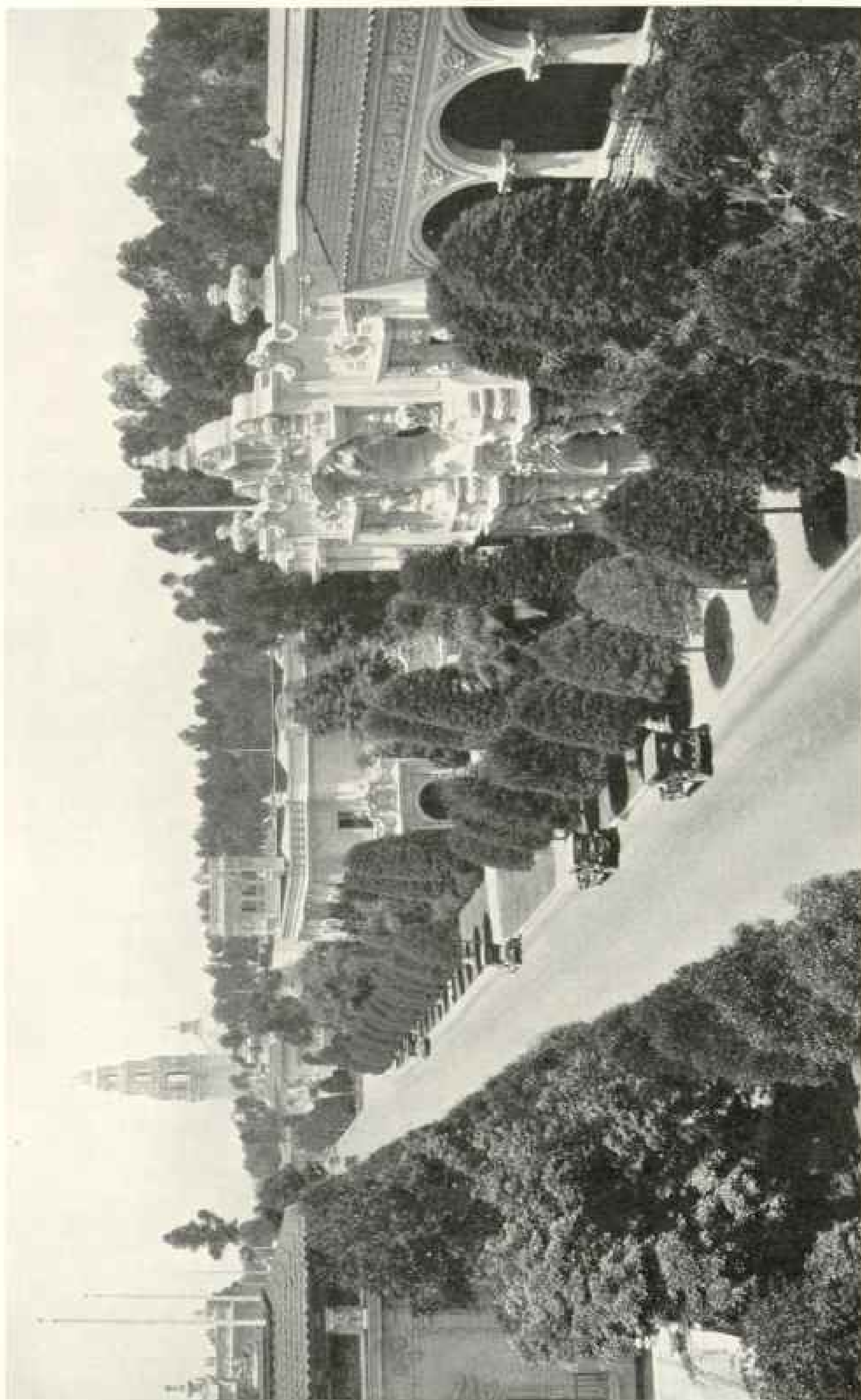
When Hollywood had only 300 people and not even a "nickelodeon," pioneering actors rented an old barn there and began to film "The Squaw Man." Armed cowboys, dashing through dusty streets to "fight" Indians, alarmed the village.

If the play called for a scene on a front porch, the actors simply got permission to use somebody's porch. No one, at first, built special "sets." Such colossal structures as Babylonian palaces 300 feet high, built later to film "Intolerance," were undreamed of.

Now studios that are walled cities within themselves house this stupendous industry, whose strange feats smack almost of witchcraft (see illustration, page 561).

To make a "horror" picture, the illusion of prehistoric monsters invading a modern city was achieved with Texas armadillos. Shot at 20 times normal size, while

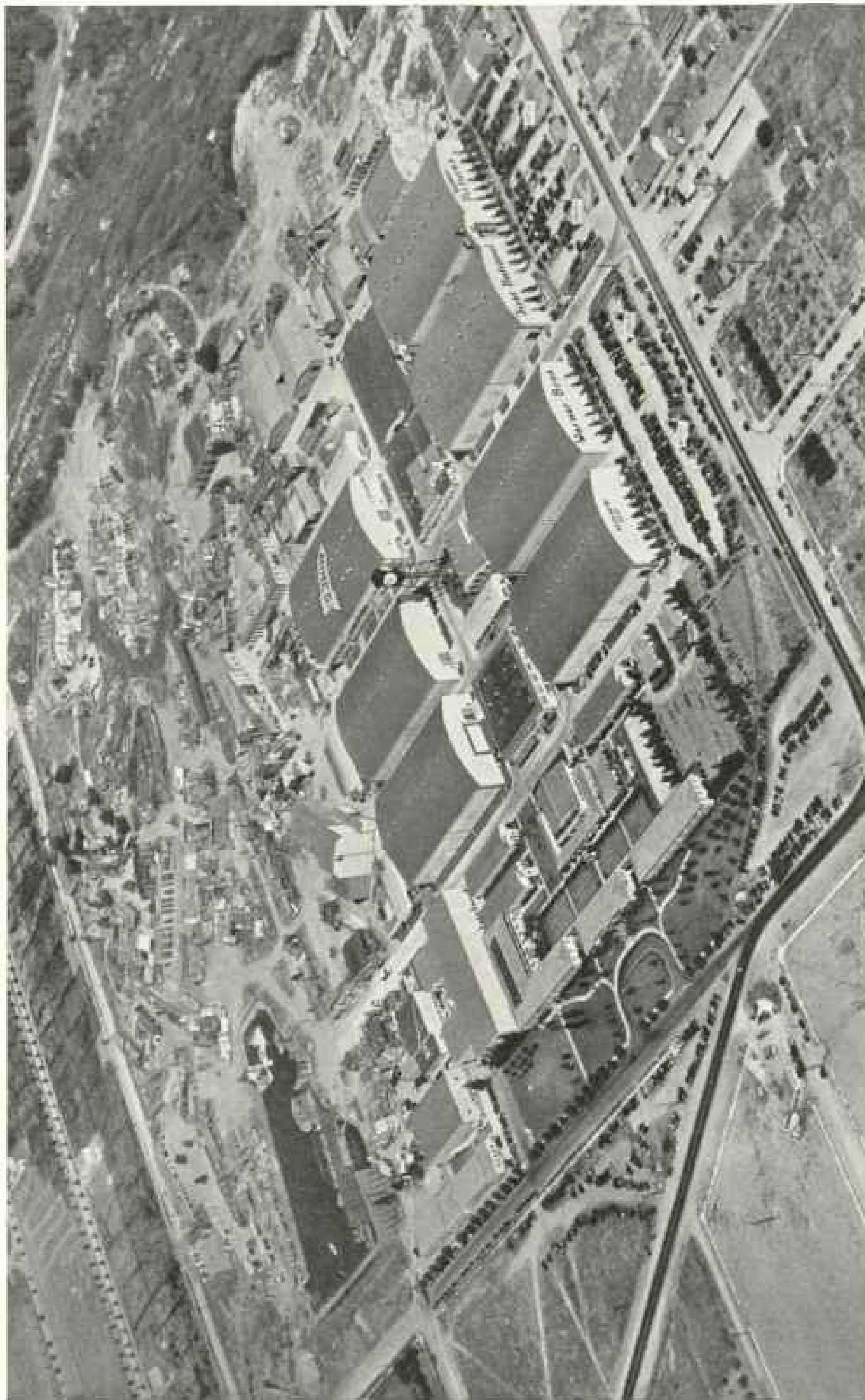




W. E. Averett

THE TREE-FRINGED MAIN AVENUE OF SAN DIEGO'S SPACIOUS BALBOA PARK

The 1,450-acre reservation is noted for its exotic plants and trees and for the grace and dignity of its architecture. First on the right is the County Fair Building; beyond is the American Legion War Memorial; the tower rises from the California Building. Here the Panama-California International Exposition was held in 1915-16, and here, in the World War, was a naval training station. Visitors to-day may wander through a fine arts gallery, Indian village, Montezuma gardens, natural history museum, the Botanical Building, and across the Cabrillo Bridge.



ROMANCE, DRAMA, COMEDY, AND ADVENTURE FLOW IN MILES OF FILM FROM THIS HUGE FACTORY

The largest structures, like hangars, are sound studios, in each of which many different "sets" may be in use at once. In the background are "standing sets," or reproductions of forts, famous castles and churches, streets of foreign cities, villages from everywhere, heathen temples, etc. Other buildings include shops where scenery is made, warehouses for "props," dressing rooms for players, and executive offices (see text, page 559).



WHISTLER WOULD HAVE LIKED THIS VIEW OF SHIPS BATHED IN SAN PEDRO FOG

To study weather and its effect on men and their work, Los Angeles employs its own meteorologist. In about the same latitude as the south coast of Spain, the ocean off Los Angeles-San Pedro harbor has a variation in temperature of less than ten degrees throughout the year. Fogs or haze here, euphoniously called "velo" (Spanish for veil), hide the sky from sunset until about 10 o'clock the next morning. The maximum sunshine occurs in August and the least in May.

waddling past the toy buildings of a miniature city, the final effect on the screen was realistically hideous.

One studio has a toy shop where boats, airplanes, cities, railroad trains, and automobiles are all made in miniature. In "The Invisible Man," a tiny automobile, loaded with gasoline-soaked cotton and a fuse, was run off a toy cliff, bursting into flames. In the same picture a railroad train (with cars two feet long) tumbled down a mountain side. Both "accidents" were strangely convincing.

Coral and marine plants for undersea views are cleverly counterfeited. "When we found ocean stuff wouldn't transplant,"

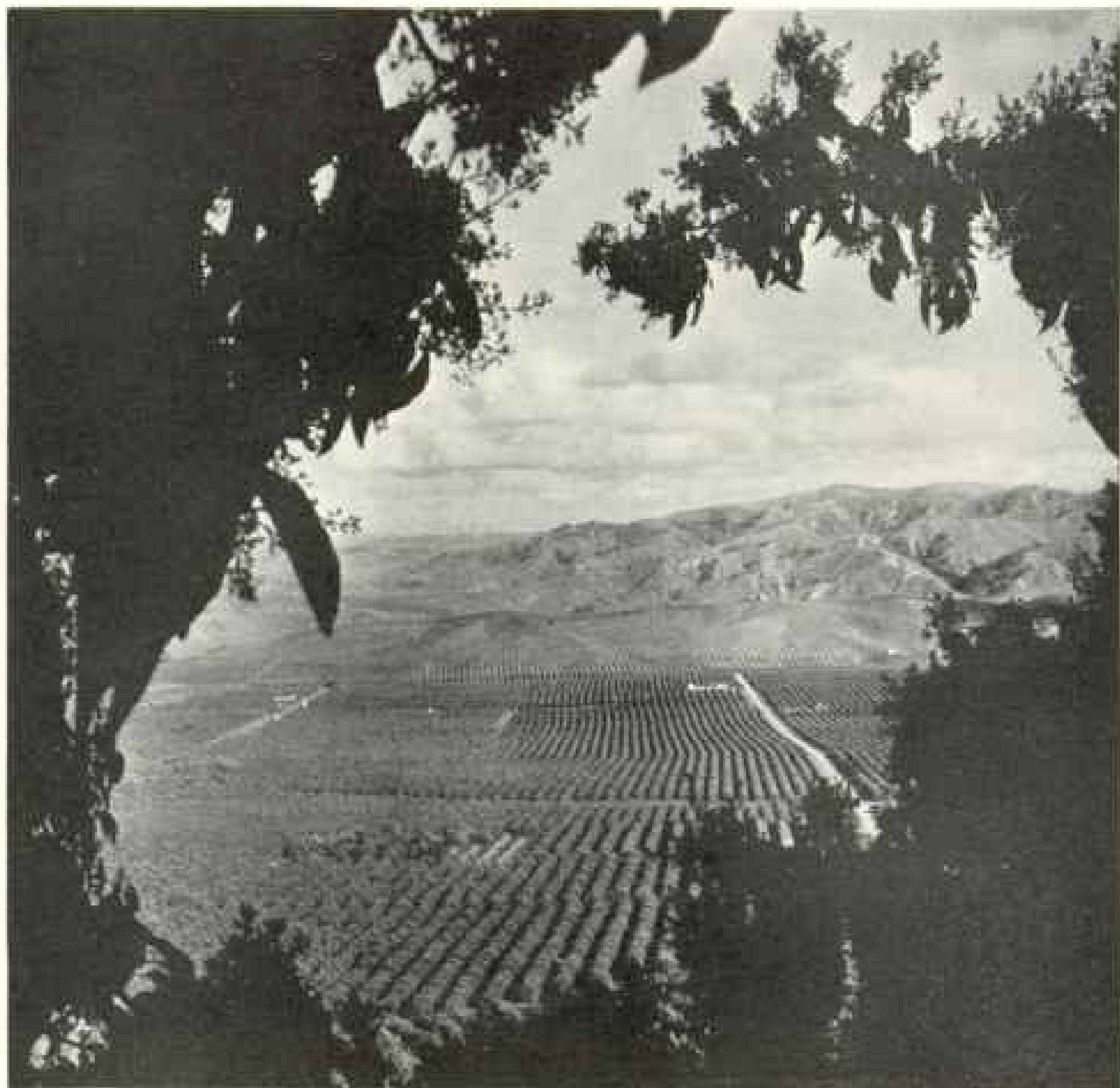
said a Universal director, "we dipped cactus and other desert growth in a plaster solution. Dried and painted, this 'bottom of the sea' fooled everybody."

#### HOLLYWOOD AN ACTOR'S TOWER OF BABEL

Octopus tentacles and snakes may be merely a jointed tube, strung on piano wire, coated with sponge rubber, and painted.

But it is human beings and their behavior, as much as tricks with cameras, that make Hollywood, which is only a part of Los Angeles, better known abroad than the big city itself.

Since most of the world's movies are



Photograph by Keystone

LEMONS ENOUGH COME FROM PUENTE VALLEY, NEAR WHITTIER, TO MAKE A LAKE OF LEMONADE EVERY SEASON

Indigenous to India, lemons were introduced to south Europe by Arabs. By the time Columbus discovered America the Azores were shipping the fruit to London. Most American lemons, of the Eureka and Lisbon varieties, grow in five counties of southern California, the crop varying from 5,000,000 to 7,500,000 boxes. Lemon blossoms are sweetly scented, distinct from the fragrance of orange blossoms; also lemons are usually more profitable than oranges, since they keep better. Among by-products are citric acid, pectin, lemon oil, and lemon juice. A British law of 1867 required ships to issue lime or lemon juice as an antiscorbutic; hence the slang name of "lime-juicer" for British ships and sailors.

made hereabouts, the millions paid in salaries lure performers, real and would-be, from every clime. Besides stars and plain five-dollar-a-day "extras," these actors range from real pygmies, as in "Tarzan," to acrobats and bona fide bareback riders in plays like "Polly of the Circus."

Casting offices for years have studied hordes of people for different rôles. More than 17,000 are listed on cards for "bit" and "atmosphere" work. Every conceiv-

able type is needed. As one official said, "We could not use the same crowd for an embassy reception as for a clandestine meeting of the Black Hand."

At the Metro-Goldwyn-Mayer studio, experts keep in mind the faces of some 7,000 semiregulars and use a filing system for thousands of extras.

"Eighty per cent of the types needed," I was informed, "fall into such groups as dress men, bellhops, police, collegians, butlers, riders, tall, short, and fat men, stunt



Photograph by Jacob Gayer

NOT A CABBAGE PATCH—JUST ONE OF DEATH VALLEY'S GRIM JOKES

Traversed by a motor highway up Death Valley, this odd surface formation—hard, hot, and dry—looks from a distance strangely like a vast vegetable garden. It is known locally as the "Devil's Golf Course" (see text, page 596).

men, army and navy men, tough men, judges, etc.; dress women (meaning intelligent, society types who can wear smart clothes), pretty girls, homely girls, stenographers, tall, short, fat, and stunt women, maids, character women, riders, dancers, dowagers, healthy children, peaked children, Hawaiians, Orientals, Latins, Nordic and Slavic types."

An emergency call for "one tough mechanic with a broken nose and two teeth missing" was quickly met.

ODD ASPECTS OF WORK IN THE MOVIES

Trained acrobats who can take rough falls and not get hurt; sailors with one eye; a distinguished-looking man with a continental-like "spade beard" who can work as a count or a diplomat—all these are in the cards!

"These bottles we break over each other's heads in barroom brawls couldn't hurt anybody," said an actor made up like Jesse James. "They're not glass; they're made of candy."

Some such trick candy costs \$80 a

pound. In the form of pills, it is used in shooting wintry scenes. The actor holds this pill in his mouth like a cough drop; as it melts, it gives off a vapor that is visible, like breath on a cold day.

Icicles of plaster, oatmeal for snow, and gales made by wind machines, all join to simulate winter. To make it rain over a three-acre field in "Little Women," RKO engineers built scaffolding high above the lot which carried a mile of perforated pipe. By this vast sprinkling system it could "shower" whenever directors yelled, "Start the rain!"

The area drenched represented the old home of Louisa M. Alcott, at Concord, Massachusetts, faithfully reproduced.

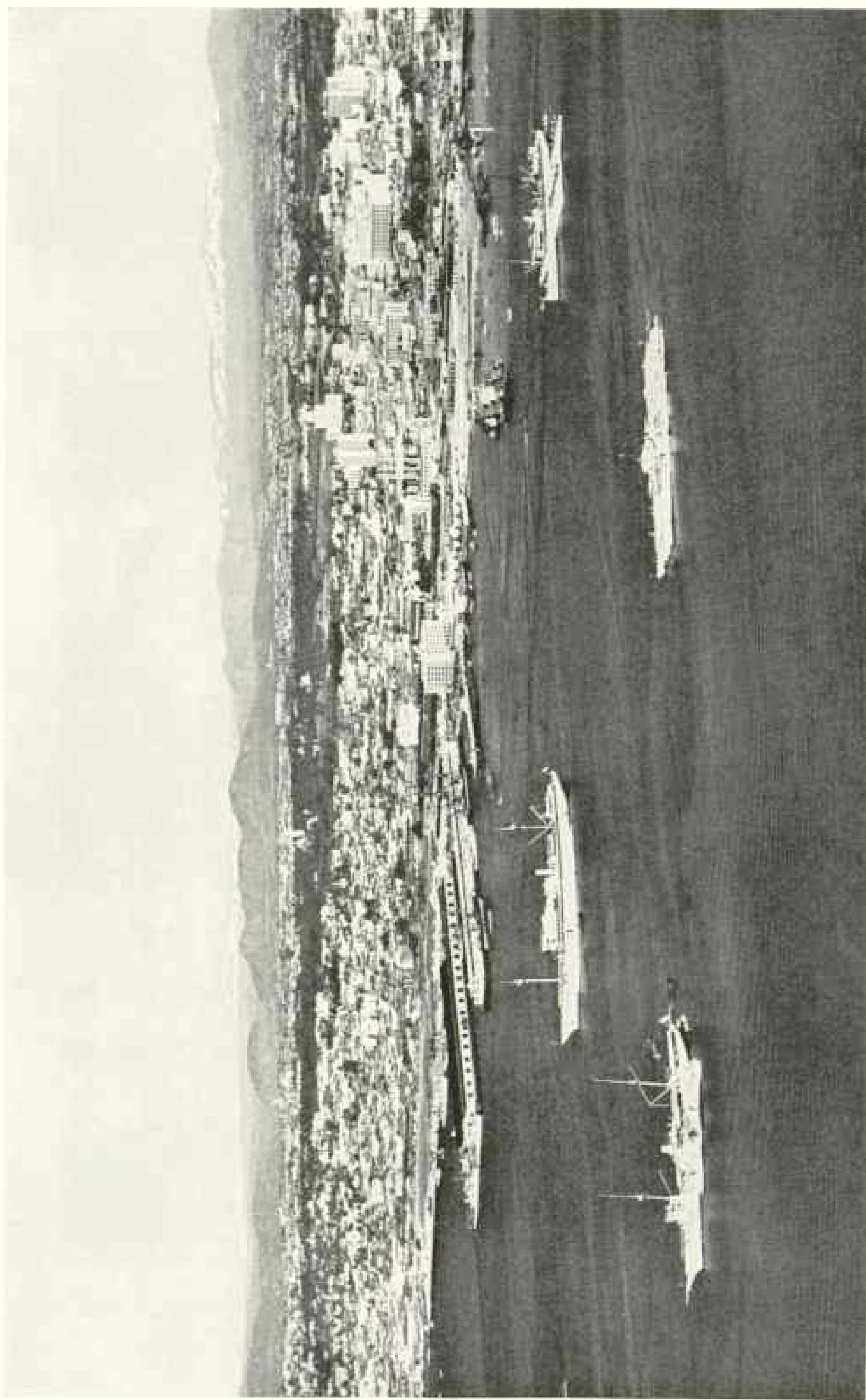
In another scene, horses hauled a sleigh across a "snow field" made of half-baked cornflakes. Being yellow, they photographed white. At the same time a battery of 20 huge motor propellers at one side of the field blew the air thick with cornflakes, making a "blizzard." During a pause in the work one horse got at a big bag of extra cornflakes, overate, was foundered,



Photograph from Wide World

**A SIGHT THAT WOULD BEWILDER A SETTING HEN!**

Hard-working chickens lay about 125,000 eggs a day at Runnymede Farms, near Los Angeles. A world record for egg output is claimed, as well as for volume of cackle sound effects, always reassuring to the poultryman. Daily delivery of fresh eggs is a marvel of modern distribution.



Photograph by H. A. Erickson

NEAPOLITAN IN ASPECT AND CLIMATE, SAN DIEGO USUALLY IS A CITY OF SERENE CALM

Good all-year flying weather, sunny skies, and calm seas make this region ideal for the Navy's maneuvers by water and air. Submarines lie in the right foreground and alongside a mother ship. Tall structures mark the city's business district, and, beyond, high mountains separate coast lands from the Imperial Valley.



Photograph by Clifford Adams

**LONG BEACH'S PLEASURE CENTER OFTEN SEES THE U. S. PACIFIC FLEET ANCHORED JUST OFFSHORE**

Rainbow Pier, two thirds of a mile long, open to both motorcars and pedestrians, encircles the Municipal Auditorium (left center) and encloses a 32-acre bathing lagoon. Before the auditorium, on made land, is an 8-acre tropical garden. There are numerous amusements of the Coney Island type, a roller coaster being visible just beyond the high-towered hotel.



and a movie veterinarian had to give first aid. Just then an actor, bundled up to face the "cold," got a sunstroke!

Among strange sights here is an Eskimo village with igloos, ice fields, and all. Five hundred men used tons of white plaster to make this set. It saves the cost of sending actors up north.

#### "FOREIGN COUNTRIES" SURROUND HOLLYWOOD

"Berlin" was only about 150 feet from "Mexico" on the Universal lot. "Rain" poured down in a Berlin street where actors in "Little Man, What Now?" walked along in raincoats, carrying umbrellas; cab horses pawed the water, and boys pedaled along on glistening-wet bicycles. From out in the dry a director called his orders.

For verisimilitude an exact model of a Berlin street car, all painted with bona fide names and numbers, clattered along under its own power. About a kiosk, or news stand, draped with illustrated German weeklies, a group of old German types recruited from Los Angeles lodging houses talked in German about German politics.

Barely a stone's throw away, on another "set," a cowboy actor, the idol of small boys the world over, was struggling through Mexican border brush a few jumps ahead of a Texas sheriff. He splashed out of a man-made swamp, over a property alligator tied by one leg, for a friendly chat, when he heard that a NATIONAL GEOGRAPHIC MAGAZINE man was present.

"In that last scene," he said, "where I had to cook and eat that chicken, I had a bad moment. I couldn't spoil the shot by taking the chicken out of my mouth. I had to go on and swallow it. But the trouble was a lot of hair from my false whiskers got stuck on the chicken and I had to eat it, whiskers and all!"

Any kind of scenery desired, from Alpine to Sahara, can be found or easily manufactured somewhere in southern California.

To film an Australian drama, some rolling plains were wanted like the terrain near Melbourne, where the principal action of the story took place. They were found in Los Angeles County.

"Sometimes, however, Nature plays a joke," said an actor. "Rain interrupted the shooting of some scenes where we used big leafless gum trees. Two weeks later, when we went back to complete that scene, the

trees had leafed out. In order to match the old setting, we had to pick those trees like chickens, a two days' job for 20 men."

From snow scenes in mountains back of Hollywood to seaside set-ups is only a three hours' drive. "Covered Wagon" was filmed on a ranch near Burbank, now seldom used because two air lines fly over it and the roar of planes spoils sound effects (see illustration, page 532).

Near Santa Monica is an almost perfect bit of Cuba.

About Oxnard is a made-to-order Sahara. The "Alps" are in San Bernardino County, and the fishermen's village on the Los Angeles harbor has often been pictured as "Southern Italy."

I saw Universal filming one play with a scene using a bit of lake shore. During a halt in the acting, the "lake" almost ran dry; so a four-inch hose was dragged up and more water pumped into it. Trucks brought the right kind of trees and weeds about this "jungle lake," and men hurriedly set them out where wanted along the lake shore.

"We need some moss on that tree," said a technical man. And away sped a truck to a warehouse, coming back with the moss, artificial and painted, which was festooned over the tree limbs in realistic bayou style. They even dragged in an old log on which a fugitive from justice being hunted through the swamps could collapse from exhaustion.

#### STRANGE INSTRUMENTS OF ILLUSION

One company has its own hand-made jungle in which wild-animal scenes are filmed. Under jungle trees life nets are used in case of accidental falls by "wild" men and others who leap from tree to tree.

An odd order for one picture called for "5,000 moths and 200 cockroaches."

In "Stingaree," a tale of Australia in 1870, the background included bull carts, dingoes, and even a kookaburra bird, or "laughing jackass," all brought from Australia to give faithful local color.

The bird enacted his own comedy rôle by sitting in a tree and insulting the players with his raucous "raspberry" cry.

In making an American "talkie" of life in 1860, more than 6,000 separate items, with hoopskirts, ruffled pantalettes, bustles, wall paper, and top buggies of that period, had to be duplicated after painstaking



© National Geographic Society

Friday Photograph by Clifford Adams

JUST AN OLD SPANISH CUSTOM

With familiar ballads of long ago, sung by caballeros and señoritas amid the sweet scents of moonlit mission gardens, modern romantics seek to conjure up the spirit of cavalier days.



Fun Day Photograph by Clifton Adams

GIANT GREEN ROLLERS ROAR IN AT LAGUNA BEACH

Acquihilian children of poets and preachers, of sculptors, writers, hotel clerks, and shopkeepers romp together in the brotherhood of the beaches. Laguna, with its art colony, lies on the coast road between Long Beach and San Diego.

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© National Geographic Society

**TWO LILIES THAT NEED NO PAINTING!**

"Watch out for snakes," Victorian maidens might have cried. More aquatic moderns, eager to pick the flowers, find that cool water and soft mud feel good to bare feet.



Friday Photographs by Clifton Adams

**PLASTER-CHESTED ROOSTERS CROW OVER THE CLIMATE**

These giant, red-crested figures are examples of the many animal effigies, teapots, machines, old shoes, and other odd objects set up along highways for advertising.



WHERE PALM CANYON LEADS DOWN INTO DRY, HOT COACHELLA VALLEY

The odd-looking trees wearing "petticoats," spectral by moonlight, stand far north for palms on this continent and may be a link with ancient days when seas lashed at these rocky foothills. This crooked crack in the world is explored by guests from near-by Palm Springs hotels (see Plate III).



© National Geographic Society

Finlay Photographs by Clifton Adams

SPRING'S MAGIC PAINTS BROWN HILLS WITH BRILLIANT WILD-FLOWER COLORS

Motorists by thousands flock to hills, canyons, and deserts when poppies, lupines, sandverbenas, the thistle sage, monkeyflower, Indian paintbrush, and other wild flowers bloom.



MAKING READY FOR A RACE AT THE SAN PEDRO YACHT CLUB

On good sailing days, when waters are blue, skies clear, and breezes stiff, pleasure craft plow the southern California seas. Favorite courses are through the Santa Barbara Channel, or out to Coronado Islands. Some boats have raced to Honolulu.



© National Geographic Society

Finlay Photographs by Clifton Adams

THIS CAKE-EATING SWAN'S NECK IS AS LONG AS THE GIRL'S ARM

Each fall myriad wild geese, ducks, snipe, curlew, and others migrate down this coast. Instinctively they seek such havens as the Clark Bird Refuge, at Santa Barbara.



© National Geographic Society

LODGE, WHO PICTURED DANTES' INFERNO, SHOULD HAVE SEEN DEATH VALLEY

Deepest below-sea-level spot on our continent, unendurably blistering in summer, it is thronged in winter with visitors who ponder its diabolic wonders. In the foreground is a salt pool.



Finby Photographs by Carlton Adams

THREE HOURS LATER, SOME OF THESE GIRLS SWAM IN THE SEA

To show diverse outdoor sports, they skied here at Big Pine, northeast of Los Angeles, in the morning, and enjoyed a plunge at Long Beach in the afternoon.



© National Geographic Society

**MAKING MILLIONS LAUGH IS SERIOUS BUSINESS**

Walt Disney, creator of Mickey Mouse, views his work. Quaint, capricious, and whimsical, his little creatures romp and chatter through animated cartoons and silly symphonies of comedy and grotesque adventure.



Finlay Photographs by Clifton Adams

**A TOY-STORE PUPPETEER HUGS DANCING DOLLS**

Behind the curtains of a tiny stage, with music playing, this young lady skillfully pulls the strings that arouse lifelike actions in her bright-faced Lilliputian company—to the noisy delight of young spectators.





WHERE FERNS CHOKER THE SHADY NOOKS OF SAN GABRIEL CANYON

An astonishing aspect of southern California travel is the swift passage from dry desert to verdant lands. A pleasant ride down a well-watered valley, fragrant with fruit and flowers, may end abruptly at the edge of dry, empty plains.



© National Geographic Society

Finlay Photographs by Clifton Adams

"SAGO PALM" NUTS SHELTERED LIKE BIRDS' EGGS IN A NEST

Used only for seed for decorative trees in America, these nuts are eaten in some Asiatic lands. Cultivated in India and Malaysia, together with the more widely used true sago palm, the trunk yields starch, exported in dry, granulated form, which is used in puddings and for stiffening textiles. This *Cycas revoluta*, not a true palm, has feather-shaped fronds.

research. More than 4,000 people, drawn from almost every profession, craft, and trade in America, were employed before this picture was finished.

#### HOW SETS ARE MADE

Faultfinders in the audience protest and write derisive letters to studios if mistakes are made in scenery, costumes, weapons, etc. To avoid this means days of intensive study.

In making films with foreign settings, a "unit director" must see that all is true to life in that country. Every big studio has its research department, conducted by highly trained women, who aid the "unit" men. They answer questions like these:

"May women dine at a British officers' mess in India?"

"How do you address a duke?"

"What is the marriage ceremony in Annam?"

"What was the shape of the oar of a Roman galley?"

"May a woman marry a man on the eve of his execution?"

"How do women dress in the French prisons?"

"Did it rain in the wheatfields of Canada during September, 1902?"

One researcher, looking up the history of warming pans, found that in olden times, on chilly nights, slaves were made to lie in the cold beds for a time to warm them for the master!

From the research office the art director also gets his authentic pictures of houses, costumes, implements, utensils, etc.

In making one film which called for street scenes from the Mexican town of Tijuana, photographers were sent there to make working pictures. The fronts of skeleton houses later built on a Hollywood lot were exactly like the Mexican originals. When people who knew Tijuana saw that film, they would say, "Look, there is the curio store we were in," or, "Remember that perfumery shop?"

#### FINDING GOOD MOVIE PLOTS

In historic films research is imperative. In pictures made to represent life long before cameras, paintings and old books of descriptions are consulted. More than 600 books were read and scores of old paintings copied in preparation for filming "Ben Hur" and "King of Kings."

Studios have what they call "story hounds." These are trained readers who scour the earth for writers, new and old, into whose work is packed the humor, realism, and drama needed for the small compass of a picture.

"'Grand Hotel' was first spotted in Germany," said a scenario writer, "under its original title, 'Menschen im Hotel.' An obscure Czechoslovakian magazine held the plot of another play. A woman in Italy, who had just seen a stage show, went straight to a cable office and sent a message which resulted in the purchase of the American film rights."

In one year M. G. M. studios alone read about 4,500 books, more than 3,000 plays, as well as hundreds of short stories from American and foreign magazines.

Novel and dramatic situations are at a premium. "I will trade you 100 gorgeous Hawaiian sunsets for one sock on the jaw" is a studio saying—a sock on the jaw meaning a dramatic situation.

#### MAKE-UP ARTISTS WORK MIRACLES

"It's easier to take a 20-year-old girl and make her look like 80 than it is to do the reverse," said one make-up artist; "but we *can* do both" (see page 533).

To play the part of a World War veteran who had lost an ear and been otherwise disfigured, one actor's face was so transformed by the skillful pasting down of one ear with fish skin and the use of collodion and fine cotton that his best friends failed to recognize him.

Wounds on the head of the Ape Man were made by pinching the skin together and painting the "scar."

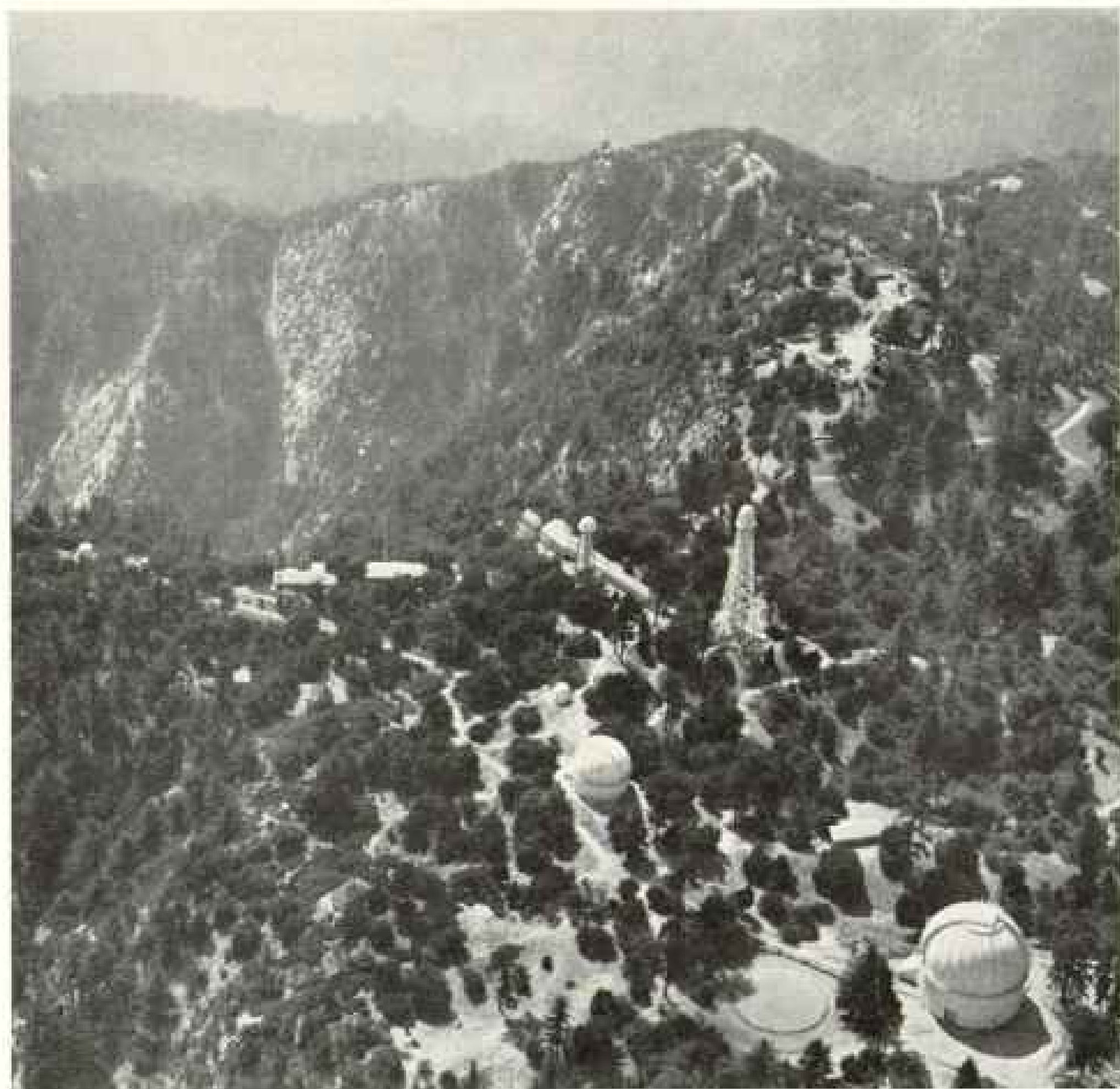
Artificial eyelashes that cost \$1 a pair are used by the thousands.

"Aging" is one of the most skillful tricks. Work begins on the neck, with shadows painted in and cords intensified. Lines are drawn at the corners of the eyes and mouth. Fat, or the lack of it, is shown by the use of red paint, and shadows under the eyes are made with bluish pigment.

Actors say Lon Chaney was greatest of all at make-up. It took him three hours to put on his crippled back for "The Hunchback of Notre Dame."

Movie influences on speech, manners, and dress, even on home furnishings, are obvious.

Films of American life shown abroad have definite effects on foreigners. Dance



MOUNT WILSON OBSERVATORY, HIGH ABOVE THE MISTS AND HAZE OF PASADENA

The dome of giant Hooker telescope, whose 100-inch mirror weighs four and a half tons, is seen in the lower right. The other dome, lower center, is that of the 60-inch instrument; the high tower, right center, is the solar telescope. Clockwork in the Hooker dome includes a 17-foot wheel which keeps the telescope pointed at moving stars. Increasingly bright lights of near-by cities, reflected in midnight skies, now interfere somewhat with observations (see text, page 580).

steps, slang, patterns of hats and gowns; even bathtub and swimming-pool designs have been exported. One Hindu merchant saw a certain style of floor lamp in an American film and wrote the studio again and again till they helped him get one like it.

Making a talkie calls for many different brains. An average of 117 trades and vocations is needed, even in smaller studios.

#### AMAZING ART TREASURES

Would you like to read the original of Ben Franklin's "Autobiography," done with a goose quill? Or a 44-page letter Wash-

ington wrote to Lord Loudoun, commanding British forces in America in 1756?

Or letters telling of Pizarro's conquest of Peru, and others, on many themes of former days, in the handwriting of Mary Queen of Scots, Henry VIII, and Sir Walter Raleigh?

All these, with some 800,000 other old manuscripts and dozens of famous libraries purchased *en bloc*, including 5,300 incunabula, or books printed before 1501, are now in the Huntington Library and Art Gallery at San Marino, which rises above the silver haze of San Gabriel Valley and overlooks Pasadena.



Photograph by Clifton Adams

HERDOO TUNNEL, IN THE COLORADO RIVER AQUEDUCT, IS 18 MILES LONG

Supplied by Parker Diversion Dam, 125 miles below Boulder Dam, in the Colorado River, this aqueduct will carry water over mountains and across valleys to Los Angeles and other cities of the Metropolitan Water District (see text, page 530).

San Marino Ranch was Henry E. Huntington's home. He gave it, with its stately buildings and the priceless libraries and art collections which they house, to the people of California. Now it is a Mecca for students from all over the world.

Visitors by the tens of thousands come to see its treasures, and to walk through its superb gardens, with never a "Keep off the grass" sign. Here are 207 acres of subtropical vegetation. In one arroyo are 25,000 specimens of cactus and succulents; palms from seven seas and gorgeous tree ferns remind you of old Garden of Eden wood-cuts.

But the rare *books!* A Gutenberg Bible, printed with movable type before America was discovered; Dante's "Divine Comedy," printed in 1472; Spenser's "Faerie Queene," 1590; "Hamlet," 1603; and tons of human records, from portolanos to private diaries, deeds dated in 1066, and, among more recent authors, the manuscripts of Pope, Shelley, Keats, Hardy, Swinburne, Rossetti, Lafcadio Hearn, Bret Harte; even Kipling's "Recessional" and Lincoln's scrapbook.

Astounding in their scope are the old writings about our own country: some by Columbus, Ferdinand and Isabella; later ones by Capt. John Smith, William Penn, and Governor Stuyvesant. Here are original Indian treaties signed by their "marks"; the only full list of men who took stock in the "Virginia Company," and the logs kept by some of the early ships which sailed to America.

CALIFORNIA CALLED AN ISLAND BY EARLY EXPLORER

How little men knew California in 1681 is shown in a letter from Father Kino, the famous Spanish explorer of our Southwest: "California . . . is . . . the fairest island in the world."

How our manners have changed, too! One old manuscript describes the burning of a priest named Lawrence. His legs were so sore from his heavy shackles that he had to be carried from his cell in a chair. But, out of kindness to him, his executioners let him remain seated while they laid the fagots and started his death fire!



Photograph by Putnam Studios

QUICK EYES AND DEFT FINGERS SORT A FLOWING OLIVE  
STREAM NEAR LOS ANGELES

First, all olives are passed through processing vats; then they move in a shallow stream through an automatic carrier, so that defective fruit may be removed.

Ignoring the rare books, many visitors come only to see the paintings and tapestries, the porcelains, chairs from the hand of Chippendale, or from salons graced by Marie Antoinette.

Of the British school of the 18th century, paintings here are mostly portraits—by Gainsborough, Romney, Sir Joshua Reynolds, and Raeburn.

Among others is that of Mrs. Siddons, the English actress, painted in her famous rôle, "The Tragic Muse," by Reynolds, and so often reproduced.

Toward me, viewing these portraits one day, came some other visitors. Ahead of this group strolled a tired, bored-looking

girl of 10, halting to scratch one leg. Suddenly she straightened up, froze in her tracks, and gasped for breath. Before her hung the "Blue Boy," that never-to-be-forgotten lad in blue, painted by Gainsborough (see Color Plate I).

PHOTOGRAPHING THE  
STARS

If the earth were flat and the air clear, you could look through the 100-inch telescope on top of Mount Wilson, near Los Angeles, and recognize people you knew walking along the streets of New York; or you could point the telescope another way and read the names on ships passing through the Panama Canal; or watch brown girls dancing under South Sea palms.

When I ventured this fantasy on a certain cold night up on Mount Wilson, the astronomer barely grunted, for he was busy photographing a star.

Visitors climb the Mount Wilson trail

by the thousands for a peep through its telescopes, or a look at the photographs which scientists are making of the stars and planets.

"How far is it to the stars? . . . How hot are they? . . . Are there any rocks on the moon like the pumice or limestone we have on earth?"

They ask the very questions that astronomers seek to answer.

Mount Wilson, a peak of the San Gabriel Mountains, 5,704 feet above the sea, rises above most of the seacoast haze and fog, and so makes ideal "seeing conditions" for large instruments. Observations can be made about 290 days each year.

Because it is easy to get up and down the nine-mile mountain road, except after snow or rock slides, the astronomers maintain their library, laboratory, and shops at Pasadena.

Fly over Mount Wilson and there, among the spruce, pines, and oaks, you see the gleaming white towers and domes which house the instruments of this Mount Wilson Observatory of the Carnegie Institution of Washington (page 578).

At one side is the famous Hooker reflecting telescope, most powerful instrument of its kind ever devised. Its mirror is 100 inches in diameter, 13 inches thick, and weighs four and a half tons. It took years to cast this giant piece of glass, to grind, polish, transport, and install it.

To-day the limits of the universe which man can see have been forced back by new powerful instruments till now from Mount Wilson he can look at nebulae which are 140 million light years from the earth.

In photographing some of these nebulae, like the so-called Magellanic Clouds (as a mass of stars in the southern heavens is called), we use light that left them more than 100,000 years ago. So the picture shows these stars, not as they actually are now, but as they were a thousand centuries or more ago.

These photographs, then, as some one said, are made by "fossil light," and are as fossilized themselves as dinosaur eggs or mastodon bones.

It is not impossible, since the light which brings these images to Mount Wil-



Photograph by Clifton Adams

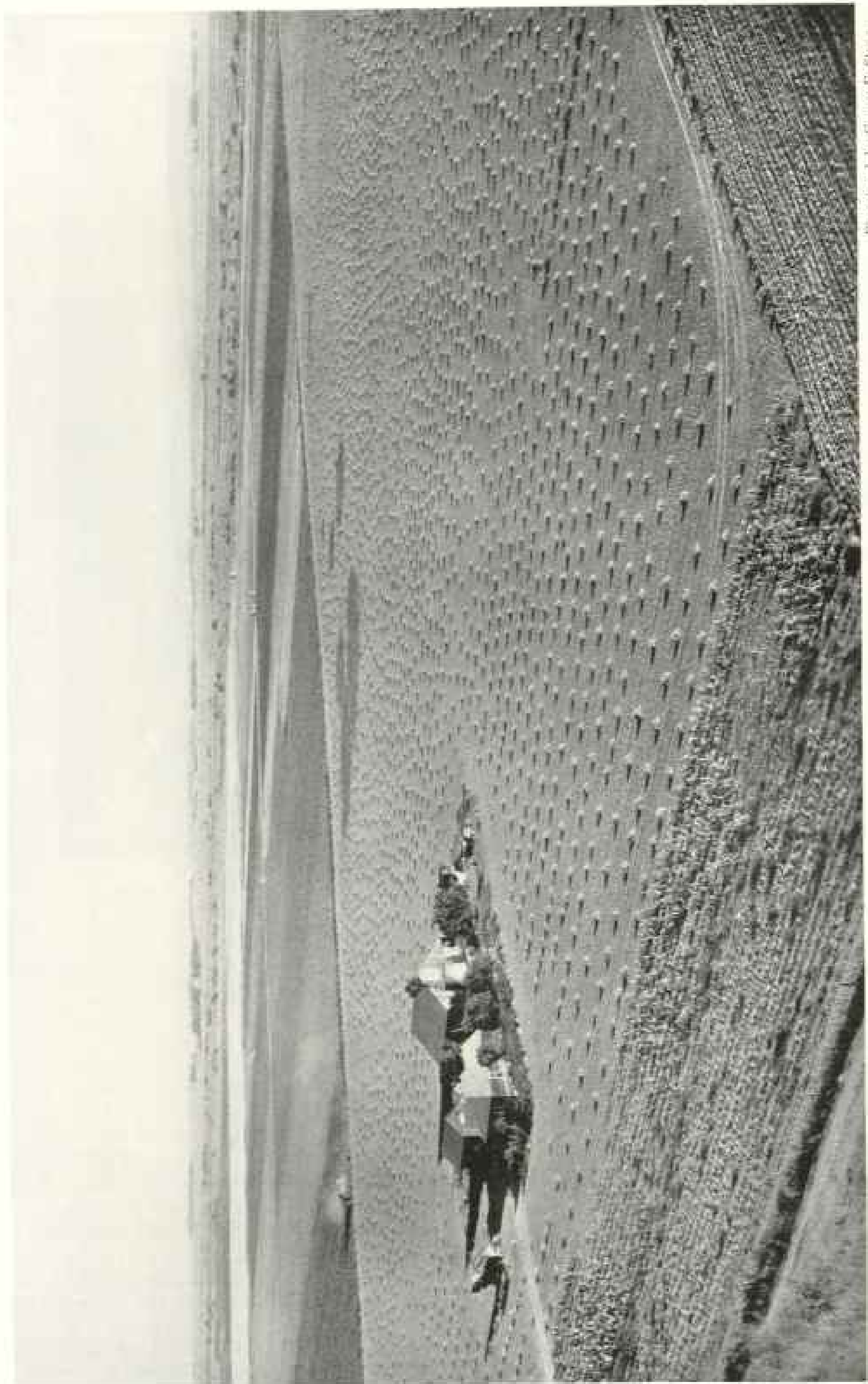
PLEASURE SEEKERS BASK NOW IN WINTER SUNS OF  
LONG-DREADED DEATH VALLEY

Brooding, treacherous, shunned of old even by Indians, this region to-day is safe for travelers, thanks partly to motorcars and refrigeration. Its inferno aspects endure, yet to-day's visitors may sip iced drinks and scan long menu cards while looking out on wastes where men and women died of thirst in gold-rush days (see text, page 596).

son started so long ago, that by this time the original stars themselves may have dissolved and we get only a "ghost picture."

Think of it this way. Man's written records carry us back only about 6,000 years. Earth fossils show that life was in the world maybe 100,000,000 years ago; but it has taken light longer than that to traverse the limits of space.

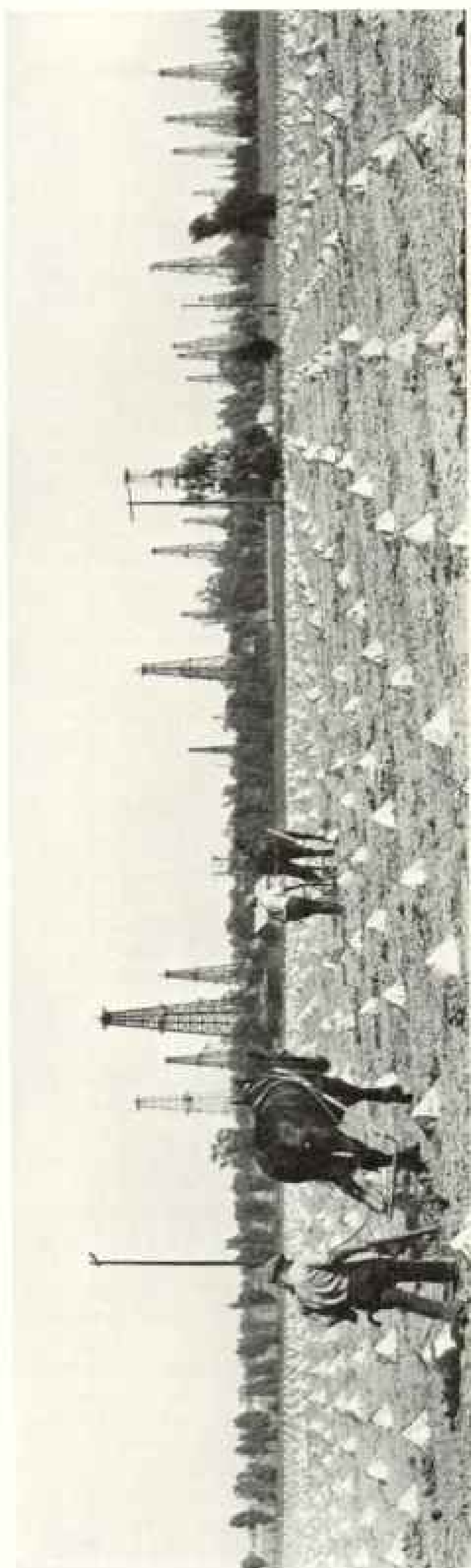
Up on Mount Wilson astronomers ponder these things, slowly adding to our knowledge of Nature's laws. Yet in the shadows of the range farmers still kill pigs and plant potatoes in the right "light of the



Photograph by George E. Stone

**SANTA MARIA VALLEY BEAN FIELDS SPRAWL FLAT AND FERTILE AS LANDS ALONG THE NILE**

Some are so vast that "combines" and threshers are used at harvest time. Besides beans, this valley and adjoining lands, known as the "Santa Barbara County Salad Bowl," also grow commercially carrots, cauliflower, sugar beets, flowers, and grain. Cattle, too, are raised in this region.



Photograph by Clifton Adams

TINY PAPER TENTS SHADE YOUNG TOMATO PLANTS NEAR A SAN PEDRO OIL FIELD BRISTLING WITH DERRICKS (SEE TEXT, PAGE 599)



Photograph by Hetael

ONE SEASON'S IMPERIAL VALLEY CARROT CROP, PULLED AND TIED IN BUNCHES BY MEXICANS, FILLED 789 RAILROAD CARS



moon," and say "money" three times when they see a falling star, so as to find some; and read "horoscopes" in the daily papers. What infinite superstition still attaches to the stars!

#### SPANISH PRIESTS THE FATHERS OF FARM LIFE

Talk with priests at the old missions and they will tell you that pioneer padres trained Indians to do the first irrigation work. Some of their old ditches still exist.

You can tell by where these missions stand what good judges of land the priests were. They never built a church on poor soil (see illustration, page 550).

Local farming owes these padres a great debt. They not only brought the first cattle and horses, but they experimented with seeds to see what would grow best here.

They planted the first oranges and grapes. Lemons, figs, and olives they brought, too, and wheat, destined to become a tremendous crop.

Almost feudal in aspect were these mission farms. Indians were trained as farmers, cowboys, carpenters, saddle makers, and weavers. They made things not only for the use of priests and themselves, but for Spanish soldiers as well.

Cattle became the mainstay of life, with beef the chief food; hides made leather for saddles, harness, and shoes, and even served as money. Early sea traders from New England called them "California bank notes."

Sheep, too, were raised; and Indians made blankets and cloth for suits from the wool. They raised some hogs also, mostly for lard to make soap.

Missions served as stock farms from which private owners could borrow enough breeding animals to build up their own herds. Horses of a tough, speedy type, with a strain of Arabian from those brought to Mexico by conquistadores, thrived here, multiplying so fast that in time wild herds became a nuisance. Men used to drive them into the sea to drown them.

Cattle often ran wild over the open range. In self-defense travelers sometimes had to shoot savage bulls. At slaughtering time, vaqueros rode down the thundering herds, slew what they wanted, and left carcasses to be skinned by butchers who followed. Melted tallow was packed in hides and transported to sailing vessels along the

coast. This trade dwindled after gold was found.

"The inflowing of population made an end to the great droves of cattle," wrote Dana in 1859, on his second trip to California.

To-day this once huge industry, which kept the shoe and leather trades of New England supplied, is a dim tradition. In museums you see old oxcarts and horse gear, massive hand-made furniture and pioneer weapons.

Santa Barbara stages a fiesta here each season, where modern beaux and belles dress in pioneer Spanish costumes, ride horses with Spanish saddles, sing Spanish ballads, and dance fandangos to early Spanish music (see Color Plate IX).

But the modern spectacle is more splendid than the original hard, frugal life of toil ever was.

Practically all old ranches are cut up now. One or two, like the Santa Margarita and the Tejon, remain; but overseers make their rounds in motorcars. In fields where grunting oxen once pulled wooden plows, you hear now the staccato voice of gas tractors.

#### ORANGES SURPASS THE GOLD "CROP"

Among long-tailed, squawking macaws and tinkling bells in the Mission Inn garden at Riverside stands an old, old orange tree. It is one of two navel seedlings sent here from Brazil, by way of Washington, in 1873. Both lived and are ancestors now of countless trees whose fruit reaches not only the most obscure nooks of the United States, but goes to forty-odd ports overseas, even into Alaska by dog-sled delivery.

What a colossal feat of distribution!

Think of 100,000 carloads a year, cars riding an average of 2,600 miles each. Fantastically, you visualize this endless orange flight as a universe of tiny yellow planets flying forever out of California and into space! Orange picking never stops. Navels move from December to May and Valencias the rest of the year. With oranges go lemons and grapefruit, picked, packed, and shipped from some part of California every day in the year. Europe alone takes upward of a million boxes, and Canadians drink orange juice even as you and I.

To move and sell such incredible cargoes, more than 13,000 growers form the Fruit Exchange. Their salesmen are posted in 59 central markets, here and abroad. Their

A SUNSHINE LAND OF FRUITS, FLOWERS, MOVIES, AND SPORT



ALMOND BLOSSOMS NOD TO DEEP SNOWS OF NEIGHBORING PEAKS NEAR BANNING

San Geronimo Pass is Nature's portal for traffic between the Colorado Desert and the north. It was the ancient gateway for prehistoric peoples, then for Indians, Spaniards, and Mexicans. Now modern Americans are whisked through it by train, motor, and plane.

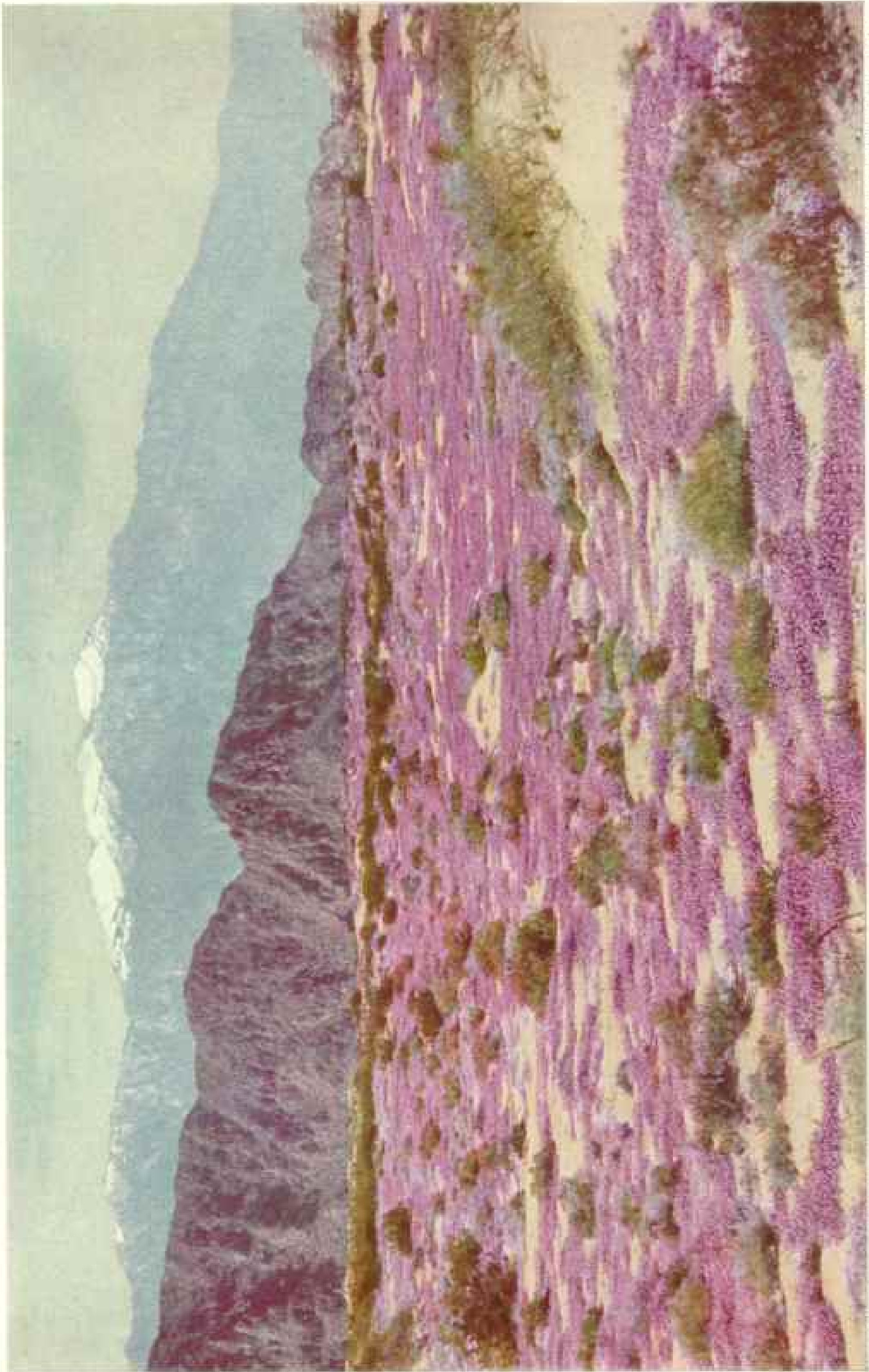


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Natural Color Photographs by Fred Payne Clatworthy

IN THE FLOWER GARDEN OF AN ESTATE SOUTH OF LAGUNA BEACH

From the lookout tower unfold views of passing ships and Pacific sunsets. The yellow flowers are baby chrysanthemums; back of them, in red, are "red hot poker," and in front of the girl is a bed of roses (see Color Plate X).



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Natural Color Photograph by Fred Payne Claborn

MEN HAVE DEED OF THIRST GAZING AT SNOW-CAPPED SAN JACINTO WITH ITS COOL BROOKS

On the low sand dunes to the right is the scraggly mesquite bush, much of it being slowly covered by drifting sand. The root is dug for fuel and the beans are eaten by cattle. The abundant purple flowers are desert verbena.



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Natural Color Photograph by Fred Payne Clarendon

"SEVEN PALMS" IS NOT A TOWN, BUT THE LOCAL NAME OF THIS DESERT SPOT IN COACHELLA VALLEY

San Jacinto Peak, rising about two miles high in the background, is reached by a five-mile trail. Palm Springs, elevation 455 feet, is slightly to the left, and not visible here (see Plate II). The gray streak in the background is a dry, sandy wash.



AFTER SPRING RAINS NATURE STREWS COACHELLA DESERT WITH FLOWERS

Desert verbenas and the evening-primrose predominate. The yellow blossom in the foreground is a wild sunflower. At the upper right is a young date palm, and beyond it are creosotebushes (see Plate XIX).



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Natural Color Photographs by Fred Payne Clatworthy

YELLOW GENISTAS BANKED IN SOLID COLOR AT HIGHLAND SPRINGS

Of Old World origin, this cultivated spring shrub is seen growing a few miles northeast of Beaumont, at the site of one of the oldest stagecoach stations on the east-west emigrant route through San Geronio Pass (see Plate XVII).

A SUNSHINE LAND OF FRUITS, FLOWERS, MOVIES, AND SPORT



TILE-ROOFED VILLAS DOT THE COAST ABOUT SAN CLEMENTE

The sea fig (or figmarigold) blooms profusely here, after spring rains. From Santa Monica south, the motor highway leads past many cities, towns, and seaside resorts, which are suggestive of Mediterranean lands.



© National Geographic Society

Natural Color Photographs by Freil Payne Clatworthy

A "DEVIL'S GARDEN" OF CACTUS FRAMES SAN GORGONIO MOUNTAIN

Located about 25 miles northwest of Palm Springs, these plants include: left center, bismaga, or barrel cactus, which yields water; pink blossoms in foreground, fanleaf cactus; lower right, the cholla, which, Indians say, is so vicious it jumps at you.



OFTEN DRILLIANT DESERT FLOWER FIELDS ARE VISIBLE 15 OR 20 MILES AWAY.

This mass of poppies, lupines, and other blooms was photographed near Arvin, southeast of Bakersfield, where an annual wild-flower show draws huge crowds. One hundred and eight varieties are known here, the purple lupine alone sometimes covering about 3,000 acres.



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Natural Color Photographs by Fred Payne Clatworthy

FRAGRANT FLOWER BEDS RIM THE SMOOTH ROADS THAT WIND THROUGH MONTECITO ESTATES

Luxurious suburb of Santa Barbara, winter home of many easterners, the "Little Forest" of the Spaniards is now noted for the spacious lawns, fine old trees, and landscaped gardens that slope down to the sea (see Color Plate II).



PAINTED CANYON, NEAR THE NORTH END OF SALTON SEA, IS ALMOST AT SEA LEVEL.

Mecca, a small town near by, is 189 feet below sea level. *Submarine News*, once printed hereabouts, was known as the world's "lowest down" paper. The new routing of a transcontinental highway passes near; crossing the Colorado River at Blythe.



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Natural Color Photographs by Fred Payne Catworth

CACTUS, WITH SHARP CLAWS, WICKED THORNS, AND DAGGERS, IS SYMBOLIC OF THE MENACING DESERT

Ocotillo, the tall slim bush in the background, is used by Mexicans for making corral and chicken fences. In the foreground are the familiar cholla—whose spines will penetrate thin shoes—and the bisnaga, or barrel cactus (see Color Plate XXI).





ADMIRING VISITORS WADE WAIST-DEEP IN DESERT SUNSHINE FLOWERS

Southwest of Indio, below the foothills of the Santa Rosa Mountains, these spring blossoms cover vast stretches of desert wasteland. The flower heads are nearly two inches in diameter.



© National Geographic Society

Natural Color Photographs by Fred Payne Clatworthy

FEATHERY BLOSSOMS OF THE CUSHION CACTUS, ORCHIDLIKE IN DELICACY

Blooming on an evil-looking plant of Southwest deserts, this variety, like the beavertail, deerhorn, pancake, and grizzly bear, is named for its resemblance to a familiar thing.

"Sunkist" brand stamped on fruit is known around the world. They even own their own timber lands and sawmills, where millions of crates are made for packing fruit. By-products, like orange and lemon oils, citric acid and citrus pectin, are made and sold by this organization.

Ships that carry its fruit abroad are vast floating refrigerators, for they must pass through the Panama Canal and other tropic waters (see illustration, page 555).

Frost is fought with oil-burning orchard heaters, while millions are spent on sprays and fumigation.

Individual growers, competing, could not have obtained such methodical, world-wide distribution of oranges now graded, inspected, and sold by the Exchange. It is conspicuous among all man's cooperative efforts. Common interests unite its members, both in business and social affairs.

One visit to an annual orange festival, with all its music, drama, pageantry, and carnival spirit, shows what a big rôle this fruit plays in California life (see Color Plates IV and V).

More than any other one force, it was the lure of life in a sunny California orange grove which started easterners migrating here in the 1880's—and it still brings them.

From its trees, since the Exchange started its records in 1894, have been picked and sold nearly two billion dollars' worth of citrus fruit—or more than the value of all gold mined since its discovery in 1848!

#### THE RISE OF THE VEGETABLE TRADE

The Bible story of the miraculous gourd vine that grew in one day to make shade for Jonah is hardly more astonishing than the rise of the western vegetable trade. It is an exciting page in the annals of our national farm life. New food habits, the call for more green things, is one cause. Advent of the iced car, overcoming California's former disadvantage of remoteness from eastern markets, is another.

Due to geographic barriers, as late as 1900 this trade was a mere trickle. Now, with refrigeration, standard packing, and advertising, more than 100,000 carloads of garden truck, largely grown in California, ride east every year.

Fly over our Southwest in winter and see the miles of empty yellow cars parked on every available switch and sidetrack as far east as New Mexico. Railroads assemble them there, ready for the seasonal rush

of lettuce, peas, cantaloupes, cauliflower, celery, and other fruits and vegetables—enough cars to have moved all the American soldiers who took part in the World War!

Imperial Valley, that below-the-sea "Hothouse of America" once called the Salton Sink, grows more cantaloupes, honeydews, and casabas than any area its size in the world. Its large-scale operations are indeed "industrialized farming."

Terrific heat, dust, and the frantic picking, packing, loading, and icing of more than 6,000,000 crates of melons in a few weeks turn this valley, from May to June, into an inferno of nervous haste.

Only Mexicans and Japanese seem able to work in the sun-scorched fields; some say that only they can tell just when a melon *should* be picked, or when a mule will surely drop from being overheated if driven another rod. Yet 60,000 residents endure this climate!

Frost-free regions along the San Diego coast send their share of tomatoes, celery, and other green foods. Los Angeles County was the pioneer garden spot; here first grew that lettuce now called "iceberg head," an Italian strain introduced through Vilmorin, famous seedsman of Paris.

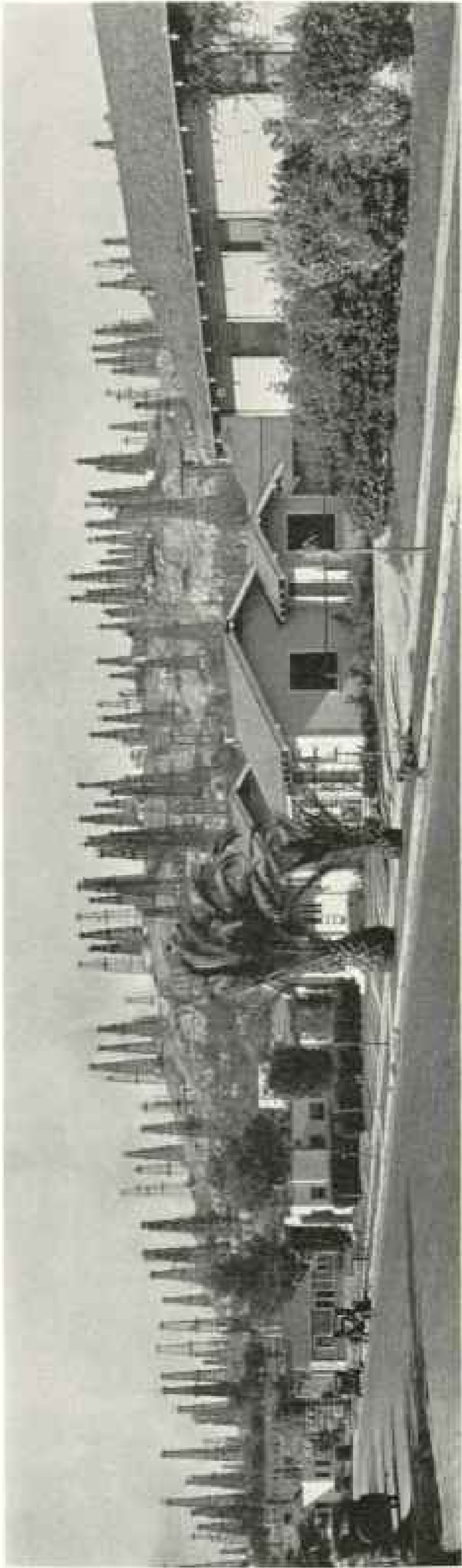
Something grows in some garden here the year around. Even Nature can be fooled in this high-speed gardening. The artichoke, for example, normally fruits in summer, in the fog-infested coastal valleys. But the growers, by cutting back the plants in June, force them to bud in winter!

Despite its amazing volume, this trade has its problems, one of which is to make a profit. "Some new, puzzling trouble is always coming up," said a grower. "One of them is how to lick the bugs . . . they never lose."

#### ELECTRICITY DOES THE WORK OF MILLIONS OF SLAVES

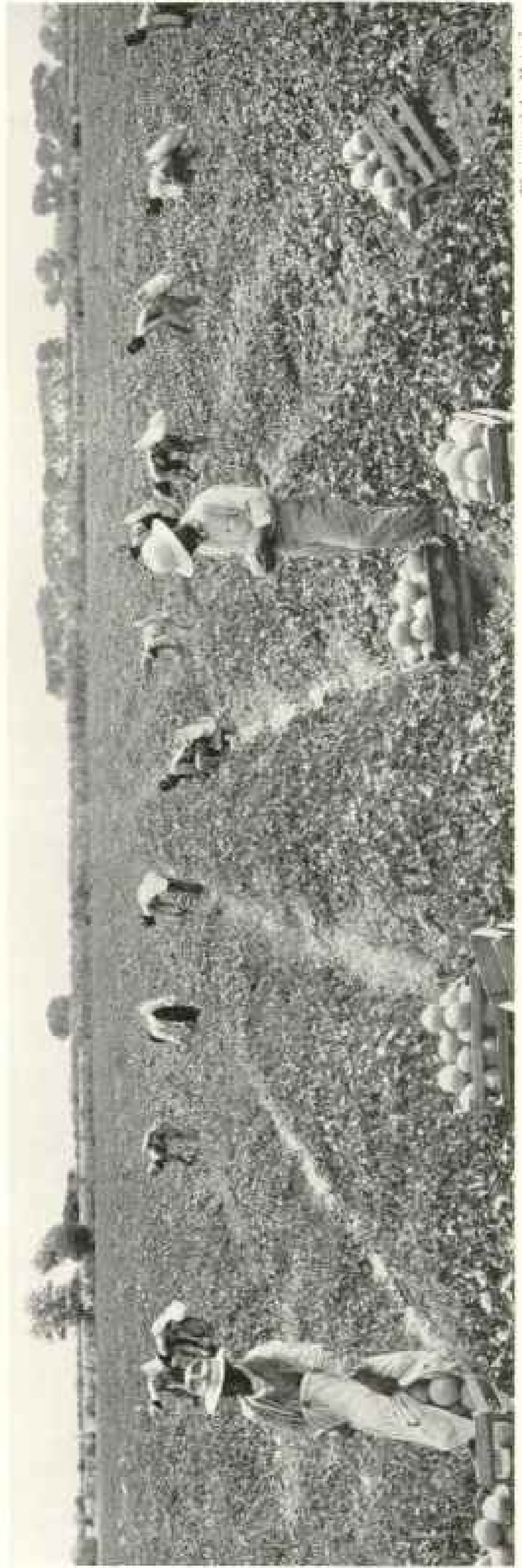
You marvel at miles of power lines carried on steel towers. Hardly a country home is without electricity. Farmers throw a switch and machines cook food, heat water, milk cows, sterilize milk, and separate the cream. Electric power hatches eggs and warms the coops. Long, dry summers call for much pumping, and electric irrigation pumps run almost continuously from April to September.

Walnuts, formerly dried in the sun, are dehydrated now by electricity. To make



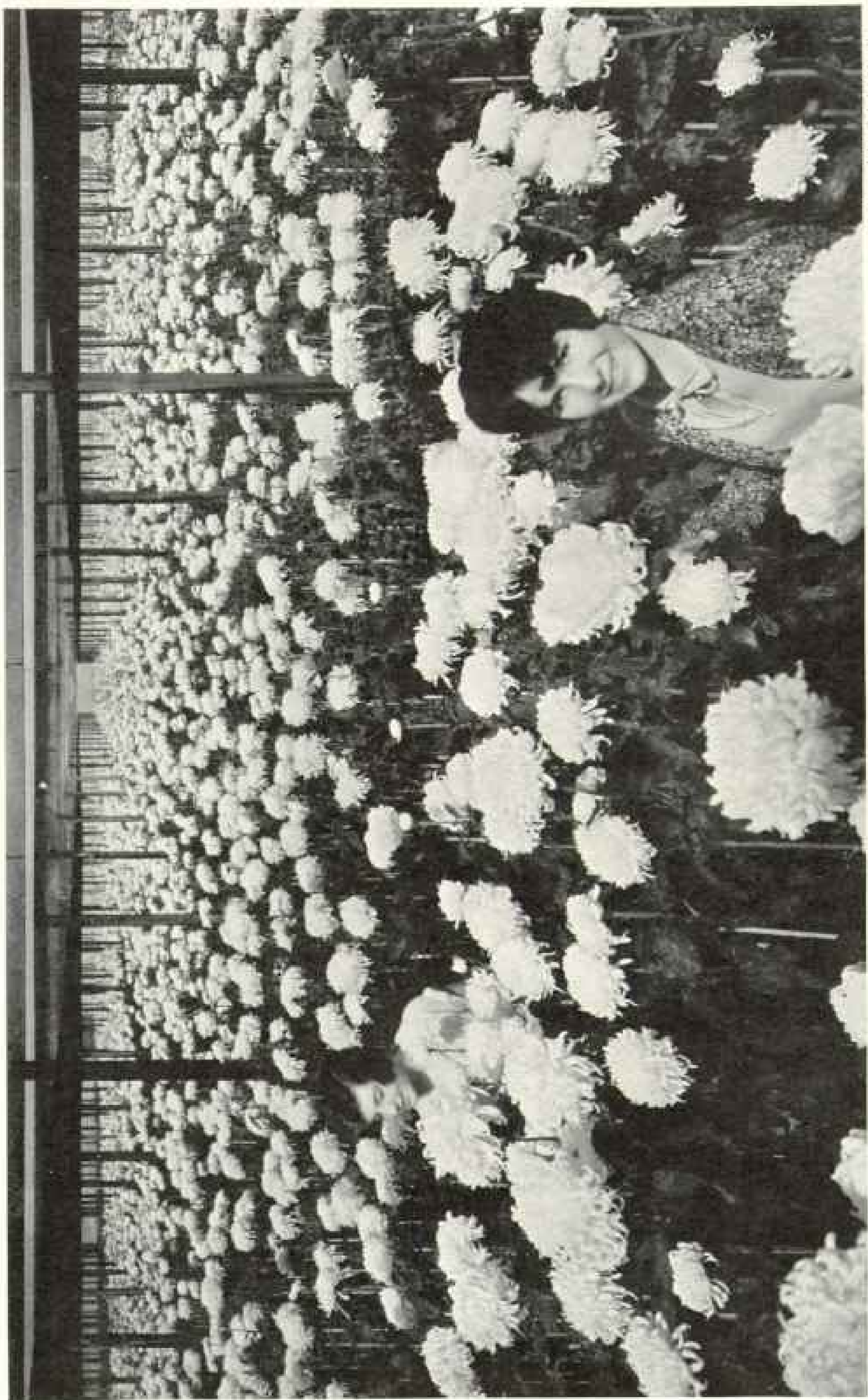
Photograph by Clifford Adams

A STARTLING FOREST OF OIL DERRICKS RISES ON SIGNAL HILL ABOVE RESIDENCE STREETS OF LONG BEACH



Photograph by Hietzel

STRIKES IN 1934 DELAYED PICKING THE IMPERIAL VALLEY CANTALOUPE CROP, WHICH EXCEEDS 7,500 CARLOADS ANNUALLY



Photograph by Gabriel Moynin

ACRES OF CHRYSANTHEMUMS AWAIT CUTTING FOR THE MARKET

Japanese rank first as growers of outdoor flowers in southern California, though with hothouse crops Americans and north Europeans are most successful. Some 200 gardeners cultivate about 1,500 acres of flower beds. Parent plants are often imported, some few from the Tropics. For a prize orchid parent as much as \$100 has been paid. Southern California also abounds in amateur gardeners.

seeds germinate faster, cables laid in the soil are heated by this power.

With electricity oranges are colored and precooled for shipment.

Motors hum in myriad industries. In busy oil fields, shops, and harbor sheds, bright lights turn night into day. With electricity men drill for oil, pump it when natural flow subsides, and refine it. The same power heats enormous furnaces and annealing ovens.

Here electricity spurred imagination long before the rest of the world appreciated its versatility. The reason is that California, when most of the present electric systems started in the 1890's, had no native fuel except wood. Coal, transported from far places, was costly; but in the mountains was abundant water power. The market for electric light was small in pioneer times and few industries had then started; but the farmer was here, and entrepreneurs taught him to use power for irrigation as early as 1893. Now power lines cover this map like a web.

Where formerly the only source of energy was mountain water power, about half the current is now made from steam power generated by natural gas as fuel. This gas is piped down some 200 miles from the Kettleman Hills, which lie in the Coast Ranges, on the west side of San Joaquin Valley.

Here you see how the wide use of electricity can raise the standards of life and reduce physical toil.

#### ONCE DREAD DESERT IS NOW A PLAYGROUND

News that the Thirteen Colonies had become the United States didn't reach Pacific coast Spaniards till years later. Barriers of distance and desert were such that even after California joined the Union, in 1850, it still took weeks to get mail from Washington. No other State was ever so isolated.

Men hated the desert then and feared the horrors of death from thirst. Every trail across it was strewn with bones of men and oxen and abandoned wagons.

Now the desert is man's playground.

Planes, trains, and motors, of course, have robbed the desert of its dreads. Now idlers in shorts, bright-colored pajamas, or bathing suits sprawl about these desert pleasure resorts, as in Death Valley, and fret if they can't get this or that favorite

brand of imported mineral water, all within a stone's throw of where dying pioneers found not even a mouthful of alkali water!

The sting has been taken out of Death Valley completely by modern transport. Much of it is now a National Monument, and winter visitors swarm in over new roads, lured by its astounding physical geography (see page 581 and Plate XIV).

You can imagine that here a giant smashed the world to bits, baked it, then spilt seas of paint over the colossal, silent ruin. Nature's emotions range from utmost fury to moods of restful calm (see p. 564).

Stand on Dante's View, a peak in the Black Mountains which towers high above the floor of Death Valley, and you can see over more than 150 miles of this weird, incomparable region.

Far to the west is Mount Whitney, highest peak in the United States, and below you is the lowest point in North America, 276 feet below sea level. And up the valley floor there stretches what looks like vast alkali swamps; but that is an illusion, for it is merely a coloring of the desert.

"Do you live here all alone?" I asked an old man who sat before an empty hotel in the historic ghost town of Ryan.

"Me and a chipmunk," he said. "My friend'll be out soon and you can see him. He always comes to eat at 10 o'clock." And at 10 he came!

Borax and a few other minerals first made Death Valley a busy place. It was then that the famous 20-mule teams hauled the big freight wagons with a water-tank trailer, taking weeks on the long, rough round trip out to a railroad station on the Mojave Desert.

Mining is abandoned now. The borax diggers found a richer, more convenient deposit near Kramer, on the Mojave Desert, where they can bring up huge chunks of glistening, glassy borax, with a railway close at hand. So the long mule trains are no more; but you can still see the giant wagons standing along Furnace Creek Wash, where the tired, dusty mules were last unhitched. Beside these big wagons visitors pose now to be photographed. That is commonplace reality; all about is unreality, illusion.

Sometimes this illusion is almost convincing. Moving dust, changing lights and shadows, enrich the strange, infernal region with infinite fantastic shapes and patterns; castles, streams, and lakes, even waterfalls,

you think you see them all. Mirages recur. When motorcars, raising a dust, approach through a distant, low-hanging mirage, the illusion is that of a speedboat kicking up a spray of water.

Save one or two tiny favored spots where water comes down from the canyons, Death Valley knows no cultivation. Despite sight-seeing busses and private motorcars that throng its dusty trails, there is still something very significant in the warning signboards which tell how many miles it is to the next water.

Different, indeed, its destiny seems from that of other California deserts crisscrossed by man's irrigation ditches!

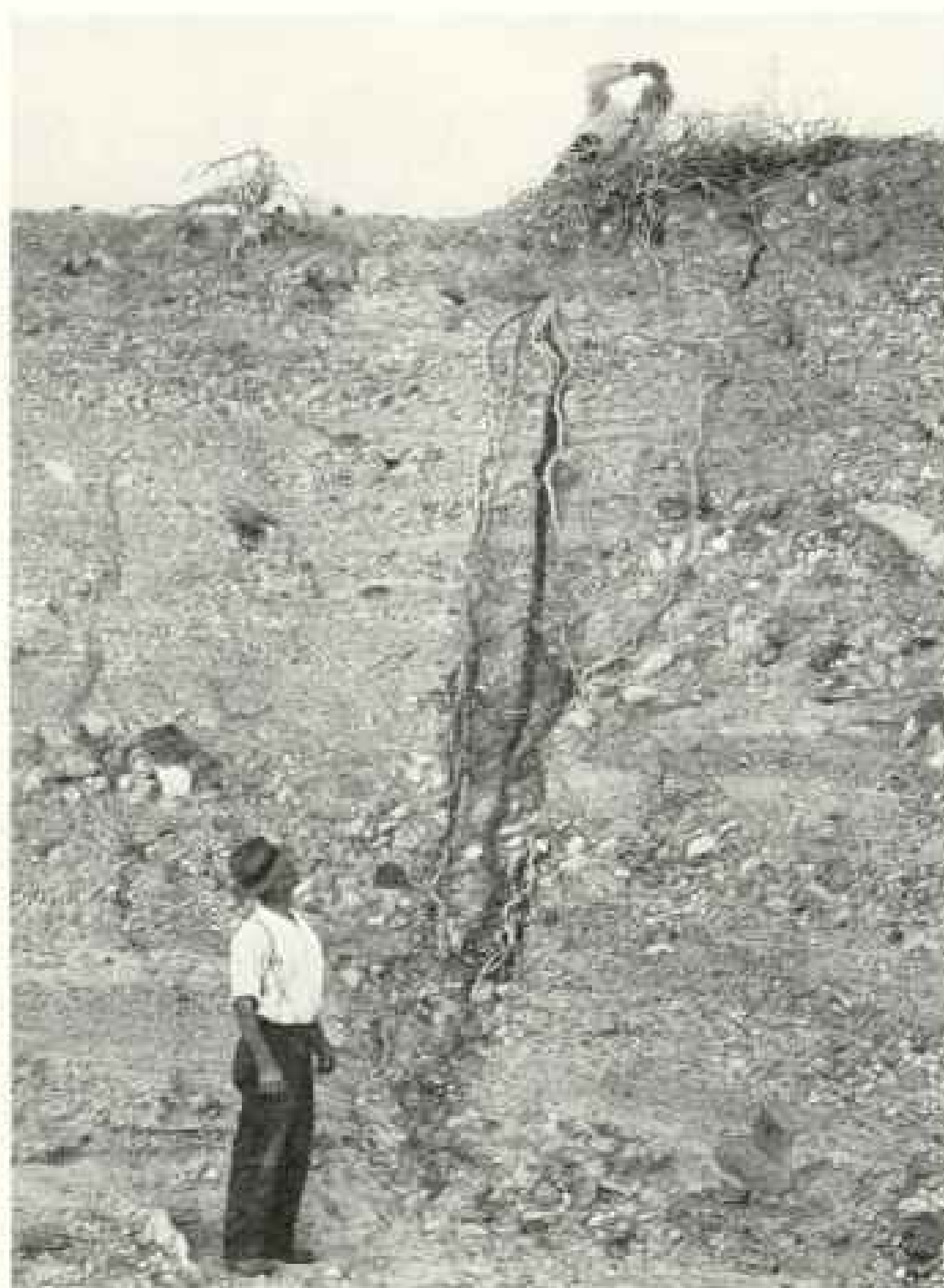
Maps of barely 30 years ago bore the words "Colorado Desert" across what is now Imperial County, with 60,000 people.

If the prehistoric monsters who left their tracks about the Salton Sea could come back, they would find plenty to eat now, for this below-the-sea region has become the Nation's hothouse.

Years ago a plant explorer for the United States Department of Agriculture brought some date suckers from Arabia, which were planted, experimentally, at Indio, in the Coachella Valley.

To-day a huge industry has grown up and the groves there resemble those about Baghdad or Basra, in Iraq.

Much of the desert basin above the Salton Sea, with its duck clubs and speedboat races, is still empty; here and there are date and other gardens of astounding fertility. Men must have felt the heat the day they gave such local place names



Photograph by Jacob Gayr

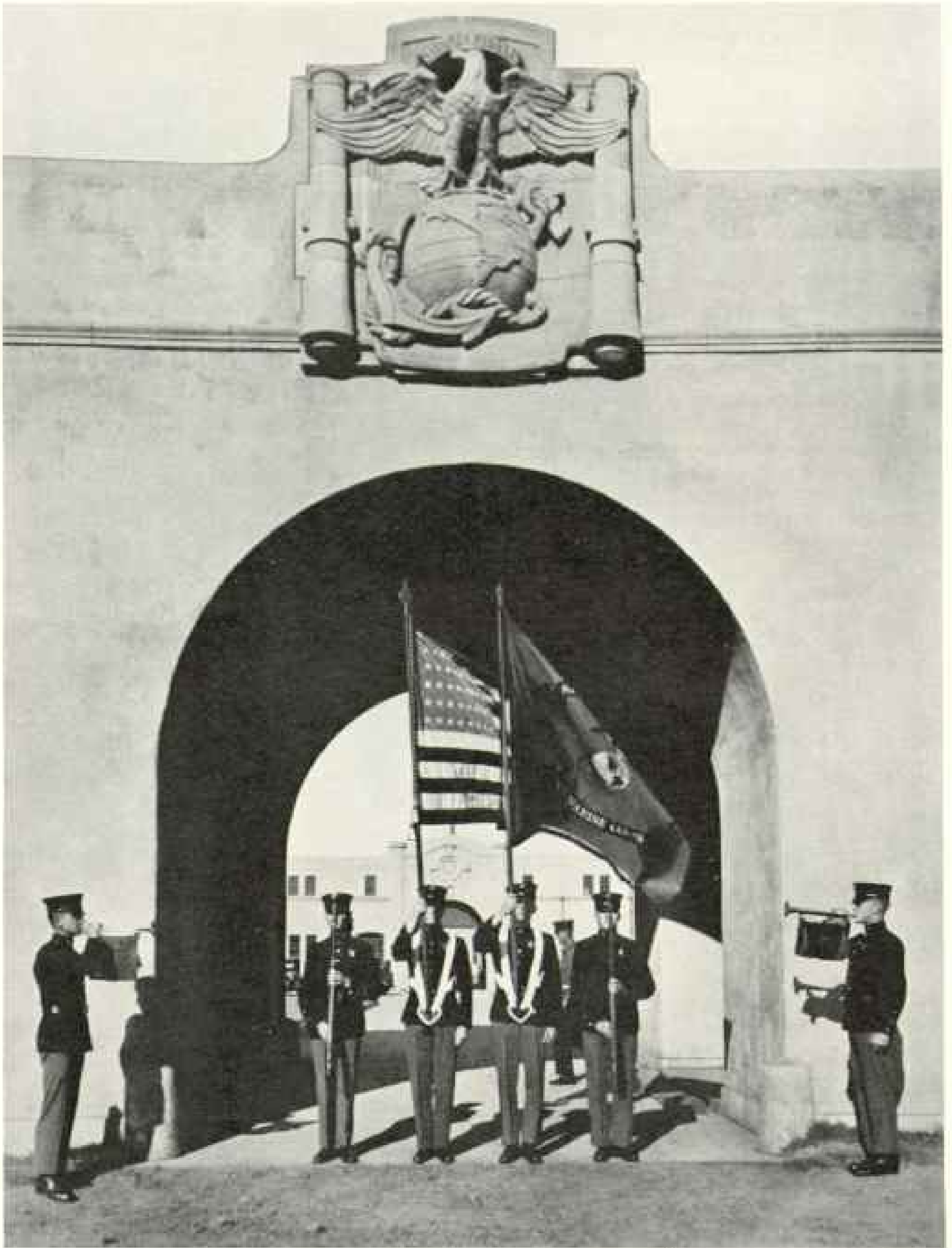
#### ON DESERTS EVEN PLANTS MUST DIG FAR FOR WATER

Judging by the man's height, the root of this forage plant, known as saltbush, must descend at least 15 or 18 feet; greasewood and alfalfa do likewise, in lands of low water tables. This steep bank of a dry wash in Death Valley reveals how soil, gravel, and rocks have been washed down from mountain sides and deposited in deep layers.

as "Mecca," "Arabia," "Thermal," and "Biskra."

Planes from Los Angeles for Phoenix, Tucson, and El Paso fly down this long, hot valley, entering from the north through San Gorgonio Pass (see Plates XVII and XXI).

Often winds here attain great violence. Guests from Palm Springs told of watching a flock of north-bound wild geese, frustrated by a gale that blew south through this pass. In vain the birds bucked this head wind. First one gander and then another tried to lead the wind-tossed flock, only to fail. Finally all the geese turned in disorder and flew back towards the Salton Sea.



Photograph from U. S. Marine Corps

**TRUMPETERS OF THE COLOR GUARD AT SAN DIEGO MARINE BASE SOUND "ATTENTION!"**

The four men faced troops (in formation behind the camera) and called them to attention, as the colors left the sally port. The shield above the port is the insignia of the Marine Corps. In the background is the gymnasium.

Grotesque tumbleweed, rolling over deserts in hard winds, looks like brown bears at full gallop. "No; it's more like tarantulas than bears," insisted my driver.

Not far from San Geronimo Pass, we visited one of many construction camps on the Colorado River Aqueduct project and walked miles into the long Whitewater Tunnels. A worker there had found a petrified egg about the size of a coconut.

Across the valley another gang was digging the great hole that will carry water under the San Jacinto Mountains (Plates XVIII and XIX). Like the Indians before them, local whites say that sometimes this mountain "growls." Geologists say it is a "young" mountain; that if there are growls, they may be earth tones from subterranean movements along earthquake faults.

Earthquakes occur here when one block of earth crust slips past another along an earth fracture. Several such faults extend from the Mojave Desert to offshore islands.

One such slip caused the Long Beach earthquake of March 10, 1933. Mud and hot water squirted from cracks that opened in the ground. Many people say they saw a waving motion pass across the fields which set trees, houses, and water tanks to swaying, while up from the rocking earth came a deep-toned, roaring sound.

Most significant to southern California is this fact: After the quake all former "hush-hush" policy was abandoned by newspapers and trade groups, and the California Institute of Technology was asked to study the menace and to suggest plans for reducing loss of life and property damage in future quakes.

If a giant could seize the edge of this region, as you might grab the lid of a steamer trunk, and thus lift the top off southern California, you would see below it one of Nature's busiest workshops. Down here, in the dark, things go on which affect all that live up above in the sunshine.

Far into the earth, miles and miles deep and many leagues long, run the faults or fractures that figure in the quakes; but more important to man on top of the ground are the vast underground basins that hold water for his wells and other great natural tanks, from which for decades he has pumped that oil which, more than anything else, has put this region on a solid economic basis (see page 583).

Since exciting early days, when pioneers bored and found oil in commercial quantities within the city limits of Los Angeles, its flow has increased, and southern California has become a financial and geographic center of a Titan industry.

Many pioneer Los Angeles wells have vanished, although here and there a veteran survives, its black elbow "silently pumping a living for its owner." Even the sites of some wells that made their owners rich are forgotten now, or covered again with grass, flowers, or perhaps with a roadside soft-drink stand shaped like a kangaroo or an old shoe.

Historic, indeed, are the La Brea pits, beside what is now Wilshire Boulevard; their foul, greasy pools were once found clogged with the bones of prehistoric animals. And there is Long Beach, still an active producing field, but where, in the days of discovery, ugly derricks rose overnight like magic forests to clutter the backyard and quiet streets of astonished residents living near Signal Hill (see page 594).

As with the land booms, so in the days of oil excitement there came hordes of oil executives, technicians, drillers, rotary helpers, derrick men, tool-dressers, teamsters and truckmen, roustabouts, pipe liners, tank builders, refinery workers, and stock salesmen, adding their thousands to an already heterogeneous population in and around Los Angeles, the fields of Kern County, and the Kettleman Hills. One well in Kettleman Hills was bored in 1933 to a depth of 10,944 feet, a new record.

#### PUMPING OIL FROM THE SEA

Odd, indeed, to visitors is the sight of oil derricks set out in the ocean, down the coast from Santa Barbara, which pump oil from below the sea. At the Rincon field a well has been bored which is more than half a mile from the mainland. The discovery that holes already very deep could be drilled even deeper and actually deflected to reach new sections of oil pools has given Huntington Beach a new boom.

From an airplane you look down on "tank farms," where oil is stored; clusters of white metal tanks appear like giant frosted cakes; roofs of still larger reservoirs, built like ponds, are protected by lightning rods. These, the roaring refineries, the long pipe-lines, trains of oil cars:





Photograph by Clifton Adams

SYMBOLS OF DESERT CONQUEST ARE SHOVEL AND IRRIGATION DITCH

Not the man with the hoe, but the man with the long-handled shovel, is characteristic of all irrigated regions in our arid West. From mountains come the waters; then infinite toil, knowledge, and Nature turn dry sands into fertile lands.

and tank steamers loading at the ports, are the outward and visible signs of this trade now operating under the Oil Code in an effort to avoid overproduction and to stabilize prices. All add their share of action and color to that ever-shifting, man-made kaleidoscope which is life to-day in this country where blossoming orchards end abruptly at the desert's edge.

Life here is never static; to-day's things are gone to-morrow. As I write, the *Times'* "wildcat whistle," long used to announce an extra issue, screeches again as the cornerstone of its third and latest home is laid—a home of copper, steel, and stone, rising now opposite its second home, built only a few years ago to replace one dynamited during labor troubles.

Faster ships in the harbor; bigger and faster planes to New York; longer water tunnels, and greater reservoirs. Ride through it, as I say, and southern California seems full-grown, mature; but fly over it, or look at Land Office records, and you see how much vacant land it still holds which can be reclaimed when the great power and waterworks are finished—if there be need for it.

How long the economic slump of the past few years may affect further migration to this section is problematic. Of the 784,541 visitors from outside States who came to southern California in 1933, a subnormal year, many thousands will remain or return to live, for that rule is as old as Bible history. But in the Middle West, from whence the tide of retired farmers used to flow, not so many can sell out nowadays with enough to live on.

Yet these west-bound human tides flow in cycles, and history proves how they persist. Look into the annals of migration since Abraham went "out west" from Babylonia; the drift of white races has been ever to the west. From Europe they came to our Atlantic coast. Our fathers saw them settle the Middle West, and our own generation has overrun the Pacific coast, which is the white man's last stand, for beyond the Pacific there is no space for him.

Look only at the map, at the magic growth of Los Angeles harbor, and you see why this is so, why Pacific trade routes are spreading, why our Navy is based here and frequents the Aleutian Islands, and what is meant by "the dawn of the Pacific Era."

# COASTAL CITIES OF CHINA

BY W. ROBERT MOORE

AUTHOR OF "LAND OF THE FREE" IN ASIA," "COSMOPOLITAN SHANGHAI," "THE GLORY THAT WAS IMPERIAL PORTUGAL,"  
"MOTHS TRAILS IN JAPAN," ETC., IN THE NATIONAL GEOGRAPHIC MAGAZINE

AMERICA'S first foreign trade as a new-born Republic was with China. From Amoy, aboard British vessels, had come the tea which was dumped overboard at the famous Boston Tea Party. But within six months after England had accepted the independence of the Thirteen Colonies our own first merchant vessel, the newly christened *Empress of China*, was already on the high seas, bound for Canton—and tea.

One can picture the feverish activity of New York harbor during those early days of 1784 when the little 360-ton ship was reaching the final stages of her overhauling and was being loaded with 30 tons of ginseng (China's "dose of immortality"), 2,600 fur skins, 1,270 camlets, and small quantities of cotton, lead, and pepper.

Then came sailing day, Washington's Birthday. The departing *Empress of China* voiced a salute of 13 guns; the battery responded with 12.

In his pocket Captain Green carried a sea letter, penned by the young Congress and addressed to the "Most Serene, Most Puissant, High, Illustrious, Noble, Honorable, Wise and Prudent, Lords, Emperors, Kings, Republicks, Princes, Dukes, Earls, Barons, Lords, Burgomasters, Councillors, as also Judges, Officers, Justicians, and Regents of all good cities and places, whether ecclesiastical or secular, who shall see these patents or hear them read."

Thirteen months later, after four months at Whampoa, anchorage for Canton, the sturdy ship was back in New York, her holds filled with 403,000 pounds of tea, 962 pieces of chinaware, 490 pieces of silk, 42 nankeens, and 2,790 pounds of cassia.

## THE BIRTH OF OUR MERCHANT MARINE

Her successful voyage signaled the expansion of our merchant marine. Tiny ships, manned by youthful American sailors, were soon prowling the Eastern seas, beating the monsoons up the China coast, and cluttering the Canton harbor. The China trade was on.

Homes in Salem and Boston, and, to a lesser degree, in New York and Philadelphia, became veritable museums of Chinese goods and curios. In 1790 the China trade

represented approximately one seventh of our foreign imports. Within another fifty years our vessels were bringing home about 15,000,000 pounds of tea annually. This trade also gave birth to the swift clipper ships.

American enterprise, however, came to China much later than that of European nations; for, be it remembered, the disappointing New Continent's wildernesses, inhabited by savage redskins, appeared on the horizon when Old World adventurers sought China's riches by sailing westward.

But what of the China coast to-day, the lodestar which attracted those early explorers? To seek its answer I cruised the greater portion of the 2,000-mile arc of its indented coastline on local steamers that ply between the several ports.

Ocean liners from the chief world ports touch China at cosmopolitan Shanghai and British Hong Kong, 90-year-old products of occidental commerce with China. For sentiment's sake, however, let us take a four-hour steamer ride across to Macao (Macao) from Hong Kong and there begin our coastal visit. By so doing we shall catch the beginning of the thread in the network of sea trade and land grants that foreign nations have woven along the China coast.

## A PATCH OF MEDIEVAL EUROPE IN CATHAY

Macao is a transplanted city, a bit of medieval Europe tucked in a Chinese setting. The pink, blue, and other pastel-colored buildings that line the water front and dot the hills up to the walls of historic Monte fortress, the weathered churches, and Government offices are Portuguese. True, the majority of shops are hung with chromatic signs bearing Chinese ideographs, for the city's population is 97 per cent Chinese, but the banner that floats over the tiny area of little more than 11 square miles is the red and green emblem of Portugal.\*

Here it was that early in the 16th century Portuguese traders, extending the oriental sea route which Vasco da Gama had carved around Cape of Good Hope to India, first opened commercial relations with opulent

\* See "Flags of the World," by Gilbert Grosvenor and William J. Showalter, in the NATIONAL GEOGRAPHIC MAGAZINE for September, 1934.



Photograph by Robert F. Fitch

## LONG HAULS IN CHINA ARE MADE BY WATER

The Chinese have appreciated water transport for centuries, and although this method is slow, a huge volume of cargo is handled in small boats of various types. These are usually poled or rowed except when a favoring wind or current gives the crew a rest.

Cathay. Here they founded the pioneer European settlement in the Far East and held the monopoly on Chinese trade until the 18th century.

In 1557 the Portuguese received conditional cession of this territory because of their assistance to the Chinese authorities in an attempt to subdue the pirates that infested the coast and the river approach to Canton. Pirates still lurk just around the island corners to plunder hapless vessels, and the Portuguese still control the rocky peninsula and two near-by islands, where they gained their first foothold.

## EARLY SOLDIERS OF CHINA FORTUNE

Here came the Dutch to be repelled by Portuguese battleships and the Monte guns; later, the long arm of the East India Company stretched across the sea to reach into Macao's rich trade pocket. To all early sea trade with Canton, Macao served as gateway. Even the *Empress of China* had to stop here to get the official Chinese permit before she could proceed to Whampoa Anchorage.

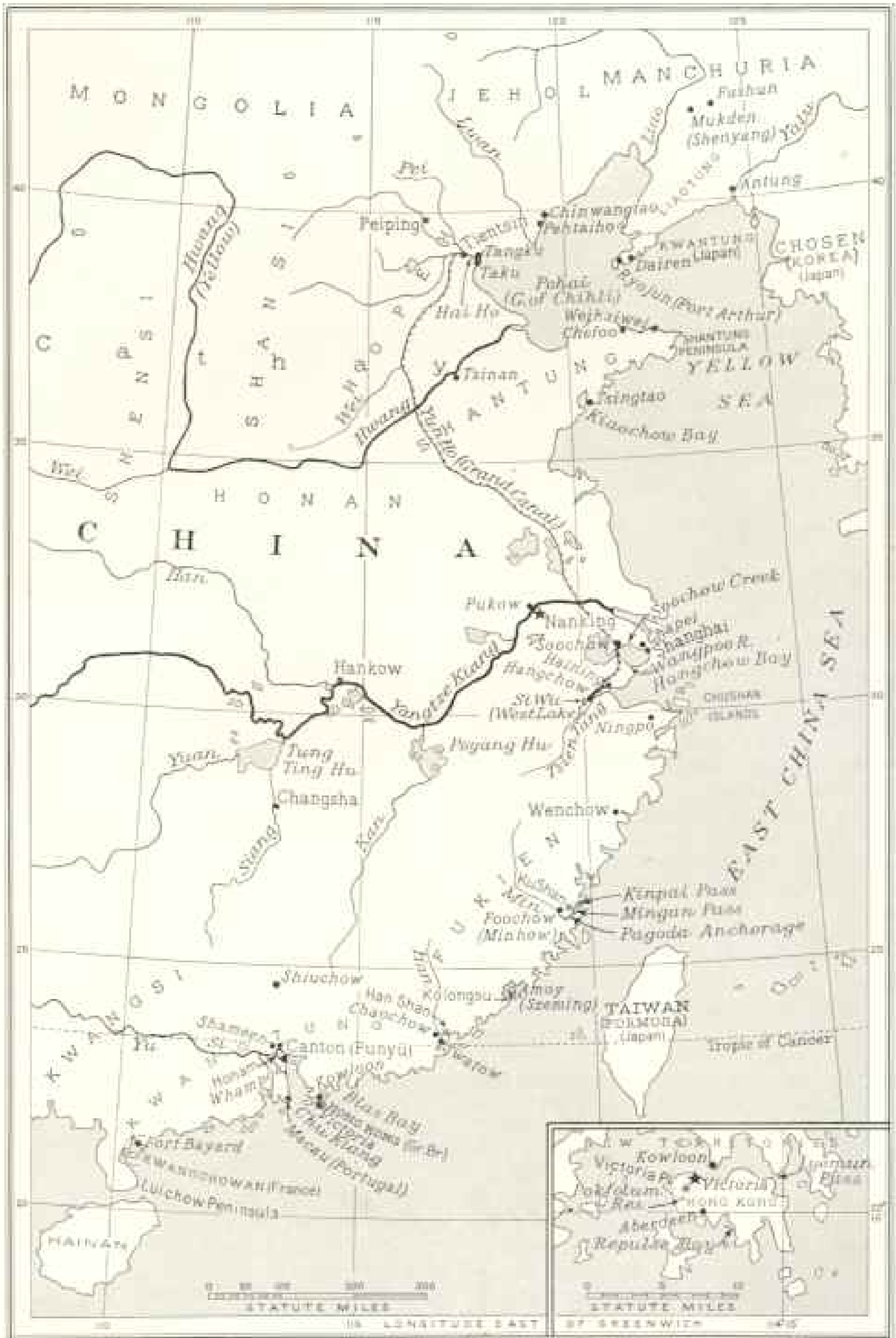
How truly the little possession served as the China outpost is revealed by reading the

epitaphs carved on some of the tombstones in the little Protestant cemetery. Names of sailormen and merchants from Boston, Salem, and British ports appear frequently. Here, too, rest Robert Morrison, the noted British missionary; Edmund Roberts, special diplomatic agent of the U. S. A. to several Asiatic courts; Thomas Waldron, first consul of the United States for Hong Kong, and others who featured in the early intercourse with China.

Macao has lost much of its commercial luster since Hong Kong sapped its vitality; yet to-day its volume of commerce is greater than in early years, although insignificant in proportion to the total trade now carried on in this region. With recent harbor constructions at the cost of some \$2,500,000 and a reclamation project of 150 acres, it again makes a bid for greater attention.

Fish, firecrackers, opium, and gambling are now Macao's chief stock in trade.\* The important, colorful fishing industry employs some 2,000 junks and 50,000 men and women (see pages 623 and 625).

\* See "Macao, 'Land of Sweet Sadness,'" by Edgar Allen Forbes, in the NATIONAL GEOGRAPHIC MAGAZINE for September, 1932.



Drawn by Newman Bonstead

FOR 2,000 MILES STRETCHES CHINA'S COAST, WITH BUSY CITIES AND PORTS

From historic Portuguese Macao to modern Japanese Dairen, the author sailed to record changes since the first American merchant ship left New York for the Orient.

As we leave for Canton we watch disappear behind us the blue-green hills, atop one of which is the Guia beacon that in 1864 flashed the first light to mariners in the China Sea.

To get to Canton it is usually easier to return to Hong Kong and then make the 100-mile journey by steamer or railway.

If recent years have brought little change to Macao, the same cannot be said of Canton. The ancient southern metropolis has been undergoing long-needed beauty treatments, and from it a new Canton is emerging. Little more than a decade ago Canton presented much the same appearance as when the clipper ships were lading their cargoes from its musty godowns. It was Chinese—deliberately, stubbornly Chinese (see illustration, page 622).

#### A NEW CANTON EMERGES

To-day old suspicions have been minimized. The Bund, formerly a muddy track lined with rat-trap buildings, is now a wide, well-paved thoroughfare fronted with modern eight- and nine-story hotels, department stores, commercial houses, and an up-to-date Customhouse. Narrow streets and alleys, accessible only to the traffic of wheelbarrows and sedan chairs, have given way to wide streets to such an extent that tour conductors find difficulty in playing up the "tortuous channels" of old Canton.

The visitor who a few years ago wrote that "you have to choose your place to knock the ashes off your cigar, or they will alight in a dish of soy or dried duck, on the one hand, or a pile of wonderfully wrought silk embroidery on the other," could now whisk through 60 miles of wide, paved streets in one of the thousand or more motorcars that honk their way through the city. Thousands of buildings were razed and much of the old wall demolished to provide for these modern arteries of bustling Canton. The great fire of 1927 also assisted in clearing ground for these sweeping changes.

"Everything new originates in Canton," say the Chinese. Politically, there is much truth to this statement. Here is where Sun Yat Sen found followers for his three principles of Kuomintang. By popular subscription, a modern monument and Memorial Auditorium, in which new political ideas are born and talked into vigorous activity, has been built as one of Canton's forms of recognition of the late leader.

Two new bridges are being constructed across the Chu Kiang (Pearl River), linking Canton city with Honam Island. I also found some of the old temples converted into schoolrooms and the Cantonese boys and girls enjoying tennis, handball, and basket ball on courts laid out in the ancient enclosures.

#### SNAKE MEAT—SERVED IN BROTH

All of the old, however, has not disappeared. In narrow lanes I found secluded restaurants selling snake meat, served in broth. Elsewhere men and boys worked elaborate embroidery patterns on silk in half-lighted rooms (see illustration, page 606). Near by a boy was weaving magic colors in shimmering silk on a crude loom, his dingy cubicle illuminated for night work by a single smoky oil flame.

In other alleys I watched laborers cut and polish jade rings and bracelets on primitive foot-treadle machines and marveled at the skill with which they shaped the resistive stone. Here is the center of the jade workmanship that has attained worldwide renown.

There also is ivory. "This piece took three months to carve," explained an ivory manufacturer, handing me one of those delicately wrought balls of ivory which had ten concentric lacelike balls, each moving freely within the next larger one.

"How do you do it?" I asked. He showed me another being carved. With no pattern and using only tiny, hand-made tools, a craftsman was drilling here, reaming there, and engraving the surfaces, as he cut the spherical piece of tusk into the several balls.

As when early shipments of porcelain and pottery were taken to Europe and America, there to acquire the name of "Chinaware," so potters still sit at their wheels and continue to keep their kilns fired, although not on the scale of former years. Canton exports about 40 per cent of the three million dollars' worth of pottery that annually goes into world markets from China.

#### THOUSANDS STILL LIVE ON BOATS

Another feature of Canton that has changed little through the years is the teeming boat life of the Pearl River and interlinking system of canals. Big boats, little boats, gay boats, and tawdry boats—Canton has them all. Here is a city in itself, with a population estimated between 100,000 and 200,000 people. Formerly



Photograph by W. Robert Moore

#### CROSS-STREETS IN HONG KONG HAVE THEIR UPS AND DOWNS

Because the main business thoroughfares usually run parallel around the steep hillsides, the intersecting streets are stair-stepped or are sloped so sharply that they are accessible only to foot and sedan-chair traffic. About 350,000 Chinese live and keep shop in the city, and an equal number reside in Kowloon, across the harbor, and on junks and sampans. The foreign residences are located on the higher levels and around the Peak, reached by cable tramway (see text, page 608).



Photograph by Robert F. Fish

A LOAD OF PAPER SAILS OUT TO A WAITING STEAMER IN HONG KONG HARBOR

Most Chinese paper is made from rice straw or bamboo, which is steamed and decomposed with lime and then washed. The soupy pulp is sieved into thin layers; several of these are then superimposed on each other to be pressed and dried. Rice straw yields the common paper, while bamboo furnishes the better grades, used for printing and for window panes.



Photograph by W. Robert Moore

IN CANTON, EMBROIDERING IS A TASK FOR MEN AND BOYS

Working in dark, stuffy cubicles off narrow alleys for long hours every day, these humble laborers produce exquisite embroideries. Many of the so-called "Spanish shawls" are products of Canton's industrious needles.

there were many more, but a destructive storm a few years ago capsized and demolished many of the craft.\*

Tiny sampans serve as "taxis" through this aquatic city. Housewives, cooking on small charcoal braziers on the stern decks of their floating homes, need only lean over the gunwales to do their daily shopping. Venders of vegetables, foodstuffs, cooking utensils, and other household necessities paddle alongside to supply every need.

On many of the boats I saw chickens and babies tied by leashes sufficiently long to give them the freedom of the deck, but preventing them from falling overboard (see page 638). Here and there a small flower box bravely flaunted its foliage and color.

Gaudy teahouses and funeral barges are also a part of this unusual panorama of boats. In fact, there are few phases of land life in Canton that do not have their duplicates afloat.

Many of the lighters and trading junks still carry old swivel cannons on their decks or have painted circles to represent gun muzzles on dummy portholes as a protection against the river pirates. In midstream, however, lay several gunboats and destroyers, flying Chinese and foreign flags, which have a much more deterrent effect on piratical activities.

Consulates and other foreign interests are largely centered on Shameen, a 44-acre concession which was developed on a former sand bank a few years after Canton was

\* See "Life Afloat in China," by Robert F. Fitch, in the NATIONAL GEOGRAPHIC MAGAZINE for June, 1927.



Photograph by C. W. Flinn

"NEWSIES" DISPLAY, RATHER THAN SHOUT, THE DAILY HEADLINES OF HONG KONG'S FOUR ENGLISH NEWSPAPERS

formally opened by treaty, following the so-called Opium War of 1840-42. Previously, traders were limited to small "factories" on the Bund and did business with Canton through *hongs*, or special Chinese merchant groups.

Great Britain governs slightly more than two thirds of the small island and France the other portion.

Serving as clearing house for the wealthy provinces of Kwangtung and Kwangsi, Canton bustles with industry.

One third of its exports, principally raw and waste silk, is utilized by the United States.



During recent years rich Kwangtung Province has built several thousand miles of road connecting many of its interior cities; one is now being extended to Swatow, 220 miles distant as the crow flies. In other provinces as well, road construction holds high importance in the activities of the National Economic Council. In rural areas motorbusses have made issue with the centuries-old wheelbarrows and slow-moving canal boats.

Again, too, after a delay of 16 years, work is progressing rapidly toward the completion of the Canton-Hankow Railway. Begun by American engineers in 1903, it later suffered from international and local setbacks and, since 1917, has remained with a gap of some 280 miles between Shiuchow and Changsha (see map, page 603).

With capital recently released from the British Boxer Indemnity Fund, it is hoped that within two years the task will be pushed to a successful completion, thus supplying the final link to the world's longest ribbon of steel—9,000 miles. Hong Kong or Canton to Berlin and Paris via Siberia in 16 days is in pleasant prospect!

To-day you can step aboard a modern airliner at Canton and in two days glide down to the airport at Peiping, or you can speedily reach Shanghai by flying boat, winging on regular schedule, for modern China has taken to the air.

The wealth that pours through the Canton gateway is also the lifeblood of Hong Kong trade, because the greater portion of all Canton's exports and imports is transhipped in its majestic mountain-girt harbor.

#### THE MIRACLE OF HONG-KONG

Hong Kong, like Singapore, is a tribute to British commercial enterprise in the Far East. Ships of the Seven Seas enliven the harbor and bring business to the vigorous city that now rises on the once barren islands where dwelt a few fishermen, stonecutters, and bands of pirates (page 606).

"It is a delusion to hope that Hong Kong can ever become a commercial emporium like Singapore," wrote the despondent colonial treasurer in 1844.

But, instead of delusion, the miracle has been achieved! Large business and Government buildings along the water front, palatial houses clinging boldly to the precipitous hillsides, schools, universities, ship-building docks, cement factories, and sugar

refineries; a strategic commercial and naval base—this is Hong Kong.

Several times tonnage figures have placed it among the world's principal seaports. At present, approximately 50,000 vessels, carrying in their holds more than 40,000,000 tons of cargo for foreign trade, cut furrows in and out of the harbor annually. And British colonials find romance, not dull figures, in these shipping statistics, because, except for a few articles of local consumption, Hong Kong is a free port. Consequently, its very existence depends upon its service as distributing center for all South China.

To be geographically accurate, one should call the city Victoria, but, save for official documents, the port has taken the name of the island colony, derived from the Chinese Heung Kong (Fragrant Streams, or Good Harbor).

To the mountainous Hong Kong colony, Kowloon, on the mainland opposite, was added, later to be extended again by the inclusion of the specially leased New Territories (see illustration, page 620). In all, this oasis of British-controlled activity now embraces 391 square miles.

After you have explored Hong Kong's Chinatown, splashed with its colorful hieroglyphics, the stair-stepped streets (see page 605), markets, and curio shops, take a ride up the cable tramway to the Peak; or, if you desire, you can make the steep ascent in a bobbing sedan chair, carried on the shoulders of perspiring coolies. Here, high above the noise of commerce, you are among the palaces of the wealthy.

At your feet the teeming city spreads like a mighty sweeping sickle along the harbor. Lying along the Praya, tied to midharbor buoys, and churning up slender white wakes in the jade-tinted waters, are the argosies of half the world. A mile beyond, sprawling white on the red earth, is Kowloon, with its hotels, warehouses, and jutting piers.

A plume of white steam rises above a liner's funnel—another ship is off for San Francisco, London, or Marseille. Tiny junks lift their matting sails; back and forth between Victoria and Kowloon ply double-nosed ferries, carrying 35,000 commuters daily.

Come up again at night, when the city lights have sprung to life and naval greyhounds are conversing in flash-beam semaphore; you will see a magic land. Day or night, it is an unforgettable panorama.

PEIPING, CITY OF DUST AND COLOR



© National Geographic Society

Finlay Photograph by W. Robert Moore

PEIPING'S LOFTY "WHITE DAGOBA" HAD TIBETAN INSPIRATION

It was built in 1652 as a compliment to the Dalai Lama, of Tibet, on his visit to the Chinese capital. The structure base, body, spire, lofty ornament, and gilded ball represent the five elements—earth, water, fire, air, and ethereal space. Elaborate memorial archways, with heavy posts and sloping supports, frame the approach to this landmark, which rises beside the city's three lakes.



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THE COMEDIAN OF A THEATRICAL TROUPE

Like the clown of an American circus, this youthful performer, who strikes a pose with his tongue in the corner of his mouth, wears a distinctive facial make-up.



Finlay Photographs by W. Robert Moore

THE VANISHING MILLINERY OF THE MANCHUS

Although China became a republic in 1912, the Manchus were allowed to live in the palaces at Peking until 1924. Since then, their costumes have not been seen on the streets.



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**BY THEIR HATS YOU' ONCE KNEW OFFICIALDOM**

Among the Chinese the mandarin hat, with its bushy plume and grade-distinguishing button, has gone out of date, but in Mongolia it is still worn by princes and men of high rank. This young man is a relative of one of the princes of eastern Mongolia.



Fifty Photographs by W. Robert Moore and Owen Lattimore

**PERMANENT WAVES AND LONG HOBBS IN MODERN CHINA**

This lady, of royal Manchu blood, is the wife of a Mongol prince of eastern Mongolia, but she and her husband live most of the year in Peking. Her pet is a Japanese spaniel. In high-collared, close-fitting gowns the modern woman of China has found a distinctive style.



A WEDDING PARTY PARADES THROUGH THE CITY'S STREETS

The small procession passes under an ornamental archway, the bride riding in a palanquin, or enclosed litter, borne on men's shoulders. Hardly a day goes by in Peiping without one or more colorful processions. Sometimes it is a wedding, sometimes a funeral.



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Finlay Photographs by W. Robert Moore.

"MOON RABBITS" OF A HARVEST FESTIVAL

The Harvest Moon Festival, coinciding with the autumn equinox, is one of the important old Chinese celebrations. As in other lands, the Chinese picture a rabbit in the moon; so gaily painted figures, such as these, are given as presents to the children.

## PEIPING, CITY OF DUST AND COLOR



THE CHIEN MEN IS PEIPING'S PENNSYLVANIA AVENUE

It is in direct line with the Imperial Forbidden City and was used by the emperors when they visited the Temple of Heaven to perform religious rites. The street gets its name from the central gateway on the south side of the Walled City, the guard tower of which rises in the background.



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Finlay Photographs by W. Robert Moore

MANCHU PRIESTS AWAIT THE ARRIVAL OF A ROYAL FUNERAL CORTEGE

After the Manchus were driven from the Dragon Throne, royal funerals lost much of their pomp. In 1912, however, when Manchuria was slipping from their grasp, the Chinese officials permitted the funeral of a lady of the late Emperor Tung Chih's court with full ancient ceremonies.



© National Geographic Society

PART OF "A WOMAN'S \$50,000,000 WILDM"

With money intended for building warships, the Empress Dowager, Tzu Hsi, built a Summer Palace, with beautiful pleasure pavilions, chromatic religious domes, and a mile-long corridor, of which this forms a portion. China's defense was thereby weakened in her war with Japan in 1894.



Fifty Photographs by W. Robert Moore

GATE GODS ARE CHINESE INSURANCE POLICIES

Each New Year of the old Chinese calendar, which comes late in January or early February, many people paste these terocious-looking images on their gates to ward off evil spirits. Officially, the Western calendar is now in use and an attempt is being made to abolish the lunar year celebration.



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"SWEETS! COME BUY MY SWEETS!"

The Chinese street vendors seldom lack customers for their sweetmeats, fruits, rice, and soups. This itinerant merchant, in the Moslem section of Peiping, carries a supply of water chestnuts, candied crab apples, plums, and other delicacies on his wheelbarrow shop.



Finial Photographs by W. Robert Moore

ON SOCIAL OCCASIONS EVEN THE HORSES WEAR HATS

Neither the tasseled headgear nor the red nets are to keep the flies from annoying the animals, for the photograph was made in midwinter. It was for a wedding that the horses were thus adorned and the carriage was decorated with red-and-gold embroideries and tasseled trimmings.





© National Geographic Society

Finlay Photograph by W. Robert Moore

FALSE WHISKERS AND RESPLENDENT ROBES EMBELLISH CHINESE DRAMA

The two youthful actors wear conventionalized versions of ancient court dress. Dramas of history and myths predominate on the Chinese stage. Men act in both masculine and feminine roles, but recently a few women have appeared in some of the plays.

On several occasions Hong Kong has been visited by the typhoons that brew their viciousness in the China Sea. These storms, in which the wind blows as much as 120 or 125 miles an hour, have ripped through the harbor, causing great havoc ashore and among the ships. Sets of signals, however, are arranged to give sufficient warning, so that the launches, junks, and sampans can find refuge in the three typhoon shelters and larger ships can get to safe anchorages in protected bays.

Baggage comes aboard, winches are rattling, and hundreds of Chinese are shouting and strewing bundles and babies over the steerage deck—it is sailing time for the local steamer, bound for Swatow and other ports to the north.

We could have taken another steamer to Kwangchowan, on the southern bend of the coast, near where the Luichow Peninsula thrusts out toward the island of Hainan, but the visit would be of even less interest than has been the occupation of the French since they obtained a 99-year lease there at the close of the last century.

#### A RENDEZVOUS FOR PIRATES

Northeast from the narrow Lyemun Pass through which we sail is notorious Bias Bay. Ever since early days this district has had unsavory reputation as the headquarters of pirate gangs who infest the coast. Outwardly the settlement of 10,000 people of Bias Bay is agriculturist, but the activity is less serious as farming than as camouflage.

During the old sailing days these freebooters usually intercepted passing vessels by stretching a cable between two junks; then, as soon as the rope was caught by the victim's bows, the junks would be pulled alongside, so that the boarding of the vessel was an easy matter.

With the coming of steam-propelled ships, their technique changed to boarding the steamers as passengers and at the opportune moment taking possession, then forcing its officers to sail the ship into Bias Bay for looting.

When riding a coastal steamer to-day, you are comparatively safe from becoming the victim of these piratical attacks; but you do experience the feeling, strongly suggestive, of traveling in a floating patrol wagon, for the first-class accommodations and the bridge are protected by heavy iron grilles.

Many thrilling tales are told of these menaces to coastal shipping, some of which contain accounts of unusual bravery against heavy odds. Officers have accounted well for themselves in cracking pirates' heads with deep-sea leads and other weapons, and British judges have brought some of the cutthroat leaders to unpleasant "necktie" parties.

In these South China waters, too, are other pirate groups, some led by women, who specialize on fishing fleets and light-erage junks. Acting under the guise of "protection," they reap heavy tolls from the owners of these craft.

Ours, however, was an overnight voyage, with nothing more exciting than a near collision with a small fishing boat as we were drawing into harbor.

#### CITY OF LINEN, LACES, AND COOLIES

Spreading fanwise on the silt land built by the Han Kiang, Swatow has little to recommend itself from a visitor's viewpoint.

Its main importance lies in its service as shipping point for produce coming from Chaochow and other Chinese towns along the lower portion of the Han.

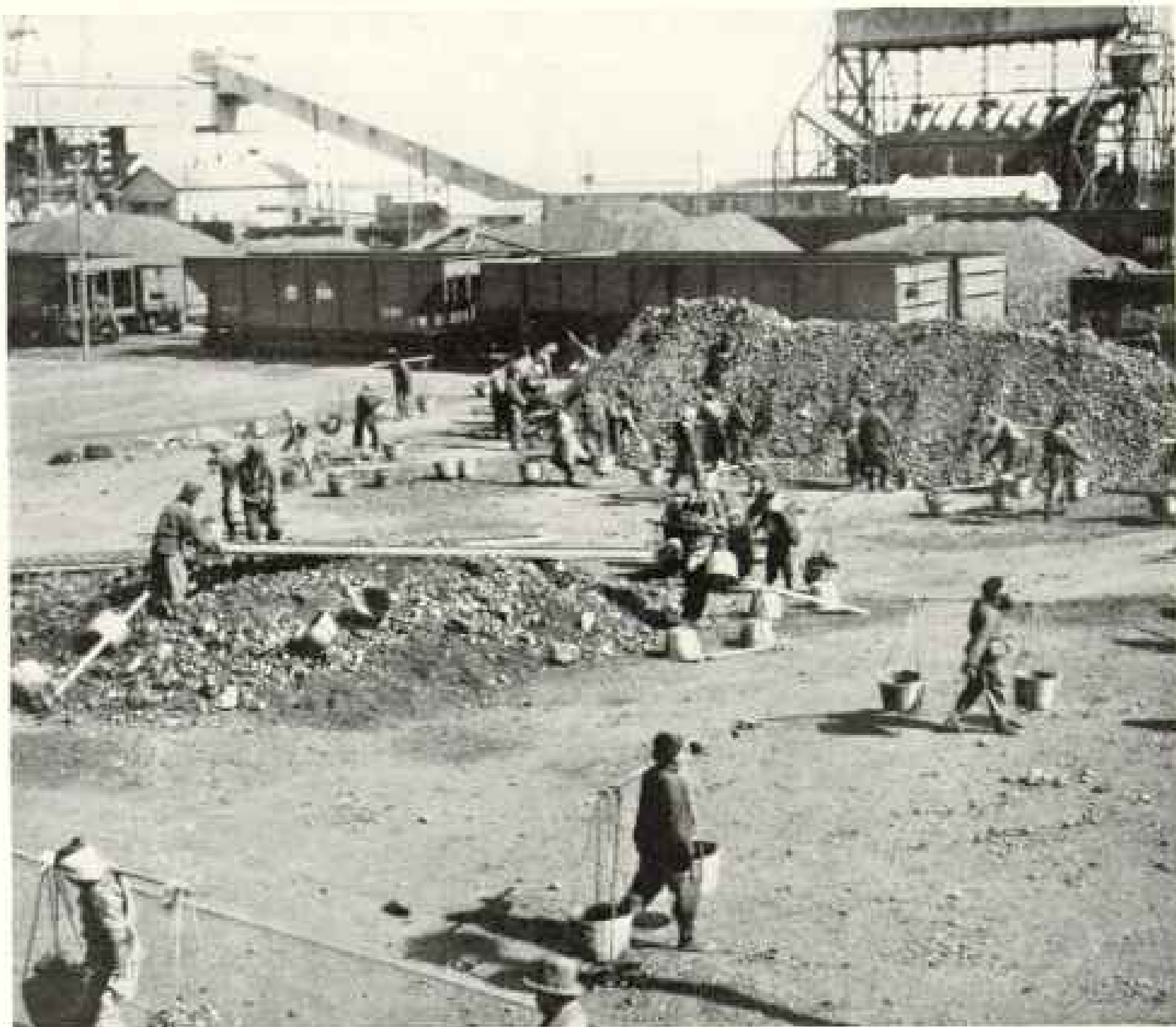
Its chief exports are linen embroidery and laces—and Chinese coolies. Fifty years ago the latter were in such demand that many traders began the lucrative business of kidnapping the natives and taking them to distant lands, where they were sold into what amounted to slavery conditions. With the hatred that these acts soon engendered, foreigners were barred from Swatow for several years.

Now thousands of Chinese leave Swatow in legitimate emigration (see text, page 619).

A woman sitting beside the doorway of her home, working deftly with needle on a piece of fine linen or grass cloth, is Swatow's chief symbol of industry. Walk through the side streets or visit the surrounding villages and you will find hundreds of women and girls thus employed.

The delicately embroidered linen, laces, and drawn work which they produce, usually under foreign direction, are exported almost entirely to American markets.

Down in the narrow byways, rotund, mustachioed Kut Hing and a number of his confreres also showed me countless pieces of foreign- and oriental-designed pewterware, incised with squirming dragons and glaring lions of Chinese mythology.



Photograph by Maynard Owen Williams

#### BASKET COALING OF SHIPS STILL PREVAILS IN DAIREN

Although modern machinery is now used extensively in handling coal and other products in Manchuria, the cheapness of coolie labor permits many tasks to be done more economically by hand. The famous Fushun open coal field, east of Mukden, is one of the richest mines in the world; its output has reached 7,000,000 tons in a single year (see text, page 642).

"Chaochow is plenty fine. You go?" inquired my Chinese cicerone after we had exhausted Swatow's places of interest.

I went, but in company with a member of the American consulate staff, who knew the ancient city and the interesting pottery-making village not far distant.

The 27-mile train journey through rice lands, cane fields, and orange gardens is in itself well worth the time spent; but to wander through Chaochow is to venture into medieval China. Here are no tall buildings, only the squat two- and three-story gray tile-roofed houses and shops, separated by narrow stone-flagged streets. Reducing these thoroughfares almost to a slender footpath are vegetable stalls, paper lantern shops, and the portable food kitchens of itinerant vendors.

In the vicinity of the 11-centuries-old

bridge, consisting of two stone sections and a middle pontoon of boats, are gathered hundreds of river boats, taking on and discharging the cargo that moves up and down the broad Han Kiang. Propped in twisted array above the abutments of the old bridge are other cubiclelike shops, catering largely to the river traffic.

#### RIDING THE "BAMBOO SPECIAL"

"Have you ridden on our other railway?" inquired the American consul, with a twinkle in his eye, when I had returned to Swatow.

It was the "Bamboo Special," with "exclusive passenger service." This unique line runs 10 or 15 miles in the country. The "coaches" resemble crude rolling beach chairs, built of bamboo and devoid of springs, which are pushed over a narrow,

unballasted track. Coolies furnish the motive power; and when two cars meet, one is derailed to allow the other to pass. Uncomfortable, yet it is well patronized.

#### AMOY, FAMED FOR TEA

Amoy, of tea fame, is the next port on our northern journey. Once considered one of the dirtiest and most backward cities of all China, it has been undergoing complete transformation during the last few years. Wide streets are being cut through the old ramshackle settlements; men and women are breaking rocks for the new roads and an extensive Bund, and are literally carving away some of the rock hills to make room for new developments; a park, the finest in all South China, has been recently built and excellently landscaped.

One Chinese merchant showed great pride in new rolling steel doors that he had imported at the expense of some \$4,000; but the back walls of his shop could be crushed with a few blows of an ax!

Yes, Amoy's leaders even have visions of making the island city a second Hong Kong. "We have the best harbor along the coast and great undeveloped mineral wealth within easy access in the interior," they argue.

Where, you may ask, are they getting the money for all these improvements, since Amoy long ago lost her rich Taiwan (Formosa) sea trade? Much of it is coming from the returning people, who have made tidy fortunes in the Philippines, Malaya, and Netherland India.

It is significant to China's prosperity that about \$200,000,000 or more is annually remitted to the homeland from Chinese living in other countries.

Across from Amoy is the island of Kolongsu, where are located the foreign concessions. Hundreds of gaily painted sampans afford transportation across the harbor and to the ships that anchor in mid-stream (see illustration, page 621).

"Peculiar people, these Amoyistas," chattered a foreign flour salesman, as we weighed anchor for Foochow. "Here they are building a new port, new streets, and new movie houses; yet I've been trying all day to convince the bakers here that the present brand of flour will make exactly as good bread as our old kind. In fact, it is the same, for both come from the same chute at the mill. They even baked some of both kinds and still aren't convinced!"

The old Chinese conservatism lingers in many forms and is difficult to overcome.

Steaming northward, our ship wallowed through heavy monsoon-tossed seas and under leaden storm-filled skies, each hour falling further behind schedule. Nearing the mouth of the Min Kiang, however, the boat steadied and the sun struggled bravely to dissipate the heavy clouds that hung on the mountain tops.

#### THE RHINELAND OF CHINA

The river approach to Foochow through the narrow Kinpai Pass and the even narrower Mingan Pass presents a striking panorama of scenic beauty. The river flows between bold rock walls backed by rugged heights. In fact, the whole 300-mile portion of the Min, navigable to shallow-draft vessels, possesses unusual charm and has been compared to the Rhine.

We passed a fleet of Foochow fishing junks, their brown sails bellying in the breeze as they steered out to their fishing grounds.

A short time later the steamer dropped anchor at Pagoda Anchorage, 10 miles below Foochow.

Foochow leaped into prominence in the fifties, sixties, and seventies as a source of bohea tea, grown in the northern part of Fukien Province. Here, at Pagoda Anchorage, the British and American clippers took on their cargoes and raced away to different parts of the world.

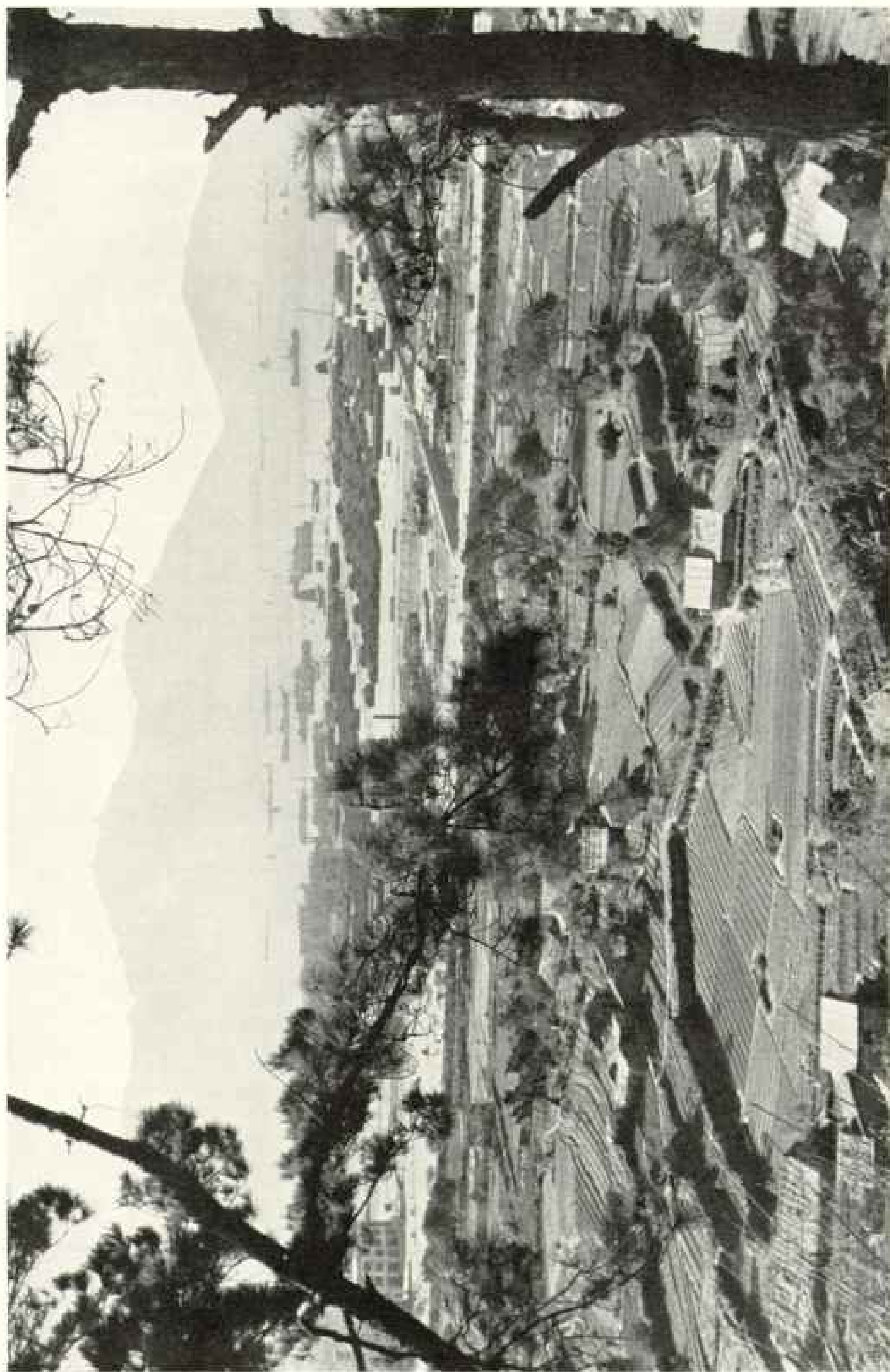
#### THE TEA RACE OF CLIPPER SHIPS

In 1866 there was a race from Pagoda Anchorage to London among the British clippers which is probably without parallel in the annals of sailing, not even excepting the thrilling races of the Australian grain ships. Five ships, laden with the first of the season's teas, left within three days of each other. With all sails set, they sped homeward, each striving for the lead.

Ninety days out of Foochow, two of them raced up the Channel side by side. The *Ariel* crossed the finish line eight minutes in the lead, but to the *Tao ping* fell the honor of victory, because she had started from Foochow 20 minutes after the *Ariel*—a difference of 12 minutes on a 16,000-mile race! All the others arrived within two days.

To-day Pagoda Anchorage preserves the memory of those exciting clipper days by keeping whitewashed the stones around the harbor where the ships tied up.

Tea grown in Assam, Ceylon, and elsewhere has caused a serious decline in the Foochow trade. Merchants here now are turning their attention more to green teas,



Photograph by W. Robert Moore

THE GARDENS OF NEW TERRITORIES PROVIDE VEGETABLES FOR HONG KONG AND KOWLOON TABLES

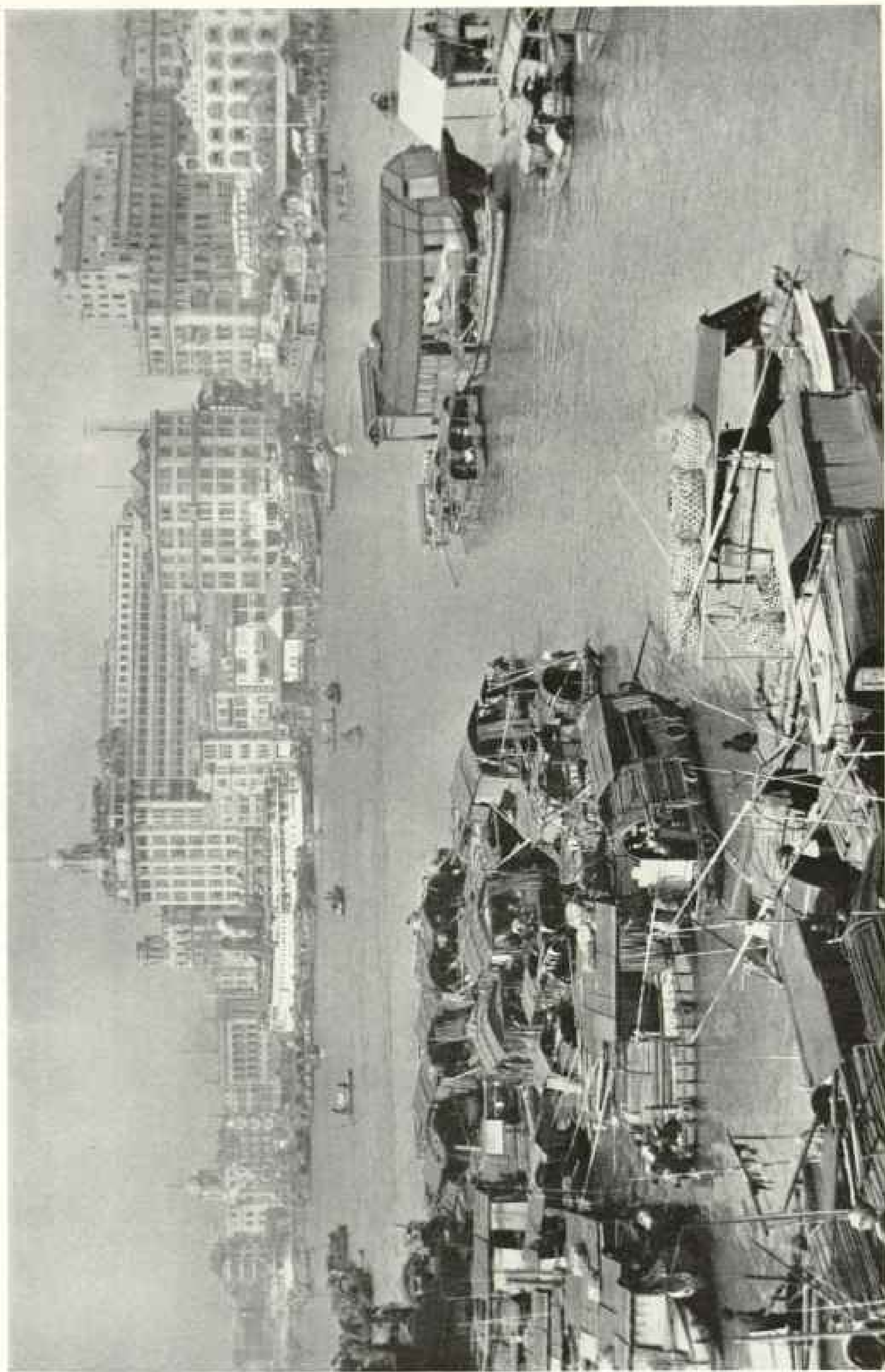
Hong Kong, on the sharp hills in the background, looks across its busy harbor to the fertile fields of New Territories, which, with Kowloon, has been leased from China by the British (see text, page 608). A portion of Kowloon, where most of the docking facilities of the port are located, can be seen at the left.



Photograph by W. Robert Munn.

FERRIES ARE ALMOST TOO INSISTENTLY "AT YOUR SERVICE" IN AMDY

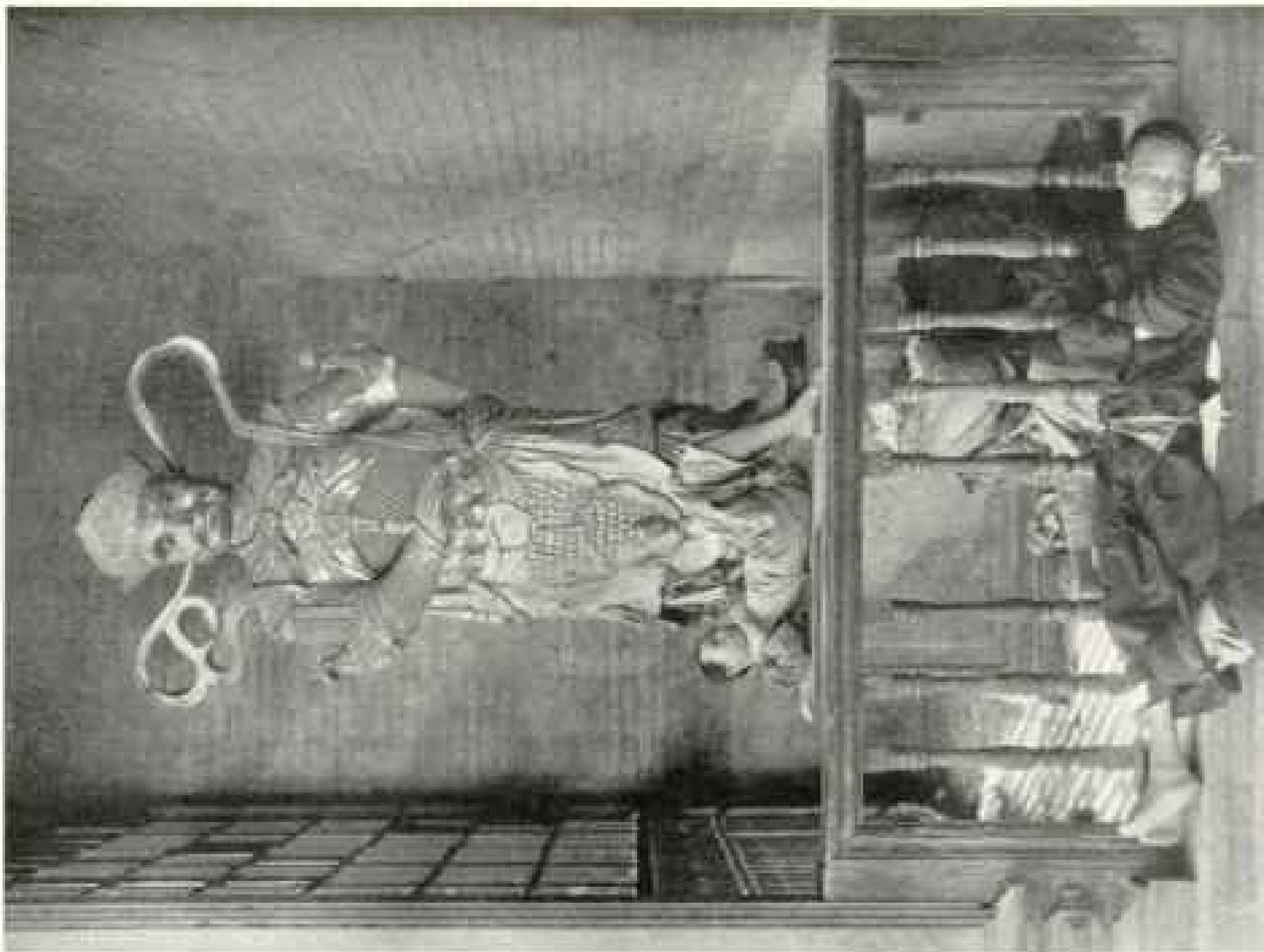
Dozens of these sampans operators are usually shouting for the job of transporting passengers across the harbor between the native town and the foreign settlement, on the island of Kolomesu, a portion of which is shown here. The domed building on the hill at the left is a Japanese school. Above the two sloping masts, right center, appears the white facade of the American consulate, in Georgia colonial style. (see text, page 619).



Photograph by W. Robert Mocco

A MODERN SKYLINE RISES ABOVE A CLUSTER OF AGE-OLD CRAFT ON PEARL RIVER

Until a few years ago Canton was a maze of two- and three-story buildings, with narrow streets and tortuous alleys. To-day many wide motor roads have been cut through all parts of the city. Hotels, restaurants, and office buildings of reinforced concrete have been erected. The domed building near the left is the Customhouse.



Photograph by W. Robert Moore

**SNATCHING REST AT THE FEET OF A TEMPLE GUARDIAN**

The shady niche that houses this ferocious figure at the entrance of the Temple of Five Hundred Genii, Canton, and the pedestal on which he stands provide quiet places for reading or sleeping. Gilded figures of the genii stand in rows in other rooms.



Photograph by C. W. Flann

**A MACAO FISHMONGER DISPLAYS HIS WARES IN THE OPEN**

The dried fish, which the dealer has strung up around the entrance of his open-front shop, are used by the Chinese as one of the ingredients in flavoring their bowls of rice. Fresh fish are often kept swimming in tubs of water until the purchaser makes his selection.



so popular with the Chinese, rather than the black teas for export trade.

Through attempts on the part of the Min Kiang Conservancy Bureau by dredging and building scouring dikes, it is hoped that all the sea trade can be brought to anchor at the Customs Bund in Foochow instead of at Pagoda Anchorage. Much of the traffic on the curve of the river between the two portions of the city is that of log rafts and gaudily painted Ningpo junks. Hundreds of these sturdy, high-pooped old junks carry to Shanghai and North China ports for building purposes the poles and timbers that are sent downstream from the upper reaches of the Min (see page 627).

We went among these brilliantly decorated junks and talked with the weathered old Ningpo sailors who manned them.

"We sometimes come down from Shanghai to Foochow in five or six days," explained a captain, as he stood supervising the overhauling of the sail rigging that was being wrapped around a large hand-operated capstan. "Going back loaded this way," indicating the filled holds and heavy piles of poles lashed on the outside of the gunwales, "we get there in five or six weeks, maybe."

Thousands of houseboats and other small river craft are also gathered near the mid-stream islands and along the banks on either side of the old stone bridge, the "Bridge of 10,000 Ages," that joins the ancient walled city with its newer suburb (p. 636).

#### LACQUER WARE A FAMILY INDUSTRY

The lacquer ware of Foochow has long held a high position for its excellence and rich colors. In some of the little home factories the managers boasted that their families had carried on the manufacture of special lacquers for many generations. One shop proudly displayed the certificate of first prize that was awarded for a display of lacquer at the St. Louis Exposition.

Near Foochow, secluded high in the mountains, are several Buddhist monasteries. One day we climbed to Ku Shan, far above the watery plain and the meandering Min, to visit the famous old monastic buildings, lineal descendants of the group that was first built there eleven and a half centuries ago.

Here, amid whispering pines, in these ancient temples and monastic quarters, priests clad in blue-gray robes have found retreat from the world, like the monks of Montserrat and Mount Athos, and twice

daily repeat their litanies before the enshrined Buddhist deities.

#### HARVEST PILED ON TEMPLE ALTARS

It was harvest season; in some of the temples the winter supply of yams was piled high around the base of some of the altars. People from the plains, on pilgrimage, were also bringing baskets of rice to present to the monks.

Of more interest, however, than the fine old specimens of Chinese religious architecture or the pool of sacred golden carp was the magnificent view of the tumbled mountain landscape and the rich patchwork farms on the valley floor.

Through the thin veil of haze, Foochow and its boat life stood out distinctly; far down on another bend of the river I could see Pagoda Anchorage, with several tiny dots that were ships. Yet the rush of daily life seemed remote indeed. On the morrow I was to be on one of those steamers that would carry me on another stage of my coastal pilgrimage.

Once out to sea, storm clouds again closed around us.

"These seas aren't bad yet," encouraged the captain, as the little steamer rose and reeled over on the whitecaps and into the trough of the waves. "You should see them during some of the typhoons we have run into. Why, one time right along here we got into one blow when, with anchors dragging and the engines on full speed ahead, we were actually going backward two or three knots!"

Threading the Chushan Islands and the dangerous rocks of Hangchow Bay, many of which could tell tales of disastrous shipwrecks, we came to the mouth of the mighty Yangtze Kiang, gateway to Shanghai and the wealthy interior.

Like Hong Kong, distributing center of the south, Shanghai had to rise as the clearing house for the vast valley region where dwells one eighth of the human race. It would have been as easy to have no New York, no San Francisco, no Istanbul as to have had no Shanghai. Trade demanded it.

Here have been raised some of the tallest skyscrapers outside the American Continent; here is an unbelievable, strange mingling of East and West, sprung up mushroomlike to meet the needs of commerce.

Radiating from this mighty city are active airlines, touching Canton, Peiping, Hangkow, and interior towns. Railways and roads are likewise probing the hinterland.



Photograph by W. Robert Moore

AN ORIENTAL SUNRISE PAINTS THE DRAPERY OF DRYING NETS

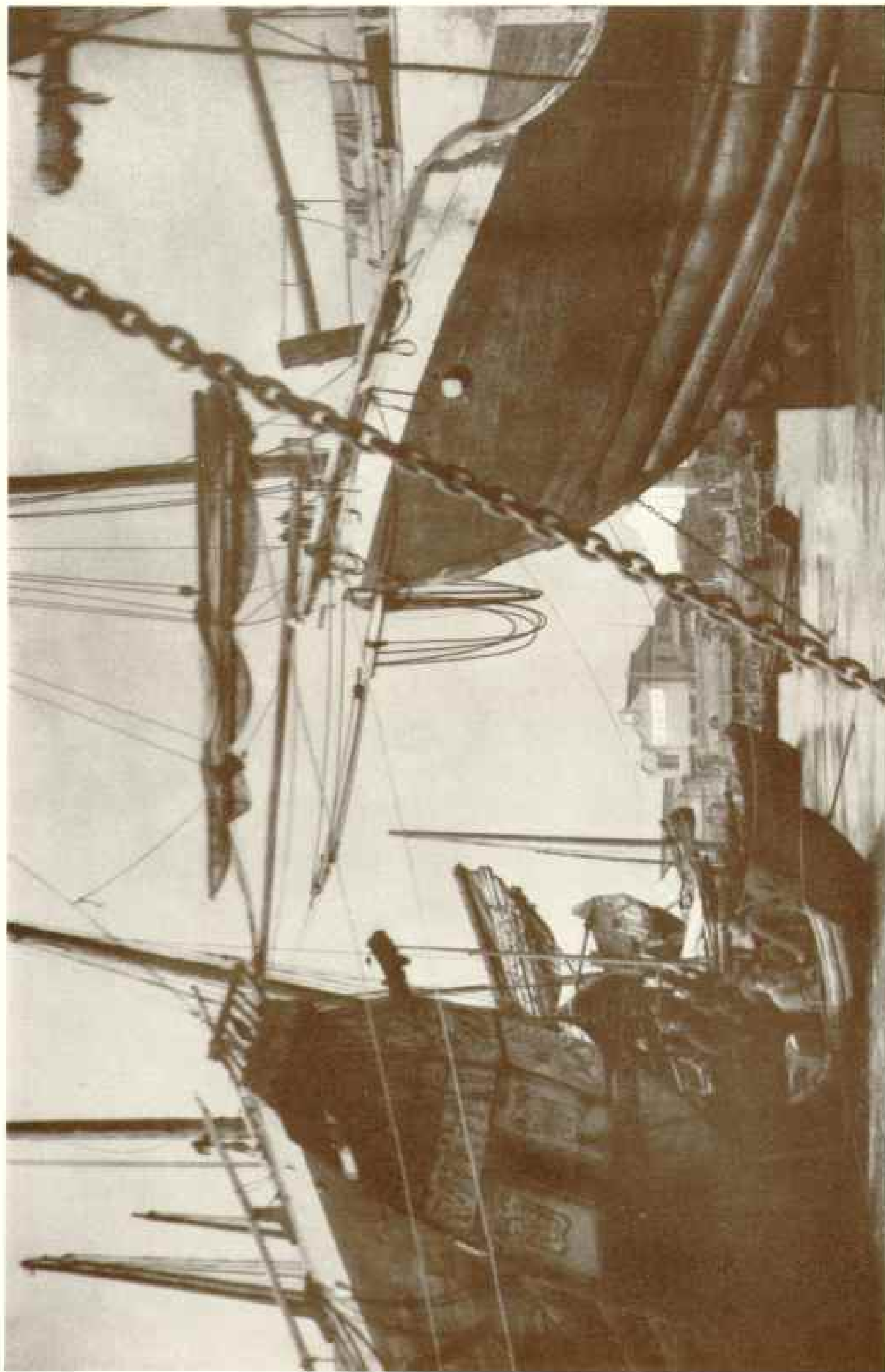
Hundreds of fishing boats lie anchored in the quiet waters of Macao's outer harbor. In centuries past this was journey's end for the caravels of Europe, which made their long voyages for cargoes of silk and tea. The flag of Portugal still flies over the China Sea port, but much world trade has shifted to Hong Kong, so that fishing is now one of Macao's chief industries (see text, page 601).



© Paul De Gasdine

THE THROBBING LIFE OF CHINA'S CITIES SPILLS OUT UPON ITS WATERWAYS

Busy Soochow Creek teems with houseboats and launches, freight barges and vegetable craft. This waterway, a Broadway of Shanghai, is linked with the historic Grand Canal and flows into the Whangpoo River. The lofty Garden Bridge and several other spans connect portions of the extensive International Settlement (p. 641).



By Paul De Gasson

THE HIGH-POOPED NINGPO BOATS SEEM LIKE WATER-BORNE SKYSCRAPERS

Ponderous seagoing junks, bearing bulking timbers and poles from Foochow, drop anchors in the muddy Whangpoo. With their holds filled and the piles of poles lashed at the gunwales, these ships had fair sailing weather and made the 600-mile journey northward to Shanghai in five or six weeks.



© Paul De Gaston

## A GOOD YARN WHILE THE CHOPSTICKS FLY

Perhaps the photographer is regaling them, while they eat their noodles and rice, with a description of the strange concoctions which pass for oriental food in American "Chinese restaurants."



© Paul De Gaston

## "NOW UNDER AND THE CAT'S CRADLE IS FINISHED!"

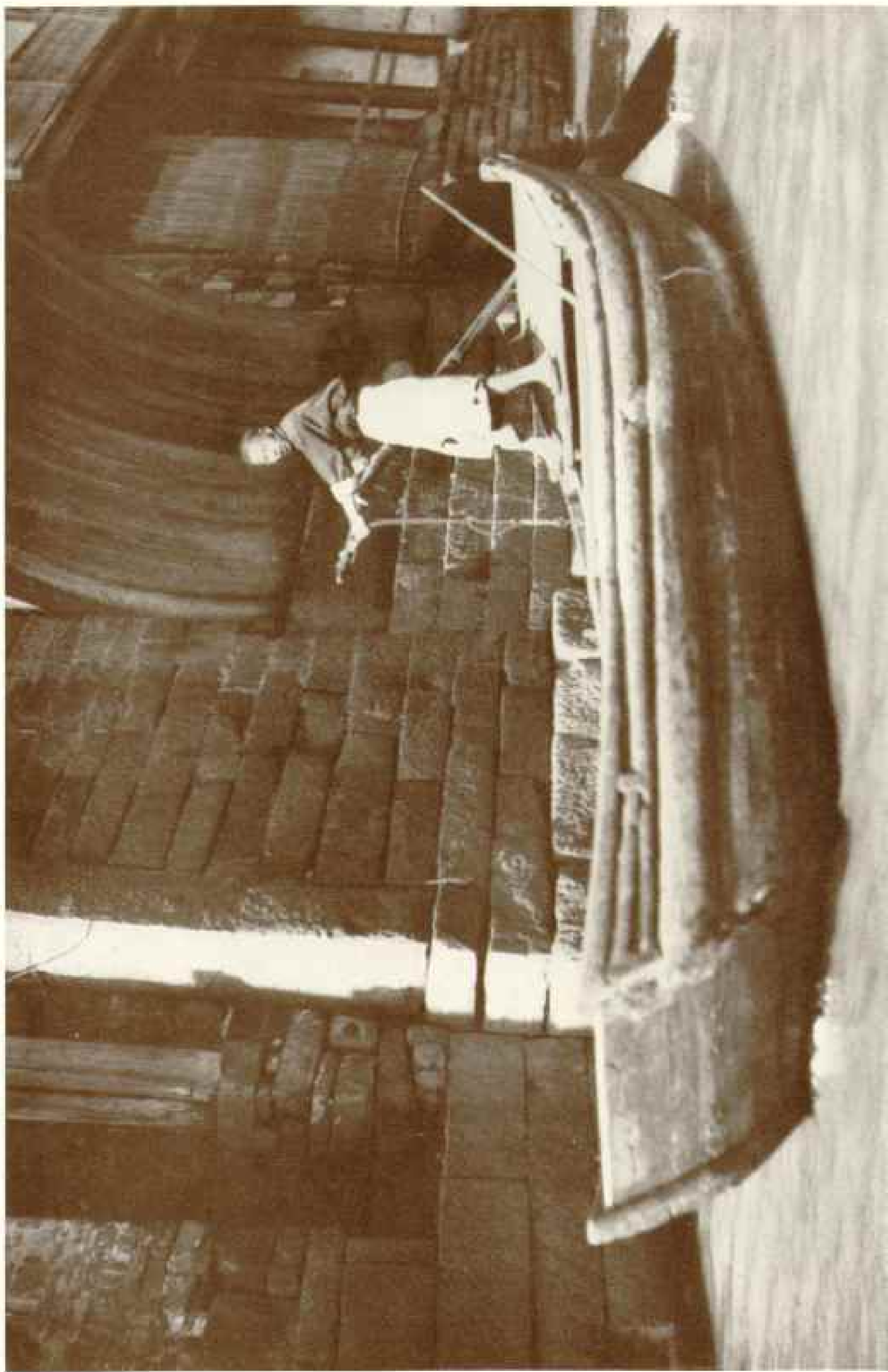
By rare good fortune these girls in Shanghai were so absorbed in playing with a piece of cloth that they did not notice the stalking photographer. As soon as the shutter clicked, however, they scampered away.



© Paul De Ganton

## BACKDOOR SHOPPING IN THE CANAL STREETS OF HANGCHOW

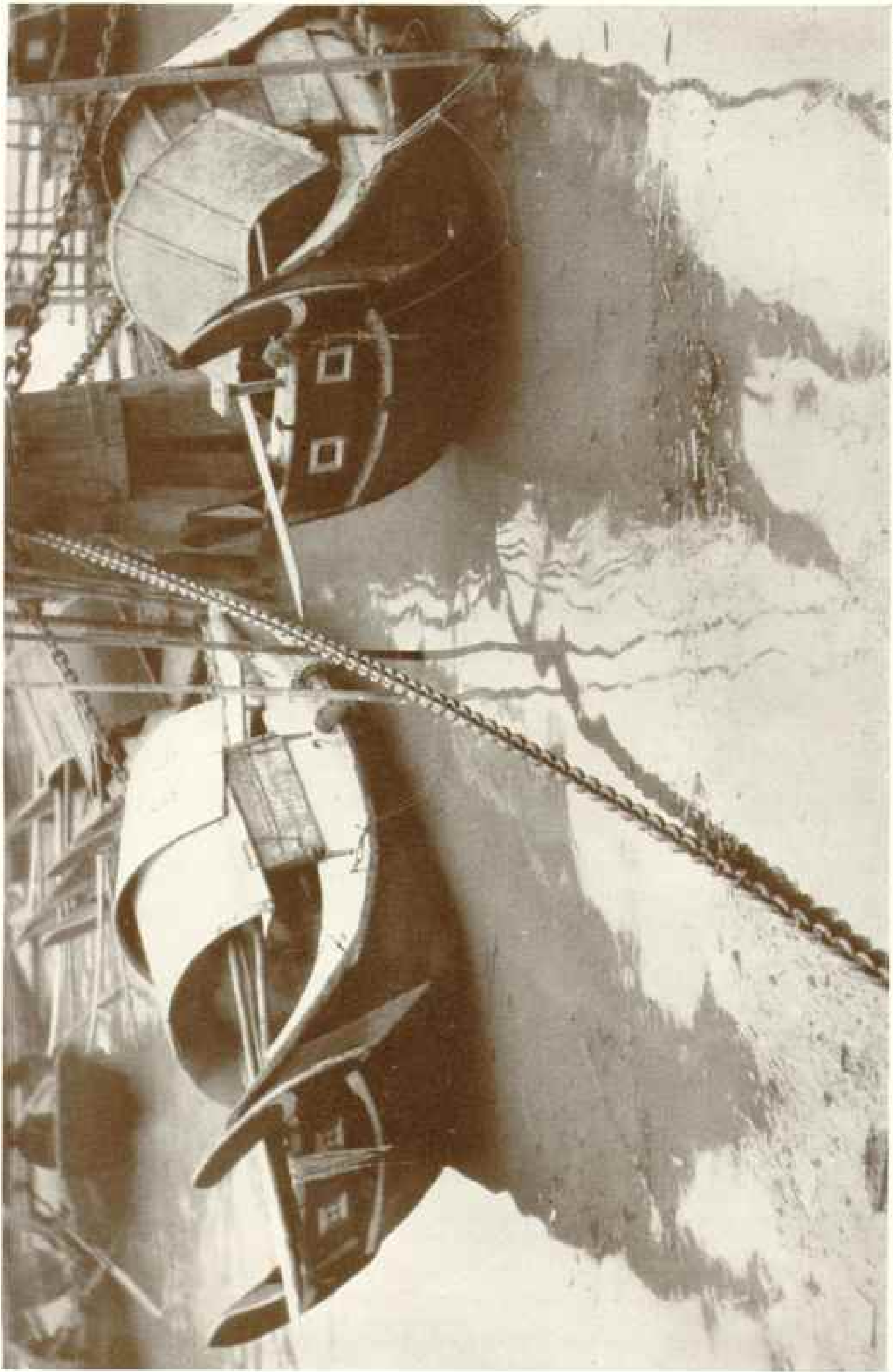
The market man, also the candy man, the hardware salesman with cooking pots, and the jeweler with "costume" trinkets, all ply the buay waterways of Chinese cities with their stocks. Beyond the peddler's craft are several rafts of bamboo poles. Hangchow, with its beautiful lakes and many canals, reminded Marco Polo of his beloved Venice (see text, page 641).



© Paul De Costar

BY "YULOWING" HIS BOAT THE CHINESE NEVER GETS HIS OAR TANGLED IN TRAFFIC

He pushes and pulls the long, pivoted handle, and the blade moves back and forth in the water directly astern, after the manner of a fish's tail. The boat can thus be sculled through the congested waterways and close to bridge walls. This stubby barge in Soochow Creek collects night soil, used in fertilizing gardens and fields.

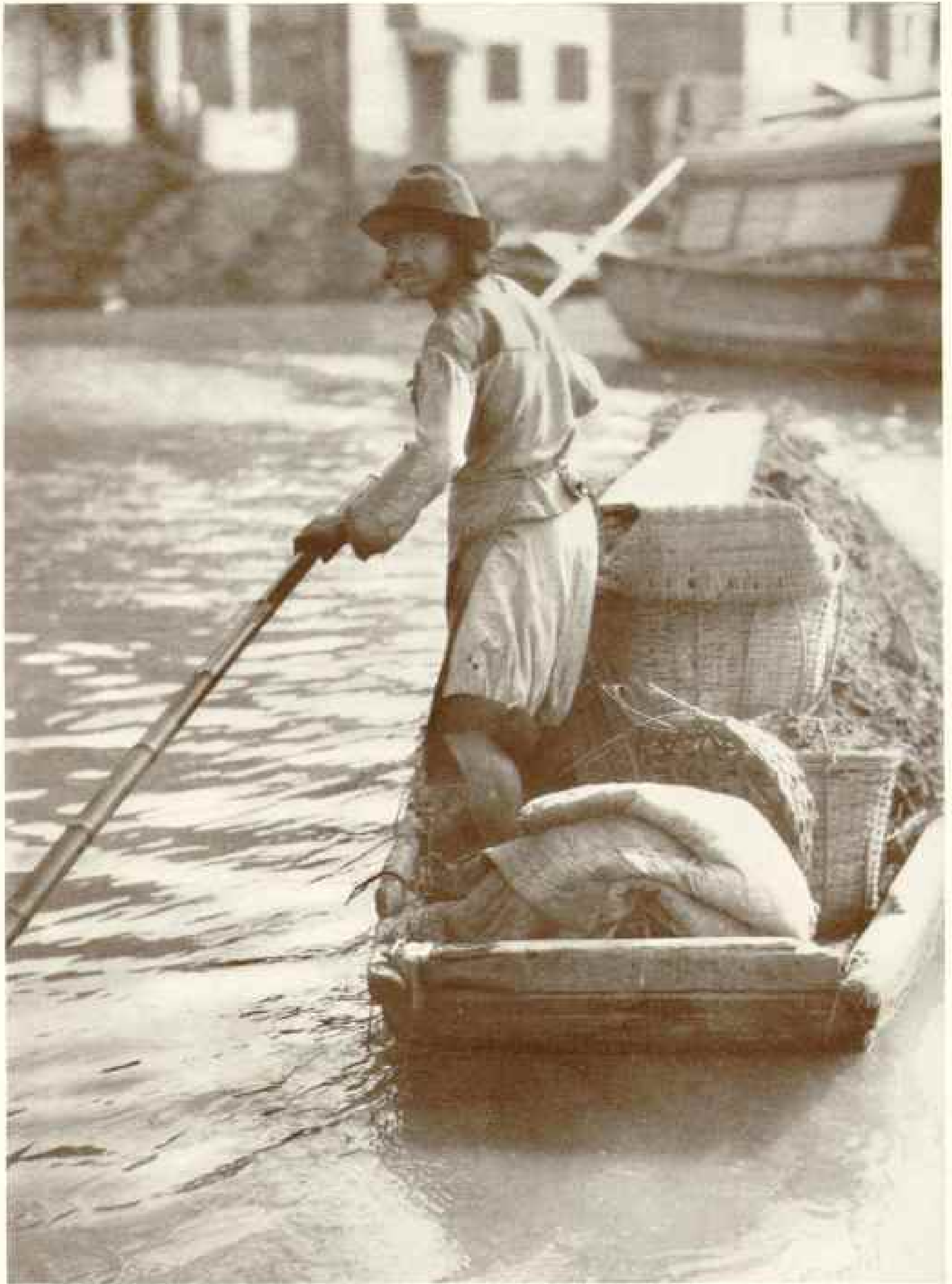


© Paul De Gaudon

**LUCKY RIVER "TANIS," TO FIND PARKING SPACES ON THE SHANGHAI WATER FRONT!**

These oddly shaped sampans ferry passengers across the Whampoo and out to steamers anchored in midstream. Many launches operate, but the needs of the 3,000,000 residents of greater Shanghai and of many transients still enable hundreds of sampan "drivers" to gain a livelihood. The matting roofs shield passengers from rain or sun.





© Paul De Gaston

#### HOMeward A HANGCHOW FARMER POLES HIS AQUATIC WAY

He is bringing a load of fertilizer down a creek to his fields. Because of the hungry mouths of the country's millions of people, no plot of good earth can long remain fallow. By spreading the land with silt from river and canal beds and by careful fertilization, Chinese peasants have maintained the richness of their farms for 40 centuries.



AND THAT'S WHY COOLIES WERE BORN

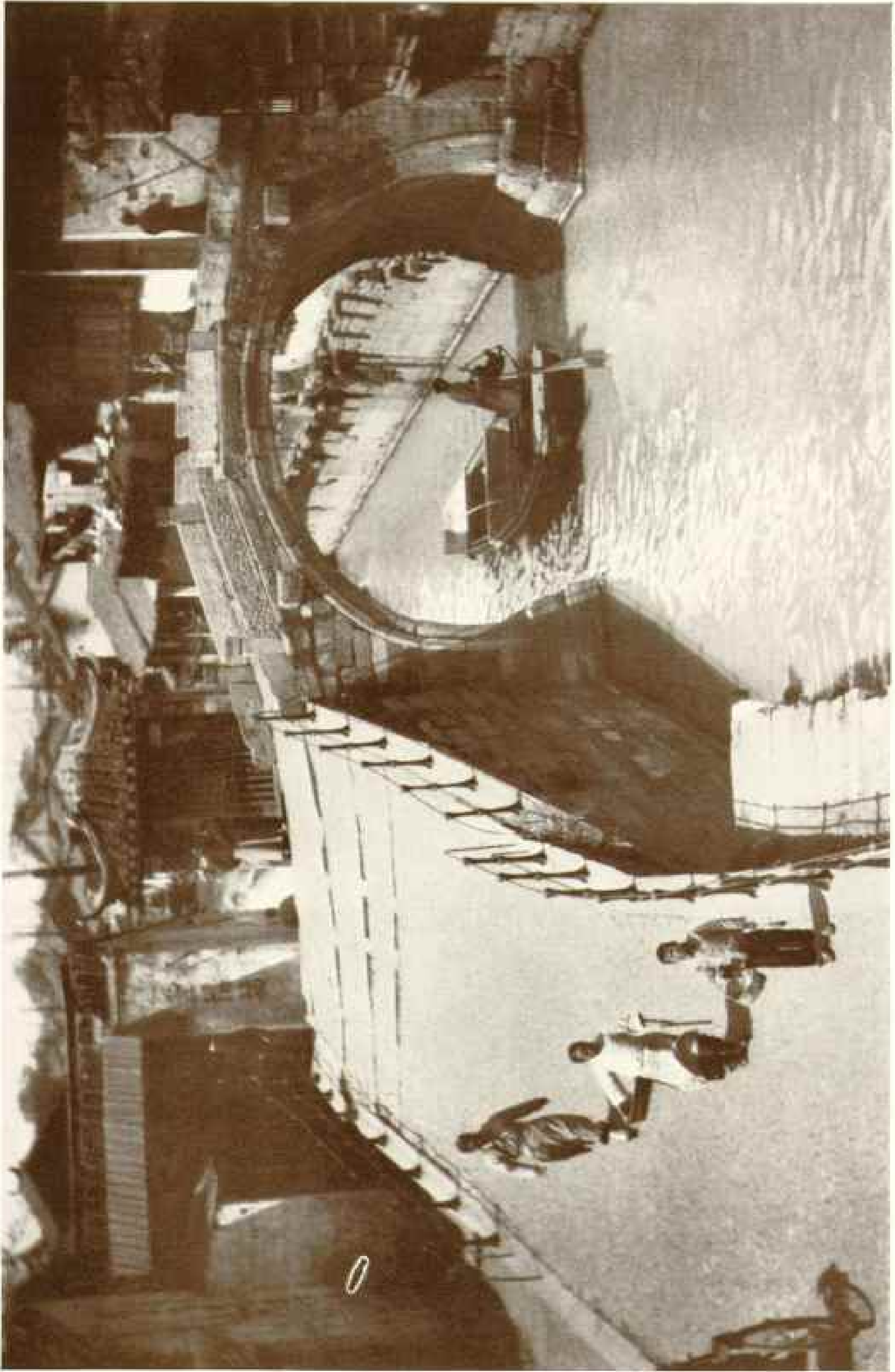
Straining at the towlines, they symbolize China's cheap manpower for freight and passenger hauls.



Photographs by Paul De Gastou

A WHEELBARROW COOLIE CLEAVES A WIDE PATH IN SHANGHAI

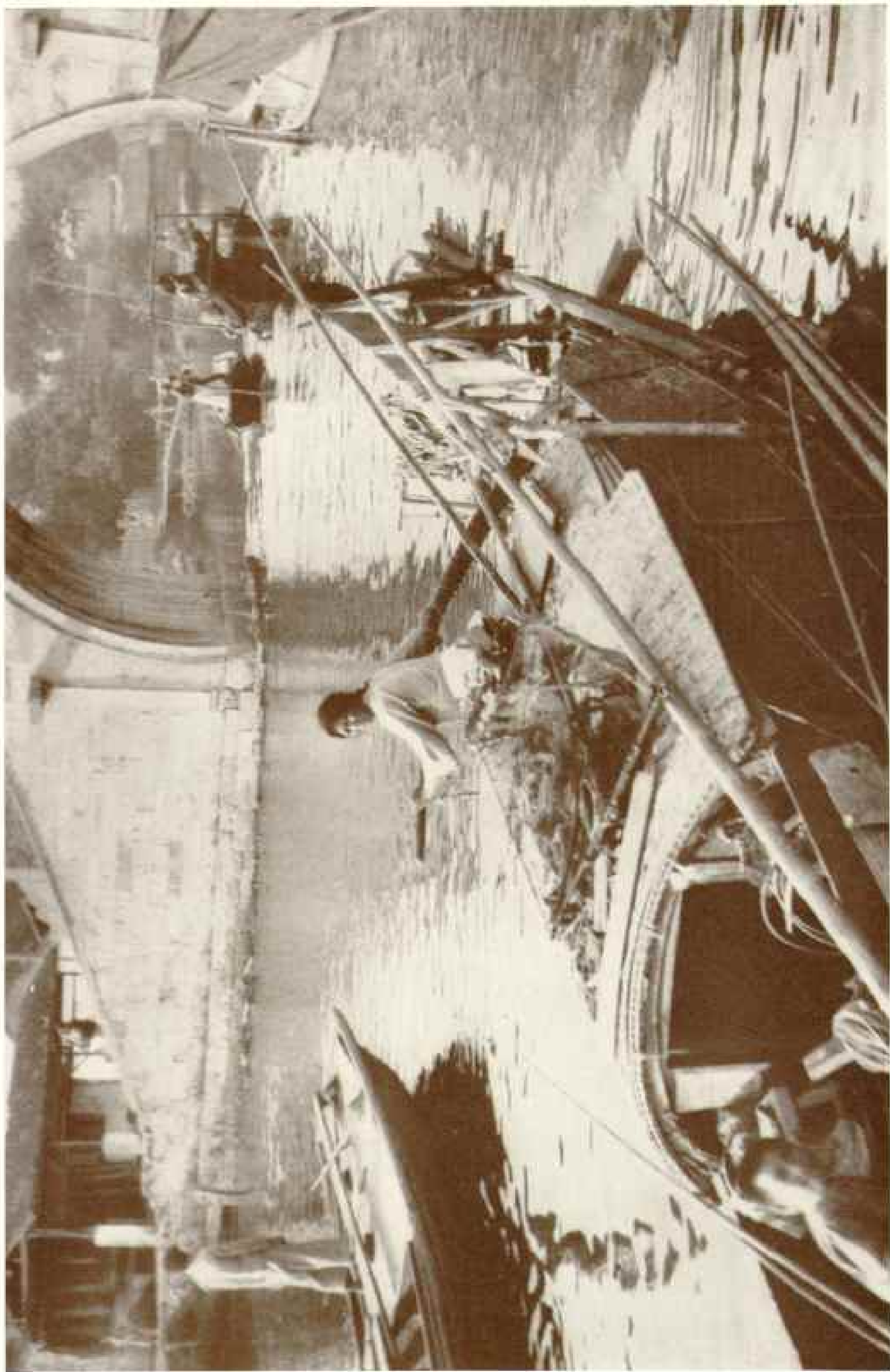
Bells are often strung in the wheels; adding their tinkle to the creaking of ungreased axles;



© Paul De Garenth

ANCIENT STONE BRIDGES ARCH THE STREET CANALS OF VENICELIKE SOOCHOW

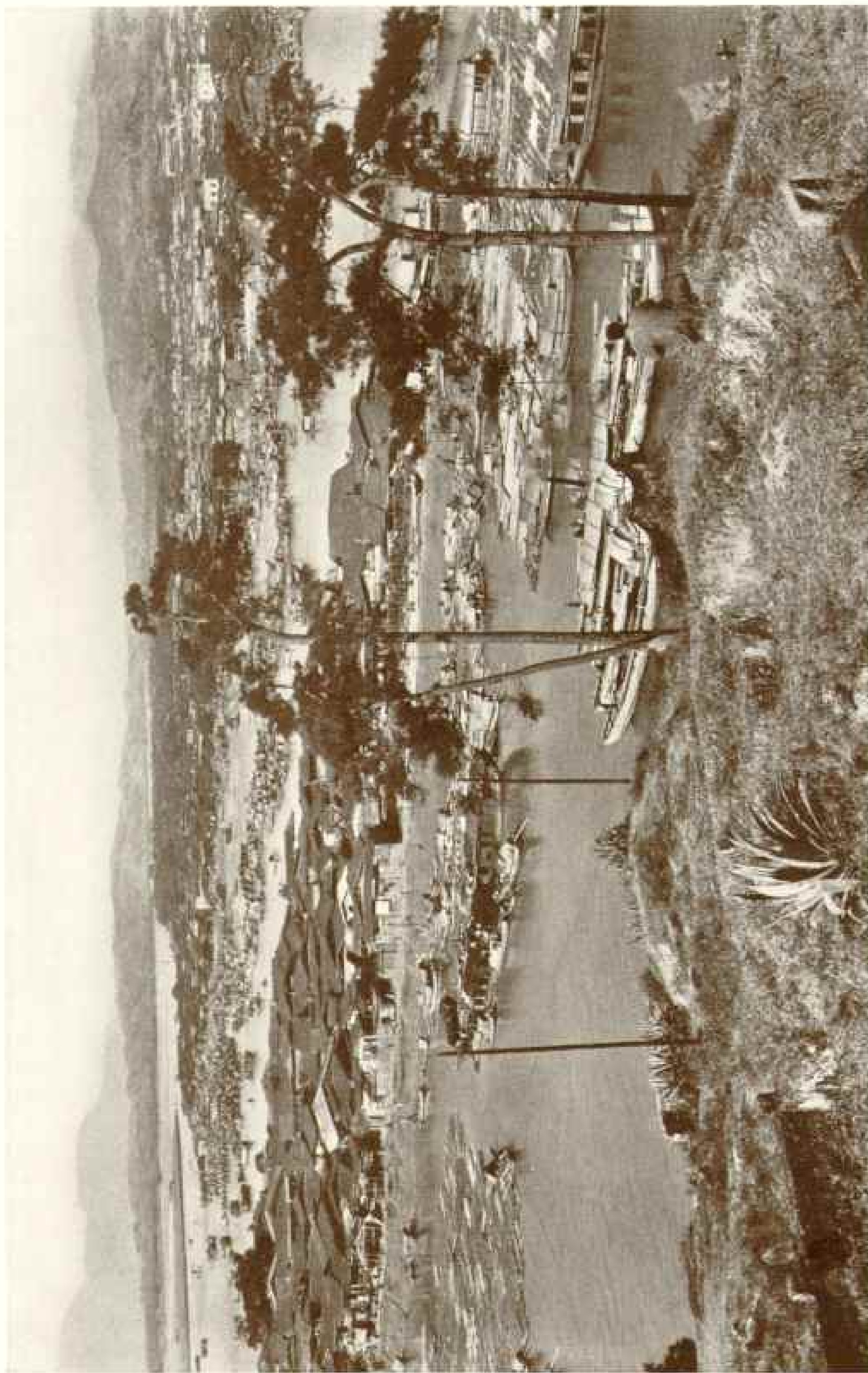
Gracefully designed to allow the passage of boats and often provided with carved balustrades, these curved spans are found throughout China. Some of the arches are so high and steep that the pathways over them have to be stair-stepped.



(C) Paul De Gaston

BENEATH SOOCHOW'S BRIDGES GLIDES A STRANGE "FLOATING POPULATION"

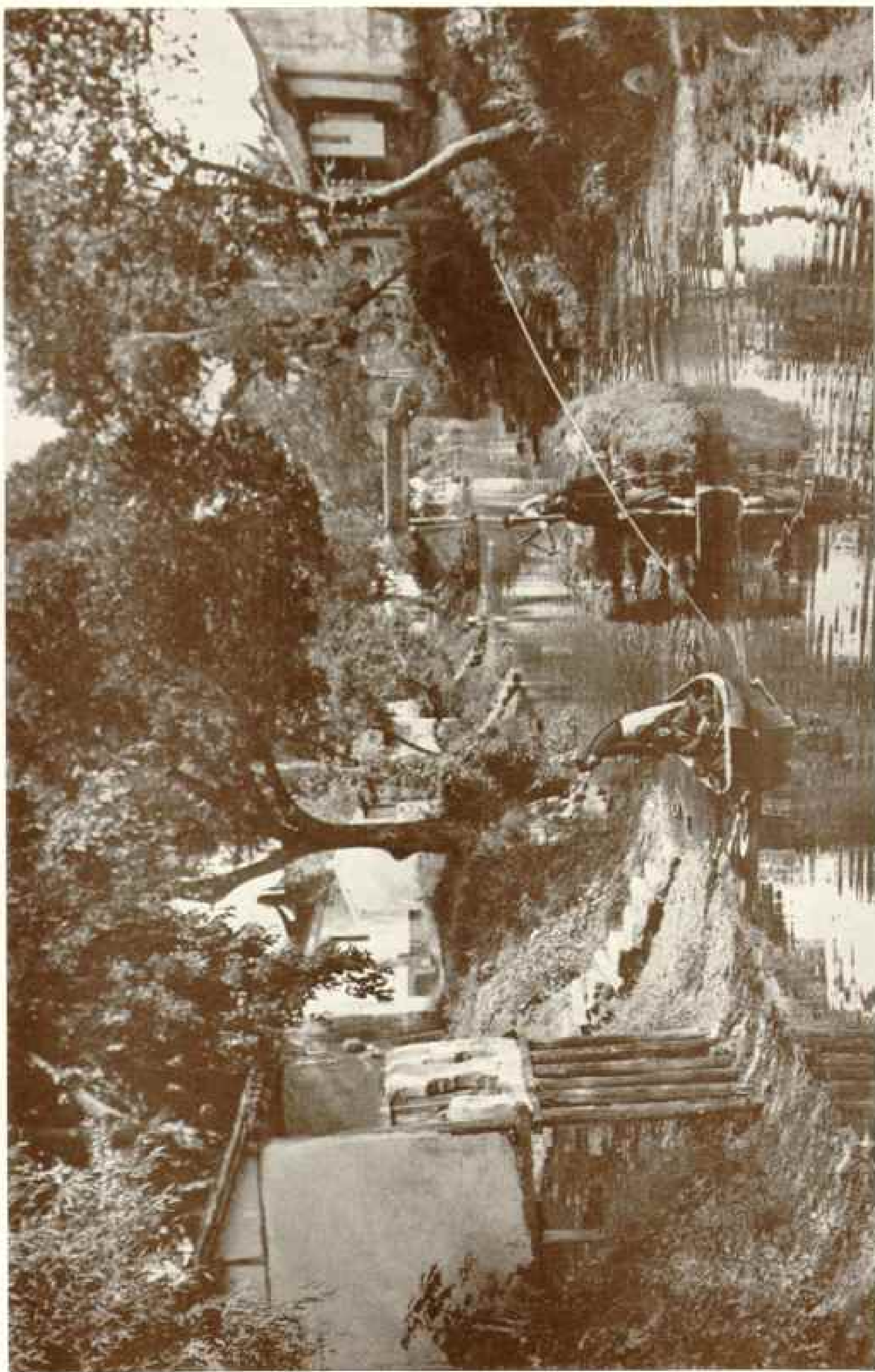
Thousands of Chinese find no room on their country's overcrowded soil; so in rambuckle boats they grow up, marry, rear families, and die without knowing any other home. At the stern of a typical houseboat the mother takes her turn at the oar. On the roof of the craft is a fish net, and the poles beyond flaunt the family wanh.



Photograph by W. Robert Moore

ONE CAN ALMOST WALK ACROSS THE MIN RIVER AT FOOCHEW DRY-SEASON, ON RAFTS.

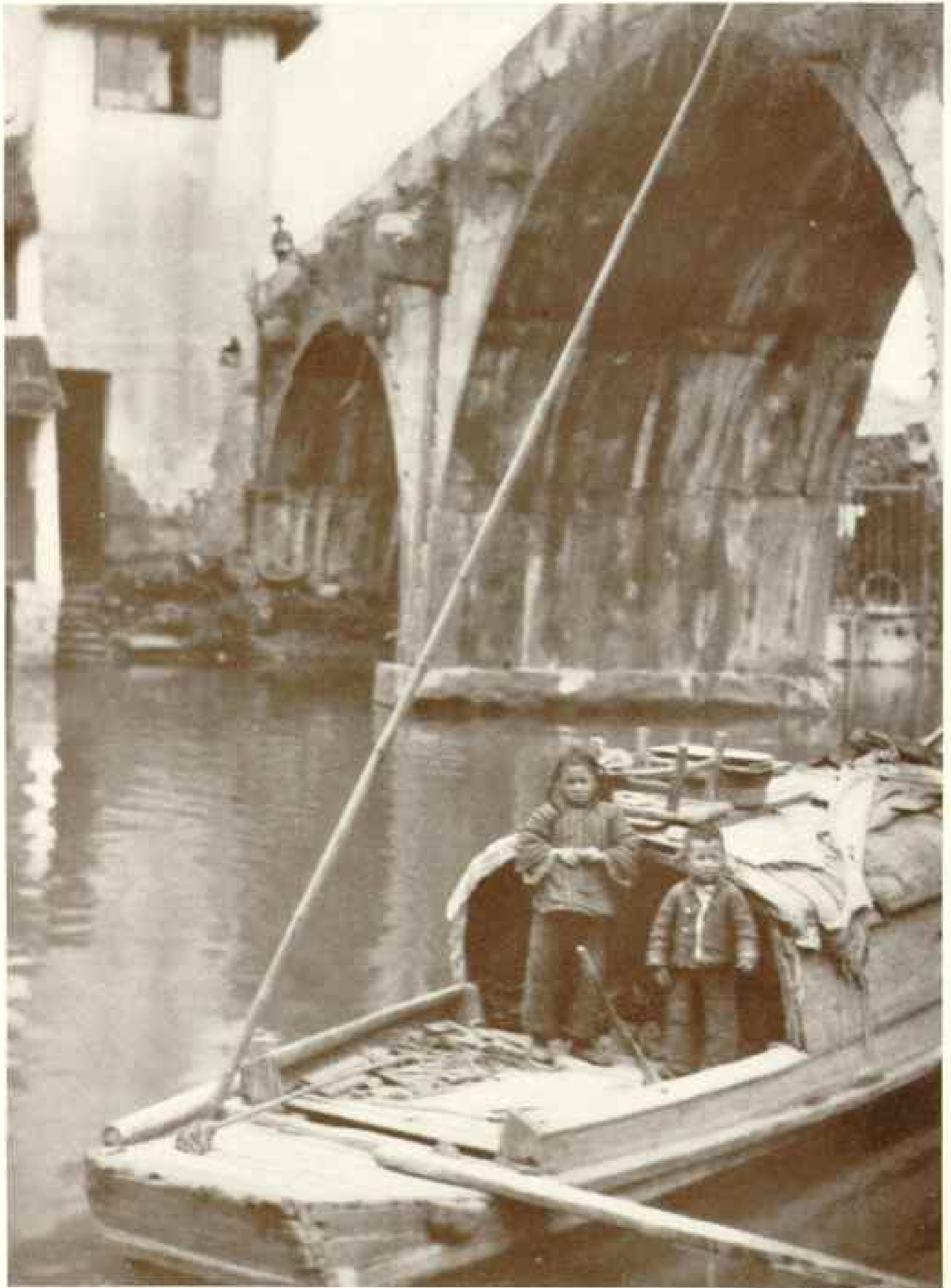
Quantities of logs are cut from the forested hills of Fukien Province, and are then floated downstream to this port, whence they are shipped by sailing junks to Shanghai and other cities. Less than a century ago Foochow was one of the busiest centers on the China coast, because of its enormous tea trade. Clipper ships then raced away with as much as sixty-five million pounds of tea in a single year; now the export has dwindled to as little as two million pounds in some seasons.



© Paul De Gasson

#### EVEN THE HARVEST COMES HOME BY WATER

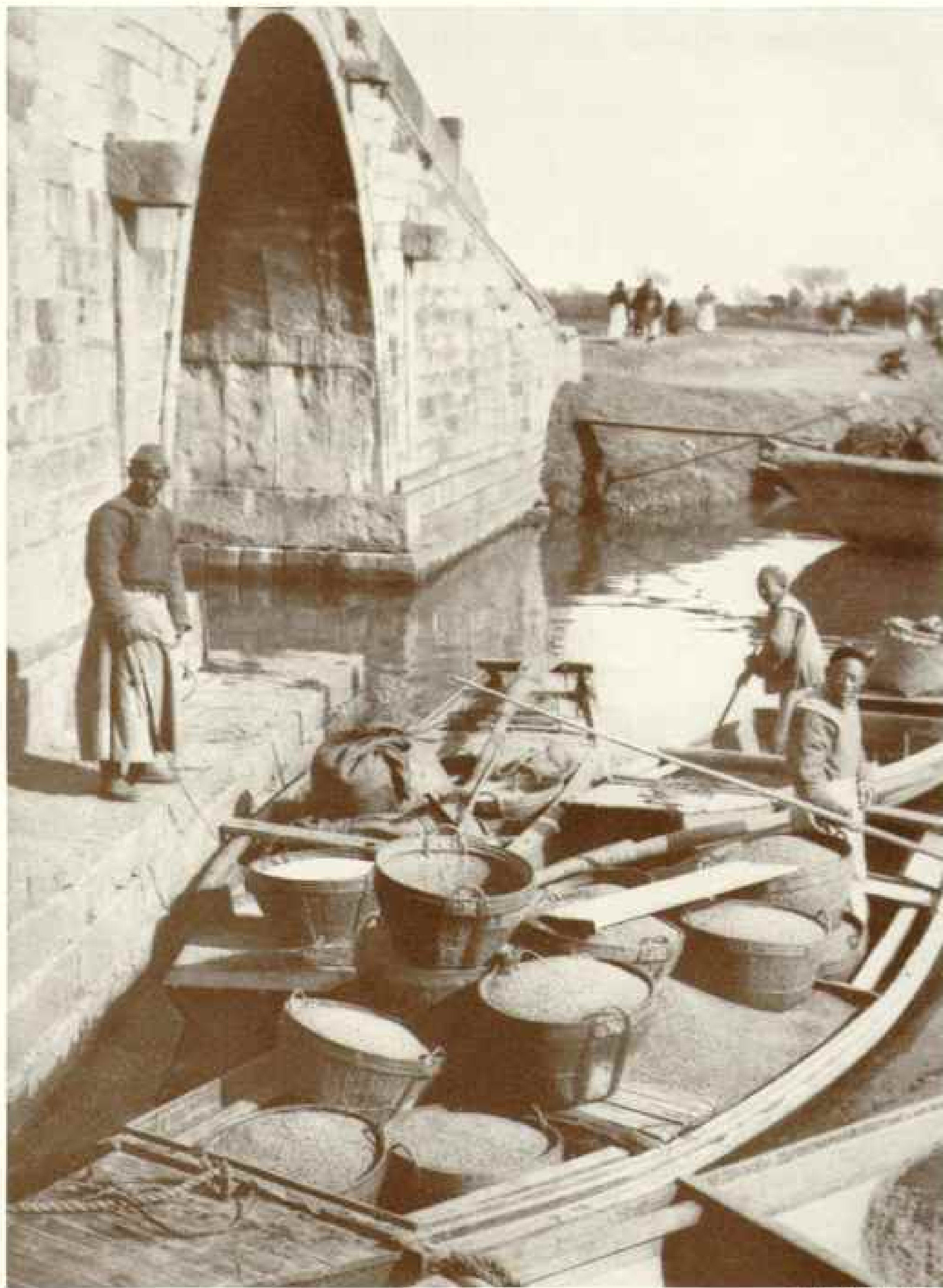
These farmers, passing through a small village near Shanghai, bring sheaves of rice from outlying fields to their threshing floor. After the grain is removed, the straw will probably be used for fuel or mats, or will be sold for packing purposes. Steps lead down the embankment from all of the homes, for the stream serves as laundry and source of water supply as well as highway.



© Paul De Goston

THE NARROW DECK SPACE IS THEIR ONLY PLAYGROUND

These youngsters were born aboard the little boat, and they probably will spend their entire lives afloat, as have their ancestors, seldom setting foot on shore. Buoys are often tied to babies, so that no harm will come to them should they accidentally fall overboard.



© Paul De Ganton

A BOATLOAD OF RICE MIDWAY BETWEEN FIELD AND CHOPSTICKS

Freshly threshed cereal is being transported to Soochow, where it will be husked and polished for family consumption. Despite the enormous amount of the grain grown in the country, China does not produce enough for her own needs. In North China wheat, millet, and other grains, not rice, form the main diet.





© Paul De Groot

## FRAGRANT INCENSE ASCENDS TO THE GODS

So many joss sticks are burned daily in this bronze urn in a Shanghai temple that the ashes keep the metal constantly warm. Sometimes it is too hot to touch. After the woman has lighted all of the sticks she holds, she will kneel on the pad and make a few bows while muttering a petition. Shopkeepers do a thriving business selling incense just outside the temple doorway.

The story of transportation, however, is yet near its beginning; the leaders of China are now planning with their ears attuned to the hum of motors. Within the last few months the Chinese banks have organized a Chinese Development Finance Corporation to aid in this ambitious construction program, a forward stride which but a short time ago would have been considered too visionary to contemplate.

Shanghai's contrasts are everywhere vivid. Its night clubs, taxi dance halls, and centers of sport and recreation, where its many peoples spend gay hours to forget shipping statistics, bills of exchange, and business worries, make Hong Kong appear almost Sabbathlike in comparison.

But pulsing Shanghai is a story in itself.\*

To-day, in Chapei, north of the thriving International Settlement, are the blackened, seared wounds caused by bombardment and fire. Soon those, too, will be healed by new shops, new business houses, and finer, more modern homes. Nothing in Shanghai remains static long.

#### THE CITY MARCO POLO ADMIRER

Before leaving the Shanghai region one should motor or go by train to Hangchow, 110 miles southwest of the commercial capital (see pages 629, 632). It was Kinsai, "The City of Heaven," which Marco Polo declared to be the noblest city of the world.†

Long before Marco lived there as high officer of the Mongol conquerors, Hangchow had twice risen to magnificence—first under the Wu-Yueh kings, and again under the Southern Sung Dynasty.

If the accounts of the Venetian and others are to be relied upon, Hangchow was the luxury-loving Rome of China, for its many bridges, baths, and magnificent palaces that encircled famous West Lake caused extensive comment.

Many of the historic monasteries still exist. West Lake is, as always, the center of scenic beauty, although now only about half the size it was in Marco Polo's day.

Appropriately, the city is noted for its silk and for its lovely fans.

Ningpo, a few miles east of Hangchow, was once looked upon as an important trading center by foreigners, but Shanghai has

\* See "Cosmopolitan Shanghai, Key Seaport of China," by W. Robert Moore, in the NATIONAL GEOGRAPHIC MAGAZINE for September, 1932.

† See "The World's Greatest Overland Explorer," by J. R. Hildebrand, in the NATIONAL GEOGRAPHIC MAGAZINE for November, 1928.

not only sapped its trade, but many of its most progressive peoples. Ningpo sailors, however, are recognized as hardy seamen, and their huge junks can be seen everywhere along the coast (see text, page 624, and illustration, page 627). Ningpo, too, was the home of Chiang Kai Shek, former President of the National Government.

#### TSINGTAO WAS BUILT BY GERMANS

Returning to Shanghai, I shipped for Tsingtao and the other ports of North China. Steaming into Kiaochow Bay, at the southern base of the Shantung Peninsula, one sees the red-roofed homes of Tsingtao come into view. The aspect is that of a foreign town, as indeed it is. In years prior to its occupation by the Germans in 1897, as a military and naval base, Tsingtao was little more than a fishing village. The Germans built wide streets, modern homes, a large pier and other harbor improvements, and heavy fortifications.

During their occupation, which lasted until 1914, they built the railway to Tsinan to connect with the Shanghai-Pukow-Tientsin line and to open up the rich Shantung Province. Roads, too, were thrust inland. Much of the development of the region, however, came during the eight-year period of occupation by the Japanese.

When the wind is blowing, Tsingtao advertises strongly one of its chief exports, coal. The gusts of wind are filled with the fine dust that is swept off the cars and off mammoth piles of coal that lie along the dock where blackened coolies load it basketful by basketful into the vast maws of the waiting steamers. From Tsingtao, too, are shipped more peanuts than from any other port in the world.

Here is the Atlantic City of North China for residents of Shanghai, Tientsin, and other ports; during the summer months many foreign families seek surcease on its friendly beaches from the stifling summer heat. With the United States Submarine Flotilla anchored in these waters during the hot weather, the resorting season is usually a gay social one.

We sailed next for Chefoo, on the northern coast of the Shantung promontory, omitting Weihaiwei, the harbor which served Great Britain as a naval sanitarium and fleet base for 32 years, prior to its rendition to China in 1930.

Chefoo is one of the chief commercial cities of Shantung, and it has become

widely familiar because it is the summer headquarters of the United States Asiatic fleet. Within its mountain-girt harbor and behind its breakwaters 20 to 30 of Uncle Sam's greyhounds are usually anchored from May to September.

#### THE AUTHOR "JOINS THE NAVY"

In Chefoo I joined the Navy! I had spent much time in photographing the fishing boats along the water front and in getting views of the harbor from a distant hill-top, so that when I returned the tender had already left for the ship which was to sail in a few minutes. A Chinese offered to row me out in a sampan, and we arrived just as the anchors were being pulled up. Another sampan was at the gangway, so I had to cross it to get to the steamer.

Laying down the sum upon which we had agreed, I started to step across into the other boat. At the same moment the sampan coolie decided that I should pay even more dearly for my ride and began pulling his boat away, with the inevitable result that I, my cameras, and the color plates I had exposed received a ducking.

As we steamed through the Gulf of Pohai (Chihli) toward Tientsin, I strewed the upper deck with drying camera parts and soggy clothes.

Swinging into the Hai, river approach to the commercial capital of North China, we passed the demolished Taku forts, grim reminders of four attacks by foreign forces. A short distance farther on, we came to dock at Tangku. Because of the deposits of silt, many of the steamers discharge their cargo here, to be lightered or sent by rail to Tientsin. Ships of more than 14-foot draft have always had to drop anchor in the gulf, about eight miles off Taku.

Along the river and at Tientsin are many salt works, cotton mills, and flour mills. Flour milling is the chief industry, because of the vast wheat lands that lie inland beyond Tientsin. The 12 large American flour mills and the six cotton centers, operating nearly 222,000 spindles, provide employment for many people of the locality. Because of its proximity to the extensive grazing districts of North China, Tientsin is also the chief wool-exporting center.

To-day the city gathers trade from the caravan routes, canals, and railways that thrust their slender fingers into all parts of the Hopeh district and out into Shantung, Honan, Shansi, Shensi, Kansu, and Mon-

golia. The present loss of Manchuria, however, has temporarily slowed the port's commercial stride.

There are few attractions of Chinese architecture in Tientsin, such as Peiping possesses. Instead, the city is conspicuous for its fine banks and administration buildings. The British, French, Japanese, and Italian Concessions, which bracket a portion of the winding river to the south of the native quarter, impart to the place a strong Western flavor.

One site, however, the Sea View Buddhist Temple, is of historic interest. Here Lord Elgin signed the Treaty of Tientsin in 1858, which eventually opened this and several other ports to foreign trade.

#### A BELL OF MANY FUNCTIONS

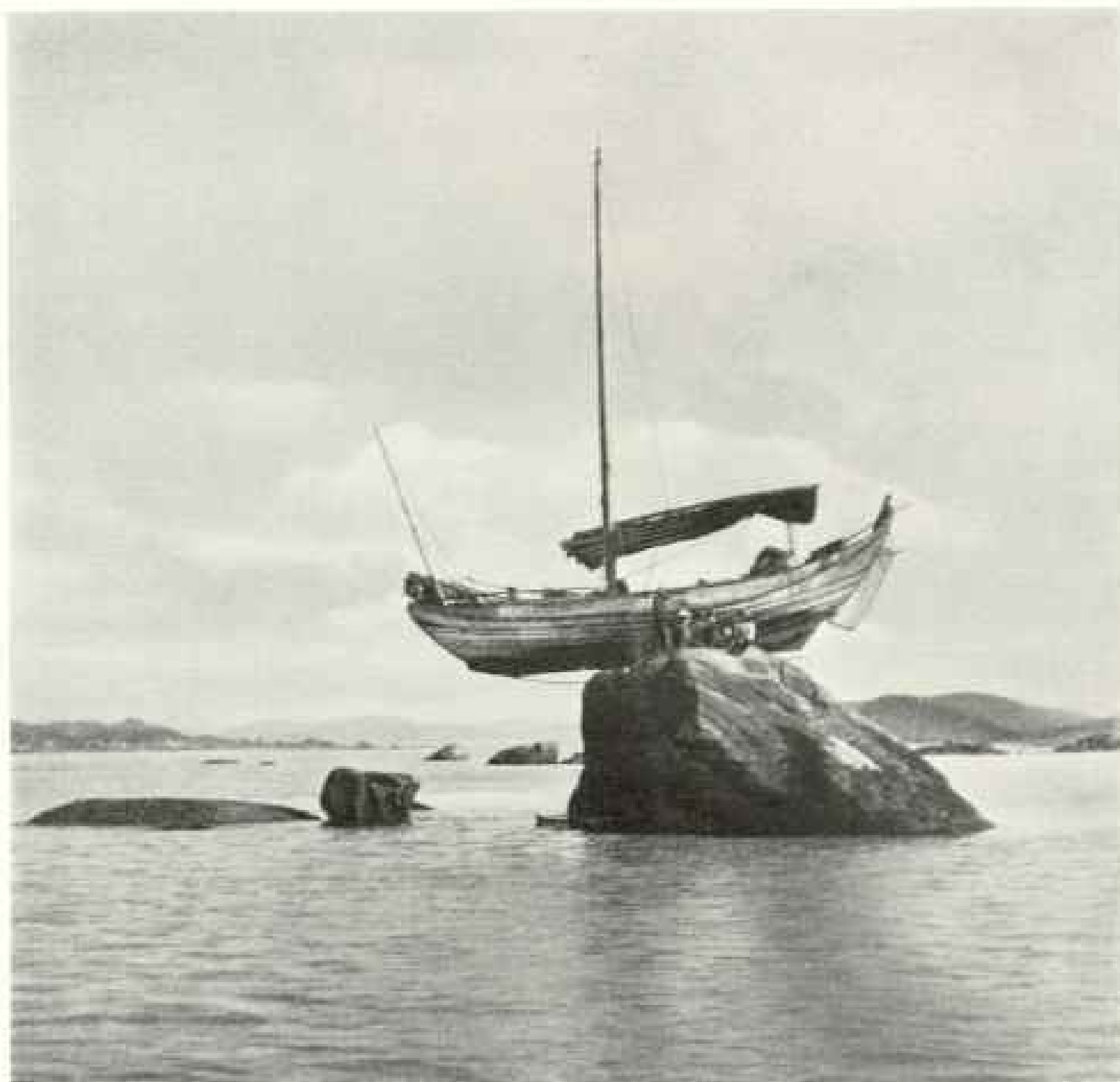
In this reconstructed temple is a bronze bell, presented by Krupp, of Essen, to Governor Li Hung Chang as a token of friendship of the German people. From 1881, after it had been properly inscribed with Chinese ideographs, it was rung daily by the priests, but in 1900 it was taken by the foreigners and placed in Victoria Park, where it served as a fire signal. Again, in 1921, to make room for a war memorial, the bell was returned by the British to the Chinese and reinstalled in the temple, this time as a remembrance of the good will of the British community in Tientsin!

The memory of General "Chinese" Gordon, of Taiping Rebellion fame, is perpetuated in Gordon Hall, one of Tientsin's most imposing buildings. It was General Gordon who drew the plans for the original British Settlement; and the hall, which rises opposite Victoria Park, houses the British municipal offices, the public library, and an entertainment hall.

Across the loop of the Gulf of Pohai, at the southern tip of the Liaotung Peninsula, is Dairen, boom town of Manchuria (618).

On this rocky finger that points down to Shantung, the Chinese built fortifications less than half a century ago. In 1894 Japan came to arms with China over Chosen (Korea) and won the right to the Liaotung. But Europe rose to protest; Japan bowed and departed. Russia, financier to China, reaching out for an ice-free port in the Far East, won the lease.

Overnight, by the magic of the Tsar's command, Dalny (now Dairen) was born. In six years Russia spent 20 million rubles on the project, and Dalny mushroomed to



Photograph from the London Electrotyping Agency, Ltd.

FRANKISH TIDES LIFTED THIS VESSEL INTO A STRANGE DRYDOCK

After anchoring safely in Amoy at night during an extremely high tide, the crew found themselves next morning perched precariously on this rock, 20 feet above the receding waters. They are sitting beside their stranded junk, patiently awaiting the next high tide to float it again.

greatness, guarded by Port Arthur (Ryojun).

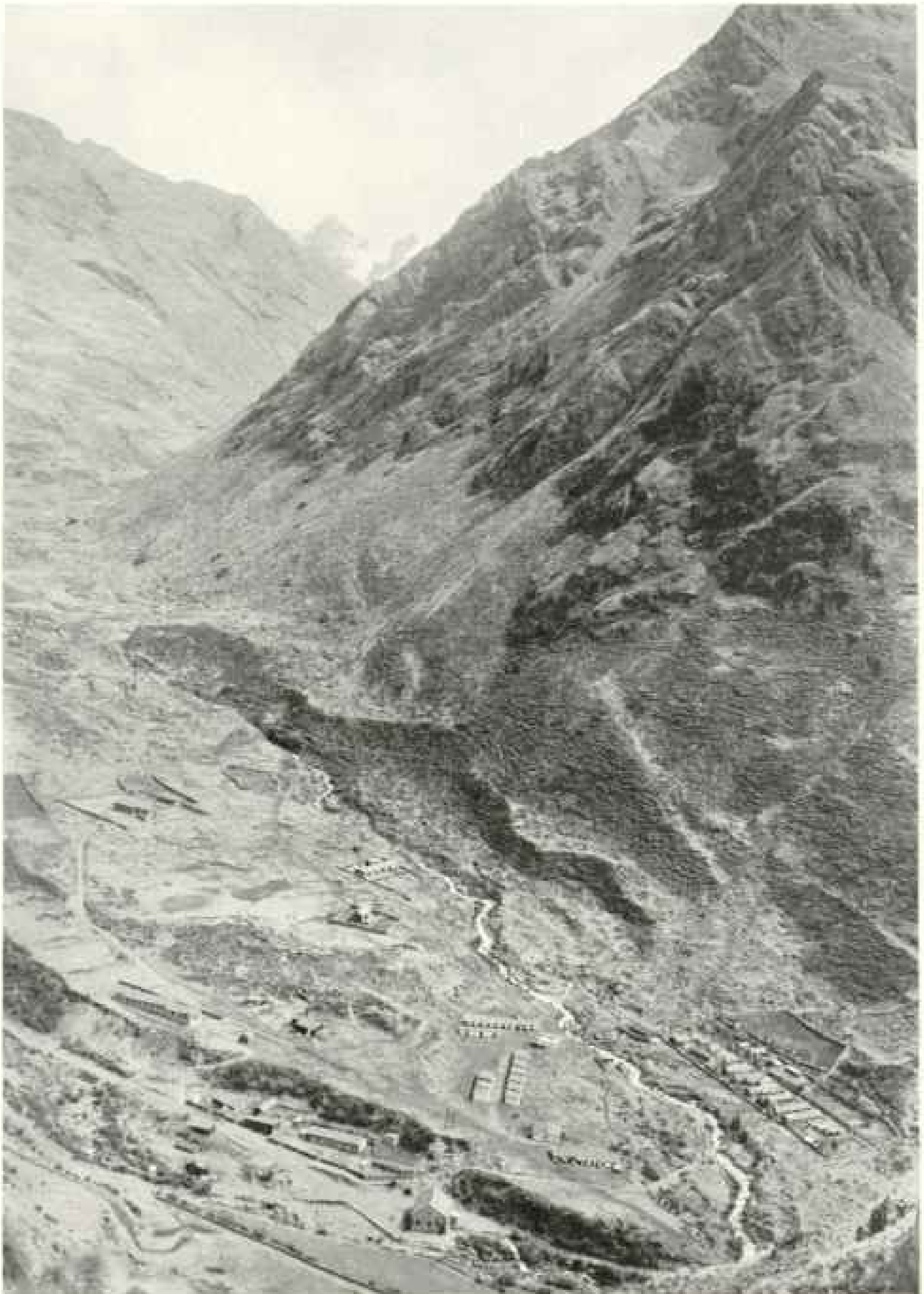
In 1904-5 new history was written by gunfire; Dalny changed hands and became Japanese Dairen. Again it grew, and later the finger beckoned Shantung's peoples to migrate. By thousands every day they came to join in the mighty agricultural invasion into Manchuria lands, where prosperity rode in the guise of soy beans and other farm products.

Dairen prospered. To-day along its wide streets that radiate outward like spokes in a wheel are the fine buildings of commerce; in every way it is a modern, prosperous city.

To-day the three northeastern provinces and Jehol fly the flag of China's former emperor, Pu Yi, whose new reign here is to be designated under the dynastic title of Kang Teh, meaning "Peace and Virtue." From Chinwangtao to Antung is Manchutikuo coast.

Striking are the changes that have taken place along the China coast since the *Empress of China* nosed into Canton harbor.

Here patches of France, Portugal, Great Britain, Germany, and Japan have been grafted onto the former historic Cathay and have produced their blooms. To-day the native stock, bursting with energy, is thrusting out new and vigorous growths.



Photograph by F. Villegan Atamayo

#### HIGH IN THE TOWERING ANDES MEN DIG ORE TO COAT TIN CANS

For nearly six years the author made her home in a tent here (one of the group at the lower right), at the Pongo base camp for large-scale tin mining, and had opportunity to study strange fiesta customs surviving among Indian laborers in the mountains. The camp lay in a sheltered, glacier-carved valley of the Cordillera de Quimsa Cruz, so far above the sea (nearly 12,000 feet) that only scrubby plants and grasses would grow. The small stream eventually reaches the Amazon.

# BOLIVIA, LAND OF FIESTAS

BY ALICIA O'REARDON OVERBECK

AUTHOR OF "FRIEDBURG—GATEWAY TO THE BLACK FOREST," IN THE NATIONAL GEOGRAPHIC MAGAZINE

**F**IESTAS are the very heartbeat of Bolivia, that South American land of contrasts, where in a few hours a mule can carry you from perpetual snow to perpetual summer, from arid sand wastes to steaming tropical forests, from modern cities to primitive farm communities whose organization goes back to the dim pre-Inca days.

When the Spaniards, headed by Pizarro, climbed over the Andean wall and dropped down into the heart of the Inca country, they found a highly developed nation, with its own elaborate religious observances. The conquerors superimposed on these pagan rites Christian ceremonies, and it is interesting now to trace the curious combination of pagan survival and rather warped Christian ritual that has emerged in the form of fiestas; for practically all Bolivian fiestas, save the *Seis de Agosto* (Sixth of August), the country's Fourth of July, are of religious origin.

I had opportunity to watch these fiestas, because for nearly six years I lived, with some twenty other "gringos," in a lofty, isolated mining camp (base for a large tin mine), situated in one of those deep, narrow valleys that gash the eastern side of the Cordillera Real, or principal range of the Andes (see map, page 649).

To the west lay a mountain wall 15,000 to 19,000 feet high; to the east was the impenetrable jungle of the Amazon Valley—barriers which cut us off from our own world and shut us in a strange and primitive world of people whose thin veneer of European culture belonged to a civilization long dead.

My introduction to the fiesta of *Carnaval* (Carnival), which precedes Lent, occurred shortly after my arrival in Bolivia. We gringos were invited to spend fiesta at the mine camp, which lay more than 15,000 feet up in the mountains, close to the line of perpetual snow.

To get there, we had to "change cars" several times. We started on muleback (mules are used in the altitudes rather than horses because of their greater endurance) over a narrow trail that climbed steplike up glacial terminal moraines, beside a stream that hurtled down to join the Amazon (see illustration, opposite page).

Sheep, guarded by dirty children, grazed on the stubby grass that grew on the rare

level stretches. Potatoes and okra flourished in the small fields, surrounded by stone walls.

Occasional thatched huts, each topped by a canting cross, stood close to the trail, and from their doors, through which seeped that curious Indian smell of smoke and grease and dampness and unwashed bodies, people watched us pass.

Three or four black dogs ceased worrying the carcass of a fallen llama and ran snarling at the heels of our mules.

## MOTORING IS PRECARIOUS IN THE HIGH ANDES

After less than an hour we arrived at the company mill. Here ore from the tin mines was brought by an aerial tramway five miles long, and here it was concentrated to 60 per cent tin before starting on its long journey to Liverpool, there to be converted from oxide of tin to the metal tin which coats our so-called tin cans.

From the mill the men were accustomed to traveling to the mine in the open buckets of this ropeway, but we women were stowed in the official automobile for the next few miles, while the mule drivers took our animals cross-country.

Motoring in the high Andes is not fun. The road from the mill wound round and round an almost perpendicular mountain. Water splattered down walls of glistening black slate and spumed across our path. Below us lay giddy, shadowed drops, and in February, the equivalent of our August, the mud was deep and slippery.

Mules are better for this kind of travel; so I was glad when the road dwindled to a thread of a trail and I was again on my mule and jogging upward.

We stopped at the pass which led from our valley to the one in which lay the mine camp to breathe the mules and to hammer life back into cold-stiffened fingers. Even close to the Equator, at 16,000 feet the cold cuts into one's vitals like a keen rapier; but aside from this discomfort, none of us was affected by the altitude.

Over our heads the aerial ropeway buckets passed, the ascending ones empty, the descending ones brimful of ore. Up from the Choquetanga Valley, which spread below us, rolled giant masses of wind-torn



Photograph by E. E. Buchler

ONE OF THE UGLIEST CARRIES A HARP

The celestial instrument, a small, primitive version, contrasts strangely with the mask's satanic, staring eyes and huge, protruding tongue. Most of the costumes, such as this one seen at Oruro, are Indian-made.

cloud mist, out of which, like gleaming islands, appeared and disappeared the snowy heads of lofty Andean peaks.

We single-filed gingerly down the glassy trail, the animals sliding on the ice-coated rocks, to a point where the trail appeared to end. Then, swinging around a jutting shoulder of snow-veined granite, we entered a cirque surrounded by glaciers and sharp, white-crested peaks that rose to 18,000 feet and more. At its bottom lay a rippleless, jade-green lake.

By the shore, on the only piece of visible flat ground, was the mine camp—three stone buildings (the office, staff house, and

store), half a dozen canvas tents grouped about a cobbled patio, a corrugated-iron hospital and schoolhouse, a corral, and a row of thatched native huts made of stone and mud.

Everywhere was stark desolation; only the huge mounds of loose, gray rock, the menacing spires of dull-gray granite, the snow, and the unfriendly green lake. But it was camp, and here we remained in comfort for a week, celebrating the fiesta of Carnaval (see text, page 645).

LIQUOR AND DYNAMITE ENLIVEN THE FIESTA

Carnaval is supposed to start the Sunday before Ash Wednesday, and the company rule is that the miners must be back on the job Thursday morning. As a matter of fact, festivities are usually in full swing by Saturday afternoon, and sometimes they drag out for an entire week. The company makes donations of money, liquor, and dynamite, and is also obliged to make certain concessions for the occasion.

Normally, our mine camp was dry. But by sundown of the Saturday before Carnaval traveling merchants were yammering for admission, and by the next sunrise the mule trail which was Main Street was lined with booths and makeshift stalls, where bottled beer, raw alcohol made of sugar cane, *pisco*, or grape alcohol, and *chicha*, a drink brewed from grain that has been chewed, spat out, and left to ferment in the sun, were peddled.

These merchants also did a roaring business in a concoction of sun-dried sheep, onions, and fiery red peppers ground into a paste; pigs roasted whole and looking uncommonly natural; boiled *chuño* (potatoes which have been frozen, trampled free of water, frozen, and trampled again and again, until they are little balls of pure starch); and stacks of golden Bolivian meat pies and grayish native bread, not to mention an assortment of drygoods and hardware from Germany—shawls, skirts, blouses, shoes, the omnipresent white enamel ware, celluloid dolls, glass rosaries, pocketknives, and the like.

The official celebration was meticulously launched on Sunday morning by the presentation to the mine superintendent of the *Achura*, or annual good-will offering of high-grade tin ore which the miners had pilfered during the year from the stopes.

First, from the corral came half a dozen sad little burros, bedizened with gaily col-

ored saddle cloths and twined with serpentina. Each animal was led by a section captain attired in his best, and each bore on its back two sacks of ore, the achura.

The actors in this naïve little comedy ranged before us; the sacks were taken off the burros' backs and placed at the superintendent's feet. Then each captain, on behalf of his section, made a speech of such fervor and intensity that the orators themselves were moved to tears; and the superintendent replied with as much enthusiasm as if he didn't know precisely where the ore came from.

Toasts were drunk to North and South America, to the United States and Bolivia, to the Boss, to the ladies and the gentlemen. The affair concluded with a general shaking of hands and an exchange of embraces, and Carnival was officially under way.

#### IMPORTED BAND VS. LOCAL TALENT

Music is the keynote of all Bolivian fiestas, and our miners, particularly affluent at this time, had brought in a professional band from Oruro for \$300 gold. This band earned its money, since it played practically without ceasing for four days and four nights, with a splendid disregard of local talent. For each mine section, too, had its own particular band, usually made up of players of drums and home-made reed pipes, that settled in nooks and corners of the patio and along the seething Main Street.

Without raising an eye toward the haughty imported artists, it played, over and over, the queer, reiterated, tripping music of the land, which, like the trill of a canary, never seems to reach a consummation.

To this music, broken at intervals by the dynamite explosions, the natives danced day after day. The tropical sun and the tramping of many feet reduced the snow in the patio to black mire, but no one seemed to care. Round and round they swung.

The Cholo (half-breed) miners wore their ridiculously severe best suits of black; their women were resplendent in bellying skirts of pink and green, mauve and blue, with embroidered shawls of contrasting colors, elaborate high-heeled kid boots, and the characteristic straw Chola topper.

Indian men wore homespun pants, raw-hide sandals, striped ponchos of beautiful somber blues and greens and reds, and knitted caps with long earflaps, surmounted by immense round, white-felt hats; Indian



Photograph from Alicia O'Rourdan Overbeck

#### A FAINT ECHO OF ANCIENT INCA POMP

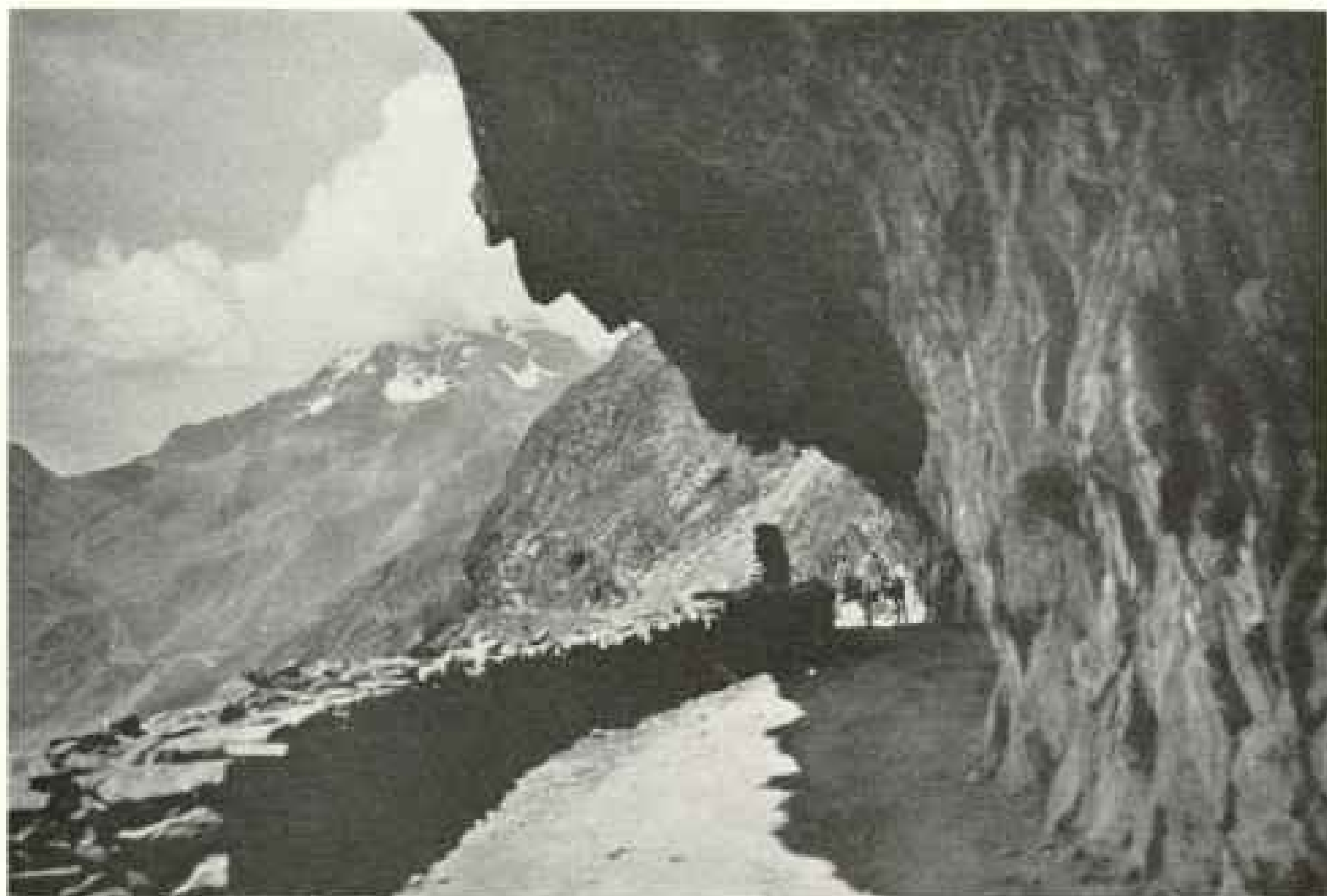
His elaborate fiesta regalia, with crown, scepter, and ornaments of coins, hints of the golden glory of the age before the Spaniards came. The Aymaris were subjugated by the Incas long before the Spanish conquest.

women were frowzy and bedraggled in wool skirts, sandals, native wool shawls of rusty orange and heavy purple, and little hard felt hats. Children, dressed exactly like their elders, were everywhere, popping in and out among the dancers, harassing the bands, stealing titbits of food or drink where they could.

Most of the women had babies in the blankets knotted around their shoulders, and the unfortunate infants bobbed up and down as their mothers twirled and bounded through the boisterous measures.

Some of the young bloods had hired costumes from La Paz or Oruro and were





A DYNAMITE-CARVED AUTOMOBILE ROAD CLIMBS GIDDY ANDEAN HEIGHTS

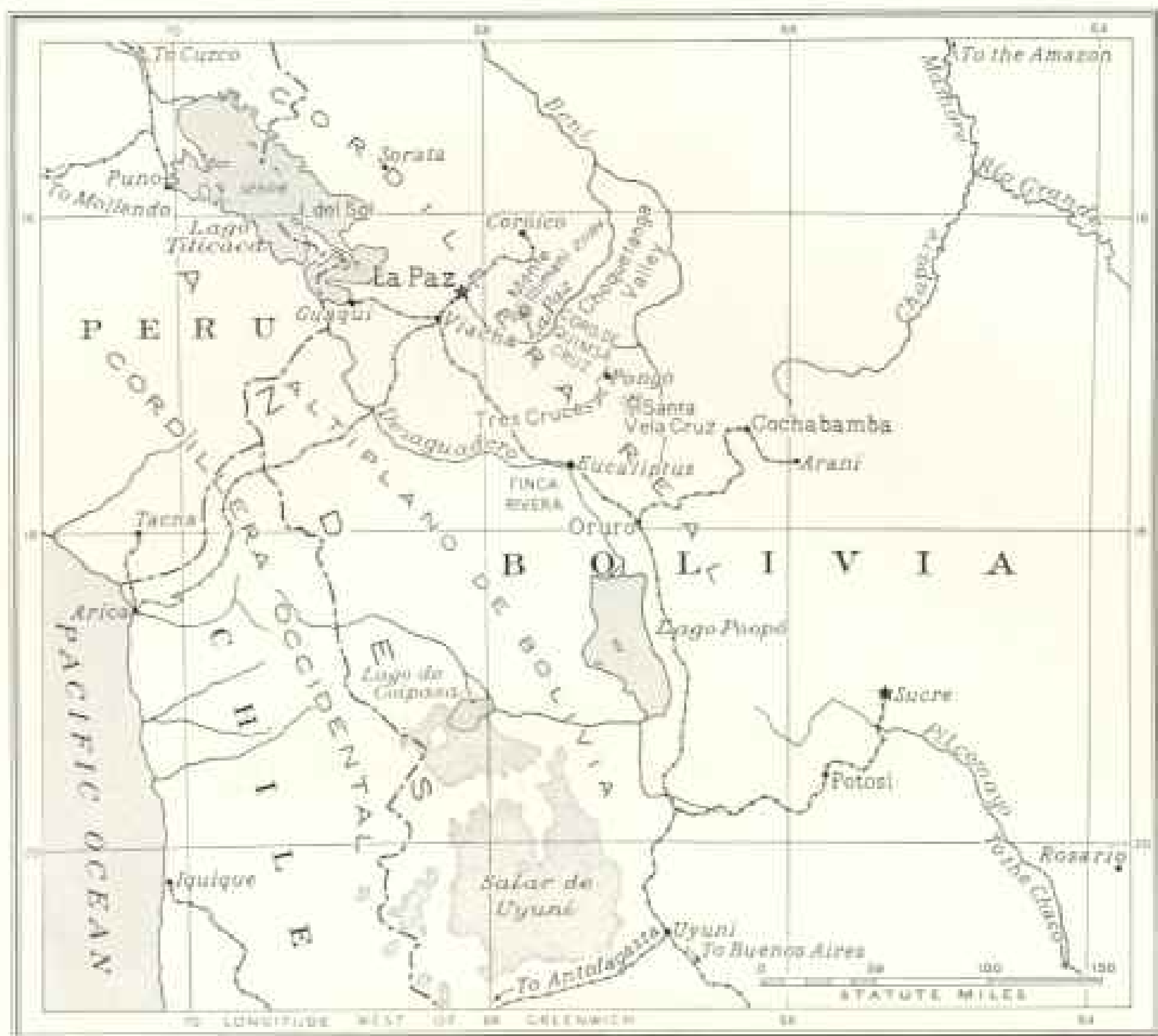
To the author a sure-footed mule was preferable to a motorcar, sliding and groaning around the curves of the rough track that ran halfway from the mill to the mine (see text, page 645). The snow-capped mountain in the distance is Santa Vela Cruz, the southernmost peak of the Cordillera de Quimsa Cruz.



Photographs by F. Villenas Aramayo

THE DEVIL ACTS AS MASTER OF CEREMONIES

With pitchfork in hand he stands at the left and watches over one of the distinctive Bolivian native dances. At the right a visitor, Celia (see text, page 651), joins in the dancing at the invitation of the natives, for at fiesta time Bolivia shows its true democracy. Sun designs, worked on the costumes, recall ancient pagan rites, now curiously combined with Christian ritual.



Drawn by H. E. Eastwood

ON BOLIVIA'S ROOF, AMONG THE ANDES, THE AUTHOR POUND FIESTA-LAND

At a mining camp in the Cordillera de Quimsa Cruz she watched Indian laborers in gay carnival. At the Finca Rivera and elsewhere on the high, windy plateau she saw somber-eyed Aymará Indians, in age-old rites, pay homage to their dead (see text, page 651). Constitutional capital of the Republic is Sucre, named for Simón Bolívar's able general, but La Paz, more than two miles above the sea, has long been the actual seat of government. Lofty Lake Titicaca, on the Peruvian border, is approximately half as large as Lake Ontario.

ruffling around in beaded trousers, satin capes, little leghorn hats with ostrich plumes and long ribbon streamers, jute wigs and whiskers, and masks.

One group wore false faces that particularly intrigued me—pleasant, Germanic faces, with mild china-blue eyes, pink cheeks, and widely smiling mouths that disclosed rows of gold and silver teeth.

GRINGOS JOIN IN THE FUN

As the fun grew wilder, we gringos were called out to join in the dancing. We went not only because we liked it, but because it was something of an obligation; for at fiesta time Bolivia knows true democracy, and the meanest Indian feels he has a justifiable

grievance if the most elegant aristocrat refuses to dance or drink with him.

So, although dancing at an altitude of nearly 15,000 feet, in riding boots, on slippery cobbles, and with a partner of uncertain merit, might come under the head of hard labor, we gayly joined the laughing, shouting crowd, danced with them, and solemnly accepted a pull at their proffered beer bottles or exquisite little cups of hand-beaten silver filled with pisco.

Confetti flew in feathery showers, and whizzing strings of serpentina wound round and round us. Tiny bags of flour, followed by eggshells filled with a particularly vile perfume, buzzed through the air and plastered our faces, hair, and clothes with dough.



Photograph from Ewing Galloway

INDIAN BRAVES WEAR SKIRTS ON THE ISLAND OF THE SUN (ISLA DEL SOL)

Effeminate-looking feathered hats add to the illusion that women make up the nearer group of fiesta flute players. Actually, most of the dancing is done by men, and theirs is a special costume favored in this center of ancient sun worship. Members of the farther group wear ocelot skins. In the distance are the waters of Lake Titicaca, highest steam-navigated lake in the world. Across it comfortable steamers ply between Bolivia and Peru (see map, page 649).

Finally, a halt was called, and the workers streamed off to the office, to stand in line at the pay window while the company gift was distributed. This gift never changed its character during the years I was in Bolivia. Invariably it was a gaudy, printed cotton handkerchief filled with pink and white sugar candies rolled round caraway seeds, a package of confetti, several bundles of serpentina, and a small bottle of Florida water.

CHRISTENING AN ANNUAL EVENT

Fireworks, too, punctuated the dancing. But, with all these worldly snares, religion was not overlooked. A priest was always brought in, even though his fee cut distressingly into the music and fireworks funds, and the year's crop of babies was christened and the year's crop of lovers married.

With perfect good will and no one's feelings hurt, the Pacha-Mama, too, received

her dues. The living sacrifice to the Mother Earth is one of the most curious survivals in Bolivia of an ancient custom and one in which we gringos did not participate.

I know only from hearsay, therefore, that a bull, which the workers thriftily insist on the company's providing, is driven to the portal of each mine and killed by a blow between the eyes. The heart is cut out and the blood is squirted into the mine and over the rocks at the portal. The animal is then skinned and the meat parceled out to the people. This sacrifice is supposed to appease the Pacha-Mama for metals taken from her during the year, and to obligate her to prevent mine accidents, as well as to produce plenty of rich ore and a smashing crop of potatoes during the coming season.

Later, if accidents persist or the mine production drops off, the company, despite its donation of six or seven bulls at Carnaval, is called on for a number of white llamas,

which are offered up to the temperamental Pacha-Mama.

So the fiesta days fly by. Comes Thursday morning. The hired band, weary, dirty, but cheerful, tootles down the long trail home. The merchants, herding before them their burros, noisily set forth for other, if lesser, fiestas. The native bands, still musically inclined, scuttle from point to point, trying to evade the eagle eye of the mine superintendent, who is bent on ridding his domain of outsiders and getting his men back on the job.

Slowly life shakes off its mantle of confetti and serpentina and emerges bare and drab. And the great fiesta is over.

#### ALL SAINTS—A FIESTA OF AND FOR THE PEOPLE

Carnaval and the Seis de Agosto, both celebrated in much the same manner, are not entirely unique. Carnaval is observed with some variations around the world, and there are few countries left without their Liberation Day. The Bolivian fiesta that is purely of the people and for the people, the fiesta which a gringo must approach reverently, if at all, is *Todos Santos* (All Saints), the feast of the dead.

When my first November in Bolivia rolled around, I was staying at the company staff house on the *Altiplano*, the highland plateau lying between the east and west ranges of the Andes (see map, page 649). It has an average elevation of about 13,000 feet and a width of 50 to 100 miles; topographically, it consists of wide, flat plains and low, rolling hills. The International Railway, which connects Buenos Aires on the southeast and Antofagasta on the southwest with La Paz, runs through this pampa land.

Most of the region is desolate, with nothing but scant patches of tola brush, ichu grass, and occasional scrubby fields of barley, potatoes, and quinoa. In the part which I know best the few inhabitants (the population density is less than eight to the square mile) are shepherds or small farmers, living in villages on huge free holdings, or *fincas*, under a system of laws that must have been in existence long before the Inca Empire reached its zenith.

The customs of these people are very different from those of our miners back in the hills; so I was delighted when Billy, the young Scot in charge of the company haul-

ing, came to my room on the eve of the fiesta and told me that Claudina, the cook, had invited us to her house.

"She's staging some sort of a show," he said irreverently, "and wants us in on it. Celia will tell you about it."

Celia was the chatelaine of the house, as well as doctor, nurse, and counselor to every native for miles around. Through the open kitchen door I could see Claudina, strangely unreal and important in a black skirt and shawl. Around her were grouped three other house servants, dressed in their gaudiest and best.

"You see," Celia explained, "both the father and mother of Claudina's man died last year, and it's the custom to have a special ceremony in the house on the *Todos Santos* immediately following a death. This is a very solemn affair, to which only well-loved outsiders are invited; so tread lightly."

We stepped out into the crazy wind that forever blows across the *Altiplano*, the kitchen party at our heels. Down a dark, tunnel-like alley, flanked on either side by blank adobe walls, we went until we came to an open door, through which flickered a wavering light.

"Enter, Señor y Señoras." Claudina ushered us down a single step into the room which was her home.

At first glance there was something macabre, almost sinister, about the still, small place, with its tremulous candlelight and its dominating crucifix shrouded in black net, through which the Figure gleamed waxen. There should be an open coffin, I felt, and the stagnant sweetness of funeral flowers, and mourners who covered their heads and wept.

#### ANCIENT RITES HONOR THE DEAD

But there were none of these. Claudina's man; his brother, the night watchman; and a shriveled, bent little old man in a scarlet poncho rose with composure and shook hands with us. Then the old man, with gentle courtesy, made an address of welcome, partly in Spanish and partly in Aymará, explaining that it was the custom in Bolivia to honor the lately dead. He waved his hand with a large gesture that embraced the extraordinary scene, and my first feeling of awe slipped from me.

For, examined critically, the room was more like a rather elaborate delicatessen than a funeral chamber. Against the wall



Photograph from Willard Price

PROUD SCION OF A CONQUERED RACE

A fine type of Aymará Indian at La Paz pauses for a moment in the dance. A big fiesta headdress of feathers is fastened under his chin. His cheekbones are high, his skin copper-colored. The Aymarás are generally darker, shorter, and less mild in nature than their neighbors, the Quichuas.

opposite the entrance door and under the crucifix was a sort of altar on which burned six candles. On either end of it were two large images of nicely browned bread, one a man in Cholo costume, the other a woman in a high hat, a shawl, and an immense skirt. Around these figures were groups of spirited bread animals—llamas, burros, dogs, and possible lions.

In front of the altar were two kitchen tables, set side by side and spread with purple and black crêpe paper. On them were arranged strange, pathetic offerings of love—a pineapple, a bunch of somewhat mangled bananas, oranges, bread baked in numerous shapes, tins of sardines and peas,

a package of wax candles, a skein of blue wool, a spindle, little cakes, reed pipes, and a mound of coca.

Several bottles of beer lay on each table, and glasses of chicha and pisco were scattered among the food. It was so warmly human that I felt hot tears smarting under my eyelids. But the formalities must be observed.

"It's very beautiful, Claudina," I said, and we exchanged a stately embrace.

"We must say a prayer for old Tomaso and María," whispered Celia.

So with bowed heads and closed eyes we sped our good wishes to those two souls who had fared forth into the unknown. Then we politely drank a glass of beer and ate a few cakes, shook hands all round, and stepped into the night.

STANDING GODMOTHER TO A BREAD BABY

Later, as we settled down by the staff-house fire, Billy said: "Did you know you were go-

ing to be asked to stand godmother to Claudina's baby?"

"I didn't know Claudina had a baby." The impending honor wasn't good news, as the godmother in Bolivia assumes definite duties, such as providing the christening garments, sending gifts to both baby and parents, setting up the christening party to meat and drink, and paying for the gravestone and coffin should the child, as is often the case, die.

But the kitchen door was opening and Claudina, holding in her arms a bundle swathed in flowing, embroidered robes, was advancing. Behind her solemnly stepped the other servants and several friends.



Photograph from Ewing Gallaway

INDIANS DANCE IN OSTRICH-PLUME HATS AS TALL AS THEMSELVES

A source of supply is available near at hand, for the American species of ostrich roams the deserts of southern Bolivia. To make these headdresses seen at Rosario, a bamboo framework is fastened to the hat and a large bamboo hoop separates the plumes of the top to form a feathery circle five or six feet in diameter.



Photograph by F. Villegas-Aramayo

HERE THE WELL-DRESSED NATIVE WEARS A MASS OF FLOWERS ON HIS HEAD

Fiesta fashion in parts of Bolivia's high plateau calls for flowing white robes, large floral headdresses, and long reed pipes for music. In some villages the hats are huge and are trimmed with really beautiful ostrich feathers dyed brilliant colors.



Photograph by F. Villegas Aramayo

**THE BRASS BAND BLARES, THE GRAND MARCH STARTS—IT'S FIESTA TIME AT A TIN MINE IN THE ANDES**

Indians whose ancestors fought the Incas and the Spaniards labor stolidly in the white man's mines until the frequent fiestas. Then, with music, drink, and dance, and dynamite, they quit work and celebrate (see text, page 646). Musicians brought from Oruro toot their hardest as the procession moves along Main Street, lined with makeshift liquor booths and stalls. The General Manager and Chief of Police are at its head, followed by the gringo engineers, office staff, high-class Bolivians, Cholos (half-breeds), and Indians. The banner of the district school is borne in the van.



**"OLD NICK" HIMSELF BRANDISHES AN UMBRELLA**

It looks like rain and the Indian under the horns and hair is taking no chances of getting his elaborate Carnival costume wet on the way to the church at Oruro. Incidentally, he has not bothered to remove his spurs. In such outlandish costumes as these the dancers are carried on for three days and two nights, or longer.



Photographs by E. E. Buchler

**NOW THE TOWN IS FULL OF NIGHTMARES!**

Here comes an evil spirit on his way to church, of all places. Take off the horrendous mask with its horns and, lo! it's just an Indian member of Oruro having his fun, as his ancestors have had for generations. He bears a shield and a scepter somewhat like a pitchfork, and blazoned on his stomach are the points of the compass.





Photograph from Ewing Gallowsy

ALL DRESSED UP FOR A CARNIVAL

A young Aymará living near La Paz wears the skin of an ocelot and a "high hat" which should be an inspiration to the modern milliner in her quest for "something different." Lovingly he fingers his flute, and crosswise, beneath his stiff fur "vest," he carries another of different pitch.

"Señora," said Claudina, stopping before me, "would you do me the grand favor of becoming godmother to the baby and giving it a name?"

Thoroughly nonplussed by the suddenness of the attack, I could only weakly bow assent. Then Claudina laid the bundle in my arms, and to my horror I found it had practically no weight.

Seriously she turned back the robe, and I saw that I was holding an oval, slightly convex loaf of bread, about 25 inches long and 10 inches wide, made in the form of a baby! The face and hands, nicely modeled, were of cooked but not browned dough, and the glossy, well-baked body was decorated

with animals and scrolls and little colored candies.

"You will give the baby a name?" asked Claudina anxiously. I saw that this was no joke and hurriedly replied:

"I shall name the child Alicia." I was too flustered to think of any other than my own name. Then I gazed sternly down into the bland bread face in what I hoped was a professionally clerical manner and returned the child to Claudina.

"Many thanks, Señora." She replaced the robe over the bread baby and the party withdrew.

"What does it mean?" I asked Billy.

"I tried to pump Claudina," he replied, "but all she would say was, 'It is the custom.' I have heard of the bread baby, though, outside Bolivia. A man from Ecuador told me it was a regular part of the Todos Santos ceremonies there, and that the invitation to be godmother was a great honor.

"But as long as you're interested in this Todos Santos business, suppose you drive with me to the Finca Rivera to-morrow. It's a terrible trip and we'll have to go over unbroken pampa part of the way, but that's where you'll see the real Bolivian fiesta.

"Do you know that the finca is twenty square leagues in area and practically self-contained? Everything is made or grown on the place except some sugar, coca, and alcohol. They raise their wool and weave it into cloth for their clothes; they make their felt hats and hide sandals; they build their houses out of adobe bricks they themselves make; they grow the barley and potatoes and mutton that they eat.



Photograph by Academy of Natural Sciences of Philadelphia

#### NOT A WAR DANCE, JUST ANOTHER CELEBRATION

Stiffened skins of ocelots or jaguars, worn poncho-fashion over the shoulders, add a wild touch to the festive costume of these Aymaras, frantically dancing and blowing their flutes at Eucalyptus.



Photograph by José N. Pérez

#### FINE FEATHERS MAKE FINE FESTIVALS

Most prized for holiday adornment are ostrich plumes dyed blue, pink, green, purple, or flamboyant cerise. False whiskers and wigs, in evidence here, were worn originally by the smooth-faced Indians to imitate and ridicule the early Spanish invaders. The man at the right wears a false face, complete with spectacles and gold teeth.

"Up to 25 years ago it was a community just as it was in the Inca days; but the Rivera Indians are Aymarás, and they were always quarreling with their Quichua neighbors; so they finally put themselves under the protection of Colonel Pando, at the time President of the Republic. Shortly after the transaction the Colonel was killed, and since then the property has changed hands several times; but its boundaries are the same and the old *finca* law is still observed.

"The head of each family has his little farm, which he works for himself; but he is obliged to give to the owner, on demand, six days' work to each three he puts on his own farm. There is never any money exchanged. The owner gives the worker a certain amount of coca and alcohol and nothing else. If an Indian dies without leaving a family, his land and herds go back to the *finca*. Of course, these laws are purely Indian laws, but they are recognized and respected by the Republic; and nearly all Indian uprisings have been caused by infringements of them."

I was up next morning with the sun, and by eight we were under way. Although it was the first of November, there had been no rain, and the road was as dry and white as if it had been sprinkled with talc. Every once in a while a mirage shimmered before us.

We crossed the amber-brown Desaguadero River, which connects Lake Titicaca with Lake Poopó, over a shaky plank bridge and scuttled through a deserted pueblo, beyond which the road was hardly more than a track. We followed it until it tapered off into occasional broken ruts. Before us stretched an empty, wind-swept plain, flat and smooth and bare as a floor.

#### SEVEN VILLAGES ON ONE "RANCH"

"We're on the *finca* now," explained Billy. "The Desaguadero is the boundary on the right. There are seven villages, all more or less alike; but we'll go to the largest, where the owner lives."

We followed the broken trail, in places marked only by huge mounds of tola brush, baled for exportation. Aside from llama droppings and *yareta*, a highly resinous, mosslike plant, tola is in many parts of Bolivia the only fuel and one of the *fincas'* few means of revenue.

Occasional flocks of sheep grazed on the

scant bushes and the dry gray moss that grew on the powdery, reddish earth. They were guarded by barefooted women and girls in dark wool skirts and blouses, wide red belts that extended from the hips well up under the breasts, shawls of warm-colored cloth, and small felt hats. As the shepherdesses followed their flocks, spindles twirled incessantly in their hands.

Llamas, too, found pasturage on the sterile pampa. Their keepers were mostly half-grown boys in bright-striped ponchos and wide-brimmed hats, who drew thin music from small reed pipes. In their unoccupied hand they usually held a sling.

#### LIKE DAVID, THE INDIANS USE SLINGS

"All the Indian fighting," Billy said, "is done with stones and those slings. I think they must be the same kind that David used on Goliath. The Aymarás are deadly shots and can create almost as much havoc with their slings and rocks as the soldiers can with their guns."

Here on the pampa the Indian dwellings were of a different type from those of the pueblos. They were round, beehive affairs, made of adobe brick, and looked rather like the igloos of the Eskimos. They had no windows, and their only entrance was a small doorway so low that a child would have to bend to get in.

On we went, stopping now and then to listen, until at last on the wind came a faint, shrill scream and dull, broken thud.

"There," said Billy, "that must be the music from the pueblo. It can't be far now."

Five minutes later we drove into a pueblo, one much the same as a hundred of its kind in Bolivia.

The church, large out of all proportion to the rest of the buildings, was of the simple basilica type, with buttresses made of piles of stones and adobe, and a single bell tower to one side of the central door.

The house of the owner was a shapeless, one-storied edifice that rambled around the four sides of a big patio. Rows of thatched huts were guiltless of either windows or chimneys, and there was an immense round community oven, almost as large and much the same shape as the igloo dwellings of the pampa. Everything was made of adobe, all the curious faded, pinkish-ocher hue of the surrounding country.

The music was almost intolerably close, but we could see no people; so Billy tooted



Photograph from Ewing Galloway

#### FESTIVE INDIANS LIKE PLENTY OF PLUMES

These natives at Sorata, Bolivia, would wear a gross of ostrich feathers apiece if they could get them. Some of the dancers carry huge sunshades of plumes in their hands and others wear them on their heads in enormous bamboo and feather hats (see illustration, page 653).

his horn. A young man came out of the wide door of the main house and greeted us with stately politeness. He was the owner of the estate, a high-class Bolivian, educated, intelligent, and charming.

"The workers are in the cemetery," he said. "Would you like to have a look at them? You'll see the Aymará Indians here as they were two, three—who knows how many hundred years ago?"

"Our people seldom leave the finca, even to go as far as the railroad, and they know practically nothing of the outside world. They are supposed to be Christians in good standing, but their ritual is a little mixed. They make their regular blood sacrifices to the Pacha-Mama (see text, page 650) and to the sun and moon as well, and in many ways they are very different from your mining-camp natives."

He was right. The predominating type in our district was Cholo; here the people were Indians, pure and simple—lithe, somber-eyed men with a peculiar oriental cast of

feature, who stepped lightly on naked feet over the rough, sun-baked ground; sagging women with matted braids and stupid, vacant expressions; slim boys and girls with smooth, rather pleasing dish faces; children with dirty noses, frowzy heads, and ragged clothes.

#### RICH COLORS OF VEGETABLE DYES

Even the color scheme was markedly different. The Aymarás use vegetable dyes and spurn the more raucous hues adored by the Cholos. From the scant vegetation of the pampa the natives have developed at least 18 distinct colors. In the finca cemetery there were no cherises, no apple greens, no screaming purples; instead, dull, deep reds and rich, thick blues and greens and yellows, all imposed on backgrounds of black and white. The total effect was that of a Persian rug—warm, subdued, harmonious.

No ostentation marked the finca graves. There were only two small adobe monu-

ments and no crosses—simply rows of raised red mounds, covered now with what food the relatives of the dead could spare from their scanty store. Over one of the graves, however, a sort of market stall had been erected, and this seemed to be the central point of the whole celebration. About it milled the greater part of the crowd, and hither the owner guided us.

"It's for the people who have died during the past year," he explained. "The men in charge are the sons of the dead."

Compared with this opulent display, Claudina's exhibition seemed pitifully small. At the head of the stall was a large black wooden cross, from which swung bells that jingled noisily in the rising wind. From the right arm of the cross flew a long black streamer, not unlike the *crêpe* we are accustomed to place on front doors when there is a death in the house.

Below the cross stood a repulsive sheep. Except for its head and the tip of its tail, it had been skinned and sun-dried. The flesh was a dull, purple color; the woolly head, with its staring eye sockets, was turned to give the animal a sprightly, realistic look, and the tail was bent at a jaunty angle.

Had this animal, I wondered, any connection with the Christian conception of the Lamb? If so, it was in queer company, for all around it were hearty pagan offerings: huge quantities of potatoes strung on cords and arranged in festoons; okra, chunks of meat, grain, round, grayish goat's-milk cheeses; coca, *chuño* (see text, page 646); bread baked in the form of animals; sugar cane, and onions with green stalk and flower complete.

On either side of the stall crouched the orphaned sons, clad in black pants, black ponchos, and black hats. Those on the left presided over huge mounds of onions and bread animals; those on the right were in charge of an earthen ewer filled with pisco (p. 646) and a row of small, hand-wrought silver cups. They cried their wares in loud, monotonous tones, and the people pushed and scrambled for the spoil—a stalk of onion and a bread animal or one of the cups filled with pisco, given in exchange for a prayer for the dead.

Some conscientious natives, on receiving their gift, removed their hats, blessed themselves, and prayed aloud; others merely made a pass at their hats and breasts, then

scurried around the back of the stall, quickly to reappear for more booty. One man got four bread llamas and a massive collection of onions, all of which he stowed in the bosom of his shirt; and his returns were scant and perfunctory, the merest shadow of prayers.

"What does it mean?" I asked the owner.

"Who knows?" He shrugged his shoulders. "I think the idea is that the souls come back, and as these people are themselves hungry half the time, they think that nothing would be so welcome to the souls as food."

"But what really becomes of it?"

"Perhaps they eat it; I don't know. They are very simple people. They are quite capable of eating it themselves and still believing that their dead have had it and enjoyed it. They're starting to dance now. Look!"

#### DANCING OVER THE GRAVE MOUNDS

Around the band of pipes and drums that played over and over again its nerve-breaking, monotonous theme, a group of men danced silently, moving in a circle and skipping unconcernedly over the grave mounds. Without a word several women linked arms with the dancers and fell into the thudding dog trot. The groups that had been squatting beside the graves, staring with lustful eyes at the food, rose one by one and joined the dancers.

Aside from the music, it was odd how little noise these people made. Save for the loud cries of the orphans on the stall, there was no outstanding human sound, no shouting, no singing, and no laughter.

"They'll keep up that dancing until they can't stand," said Billy, "or until all the pisco's gone. I hope the souls are temperate, for they'll get precious little to drink by the time their friends have finished."

As we strolled back to the pueblo, the owner grew talkative.

"Don't go away," he said, "full of pity for my people. In several ways they're as well off as many in your own country. They never have to worry. They'll always have a home; they'll always have enough to keep them from starving; they'll never be out of a job.

"As for their customs and religion," he continued, "they are rich in variety and apparently they satisfy. Isn't that enough?"

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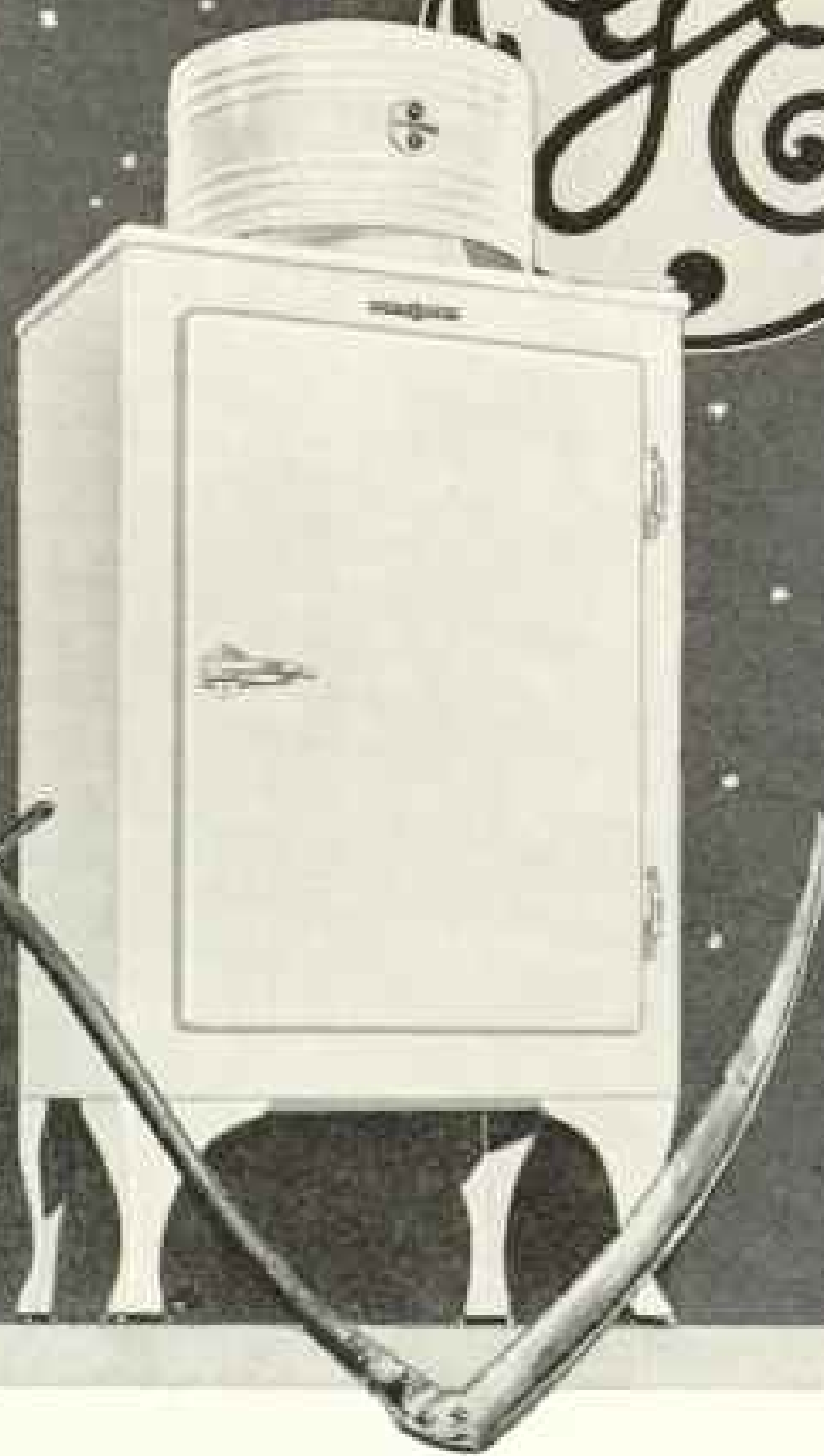
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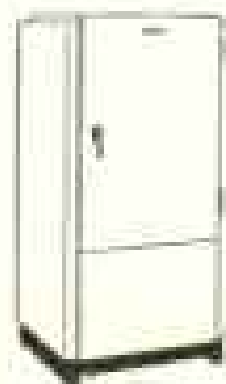
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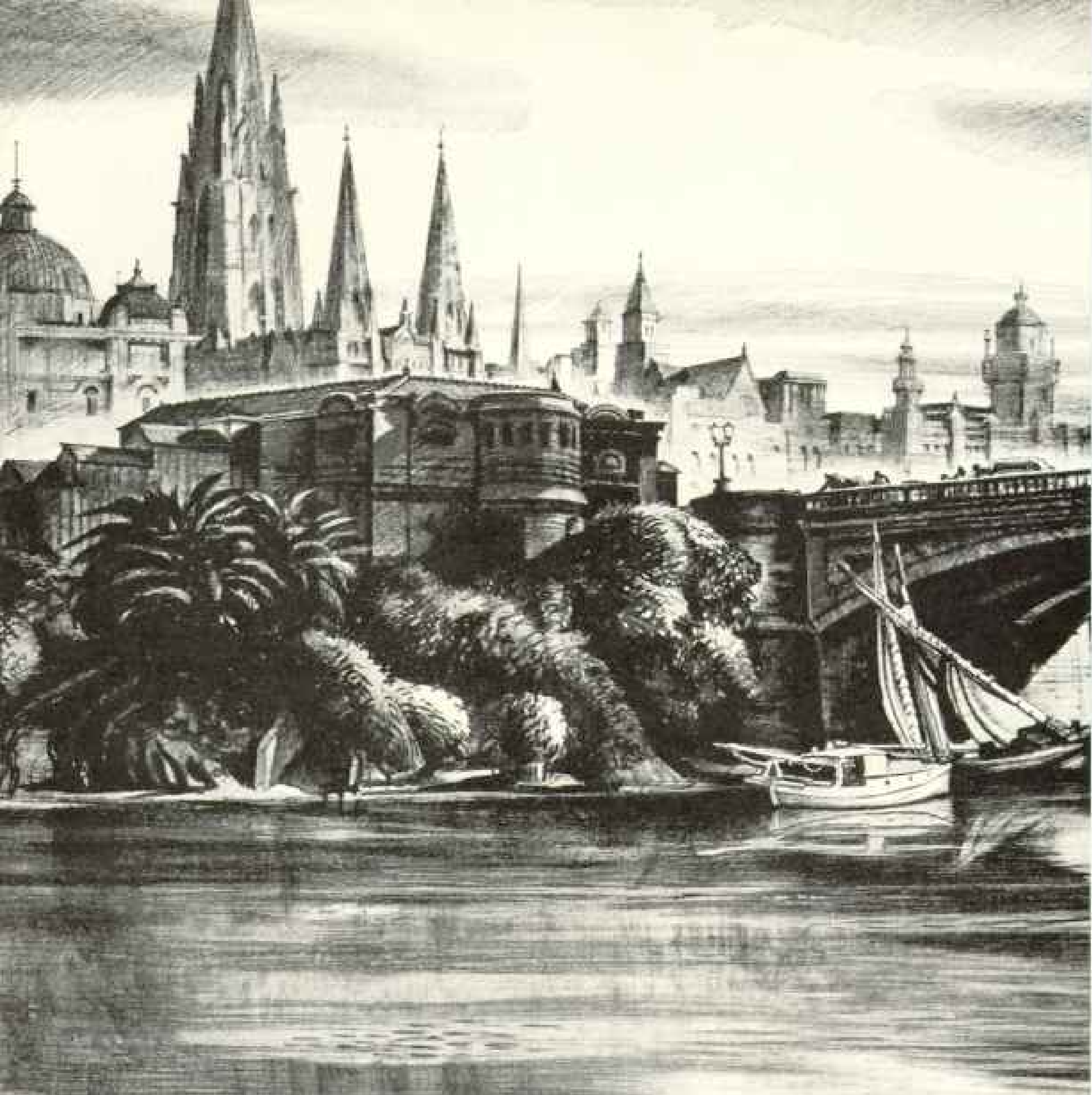
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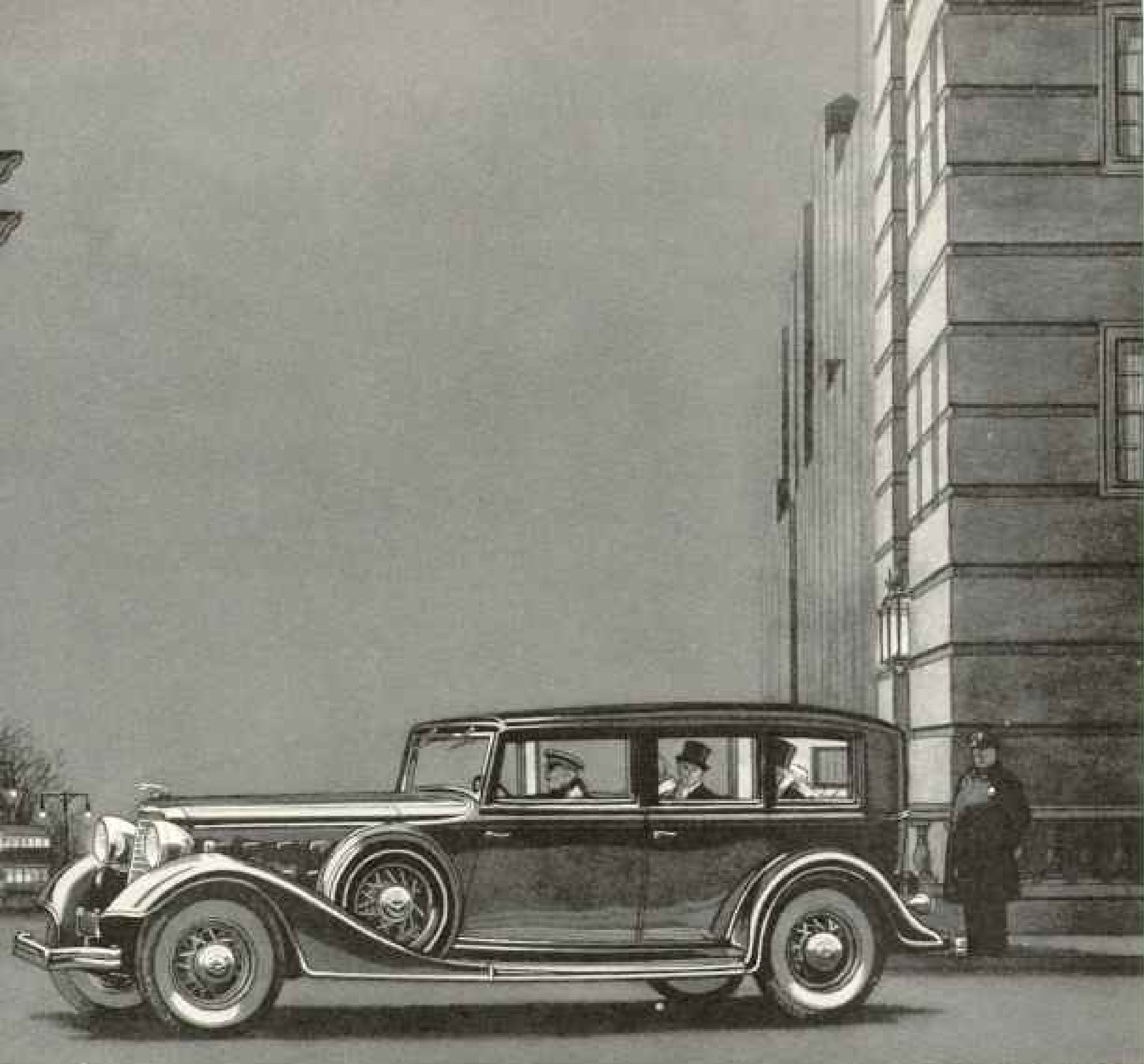
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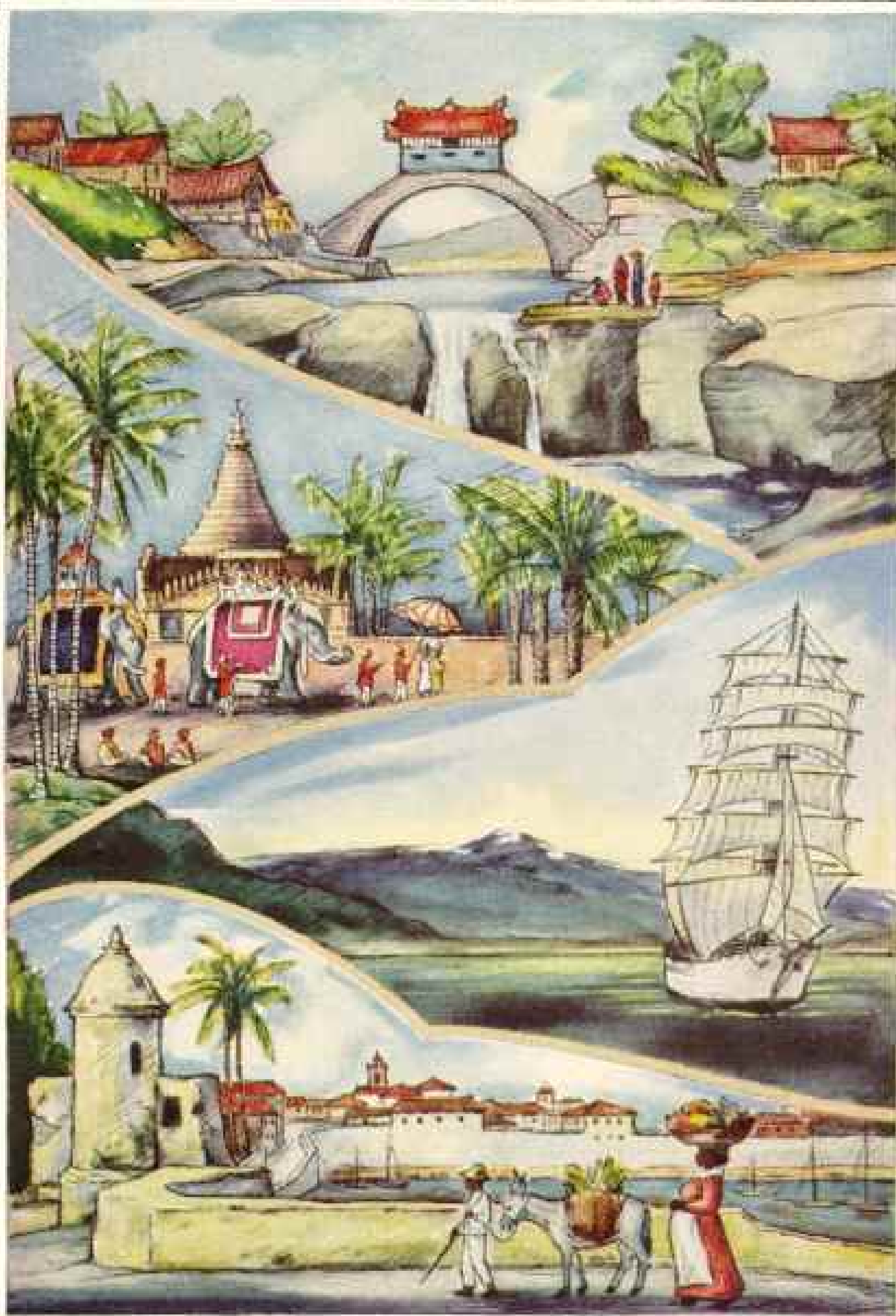
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January 26 from New York. Swiftest, largest ship ever to cruise this route of startling contrasts. Three weeks for Africa, the bizarre East Coast from primitive Madagascar to Suez; both Egypt and Moorish Algiers. Optional tour of the lion-land of Nairobi, of the Nile Valley of Kings. Two weeks for crowded wonders of India-Ceylon. Visit to the Seychelles. A dozen glories of the Mediterranean. All in 86 days, with the famous amenities of fine living on the Columbus... Extensive shore excursions included: First Class \$1340 up; Tourist Class \$775 up.

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Kandy, Penang  
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Semarang  
Bali, Padang  
Philippines  
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*Humanity has never gone forward in its conquest of disease, save in the light of truth*

---

IN the beginning man suffered, and was afraid. He cried for help to the witch doctor. So Medicine was born—in magic and mystery. Slowly it tore away the veils of superstition. Slowly it found the truth—the truth that helps to free mankind from disease.

They say the age of magic is past. Yet many men believe they can free themselves from disease by charms and “cure-alls.” And there are those who use false claims for the medicinal products they make, to profit by such belief.

We hold these things to be true: no man, nor any company of men, has the

right to claim, for any medicinal product, a virtue which it does not possess; to create, in the minds of human beings who seek release from suffering, a hope that is built upon such claims.

To every man, or company of men, who holds the trust of making medicinal products to safeguard health and well-being, there has been given a responsibility—to maintain the highest standards of quality, the surest controls for safety that modern science makes possible.

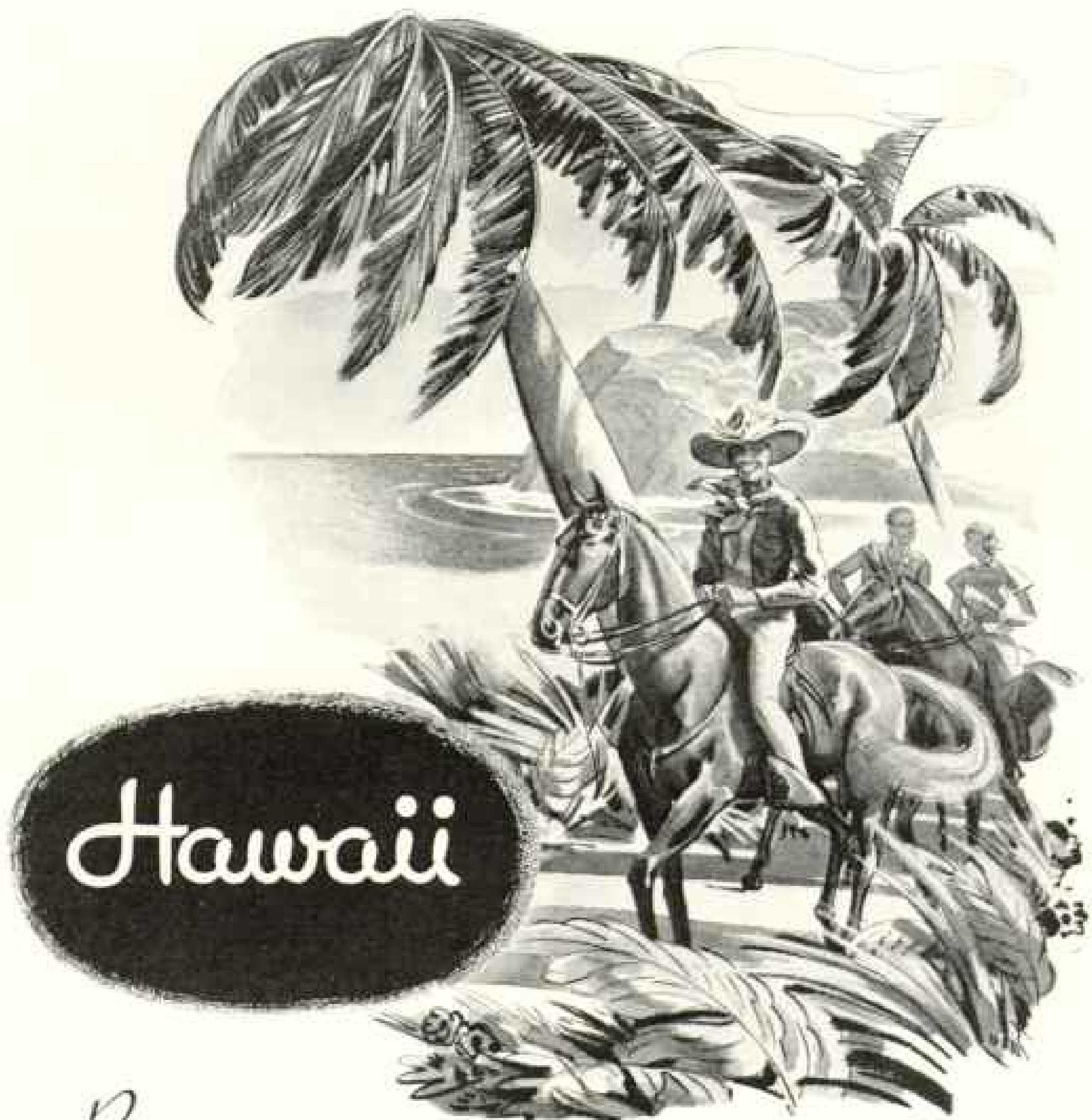
Those who hold such a trust can fulfill it in only one way: by producing the finest medicinal products that can be made—and by providing them at the lowest possible price.

*The House of Squibb is dedicated to these principles. We shall fulfill our trust to human beings with devotion to truth, so that the name of Squibb shall always be “a name you can trust.”*

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*Manufacturing chemists to the medical profession since 1858*

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# Hawaii

Rugged trails and dude ranching from the West. A bit of blue from Naples' Bay, and sky of blue from Southern France. Fashion's pageantry from Continental spas. A volcano to remind of Vesuvius. Golfing, sailing . . . every kind of sport. Sum them all up. Then add . . .

The white curve of Waikiki! Surf boards and outrigger canoes. Softly strummed ukuleles and steel guitars. A tropic moon brushed by an indolent palm. Trade winds bringing flower-scented coolness . . .

And you have the grand total . . . Hawaii.

All the other places have . . . and more. Explaining why the world is Hawaii-bound this year. Slashed rail fares urging "Go." Assurance of 100 cents for every American dollar bidding you "Come." Hawaiian spring days pressing the invitation, whatever the season elsewhere.

A grand place with a vacation complex and no inhibitions. And remember, Hawaii is not a lone beauty. She is a family of island sirens . . . Oahu, Hawaii, Maui, and Kauai.

Five days from San Francisco, Los Angeles or Vancouver. And new, sumptuous liners offer this delightful sea voyage (one way) for as low as \$110 First Class! Cabin Class, \$75! *By plane and steamer—only six days from New York.*

Corner your travel agent. Make him tell you more about this Grand Total called Hawaii, and how economically you can live there. Ask him for a free booklet\*, "Nearby Hawaii". Or kindly write to:

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 207 Market Street, San Francisco - 242 Pat. Sec. Bldg., Los Angeles



A community organization with headquarters in Honolulu, for the dissemination of free, authoritative information about the entire Territory of Hawaii, U. S. A.

*Please note that Hawaii is an integral part of the United States, not an island "possession".*

\*For a larger book, copiously colored, with maps and pictures, send 10c to cover mailing costs.



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**LONG BEACH**

*Invites You*

WINTER cold can not penetrate through the radiant sunlight which streams all through the winter months on Long Beach, largest and most picturesque of cities facing Southern California's famous Riviera. From your hotel, apartment, or cottage window, the golden beach bordering the blue, crescent-shaped bay stretches out below—inviting outdoor sports or lazy hours under a balmy sky. Amid gorgeous flowering shrubs and along palm-fringed avenues, the semi-tropical beauty excites you. Enchantment of a colorful port, cosmopolitan gaiety of a great watering place, and all sports attractions await you. Long Beach gives you all this enjoyment more reasonably than you can secure it elsewhere in Southern California. Living costs make your vacation here so enjoyable that you will want to stay a lifetime. The U. S. Fleet will be at home offshore for the winter—around December 1.

*Greatest Winter Season Ahead*



Please send for information if you are interested in—

Coming by Motor  Or data on hotel, apartment, and cottage rates, etc.   
 By Rail   
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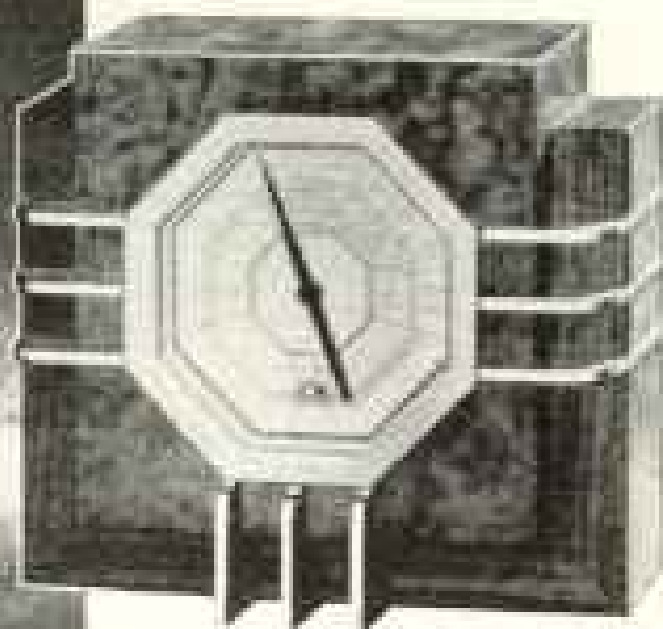
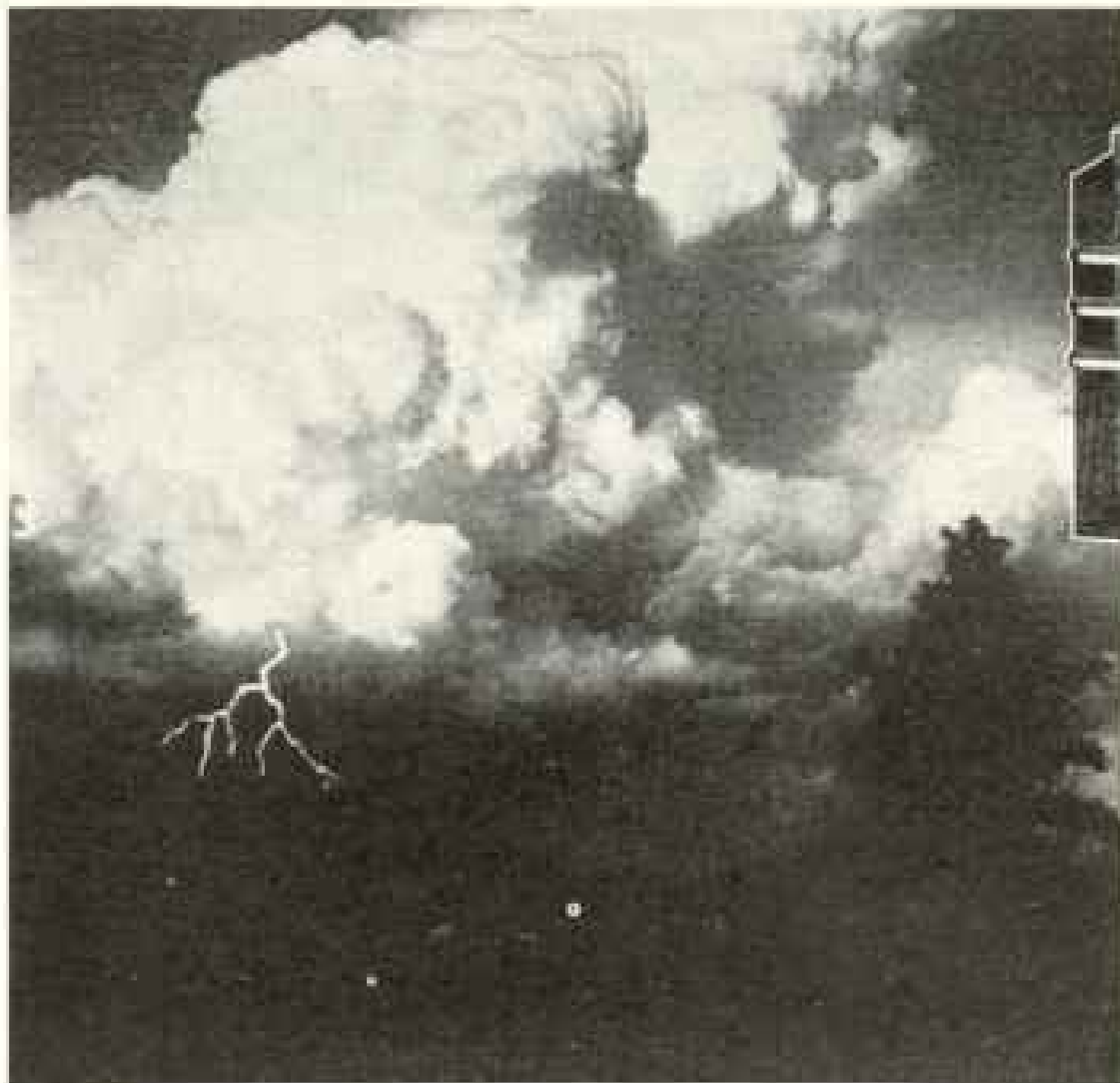
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URD.



# MORE PLEASURE WHEREVER YOU GO

*if you watch the weather!*



**TOMORROW'S WEATHER?**  
You can know today with the Taylor Stormguide. Model shown above, the Regent, with one automatic signal, walnut and gold case, gold dial . . . \$22.00. Other models and shapes from \$10.00 to \$35.00.

THEY are two of the most fascinating subjects of all time . . . the temperature and the weather! And now in your home and in your travels, you can have added pleasure from temperature and weather . . . thanks to new and modern instruments made for that very purpose. Some of these products are shown here . . . bearing the name Taylor, which for nearly a century has meant precision and accuracy. Be sure to look for the name Taylor and you will not be disappointed when you buy thermometers, weather and humidity instruments. Taylor Instrument Companies, Rochester, New York, or Toronto, Canada.

*Prices slightly higher in Canada and west of the Mississippi*

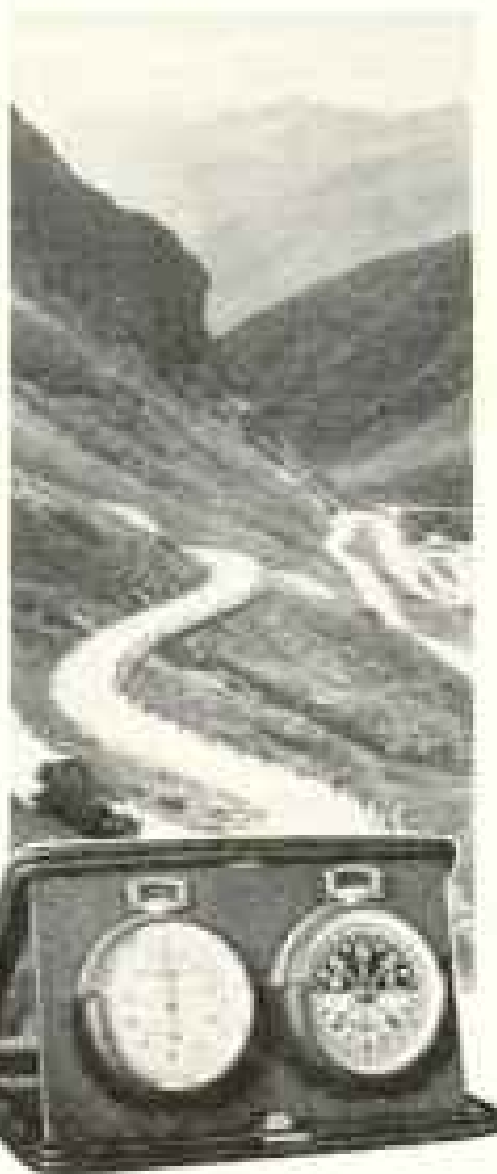
## Taylor

### INSTRUMENTS

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



**HOW COLD** is it? Let this good looking window thermometer tell you. Comes with chromium plated bracket for hanging outside the window; turns to any easy reading position; large, easy-to-read figures. Price \$3.50. Other models as low as \$1.00.



**ADMIRAL BYRD**—(named with his permission!) Set, shown here, consists of compass and altimeter, which tells how high up you are. Pocket size, leather case . . . \$20.00. Your favorite department or optical store can supply or procure this for you.



**WATCH OUT** for dry air . . . it ruins your furniture, makes your floor crack, causes you to catch cold more easily. Taylor Humidiguid shown above, warns you when air is dry. Comes in attractive black case, trimmed in chromium, easy to read. \$-00.

# Remember

**SAME LOW  
PRICE!  
\$2.95**

Per gallon



## Play safe this year with **EVEREADY PRESTONE** THE GUARANTEED ANTI-FREEZE


ONE SHOT of Eveready Prestone . . . put in now . . . will keep your car safe. For every drop of Eveready Prestone is protection from both freeze-up and rust. At \$2.95 a gallon Eveready Prestone is ALL ANTI-FREEZE . . . no water . . . no dilution of any kind.

**Make the Nose Test:** Eveready Prestone, truly non-evaporating, is odorless. But "boil-away" anti-freezes can always be identified by a noticeable odor. Regardless of special "treatments," claimed to decrease evaporation, they will evaporate rapidly when the engine runs at high speeds.

### A SPECIFIC GUARANTEE

National Carbon Company, Inc., specifically guarantees that Eveready Prestone, used according to directions, will protect the cooling system of your car against freezing and clogging from rust formations for a whole Winter; also that it will not boil away, will not cause any damage to our fin-

ish, or to the metal or rubber parts of the cooling system, and that it will not leak out of a cooling system tight enough to hold water.

National Carbon Company, Inc., General Offices, New York, N. Y. Unit of Union Carbide  and Carbon Corporation.

**IT'S ALL ANTI-FREEZE...NO WATER**

## COLD FACTS ABOUT THE BYRD ANTARCTIC EXPEDITION NO. 2

Down in Little America, the regular roost for the mercury is around 60° below zero. This outlandish temperature makes no difference at all to the native penguins . . . but with scientists and explorers down there it's different. How—for example—can man operate gasoline motors in such intense cold?

Mr. Penguin, if he thinks of anything but his next fish dinner, must wonder at the throbbing engines of Little America . . . flying the air, hauling motor-sleds, driving lighting plants. Each one of these engines illustrates man's triumph over Antarctic temperatures. Every water-cooled engine is protected by the only guaranteed, all-Winter anti-freeze: Eveready Prestone.

Eveready Prestone is the answer to Winter tem-

peratures . . . not only for polar explorers, but for all motorists. It is sure *one-shot* protection. Put it in your car and forget it. It will not boil off.

Don't confuse Eveready Prestone with either glycerine or alcohol. Eveready Prestone is guaranteed to guard against "freeze-up" . . . to prevent rusting . . . and to reduce corrosion. It protects against rust from 5 to 20 times longer than other anti-freezes.

Put Eveready Prestone in your car this Winter and save yourself hours of worry and big radiator repair bills.

Read the complete Eveready Prestone guarantee above . . . and see on the chart opposite how inexpensively your car can have this all-Winter protection.


# last winter

## FIND YOUR CAR ON THIS CHART

**IMPORTANT!** The price per gallon of an anti-freeze means nothing unless you know how many gallons you will need during the winter. You can't get that information on a halfway anti-freeze—you don't know how many gallons you will need. But you can get it for Eveready Prestone... and here it is. See how reasonably you can get two-way protection all winter long against both freeze-up and rust with one shot of Eveready Prestone—one shot because it won't boil off, no matter how warm the weather gets between the cold snaps. First cost is last cost—no trips back for more.

MODEL	No. of Gallons			MODEL	No. of Gallons		
	10°	15°	20°		10°	15°	20°
<b>Auburn</b> CARL '28; 6-25, '30; 6-52, '34 8-108, '32; 8-191, 6-245, '32 6-26, '34	1	1 1/2	2	<b>Hupmobile</b> M '29; 222, '30; 422, '34 226, '32; 328, '32; 428, '34 329, '34	1 1/2	2 1/2	3 1/2
<b>Austin</b> 1888, '31, 302, '34, '34	1 1/2	2 1/2	3 1/2	<b>La Salle</b> 342-B, '32; 348-C, '32 329, '34	1 1/2	2 1/2	3 1/2
<b>Buick</b> 6-66, '31; 82-95, '32 84-101, '34 60, '32; 56, '32; 66, '34 66, 68, '32; 69, '32; 69, '34 66, 68, '32; 69, '34	1 1/2	2 1/2	3 1/2	<b>Lincoln</b> A-31, '32; 12-126, 148, '34	1 1/2	2 1/2	3 1/2
<b>Cadillac</b> 341-32, '30; 425-A, '31; 378-C, '32 378-A, '31; 355-C, '32; 422-B, '32 355-D, '34 378-D, '34	1 1/2	2 1/2	3 1/2	<b>Nash</b> 6, '30; 6, '32; 1058, '32; 1200, '34 8, '30; 6-80, '31; 900, '32 8-89, '31; 900, '32; 1200, '32 1000, 1100, '32; 1200, '34 8, '32; 1000, 1100, '32; 1200, '34	1 1/2	2 1/2	3 1/2
<b>Chevrolet</b> 291, '30; 300, '30; 300, '34 31, '32 Master, '32, '34	1 1/2	2 1/2	3 1/2	<b>Oldsmobile</b> P29-A, '30; P30-A, '30 L20-A, '32; L-34-A, '34 P31-A, '34	1 1/2	2 1/2	3 1/2
<b>Chrysler</b> 74, '30; 70, '30 66, '30; 66, '32 6, '31; '32; 30, '34 Royal 8; 104, 8, '32 8, 1000, 8, '34	1 1/2	2 1/2	3 1/2	<b>Packard</b> 628, '30; 728, '30; 828, '31 8, 500, 8, '32; '34 742, '30; 842, '31; DeL, '32	1 1/2	2 1/2	3 1/2
<b>Continental</b> 49, 68, '32; 41, '34	1 1/2	2 1/2	3 1/2	<b>Pierce-Arrow</b> 128, 128, 220, A, B, C, '30 41, 42, 42, '31; 34, '32 840-A, '34 896, '34	1 1/2	2 1/2	3 1/2
<b>De Soto</b> 6, '31; '32; 6, '34, '32 6, '34	1 1/2	2 1/2	3 1/2	<b>Plymouth</b> L, '30; '30; PF, PG, '34 PA, '31; PB, '32 PG, PD, '32 PE, '34	1 1/2	2 1/2	3 1/2
<b>Dodge</b> 6, '30; 6, '30; 6, '31 6, '30; 6, '31; 6, '34	1 1/2	2 1/2	3 1/2	<b>Pontiac</b> 29, 26, '31; 6, '32 V, 6, '32 6, '32, '34	1 1/2	2 1/2	3 1/2
<b>Excess-Terraplane</b> 28, '30; 32, '32 6, '32 6, '32 6, '34	1 1/2	2 1/2	3 1/2	<b>Reo</b> Male '29; 15, B-2, '30 F.C. 6, '31; F.C. 6-21, 6-22, '32 6-23, 6-25, '32; 6-6, '34 849, N-2, '32; 849, A, '34	1 1/2	2 1/2	3 1/2
<b>Ford</b> 4, '30; 36, '31; 8, '32, '33 8, 4, '32, '33, '34	1 1/2	2 1/2	3 1/2	<b>Studebaker</b> Com. 6, 6, '30 100, 8, '32; 6, '32 6, '30; 6, '34 Com. 6, '31; 22, '32; D60, 6, '34 P60, 6, '32; Com. 6, P60, A, '34 P60, 6, '32; 30, '31, '32	1 1/2	2 1/2	3 1/2
<b>Graham</b> 627, 631, '32; Com. 6, '30 6, 4, Com. 6, '34	1 1/2	2 1/2	3 1/2	<b>Willys</b> 77, '32 68, '32	1 1/2	2 1/2	3 1/2
<b>Hudson</b> 6, '30; 6, '31, '32, '33 6, '34	1 1/2	2 1/2	3 1/2				
<b>Hupmobile</b> 12, '31; Com. 6, '32; 317, 421, '34	1 1/2	2 1/2	3 1/2				

IF YOUR CAR IS NOT ON THIS CHART, see your dealer. Some have done not permit the listing of all cars but he has a chart showing the cost of Eveready Prestone all-weather protection against freezing and rust for all makes and models of cars, shown to you before sale.



*The National Geographic*  
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**FORK UNION** BOYD SCHOOL.  
 Small classes. Accredited, B.O.Y.C. Specialized study. Prepares for college or business. Junior school small boys. House-mother. Athletics, swimming. Catalog. Dr. J. J. Wicker, Fork Union Military Academy, Box 101, Fork Union, Va.

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Inquiries directed to the institutions listed on this page will bring prompt, thorough information. In writing to them—"Mention the Geographic—It identifies you."

# Appendicitis Warnings



*"I can give it to you, of course. But if I were you I wouldn't take anything for it without the advice of a doctor. Those abdominal pains may mean appendicitis."*

THE symptoms of appendicitis vary. Almost always, continued pain and tenderness in the abdomen are the first indications of an acutely inflamed appendix. Of course, not all intestinal aches are caused by appendicitis, but anyone who has continued, unrelieved abdominal pain, especially if it is accompanied by nausea or vomiting, needs competent medical attention at the earliest possible moment and not self-medication.

If it is appendicitis the use of a laxative is dangerous. It stimulates violent intestinal action and may spread the inflammation, cause the appendix to rupture, or induce peritonitis. Moreover, the sufferer should not be given food, drugs or medicine of any kind unless prescribed by the attending physician.



Send for your doctor immediately if there is any suspicion of appendicitis. In making his diagnosis he may find it necessary to make one or more blood cell counts or to observe your temperature for a few hours, keeping you quietly in bed under close observation.

Your doctor may decide that the attack does not clearly denote appendicitis and can be relieved without an operation. But if it is a clear case of acute appendicitis, he will probably recommend an operation within the shortest possible time.

Performed by an expert surgeon, early in the attack, before the appendix has burst or peritonitis has begun, an operation for acute appendicitis should cause little concern.

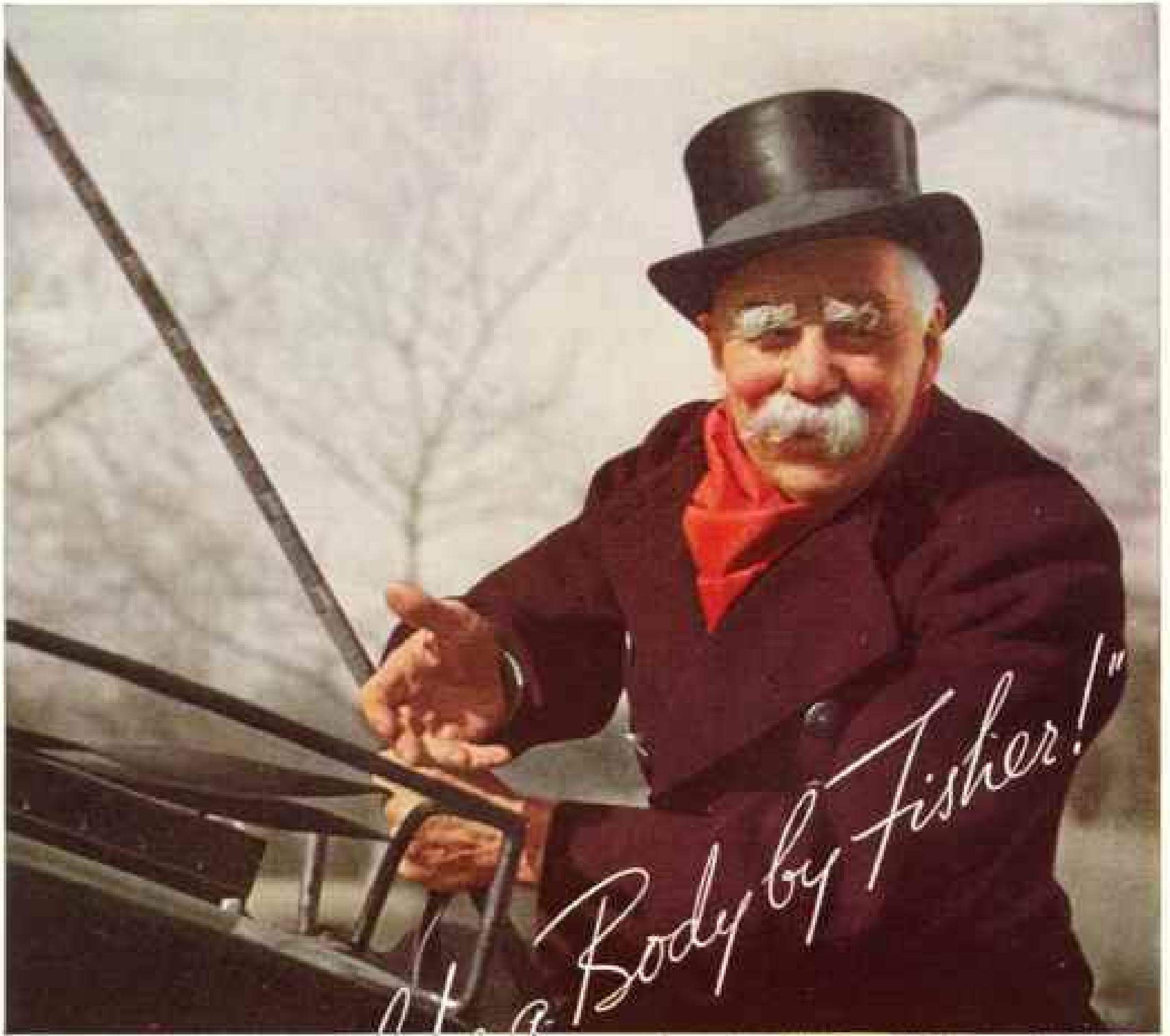
**METROPOLITAN LIFE INSURANCE COMPANY**

FREDERICK H. ECKER, PRESIDENT

ONE MADISON AVE., NEW YORK, N. Y.

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"Mention the Geographic—It identifies you."



For reproduction of this picture suitable for framing, write Fisher Body, Detroit

*Nothing like a Body by Fisher!*



The taxi has replaced the cab—horsepower the horse. But progress does *not* and never will replace the value and virtue of good craftsmanship. The honest desire of competent men to do good work, remains one of the most inspiring and hopeful signs in this troubled world. It explains why the vehicle of many an old cabby has outlasted its era. It explains why people seek out and prize century-old furniture, fine metal and the well-wrought handiwork of other days. It is the plain blunt kind of integrity that has been passed down, father and son, to those who build Body by Fisher. Fortifying the utility and value of General Motors cars, it goes far to explain their rugged safety, their restful quiet, their satisfying beauty, their incomparably long life.

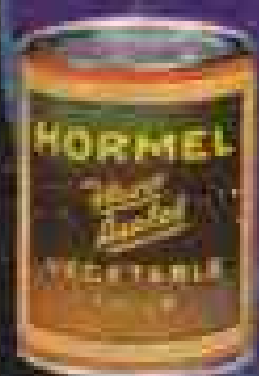


*Body by Fisher*

DOUBLE YOUR MONEY BACK

IF THIS ISN'T THE BEST VEGETABLE SOUP YOU EVER BOUGHT

And You Get  
 Nearly a Pint  
 of  
 Real Beef Stock  
 in  
 every can



**HORMEL**  
**VEGETABLE SOUP**



Color Photograph by F. Otto Hirt

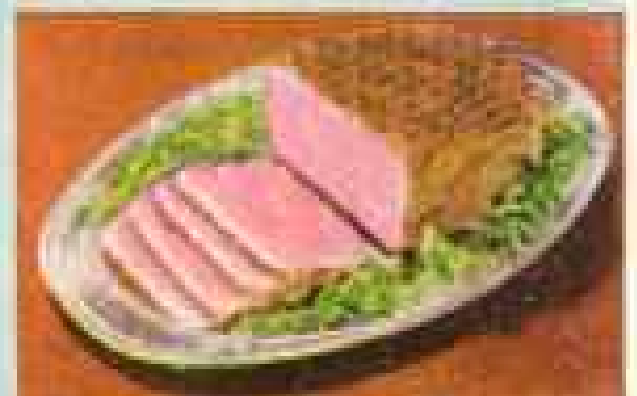


Hormel Little Pork Sausages

**OTHER HORMEL FINE FOODS**

*As unusual in flavor as the Vegetable Soup*

- |                          |                     |
|--------------------------|---------------------|
| Hormel Chicken (cintins) | Hormel Spiced Ham   |
| Hormel Chicken Broth     | Hormel Smoked Ham   |
| Hormel Chicken à la King | Hormel Smoked Bacon |
| Hormel Chili Con Carne   | Hormel Onion Soup   |
|                          | Hormel Pea Soup     |



Hormel Flavored Stuffed Ham

*"I just know her luncheon  
will be a dream!"*



WHOSE invitations command the most welcome response? The hostess with personality and charm—the hostess who has unerring tact in the choice of delectable foods for her table. And invariably she counts Pea Soup one of her most dependable selections.

For good Pea Soup delightfully combines delicacy of flavor with rich satisfaction to the appetite. You will find this exceptionally true of Campbell's Pea Soup. Not only is it made with dainty, sugar-sweet peas, but it is further enriched with the choicest creamery butter, which contributes so much to the soup's smooth substantiality and nourishing goodness.

Whether enjoyed as Pea Soup with water added, or as Cream of Pea with milk added, it never fails to intrigue the taste!

CAMPBELL'S  
*Pea Soup*



21 kinds to choose from...

- |               |                     |
|---------------|---------------------|
| Asparagus     | Mulligatawny        |
| Bean          | Mushroom (Cream of) |
| Beef          | Mutton              |
| Bouillon      | Noodle with chicken |
| Celery        | Ox Tail             |
| Chicken       | Pea                 |
| Chicken-Gumbo | Pepper Pot          |
| Clam Chowder  | Printanier          |
| Consommé      | Tomato              |
| Julienne      | Vegetable           |
| Mock Turtle   | Vegetable-Beef      |



LOOK FOR THE RED-AND-WHITE LABEL

Double rich! Double strength!

Campbell's Soups bring you condensed, concentrated goodness. You are buying double richness—double strength. So when you add an equal quantity of water in your kitchen, you obtain twice the quantity of soup at no extra cost.

Campbell's Soups are the finest soups you can buy.





## What are the chances of living?

How many of us can expect to reach the sixties? Here are the figures, from authentic tables:

OF 100 PERSONS PRESENT AGE	THIS MANY WILL LIVE	
	TO 60	TO 65
20	71	60
25	72	62
30	74	63
35	76	64
40	78	66
45	80	68
50	84	71
55	90	77

Endowment policies written to mature at these ages are paid in full to those who live, or to the beneficiaries of those who die. Of those who survive to these ages, how much longer will they live?

On an average they will live as follows:

RETIRING AT AGE	WILL LIVE AFTER RETIRING	
	MALES	FEMALES
60	184 months	213 months
65	149 "	175 "

Many individuals live long beyond these general averages. But those who, when their Endowment matures, select the income-for-life option are sure of a check every month, no matter how long they may live.

Thus an Endowment furnishes life insurance during earning years, and then supplies the safe and lasting advantages of an Annuity at an age when insured will know what kind of Annuity his circumstances call for.

**CONSULT ANY LOCAL AGENT OR OFFICE**  
or send preliminary inquiries to our Home Office

### THE PRUDENTIAL INSURANCE COMPANY OF AMERICA

EDWARD D. DUFFIELD, *President*

Home Office: NEWARK, N. J.

---

**MORE IMPORTANT THAN  
ANY MATERIAL THING**



MORE important than millions of telephones and millions of miles of wire is the fundamental policy of the Bell System. It is founded on a spirit of fair dealing with the public, with employees and with those who have invested their money in the business.

• • •

"The fact that the responsibility for such a large part of the entire telephone service of the country rests solely upon this Company and its Associated Companies also imposes on the management an unusual obligation to the public to see to it that the service shall at all times be adequate, dependable and satisfactory to the user. Obviously, the only sound policy that will meet these obligations is to continue to furnish the best possible telephone service at the lowest cost

consistent with financial safety. This policy is bound to succeed in the long run and there is no justification for acting otherwise than for the long run. . . .

"Earnings must be sufficient to assure the best possible telephone service at all times and to assure the continued financial integrity of the business. Earnings that are less than adequate must result in telephone service that is something less than the best possible. . . . The margin of safety in earnings is only a small percentage of the rate charged for service, but that we may carry out our ideals and aims it is essential that this margin be kept adequate. . . . This is fundamental in the policy of the management."

*Quoted paragraphs are from an address by Walter S. Gifford, president of the American Telephone and Telegraph Company, at Dallas, October 20, 1927.*

**BELL TELEPHONE SYSTEM**



3<sup>rd</sup> GRADE 65.9%

REGULAR 88.8%

ETHYL 100%

# Here's the proof:

## ONLY ETHYL GASOLINE DEVELOPS MAXIMUM CAR PERFORMANCE

Ten new automobiles, of makes representing every price class and more than 80% of all cars sold so far this year, recently were taken to an automotive testing ground, by qualified engineers.

Performance tests were run on the same measured hill; first with Ethyl, next with regular gasolines, and then with third grade gasolines. The gasolines used included 17 brands representative of the three grades (Ethyl, regular

and third grade) generally distributed throughout the United States and Canada.

Adjustable sparks were set to the car manufacturers' recommendations for bringing out the best possible car performance with each of the three grades of fuel. Taking the performances of the cars with Ethyl as 100%, the averaged performances with the two other grades of fuel showed the following losses:

\***PERFORMANCE** means speed at top of the test hill in the case of those cars that were able to reach the top in high gear; in the case of those cars which had to shift to second, distance on hill made in high gear.

### PER CENT OF PERFORMANCE\* DEVELOPED

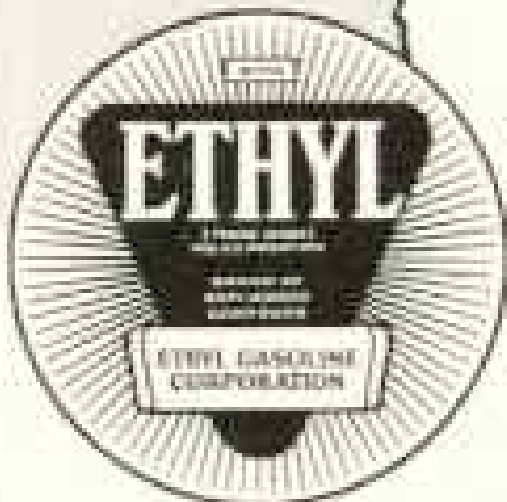
by  
**ETHYL**  
GASOLINE  
**100%**

by  
**REGULAR**  
GASOLINES  
**88.8%**  
LOSS—11.2%

by  
**3RD GRADE**  
GASOLINES  
**65.9%**  
LOSS—34.1%

Study these figures in terms of your own car. Consider also another point these tests brought out: objectionable knocking and higher radiator (cooling water) temperatures accompanied the power losses when regular and third grade gasolines were used. Now ask yourself: "Is it econ-

omy to 'save' a few pennies per gallon of gasoline and lose from a tenth to a third in car performance? Is it economy to invest from \$500 to \$5000 in an automobile and then get only part of the power I paid for?"  
Ethyl Gasoline Corporation,  
New York City.



Ethyl contains sufficient lead (tetraethyl) to make it the world's quality motor fuel.

## NEXT TIME GET ETHYL





**"Movies expensive?  
This shot cost less  
than a dime."**



**W**HAT enjoyment and satisfaction a little money buys—when you make movies...

Ciné-Kodak Eight is the camera for it. Costs only \$34.50, and works on a new principle—gives you finished movies, ready to throw on the screen, for less than 10¢ a "shot."

Simple, sturdy, the Eight is a full-fledged movie camera. Yet using it is as easy as taking snapshots. See it at your dealer's—he'll show you samples of the movies it makes, too. Eastman Kodak Company, Rochester, New York. *If it isn't an Eastman, it isn't a Kodak.*



**Makes movies  
for 10¢ a "shot"**

In the movie studios of Hollywood, a shot is one continuous scene of a picture story. The Eight makes 20 to 30 such scenes—each as long as those in the average news reel—on a roll of film costing \$2.25, finished, ready to show.

# Ciné-Kodak EIGHT

GOLF ★ TENNIS ★ POLO



HUNTING ★ GUEST RANCHES



and AMERICA'S GREATEST



MIDWINTER RODEO

*Each adds its appeal to*  
**TUCSON'S**  
YEAR 'ROUND WARM-  
DRY-SUNNY CLIMATE

THESE are some of the reasons which explain why we attract eastern football teams, eastern baseball teams, famous athletes and other celebrities.

They like Tucson because Tucson has that rare combination of everything that's good for the physical man and nothing that's bad for him.

The U. S. Weather Bureau record shows that this is the driest city in the desert sunshine country. And in addition to ever present sunshine and extremely low humidity, it has just enough elevation to put an indescribable tang into every day living.

*Come to Tucson—you'll never regret it.*

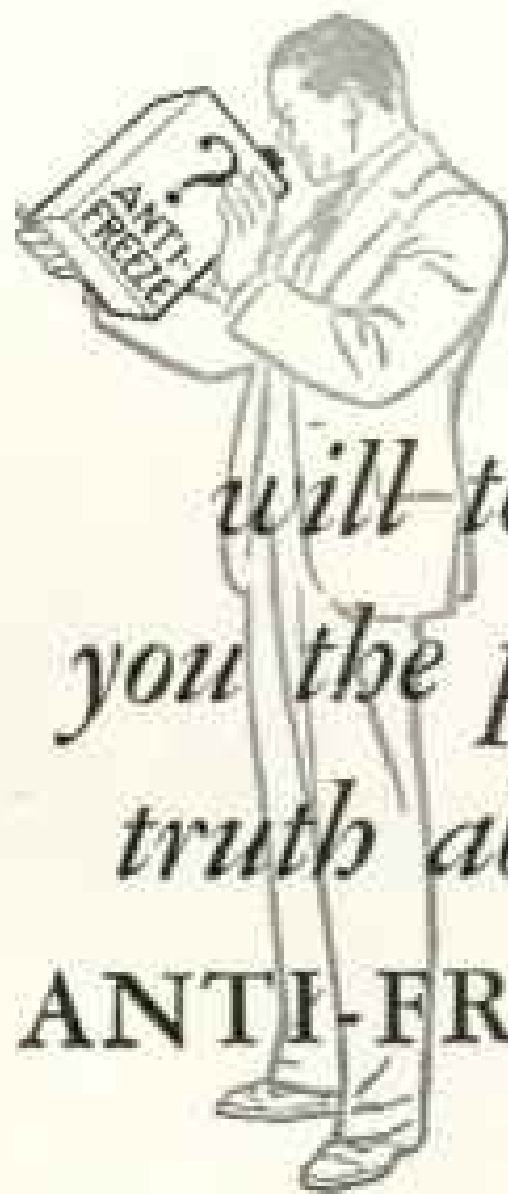
*Sunshine-Climate Club*  
**TUCSON ARIZONA**

1404-B RIALTO BUILDING, TUCSON  
Please send me your brand new booklet.

Name \_\_\_\_\_

Address \_\_\_\_\_

The  
"NOSE-TEST"



*will tell*  
*you the plain*  
*truth about*  
**ANTI-FREEZE**

From the standpoint of evaporation there are two kinds of anti-freeze—the kind that boils away and the kind that does not boil away. There is no middle ground. Some boil-away anti-freezes, however, have been "treated" to "decrease evaporation," and many car owners may get the impression that such products are all-Winter, one-shot, non-evaporating anti-freeze. Such an impression would be wrong. For such anti-freezes boil off rapidly when the engine is operating at high speed. An easy way to make sure that you get an all-Winter, one-shot product is by the lack of odor. Eveready Prestone is absolutely odorless—all boil-away anti-freezes, on the other hand, have a noticeable odor.

*Guaranteed All-Winter Protection*


Don't confuse Eveready Prestone with either glycerine or alcohol. Eveready Prestone is a one-shot, guaranteed anti-freeze, that will not boil off. And Eveready Prestone is also your best defense against rusting and corrosion in your car's cooling system. It protects against rust from 5 to 20 times longer than other anti-freezes.

*Play Safe—Save Money*

It costs very little to have the guaranteed protection against freeze-up and rust provided by Eveready Prestone. In the two-page Eveready Prestone advertisement in this same issue, you may see a chart showing exactly how much is needed to protect *your* car. Also on that spread note the Eveready Prestone guarantee.



# THE GIFT THAT EVERYBODY LIKES

300 Clear white note sheets...  
150 Envelopes to match... high  
grade genuine rag content bond  
paper... all neatly printed with  
Name and Address 

\$1.00  
POSTPAID



THE 450 PACKAGE

**T**HOUSANDS of packages of this fine note paper are given every year by people of refinement to people of refinement. It is a tasteful gift... correct in style... distinctive in quality... useful beyond words... and *pleasingly personal*, because it is printed with recipient's name and address.

No matter what other writing paper one may have in his home, there is a place also for this "450 PACKAGE." It properly fits more writing purposes than any other type of stationery. And it is correct for men, women and children. The paper itself is exceptionally good — such as you would expect to find only in expensive

boxes. It doesn't "splotch" or "splatter." It is a paper *made for the pen.*

The quantity is literally enormous. Imagine buying good stationery at the rate of 30 sheets and 15 envelopes for 10c! That is what you get in the "450 PACKAGE" — 300 note sheets and 150 envelopes for \$1.00 (\$1.10 west of Denver, Colo.) — and postpaid besides!

All orders filled from our plant in Peru, Indiana. We have no agents or dealers. Each package is printed and mailed within three days of the receipt of the order. *Absolute satisfaction is guaranteed, or your money promptly refunded.*

The American Stationery Company  
300 PARK AVE. PERU INDIANA

We print name and address of any "form," not to exceed four lines, 30 letters per line, on each sheet and envelope. Size of sheet 6 x 7. Neatly printed in dark blue ink. Send us the names and addresses of the friends you wish to remember at Christmas

together with \$1.00 for each name (\$1.10 west of Denver, Colo.) and have your Christmas shipping done early, economically, conveniently... right from your home, without bother or fuss. And while you are at it, don't forget a package for yourself!





"I have examined with great pleasure the 'GAYTEES' of the U. S. Rubber Company and I am happy to say that they seem to me very simple and elegant. In overshoes, even more than in shoes, simplicity constitutes true elegance."

Translation of letter, signed

DUCERF SCAVINI ET FILS

Monsieur M. Ducerf, of Ducerf-Scavini, is one of the really great shoe creators of Paris. His establishment is at 21, rue Cambon.



# Gaytees

REG. U. S. PAT. OFF.

Paris dressmakers and milliners and boot-makers, famous for their exquisite taste, admire your American-made GAYTEES, for the very same reason that you do. Storekeepers in over 10,000 towns and cities in the United States sell GAYTEES because they know that the letters "U. S." in the trade-mark mean the United States Rubber Company, experts in making rubber shoes. Women buy them mostly because they do such nice things for their feet. They find out later how serviceable and satisfactory GAYTEES are.

You can buy GAYTEES without going far from home.



United States Rubber Company



## INDIA IN COOL WEATHER

*Time:* December-April.  
*Accommodations:* a private car coupled to fast expresses, or parked on a side-track at points of interest...your hotel throughout. Servants less than \$1 a day. English spoken everywhere. *Route:* over 45,000 miles of British-operated modern railway system... wherever you like. *Cost:* 50c per mile per car... about 10c per mile per person in party... 5 weeks of luxury travel for about \$3,000. Itineraries from W. T. Biscoe, India State Railways, Delhi House, 38 E. 57th St., New York... or the better travel agents.

# India

## Travel Trails of the Conquistadores

● Metropolitan El Paso, under sunlit skies, as a winter recreational center offers the sights of the great Southwest:—Carlsbad Caverns National Park, the White Sands, pine-clad mountains, and the romantic Rio Grande, border-line of Mexico, land of enchantment. Juarez, largest Mexican border city, is just across from El Paso; its sights are quaint and interesting. Stop off for a day, a week, or a month this winter. Up to date hotels and other accommodations at reasonable rates. . . .

EL PASO GATEWAY CLUB  
304 San Francisco St., El Paso, Tex.

Write for literature on El Paso and its hotels



# El Paso

TEXAS

"In the Land of Sunshine"

# THEM DAYS IS GONE FOREVER

BY POSEN



I'M BRAVE ENOUGH WHEN FACING  
FLAMES-BUT OH, THIS FLAMING FACE

THEN STOP THAT STING WITH INGRAM'S  
JOE-IT NEVER LEAVES A TRACE!



*Bravura*



MY CHIN WAS ALWAYS RAW BEFORE  
-MY SHAVES A RANK DISGRACE!

**THEM DAYS IS GONE  
FOREVER!**



THERE'S NO NEED, MEN, TO PUT UP WITH HARSH  
HOT SHAVES THAT LEAVE YOUR FACE BLAZING  
LIKE A 3-ALARM FIRE. JUST SWITCH TO THE  
FAMOUS **COOL SHAVING CREAM INGRAM'S!** IN  
IT ARE SPECIAL INGREDIENTS WHICH TONE THE  
SKIN, SOOTHE IT AND SHIELD IT AGAINST RAZOR-  
RAWNESS. YOUR DRUGGIST  
HAS **INGRAM'S SHAVING  
CREAM IN TUBES AND JARS.**

BRISTOL-MYERS CO., Dept. F-4,  
110 Washington St., New York, N. Y.  
Let me try 10 Ingram shaves, free.

Name \_\_\_\_\_  
Street \_\_\_\_\_  
City \_\_\_\_\_ State \_\_\_\_\_







# LOVELY OJAI

(Pronounced O-High)

CALIFORNIA'S BEAUTIFUL MOUNTAIN VALLEY

If you love Mountains, Wild Flowers, Pure Air and Sunshine... If you like to walk, play golf, ride horseback or motor on perfect roads... If you want seclusion, rest and relaxation, yet desire to be close to the heart of things in Southern California...

Plan to spend the winter in Ojai. Visitors will find here a picture and an atmosphere to thrill and delight even the most hardened globe-trotter.

Unexcelled climate and scenery. One of the world's most beautiful and scenic golf courses. Hundreds of miles of trails and bridle paths. Trained Saddle Horses. Good Hotels. Ojai still retains much of the atmosphere of early historic California. Illustrated booklet mailed on request.

THE OJAI VALLEY COMPANY  
OJAI, CALIFORNIA

## DIRECT TO *Winter Sunshine* GOLDEN STATE LIMITED No Extra Fare to CALIFORNIA

Through Colorful Arizona  
Quickest to Phoenix, Tucson, Agua Caliente—Shortest to San Diego

Direct low altitude through-service route to San Diego—Coronado—La Jolla, Los Angeles, Santa Barbara. Clean—comfortable—air-conditioned in Club, Observation, Dining, Drawing-room—Compartment Sleeping Cars.

Only 61 hours Chicago-California—minimum daylight hours en route.

For further information, write  
L. M. Allen, Pass'r Traff. Mgr.  
Rock Island Lines  
748 La Salle St. Station, Chicago, Ill.



# ROCK ISLAND

## You can really hear the entire World with custom-built MASTERPIECE III

The choice of experts and critical fans everywhere for difficult reception tests. (See trial offer below)



The New Masterpiece III

MASTERPIECE III, still more powerful, more sensitive than Masterpiece II, brings thrilling daily surprises in the form of clear, enjoyable reception under favorable conditions from foreign and domestic stations you never dreamed of hearing. Range 12-575 meters. Read what Bing Crosby, Richard Arlen and Paramount Sound Engineers say about Masterpiece III.

"Bing Crosby and Dick Arlen feel you have engineered most perfect sets yet. Preliminary tests brought in 182 broadcast stations, also 11 in Japan. Sets were also produced France, Germany, Russia, Alps, England, Honolulu, Puerto, and Canadian, Mexican and American short-wave stations, which is phenomenal receiving on this coast. Crosby and Arlen can't wait to get going Monday on their tuning contest. For sensitivity, ease of operation, noise suppression and selectivity, sets are unsurpassed."—John Peter Miles, Paramount Studio.

**10-DAY TRIAL** You can prove Masterpiece III to yourself without risking a cent. 10 full days trial in your own home. Your money back instantly... if you're not satisfied. Write today.

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3353 N. Paulina Street Chicago, U. S. A.

"Mention the Geographic—It identifies you."

# NEW "MAGIC BRAIN"

makes World-Radio doubly exciting!



## An Exclusive RCA Victor Development:

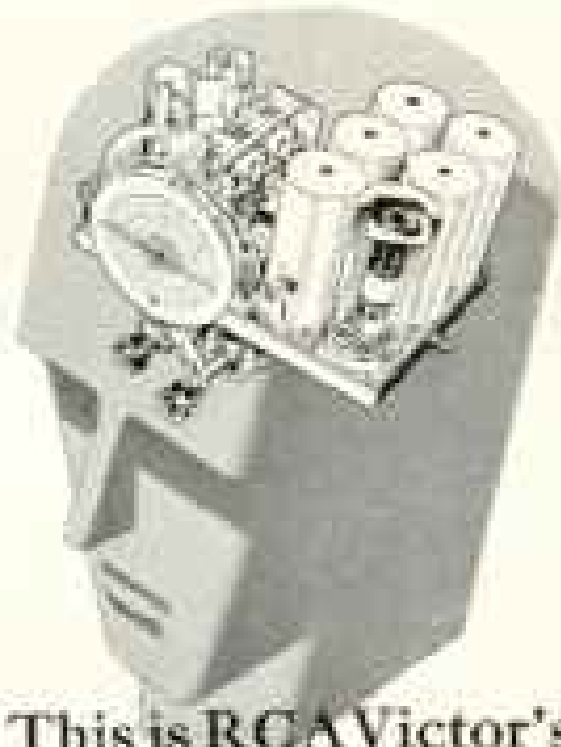
You hear every tone with higher fidelity. You reach far more stations.

You tune in all world broadcasts with far greater accuracy and ease.

You get the exclusive RCA Victor "X" band.\*

EVERY evening finds thousands of stay-at-home radio listeners on their way to Africa . . . from Africa to Asia . . . from Asia to Rome, London, Paris, Madrid, Australia . . . anywhere! World-wide radio is now doubly thrilling!

For RCA Victor has perfected all-wave reception and higher fidelity tone—with the "Magic Brain". It thinks straight. So concentrates on a wave band that it can't hear unwanted signals . . . doing one thing at a time—well! Crystal-clear higher fidelity



## This is RCA Victor's "MAGIC BRAIN" —and what it does!

The action of RCA Victor's "Magic Brain" is so lifelike that we compare it to a human brain. The RCA Victor "Magic Brain" directs the selection and reception of radio broadcasts from all over the world. It thinks for you . . . brings you the worldwide programs you want. You hear a higher fidelity tone performance . . . never before equalled!

tone makes these sets supreme in reception. Only RCA Victor has the vast experience of radio, Photophone High Fidelity system for the talkies . . . and 33 years of Victor knowledge.

You have to live with your radio—you want it good looking. RCA



CONSOLE MODEL 231, "Magic Brain" superheterodyne, five all-wave broadcast bands, masterful performance, in cabinet of beautiful finish. \$125.

\*"X" band in all sets with 8 tubes or more, gets U.S. Gov't. Aviation Weather Reports.

Victor asked a famous designer to exert his best efforts in cabinet beauty. He did so! See, at RCA Victor dealers, the "Magic Brain".

Standard Broadcast Radios \$18.75 to \$99.50 . . . Two-Band Radios \$19.95 to \$75 . . . "Magic Brain" Radios \$69.95 to \$225 . . . Radio-Photographs \$19.95 to \$175 . . . Auto Radios \$52.50 to \$59.95 . . . Air-Cell Battery Radios \$39.65 to \$79.95. All sets energized with RCA Micro-Sensitive Radio Tubes.

All prices F. O. B. Camden, N. J., subject to change without notice. Any short-wave radio should be equipped with RCA World-Wide Antenna System



# RCA VICTOR RADIO

RCA VICTOR COMPANY, INC.—ONE UNIT OF RADIO CORPORATION OF AMERICA . . . THE WORLD'S LARGEST RADIO ORGANIZATION; OTHER UNITS: NATIONAL BROADCASTING CO., INC.—R. C. A. COMMUNICATIONS, INC.—RCA RADIOTRON CO., INC.—RADIOMARINE CORPORATION OF AMERICA

**A**ny voyage to California via Havana, through the Panama Canal, is bound to be a pleasure. But when you make this 5,500 mile, two weeks' cruise on one of the Round the World President Liners you add a lot of thrills . . . for you make it on a real world-traveling-ship, with entertaining men and women from far corners of the earth.

Round the World President Liners sail every other week from New York to Los Angeles and San Francisco . . . and Trans-Pacific President Liners sail in the alternate weeks. First Class fares are from \$140 on Round the World Liners; slightly higher on Trans-Pacific Liners.

*California*  
**BY ROUND THE WORLD  
 PRESIDENT LINER**  
**FIRST \$140 CLASS**



Every stateroom is outside, large and airy—with fine, modern beds . . . spacious decks and public rooms and outdoor swimming pool . . . Menus justly famed. And, of course, you may stop over en route as you choose, continuing on the next or a later President Liner.

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**Steamship Lines**

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Particularly popular with families during the Thanksgiving and Christmas-New Year holidays.

Homes and apartments—sale or rent.  
 HARRY BACHARACH  
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Unbelievably immense. A thrilling, history-making scene—just an easy, inexpensive, one-day side trip from Las Vegas, Nev., available only via Union Pacific—route of the famous Los Angeles Limited

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VIA  
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17 CARIBBEAN AND SOUTH AMERICAN  
CITIES ON THE NEW

## GRACE

"SANTA LUCIA"



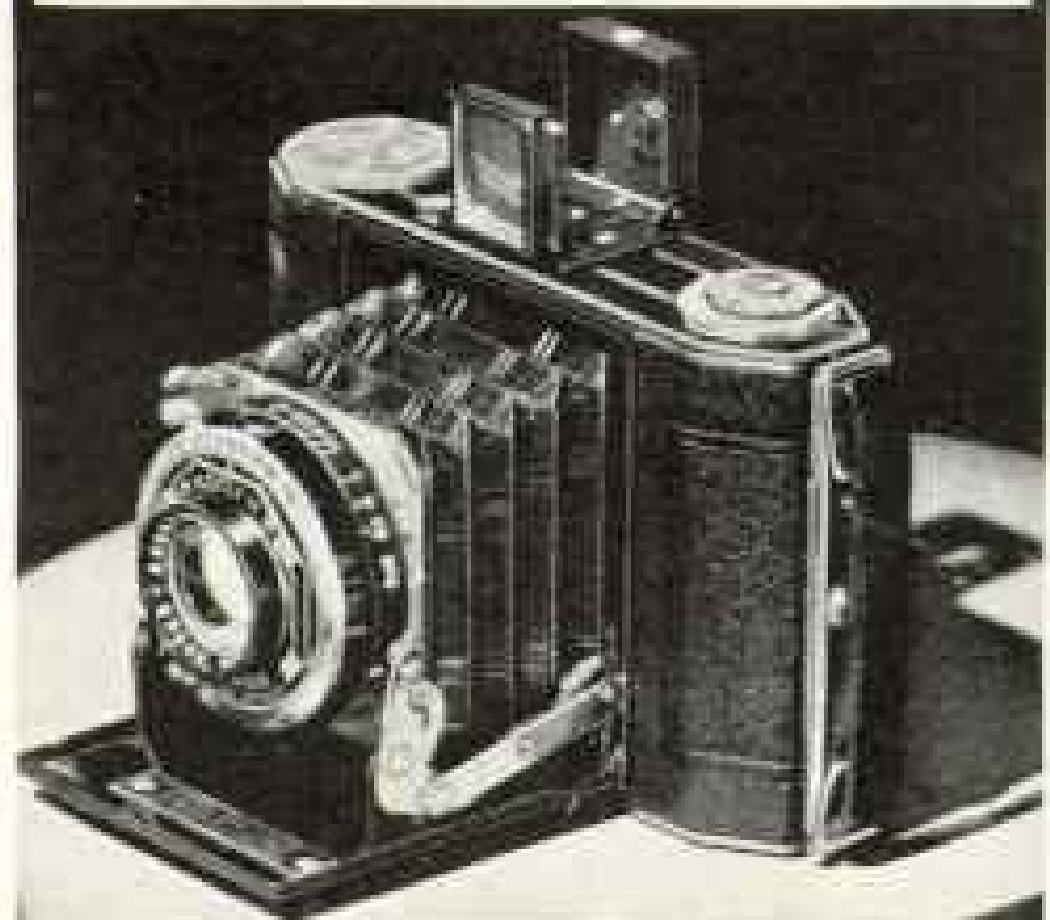
SAIL FROM NEW YORK DEC. 8,  
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side room with private bath, shore ex-  
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outside rooms with private baths;  
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Mich. Ave., Chicago; 2 Pine St., San  
Francisco; 525 W. 6 St., Los Angeles.

# GRACE LINE

# NEW KODAK DUO Six-20



**A larger edition of the  
miniature Kodaks**

Direct from the Continent comes this latest  
Kodak. A true miniature camera...small...con-  
venient—yet it takes a larger picture... makes  
sixteen 1 7/8 x 2 1/4 inch pictures on a roll of 620 film.

The ultra-fast, sharp-cutting Kodak Anastig-  
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The Compur shutter gives you speeds up to  
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action... makes it easy to follow.

Kodak Duo Six-20 uses all latest roll films...  
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for indoor snapshots *at night*.

Finished in fine leather... complete with  
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N. Y.... *If it isn't an Eastman, it isn't a Kodak.*

# KODAK

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# YOUR SOCIETY HELPS REVEAL DEEP-SEA MYSTERIES



**S**LOWLY down through the black-blue water to a depth of 3,028 feet went Dr. William Beebe in his Bathysphere this summer, to observe by searchlight the weird, phosphorescent creatures that live in those tideless depths. Never before had human eye looked out on their world of mystery more than a half mile below the surface.

Through grants of funds and scientific co-operation to this and other expeditions, The Society has helped to obtain new, enthralling information about our world. In *The Magazine*, you have found this new knowledge useful and entertaining.

*But what about your friends?*

They may also wish to have a part in these truly dramatic expeditions and likewise receive *THE GEOGRAPHIC* regularly so that they can share with you its fascinating facts. By nominating them for membership on the form below you give them this opportunity, with no obligation to yourself, and also help to extend The Society's world-wide educational services.

## ★ A Christmas Suggestion to Members ★

Each year many members avail themselves of their privilege of presenting Christmas-gift memberships to relatives, friends, business associates, and employees, because *THE GEOGRAPHIC* is a constant reminder of happy personal associations. "My membership is the ideal Christmas present," wrote a new member, "because *The Magazine* never fails to interest and delight us each month." To give your friends this appreciated Christmas remembrance, nominate them on the form below, mark it "Christmas Gift," and return it as directed with their membership dues for 1935. Engraved greeting cards announcing your gift will be sent to the favored recipients.

DETACH HERE

### *Nomination for Membership*

Secretary, National Geographic Society, \_\_\_\_\_ 1934  
Sixteenth and M Streets N. W., Washington, D. C.

I nominate for membership in the National Geographic Society:

(1) Name \_\_\_\_\_

Address \_\_\_\_\_

(Occupation) \_\_\_\_\_

(2) Name \_\_\_\_\_

Address \_\_\_\_\_

(Occupation) \_\_\_\_\_

(3) Name \_\_\_\_\_

Address \_\_\_\_\_

(Occupation) \_\_\_\_\_

#### DUES

Annual membership in U. S., \$3.00; abroad, \$4.00; Canada, \$3.50; life membership, \$100. Please make remittances payable to the National Geographic Society. Please remit by check, draft, postal or express order.

The membership fee includes annual subscription to *The National Geographic Magazine*.

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*you are going to*  
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and congenial travel. Fast  
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rect from Portland to the Orient, with 100 miles  
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General Sherman . . . Dec. 18  
General Lee . . . . . Jan. 8

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ideal way  
to keep your*  
**GEOGRAPHICS**

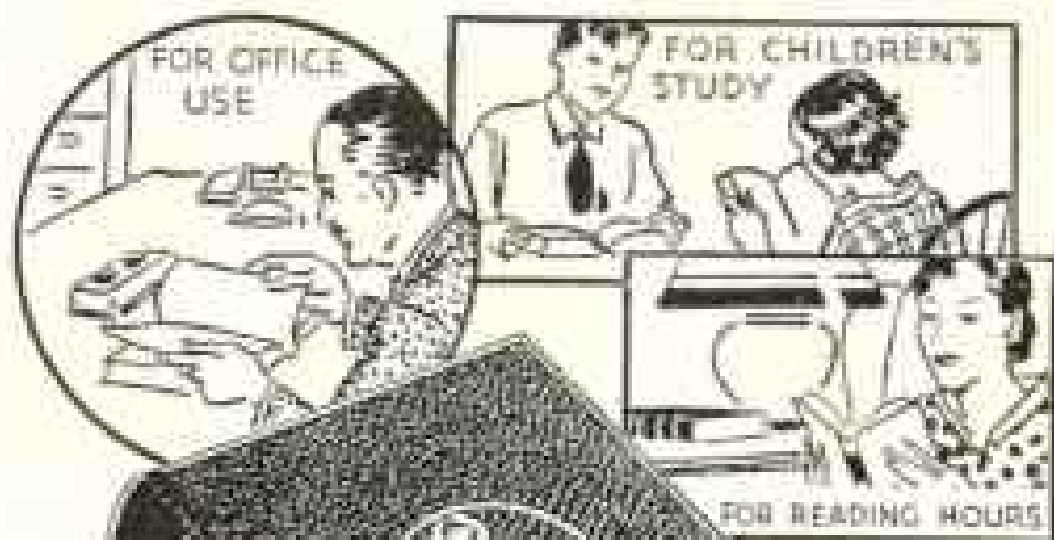
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away, yet with no permanent fitting place to keep them.  
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conveniently at hand.



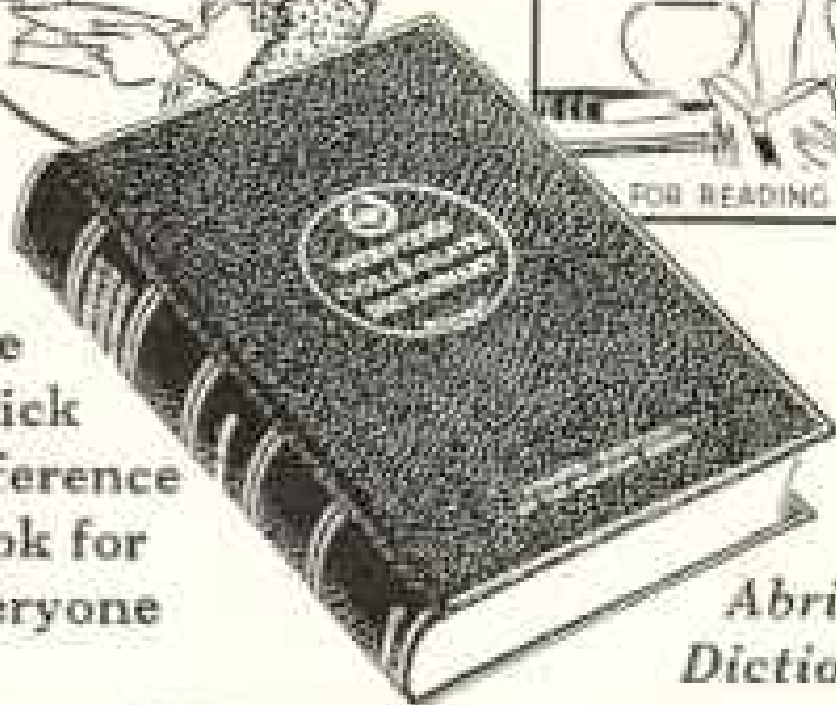
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A really fine piece of cabinet work, worthy of any liv-  
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—hospitality, happiness and health—free from winter  
worries. Here are fine modern schools—public or  
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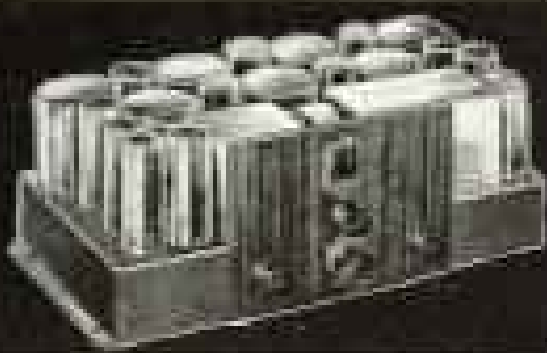
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SINCE 1929, every SCOTT receiver has been an all-wave receiver. Because of painstaking, laboratory-precise methods of custom-building, the number of SCOTT receivers available has always been limited. Today . . . with many all-wave receivers using developments pioneered and perfected by SCOTT engineers . . . it is still a mark of distinction—and a source of satisfaction—to own a SCOTT. But only the SCOTT ALL-WAVE FIFTEEN can bring you the entire scope of regular broadcasts, as well as short-wave programs from London, Paris, Rome, Berlin, Madrid, Sydney, and the uttermost ends of earth, with so much more regularity, usable volume, and heavey of tone. Superiority of SCOTT performance over that of any other receiver is guaranteed. Send today for complete details and PROOF!

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Then consider that the Santa Fe serves the largest winter vacation area in the western hemisphere.

The four parts of this playground are alike only in their all-pervading sunshine.

CALIFORNIA offers all things to  
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ARIZONA holds Grand Canyon,  
● glorious in winter; semi-tropical Phoenix, and the hot springs, dude ranches and resorts in and roundabout, and scattered north to Prescott and the Verde.

NEW MEXICO presents the In-  
● dian-detours—Old Spain, the Indian Pueblos, and beautiful La Fonda hotel, in Old Santa Fé. Dude ranches, too; and the Carlsbad Caverns.

TEXAS is proud of the growing lure  
● of her warm Gulf Coast region.

The Santa Fe has served the Southwest for fifty years. It reclaimed much of it from the wilderness. It has carried millions to enjoyment of its wonderlands.

So, if you are playing this winter, perhaps the Santa Fe can help you. Picture folders are yours for the asking—or detailed information and suggestions, if you care to ask for them.

*The finest trains on the Santa Fe are the finest trains between Chicago and California.*

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## *She Didn't Pinch Pennies*

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We have no quarrel with the man who buys his shoes solely on the basis of price . . . that is his privilege . . . but if you are that sort of buyer, there is no use coming to Florsheim . . . this is an American institution that cannot be stampeded into cutting the heart out of quality for the temporary advantage of lower prices and increased volume . . . for, this policy has built the largest quality shoe business in the world . . . proving that a fine shoe at a fair price is still a better value than a cheap shoe that substitutes a superficial saving in money for the genuine saving of abiding style and long and satisfactory wear!

*Illustrated above, THE LELAND, \$-504.*

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It's Boiling  
**BOILING**  
 It's Hot  
**HOT**

On a cake of ice!



IT SEEMS like black magic to some, but—a pan of clear liquid will boil merrily if placed on a cake of ice. Of course, the liquid must be of extremely low boiling point, like liquid air, at minus 318° Fahrenheit. The ice is so much warmer than the liquid air that it actually causes it to boil.

Apparent paradoxes of heat and cold are common. In Winter, if a motorist uses an anti-freeze with a boiling point lower than water, sooner or later it boils off. Then, his car "freezes" . . . that is to say: Tiny particles of ice in the radiator-core clog the circulation and cause over-heating around the engine-head. Thus in *coldest* weather his car boils . . . boils away the anti-freeze, and badly damages the car with *heat*. Magic? No—carelessness!

A sure guarantee against such a dilemma is Eveready Prestone—the all-Winter concentrated anti-freeze. It is undiluted, guaranteed one-shot protection, down to 60° below zero, if desired. Prevents "freeze-up," rust, and corrosion. It will not boil off, and is absolutely odorless.

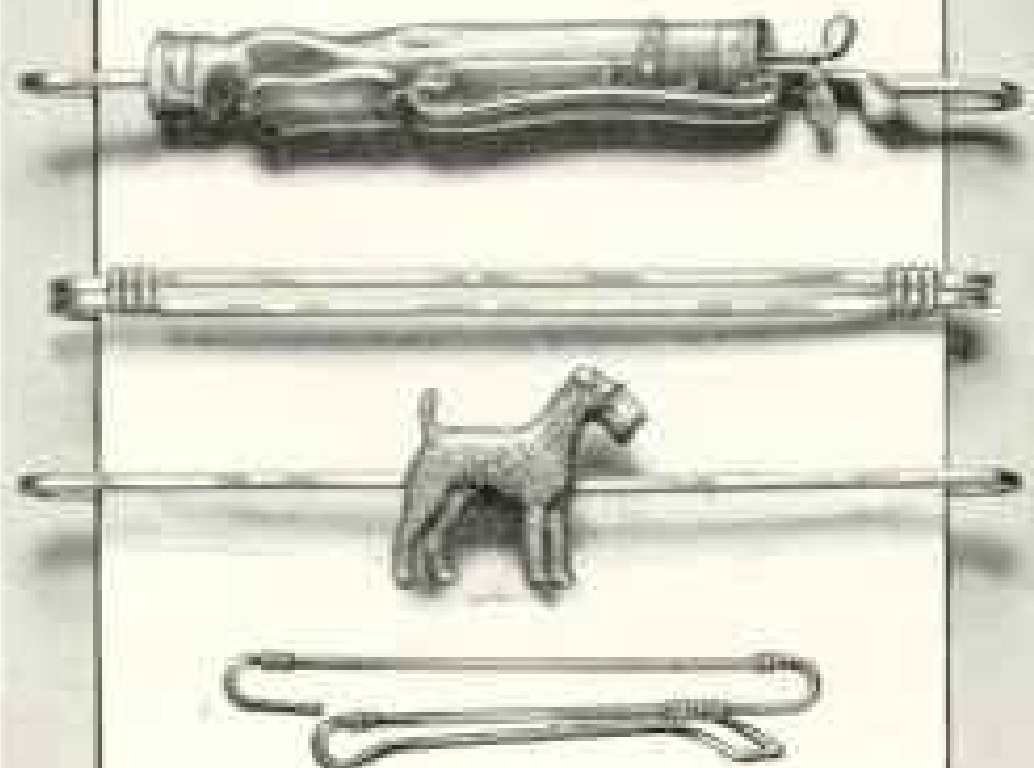
*Full protection so inexpensive!*

Read the full guarantee and protection chart in this issue's two-page Eveready Prestone advertisement. Here you will see how inexpensively *your car* can have Eveready Prestone protection all Winter long.

A NEW IDEA IN  
 A TIE HOLDER



*Crig Wood, famous golfing star, wearing Kremenitz Free-Action Tie Holder with Collar Holder to match.*



*Side view. Tie slips through upper loop—clip below attaches to shirt.*

Your tie goes through the loop and moves up and down with the natural movement of the body. The front of the holder extends across your tie—a smartly decorative loop or bar of gold. Single Tie Holder, \$2.50 to \$4.00. Combined with soft Collar Holder in gift box, \$3.50 to \$5.00. Kremenitz Quality Jewelry is sold by better dealers everywhere.

KREMENTZ & CO., NEWARK, N. J.

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**F R E E - A C T I O N**  
**T I E H O L D E R S**

# ATWATER KENT

*offers new values in world-wave*

# RADIO



**ALL-WAVE**—Model 318-K—(at left)—true world-wide reception. An 8-tube superheterodyne with 9 tuned circuits, tuning range from 540 kilocycles to 22.5 megacycles, in 4 separate tuning bands, with 2-speed tuning control and illuminated shadow tuning.

**\$89.90** E. a. b. factory

**FOREIGN SHORT WAVE and BROADCAST**—Model 325E—(at right)—3 tuning ranges on airplane dial cover foreign stations, and all American broadcasting, 2-speed tuning, 3-point tone control, 5 tubes, 3-gang condensers, 11-inch speaker, beautiful cabinet. **\$49.90** E. a. b. factory

**AC-DC BROADCAST and POLICE**—Model 425—(directly below)—a personal radio that is easily carried wherever you go, operates on either AC or DC current, 5 tubes, Full-size speaker. **\$34.90** E. a. b. factory

**FOREIGN SHORT WAVE and BROADCAST**—Model 145 (at bottom)—5 tubes, 6 tuned circuits, 3 tuning ranges in separate bands on illuminated airplane dial. Hears foreign stations as well as all American broadcasting. **\$39.90** E. a. b. factory

*Prices subject to change without notice.*



**EVERYTHING YOU COULD ASK OF RADIO IS HERE! PRICES RANGE FROM \$22.50 TO \$240.00 F.O.B. FACTORY**

ALL-WAVE radio, foreign short-wave and broadcast, broadcast only, DC Radio, AC-DC, sets for battery, and 22-volt power, Motor-Car Radio, and the new Atwater Kent Tune-O-Matic—the biggest radio news of 1935—a radio that starts itself, stops itself, changes from station to station automatically.

FOR SHORT-WAVE RECEPTION, THE NEW ATWATER KENT DOUBLET ANTENNA GREATLY REDUCES BACKGROUND NOISE AND INCREASES VOLUME ON DISTANT STATIONS.

THERE never was a time like today to buy a radio, with all the broadcasting wonders of the world yours for the turning of a dial. It is all the more the time to be sure of *known quality* in the radio you select. Fine materials and precision workmanship make an Atwater Kent *today's value* in radio—proved so by years of quality performance.

Four of the new Atwater Kent Radios are shown. These, and all the 23 others, from the smallest compact to the greatest console, bring you a more *truthful* tone, whether you are listening to far-flung foreign stations or to the station nearest your home.

Buy a new 1935 Atwater Kent Radio. Get everything the air offers and keep getting it through years of trouble-free service.



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# THEY'RE FRESH

Buy Evereadys and you buy *fresh* batteries. Your dealer sells them so fast that, when you buy yours, he can assure you *they're fresh* . . . and prove it by the "Date-Line" on each battery. But *freshness* is only a part of Eveready's superiority. Inside the zinc case, there's a patented Eveready "power-stabilizer." It holds a balanced mix of the six active chemicals in perfect alignment . . . ready to light instantly. While outside, sealing in freshness and power, there's a spun metal top.

Back of the "Date-Line" which guarantees Eveready *freshness* there's work . . . and lots of it. But it's work that pays us . . . and you, too . . . for it brings you the comforting knowledge that buying an Eveready for your flashlight, radio, or motor ignition *you're* buying packaged electricity at its  *freshest* and best.

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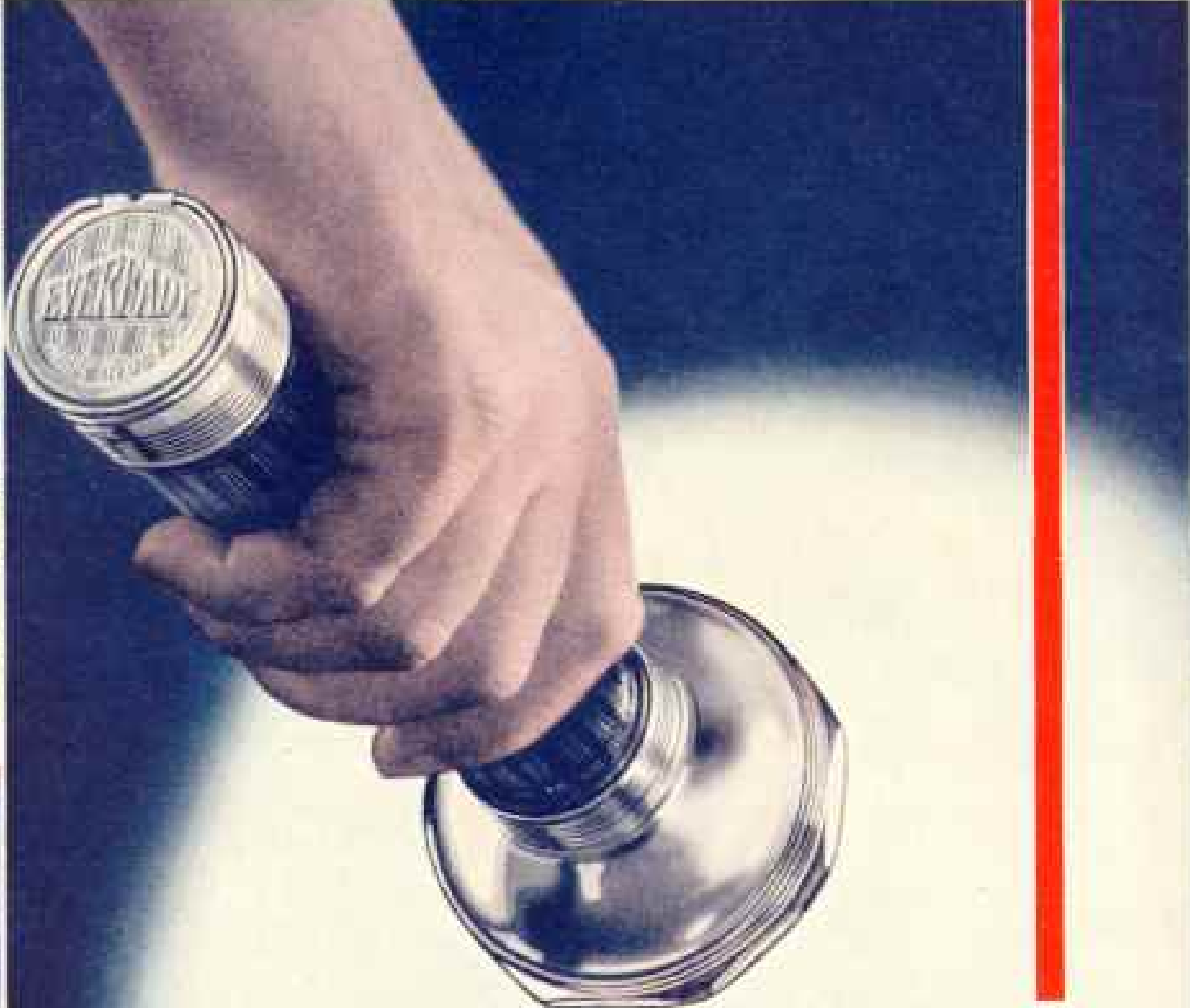
There's the "DATE-LINE"  
 a guarantee they're fresh



**SOMETIMES LIKE THESE YOU'RE  
 LUCKY AND THEY'RE FRESH.** Awakening  
 to discover an intruder in her home, Mrs.  
 "Bradbury", wife of a prominent banker,  
 indignantly ignored the man's threats,  
 held a flashlight on his face and called for  
 help. The intruder escaped . . . but thanks to  
 her courage and foresightedness her family  
 is safe. \*Not her real name, although it was  
 in the coast-to-coast newspaper report.



**SOMETIMES LIKE THESE YOU'RE  
 LUCKY AND THEY'RE FRESH.** Johnny  
 might be a great little helper but the chances  
 are he's a bit careless . . . and there are pain-  
 ful results from stepping on the garden rake.  
 To be safe, shoot the brilliant beam of your  
 flashlight ahead of you when walking out-  
 side in the dark.



**Your dealer will show you the  
 "DATE-LINE"**

**EVEREADY BATTERIES** *packaged electricity at its best*