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THE NATIONAL GEOGRAPHIC MAGAZINE

SEPTEMBER, 1933

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THE NATIONAL GEOGRAPHIC MAGAZINE

PIECES OF SILVER

By Frederick Simpich

Author of "Men and Gold," "Ontario, Next Door," "Hammering Spikes with Steam Sledge," etc., etc., in the National Geographic Magazine

THROUGH its long, glittering career silver has swayed the destiny of men and nations.

In the romance and adventure of mining, man's bold quest for silver led to war, to daring exploration, and to conquest of savage lands.

First of metals widely used as money, silver slowly turned primitive barter into buying and selling, and, in the rise of civilization, made it easier and simpler to enjoy fixed wages and prices.

Steadily, through the ages, man has used more and more silver in his arts and trades, till to-day we see it in endless things, from sterling punchbowls to motion-picture film.

Again to-day, as in the Free Silver frenzy of 1896, this pale, chaste metal looms large in the world's eye. How to raise its buying power, how to stabilize it, are some of the riddles for the World Monetary and Economic Congress, assembled in London as this is written. Already Great Britain has paid us part of her debt in silver, and various nations urge its wider use in monetary systems.

Repeatedly in financial history men have sought cures for money maladies in some appeal to silver. For more than 2,000 years it was the world's chief medium of exchange. Listen to-day to native gossip in any bazaar of the Orient, and in tireless repetition you hear the local words for silver coins—kran, rupee, anna, piaster, peso, yen. Over and over you hear them, like a theme song of commerce.

In Far East bazaars silver still forms the fluent, common coin of daily use; for our own convenience we still circulate dimes, quarters, half dollars, and, in the West, big cartwheel dollars, though silver was officially demonetized in 1873.

Trace the strange, checkered drama of silver through the centuries, and you see how vividly it parallels man's own dramatic conquest of Nature and his rise to higher standards of life.

WHEN MEN FIRST MINED SILVER

Tradition says the world's first silver mine lay somewhere around the Mediterranean. The ancients linked silver with Luna; its symbol was a crescent moon. "Lunar caustic," or silver nitrate, is so derived. Man's search for it, according to Greek myths, was a moon-madness.

One rich mine of antiquity was that of the Greeks at Laurium, southeast of Athens (see illustration, page 262). From the size of the slag dumps and the quality of ore still mined in that region, it is estimated that the Greeks, from 600 to 300 B. C., may have mined about 30 tons of silver a year.

From that early time until about 1861 these mines lay idle. When moderns began reworking the old slag dumps and exploring the ancient passages, they not only traced the shafts, and tunnels supported by pillars, but they found the actual picks and hammers just as Greek workmen had dropped them, nearly 2,000 years before.

As early as 500 B. C. taxes from these mines figured in the Athenian budget. Both Xenophon and Aristotle told of their wealth, and Strabo, writing about 30 B. C.,

Photograph by James C. Sawders

IN THE DUNGEON OF AN ANCIENT SPANISH MINT AT POTOSÍ, BOLIVIA

Indian slaves, walking in a circle, turned the big power wheel in this underground chamber to operate the mint machines, which were set on the floor above, when Spain minted silver money here in Colonial times. The machines were fashioned mostly from hardwood, carried up from forests in the Chaco region.

tells of their being exhausted, as all mines eventually are.

In Agricola's book on metals, published in 1556 and translated by former President and Mrs. Hoover, many quaint drawings show the old-time methods of silver mining, with ore in pigskin sacks being carried on dogs' backs.

Through the Dark and Middle Ages, men mined silver in many parts of Europe.

German mines were opened when teamsters hauling salt in 1160 found silver ore along a road through the Harz Mountains. In one Saxon mine, the St. George, miners found a 20-ton chunk of ore. The Duke of Saxony gave an underground banquet, using this ore block as a table!

So much silver was found near Joachimsthal, in Bohemia, in the 16th century that a mint was built there (see illustration, page 259). Coins struck were called "Joachimsthaler," which was shortened to "Thaler," and became the root for that word of world-wide fame, the Dollar.*

Here and there, from the Isle of Man all the way down to the Mediterranean, silver has been mined. Before the Romans came the ancients worked mines in the British Isles. But Roman mines in what is now Spain were richest. Strabo records that they employed 40,000 men and yielded the Roman people a daily revenue of 25,000 drachmæ.

Yet all this paled beside New World riches.

STUPENDOUS SILVER RICHES OF THE WESTERN WORLD

Not even in their wildest dreams could the Spaniards have imagined what amazing wealth lay hidden in the hills of the new world they found.

How Cortez, with but 400 men, 15 horses, and 7 cannon, conquered the rich and highly civilized kingdom of Montezuma is a classic of sheer adventure and colossal achievement.

To this day we marvel at the Aztecs' skill in gold and silver work, and the astonishing tributes they gave to Cortez and his men—silver fish covered with scales that moved; tiny animals and reptiles beautifully carved; silver helmets, shields, and cuirasses, and trays of solid gold and silver as large as cartwheels.

Yet all this treasure was trifling compared with what the Spaniards themselves were to dig up, when they had conquered the kingdom and sent thousands of its people to work and die as slaves in the mines.

For 300 years, from 1521 to 1821, Spain ruled over Mexico. In that time a steady stream of silver floated to Spain. A single chunk found in Sonora weighed 2,750 pounds!

After Mexico became a republic the output doubled and trebled. Baron von Humboldt called her the "treasure house of the world."

MEXICO A MAJOR SOURCE OF SILVER

For more than two centuries Mexico has been the world's greatest source of silver, mining in that time more than five billion dollars' worth.* In 1932 she mined nearly half of all the world's output of new silver.

When his daughter married, a Mexican of the Álamos district lined the bridal chamber with silver plates and paved the path to the chapel with the same pale metal.

There is an oft-told tale in Mexico of a Spanish widow who owned the famous Doña Maria Mine. She packed 40 mules with about four tons of gold and silver and set out for the coast, planning to spend the rest of her life in Spain. She disappeared mysteriously, and so did her vast treasure.

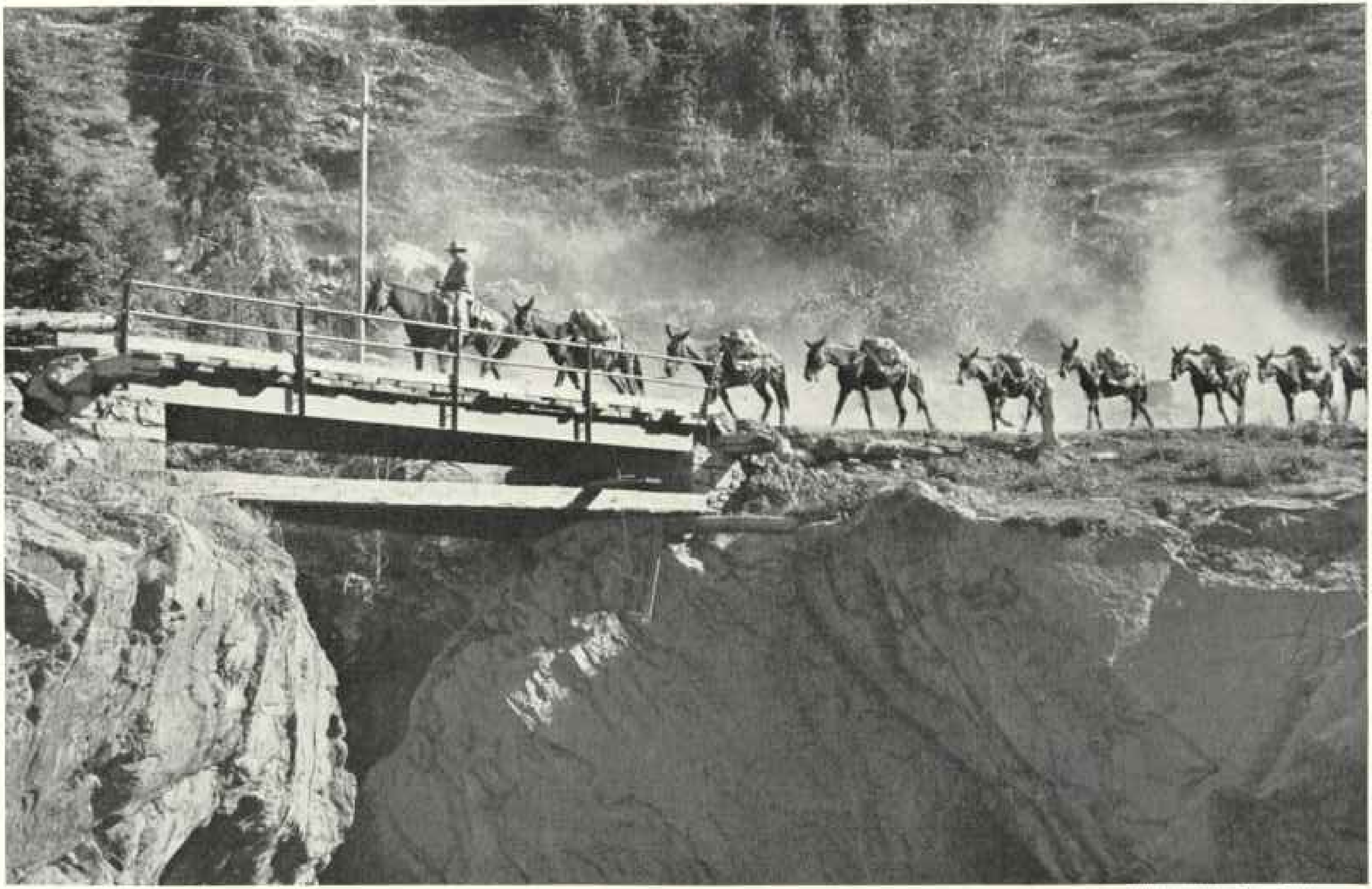
Countless tunnels honeycomb the silver-laden hills about Pachuca, first worked by Spaniards in 1534. Here the Real del Monte rivals its neighbor, the Santa Gertrudis, as the world's leading silver mine. From it, in early days, a muleteer named Pedro Torreros grew so rich that he presented the King of Spain with several warships, and was given the title "Count of Santa Maria de Regla" (see page 257).

Later a London company bought this mine and sent hundreds of Cornish miners with their families there to work it. Tales of its riches led to wild speculation, as in the South Sea and Mississippi Bubbles. Shares that sold for 100 pounds soared to 16,000 pounds before the bubble burst. When later pumped free of water and reopened, new owners came upon silver deposits worth tens of millions.

Ancient Guanajuato, set with crooked, sloping streets among the steep hills of

* See "The Geography of Money," by William Atherton Du Puy, in the NATIONAL GEOGRAPHIC MAGAZINE for December, 1927.

* With the exception of the years 1872 to 1900 and 1914 to 1918, when the United States was the leader, Mexico has been the world's leading producer of silver since 1681.



Photograph by Ewing Galloway

A TRAIN OF PACK MULES BRINGING SILVER OUT OF A REMOTE DISTRICT IN THE COLORADO ROCKIES

This caravan takes supplies in to the mines and returns with ore. When the Spaniards began mining silver in Mexico, Indian slaves did all packing. As sure-footed mules were slowly introduced, their use spread until they became known in all silver camps from Idaho to Peru.

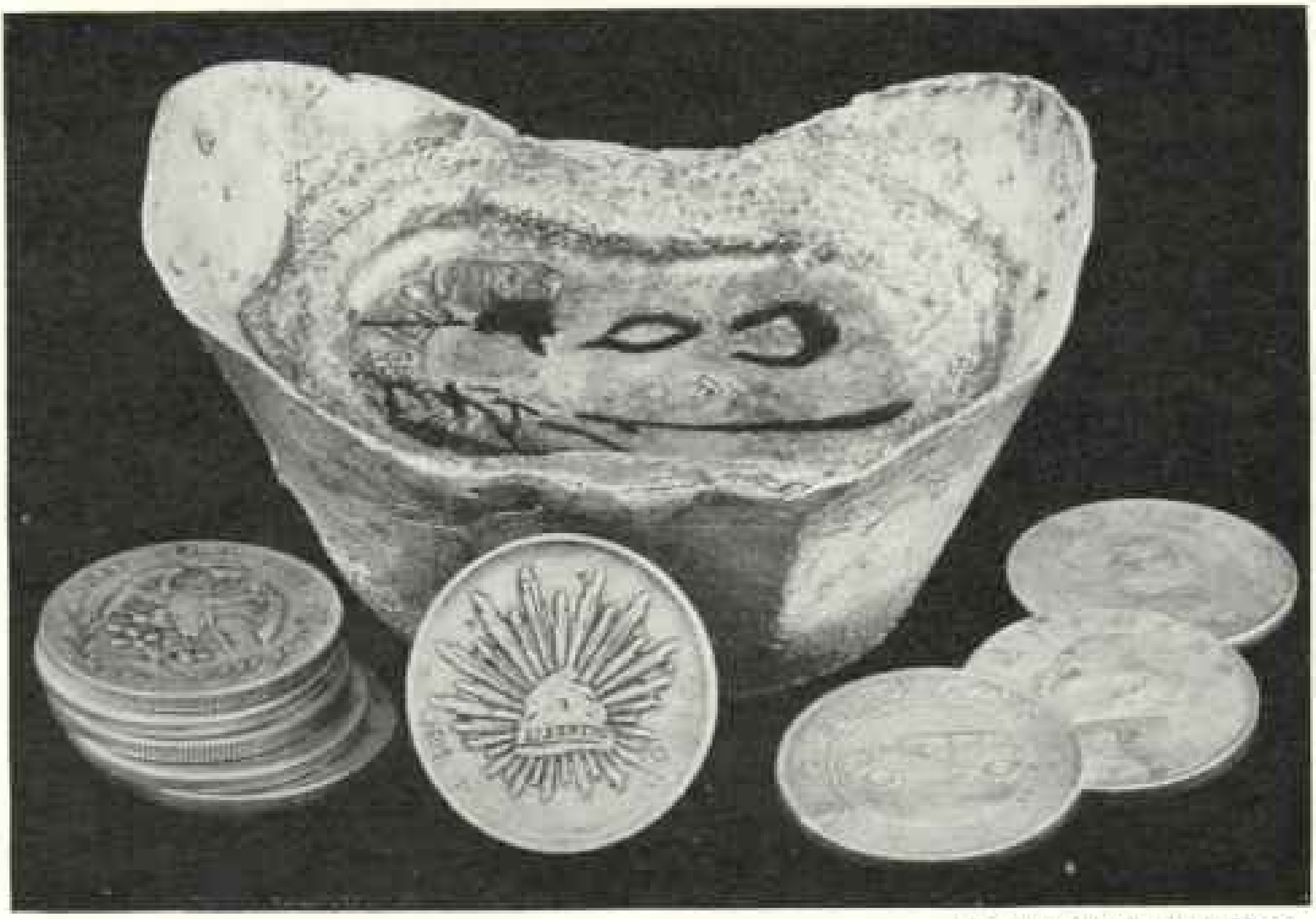
Photograph by Clifton Adams

SANDAL-SHOD MEXICAN MINERS WALKING TO WORK

Pachuca, in the State of Hidalgo, is one of the oldest and richest silver mines in the Western Hemisphere. One of Spain's first New World cities arose here. After 1534 its silver output was fabulous. Near by is the famous Real del Monte Silver Mine, found long ago by a muleteer who became a millionaire and was made a count by the King of Spain (see text, page 255).

Photograph by Ewing Galloway

FROM MELTED MEXICAN SILVER PESOS NAVAJO INDIANS MAKE THEIR JEWELRY



Photograph by Benjamin Morse

CHINESE CAST SILVER IN THE SHAPE OF A WOMAN'S SHOE

At the top is a piece of "shoe money," or *sycee*, slightly smaller than actual size. This year, with adoption of a new silver dollar as national currency, much shoe money is being coined into dollars. In the bottom row are shown, left and center, the obverse and reverse of the historic "Mexican" dollars (see text, page 272). Of the three overlapping coins, that to the left is the Kweichow Province dollar, with a motor-car design to commemorate the roads built by the American Red Cross as an aid to famine relief. In the center is the Yuan Shih-kai dollar, and to the right is the Sun Yat-sen dollar, a tribute to the establishment of the Chinese Republic.

central Mexico, is a name to conjure with. It has hillside tanks, like Aden, to catch drinking water. And silver is its god. Its name means "Hill of Frogs" in Tarascan Indian speech. In old days the people worshiped an enormous frog chiseled from stone.

For centuries the Spanish Crown and the Roman Church worked the Guanajuato silver mines. From the Valenciana came more than four hundred million dollars' worth. Its pious owner built the superb Church of San Cayetano from his profits, and for a long time its magnificent service was supported in an odd way. Each miner gave, weekly, the value of a piece of ore the size of a man's hand, called "piedra de mano."

As it was in Mexico, so it was in Peru, in Colombia, Bolivia, and other Latin American lands. It is written that an Indian, chasing a goat up Andean slopes, grabbed a bush for support. It pulled out by the roots and exposed a spot of silver, part of what was to become the rich lode of Potosí. From this field, in time, Spaniards took so much silver that whole shiploads of it went to Europe. For generations the flow of silver was stupendous, beyond accurate calculation. Though now the stream is drying up, South America still provides the world with about 9 per cent of its silver each year.

In Peru, as in Mexico, the ancients worked the mines and made exquisite figures of silver and gold. The Incas are credited with having made gardens in which trees and plants were imitated in precious metals; the flowers and fruits were made in gold, the rest of the plant in silver.

THE ORIGINAL "DOLLAR," PIECES OF EIGHT, AND A SHEKEL

Top: Obverse and reverse of the coin from which we derive our word "dollar," the *Thaler* or *Joachimsthaler*, first issued by the Count of Schlick at Joachimsthal, Bohemia, in 1518 (see text, page 255). Middle: Two early "pieces of eight" from Peru. Bottom: Hebrew shekel found in Palestine and presented to the National Geographic Society, now on exhibit at its headquarters in Washington.

Though to-day silver is shipped "naked," as the trade term has it—that is, in unpacked bars—many years ago much silver came from South America as an amalgam with mercury.

NUGGETS PACKED IN COWSKINS

It was curiously packed. Large lumps were sewed up in fresh cowskins, and the parcel was called a "serón." The smell, as the hide became foul, was most offensive. South American criminals were punished,

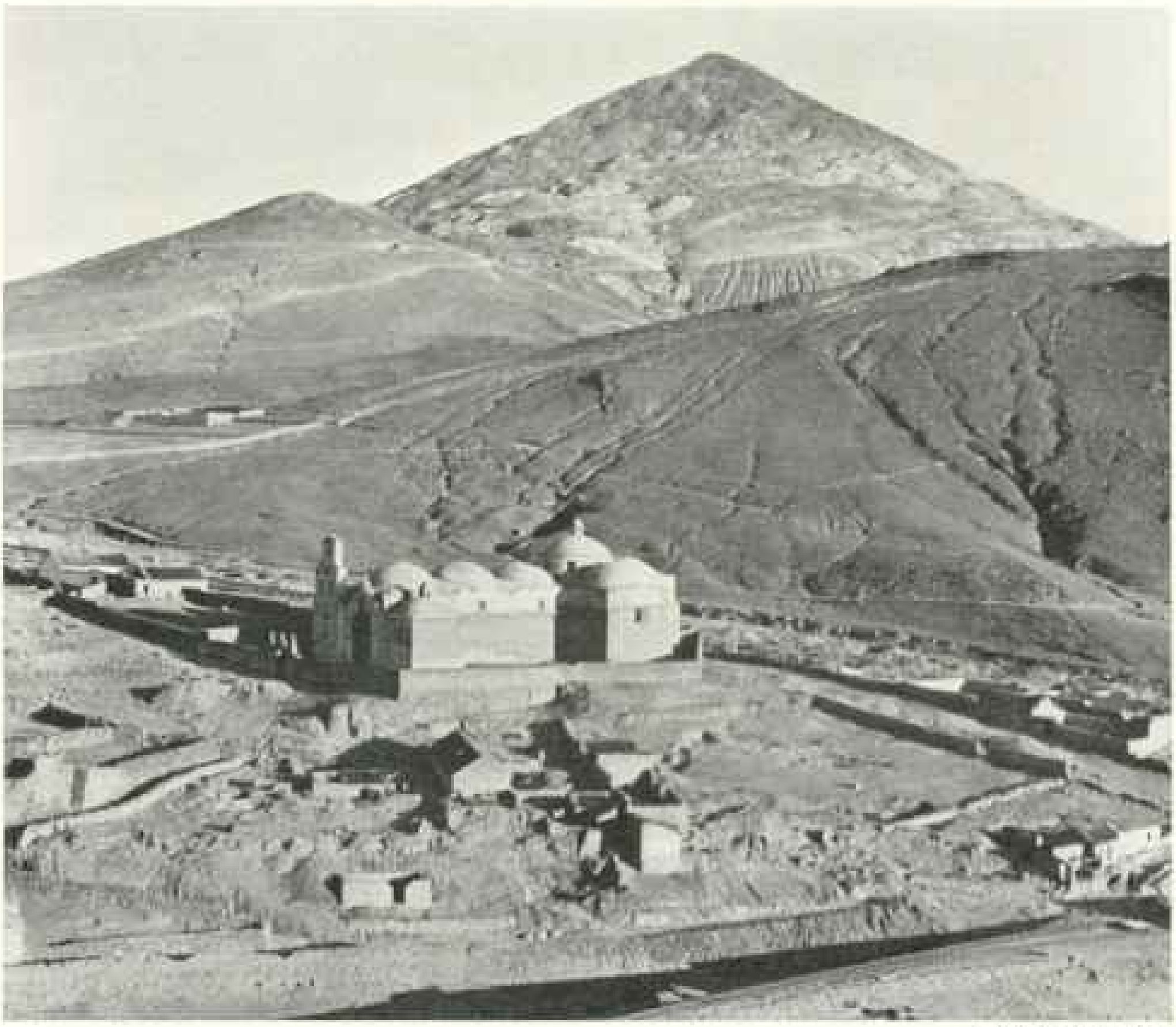
Photograph by W. Robert Moore

CAMEL-FACED LLAMAS CLIMB THE ROUGH ANDEAN TRAILS

Fellow plodders with the patient ass, llamas share with mule trains much transport work through Andean regions still untouched by rails. These llamas are loaded with silver ore at Potosí, Bolivia.

FROM COBALT, ONTARIO, FORTUNES IN SILVER AND GOLD HAVE BEEN SHIPPED

Located in a highly mineralized region, 330 miles north of Toronto, the small town of Cobalt, named for that metal, was first famous for its silver output. Now it is also a shipping point for several gold mines.



© Ewing Galloway

THIS GAUNT, GRIM PEAK IS HONEYCOMBED WITH TUNNELS WHERE MEN HAVE MINED SILVER SINCE 1545

Though most of these tunnels in Cerro Rico (Rich Hill) above Potosí, Bolivia, are abandoned now, and Potosí's activities are much diminished, in the course of two and a half centuries these mines of almost pure silver yielded many fortunes. Over the entrance to the old Socabón Mine a Spanish coat of arms, carved in the rock, is still well preserved. In this mine, it is written, perished many thousands of Indian slaves. So plentiful was silver here in early days that even ordinary household utensils were made of it.

a century ago, by being sewed up in the same manner; as the hide dried and shrank, the victims were slowly squeezed to death.

AMONG THE SILVER MINES OF THE UNITED STATES

In our Western States, where we now mine the bulk of our silver, most of it is found mixed with other metals.

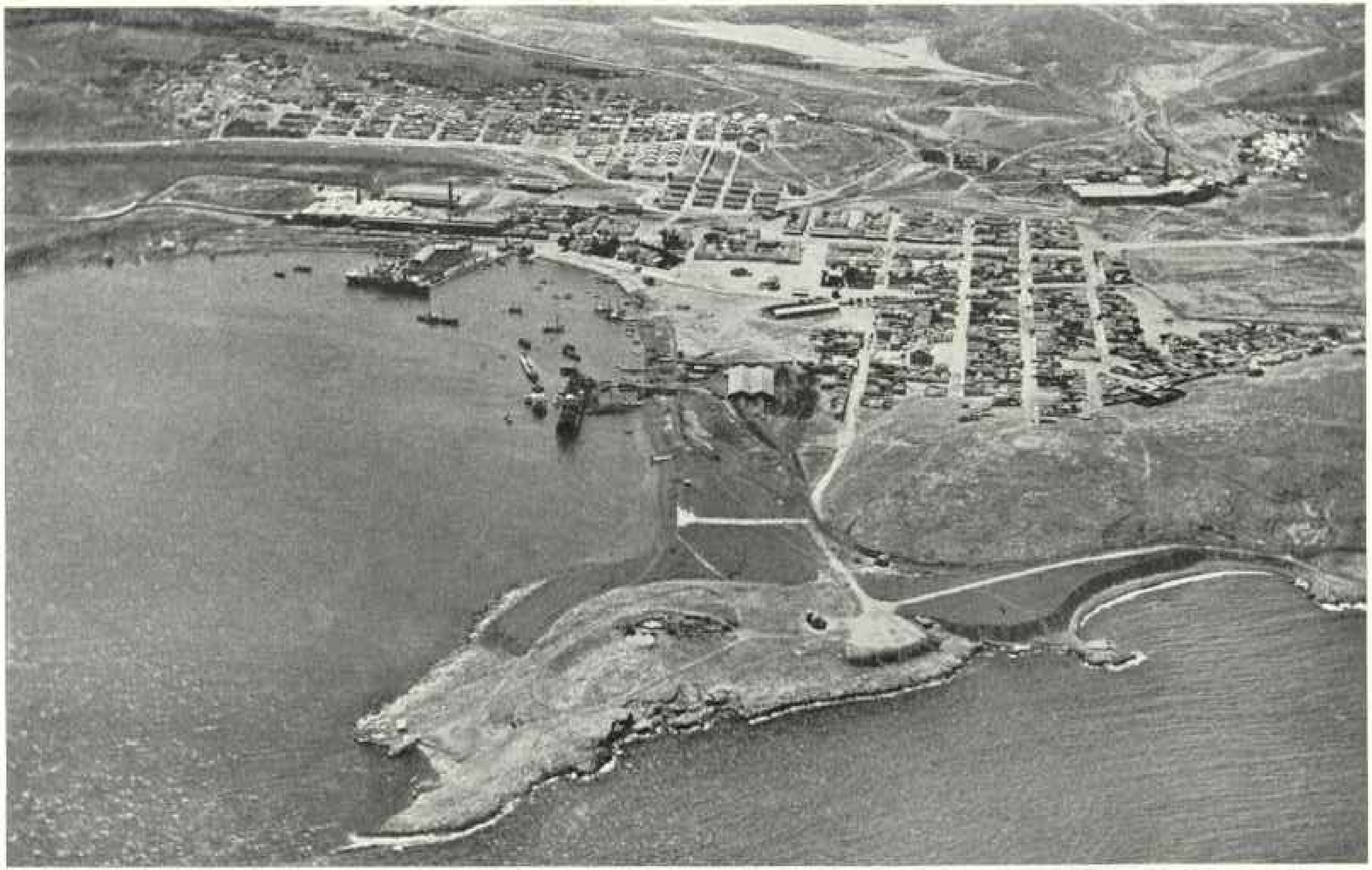
Our greatest straight silver mine is the Sunshine, near Kellogg, Idaho.

Our richest silver producer, however, is the Anaconda Copper Mining Company; it obtains most of its silver from its copper-zinc-silver mines at Butte, Montana.

Accidental discovery, in 1859, of the colossal Comstock Silver Lode, on the eastern slope of Mount Davidson, in Nevada, excited the whole world. The stupendous wealth it was to yield wrote a lurid chapter in the history of our West.

One mine, the Gould and Curry, bought for a bottle of whisky, an old horse, some blankets, and $2,500 in cash, was valued at more than $7,500,000 four years later!

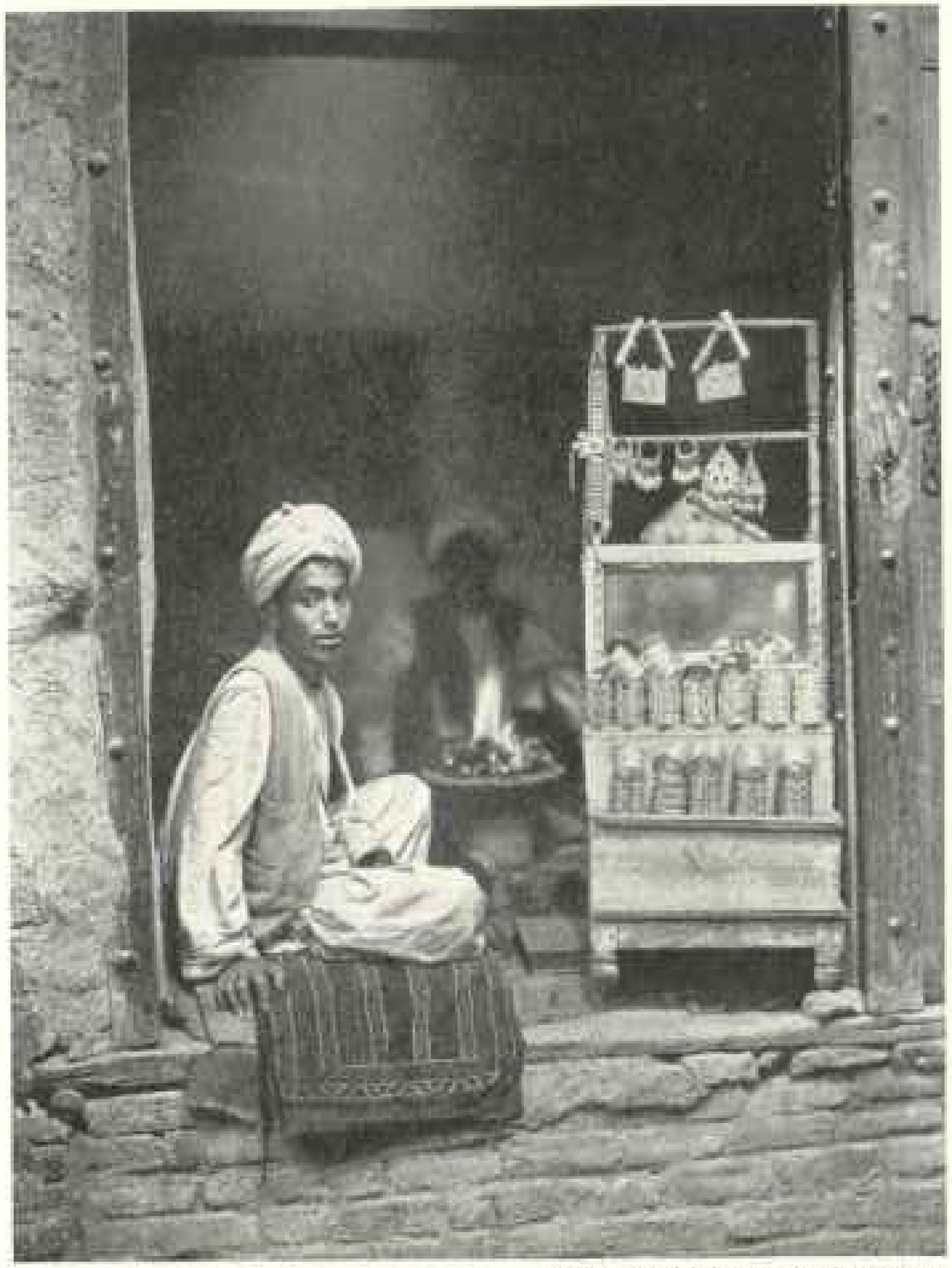
The singular tale of how this Comstock Lode was found never grows old. Lured west after the California gold rush of '49 came two Irishmen, O'Riley and M'Laughlin. Working for gold on their claim by the Carson River, they threw aside some odd-looking, heavy blue rock as worthless.



Photograph by Maynard Owen Williams

SLAG DUMPS IN ATTICA, GREECE, FROM SILVER MINES WORKED MORE THAN 2,200 YEARS AGO

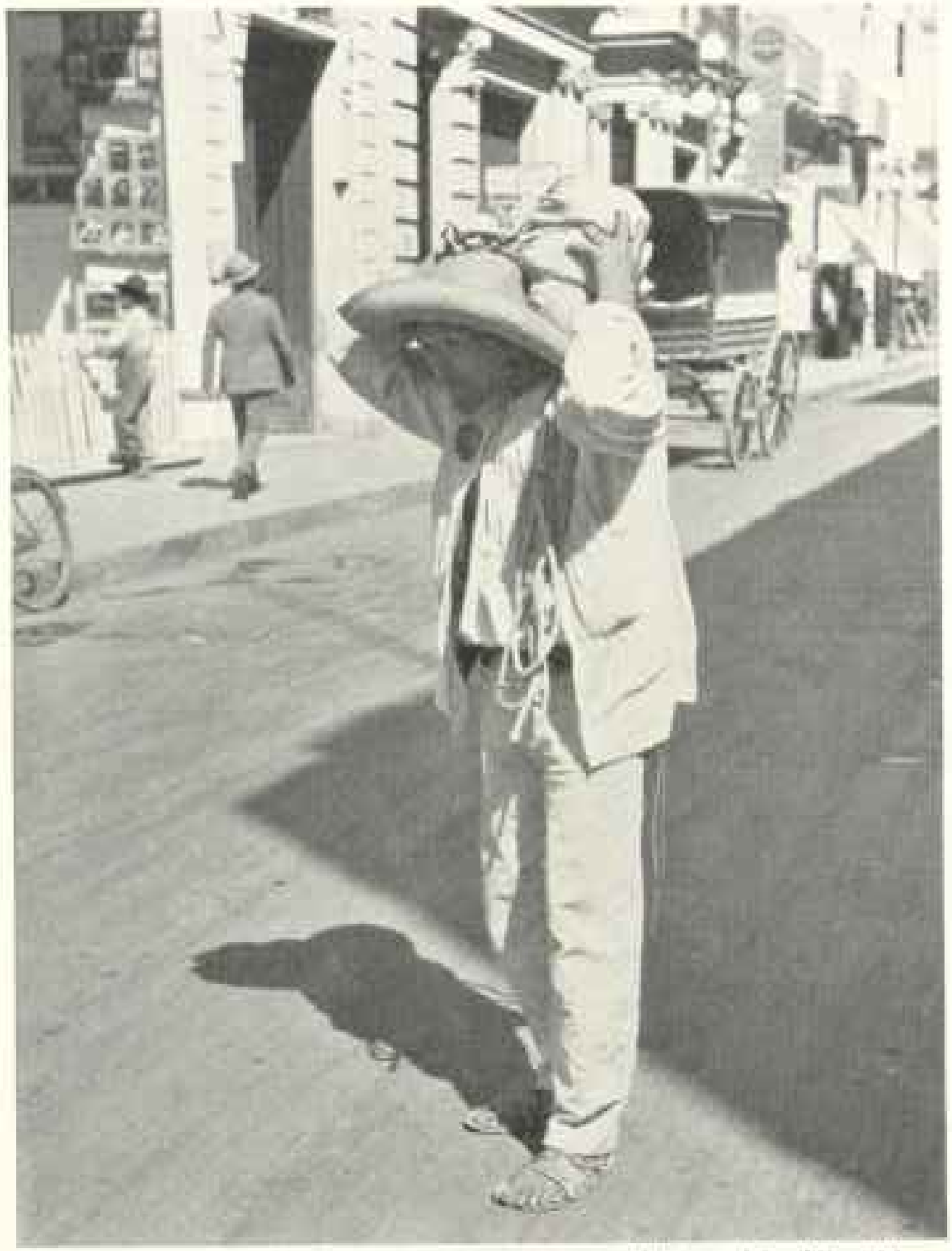
In the background are seen the smelters and workmen's quarters, erected when these mines were reopened. Moderns, exploring the ancient tunnels, found tools left by Greek slave miners when the mines were abandoned, centuries ago. Then the site was known as Laurium (see text, page 253), now Ergasteria.



Photograph by Maynard Owen Williams

AN AFGHAN SILVERSMITH'S SHOP

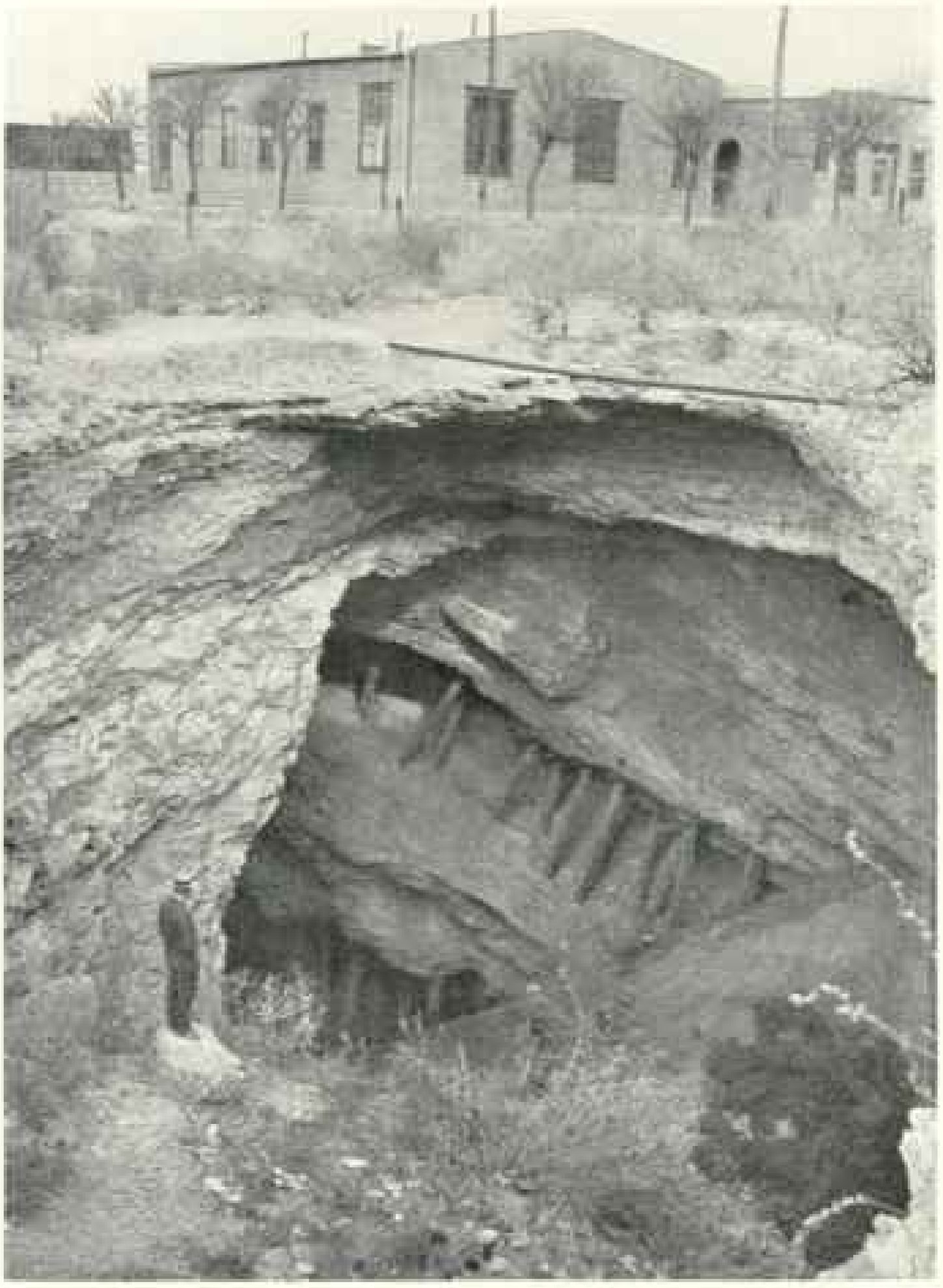
In true Eastern fashion, the silversmith in a bazaar at Herat rests on his rug. Flickering beyond is the tiny charcoal fire that heats his silver, and displayed for sale are bracelets and other handmade jewelry.



Photograph by Clifton Adams

ALL THIS MONEY IS JUST A PAIN IN THE NECK TO HIM

A porter is carrying 2,000 pesos in silver from one Guadalajara bank to another. A riddle of bandit-ridden Mexico is that, even during revolutions, unguarded messengers walk city streets carrying bags of money.



Photograph by Clifton Adams

TOUGHNUT STREET, TOMBSTONE, ARIZONA, AFTER A SILVER MINE CAVED IN

Workers unwittingly drove their stope up so near the street surface that when an ice wagon passed overhead the mine caved in. Despite his fall, the old horse, still drawing his wagon, wandered down the mine and emerged at an outlet half a mile away.

Then along came Henry Comstock, a restless trapper and fur trader. Smarter than the others, he recognized the blue rock, staked a claim adjacent to theirs, and "by pure bluff induced them to waive their rights to the rock and be content with the surface gold they found."

FORTUNE HUNTERS RACE FOR CLAIMS

That blue rock, rich silver ore, assayed nearly $4,000 a ton.

News of this epoch-making find spread like prairie fire, and fortune hunters scrambled for claims.

"Rough-haired mustangs, gaunt mules, and sure-footed burros climbed the Sierras loaded with blankets, bacon, flour, kettles, pans, and shovels," says an early Geological Survey report. Miners swarmed the hills. "Thin wreaths of smoke rose from hundreds of little campfires and the sharp strokes of picks startled the lizards among the rocks."

The treasures of Potosi, the ransom of Montezuma, the deep-laden galleons of Spain — a host of memories were awakened, continues the report, by the sight of the masses of bullion from the mines. Wells-Fargo stages, carrying guards armed to the teeth, drove the new-made trails at break-neck speed, hauling silver to San Francisco and hauling crowds back to the mines.

As in the gold rush, so once more city merchants shut up shop, sailors deserted their ships, and clerks quit their desks, swelling the army that rushed pell-mell to Nevada, where new towns bloomed like mushrooms, with the saloons, quick-lunch stands, dance halls, and dives that made life lurid in the hectic, roaring camps.

Later, men struck that giant ore body, the Big Bonanza. No single silver ore body has ever poured forth wealth at such an astounding rate; in a single month ore valued at $6,000,000 was mined.

"The plain facts are as marvelous as a Persian tale," says a quotation from Benjamin White's "Silver, Its History and Romance." "The wonder grew, as its depths were searched out . . . the fancy of the coolest brains ran wild.

Photograph by Thomas R. Owens

BAGHDAD BAZAARS ARE MUCH THE SAME AS IN BIBLE TIMES

Sheep may yet be slain to seal a vow, and men know the covenant of bread and salt. Sabean silversmiths, who con the stars, ply their trade now as in the days of Father Abraham.

Photograph by K. D. Swan, courtesy U. S. Forest Service

CASTLE, MONTANA "GHOST TOWN," ONCE WAS A THRIVING SILVER CAMP

Now the range cattle roam its grass-grown streets. The houses are deserted, but many still contain furniture abandoned when the town "died." Nevada, Arizona, and other western mining States contain many such deserted villages.

Photograph courtesy of Kirk Studios, Baltimore, Maryland

AN OLD-SCHOOL HAND CHASER DECORATING SILVERWARE

A pattern is first embossed from the inside; the vessel is then filled with pitch and plaster, and the chaser completes the design. In chasing, silver flows under the hammer blows, changing only its position. In engraving, bits are cut out.

"Men worked in changing shifts, descending and ascending in the crowded cages, clambering up to the stopes with swinging lanterns, picking and drilling the crumbling ore, or pushing loaded cars. . . . Flashes of exploding powder blazed from the rent faces of the stopes; muffled roars echoed along the dark galleries. . . . Half-naked men rushed through hanging smoke, to examine the result of the blast and to shovel the fallen ore into wheelbarrows. . . . Roman gladiators were scarcely better fitted for their contest. . . . All were picked men, strong, young, vigorous, fed on choicest food . . . and paid the highest wages earned by any miners in the world."

150 MILES OF SHAFTS AND TUNNELS

So vast was this underground quest for treasure that by 1880 the length of shafts and tunnels exceeded 150 miles. Often houses among surface camps tottered or collapsed where the undermined earth was sinking. In the Yellow Jacket shaft, 3,065 feet down, a flow of hot water was struck the temperature of which was 170 degrees Fahrenheit.

These phenomenal Nevada silver finds, mounting to dizzy millions in 20 years, came so soon after the rich gold finds in California and elsewhere that they influenced some nations to give up bimetallism.

Henry Comstock, once rich beyond dreams, later destroyed himself. M'Laughlin filled a pauper's grave; O'Riley, gone mad, swore that goblin voices lured him to dig alone in a barren hillside. His crazy tunnel collapsed on him, and so he died.

One discovery followed another, till Utah, Idaho, Montana, Colorado, and other Western States took rank as silver regions. Hostile Indians, death from cold, thirst, and hunger, duels to death over disputed claims, cold-blooded murder and the dynamiting of mills, as in the Coeur d'Alene strikes—all are warp and woof of our silver saga when the West was wild.

Their shafts only 100 feet apart, the Golden Chariot and Ida Elmore Mines, near Eagle Mountain, Idaho, became the stage of a conflict that for novelty is without parallel in mining history. Far underground, where rival tunnels intercepted, men with guns fought to death over disputed silver.

Photograph by Ewing Galloway

SILVER SLIPPERS WORN BY THE 12-YEAR-OLD BRIDE OF THE SULTAN OF ZANZIBAR

Vampless, topless, without even a strap, these odd shoes are held on by clamping the big toes about the silver knobs. They form part of an interesting collection of footwear from many lands, assembled at Warren, New Hampshire, by Mr. Ira C. Morse, a retired manufacturer.

Hired gunmen patrolled the mines till, in 1868, United States soldiers came, and only martial law kept order.

BONANZA FINDS OVER

To-day, so far as mining experts know, bonanza silver finds in the United States are over. We still mine much silver, an average of 55,000,000 ounces a year in the last decade. But it comes mostly from mines worked principally for their lead, copper, zinc, and gold.

Much as we prize it, nobody knows how much silver there is. According to the Director of the United States Mint, all silver coin in the world, in 1931, had a face value of $4,110,046,000. Stores of bar silver in the world are not accurately known; they are estimated at eleven or twelve billion ounces, most of which is in India.

SILVER COVERS THE EARTH

Since Columbus came to America the world has mined about 14 times as much silver, by weight, as it has gold—or silver amounting to about 15,400,000,000 ounces.

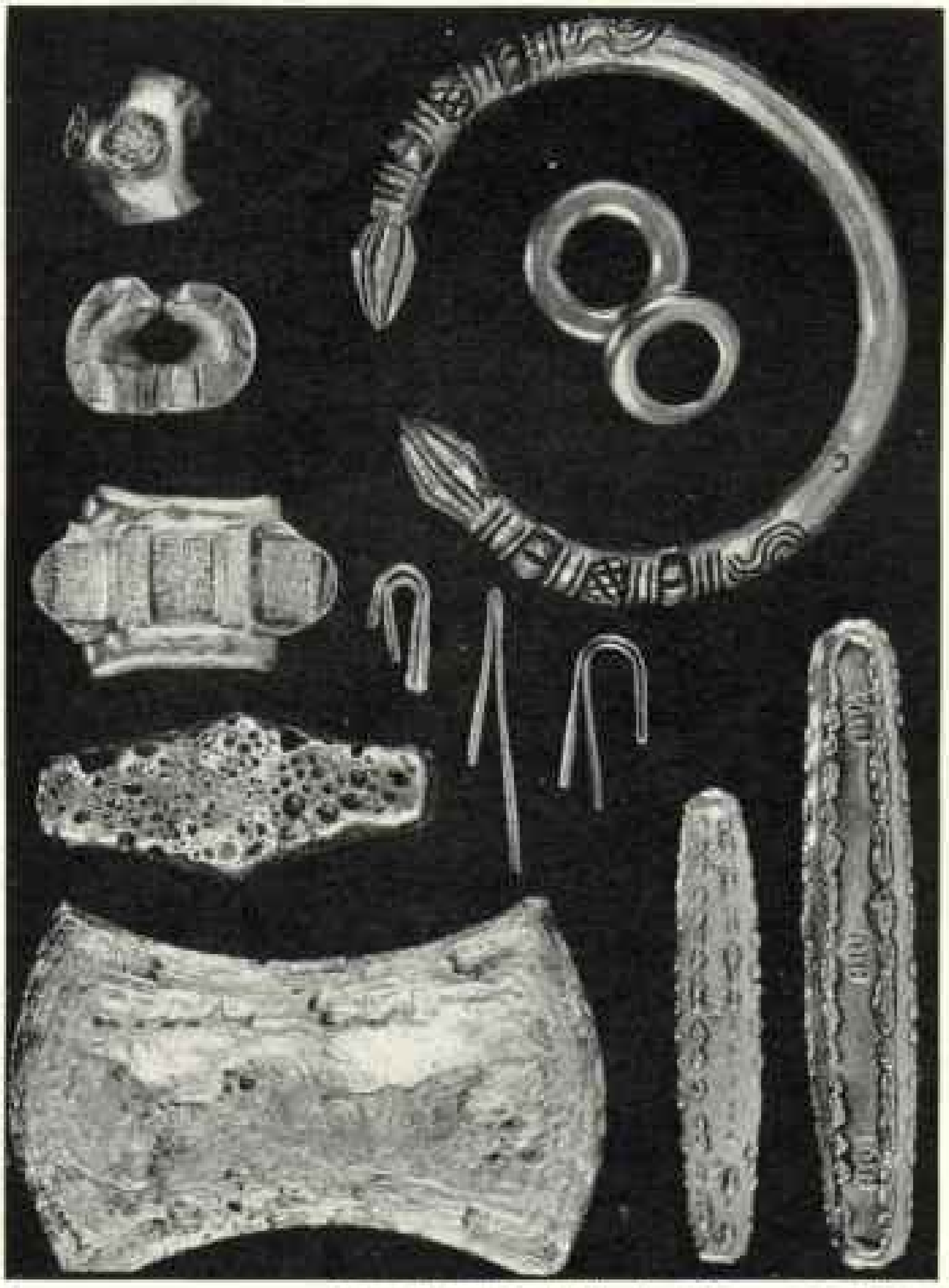
That is more than half a million one-ton truckloads, a parade halfway across the United States of America, or enough silver to pave Broadway six inches deep from the Battery up to Central Park.

To-day about three-fourths of all silver produced comes from North America. Mexico alone sometimes yields nearly half of the world's annual output (see text, page 255). Some 23 per cent comes from the United States, 9 per cent from Canada and Peru each, and the remainder from Australia, India, and other countries.

MOST SILVER A BY-PRODUCT

It is significant, too, that about half of all silver found since Columbus discovered America was mined after 1889. This is because of new mining methods and the fact that nowadays most silver produced is a by-product of mining carried on chiefly for some other metal. The output of silver, at any time, may therefore be a kind of index to the mining business in these other metals.

Though the outputs of gold and silver have risen together, one is at times mined faster than the other.



Chase National Bank Collection of Moneys of the World

SINCE JOSEPH'S BRETHREN SOLD HIM INTO EGYPT SILVER TOKENS HAVE SLOWLY DEVELOPED INTO MONEY

Oddly shaped Siamese coins are in the upper left. To their right is oriental ring money. In the center are "fishhook" coins of India and Persia. The porous bar at left of the fishhooks is 15th-century Russian money. The big coin, like a double-bitted ax, at the bottom, is early Chinese, and the two bars at its right are coins of the Laos Territory, French Indochina.

Silver is so much a part of world trade that its changing price figures in the daily news, is quoted on the National Metal Exchange in New York, and affects the prices of life's necessities among the hordes of the Orient. Because China retains the silver standard in her money, silver's price per ounce is of vital interest to all merchants everywhere who buy and sell in China.

When, for example, silver in 1919 soared to such a dizzy cost, it upset price standards in the Far East, in terms of foreign money. In the same way, when in 1932 it sank to an all-time low, the effect on wages and prices in the Orient, and on those who operate silver mines in the Occident, was equally confusing. In the silver-using Far East, which buys heavily of our goods, silver's price is a delicate index.

SILVER'S USE AS MONEY

Silver, as a metal, is a commodity. In the form of bars it figures in the arts and industries and in the metal trade. In some countries it is also the standard of value; in many other lands throughout the world where it is not the standard, it nevertheless is much used as subsidiary money.

That is the case in the United States. While we freely use silver coins, silver is really a commodity and not a standard of value.

The shekels of Bible times hint at the beginnings of money. They were not coins, but pieces of silver of a certain weight (see illustration, page 259). Silver chunks, known as "sycee," are still used in China.

Besides the practice of stamping pieces of silver to show their weight, ancients stored them in temples for safe-keeping. "To court favor with the presiding deity," writes Benjamin White, "the depositor might also stamp on his ingots some badge or symbol of this god."

"So far as we know," said Herodotus about 2,400 years ago, "the Lydians were the first to make coins of silver."

Rome used coins some centuries before the Christian era. It was a Roman coin

which the enemies of Jesus showed Him when they tried to trick Him into saying whether tribute should be paid to Cæsar.

"Shew me the tribute money," He said. "Whose is this image and superscription?"

"Cæsar's."

And He answered, "Render therefore unto Cæsar the things which are Cæsar's, and unto God the things which are God's."

Pictures of kings and queens on ancient coins help verify history and fill in many gaps. Besides images of warriors and royalty, many early coins also bear the heads of bulls or lions, the figures of athletes, hunted animals, ears of corn, and other designs.

Some ancient coins were topical. Just as our mint to-day may issue "Oregon Trail" half dollars, and special coins to commemorate historic events, Alexander I of Macedon recorded his victory at the Bisaltian silver mines in 480 B. C. by stamping coins which showed a mounted warrior carrying two spears.

Photograph by B. Anthony Stewart

THE MACE, SYMBOL OF AUTHORITY, BORNE ON THE FLOOR OF CONGRESS BY THE SERGEANT AT ARMS

About three feet high, the mace ends in a silver globe, on which is etched a map of the world, surmounted by a silver eagle. It stands on a marble pedestal at the right of the Speaker of the House of Representatives. It is carried by the Sergeant at Arms, as a symbol of power, when needed to restore order. The mace developed from a Roman emblem, a bundle of rods, one of which terminated in an ax blade.

Since money was so easy to handle, it early began its travels. Our first mint was opened at Philadelphia. In his book on "Ancient Central Asian Tracks," Sir Aurel Stein tells of finding coins which had lain for centuries beside a caravan trail. As the camel marched along, they had slipped out through some hole in the bag. Sir Aurel found 200 "strewing the dismal ground of salt-encrusted clay for a distance of about 30 yards."

The word "mint," meaning a place where coins are stamped, got its name from the Temple of Juno Moneta in Rome, where silver was coined about 2,200 years ago. Till 1873 we coined silver freely. A return to this "free and unlimited coinage of silver" was the battle cry of William Jennings Bryan in his famous "Cross of Gold" speech in 1896.

THE RATIO OF GOLD TO SILVER

Our mints still buy bullion and coin silver money, but only such coins as the Treasury decides are needed (see page 288).

Man, using both silver and gold as money,

Courtesy of Alicia O'Reardon Overbeck

A TINY SILVER LLAMA MADE BY THE INDIANS OF BOLIVIA

This specimen was presented by an Indian to a contributor to the NATIONAL GEOGRAPHIC MAGAZINE, with the assurance that it would bring her good luck.

Courtesy Museum of the American Indian, Heye Foundation

FANTASTIC JARS MADE BY ANCIENT PERUVIAN CRAFTSMEN

The tripod to the left looks as if it had been inspired by Halloween, though scientists say it was probably used in ceremonies for crop fertility. These vessels were hammered from sheet silver.

has long puzzled over their relative buying power.*

In ancient days the location of the mines and the presence or lack of transport often affected the ratio.

By the code of Menes the ratio in Egypt was fixed at two and a half silver to one of gold. On the other hand, in the early history of Arabia, silver was worth ten times as much as gold, because of meager communications with lands that had more silver than Arabia.

As early as 708 B. C., however, an almost modern ratio was reached in the Tigris Valley. On cuneiform tablets dug up at Nineveh the rate was fixed at about 13⅓ to 1.

From the time of the Cæsars down to the discovery of America, gold was worth about twelve times as much as silver. Even after all the new gold and silver mines were opened in America, the ratio stuck around 14 : 1 and 16 : 1 until about 1870, because so many lands used silver as money. When the gold-standard idea spread, silver crashed; by 1902 one ounce of gold would buy about 39 ounces of silver.

In the World War, however, silver rose again. By 1919 it was $1.37 an ounce. This led still more countries to sell their silver and shift to the gold standard, and silver started down again. On December 29, 1932, it sold at only 24⅛ cents an ounce; then it took 84 ounces of silver to buy one of gold—the cheapest price for silver ever known.

* See "Men and Gold," by Frederick Simpich, in the National Geographic Magazine for April, 1933.

TRY THIS WITH YOUR TACK HAMMER!

From a coin one of Gorham's gifted silversmiths made this miniature so cleverly that the words "one dime" remain unchanged on the pitcher's tiny bottom.

Causes both economic and political brought about the fall of silver. One cause was that many nations reduced their use of subsidiary silver coins, while still other silver-standard countries tried to shift to gold.

USE OF SILVER IN THE FAR EAST

There was a high production of gold, compared with silver, just before most of the world adopted the gold standard. Yet for nearly three centuries before silver's recent acrobatic feats its price, in terms of gold, had kept fairly steady.

The East has long been called the sinkhole of silver. Although India, since 1926,

Courtesy Museum of the American Indian, Heye Foundation

UNEASY MUST HAVE BEEN THE HEAD THAT WORE THIS HEAVY SILVER CROWN

Decorated with plumed headdress and with long, protruding tongue, the mythological monster repeated in the cut-out design is holding some sort of fruit in its paws. Such silver crowns were found at Cusco, Peru. They were worn by priests, or used to adorn life-sized metal gods.

has been melting rupees and selling vast quantities of silver every year and buying gold, her stock on hand is still enormous.

Besides bullion hoards buried in secret vaults of her princes, India uses much silver in temple decorations, ornaments worn by women, and even on elephant trappings.

As our bulls and bears buy and sell wheat, so Indian silver brokers speculate on the rise and fall of that metal. To millions of people the rupee is the unit of exchange, and so delicate is the economic balance that silver may even rise or fall as the monsoon proves good or bad for crops.

This monsoon, news of which Marco Polo first brought to Europe, has been called the "silver wind," because when it fails crops fail; when it comes, rain comes, crops are good, and the people can sell them for silver.

May, after harvest, in India, is the marriage month. As our jewelers sell much silverware in June for wedding presents, so in India May sees much demand for silver as bridal dowries, in years when the monsoon is favorable.

But China, last great nation on the silver standard, is the paradise of money changers. So many kinds of coin pass current that buying and selling them is the trade of experts. In one bank the same firm may keep separate accounts in half a dozen different moneys, ranging from pounds, Mexican dollars, and yen to American dollars, francs, Hong Kong and Singapore dollars. The Trade dollar, the Maria Theresa, and the Spanish, or Carolus, dollar—all have passed this way. To foreign merchants trading with China, her bewildering mixture of moneys and their constant fluctuations are riddles that hang over every transaction.

THE MEXICAN DOLLAR PLAYS A PRANK IN CHINA

Trading from Acapulco, long ago, galleons first brought pesos to the East. No prank of silver is more curious than that a coin stamped "República de Mexico" should endure for generations as a popular unit of exchange in lands many thousands of miles overseas in no way politically akin to Mexico. Stranger still is that these coins should be *made in China*, as they often are, and stamped "República de Mexico"!

Courtesy Museum of the American Indian, Heye Foundation

THIS SILVER MASK ADORNED A MUMMY OF PERU

Such masks have been found directly against the faces of mummies; often they are covered by folds of the mummy cloth, or again they may be worn outside all the head wrappings. Under the silver plate of this one, from Lambayeque, is hammered copper.

Then there is the odd Chinese habit of "chopping dollars"—that is, the stamping of the "chop" on a coin by some expert qualified to verify its genuineness. A Chinaman's skill in detecting counterfeit is proverbial; and the money expert, with his long fingernail and big jade thumb ring, who pours a stream of dollars from one hand to the other as a prestidigitator handles cards, and detects a bad coin by its ring, is a familiar figure in every China Coast countinghouse.

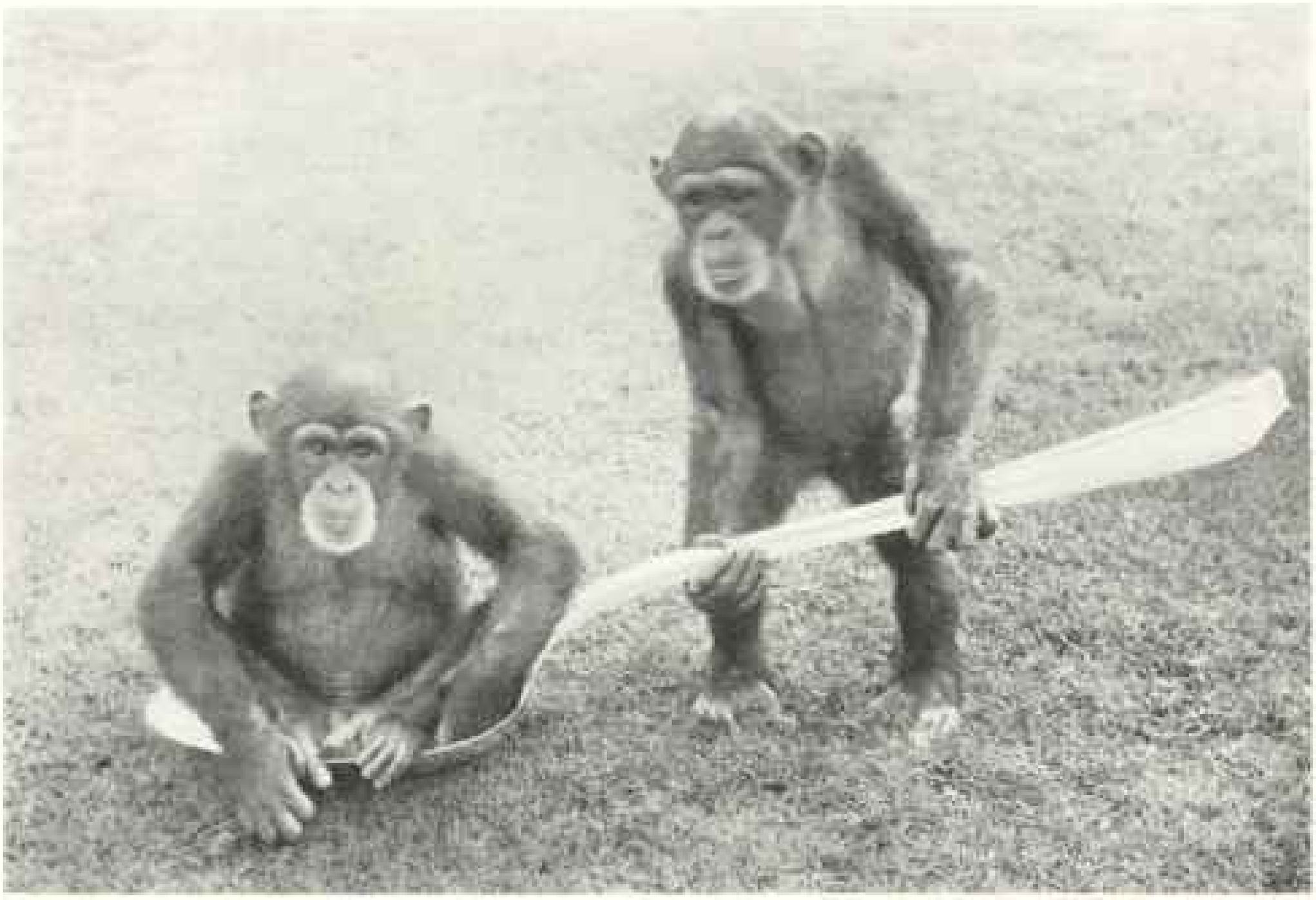
The bulk of heavy money that one must often carry to travel through remote parts of silver-using lands is a recognized cause of bandit adventures. In the early days of American occupation in the Philippines, clerks were paid in silver. On payday they staggered home along the narrow streets of the Walled City, balancing a heavy bag of money on one shoulder.

Many a veteran of the Philippine campaigns will recall the old Silver Dollar Café on Manila's Escolta, its floor paved with coins. Sunday mornings at the Pasay cockpits silver dollars fairly rained on the ground as excited gamblers threw money from the grandstand, yelling their commands as to which rooster they were betting on.

At the San Lázaro track, near Manila, I once saw a Chinaman win a 200-to-1 shot on a dark horse. When they paid him off, he collected so many bags of silver that he had to hire a carabao cart to haul his money back to the Chinese quarter of Manila.

A strange story of silver and train robbers comes from Arizona. Two men held up a train and robbed the express car. Most of the treasure was in a big safe. To break it open the robbers laid dynamite sticks on top of it, and held them down with bags of loose Mexican silver coins being shipped via the United States to the Mexican west coast to pay troops.

The explosion blew the top off the car and scattered silver pesos over the right of way, even imbedding some in telephone poles. When the sheriff's posse arrived they dropped the man hunt, for a time, to scramble in the desert sand for silver coins or



Photograph from The Gorham Co.

THIS GIANT SPOON WAS EXHIBITED AS AN ADVERTISING NOVELTY

Photograph by Clifton Adams

DISSOLVING AN 840-OUNCE BAR OF ALMOST PURE SILVER IN A SOLUTION OF NITRIC ACID

Silver nitrate, base of most light-sensitive emulsions used in photographic films, plates, and papers, is made this way. When Schulze, a German scientist, accidentally discovered this process, in 1727, photography started on its amazing career. In this "dissolving room" of the Eastman Kodak Company at Rochester, about 6,000,000 ounces of silver are used every year.

Photograph by C. J. Strahal

COPPER'S RISING DEMAND IS SENDING MANY LONG-IDLE MINERS BACK TO WORK

At Anaconda, Montana, is operated the largest nonferrous smelter in the world. Its normal output is about 13 per cent of all copper produced in the United States. Since silver is a by-product, its output increases or decreases with that of copper.

to dig them out of the posts, stuffing them into boots and saddlebags.

Homer speaks of silver wine cups, Pliny of dinners served from "pure and antique silver." In ancient times silver vessels were often buried with dead kings and silver toilet sets with queens. In Pompeii, before Vesuvius spoke, food was sometimes cooked in massive silver utensils.

SOME EARLY SILVER PIECES RECALL STIRRING EVENTS

Silver antiques may recall stirring scenes! Boisterous Anglo-Saxons feasting after the hunt; slaves bearing thick silver platters weighing hundreds of pounds and piled high with delicacies to tempt a Roman emperor; a French court beauty studying her face in a silver mirror; a priest of medieval Spain depositing in a silver urn the sacred bones and hair of a saint.

From Biblical days to the present, when a single manufacturer may sell twenty million dollars' worth of silverware in one year, silver plate has served man in many ways.

During the Wars of the Roses England sacrificed quantities of her valuable plate; later the zeal of the Reformation kept the melting pots bubbling; and in 1643 Charles I, to refill his treasury, ordered all silverware melted down and coined. France often piled the sacrificial altar high with silver offerings. During our own Civil War, both sides melted silverware to carry on the conflict.

Sometimes this process worked in reverse. After 17th-century destruction Englishmen began once more to accumulate large stores of silverware, and melted down so much silver coin that the currency ran short.

In early European wars people fled with their valuables; some were hidden in fields and woods. Roman generals who carried camp silver on campaigns were sometimes forced to bury it. Occasionally, even now,

Photograph by Eastman Kodak Co.

READY FOR ROMANCE, ADVENTURE, TRAGEDY, AND LOVE!

Spools of newly made motion-picture film are stacked up like big, shiny coins. Using many tons of silver, more than 200,000 miles of "movie" film are manufactured each year at Kodak Park, Rochester, in addition to acres of still film and plates made there.

you hear of silverware from American Revolutionary or Civil War times being turned up in some farmer's field.

One fine example of Roman plate, a richly decorated silver dish weighing 149 ounces, was found by a blacksmith's daughter while gathering wood along an English river bank.

A man digging for potatoes in Limerick County, Ireland, unearthed in 1868 a perfect chalice, estimated to be nearly a thousand years old.

Another accidental find was the "Treasure of Bernay," uncovered at Berthouville, Normandy. Now in the National Library at Paris, it contains 69 pieces of embossed, decorated silverware, part of which was used in a Temple of Mercury 2,500 years ago.

THE SPOON IS ALMOST AS OLD AS MAN

Less costly than gold or platinum, almost plastic in the hands of clever silversmiths, silver's everyday uses are legion.

Not every one is born with a silver spoon in his mouth; yet the spoon, in some form, is almost as old as man, or at least, as one witty Frenchman said, certainly as old as soup.

One Greek example in the British Museum has a stem ending in a goat's hoof. Pliny speaks of spoons whose handles were shaped like spikes to perforate eggs. The famous Apostle spoons, usually in sets of 13 (the additional one with the figure of Christ), were once popular gifts to a new-born child. Made in 1640, its handle an image of St. Peter, one such spoon is on view now at Wanamaker's in New York.

Knives and forks came much later. That the head of the family should carve at table may have come from the fact that in old days men carried knives for defense. Forks were not generally used till the early 16th century, when Italian nobility started the fashion.

The practice, though some thought it effeminate, gradually spread to other countries. The English novelist James Payn wrote of "the culture of the silver-fork school without their affectation." The "Lytyl Reporte of How Young People Should Behave" gives these guides to correct table manners: "Your knife is to be

kept clean and sharp. . . . Eat your broth with a spoon, not sip it. . . . You are not to leave your spoon in your dish nor dip your meat in the salere (salt)."

Odd beliefs cling to some silver articles. Malays make a betrothal cup. It is filled with sirih (betel pepper) leaf, and sent by a man to the girl he wishes as a wife. If she is agreeable, she accepts the cup and eats some of the leaf. Malays also use a silver box, rounded like an apple, for ceremonies at the first shaving of little boys' heads and at ear piercings. Sometimes this box is brought to a wedding, when a lock of the bride's hair is buried in it under a banana tree for good luck.

In tsarist Russia the proposer of a toast stood in the center of the room, drained his silver *bratina*, or drinking cup, and then, to prove his sincerity, turned it upside down over his head! The sumptuousness of the Tsars' plate was proverbial. In this collection was a famous English wine cistern weighing 8,000 ounces, with a bathtub capacity. How this vessel, raffled off in 1735, when funds were sought for a bridge over the Thames, finally came to the Winter Palace at Petrograd (now Leningrad) has long been a mystery.

Barcelona, Spain, used to present each visiting member of royalty with a magnificent silver service, remindful of a similar courtesy sometimes extended by one of our own States when a new ship has been named in its honor.

"What becomes of silver sets from battleships that are wrecked or go out of commission?" I asked a New England manufacturer.

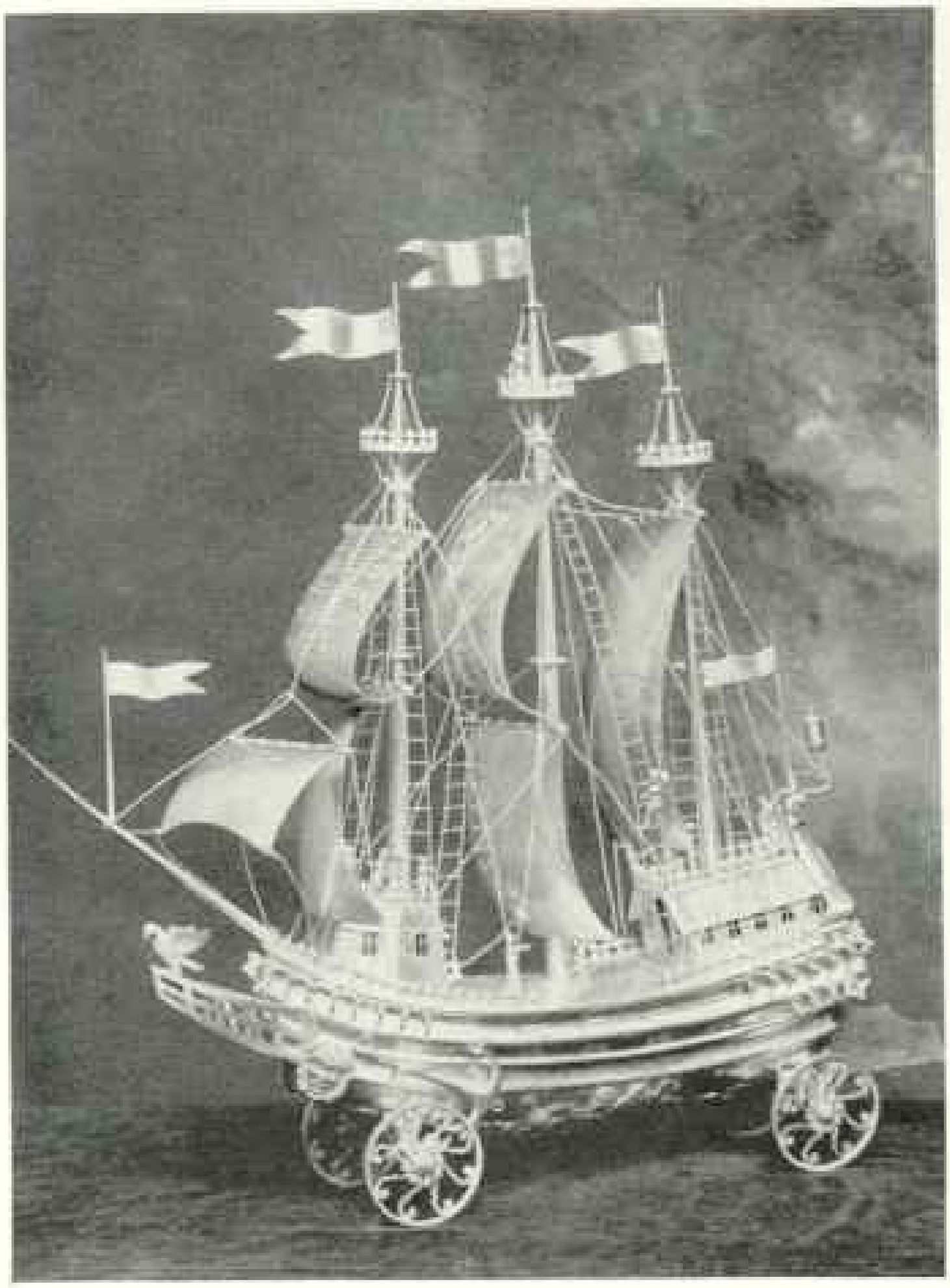
"I can answer in part," he said, taking a fork from his desk drawer. "We made the silver service for the old *Maine* that was blown up in Havana harbor. This fork lay on the bottom of the sea for many years, till some one fished it up and sent it back to us as a curiosity."

On dining tables of the rich from the 15th to the 17th centuries, silver ships, originally designed to hold the knives and

Photograph by Charles Martin

PHOTOGRAPHY IS THE SECOND LARGEST COMMERCIAL CONSUMER OF SILVER

Using about 40 per cent, sterling manufacture led in silver consumption in 1932. Photography was next, using 30 per cent, while only about 5 per cent was used by jewelry and coinage. A member of the photographic staff is developing a print in a darkroom at the National Geographic Society's Photographic Laboratories.



SILVER SHIP PRESENTED TO ADMIRAL PEARY

The ship, made entirely of silver, weighing over 100 ounces, stands about two feet high. It was presented by the Royal Scottish Geographical Society of Edinburgh, May 24, 1910. That Society had awarded its silver medal to Commander Peary in 1897 for crossing the ice cap of Greenland, and its gold medal to him in 1903 for his Arctic explorations during the preceding four years.

napkins, and sometimes the wine, made striking center pieces. In Toledo, Spain, is one such vessel which belonged to the daughter of Isabella and Ferdinand. *Nefs*, these ships were called. As early as 1392 Italy records a silver nef on wheels, a foreshadow of the popular German and Dutch models of later years.

After the conquest of Mexico and Peru, silver flooded the markets of Europe, especially Spain. One visitor to the Spanish capital in the 16th century observed: "Utensils of common metal are not employed here, only those of silver or of ware. . . . Upon the death of the Duke of Albuquerque, six weeks were needed to make inventory of his gold and silver services."

THE EARLY WORK OF AMERICA'S MASTER SILVERSMITHS STILL LIVES

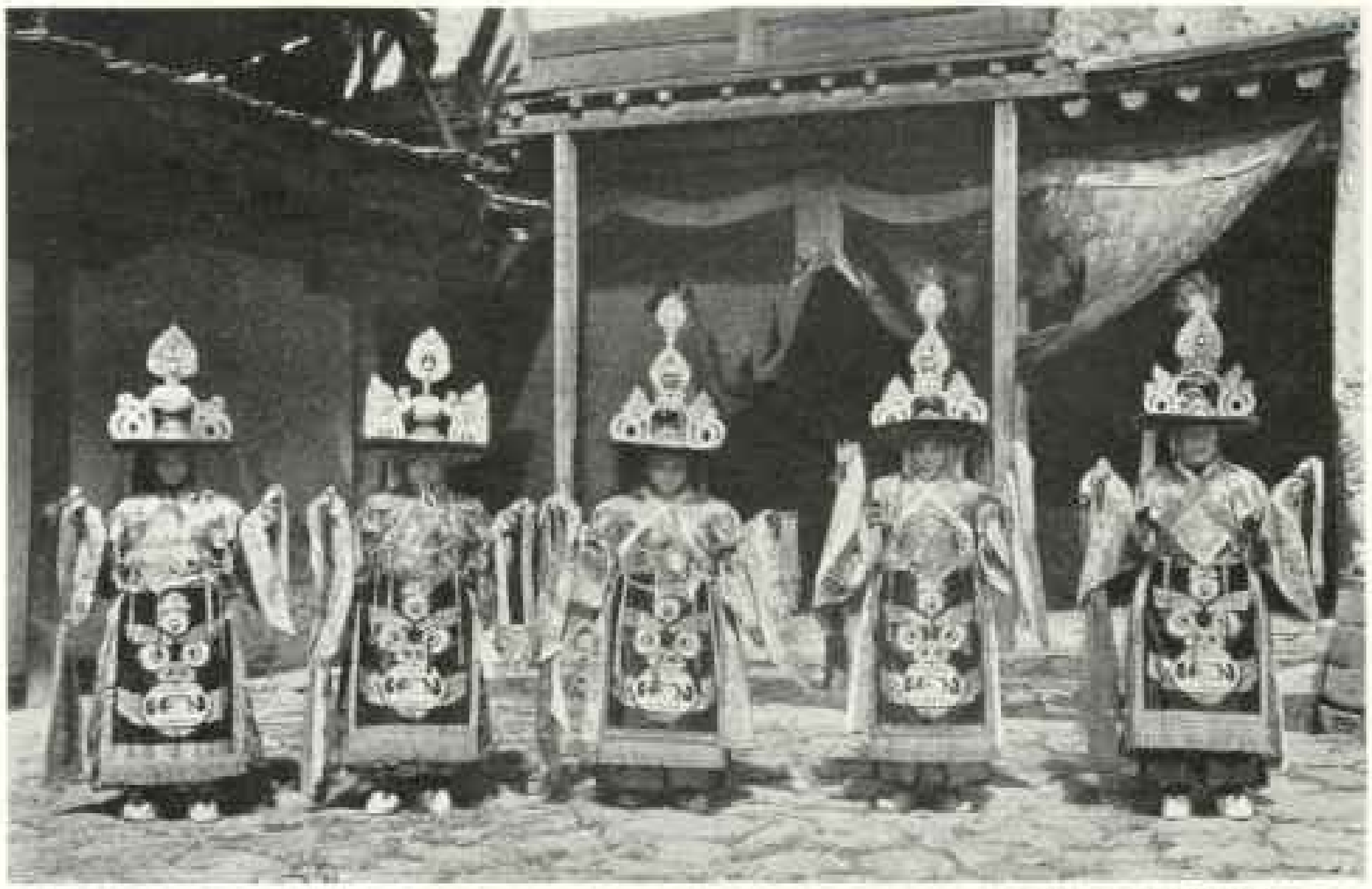
Nearly a century before the Revolution, pioneer New England silversmiths were busy at their benches. Among this group was William Moulton, of Newburyport, Massachusetts. Pieces designed by him are among silver treasures shown in the Metropolitan Museum of Art in New York.

Once Newburyport rang with the sound of hammer and saw, and ships built there carried Colonial wares to the ends of the earth, bringing back coins which its silversmiths melted for use in their art. This was known as "coin silver." Itinerant artisans worked even into our Far West until well past the 1860's making knives, forks, and spoons from silver dollars.

Newburyport, however, is unique for its continuity in silverwork since 1690. One family, the Moultons, made sterling through six generations, the fourth being competitors of Paul Revere. In museums now you see examples of Revere's work with those of the Moultons' (see opposite page).

When the last of the Moultons laid down his tools, some years before our Civil War, an apprentice, Anthony Towle, was among those who carried on the ancient traditions of the craft, and to-day the pioneer factory bears his name.

Colonial silversmiths flourished in spite of such Puritan sentiments as John Adams



Photograph by Joseph F. Rock

CHINESE DANCERS WEARING SILVER-TRIMMED HATS

This group of Black Hat dancers was photographed in the courtyard of the Chanting Hall at La Kang Ting Monastery, by Dr. Joseph F. Rock, who led expeditions of the National Geographic Society into western China and Tibet in 1924–1930. This monastery is at the city of Waerhdje (Wachin), in the southwestern region of the "Wild West" Chinese Province of Szechwan.

Photograph courtesy Boston Museum of Fine Arts

A TEAPOT DESIGNED BY PAUL REVERE

The inscription reads: "To Edmund Hartt, constructor of the frigate *Boston*. Presented by a number of his fellow citizens, as a Memorial of their sense of his Ability, Zeal and Fidelity in the completion of that Ornament of the American Navy 1799." It is now in the Boston Museum of Fine Arts.

Photograph courtesy R. Wallace and Sons

POLISHING AND BUFFING ARE FINAL STAGES IN MAKING HOLLOW SILVERWARE

Another fascinating process is the "spinning" of silver, in which highly skilled workers, pressing a smooth bar against a silver disk whirling in a lathe, "turn" it into a shapely urn or bowl, like clay on a potter's wheel.

SOLID-SILVER COFFEE SET, ENAMELED IN GREEN, BLUE, AND WHITE

This five-piece set was hand-wrought by Tiffany. In the creation of such exquisite designs, of which one only is made, the artist may first model in clay, then complete his conception by drawings (see text, page 285).

expressed in a letter to his wife: "If I had power I would forever banish from America all gold, silver, silk, velvet, and lace." In Boston, before 1800, more than 150 names of silversmiths are recorded, and its rich merchants bought much costly silverware. British officers stationed in New York before the Revolution were astonished at the wealth of silver used in fashionable homes there. Three generations of silversmiths came from one Philadelphia family alone, one member of which designed the silver inkstand used at the signing of the Declaration of Independence (see illustration, page 292).

Our own Navajo Indians are good silversmiths. Using merely a forge and hand bellows, with a small anvil and other simple tools, they make buttons, beads, bracelets, rings, crosses, bridle mountings, and buckles, as native works; as a concession to American demand, they add miniature canteens, stickpins, hat-bands, knives, forks, and spoons.

Photograph courtesy Towle Mfg. Co.

PAUL REVERE, FAMOUS RIDER AND DENTIST, ALSO WAS AN ENGRAVER AND SILVERSMITH

This painting by an unknown artist shows the patriot working at an anvil of a type long used for shaping silver bowls and dishes. Specimens of silverware made by Revere are in museums and have been much copied (see illustration, page 279).

In such studios as that of Gorham's in Providence, designers create an amazing variety of silver prize cups and trophies, often in the form of horses, sailing craft, or athletes in action. Tiffany, Wallace, International, and others are also known for artistic creations in this field.

From the gladiator days of Rome, men have loved sport. Since "to the victor belong the spoils," the award of prizes is as old as sport itself. Prize cups made from ox horns trimmed with silver can be traced to the 14th century.

That "Merry Monarch," Charles II, loved horse-racing. During his reign gift cups came into wide use. In the rise of the great English sporting period, designers came to make cups like the heads of animals taken in the chase.

There were trout-head designs for fishermen, rooster heads for cockfight fans, rabbit-head cups for champion hare coursers, and a cup shaped like a clenched fist for the prize fighter.

To-day the prodigious number of golf, tennis, bowling, racing, sailing, skating, and other silver prize cups, plaques, medals,

Photograph courtesy The Gorham Co.

THE SEAPLANE IS EXALTED ABOVE ALL OTHER FORMS OF NAVIGATION

Glenn H. Curtiss, who experimented successfully with seaplanes, donated this sterling-silver marine flying trophy in 1915, to be competed for annually by seaplanes and flying boats. On the right of the globe is Neptune, protesting; on the left the god of wind, aiding the plane. It is on exhibit at the Navy Department's headquarters, Washington, D. C.

etc., accumulated in sporting circles from Amsterdam to Australia is beyond guess.

AN ADJUNCT TO VANITY

Silver jewelry was not new when wives of the Pharaohs "dressed up." Helen of Troy used a burnished silver mirror to admire the face that launched a thousand ships. When Cleopatra flirted with Mark Antony on the Nile, gleaming silver oars splashed softly in the moonlight.

Silver jewelry is worn in the Orient to guard against evil. Charms made from iron coffin nails covered with silver are common in parts of China.

In India a peasant father may mortgage his whole future to deck a marriageable daughter with silver. Wealthy Indian women carry many pounds of this jewelry at one time, and tinkle like belled cows as they walk.

In Visigothic Spain, gold and silver were reserved for the ruling class, whose passion for show led to fabulous decoration. Then the Moors came with greedy hands for the treasure. After the battle of the Guadalete, 711, "Muslim victors, stripping the Visigothic dead, identified the nobles by golden rings upon their fingers, and those of less exalted rank by their silver rings."

Serenely indifferent to the Koran's ban on gold and silver ornamentation, the Moors embellished everything from dress to furniture, and even trappings for horses and mules. Similarly, modern South American cattle barons use bits and bridles of pure silver, as well as cruel, sharp-edged stirrups.

"He bids his horse to dig for him a grave," said one writer describing Turkish scenes, "with silver-plated hoofs."

In a fair year America makes about fifty million dollars' worth of silverware. Only a part of this is sterling; the rest is plated. Much of the plate is gracefully designed, light to the touch, and guaranteed to last a

lifetime. But from some of the same shops which make high-grade silverware comes also a stream of so-called "flash" goods for ten-cent stores.

Multiply America's 29,000,000 families by the sum total of all knives, forks, spoons, and "hollow ware" in use in the average family, and you get some idea of the tens of millions of pieces of solid and plated ware our country uses!

In 1742 Thomas Bolsover, of Sheffield, England, evolved the idea of combining copper with silver in layers, ready for manufacture in any form. The result was "Sheffield plate," a term often since misused.

This Englishman's method of applying a thin layer of silver to one of copper was the way all silver plate was made until electroplating was discovered, also in England, about the middle of the 19th century. Since then silver plate has meant all ware plated by use of electric current.

Three brothers named Rogers perfected this process at Hartford, Connecticut. Later they joined the Meriden Britannia Company, now the International Silver Company.

To-day this trade has become so large that one firm alone makes and sells more than 75,000,000 knives, forks, and spoons in a single year.

All silverware, both sterling and plated, falls into two groups, flatware and hollow ware, and for years the trade has sought in vain for better descriptive terms. Flatware means knives, forks, and spoons; hollow ware means tea and coffee sets; dinner sets, bowls, candlesticks, vases, etc.

Photograph courtesy Captain J. M. Smeallie, U. S. N.

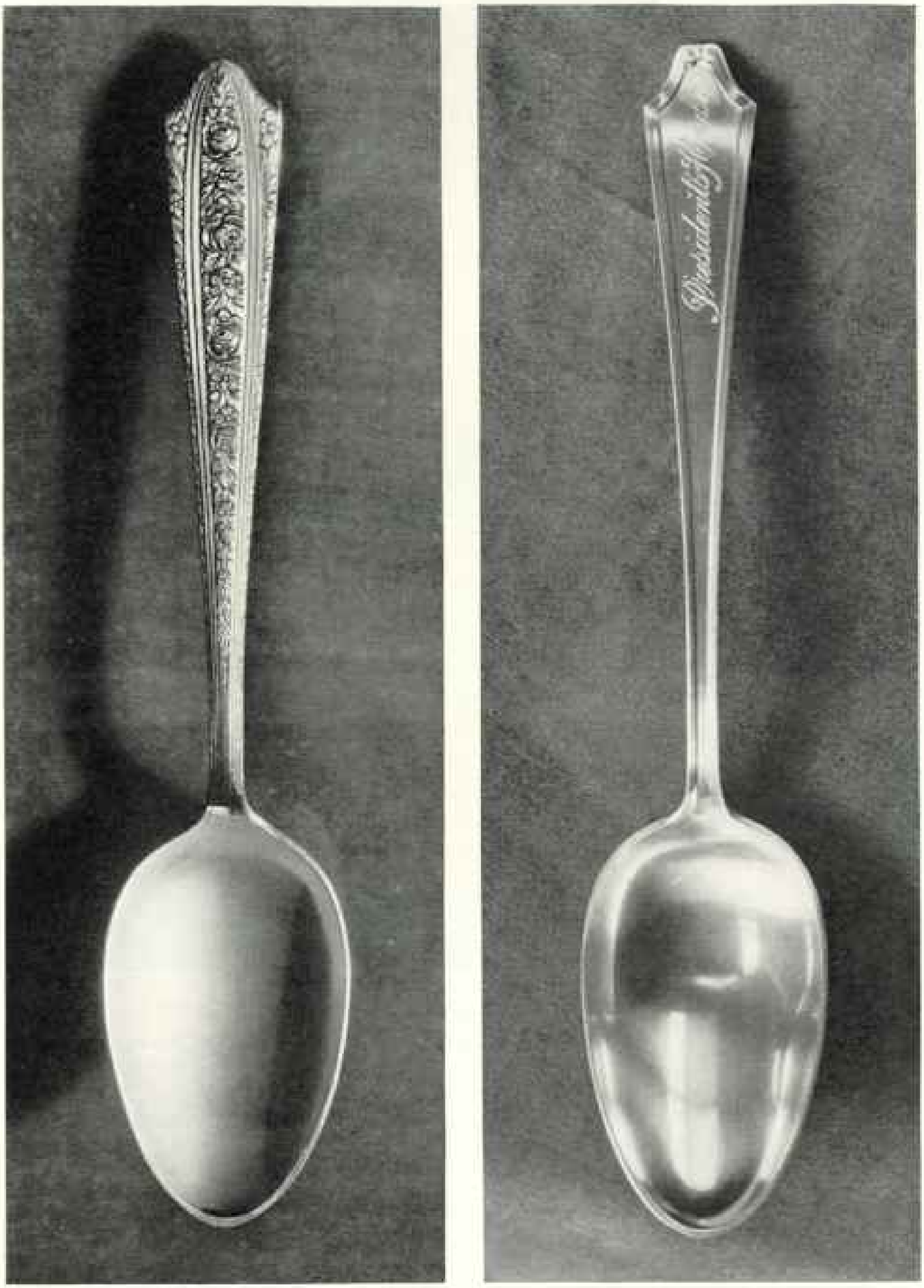
THIS SILVER SERVICE HAS A LONG AND EXCITING HISTORY

Presented to the battleship *Indiana* in 1896 by the citizens of the State of Indiana, this set was struck by an exploding shell during an engagement off Santiago, Cuba, in the Spanish-American War. The dent made in the punchbowl may still be seen. In 1932 the set was presented to the U. S. S. *Indianapolis*, which recently brought President Roosevelt from his vacation cruise to Annapolis, Maryland.

MAKING PLATED SILVER

To-day's best plated ware has nickel silver as its base; almost indestructible, capable of a high polish, it is easily mistaken for "solid silver."

Making high-grade silver plate involves many operations. A teaspoon, for example, goes through more than 30 distinct stages



TWO SILVER TEASPOONS OF DISTINCTION

An article on Normandy, in the NATIONAL GEOGRAPHIC MAGAZINE, suggested the design to the left to artists in the studio of R. Wallace and Sons, Wallingford, Connecticut (see text, page 286). The Minuet pattern in International Sterling, on the right, is the design of silver now used at the White House. Each piece is engraved "President's House," as was former White House silver.

from the time it is crudely cut from a flat bar until it is polished on a wheel of walrus hide.

Workmen at Newburyport cutting up a walrus hide to make a wheel lately found a bullet fired into that Arctic animal by the hunters who slew him!

It took International a year and a half to make all the thousands of pieces of silver plate for the new Waldorf Astoria Hotel in New York. For full sets of new silver large hotels must pay anywhere from $50,000 to $150,000; one such group gave an order for one million dollars' worth.

At the Oneida Community, in New York, I saw men working on a single order of souvenir spoons for Chicago's Century of Progress Exposition, turning them out by the hundreds of thousands. Another such order was for close to 4,000,000 souvenir spoons!

"We made such spoons for the Chicago fair of 1893," said the salesman. "But these jobs are incidental. I've just sold silver equipment for a chain of more than a hundred restaurants."

Photograph courtesy The Gorham Co.

TO MAKE SPOONS A DIE MUST FIRST BE CUT

Two dies, an upper and a lower, are cut from blocks of steel and placed in a stamping machine. Into the lower is laid a crudely cut piece of metal, shaped roughly like a spoon. When the heavy stamping machine strikes one die against the other, the spoon takes form.

From mink traps to souvenir spoons—that is the trade cycle of the Oneida Community. Started some fourscore years ago, this colony in time led the world in its output of wild-animal traps. Later it began making silverware, dropping the trap trade, and is to-day one of the largest producers of high-grade silver plate, turning out some 35,000,000 pieces a year.

Make a quick estimate of all our better cafés, restaurants, hotels, steamships, dining cars, boarding schools, hospitals, and other institutions, to say nothing of America's 29,000,000 families, and you begin to see, in bewilderment, how much silver plate is in use.

DESIGN IS A MAKER'S FIRST CONCERN

When Sun Yat Sen, first President of China, bought American-made dining cars for a Chinese railroad, he also ordered American silverware for use on them. Each piece was embellished with Chinese characters.

A private train of seven cars used by the President of Mexico and his Cabinet is equipped with silverware made in America, with the seal of Mexico on every article.

© Kouchakji Frères

THIS HISTORIC CHALICE DATES FROM THE CENTURY OF THE LAST SUPPER

The cup was unearthed by Arabs on the site of ancient Antioch. Its carvings depict scenes from the life of Christ; some figures are believed to be portraits of the Disciples. It stands nearly eight inches high, and is one of the most cherished exhibits in the Hall of Religions at Chicago's Century of Progress Exposition.

Design on both sterling and plate is a maker's first concern.

"We made the silver for the new steamers *Manhattan* and *Washington*, of the United States Lines," said an official of the International Silver Company. "To find a symbolic pattern we studied the flora and fauna of the sea. Many of the unusual formations were too delicate for reproduction, but we did find that seashells could be well copied, the same shells which children love to play with along beaches.

"Using special dies and tools, we put this delicate shell pattern on all the ornamental borders and handles of the 63,232 pieces of the silverware now used on each of these fine, fast ships."

Most design is inspired by Nature's beautiful forms. In creating a nautical trophy, form will come first; motif, coming second, may have in its composition dolphins, fish, and crabs, or seaweed and other marine vegetation.

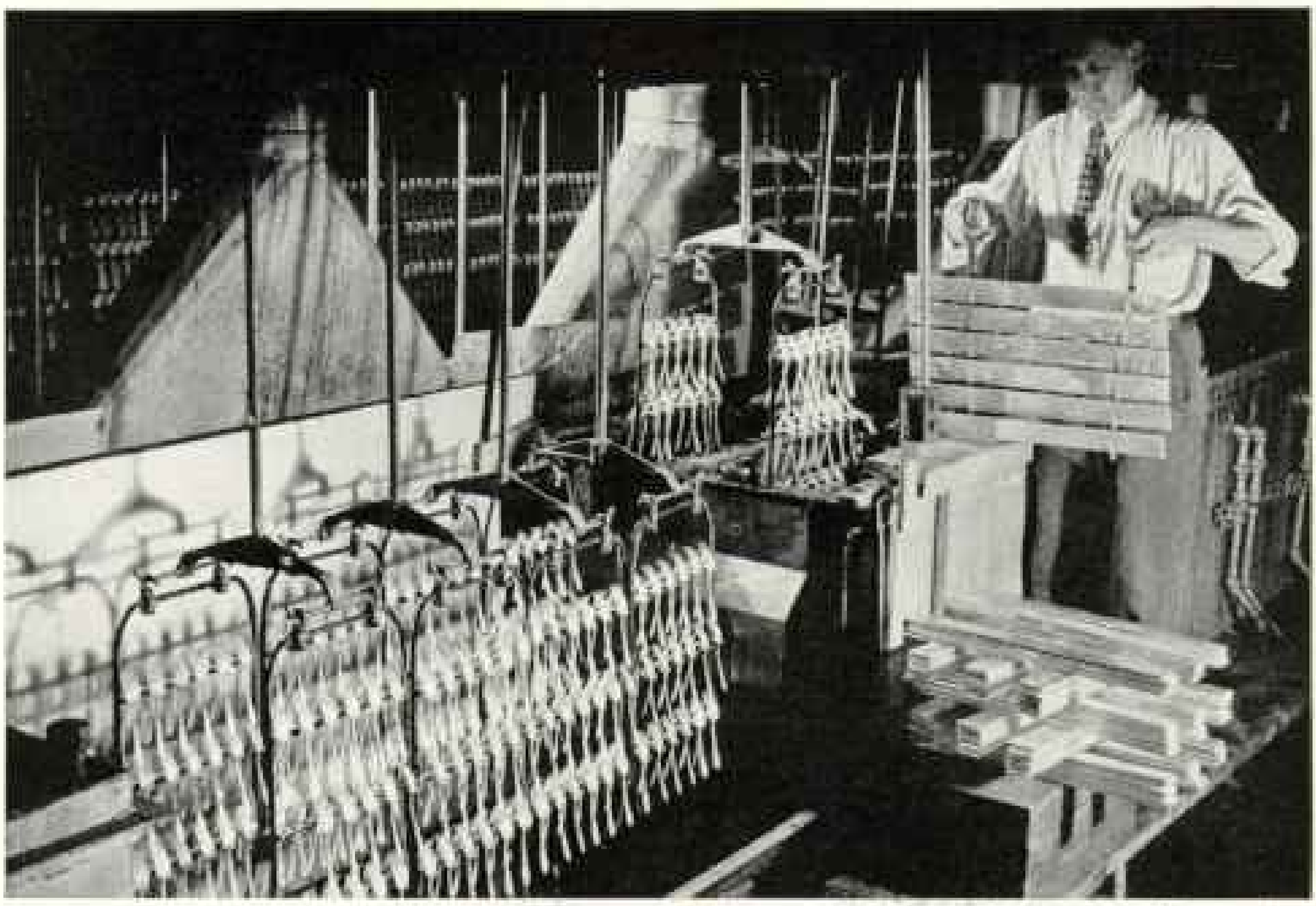
From an article on Normandy of apple-blossom fame, published in the NATIONAL GEOGRAPHIC MAGAZINE, a designer in the studios of R. Wallace and Sons at Wallingford, Connecticut, got his inspiration for a new pattern, the "Normandie"* (see page 284).

Tiffany may make a sterling-silver punch-bowl or a cigar humidor of no great weight, yet selling for anywhere from $2,000 up. It is not the silver, of course, but the exquisite workmanship which costs. Such individual pieces are never duplicated. One and only one is made (see page 280).

Normally, our land celebrates more than a million marriages a year. Gifts of silver for brides are often selected by the brides themselves, so that style and design are planned rather to please them than the men.

As pirates in days of old gathered chests full of pieces of eight, so the young wife in America gradually adds to her chest of silverware. She may start with "sixes"; then, as the family grows and the husband's

* See "The Land of William the Conqueror," by Inez Buffington Ryan, in the NATIONAL GEOGRAPHIC MAGAZINE for January, 1932.



Photograph courtesy Oneida Community

A SILVER-PLATING MACHINE DIPS MANY DOZEN KNIVES, FORKS, OR SPOONS AT ONE OPERATION

A rack carrying the objects to be plated moves along under an overhead rail. At each tank it pauses, dips its cargo, and passes on. The weight of silver plate is determined by the time of immersion in the solution.

Photograph by B. Anthony Stewart

MORE THAN 200 YEARS AGO WILLIAM III PRESENTED THIS COMMUNION SERVICE TO ST. ANNE'S PARISH, ANNE ARUNDEL COUNTY, MARYLAND

Francis Garthorne of Swithin's Lane, London, a court silversmith employed by Queen Anne, made this service, except the two small chalices. The set now consists of a flagon, chalices, credence paten, paten, and an alms basin, all engraved with the Royal Arms.

Photograph by Charles Martin

SILVER DOLLARS MAY LIE UNDISTURBED FOR YEARS IN GOVERNMENT VAULTS

Meanwhile, smaller coins are in constant circulation. To-day there are only about 28,000,000 silver dollars in circulation, but 540,000,000 more are held in the United States Treasury. Street cars, soda fountains, the "five-and-ten" stores, vending machines, and countless other small change demands require more than $255,000,000 worth of smaller silver coins in circulation.

earnings increase, this silver is added to until a service for 12 people is complete.

Of all sterling silver and high-grade plate that is sold, about 85 per cent is bought as gifts either for weddings or at Christmas time, or as gradual replacements. Replacements of plated ware in hotels, cafés, and other public eating places, due to wear, tear, and washing machines, as well as theft, are constant and enormous.

The word "sterling" means solid silver of a definite fineness. Pure silver is too soft for use. But add just a little copper, only 7½ per cent, and you have substantial, enduring sterling. These proportions were used long before 1350 and have never been changed. "Sterling" on a piece is restricted by law in the United States and some other lands to silver which is 925/1,000 pure, and it is a guarantee that metal used in the piece is genuine.

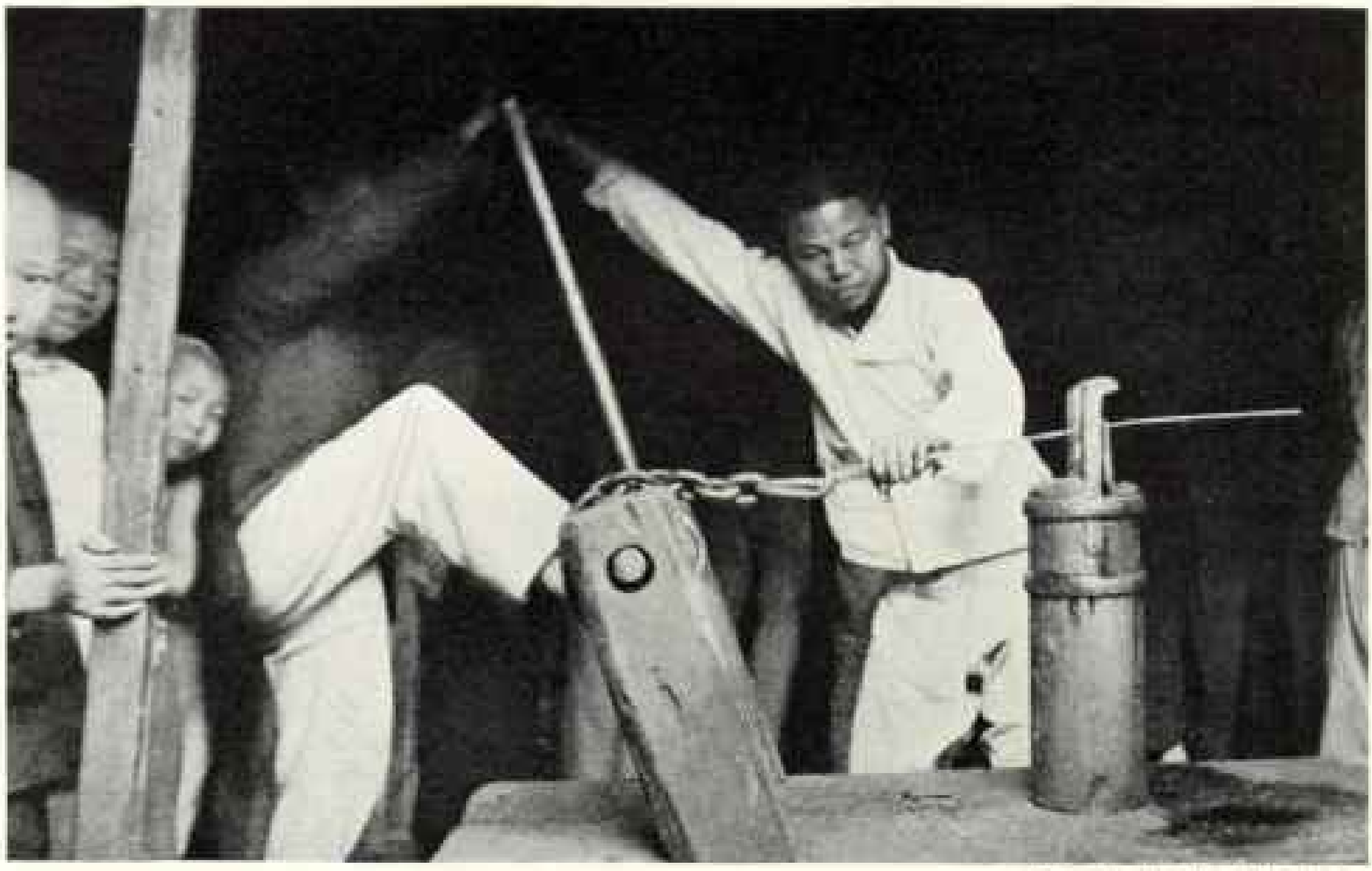
Sterling is an ancient word. It is a contraction of "Easterling." In the 12th century there flourished in Germany the Hanseatic League, comprising certain free towns. These towns issued money of their own, and, in trading with English merchants, gave their silver coins for British cattle, sheep, and grain. The British soon learned that money from these Hansa towns was always the same, always dependable. Soon they came to insist on the coins of the Easterlings, or those from the east of Britain. Later, "sterling" was made the standard both for English money and for the manufacture of solid silver — the standard of highest quality.

Jews give all silver used in the Feast of the Passover a special cleansing and polishing, and orthodox families have special rules for silver which holds milk or meat.

CHURCHES HAVE ACCUMULATED VAST TREASURES OF SILVER

At Mass in Roman churches only vessels of precious metals are handled by the priest.

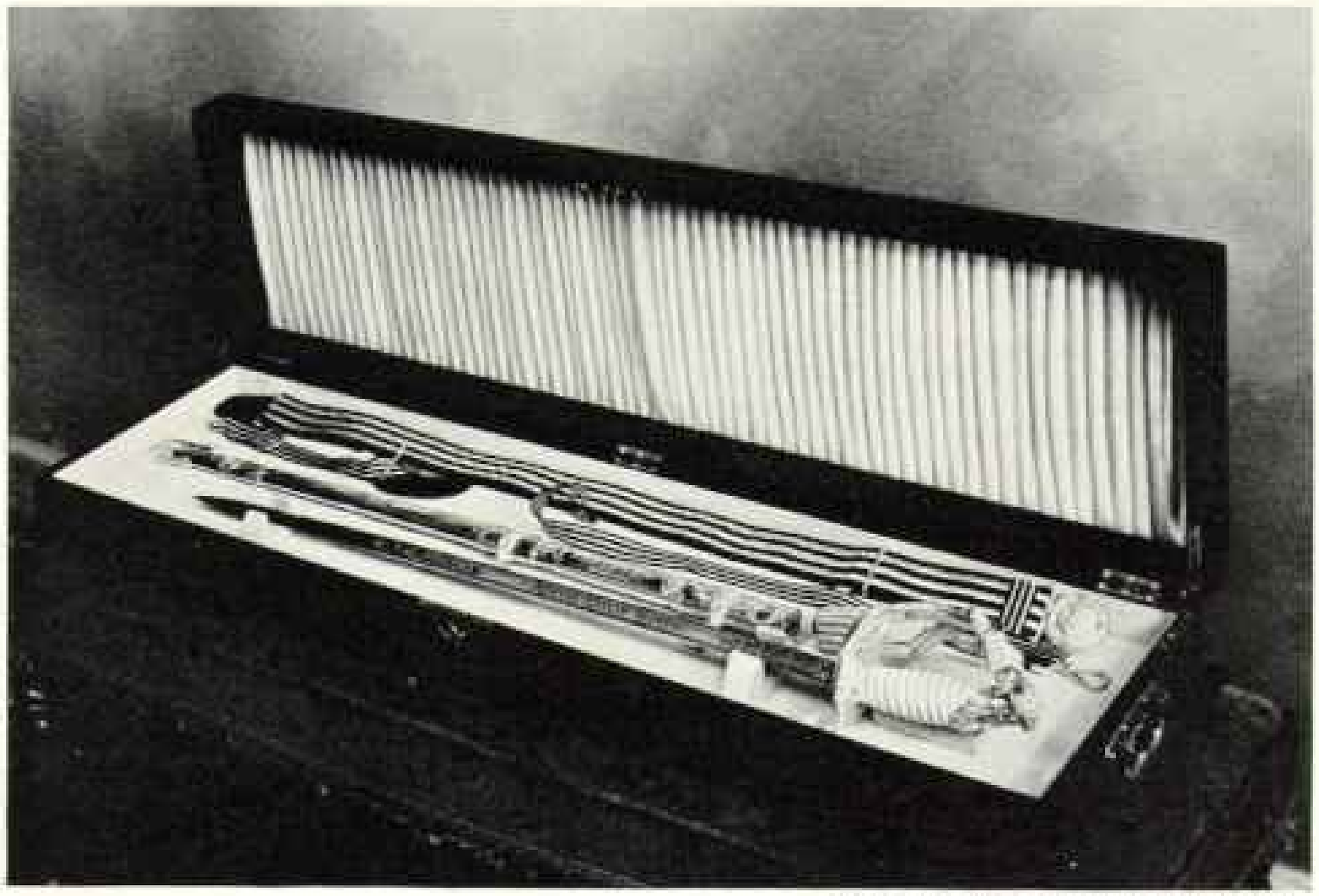
I saw a salesman showing some visiting nuns an exhibit of church silver in a large



Photograph by Frank B. Linz

DRAWING SILVER WIRE ON A PRIMITIVE CHINESE MACHINE

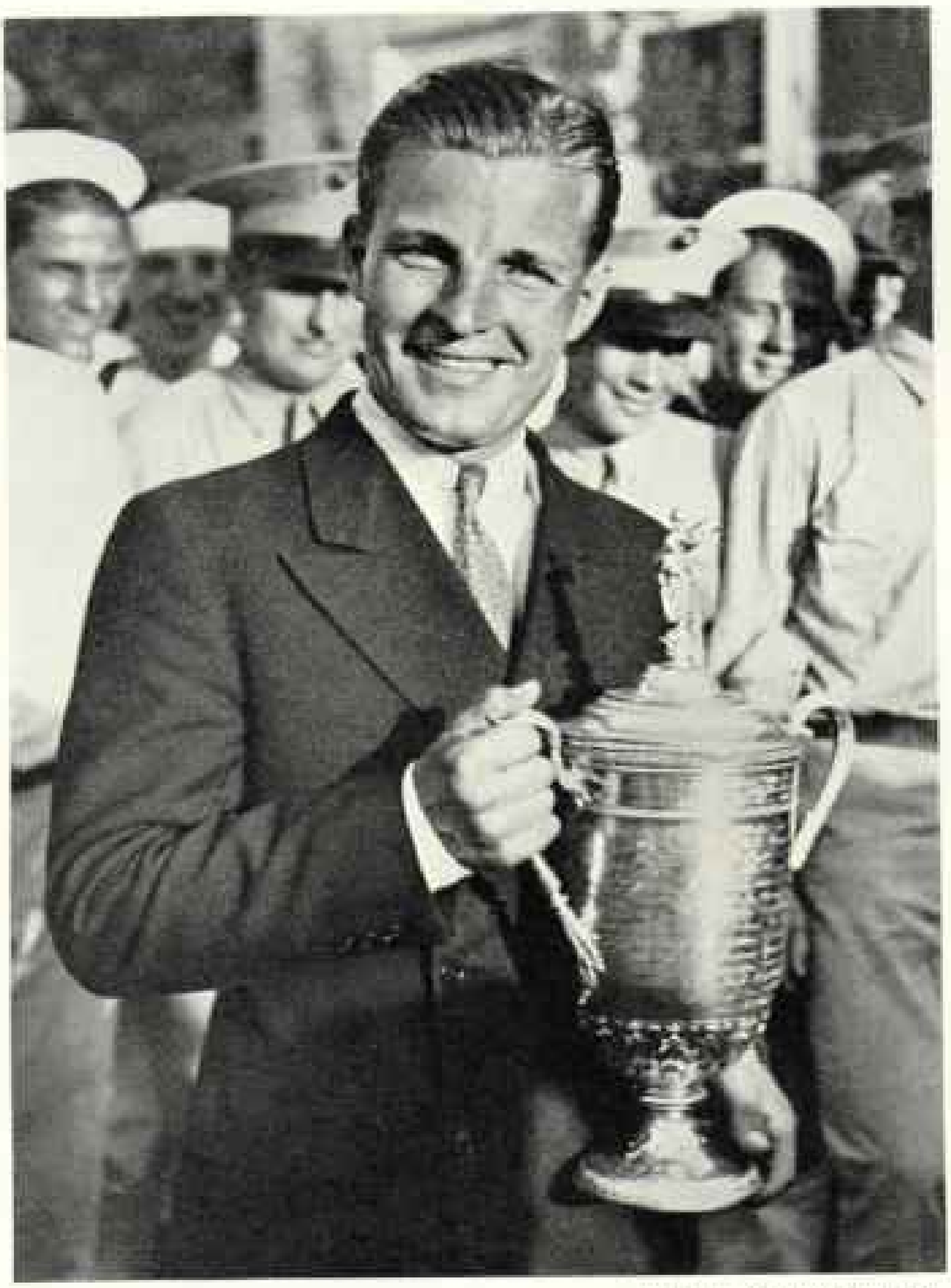
Clumsy as Chinese workmen seem, with their crude tools and saws with teeth set backward, in many crafts their skill is admirable. Families of silversmiths, famous for generations in Shanghai and Hong Kong, produce solid-silver tea sets and filigree jewelry of exquisite workmanship.



Photograph courtesy International Silver Co.

FOR HIS AËRIAL EXPLORATIONS, REAR ADMIRAL BYRD RECEIVED THIS SWORD FROM THE PEOPLE OF VIRGINIA

Its blade is etched with the Admiral's name and a record of his flights to France, to the North Pole, and over the Antarctic Continent. On the silver scabbard his ships are shown pushing through ice floes, and his plane, the *Floyd Bennett*, is portrayed in flight over the South Pole.



Photograph by Wide World

GOLF HAS AIDED THE SILVER INDUSTRY

Johnny Goodman, Omaha amateur, holds the silver trophy after his victory in the National Open Golf Championship. Fifth amateur in the history of American golf to win this event, Goodman on June 10, 1933, finished the 72-hole stretch of the North Shore Club at Glenview, Illinois, with a 287.

New England factory. "He is our ecclesiastical man," said an official. "He sells only to church-supply houses."

Astonishing wealth is represented by all the chalices, ostensoria, Communion patens, and baptismal bowls used in America's thousands of churches. Since man first raised temples to his gods, from pagan to Christian, fabulous sums have gone into holy vessels and altar decorations.

Patron of the arts, the church has received many gifts from her protégés. Beginning in the Middle Ages, pious or repentant nobles and merchants often bequeathed parts of their rich collections. Sometimes, as in war, these church treasures were looted.

Swinburne wrote of the shrine of Montserrat in Catalonia, with its votive offerings of "shelves crowded with silver legs, fingers, breasts . . . two-wheeled chaises, and boats."

In a Mexican church I saw a tiny silver burro placed at the altar by a grateful Indian whose lost burro was recovered after he had prayed for its return.

Before the Reformation, English churches were rich in silver treasure. Because this metal gives a sweet tone, even the bells sounded at Mass are sometimes of silver, recalling that Mosaic command, "Make thee two trumpets of silver."

Early church silver in the Colonies came from the mother countries. Sacred vessels presented by Champlain, Frontenac, and others for religious use in Quebec were all from France. In Mexico and other lands of Spanish culture, fine examples of imported work remain, though native silversmiths, already adept at their craft, had little to learn from the conquerors.

SILVER IN ARTS AND INDUSTRIES

Many silver Communion services in eastern United States churches were gifts of Queen Anne, in whose time the exquisite Queen Anne ware, so prized by collectors, was produced.

About 40 per cent of all silver used in our arts and industries goes into sterling.

Its second largest use is in making silver

nitrate, mostly for the photographic trade. Literally tons of silver are so consumed. And this metal is made to work over and over again. In Hollywood, for example, millions of miles of film are exposed annually; formerly, this used film with its valuable silver content was discarded. Now, by various methods, all this precious metal is carefully recovered. To-day even small-town studios find means to save such silver from waste.

In war and peace doctors use silver to patch broken bodies. They use silver wire to sew up wounds, silver bands to bind fractured bones, even silver plates in crushed skulls. A German general wounded in the Franco-Prussian War was known as "man of iron will with ribs of silver."

Silver is good material for surgeons' instruments, for tubes to be inserted into the human body, for dental apparatus, as well as fillings for teeth.

Used externally, silver nitrate is often employed to destroy warts, to reduce granulations, or perhaps to treat insect bites.

Much silver is used in electroplating, as in making plated silverware (see text, page 282). This trade also involves jewelry, novelties, lighting fixtures, designs on glassware, musical instruments, reflectors on railway locomotive headlights, chemical equipment, etc.

Certain silver alloys have unique qualities for joining other metals.

In such research laboratories as that of Handy and Harman, at Bridgeport, Connecticut, new uses for silver are being found. In one form or another it appears in mechanical refrigerators, wire-splicing, turbines, motorcars, X-ray tubes, watch dials, pipe-organ parts, food containers, brewery and laundry equipment, etc.

Photograph by Earl Roseman from Galloway

A PERFECTLY GOOD HAT—IN ABYSSINIA

This feudal chief of Ethiopia designed this hat himself—with all its silver trimmings, for wear at the coronation of Emperor Haile Selassie the First, formerly Ras Tafari (see NATIONAL GEOGRAPHIC MAGAZINE for June, 1931). Milliners of no other nations have copied it!

SILVER SOLDER FOR AIRPLANES

To withstand vibration, silver solder is especially valuable for brazing oil and fuel lines in airplanes. Light plants disabled by storms have been relieved by air deliveries of silver, used in repairing transformers. One well-known company made sterling-silver frames for some of its typewriters, and a cash-register company made prize

Photograph by Chas. W. Beck, Jr.

SILVER INKSTAND USED WHEN THE DECLARATION OF INDEPENDENCE WAS SIGNED

This set was designed by Philip Syng in 1752 for the Speaker's desk in the Assembly Room of the Pennsylvania State House. It was used also by Congress at the signing of the Articles of Confederation and by Washington when he presided as President at the adoption of the United States Constitution in 1787. The shaker at the right contained sand for blotting; at the left is the inkwell, and at center the quill penholder. The set is now on display at Independence Hall, Philadelphia.

book ends of silver shaped like its money-counting machines.

Silver alloys, seen through a microscope, reveal odd, irregular patterns and colors, like the geometric outline of farms and forests seen from an airplane 10,000 feet above the earth.

Coming from smelters in the form of ingots, silver bullion requires much melting, refining, alloying, and rolling before it is ready for manufacture into sterling, silver plate, jewelry, etc.

At the Handy and Harman laboratory I saw them not only preparing flat bars and wire for many silverware factories, but also reclaiming quantities of old silver from scrap, floor sweepings, broken crucibles, tank linings, wooden floors, chimney dust, old motion-picture film, and damaged silverware turned in by hotels, restaurants, or dining cars.

This firm also handled the largest transfer of silver ever made. This occurred in 1918–19, when, under the Pittman Act, the United States was authorized to melt and sell not over 350,000,000 standard silver dollars to the British for use in India.

As this is written, foreign silver bullion is literally pouring into New York, where speculation in it is abnormal.

Mixed in this stream, no doubt, is some of the same metal we sent to India 15 years ago. From China especially, to which we sell silver in normal times, millions of ounces are coming to meet New York's silver boom demand.

This is the saga of silver. From that one ancient Greek mine, man's quest and use of silver have spread, till now this metal reaches every nook and cranny of the civilized world. Hardly a man in the world's two billions but knows its touch.

A NEW COUNTRY AWAITS DISCOVERY

The Draining of the Zuider Zee Makes Room for the Excess Population of the Netherlands

By J. C. M. Kruisinga

THERE are people—Dr. William Beebe is one of them, I think—who sincerely regret that 99 per cent of our globe is not submerged by sea water. I am sure even such a convincing antagonist of dry and dusty land as Doctor Beebe would need the remaining one-hundredth for suitable jumping-off places, or for parking sites for his bathysphere. Yet I hope he will not be pained to hear that most Dutchmen entirely disagree with him as to his preference of sea water to even such peculiar terra firma as is granted to us poor people of the mud flats.

As a matter of fact, both our Netherlands Government and our population have always regarded the sea as a necessary evil in all respects but one, and that is shipping. If it were not for shipping and trade, I suspect our Department of Public Works would gladly make a present of a fine strip of Dutch shoreland to any of our inhabitants willing to take over the responsibility of keeping land and sea in their respective positions.

THE SEA COVETS WESTERN NETHERLANDS

Roughly speaking, the Kingdom of the Netherlands, generally and rather wrongly called Holland, for Noord (North) and Zuid (South) Holland are only two of its 11 provinces, consists of an eastern, or natural, and a western, or artificial, part. That is to say, the west part wouldn't be there at all if we didn't constantly see to it, dumping rubble and basalt on its protecting dikes, plastering them with concrete, and draining away the brackish mixture of the fallen rain and the sea water filtered through the pores in the clay of the dams.*

The eastern half of the country gradually rises to elevations up to 300 feet in the north and middle, and to undulating hills of clay and sandstone in the south, rarely exceeding 960 feet in height, indeed, but trustworthy Mount Ararats to the prehistoric nomads venturing out toward the mud flats. In our days these elevations make a sight well worth seeing and much admired by the good folk from Friesland or Groningen going there on cheap excursions by char-à-bancs. Just think! To see *real* cliffs in Holland, and, as I live, half a dozen cave-dwellings, which may or may not be genuine!

To an American visitor the natural part of the Netherlands offers hardly anything interesting in general, though I could name a few places, not mentioned in any guide, where may be found hidden in the woods just the kind of silent and dreamlike village that has always been thought impossible except in a tourist bureau's pictures. Really, there *are* such places, only they are *not* in the pictures.

Artificial Holland is far better known, since it includes the bulb fields, the windmill-drained dairy-producing districts, and the six largest towns—Amsterdam, Rotterdam, The Hague, Utrecht, Haarlem, and Groningen (see map, page 295).

Up to last year an ugly gap in the artificial part of the country divided the lowlands as far south as Amsterdam, seriously impeded trade between the provinces, permanently threatened townships and villages with floods, stopped with its abnormal level in times of westerly gales the smooth, engine-driven flow of accumulated rainwater from the lower *polders* (tracts of land reclaimed from the sea), and turned fresh water into a brackish mess for miles around.

What a lot of money this Zuider Zee has cost us already in its different phases of development!

MEN OF OLD FOUGHT ONE ANOTHER, NOT THE SEA

Beginning its existence in pre-Roman times as a small lake fed by a Rhine mouth and discharging its surplus of water through four or five creeks meandering to the North Sea, it soon spread all over this section of the map. Nobody could prevent its flooding its way from the center outward through the swampy country, nor could anybody in those days keep the North Sea

* See "Holland's War with the Sea," by James Howard Gore, in the National Geographic Magazine for March, 1923.

Photograph by Royal Dutch Air Service

AMSTERDAM OWES ITS FAMOUS HARBOR TO ENGINEERING MAGIC

From the waters of an arm of the Zuider Zee, a vast area has been reclaimed since 1872. Channels have been deepened and artificial islands formed. Ocean-going ships now enter the port through the North Sea Canal and unload their cargoes directly upon the wharves. Railroads have their central station on a bit of made land (right center) which links city and sea.

Drawn by Newman Bumstead

A MAP OF THE NETHERLANDS, SHOWING THE LOCATION AND EXTENT OF THE ZUIDER ZEE RECLAMATION PROJECT

from plunging its breakers into the widening creeks, undermining their banks and deepening their channels.

In a country where in those times one man in five was either a robber or a soldier, and one in every 200 at least a big chief hating his neighbors like poison, people cannot be expected to join forces to put a stop to the slowly spreading waters of a muddy lake rising on an average only a few inches every year. When an exceptionally severe flood took away a few acres of their hotly contested common soil, the community that got the worst of it generally preferred fighting for expansion in the opposite direction to trying to solve the problem of getting back their lost property by feats of engineering fit only for a gang of slaves.

But such procedure could not go on forever. The area of dry land between the slowly rising lake and the narrow strip of sand dunes along the North Sea shore, never large enough to feed an ever-increasing population, soon became distinctly too

© K. Maaskant

ONE MORE LOAD OF EARTH AND THE ZUIDER ZEE IS CONQUERED!

Thirty seconds after this historic photograph was taken, on May 28, 1932, the bucket at the left dropped the material into the last gap and finished one of the mightiest engineering feats of all time.

© K. Maaskant

WRECKS IN A GRAINFIELD WHICH TWO YEARS AGO WAS A SEA

Vessels sunk recently remain above the reclaimed bottom; others lie buried under the sand and silt, and a plow may easily be snagged on the hull of a ship.

small for comfort. Besides, by conquering others, some of the warring counts and barons succeeded in assuming authority over parts of the country large enough to crystallize the necessary nuclei of civilization and to try experiments in wholesale engineering.

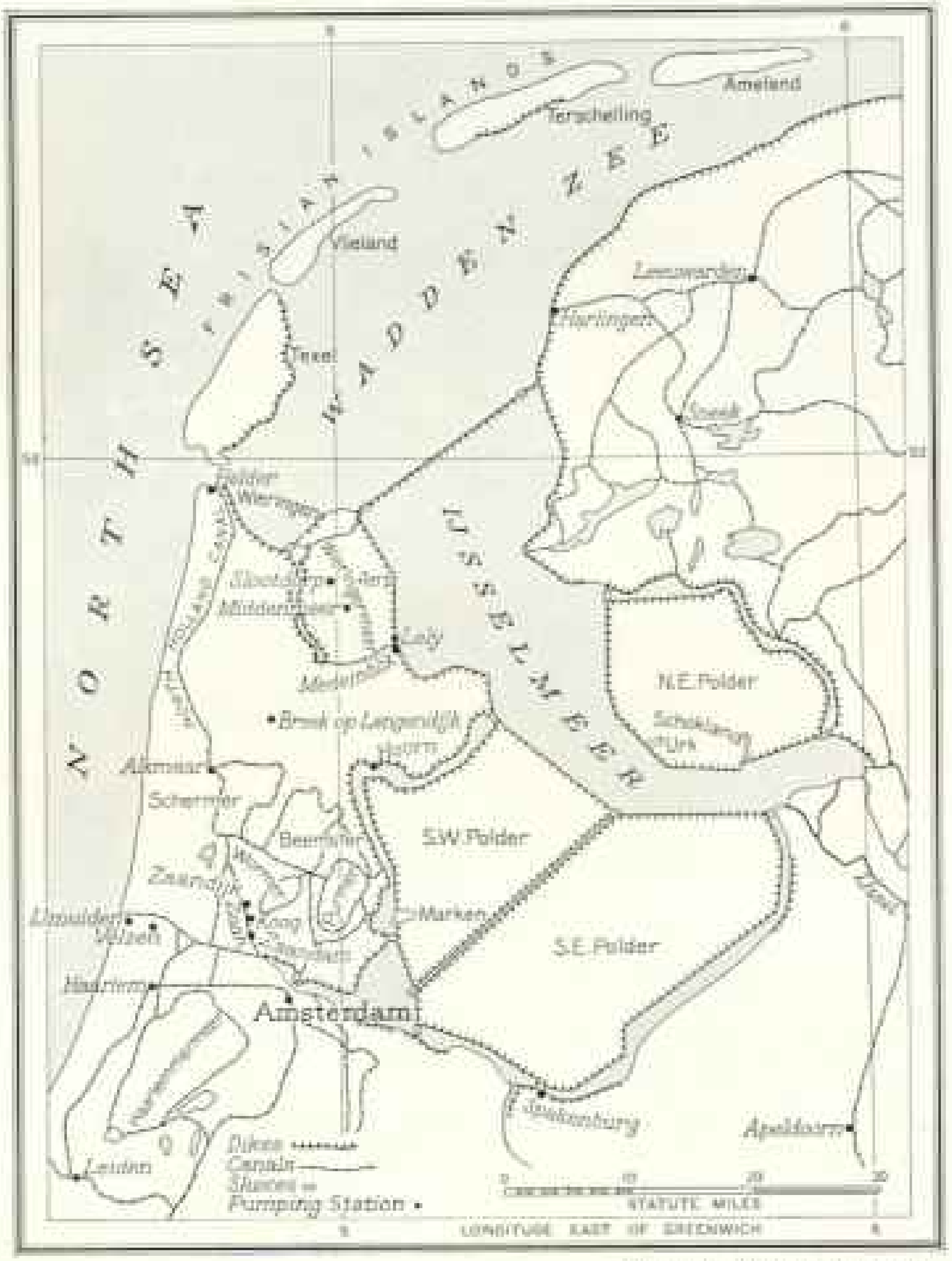
ZUIDER ZEE MADE MEN FORGET QUARRELS

We ought to be somewhat grateful for the ultimate result of the promiscuous fighting. About the time matters were put right in the western part of the country, there was a succession of gales from the northwest, and when they had calmed down Lake Flevo (for so it was called) and the North Sea had combined into an inland sea covering an area of about 1,000,000 acres, from which only two diluvial hilltops emerged: the islands of Urk and Wieringen. The narrow belt of sand dunes had been broken into a string of small islands by deep and widening channels, through which the tidal streams surged in and out every 24 hours.

There we were, with a young and spirited Mediterranean right in the place where every other self-respecting country has its center!

"What are we to do with it?" people asked one another on that memorable February morning when at last the Azores anticyclone reasserted itself, and the sun rose over a choppy sea covered with the timber and straw of many houses—as houses went in those days—and a lot of bodies, too. The flooded area had been a densely populated stretch of country yielding splendid crops quite in a natural way.

Of course, they could not do anything with their new-born Zuider Zee (South Sea), but they took jolly good care at least that it did not grow into an ocean. They put a big dam around it, right on the spot where the water had been highest, and tried to forget their quarrels when a fresh string of depressions was felt moving across the



Drawn by Newman Bumstead

THE ZUIDER ZEE RECLAMATION PROJECT SHOWN IN DETAIL

The 20-mile-long dike, closed on May 28, 1932, connects North Holland with Friesland by way of Wieringen Island. The Zuider Zee, as such, exists no more, for the dike cut it off from the North Sea and reduced it to an inland lake, the IJsselmeer, upward of 300,000 acres in extent. The four new polders to be created by the project (one, the Wieringermeer, is already completed) will add about 550,000 acres of fertile land to the farming area and furnish an outlet for more than 300,000 of Holland's increasing population.

AS THE DIKE CLOSES, THE TORRENT INCREASES IN FURY

It was a triumph won with difficulty to stop the last openings in the wall; but Dutch engineering genius has learned how to conquer the sea. Were it not for apparently frail ramparts of clay, nearly half the country would go back to the ocean.

© K. Maaskant

WINDS NOW STIR WAVES OF RYE INSTEAD OF SALT WATER

In the left background is Wieringen, once an island of fishermen, which now is an "island" in a sea of grain.

© K. Maaskant

SEA-BOTTOM GRASS FEEDS CATTLE, BUT FRESH WATER MUST BE IMPORTED FOR THEIR DRINKING

Dairying is a leading industry in the Netherlands. Opening of new grazing lands means extension of the herds of sleek Friesians

Atlantic. They kept their dike in order before all other things, and even from time to time reclaimed muddy banks and bays and what we call "wheels"—*i. e.*, the circumference of eddies forming on the inside of a flooded stretch of higher land.

Comparison of a map of 1400 with one of 1900 discloses that a lot had been done by those gangs of navvies—both medieval and modern—and by the southwesterly winds carefully trained to turn our four-bladed mills, to restore a streamlinelike quality to the ragged boundaries of our Zuider Zee.

THE CONQUERED SEA BECAME A WATCHDOG

Dutchmen are, as a rule, extremely Calvinistic in their outlook. They would think twice—if they would think at all—about a joke in which the Deity has to take part. Nevertheless, as early as the 16th century, they said: "God Almighty has created both land and sea, but when He came down to Holland—*we* had to make that for Him."

And none better! I am proud to say we did it all right.

For five or six centuries at least Dutch engineers had to be content with keeping the Zuider Zee within bounds and improving the windmill-driven drainage system of the low-lying districts. Between wars, they amused themselves by thinking out plans for reversing the circulation of water for purposes of inundation, thereby exacting watchdog service, as it were, from "the savage wolf gnawing at the heart of Holland," as some poet puts it. In this way they got rid of a good many invading armies, not by drowning them—merely wetting them thoroughly, say, up to the armpits.

Even in these modern times—I'm not telling state secrets!—it would be tricky going for an army in most parts of the country if we opened certain sluices and stopped a dozen of the larger pumping stations.

Besides keeping the dikes in repair under the coöperative scheme still in existence, those 17th-century Dutchmen tried reclaiming bays and lakes, rather clumsily at first, but gaining experience as the interesting work went on, and ways and means were improved gradually. The four big lakes, Purmer, Beemster, Schermer, and Wormer, lying to the north of Amsterdam, were attacked and drained by wind power only, and dry they have continued to be to this day, though averaging 12 feet below sea level (see map, page 297).

The biggest lake of them all, Haarlemmermeer (to the southeast of the center of the bulb-growing district, the city of Haarlem), withstood all efforts of the wind-driven pumps to the end. It was only after the steam engine had been developed into an efficient power plant that the fertile bottom of this lake was added, between 1848-53, to the "ground floor" of Dutch territory and sold or given to colonists from different parts of the country.

The Zuider Zee—well, I don't suppose the average man thought seriously of its bottom in those days. Though the first daring plan for its reclamation appeared in 1667, the work of draining this huge lake, even as late as 1850, would have been as stiff a feat of engineering as driving a tunnel through St. Gotthard or bridging Niagara Falls with planks on trestles. Haarlemmermeer had been a hard job already, and even this had been a problem only of draining in a given time a given quantity of smooth water from a shallow depression in the ground.

But engineers and statesmen began to speculate about the Zuider Zee, and to weigh the pros and cons of the problem.

ARGUMENTS AGAINST THE ZUIDER ZEE PROJECT

Reclaiming the Zuider Zee would obviously include the building of a big inclosing dam (to avoid draining the Atlantic) on a mud bottom right across the sea, and the establishment of pumping units capable of swallowing permanently to the last drop the ever-flowing waters of the Rhine mouth feeding our inland sea, and discharging them at some point where they could do no harm.

Incidentally, certain provisions would have to be made for the crews of about a thousand fishing smacks earning their living on the Zuider Zee. The fisher folk would find mice and rabbits, with perhaps a few stray dogs thrown in, rather less to their taste than herring and anchovy.

Then, of course, there would be the obvious question asked by our Department of Public Works: "Where is the ultimate profit to the Nation? Why not try to cultivate our waste lands first, if there are some of you wanting farms? Why not first get our ground floor in order, instead of digging

 Natural Color Photograph by Wilhelm Tobien

BATTLE TIDES ONCE SWIRLED AROUND HOORN HARBOR'S WATER GATE

This quaint fortress, with alcoves high up on its walls and dormer windows in its steep roof, is semicircular, with its rounded side toward the Zuider Zee. Within sight of it John Haring sacrificed his life to pull down the colors of Spanish Admiral de Bossu's flagship *Inquisition.* A Hoorn navigator, Willem Schouten, named Cape Horn for his town, and the name of another native seaman, Abel Tasman, is perpetuated in Tasmania.

Natural Color Photograph by Franklin Price Knott

FISHING BOATS HOME FROM THE NORTH SEA CROWD VOLENDAM HARBOR

This little town on the Zuider Zee has long attracted artists and visitors. The devout inhabitants make an annual pilgrimage to Kevelaer in Germany. The men are out with their nets from Monday till Saturday, but Sunday finds their craft moored at the home port.

THE VOLENDAM FISHERMAN LOVES HIS PIPE AND PAPER

When he has finished reading, he will remove his wooden shoes, place them with the others outside the door, and step carefully into an immaculate living room. The village is famous for the taciturnity of its men and the neatness of its women.

Natural-Color Photographs by Wilhelm Tobien

NEEDLEWORK IS A FINE ART AT KOOG

Among the diverse costumes worn in the Netherlands, few are more exquisitely fashioned than those of the villages on the Zaan. Months of work go into the making of this apparel, which is handed down through generations (see Color Plate V).

AALSMEER SEEMS A GROUP OF FLOATING GARDENS

Many plots of ground are islands surrounded by the deep canals. A fantastic touch is given to some by dwarf trees and hedges clipped to represent animals and ships.

 Natural Color Photographs by Wilhelm Tobien

MIDDELBURG WIVES AND CHILDREN WEAR THEIR BEST TO MARKET

Winged bonnets adorned with ornaments of gold are the mode in this tiny town on the island of Walcheren. A bauble obscures the vision of the little girl third from the left, front row. Such trinkets, like the men's silver buttons, are cherished heirlooms.

THEY KNIT AS THEY CHAT WITH THE BEACH WARDENS

Domburg, a little seaside resort on Walcheren Island, attracts vacationists by its excellent bathing facilities, its lovely countryside, and sylvan paths to quaint villages.

 Natural Color Photographs by Wilhelm Tobien

CHILDREN OF MARKEN ISLAND SEEM LIVING DUTCH DOLLS

Up to five years of age youngsters of both sexes are dressed alike. From five to seven the boy wears wide trousers, and thenceforth dons a frock and round cap. The embroidery on the little girls' frocks is a marvel of intricate needlework.

Natural Color Photograph by Wilhelm Tobien

VEERE, ONCE PORT OF A THOUSAND SHIPS

Its merchant fleet voyaged to distant lands and its sons helped found remote colonies. Orchards now grow on the sites of its once busy streets and warehouses. The massive tower of its imposing church and the house where the Scotch merchants' guild had its headquarters attest its past glory. Veere was one of the first towns to be freed of Spanish rule by that band of nobles and other patriots who called themselves the "Beggars of the Sea" (see Color Plate XI).

THEY CLING TO WOODEN SHOES

The traditional footwear of the Netherlands has disappeared more rapidly than other parts of the costume. One reason is the popularity of bicycles.

Natural Color Photographs by Wilhelm Tobien

FEMININE FASHION DECREES SHORT SLEEVES

Dresses for young girls and their mothers in quaint Middelburg are alike in this respect, though other parts of the attire vary.

Natural Color Photograph by Wilhelm Tobien

THE HEART OF WINDMILL LAND

From Alkmaar to Zaandam extend the revolving sails which furnish power for sawing wood, grinding grain, and, most important, for pumping water from the fields.

 Natural Color Photograph by Gervais Courtellemont

VOLENDAM FISHERMEN GAZE SEAWARD

All save the man on the right have retired from the fleet, but the lure of the Zuider Zee still calls them. To them the draining of the waters from which they have wrested their livelihood is a momentous matter (see Color Plate II).

in our cellar and letting it to all kinds of impossible people?"

Thus matters stood and kept standing for about 70 years.

Fertilizers were discovered and improved upon, and the way to the sandy wastes in Drente and Gelderland was opened to more than a million Dutchmen clamoring for a living. Holland saw the beginning of an industrial era, and so another million or so found bread and cheese, a bicycle, and a home waiting for them on leaving the factory. Five millions there were now, but the sixth was growing, and a seventh must be reckoned with in a near future.

Like Manhattan Island, the Netherlands now really had become much too crowded. Only, over here it was not room for shops and offices that people wanted; it was homesteads and arable land. No mere elbow-room at a desk, but driving-room for plows and tractors.

LELY, THE MAN TO MEET THE CRISIS

Far-seeing economists pointed out that something would have to be done. Why not get the Zuider Zee bottom ready to receive our eighth million? Some prominent engineers, even as far back as 1870, were convinced that such a big undertaking as reclaiming the Zuider Zee was technically within the bounds of possibility.

In Dr. C. Lely our Nation, in 1886, found the man it needed to turn it from its phase of fitful speculating into one of definite prospecting—and so on to the final execution of his comprehensive plan of 1891: to connect North Holland with Friesland by a heavy dam 90 yards wide and 20 miles in length, separating the waters of the North Sea and the Zuider Zee; to inclose four of the most fertile parts of the resulting basin by smaller dams; and to put several big pumping stations to work to finish the reclaiming job.

Because of the impossibility of draining the entire Zuider Zee, a fresh-water lake, called IJsselmeer (Ysselmeer), after the River IJssel, which discharges its water into it, would be suffered to remain in existence among the four polders to be reclaimed.

The IJsselmeer is regarded by every expert as absolutely necessary for the supply of fresh water to such low-lying districts as both Holland and Friesland; besides, it is expected to be useful as a waterway for the small craft plying to and fro between Amsterdam and the canals and rivers connecting our inland districts with the sea. Fresh-water fisheries may also be developed.

Dr. Lely, one of the most gifted engineers our country has ever known, was Minister of Public Works when our Government, by act of Parliament of June 14, 1918, decided to put his plan into execution. On account of the economic depression following the World War, which sent prices flying up day by day and made important orders for materials or estimates of costs well-nigh impossible, very little progress was made during the first few years. But some kind of stability in prices, though on a much higher level than anybody could have expected, was reached about 1925, and work was started in real earnest two years later.

Though at first it had been intended to start reclaiming the four polders only after the inclosing dam had been completed, this plan has been abandoned since. As a matter of fact, the Northwest Polder (called Wieringermeer after the former island of Wieringen, which now forms the north part of it) had been completely embanked and drained toward the end of 1930. This is the only one of the new polders that has been reclaimed; the other three will be ready about 1950 (see map, page 297).

The Big Dam in 1930 consisted only of a few artificial islands where the sluices were in course of construction. Between them was a straight line of surf, delineating the core of the constantly growing dike piled up from bowlder-clay and secured against scouring currents by huge rafts or mattresses of matting and brushwood weighted down with granite and rubble (see illustrations, pages 310, 311).

SEA-BOTTOM TOWNS SPRING OUT OF MUD

While the inclosing dam was still far from complete, carpenters and bricklayers were busy in the new villages built up from the Zuider Zee bottom—Slootdorp and Middenmeer.

Now the inclosing dam has been completed. The last gap was filled on May 28, 1932, amid a pandemonium of sirens and whistles. The Dutch National Anthem was broadcast around the Continent at 12:55, during the expectant pause before the last bucketful of clay fell splashing into its place (see page 296).

New territories conquered without shedding blood; a new country lifted from the depths by sound reasoning and constant

BOWLDER-WEIGHTED BRUSHWOOD MATTRESSES PREVENT SCOURING OF THE SEA BOTTOM

These protecting coverings were sunk near the discharging sluices of the Wieringen section, where currents might carry away the mud and weaken the dam (see illustration, opposite page).

DAVY JONES' LOCKER SUBMITS TO A CARPET

To protect the reclaimed sea bottom from being washed away by local currents, laborers constructed brushwood mattresses to cover the soft mud (see illustration, opposite page).

WATER, WATER EVERYWHERE IN THE RHINE-MAAS DELTA

Across the Hollandsch Diep (upper center) passes one of the longest railroad bridges in Europe. Some vessels from Germany and Belgium utilize these waterways, but many more go farther north through Rotterdam.

NEPTUNE'S KINGDOM YIELDS TO THE PLOW

Hardly had the water disappeared from Wieringermeer when the first turning of the soil began, and sea bottom became farmland. Sometimes a farmer will unearth the bones of an old ship.

© K. Maaskant

LINKED SCYTHE BLADES MOW SUBMARINE MEADOWS

With this device, composed of six knives, the seaweeds, a sort of kelp that abounds in shallows, are cut and collected in nets to be brought aboard the boat and spread out to dry. The dried product is used for stuffing mattresses.

© K. Maaskant

THE ISRAELITES WOULD HAVE NEEDED SANDALS TO CROSS THIS SEA BOTTOM

Portions of the reclaimed Zuider Zee look like the shell-torn area of a battlefield. These are shells—seashells—which must be removed before farming begins (see text, page 315).

© K. L. M. Royal Dutch Airlines

SHEEP FOLLOW THE REAPERS OF THE FIRST ZUIDER ZEE CROP

Introduction of herds is a step in the development of the reclaimed area; but the problem of furnishing them with fresh water proves difficult (see text, page 309; also illustration, page 299).

labor—no one should grudge us our moments of pride!

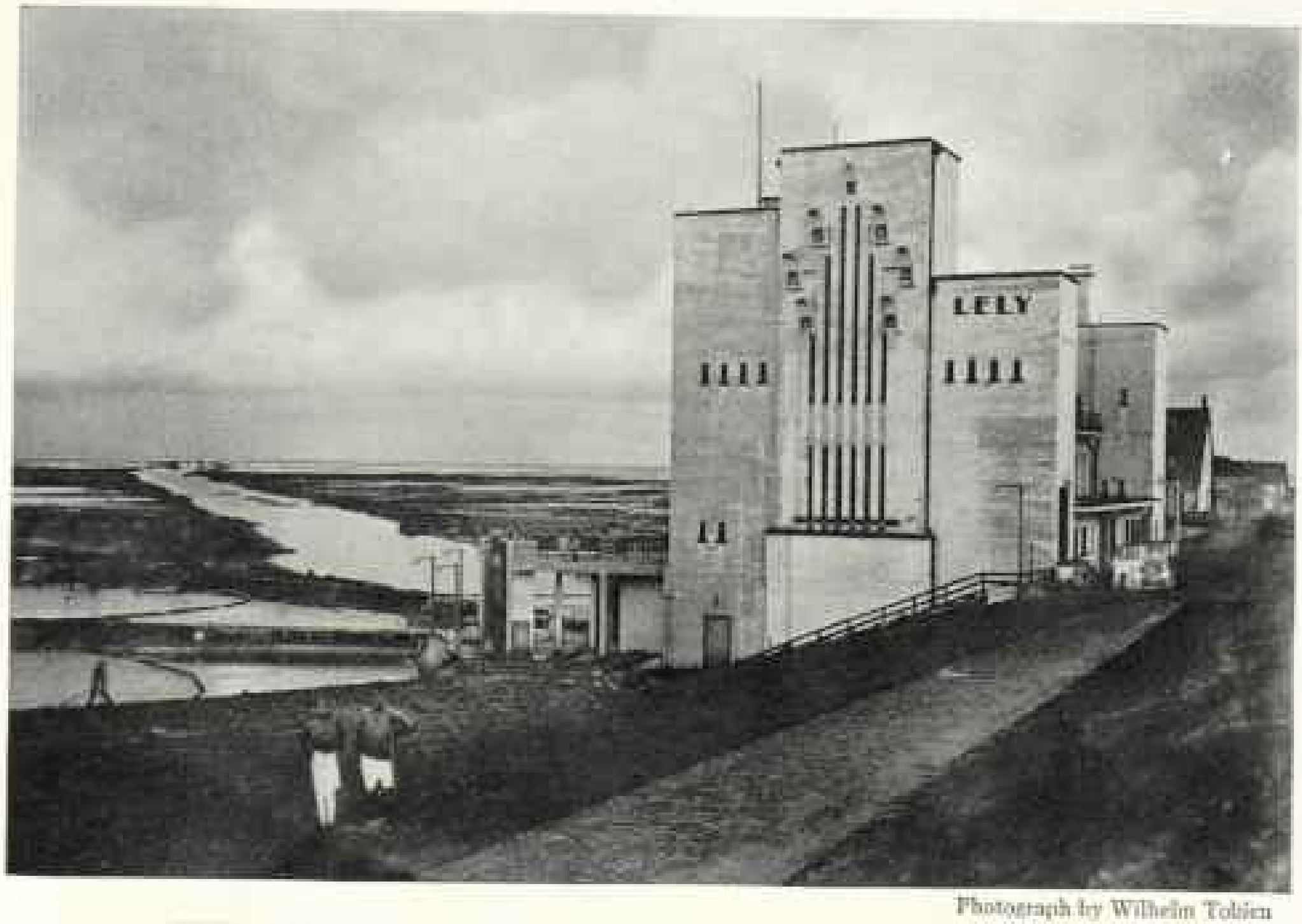
To obtain a good impression of every aspect of this peaceful victory, we started in an open roadster from the small town of Helder on a fine June morning. On reaching the gateway to our wonderland, the dike connecting the former island of Wieringen with the North Holland meadows, I was struck rather forcibly with the thought that Dutchmen are, as a whole, a bit too modest in advertising.

No statue or memorial, such as abound on neatly made borders elsewhere, flaunts the engineering victory. There is a railway crossing with a watchman's brick cottage near by, and then the dam across the narrow strait, with muddy water on both sides, a concrete highway for motor traffic, an embankment to the left, destined to accommodate the Holland-Friesland Railway, a bicycle path, and the slopes of the dam ending in quietly rippling water.

Wieringen was soon reached; but since we were not interested in the village smithy where the German ex-Crown Prince lived in exile—the show place of the "island"—and since the main road across Wieringen is among the very worst in the whole Kingdom just now, we followed a kind of lane to one of the main roads of the new polder, the Wieringermeer (p. 309).

(Before Wieringen was linked to the coast it could be reached only by motor-launch. One cannot expect its roads to be capable of withstanding four years' maltreatment by motor lorries loaded with basalt without showing some honorable scars.)

A big red sign asked us to slow down to 25 miles an hour because the yellow and red bricks with which this road, like



Photograph by Wilhelm Tobien

HUGE ELECTRIC PUMPING STATIONS TURN SEAS INTO FARMLAND

This drying area, still cut by many canals, was under nearly 20 feet of water before the reclamation began. It was drained in 1930. The Lely Pumping Station at Medemblik (see illustration, page 316, and text, page 320).

most of the others in Holland, is paved, had not yet had time to settle sufficiently (see page 317). We obeyed, though the road already was splendid.

Rye fields of the newly conquered land stretched right and left, as far as the eye could reach. A cluster of red roofs around a modest spire showed in the blue haze on the horizon, and, where meadows took the place of the waving rye, large herds of cattle were grazing peacefully. Nothing reminded us that only two years before 16 feet of wind-swept water had covered everything now within our range of vision. Wrecks of fishing smacks left rotting timbers in the waving rye! (See page 296.)

SEASHELLS LOOK LIKE SNOW

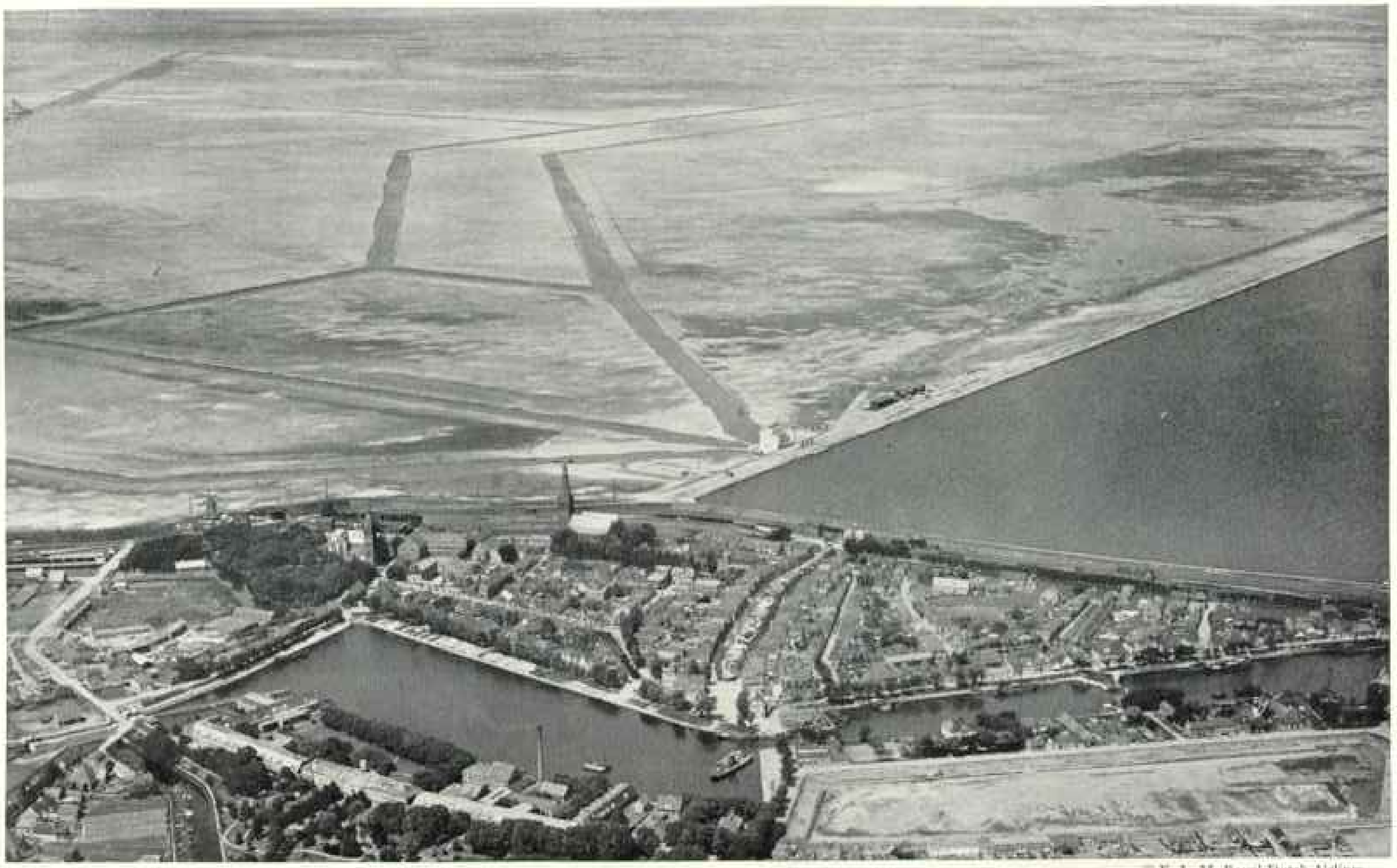
Wooden tubs filled with water standing in the corner of every ditch-inclosed pasturage seemed to indicate that something was the matter with the ditch water. It seemed to contain cod-liver oil. In places the vegetation seemed half buried under a bank of snow. The "snow" proved to be seashells, not enough of them to make the ground appear white when one walked to the spot, but resembling real snow when seen obliquely from a distance (page 313).

"ONLY GOD CAN MAKE A TREE"

Slootdorp and Middenmeer gave us a rather good impression of how a Sahara oasis would look if the temperature dropped sufficiently to kill palm trees and dromedaries. There is one thing we shall have to leave to the Creator of all things in our man-made country, and that is the shade of a good old chestnut tree. There is no shade at all in the whole Wieringermeer.

Beer there was, but we had to drink it in a freshly painted taproom, doors slamming and windows rattling in the breeze that reached gale force over the flat expanse of the dusty, sunny Zuider Zee bottom. The landlord apologized because his five trees, planted in February, had succumbed to osmotic pressure caused by the salt in the soil, and had unfolded tobacco-like leaves that crumbled to tea as growth went on.

After visiting the three churches, two schools, and only club house of Slootdorp, we started the car for a trip to the *terp*.



ONCE A ZUIDER ZEE PORT, NOW THE INLAND CENTER OF A NEW PROVINCE

Peaceful annexation through the construction of dikes has reclaimed 20,000 acres of valuable farmland around Medemblik. In a few years this area will yield tons of fruit, vegetables, and flowers.

BRICK-PAVED ROADS INTERSECT THE ONE-TIME BOTTOM OF THE SEA

The highways were constructed before the soil had settled to complete firmness; hence a 25-mile speed limit for motorcars (see text, page 314).

THE HOLLAND-FRIESLAND ROAD CUTS ACROSS MID-OCEAN ON THE NEW DIKE

On the right IJsselmeer (Yssel Lake) wimples in the sunlight; the North Sea strains at its leash behind the heavy earthworks at the left.

A REGION ONCE UNDER WATER IS NOW UNDER GLASS

Between The Hague and the Hook of Holland early fruits and vegetables are grown in steam-heated greenhouses to supply markets throughout Europe and the United Kingdom. In the background the North Sea frets behind protecting dunes.

Photograph by E. A. McKinley

SPAKENBURG FOLK HAVE ADOPTED BICYCLES, BUT THEY CLING TO THEIR WOODEN SHOES

Pedaling must require some ingenuity. This village on the Zuider Zee lies off the beaten track. One of the major problems of the recent reclamation was that of taking care of the hundreds of fishermen whose livelihood for centuries has come from waters now drained (see text, page 300).

© K. L. M. Royal Dutch Airlines

WINDMILLS PUMP BESIDE CANALS WHERE ONCE WAS SEA

They furnish power for regulating the depth of water in the ditches that serve the cultivated tracts of the *polder*, or reclaimed area. This fertile agricultural region lies southeast of Rotterdam.

A terp is a typical anachronism; we were, therefore, rather amazed to find it perpetuated in this hypermodern Terra Nova. There is hardly a village in Groningen or Friesland that is not built around an artificial hillock called a "terp," in the center of which, as a rule, are situated the church, with its surrounding churchyard, and a few of the principal houses.

In bygone times of flood the people made themselves comfortable on the terp until the waters subsided and their homes could be reached again. As time went on, and floods became less and less frequent by the improvement of the drainage system, the custom of building terps was discontinued.

A MAMMOTH "SAFETY PLATFORM"

As an additional safeguard against the infinitesimal chance of the Big Dam's breaking, a terp, large enough to afford ample standing room to the entire population of the city of Amsterdam, has been dumped down in an accessible place near the center of the reclaimed land. From this terp a splendid view may be enjoyed of the entire Wieringermeer. The panorama spreads northward to the skyline of Wieringen; eastward to the IJssel Lake; southward to where the white walls of the pumping station (called "Lely," after the man who raised the whole scene out of the sea) stand out as a glittering speck of light against the dark background of the town of Medemblik; and westward to the flat, green meadows of North Holland, which terminate in a broken line of sand dunes—the North Sea coast.

Medemblik, where we spent the night, lay before us (p. 316). It was a big seaport in the 17th century, but as tonnage and draft of sea-going vessels increased, it was passed by and soon forgotten as a trading center, Amsterdam taking its place.

The square, whitewashed "Lely" building, with its droning electric pumps (see page 315), has robbed the sleepy town of three-quarters of its sea view, but it will bring back Medemblik to a place in the sun.

SOME ODD PAGES FROM THE ANNALS OF THE TULIP

A "Made" Flower of Unknown Origin Took Medieval Europe by Storm and Caused a Financial Panic in the Netherlands

By Leo A. Borah

Author of "Washington, the Evergreen State," in the National Geographic Magazine

POETS throughout the ages have sung the praises of the rose. Greek mythology ascribes to the narcissus a fanciful origin. The hair of Helen of Troy was compared by contemporary tellers of tales to the petals of the hyacinth. As perhaps the oldest of cultivated garden flowers, the peony has a proud record. Yet, splendid as are the histories of these favorites, none is more scintillant than that of the tulip — an upstart whose ancestry is untraceable before the 16th century and whose most striking family records are written in the ledgers of the counting houses.

On September 1, 1555, Ogier Ghiselin de Busbecq, newly returned to Vienna from his first mission to the Ottoman Empire as ambassador of Ferdinand I to Suleiman the Magnificent, wrote to his friend and former schoolmate, Nicholas Michault:

"We stayed one day in Adrianople and then set out on the last stage of our journey to Constantinople, now close at hand. Everywhere we saw quantities of flowers—narcissi, hyacinths, and *tulipans*, as the Turks call them. We wondered at finding them flowering in midwinter, scarcely a favorable season. . . . The tulip has little or no scent, but it is admired for its beauty and the variety of its colors. The Turks are very fond of flowers, and, though they are otherwise anything but extravagant, they do not hesitate to pay several *aspres* for a fine blossom."

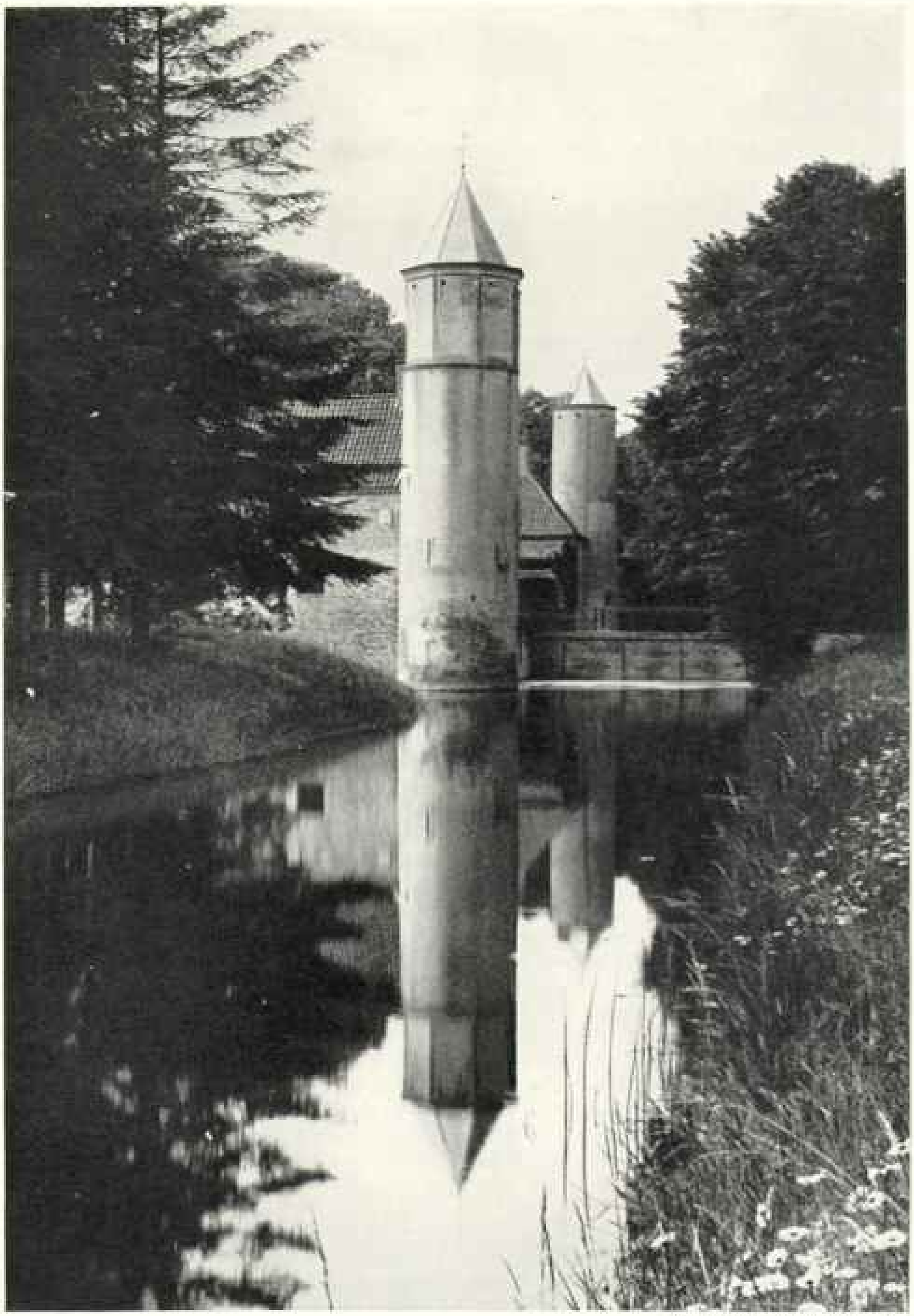
THE TULIP A FLOWER OF DESTINY

This paragraph (freely translated from the original Latin, according to the Elzevir edition, 1633, of Busbecq's "Turkish Letters") was merely an incidental bit in a detailed account of things social, economic, and political in Turkey; yet, like many another more or less casual observation, it contained seeds of history. It was the first written mention in Europe of the flower destined within a century to create a mania among gardeners of half the Continent and of the British Isles as well, to turn the heads of the ordinarily placid Dutch, and to become the innocent cause of a wild speculation in the Netherlands well-nigh as disastrous as Law's Mississippi scheme in France or the South Sea Bubble in England.

Busbecq's brief description gave a hint of the strange fascination by which the tulip was to bewitch frugal Dutch burghers. Though a nearly scentless flower, admired for little other than its brilliance, it held a potent charm, the traveler noted, that lured even the canny Turks to squander large sums for it. From the beginning of its known history it seems to have been a glamorous jade to upset men's business judgment.

Not only did Busbecq introduce the tulip to Europe; he gave it a wrong name—a name that has kept it virtually out of poetry, at least at line ends. Nothing in English rhymes naturally with the word *tulip*, unless the barbarous "tulip-julep" combination of ephemeral popular song be granted poetic license. Fitzgerald, it is true, in his translation of Omar Khayyam, makes the Persian poet say that "the tulip from the ground looks up," and there are other instances of the use of the word in serious verse; but in the main Busbecq's flower has not often graced lyric gardens.

The Turks had for the plant only one title—*lalé*, the name by which it was known also to the Persians and Arabs. Probably Busbecq's interpreter likened the blossom to the brilliant Turkish headdress, the *tulbend* (Persian, *dulband;* English, *turban*), and the Ambassador, confusing the terms of the simile, transliterated into Latin as the name the wrong word. Whatever the source of the error, no one in Europe was well enough informed to detect it, and the



Photograph by Ewing Galloway

WESTHOVEN CASTLE LENDS GLAMOUR TO MEDIEVAL DOMBURG

Near Middelburg are many traces of its romantic past. The stately towers reflected in this pastoral canal once housed the abbots of the ancient capital of Zeeland. To-day the building serves as a charity home for children (see Color Plate V).

Photograph by Royal Dutch Air Service

THE "HOUSE IN THE WOOD" HAS SHELTERED DUTCH ROYALTY SINCE 1645

The Orange Room of this palace at The Hague is dedicated to Prince Frederick Henry, the George Washington of the Netherlands. In it met the First International Peace Conference. To-day teas are held there for children, a ceremony akin to the Easter-egg rolling on our White House grounds.

flower retained in the Western World the false appellation by which it was announced.

Tulip lore of the times before Busbecq's first visit to Turkey is exceedingly meager. Apparently the plant, like Topsy, "just grew," for it was a "made" flower, a florists' prize newly introduced to Turkish gardens, when the Ambassador made note of it. Mystery shrouds its origin, and botanists, speculating vaguely on the possibility of its being a chance hybrid, confess their bafflement in attempts to identify its forbears. Although the word *lalé* occurs in Persian literature as early as the 10th century, oriental art, absolutely meticulous in representing other species, shows no pictures of the tulip before the 16th century. It seems hardly likely that artists, if they had seen a flower so readily adaptable to decorative motifs, would have ignored it.

The genus is believed to be indigenous only on the uplands near the headwaters of the Tigris and Euphrates. Once described as growing wild in Europe, the red and yellow tulips of Bologna are distributed so erratically, mostly on cultivated land, that they are now thought to be descendants of bulbs planted by early gardeners.

Besides being a man of affairs, Busbecq was a well-informed botanist and an antiquary of distinction. He showed his interest in the tulip by writing to his friend about it; yet in none of his letters can mention be found of the botanical history of the plant. The natural inference is that the Turkish gardeners whom he interviewed were ignorant of tulip culture in the past, and that the popular flowers were mysterious newcomers.

TULIPS REACH EUROPEAN GARDENS

Evidently intrigued by the bright blossoms, Busbecq procured bulbs and seeds, which he carried or sent back to Vienna, and in 1572 the French botanist and scholar, Clusius, obtained from him a quantity of both. These, for some reason, Clusius neglected to plant until 1575, when they were so old that few of them grew.

Bulbs and seeds undoubtedly reached Europe before 1572; for Conrad Gesner reports, "In the month of April, 1559, in the garden of the Great Councillor, John Henry

Herwart, I saw this plant displayed, sprung from a seed which had come from Constantinople, or, as others say, from Cappadocia. It was flowering with a single beautifully red flower, large like a red lily, formed of eight petals, of which four were outside and the rest within. It had a very sweet, soft, and subtle scent, which soon disappeared."

Other evidence of the initial appearance of the tulip in Europe being wanting, scholars are inclined to accept Gesner's date. Busbecq had seen the flower for the first time less than five years earlier, and it is unlikely that the plant described by Gesner came from seed obtained then.

An Antwerp merchant, Clusius writes, received tulip bulbs in a bale of cloth from Constantinople in 1570. Mistaking them for a variety of onion, he ate some with a dressing of oil and vinegar and dug the rest into his garden. Most of those set out soon perished for want of proper care, but a few were rescued by George Rye, of Mechlin (Malines), to whom Clusius gives credit for acclimating them in their new environment.

That the tulip's fame was not confined to continental Europe is evident from "Remembrances for a Principall English Factor at Constantinople," written in 1582 by Richard Hakluyt, cousin of the author of the "Voyages." Hakluyt advises the factor to look for new plants, and informs him specifically, "Within these four yeares there have been brought into England from Vienna in Austria divers kinds of flowers called Tulipas, and those and other procured thither a little before from Constantinople by an excellent man called Carolus Clusius."

The flowers became popular immediately, probably because of their amazingly varied colors and their tendency to unexpected changes of hue. There is a second mystery of the tulip even more fascinating than that of its unknown origin. For some reason, baffling to learned botanists as well as to gardeners, bulbs that have regularly produced "self-colored" blossoms will suddenly put out varicolored flowers, striped, spotted, or mottled. This phenomenon, known as "breaking," may occur when the bulbs are in their second season of bloom, but more frequently it is observed in plants that have been flowering for several years.

Some students attribute the tulip's fickleness to age, but the breaking of young plants argues against the soundness of the supposition. Another theory that the mysterious changes are due to some obscure disease that attacks the bulbs has been advanced but not proved. Varicolored garden tulips, developed from broken self-hued "breeders," have retained their new dress and continued to reproduce for years.

FASHIONS IN TULIPS CHANGE

It is characteristic of man to cherish the product of his own skill and to regard with interest, if not adoration, that which he cannot understand. Both because of its inexplicable mutations and because of its susceptibility to molding to the skilled gardener's desire through selection and uniting of its bulbs, the tulip caught the fancy of flower growers everywhere. Elaborate rules for planting, fertilizing, and caring for choice varieties were written before 1700.

The Turks insisted upon flowers with pointed petals. Europeans preferred the petals rounded. Strangely enough, the self-colored blossoms high in favor with florists to-day were accounted of little value in the first century of tulip culture. Every fancier strove for new and striking color combinations. The "Semper Augustus," costliest specimen during the "tulip mania," was white with red markings and its petals were pointed. To-day it would be valueless.

The elder Dumas, in his extravaganza, "The Black Tulip," caught the spirit of the tulip mania, and his dramatic description of the struggles of Cornelius van Baerle to produce a perfectly black flower is probably no exaggeration (see Color Plate XII).

It is interesting that the tulip has always been a man's flower. Women admire its bright colors, but a somewhat extensive search of literature discovers no instance of the tulip's being tossed from a heroine's bower to her serenading swain. The flower's simple grace has made it a favorite in art, but it must yield precedence to other blossoms in poetry and romance.

Once introduced to European gardeners, the flowers spread rapidly. There are reports of them in Belgium in 1583, in Leiden in 1590, in Middelburg in 1596, in Montpellier in 1598, and in Luzern (Lucerne) in 1599. When Clusius became a professor of botany in the University of Leiden, in 1593, he brought with him a stock of tulips. His prices, however, were so high that he sold none. Some were stolen from his garden

THE HUES OF THEIR HATS DENOTE THEIR GUILD

Gathering in front of the ancient Weigh House at Hoorn, these men await the striking of bargains between sellers and buyers in the market. On their traditional wooden cradles they convey the purchased cheeses to the scales.

 Natural Color Photographs by Wilhelm Tobien

FRESH FRUIT TEMPTS THE MIDDELBURG HOUSEWIFE

Famous cooks and shrewd buyers, the women of Walcheren Island do virtually all their shopping on the weekly market day. The student of Dutch costumes quickly learns to recognize by their attire women from the different villages.

Natural Color Photograph by Wilhelm Tobien

MUCH OF AMSTERDAM'S TRAFFIC IS CARRIED ON ITS CANALS

These waterways ring the older city in concentric circles and on them floats an amazing variety of craft, ranging from the huge barges of lumber to the flower boats and the tiny launches that serve as taxis. The Mint Tower is a fortress that dates from the days when the busy city was a fishing village.

Natural Color Photograph by Wilhelm Tobien

ROTTERDAM: THE FIRST SEAPORT OF THE NETHERLANDS

Little remains in this busy maritime city of a half million to recall a romantic past. Yet it was the birthplace of the famous scholar, Erasmus, and in 1572 was the scene of epic conflict between the Spanish Duke of Alva and William de la Marck's "Beggars of the Sea" (see Color Plate VI). Learning that the Dutch had captured Briel (Brielle), the Spaniard recalled his troops from Utrecht to launch an attack. But the defenders opened the sluices here, flooding the country, and forced the invaders to march along the top of a dike, where they were exposed to a withering fire.

Natural Color Photograph by Wilhelm Tobien

ARISTOCRATS OF THE BULB FIELDS WORK A MIRACLE OF BEAUTY

To the traveler between Haarlem and Leiden in April, explanation of the tulip mania that once gripped the kingdom becomes simple. Exotic blossoms bear such proud titles as "King Harold," "William Pitt," "Prince of the Netherlands," "Louis XIV," "Fairy Queen" and "John Ruskin." They bring memories of Dumas' "Black Tulip" hero, Cornelius van Baerle, whose bitterest grief in prison was that fate denied him the joy of giving his name to a book, a child, or a flower.

Natural Color Photograph by Wilhelm Tobien

TULIPS BURST FORTH IN SPLENDOR, ONLY TO YIELD TO THE SICKLE

To the Dutch cultivator the bulb is the thing. The blossoms merely are indicators of the health of the plants. However gorgeous, the flowers must be mown down and used as fertilizer for the beds. Roots are shipped throughout the world, and new varieties often bring large sums of money to the producers.

Natural Color Photograph by Wilhelm Tobien

NAVAL BATTLES ONCE RAGED WHERE NOW BLOOM THE HYACINTHS OF LISSE

Late in the 16th century the Dutch "Beggars of the Sea" (see Color Plate VI) fought the Spaniards on the Haarlemmermeer, an inland sea that covered this entire polder to a depth of four to six feet. Draining of the area was completed in 1853, after 14 years of work. Canals now carry off surplus water and windmills furnish power for pumping.

Natural Color Photograph by A. Ruysens

SEEN FROM ABOVE, THE TULIP FIELDS UNFOLD A PATCHWORK QUILT OF MANY HUES

There seems to be no limit to the endless variety of colors, and each shade has its separate bed. When the bulbs are collected, they are carried to special stores where they are sorted and selected for shipping.

WINDMILLS TURN THE WHEELS OF INDUSTRY ALONG THE ZAAN RIVER

And most of them have names. This one that towers above the modest homes of Zaandijk is called "de Dood."

 Natural Color Photographs by Wilhelm Tobien

HYACINTH TIME BRINGS COLOR AND FRAGRANCE

Workers among the blossoms must accustom themselves to the heavy sweetness which, to the beginner, is overpowering (see also Color Plate XIV).

(Could this have been the source of Dumas' creation of the villain Boxtel?) and sold throughout the United Provinces.

By the beginning of the 17th century the species growing in Holland, France, Germany, and Flanders were legion. The craze had become intense in Turkey, and two manuscripts written by Sheik Mohammed, *Lalizari* (Tulip Grower), at command of Grand Vizier Ibrahim Pasha, who held office from 1728 to 1730, list 1,323 varieties and describe in detail 74. The reign of Ahmed III, 1703-30, is known as the "reign of tulips."

Naturally the avid demand for tulips in Europe brought prices to high levels. Munting tells of offers by nobles of the French Court of hundreds of florins for a single bulb that caught the fancy of the enthusiasts; and Wassenaer writes that one "Semper Augustus," the favorite variety of 1623, was sold in that year for several thousand.

When wars distracted the interest of the French, the center of tulip culture moved to Holland, particularly about Haarlem and Leiden, the cities that to this day are tulip capitals. Soils of the Lowland countries were found ideal for growing the plants. Soon the fields became glowing patches of color.

THE TULIP MANIA IN HOLLAND

More has been written about the tulip mania in Holland than its importance warrants; but it is interesting because it occurred at a time when the Dutch Government was engaged in naval expeditions to acquire territory, and taxes were so high as to be almost unendurable. That the sober Dutch would lose their heads over a flower at such a time is a phenomenon that speaks highly of the fascination of the tulip.

Staid burghers abandoned their ordinary business to engage in the tulip trade, and a period of gambling began that could not result in anything but financial ruin for the participants. The mania started in France in 1635 and quickly shifted to the Netherlands.

Once the gambling was under way, the plants about which it swirled became mere symbols. All trade was for tulips "in the onion." Buyers would contract for "futures," risking enormous sums on the expected products of beds newly planted. A bulb of the "Admiral Liefkens" sold for more than 4,000 florins—the equivalent probably on current exchange of nearly 300 guineas. The "Semper Augustus," which had not increased rapidly since its introduction in 1623, was exceedingly scarce, and a single plant brought 5,500 florins, worth at the time about 370 pounds sterling.

Queer bargains were made, an example that seems particularly ridiculous being the exchange of one bulb for a load of grain, four fat oxen, twelve sheep, five pigs, two barrels of butter, 1,000 pounds of cheese, four barrels of beer, two hogsheads of wine, a bedstead with its furnishings, a suit of clothes, and a silver drinking cup! At the beginning of the mania the buyers were real tulip fanciers who coveted the flowers, but these soon were shouldered out of the bidding by professional market operators who bought in lots and held for a rise. One successful broker made 60,000 florins profit in four months.

That Dumas' picture of Isaac Boxtel's machinations against his rival tulip grower is at least not impossible is proved by historic incident. A certain burgomaster of Holland used his influence to obtain for a friend a political post of some importance. Upon the friend's offering to make return for the favor, the burgomaster refused reward and asked merely to be invited to see the appointee's tulip garden. The invitation was forthcoming at once, and the visit was made.

A few months later the appointee returned the burgomaster's visit. He went into his benefactor's garden and saw there a rare tulip which had been taken surreptitiously from his own. So furious was he at this discovery that he resigned his appointment, sold his estate, and left the country.

With nothing of real value to support the trade, the mania rose to absurd intensity. Traders gathered at inns and marked bids on wooden plates. A bulb would be mentioned, and a prospective purchaser would jot down on his plate a tentative offer. The holder of the bulb would write down a much-inflated price. While the dickering was in progress, a small percentage of the amount in question would be set aside as "wine money," and the dealers would put this up in cash. When a price was reached that both buyer and seller would check on their plates, the sale was proclaimed; but no money beyond the wine fund changed hands in the inn. Profits and losses were wholly "on paper."

Photograph by Ewing Galloway

ONLY THE PARENTS COÖPERATED IN THIS SMILE

Perhaps the child did not like the ornaments on her bonnet hanging over her face while her picture was taken (see Color Plate IV). Marketing in Middelburg is a family affair when the father comes home from fishing.

On April 27, 1636, a proclamation of the States of Holland put an end to the wild speculation by rendering invalid all contracts in connection with tulips. Confusion resulted. Bulbs which had been bought for more than 5,000 florins were sold for 50. In the wholesale liquidation many traders were ruined. The bottom was out of the market, and holdings were disposed of at 1 per cent to 5 per cent of their cost.

Despite all this furor the tulip fanciers, who had retired early from the market lists and were tending their flower beds, lost none of their enthusiasm. The fields around Haarlem and Leiden continued to glow just as they glow to this day. If a man produced a new and beautiful variety of tulip, he was sure of a ready market for it.

THE TULIP IN SATIRE AND CARTOON

Popular fads afford rich material for satirists in both literature and art. The tulip mania called forth not only serious horticultural essays by such men as Pierre Vallet, John Parkinson, and Lauremburg, but Juvenalian jibes by Petrus Hondius, who, in his "Dapes Inemptoe," 1621, had called people fools who devoted their entire gardens to flowers which bloomed for only a few weeks each year. Hondius was the leader of a group of writers who ridiculed tulips and tulip growers.

Probably the Dutch Government, alarmed at the extent of the bulb gambling, inspired some of the humorists to poke fun at the craze. A series of "Mania Pamphlets" was published in 1637, a few months after the disastrous liquidation. In these publications appeared drawings or cartoons showing the tulip "maniacs" in ridiculous antics.

One skit pictured a group of traders sitting around a table under a gigantic foolscap, while toiling gardeners labored outside with baskets, rakes, and barrows, and a curious crowd looked on. The cartoon was titled "Flora's Foolscap." Another picture, "Flora's Carriage of Fools," represented a crowd of tulip fanciers in a wagon equipped with sails. All were admiring their tulips, and a queue of well-dressed folk followed the carriage with hands upstretched, begging for flowers.

Photograph by Ewing Galloway

FASHIONABLE SHOPPERS CYCLE TO THE HAGUE'S LARGE DEPARTMENT STORES

Summer daylight lasts long in this northerly latitude—in June until 10 p. m.—and the winter daylight hours are correspondingly short. Rains and fogs rolling in from the North Sea are frequent. Most modern business buildings and apartments use every possible space for windows in the quest of all the available sunlight.

Photograph by Ewing Galloway

A REVOLVING RAILROAD BRIDGE SPANS THE NORTH SEA CANAL NEAR VELZEN

Modern industry blends with the quaint charm of the Netherlands. In some areas electric-lighted windmills regulate the water that helps raise the flowers that are brought to market in canal boats and dogcarts, then are whisked away to European capitals in airplanes. This artificial waterway connects Amsterdam with the North Sea and at the coast end are modern, mammoth ship locks.

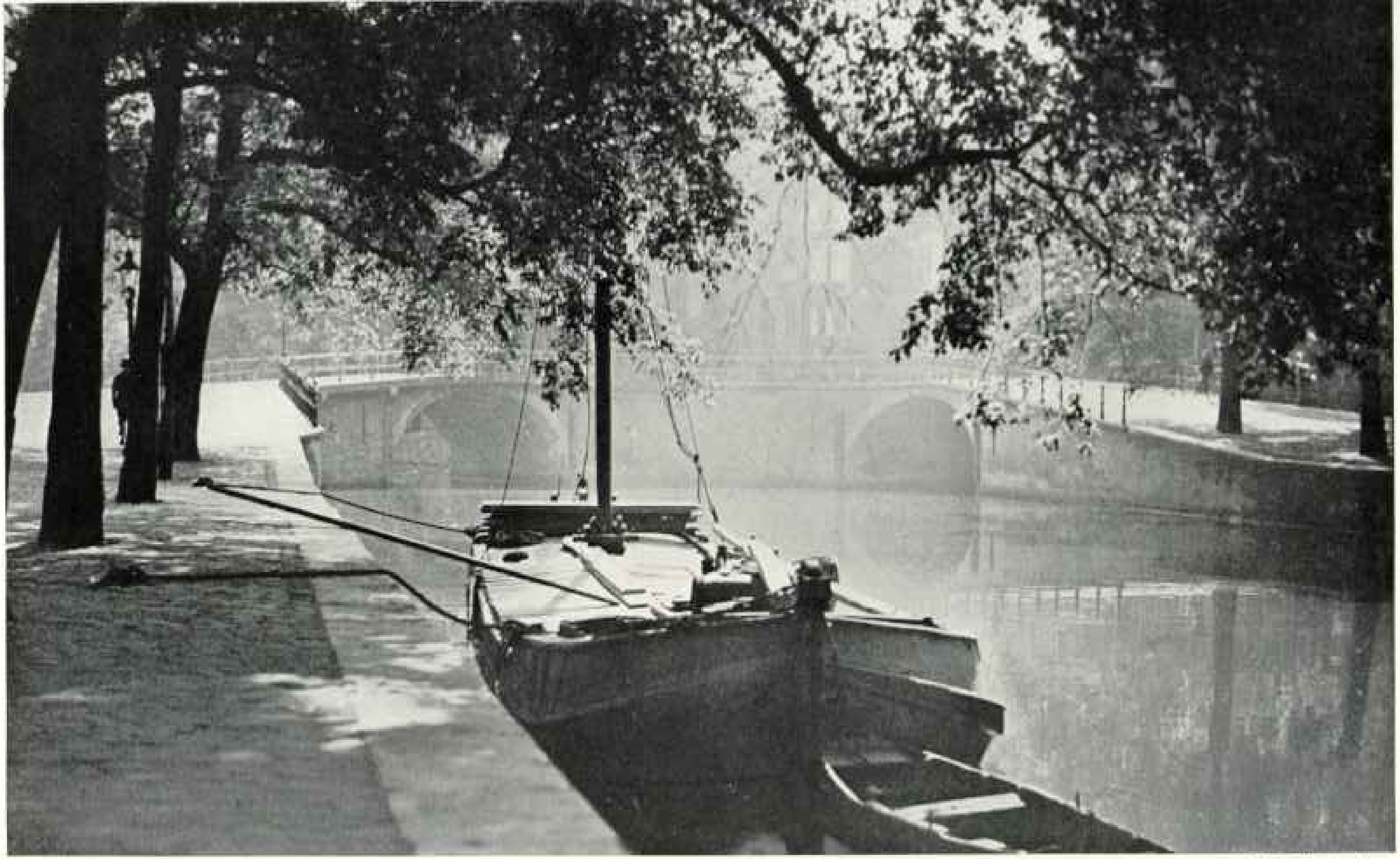
Photograph by Burton Holmes from Galloway

NOT AMERICA OF THE GAY NINETIES, BUT AMSTERDAM OF THE PRESENT

Bicycles outnumber motorcars in the Netherlands. People of all stations ride to work, or shop and go calling on them. One reason for their popularity is the flat country, where a hill is as much of a curiosity as a windmill would be to most Americans (see text, page 293).

THEY SELL SEA SHELLS FROM SCHEVENINGEN

The Atlantic City of the Netherlands retains its "native quarter." At one end fashionable Scheveningen attracts the cosmopolitan residents of The Hague. At the other, sturdy folk drive their horse carts along the hard-packed sands to carry away the shells they rake in at low tide to be ground up for fertilizer.



© D. F. Eberhardt

FAÇADES OF PRINCELY OLD AMSTERDAM HOMES OVERLOOK THE TREE-BORDERED CANALS

Like Venice, the city stands on numerous small islands connected by bridges. With the Dam at the center, the principal canals (*gracht*s) are built in concentric circles. Streets radiate in all directions, crossing the waterways on stone arches. Many homes have one or two sides facing the water. The Keizersgracht, here shown, is a "main street" of the city.

© K. L. M. Royal Dutch Airlines

CANALS ARE FENCES AND TRUCKING IS DONE BY BOAT

Buildings huddle along the main waterway, through which heavy loads of fruits and vegetables are shipped to Alkmaar, also a famous cheese center. An American wishing to visit this straggling town would do well to write the name, as he might find difficulty in pronouncing it—Broek op Langendijk.

Photograph by Burton Holmes from Galloway

CONSERVATIVE AMSTERDAM TURNS TO MODERNISTIC APARTMENTS

Dutch architecture puts original touches on its newer buildings; this one, for example, looks equally finished right side up or upside down. Rents seem low to Americans, but the tenants must pay taxes on a maid, a car, a bicycle, an income, and a tax on the amount of the rent paid.

The original pamphlets were distributed in 1637, and in 1734, when a hyacinth mania threatened, they were reissued as a warning to speculators.

Even after the mania subsided, gardeners pursued their hobby with such devotion as to provoke satirists to lampoon them. In 1688 Jean de la Bruyère wrote in his "Characters":

"The lover of flowers has a garden in the suburbs, where he spends all his time from sunrise till sunset. You see him standing there, and you would think he had taken root in the midst of his Tulips before his 'Solitaire'; he opens his eyes wide, rubs his hands, stoops down and looks closer at it; it never before seemed to him so handsome.

"He is in an ecstasy of joy, and leaves it to go to the 'Orient,' then to the 'Veuve,' from thence to the 'Cloth of Gold,' on to the 'Agatha,' and at last returns to the 'Solitaire,' where he remains, is tired out, sits down, and forgets his dinner; he looks at the Tulip and admires its shade, shape, color, sheen, and edges, its beautiful form and calix; but God and Nature are not in his thoughts, for they do not go beyond the bulb of his Tulip, which he would not sell for a thousand crowns, though he will give it to you for nothing when Tulips are no longer in fashion, and Carnations are all the rage.

"This rational being, who has a soul and professes some religion, comes home tired and half starved, but very pleased with his day's work; he has seen some Tulips."

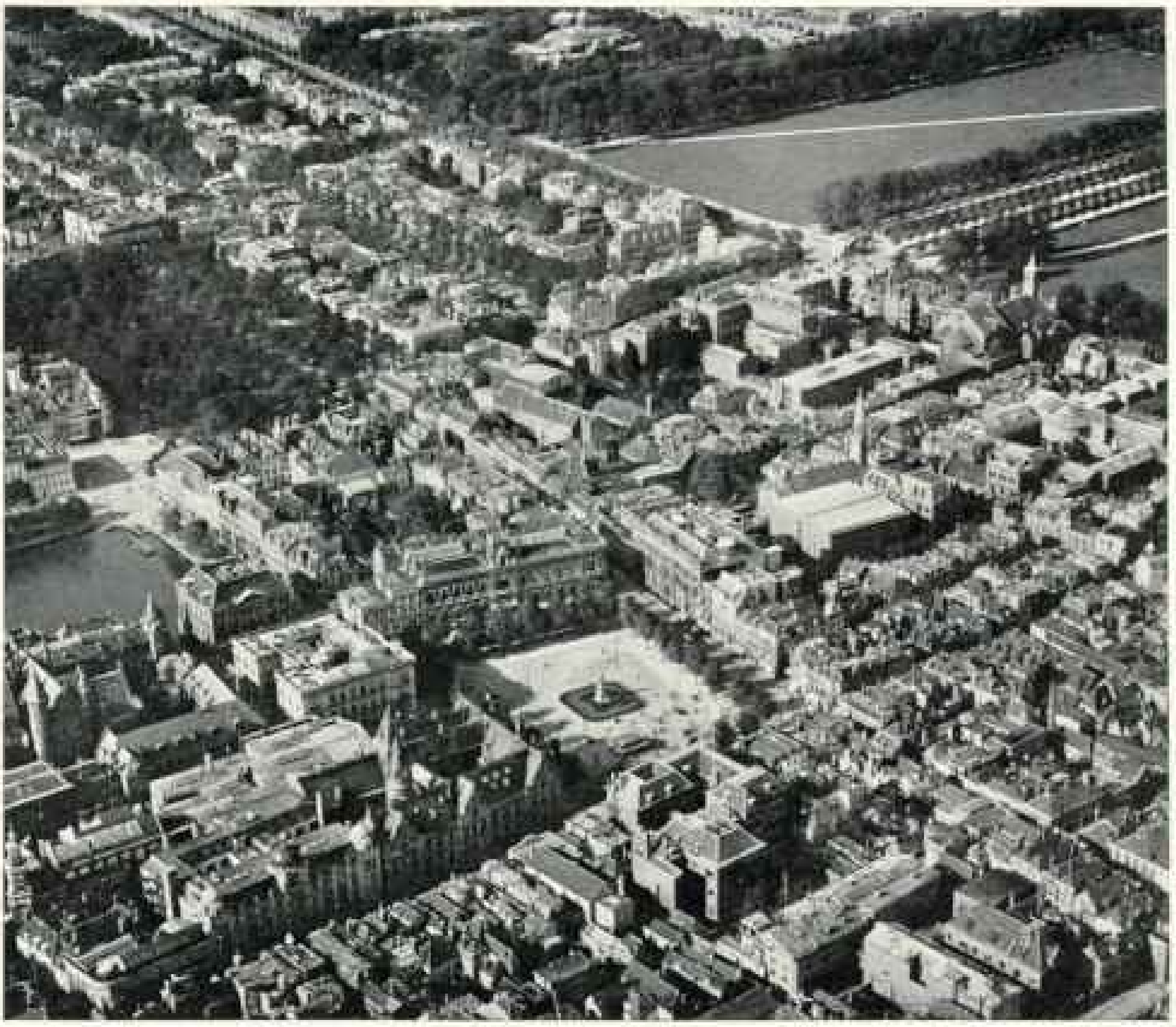
English gardeners were not less enthusiastic than their fellows on the Continent, and in the *Tatler* for August 31, 1710, Joseph Addison chaffed them in an amusing letter. Probably no other flower has been given in its several varieties such an imposing lot of "highfalutin" names as have been bestowed upon tulips. In his letter Addison tells of taking refuge from a storm at a wayside inn. He overheard a group of men talking about Admiral This, General That, and Lord So-and-so. His interest intrigued, he asked his host to admit him to the distinguished company. Of course, the great personages he had heard mentioned proved to be varieties of tulips.

His host took him later into the inn

© R. Rafftus

A FROWNING GATE RECALLS A ROMANTIC EPISODE

With palpitating anxiety Rosa, Dumas' heroine of the "Black Tulip," approached this Amsterdamsche Poort of Haarlem as she tried to reach the tulip-show authorities ahead of the scoundrelly Boxtel (see page 324).



Photograph by Royal Dutch Air Service

'S GRAVENHAGE TO NETHERLANDERS; THE HAGUE TO ENGLISH-SPEAKING FOLK

The Dutch have no objection to the abbreviation, recognizing the difficulty of the pronunciation. "The city in the woods," it also is called, because of its spacious parks and tree-lined boulevards. In the foreground lies the Plein, a square where much traffic converges and many Government buildings cluster.

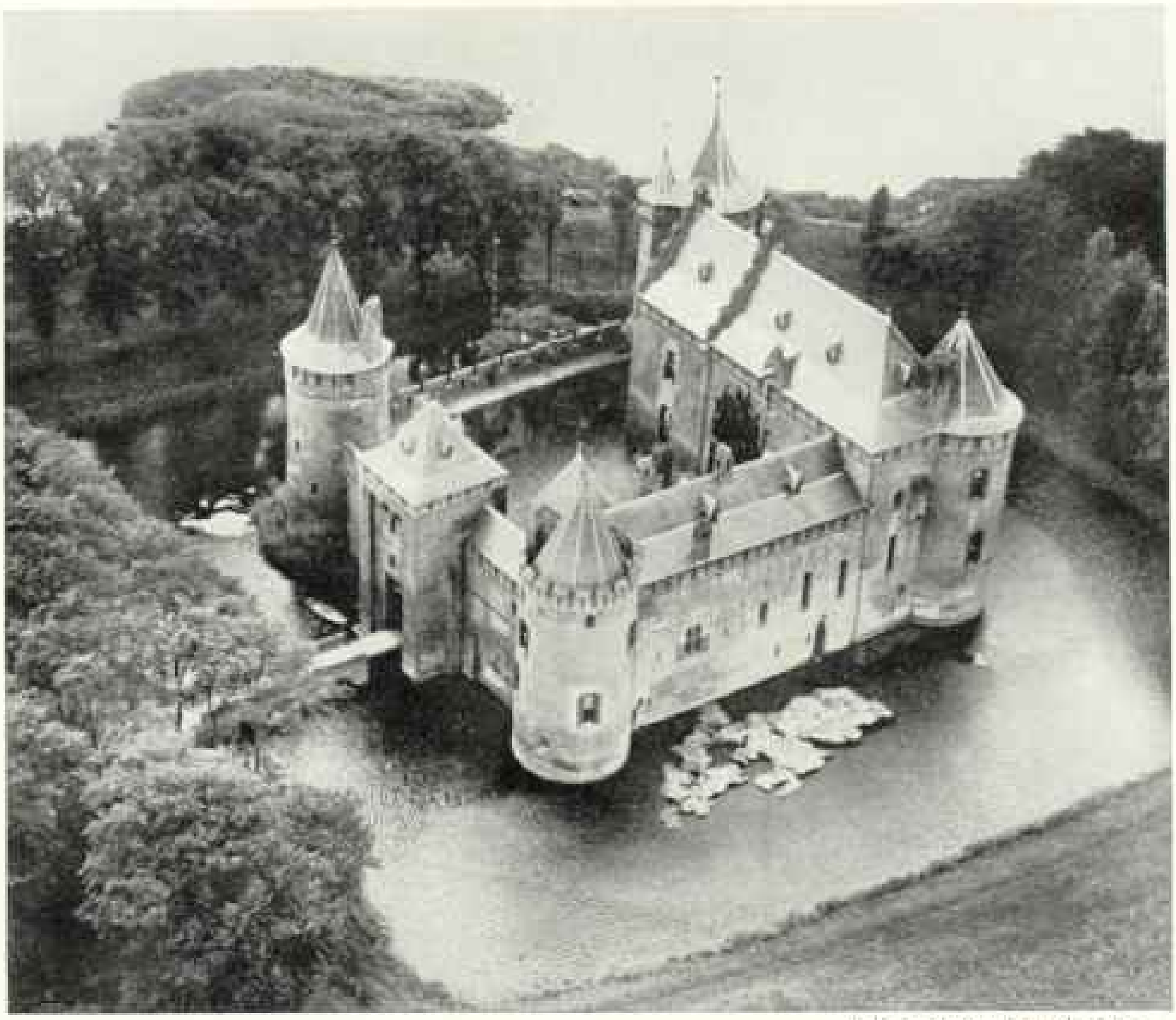
garden to see a bed of tulips. Addison admired several, but was laughed to scorn for his choice and told that his favorites were only fool's coats. The owner of the bed boasted that the small strip of ground, 20 yards long by two in breadth, was worth more to him than the best two hundred acres of land in England. He added that it would have been even more valuable had not a silly cookmaid some time previously mistaken a lot of his best bulbs for onions and prepared him "a dish of porridge that cost above a thousand pounds sterling."

WHEN IT'S TULIP TIME IN HOLLAND

Though the tulip has been the butt of considerable ridicule, it still appeals irresistibly to gardeners everywhere. The second Sunday in April is usually Tulip Sunday at Haarlem, and on that day the tulip is king. For miles the fields of bright bloom smile under golden sunlight. To the air passenger the country must look like a gaudy patchwork quilt; for there is no mingling of colors in a bed, a separate plot being devoted to each hue.

The growing of bulbs is on a commercial scale, and no attempt is made at artistic arrangement. Indeed, the flowers are mowed off ruthlessly and used as fertilizer on the beds. Nevertheless the visitor will be well repaid for the time passed in Holland when tulips are in bloom (see Color Plates XII, XIII, and XV).

Some difficulty arose a few years ago over importation of Holland bulbs to the United States; and as a result many of the leading Dutch companies have established



© K. L. M. Royal Dutch Airlines

LEGEND OF MEDIEVAL MURDER CLINGS ABOUT ANCIENT MUIDERSLOT CASTLE

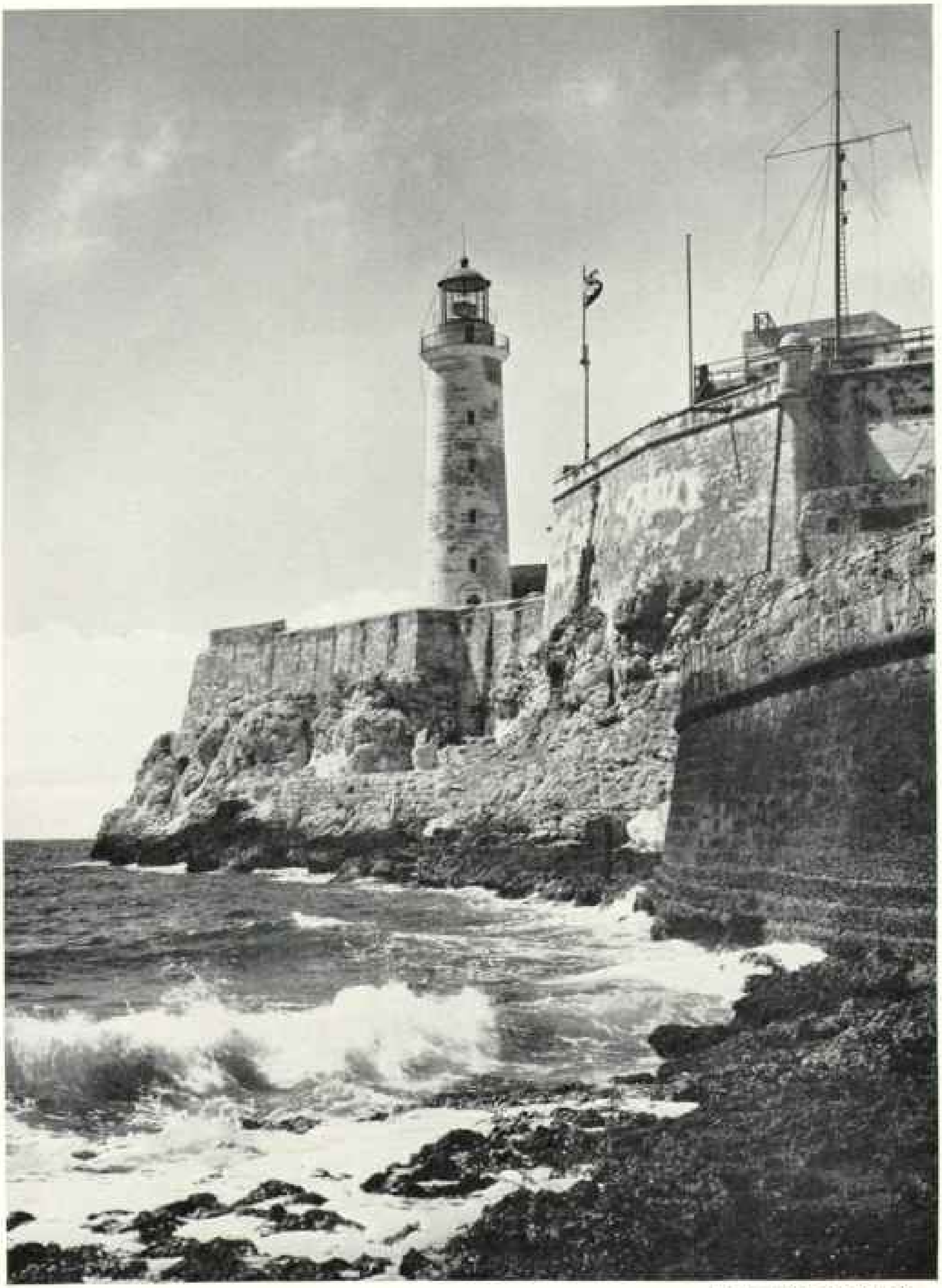
In this grim stronghold on the Zuider Zee near Amsterdam, a Dutch count was imprisoned and slain by his vassals in 1296. The entire region of the drainage project is rife with memories of dramatic deeds. There fought William de la Marck and his band of patriot nobles, dubbed "Beggars of the Sea" (see Color Plate XI).

bulb fields in the Puget Sound country of Washington.* So successful has the experiment proved that the country about Bellingham is known as "the Holland of America." The bulb plants are a thrifty crop also in the famous Puyallup Valley, near Tacoma.

To the layman these large commercial enterprises are less interesting than the borders of tulips that adorn lawns and home gardens. Contrary to the supposition of Dumas' hero, Cornelius van Baerle, tulips will grow almost anywhere, with proper care. An annual show in New York brings out hundreds of beautiful varieties grown on Long Island; a woman in South Carolina developed in one season a garden of tulips that compares favorably with the best at Haarlem.

In the shade of Scrooby Church, in England, a vast congregation of tulips nod. A one-time vicar of that church was the father of William Brewster, who led the *Mayflower* pilgrimage. Perhaps the Pilgrim leader brought with him some of the bulbs of his favorite flower, and the tulip can boast that it "came over in the *Mayflower*."

* See "Washington, the Evergreen State," by Leo A. Borah, in the National Geographic Magazine for February, 1933.



Photograph by F. S. Lincoln

GRIM MORRO CASTLE HAS GUARDED HAVANA SINCE THE DAYS OF FRANCIS DRAKE

During a storm, when the waves beat about its prowlike front, this romantic relic resembles a ship plunging into the sea. History has raged about its gray walls; Israel Putnam, with soldiers from New York, New Jersey, and Connecticut, once assailed it. Now it serves as lighthouse and signal station. The lighthouse balcony, 144 feet above the sea, affords one of Cuba's finest views.

CUBA—THE ISLE OF ROMANCE

By Enrique C. Canova

AFTER many years' absence from Cuba, where I formerly had lived for 15 years, I was even more eager than a visitor making his first journey, for I was curious to see the changes that had taken place.

As the skyline of Havana (Habana) rises from the deep blue waters and takes form, one experiences something of the thrill that Columbus must have felt on that memorable October 27, 1492, when first his tired eyes beheld the virgin shores of the island, and his mind quickened at the vision of gold and other precious metals he hoped this fair territory would yield to the coffers of Spain.

What would be his feelings now, I pondered, were he to approach the Cuban capital and see the golden dome of the new Capitol building glittering in the sunlight? (See pages 353 and 358.) Landing, he would feel increased awe at the size and the splendor of this building, which would eclipse anything known to him.

Then someone might whisper in his ear that $17,000,000 had been spent in its construction, and that, set in the floor beneath its golden dome, is a 24-carat diamond!

A DIAMOND IS THE ZERO MILESTONE

From that diamond Cuban distances are measured; it is a glistening marker corresponding to the Zero Milestone south of the White House in Washington.

Grim and weather-beaten, Morro Castle since 1597 has stood guard over the bottle-necked harbor of Havana. As one's ship slips softly through the narrow channel, the massive walls and tower of the fortress rise sheer to the left, while to the right the shore seems so close that one could almost shake hands with the people on the sea wall.

Like a gaily attired Spanish señorita, Cuba charms the eye, and the glamour of a lurid past, with its pages of piratical plundering, pomp, and high adventure with which it is so romantically linked, quickens interest from the moment it is sighted on the horizon.

The island presents many contrasts. Sea defenses of time-mellowed rock are relentlessly attacked by jealous waves; yet within these stern barriers are green, rolling hills dotted with royal palms. Luxurious valleys bursting with verdure are shadowed by towering mountains where rock and jungle stand guard in secondary defense against man's onslaught. Even to-day, more than one-third of its area remains primeval forest!

Summer days in Cuba's higher altitudes are so hot it would seem needless to lug along blankets, if mountaineering is the hobby; yet the nights are surprisingly cold.

WINGS OVER OXCARTS

It is an island of extreme wealth and dire poverty; a land of sugar, tobacco, exotic fruits, and agriculture; of mining, oil drilling, and business; of speeding airplanes, automobiles, and plodding oxcarts; a land of flashing-eyed señoritas and the soft, seductive perfume of the Tropics.

Havana was an important center of the New World, so far as Spain was concerned, in the days of galleons and dauntless armor-clad adventurers. It was the point of departure for many of the often cruel, but valiant conquerors who, with rare courage, set forth into the unknown to seek new lands and riches.

To-day Havana holds the island's first place, with a strange blend of the new creeping in and choking out the old. The massive walls and doors of the Castillo de la Fuerza (see page 360), from whose portals De Soto issued on his ill-fated expedition that discovered the Mississippi but cost his life, still stand in age-roughened and arrogant pride.

Here it was that Isabel Bobadilla, De Soto's young and loving wife whom he left to rule in his stead, each day for four weary years climbed the steep steps to the watch-tower.

For hours on end she scanned the horizon hopefully for some sign of her beloved husband's return, only to descend listlessly as her brave smile became drawn and fixed with despair. Finally word was received of his tragic end and she died of a broken heart.

During the 16th and 17th centuries, the French, Dutch, and British buccaneers sought to sack the city, and these gentlemen of high adventure bothered only with prizes of real value.

Cuba is often called "the island of a hundred harbors," for it is literally snaggle-toothed with inlets and bays. These, to-

Photograph by Kiko y Funcasta

THE BEAUTY OF OLD SPAIN GRACES CUBAN SEÑORITAS

The charming costumes of the past are to-day seen only at fiestas and fancy dress balls. The girl at the left wears a lace mantilla over a high comb. The other wears one made of fuzzy balls.

gether with its many keys, offered ideal hiding places supplied with fresh fruits and water to those navigators who knew their way about, while the broad expanse of the harbors of Havana, Santiago, Guantánamo, and Cienfuegos, accessible only through narrow inlets, afforded the utmost protection for the less brave.

To-day, with modern wharves and port equipment, vessels of any length or draft can be easily handled in several of the harbors, and many of the others will accommodate ships of more than average displacement.

Of the larger Latin-American republics, the island is nearest to Europe, and, next to Mexico, nearest to the United States. It is the crossroads for shipping between many ports of Europe or the United States and Central or South America.

If you could lift the island bodily and lay it on the United States, with the easternmost point, Cape Maisi, resting on New York City, you would find that the other tip, Cape San Antonio, would extend some miles beyond Chicago, or, if moved slightly to the north, would rest exactly on Milwaukee. The width varies from 25 to 124 miles. The island supports a population, including the Isle of Pines, of nearly four million people (see map, page 348).

This latter island, largest and most important of many that dot the Cuban coastline, lying to the south of the western end of Cuba, was named for the many varieties of pines that grow on it. Its chief claim to fame, however, is its excellent climate, its fine marble quarries, and its mineral springs.

A RENDEZVOUS FOR PIRATES

Here it was that the Welsh firebrand, Sir Henry Morgan, and Cornelius (Pegleg) Jols came to assemble their men and harass the unhappy residents of those days.

Gold coins of ancient vintage have been found in many of its numerous caves, and residents speak of mysteriously acquired wealth, and of iron-bound chests found from time to time. The lure of pirate treasure has and probably always will grip the imagination of man.

I was eager to see Cuba again, and my knowledge of the language and customs gave me an opportunity for some fun with the porters, taxi drivers, and others who

Photograph by Enrique C. Canova

NECESSITY STIMULATES INGENUITY

Narrow streets have resulted in Havana messenger boys bending the handlebars of their bicycles in arcs less than body width, so that they can squeeze through small openings.

swarmed around trying to "sell" me their idea of what an American tourist should have or should see, while I pretended not to understand what it was all about.

No doubt many visitors have had several years of Spanish at school, but the chances are that they will not understand the rapid-fire chatter of boatmen, porters, and chauffeurs. It sounds so different. Much of it *is* different, just as everyday English is far from the correct and precise language of the classroom.

Not wishing to go to one of the luxurious modern hotels furnished and operated just as those at resorts elsewhere, I chose an older, Spanish hostelry with its spacious, high-ceilinged rooms, balconies, and wooden-shuttered doors. The sight of the black and white marble floors and huge wardrobes was like meeting old friends again. I knew the food would be good, although different, but then, I was seeking a change.

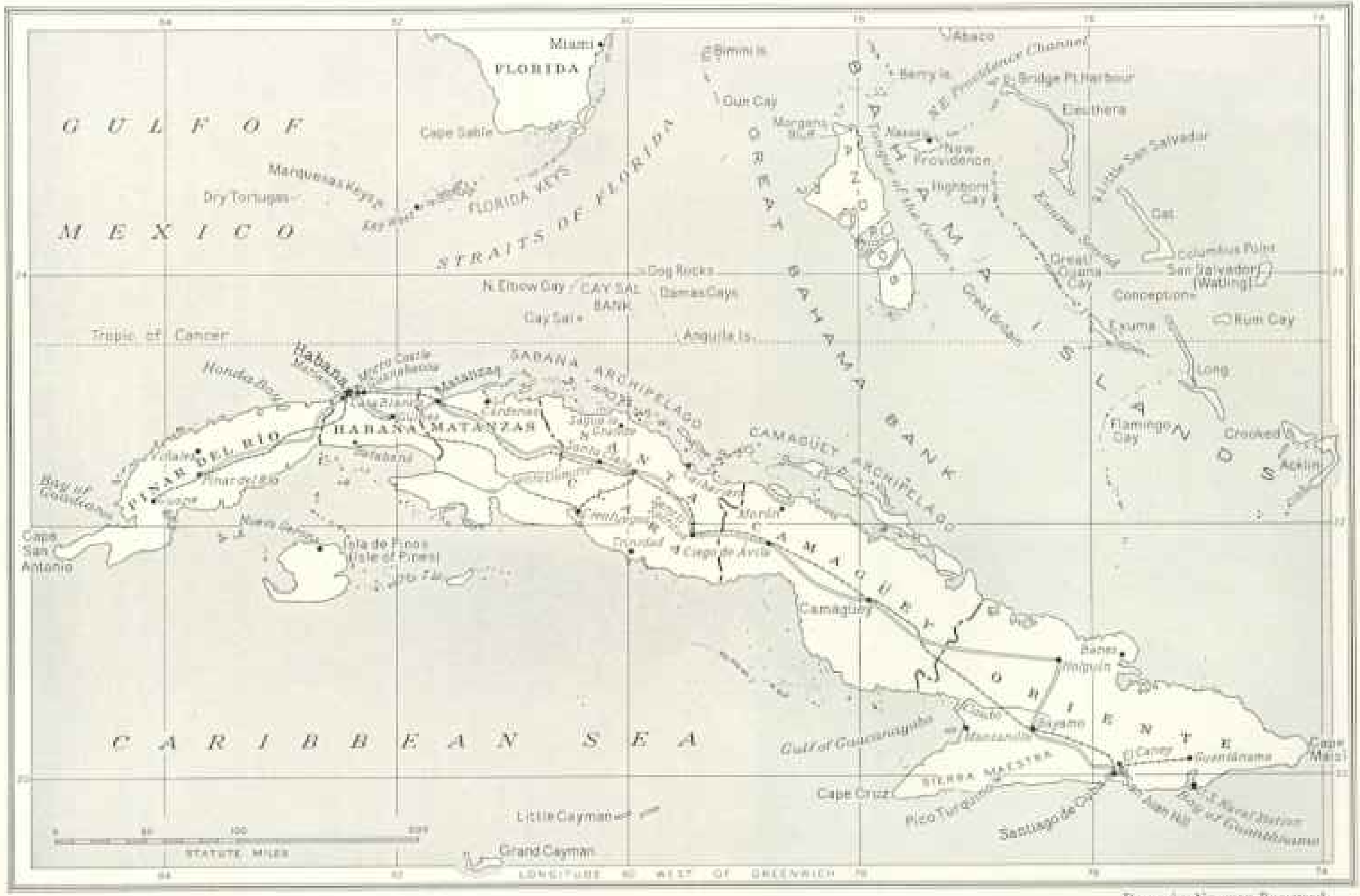
Stepping to the balcony, I scanned a skyline that had not altered materially, although there were many new buildings as conspicuous among the older structures as a gold filling in a front tooth. There were the same multi-hued houses, contrasting with the many ponderous and still older weather-dulled stone buildings, the same red-tiled roofs with cats dozing in protecting nooks, and atop the flat roof across from my hotel balcony the family wash fluttered in the breeze as of old.

In the absence of yards or basements the Havana roof serves as a place to hang clothes, as a playground for the children, and, in the evening, as a family gathering place where each may relax and enjoy the refreshing breezes and soft beauty of the night.

SOME SIDEWALKS MERE SAFETY ZONES

Venturing into the older sections of the city, I found the same narrow streets and tiny sidewalks (if such they may be called) not more than 18 inches wide. The pedestrian on them brushes against people standing in the doorways or windows. Here it is customary to walk in the street, using the sidewalk only as a safety zone to let some vehicle pass as you flatten yourself apprehensively against the wall.

In this area, too, both homes and shops are built flush to the sidewalk. They have



Drawn by Newman Burnstead

CUBA IS THE LARGEST ISLAND OF THE WEST INDIES

Its area, including the outlying islands, is slightly less than that of Pennsylvania. In 1634 Havana received the resounding title, by royal decree, "Key of the New World and Bulwark of the West Indies." In modern times its nearness to the United States, its ease of access by ships and airplanes, and its fine harbor, give the capital a key position in Caribbean trade.

Photograph by Capt. Albert W. Stevens

LIKE MANHATTAN, HAVANA IS RINGED BY ITS HARBOR

The city's seaside drive, the Malecón, extends to the right. Back to the Capitol runs the broad Prado. In the left foreground, facing the park, is the new Presidential Palace, and to its left is the many-spired Church of the Angels. In the foreground looms the Castillo de la Punta, relic of Colonial days. The air view was taken over the lighthouse tower of Morro Castle (see illustration, page 344).

Photograph by F. S. Lincoln

THE "DINNER BOY" OF HAVANA

Meals are often sent around in receptacles strung on a handle. Sometimes the bottom receptacle contains charcoal embers to assure a hot meal upon delivery. Bread and plates are carried in the box on the boy's head.

massive wooden doors with huge metal knockers, many of them shaped like a hand, an oddly coiled serpent, or a gargoyle with a ball in its mouth, with which you may set up a resounding demand for admittance.

The windows are in nearly every case enclosed with iron bars, those of the more pretentious residences having fancy scroll patterns. Most of them have a hinged section at a convenient height, which may be opened when desired, so that one may lean out and see what is going on farther down the street. To us, this custom may seem strange, except for jails or banks, yet it provides ventilation without the danger of intruders.

SMALL SHOPS HAVE PONDEROUS NAMES

Cuban stores are blessed with an infinite variety of names—the smaller the establishment the more ponderous the name. As a rule the name selected has no bearing on the nature of the business conducted, as in the case of a small laundry bearing the royal designation of "Alfonso XII"; a tailor shop entitled "Nueva Retreta" (New Retreat); "El Cañonazo" (The Cannon Shot), a photograph and furniture store; or "Flor de Oriente" (Flower of the Orient), a butcher shop!

The ground floor of many houses is often set back some distance and the second story, called the "first floor," is built out over the sidewalk, thus forming a broad arcade with heavy, supporting columns of masonry rising from the curb. The residences on the upper floors are usually protected by a fancy iron door at a landing about midway up the stairs.

The rooms of an older house are huge, the ceilings high—often 15 to 18 feet high—and the floors usually of marble or tile. Between the rooms are ornamental doors, the upper part mostly of colored or frosted glass to make them opaque. Air can circulate freely over them, as they do not reach the lintel. This gives some ventilation, for generally at night all outside doors and windows are closed to keep out the night air, which, according to legend, is thought to be injurious! (See page 372.)

There are no built-in closets, and the walls are of painted plaster, without benefit of wallpaper. The furniture in the parlor usually consists of a center table with much bric-a-brac, while along the walls are two rows of chairs facing each other, placed with military precision.

Photograph by American Photo Studios

OLD-STYLE CUBAN STOVES ARE OF TILE

Into different sized apertures on the top, iron grates are fitted to hold charcoal fires. Ashes drop out of openings such as the one shown under the two spoons. These stoves are built according to the size of the home or restaurant, smaller houses usually having four charcoal grates. There is generally a hood over the stove to carry off cooking odors and smoke.

An old-style Cuban kitchen would widen the eyes of any American woman.

"I see the sink," said a fair visitor on viewing one for the first time, "but where's the stove? And what's that tile-shelf arrangement?"

She was referring to the stove, although she failed to recognize it as such. It is built of masonry, the top being of red tile into which are set several iron grates to hold charcoal fires.

The ashes drop down inside the stove and out of the narrow bottom of the "funnel" either into a pan or onto the floor, depending on how neat the housekeeper happens to be.

PORTABLE STOVES ARE POPULAR

Earthen pots and bowls, rough on the outside and glazed within, are used extensively for cooking. The contents do not easily stick or burn in these receptacles. While gas is being installed in many houses to-day, some Cubans assert that food so prepared is not as delectable as when cooked over the slower charcoal fire.

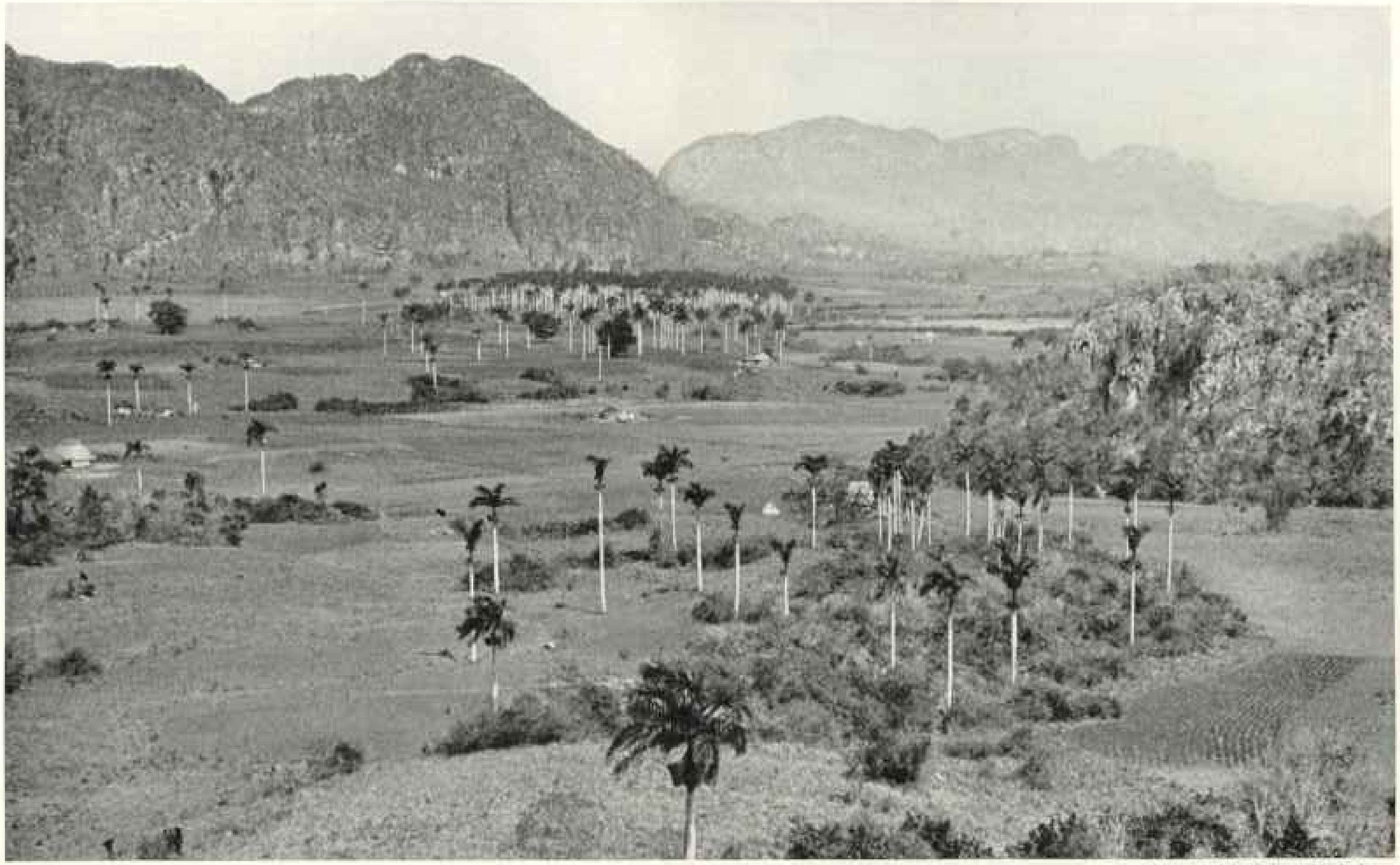
In the very poor sections and tenements a small, portable charcoal brazier is used instead of a stove for cooking and for heating flat irons. These braziers are sometimes used by more well-to-do people to take the chill from the air in rainy weather or during the few unusually cool days of the winter season.

Still another popular cooking device, especially for a quick meal or to make coffee or chocolate in the evenings, is known as a *reverbero*. This is a sturdily constructed spirit lamp on a large scale, which burns alcohol as fuel. It has a large center wick, three uprights to support the pan or coffee pot, and a strong handle so that it may be moved about.

Before leaving the kitchen I pointed out the sink. In itself it was not unusual, but resting in the soap dish was what appeared to be a coarse blonde wig.

"What in the world is it?" again asked the visitor.

"That," I replied mysteriously, "is an *estropajo*. The Cubans wash their dishes with rope, you know."



Photograph by Roberto Machado

VARYING SHADES OF GREEN MEET THE EYE IN BEAUTIFUL VIÑALES VALLEY

Here is emerald-hued rolling country, dark hills against a blue sky, palm-thatched cabins of the country folk, and the gleaming trunks of the royal palms tipped with feathery clusters of fronds. Some of the finest tobacco in Cuba is grown here.

Photograph by Frank Turgeon, Jr.

CUBA'S NEW CAPITOL RESEMBLES THAT OF THE UNITED STATES

Like that in Washington, it faces east, and spreads over three and a half acres of ground—an area only slightly less than that of our Capitol. It cost about $17,000,000 and was opened in 1929, on the second inauguration of President Machado (see illustration, page 358). The central stairway is used only on official occasions, the entrances to right and left being those ordinarily open. In the upper left corner is the tower of the Cuban Telephone Company's new building.

Photograph by Enrique C. Cánova

VENERABLE BELÉN ARCH SHADES A STREET IN HAVANA

In the event of a sudden shower, it also provides shelter. Its name comes from its proximity to the famous old Church and College of Belén. The historic institution has moved into new quarters, and the old buildings are now occupied by the State Department.

Ananias himself could not have drawn a more discrediting look.

"Really," I insisted. "The cooks take a piece of rope and separate all the fibers until it becomes as you see. Then, when they soap this and wash dishes, it scours them thoroughly."

LUNCHEON A HEAVY MEAL

The Cuban breakfast, as a rule, consists merely of coffee, toast, and perhaps fruit, marmalade, or cheese. A heavy lunch is eaten about 11 o'clock and dinner is served in the cool of the evening.

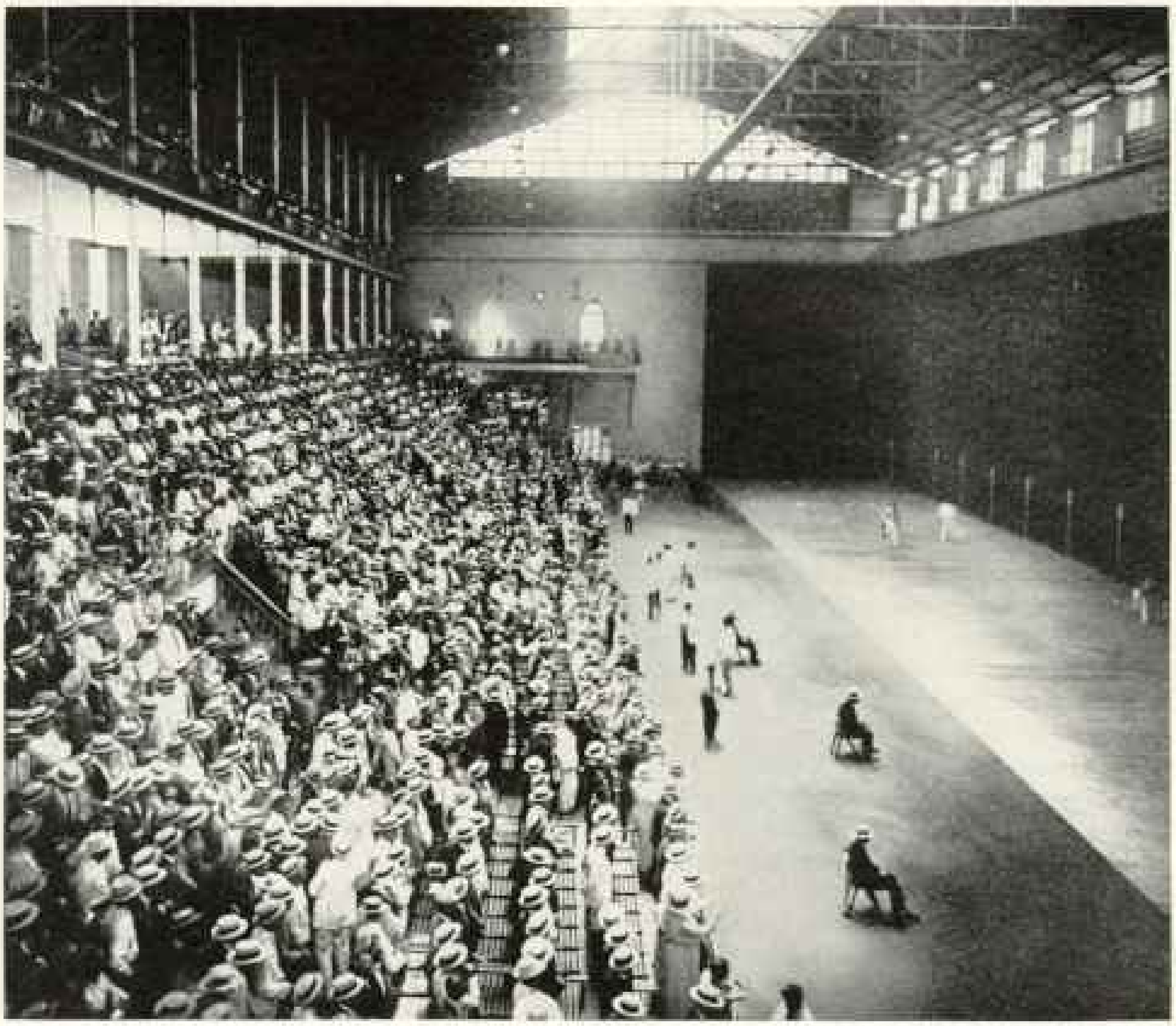
When I say a "heavy" lunch, I mean just that. For instance, I stepped into a restaurant that has been established in one location for 53 years and ordered a table d'hôte luncheon. Knowing that Cuban soup is usually a meal in itself, I chose consommé as a starter. In a few moments the waiter placed before me a huge, vaselike container with about a pint of consommé, from which I took a few spoonfuls.

"What's the matter, sir? Isn't it all right?" asked the waiter with a worried air.

"Delicious," I assured him, "but too much."

He then brought the entrée, scrambled eggs with green peas. But instead of just a taste, there must have been not less than three eggs and a man-size portion of peas, plus a huge helping of white rice which was a meal in itself.

Again I nibbled at the dish, for I was anxious to save a little room for the main course of yellow rice with pork, which is colored with saffron, seasoned with tomato, onion, green peppers, and a dash of garlic, and is really delicious.



Photograph by American Photo Studios

JAI-ALAI IS CUBA'S NATIONAL GAME

Probably the fastest game in the world, this Basque pastime demands catlike agility, endurance, acrobatic skill, powerful arm and shoulder muscles, and tremendous exertion. It is played in a long, narrow court amid the wild excitement of cheering, betting spectators (see text, page 356).

Shaking his head sadly, as if fearing he dealt with an invalid, the waiter carried out the scarcely touched entrée and brought in a huge dinner plate piled to the edges with rice and pork and standing about three inches deep at the center.

I looked at it in some dismay, for here was enough for two or three people. However, taking a quick drink of *vino tinto* to prepare myself, I set to and did nobly by it, much to the delight of the waiter, who hovered anxiously about.

Dessert was then brought on—a half of a fresh pineapple!

Then coffee, and of course, during the meal I had consumed two huge French rolls. And all this for 75 cents.

The Cubans, lovers of sport, long ago adopted baseball, excelling in it to a marked degree. Years ago, when Christy Mathewson was at the height of his prowess, one of the big American teams was in Havana for training. While there it scheduled a game with the leading Cuban team.

The Americans came to the field, looking actually huge, and went rather lazily through their warming up. Then came the Cuban team, wiry little men who warmed up feverishly and proceeded to defeat the Americans before the visitors knew what it was all about! This happened time after time, and some of our best players have since been recruited from Cuban teams.

The sand-lot teams, to one who knows both languages, are a source of constant joy, for American baseball slang fitted to Spanish makes a striking jargon.

"Ess-try too!" calls the umpire, immediately to be assailed by a chorus of "Cómo ess-try too? Ni ess-try too! Eso fué una

bola!"—"What do you mean, 'Strike two?' That was a ball!"

Such expressions as "fou bol" (foul ball), "homron" (home run), "ple bol" (play ball), "segundo ee-nen" (second inning), and so on, are freely used and scattered through their own slang.

Another popular game, jai-alai, is played somewhat like handball, except that the players have long, curved, basketlike attachments strapped to one arm in which they catch the ball and in returning hurl it against the far wall of the court with much "English," thus making it as difficult as possible for their opponent to catch. This basket affair acts like a sling and the leverage imparts a tremendous speed to the ball.

It is an intensely exciting and interesting game of the Basques, requiring much speed and rare agility. The skill and accuracy of the players in keeping the ball in its bulletlike motion are amazing (page 355).

Cockfighting is common, but is more to be found in the rural districts. Quail shooting and other hunting may be indulged in, as well as fishing for tarpon and marlin—indeed, for all the finny wealth in which the Gulf Stream abounds.

Regular bullfighting was abolished in Cuba long ago. A newer sport of alligator hunting has been developed more recently.

Golf, tennis, swimming, soccer, and horse racing are popular. There are good links and courts; also fine beaches where the water is so clear that bottom can be seen distinctly at several fathoms.

Lottery tickets are on sale everywhere, and the individuals who handle them are almost as much of a nuisance as magazine salesmen "working their way through college." Besides the regular ticket offices (see page 373), men, women, and children sell them on the streets, in the cafés, and wherever they can corner customers. Little tots of 8 or 9 approached me in the restaurants, tendering a grimy portion of a ticket. All will assure you that they have the winning number.

"Buy this ticket, señor," said one little fellow naïvely in broken English, "and win the Grand Prize."

"How do you know it will win a prize?"

"Oh, because it will; *I know*," he replied.

"Then you'd better keep it and have the prize yourself," I suggested.

Without batting an eye he retorted, "But I'd much rather you'd buy and win it so you would have a pleasant memory of Cuba!"

The drawings are held every Sunday morning, with considerable ceremony. Children from an orphanage do the drawing and call out the numbers. A policeman searches you carefully before allowing entry into the hall.

Across the street from the office where the lottery drawings are held is an old church, and I was struck by the incongruity of hearing on one side the childish voices calling out the winning numbers and, on the other, the solemn chant of the morning services!

In smaller towns I have been amused while sitting in the parks and watching children at play.

"Ronchillón! Ronchillón!" screeches an excited urchin from behind my bench.

"What in the name of Máximo Gómez is *ronchillón?*" I asked, and my idle thoughts concentrated on the game. It looked familiar, and after a while I began to see marked similarity to our own game of "run, sheep, run."

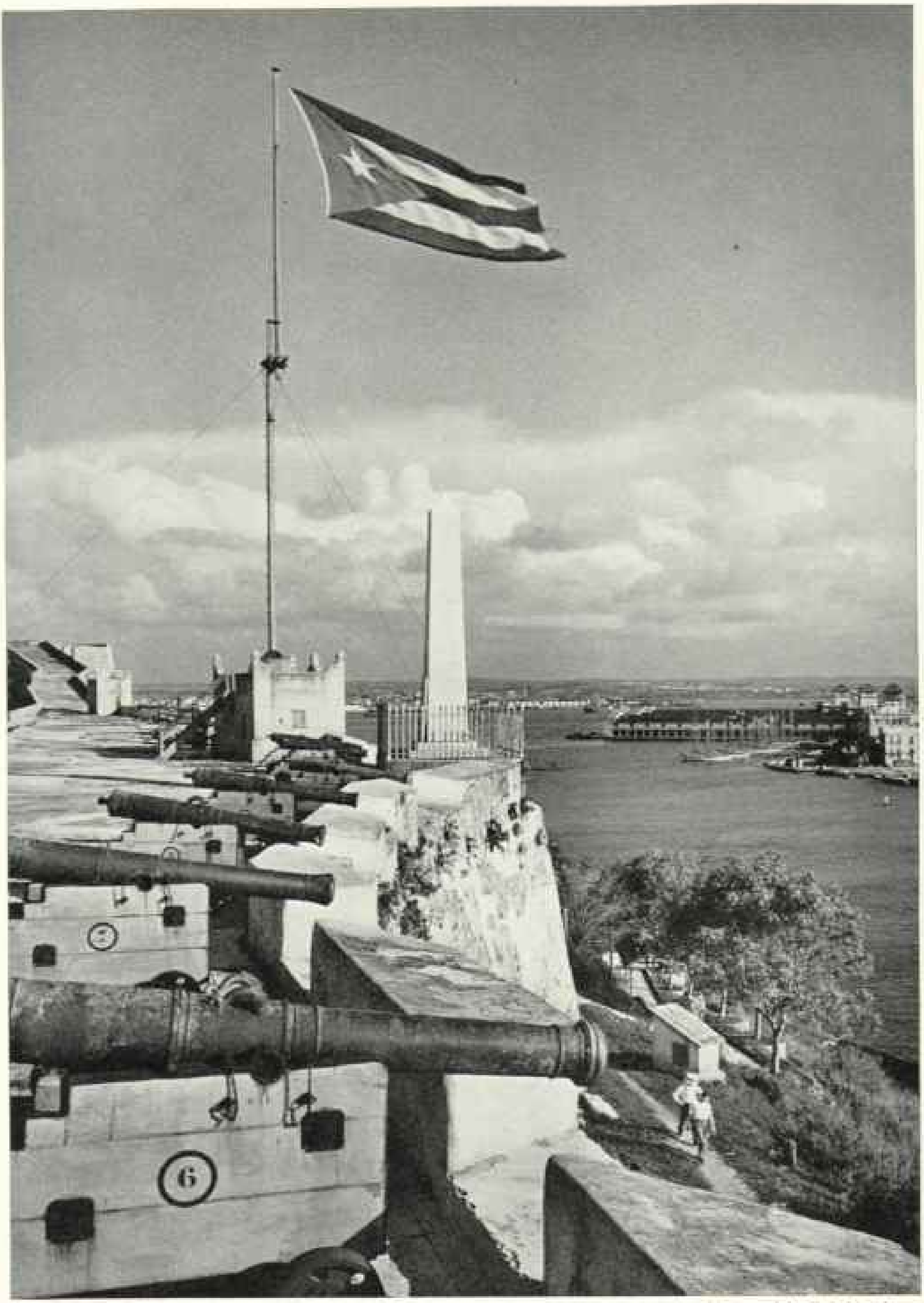
"Ronchillón!" came the cry again. And there it was, "Run, sheep, run," with a Spanish twist to the pronunciation.

A WALK DOWN THE AVENUES

Let us take a walk down the Prado and along the Malecón.

Did I comment upon the "narrow streets and sidewalks?" When you come to the Prado, or, as it is now called, the Paseo de Martí, and see this beautiful wide avenue with the parkway down the center, flanked on either side by massive buildings with the ground floors set back, so that for blocks one may walk along the arcaded sidewalks, you have the feeling of stepping out of a medieval story book into modern Europe (see page 359).

By the harbor entrance, where the Prado and Malecón (now called Avenida de Antonio Maceo) meet in a sweeping curve (see page 349), like a courtier bowing low in an old-fashioned dance, is a bandstand. The surrounding park is dotted with hundreds of iron chairs, where in the evening one may sit through a band concert, enjoy the cooling breeze, watch the colorful pageant of pedestrians and vehicles, and listen to the yearning strains of Cuban music, as well as the classics.



Photograph by F. S. Lincoln

THE "LONE STAR" FLAG OF CUBA WAS BORN IN NEW YORK CITY

Designed in 1849 by a Cuban patriot then living in New York, it became the official flag in May, 1902, when Cuba began its life as a nation, at the conclusion of the first American occupation of the island. It flies over La Cabaña Fortress, opposite Havana (right), once the strongest in Cuba. The old cannon are used for firing salutes, and one fires the 9 o'clock curfew.

Photograph by F. S. Lincoln

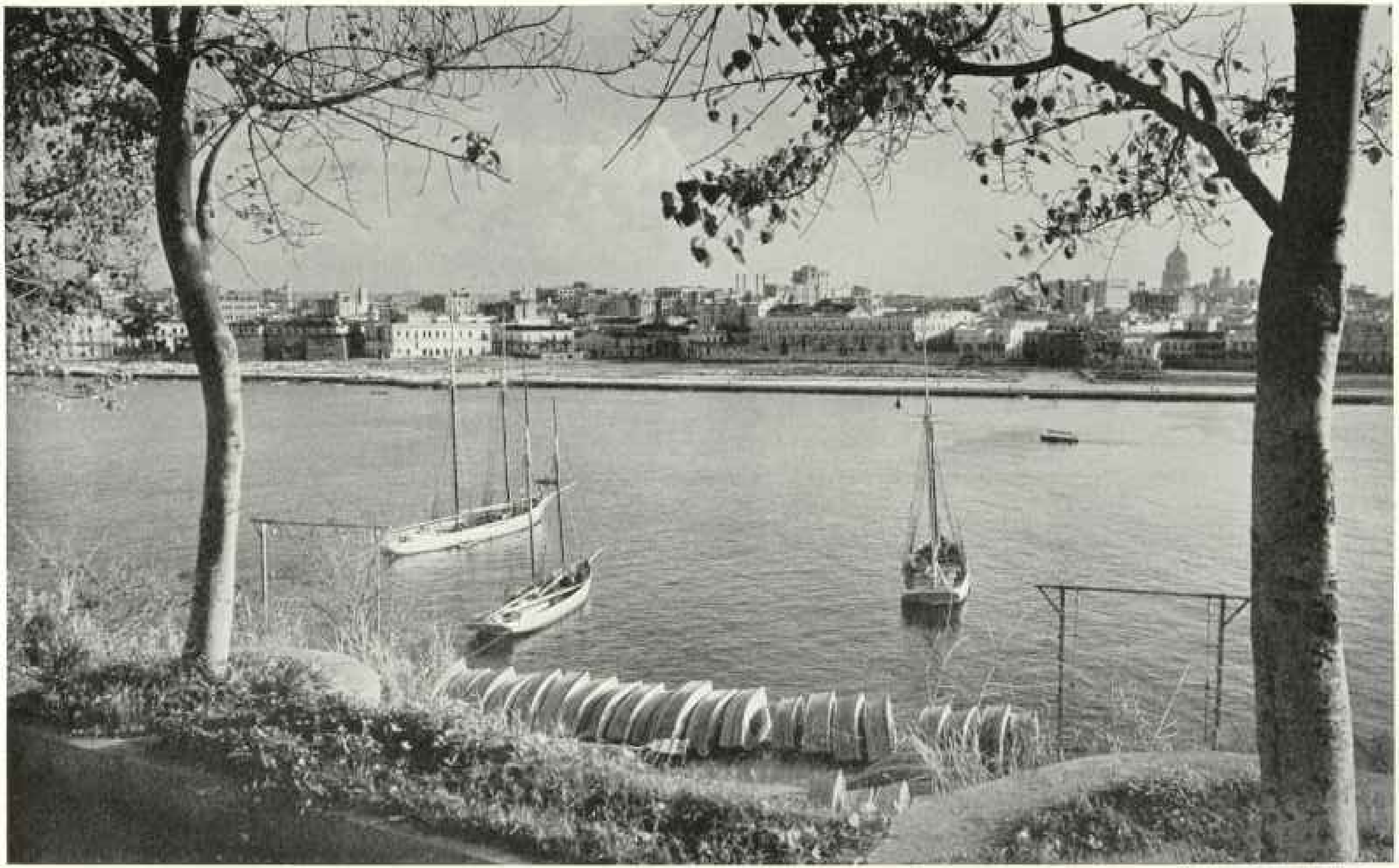
THE CUBAN CAPITOL'S GOLDEN DOME IS VISIBLE FOR MILES

The height of the building, through the cupola, exceeds 300 feet. Embedded in the floor beneath the dome is a diamond set in a golden ring made from the pen points used in signing the contracts for the Capitol and the Central Highway. The diamond serves as a zero milestone for measuring distances in Cuba.

Photograph by F. S. Lincoln

THE PRADO IS ONE OF HAVANA'S FINEST BOULEVARDS

A wide "one-way" street flanks either side of the central parkway. At one end looms the new Capitol; the other runs down to the sea opposite weather-beaten Morro Castle. The new name, Paseo de Martí, memorializes a Cuban patriot. To the left is one of the city's newer and taller buildings, a modern hotel.



Photograph by F. S. Lincoln

HAVANA'S SKYLINE AS VIEWED FROM THE LOWER REACHES OF LA CABAÑA FORTRESS (SEE PAGE 357)

Just a few rods to the right is the narrow opening into the harbor, across which an iron chain formerly was stretched to keep out pirates and other sea enemies. The dome of the Capitol (right) looms above the roof tops. The historic stronghold from which De Soto sailed to explore the Mississippi is in the left foreground (see text, page 345).

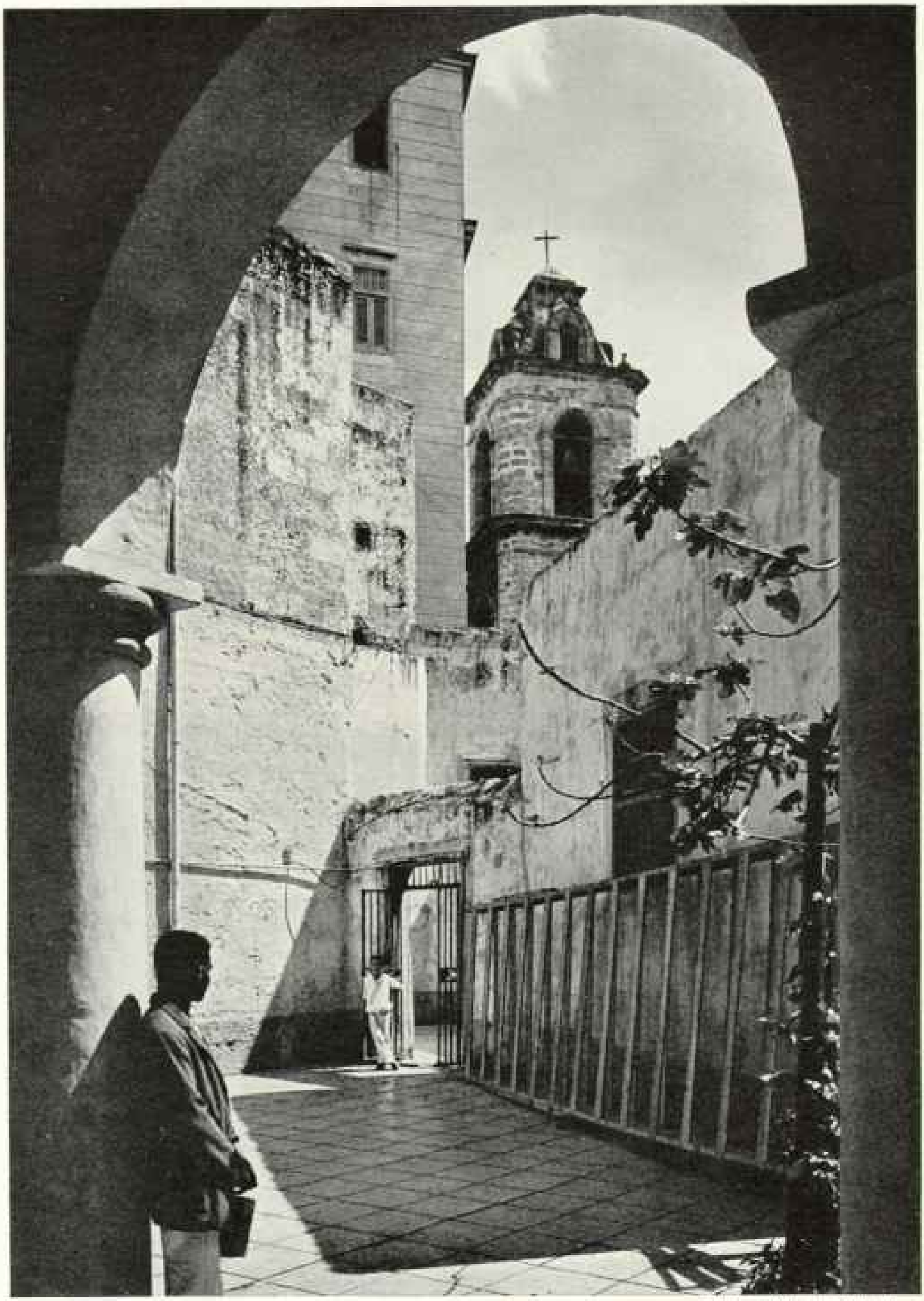
BLACK AND WHITE HARMONY

The white boy sticks to the guitar; the negro plays the *bongó*, a double drum held tightly between the knees and struck with the fingers.

Photographs by F. S. Lincoln

FREE CANDY FOR COUNTRY CHILDREN

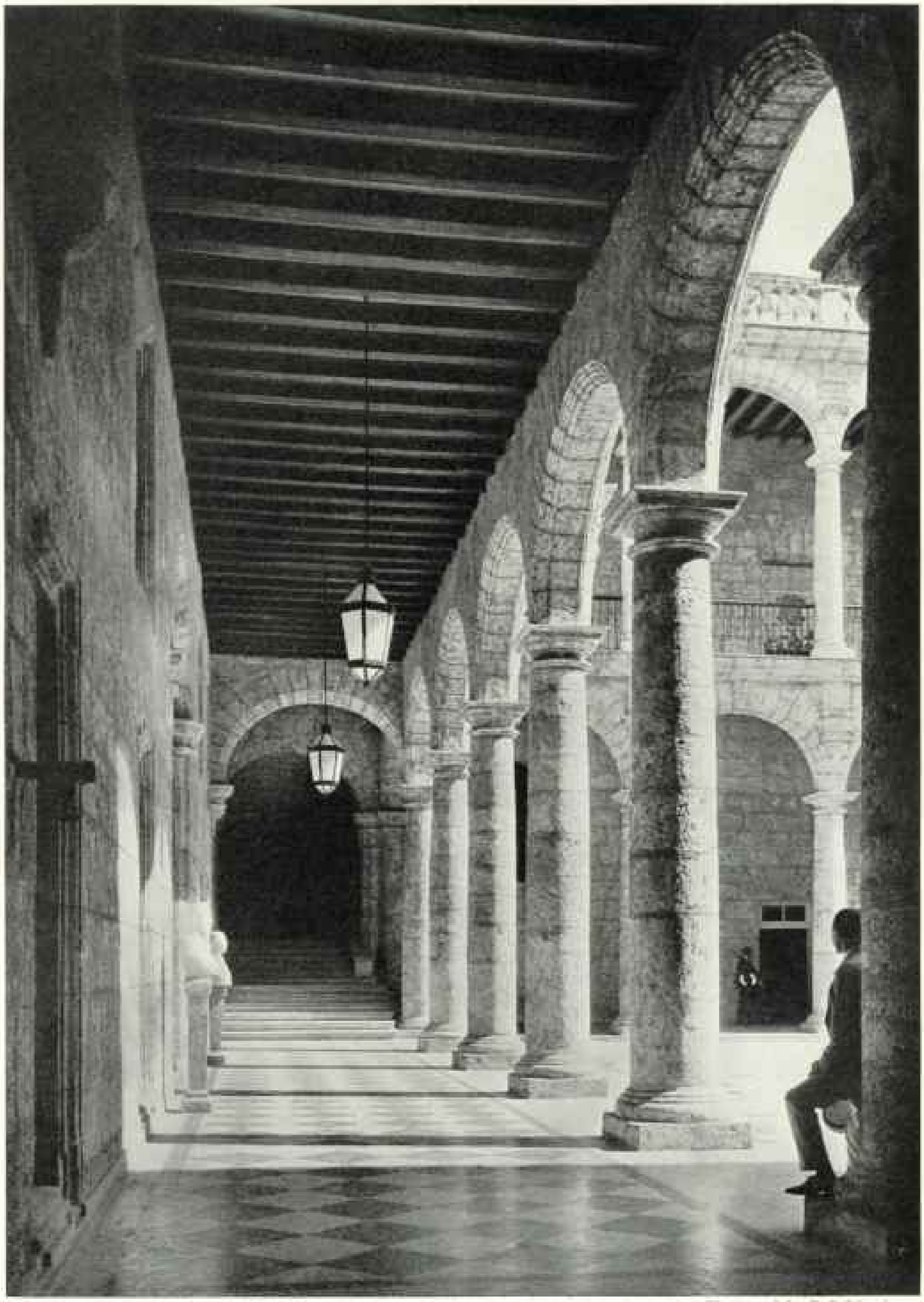
"Who cares whether the mills grind, so long as cane grows and teeth are strong?" is the attitude of these youngsters as they munch the juicy stalks.



Photograph by F. S. Lincoln

HAVANA'S CATHEDRAL MAY HAVE ENSHRINED THE BONES OF COLUMBUS

Spain believes the ashes of the Great Discoverer were removed from Havana to Seville when Cuba was evacuated after the Spanish-American War, but the Dominicans assert that they still rest in Santo Domingo. In its ancient dignity Havana's Cathedral stands as a monument to the ability of its Jesuit architects. In the background is one of the two towers.



Photograph by F. S. Lincoln

AMERICAN GOVERNORS OF CUBA ONCE KNEW THIS PATIO

When Gen. Leonard Wood was Governor General of Cuba, from 1899-1902, during most of the three years of the first American occupation of the island, he lived in this building, once known as the Presidential Palace, now the City Hall. Completed in 1792, it once was the finest building in Havana, and it still contains beautiful decorations and wainscoting of Cuban woods.

Photograph by F. S. Lincoln

MEN OF CASA BLANCA KNOW THEIR FISH

In the early days of Spanish rule, this town across the bay from Havana was an outfitting port for fishermen. To-day it still supplies a goodly portion of the moro crabs, lobsters, cuttlefish, snappers, and other seafoods popular with Cubans.

For the thirsty there is the "pineapple refreshment," made of freshly crushed pineapple, sugar, and water. Some order it *colada*, which means strained; others like food and drink together, and order it *sin colar* (without straining), with the pieces of crushed pineapple in the glass, a real treat.

Another pleasant drink, and one which is even more distinctive, is called *refresco de mamonsillo*. It is made the same way, but from a strange, acid little fruit with a hard shell and a huge seed. This beverage is always served strained.

Should you happen to observe strange white loaves of something stuck across the top of a glass of milk, it is only a *panal*. This is made from egg white and sugar and may be eaten separately, but is generally immersed in the milk and allowed to dissolve.

Speaking of refreshments, it is conceivable that the old Cuban *barquillo* is the grandfather of the ice cream cone. For years the Cubans served a conical-shaped, cylindrical wafer, about five or six inches long and about as big around as your finger, sticking two of these, hornlike, into each dish of ice cream. To-day they wrap three of them in tissue and lay them by the plate of cream. Some enterprising visitor may have developed the idea of making them larger and closing one end to serve as a holder for a scoopful of cream.

WHITE GOLD AND BLACKSTRAP

To most people Cuba of course suggests sugar and tobacco. While these two commodities are the chief products, yet by no means unimportant are the mining districts, oil fields, asphalt deposits, and numerous other natural resources, including a delightful climate.

Sugar cane is grown throughout the island, but the Province of Camagüey leads in its production, with Oriente second. More than half of the total sugar crop is provided by these two easternmost provinces (see pages 370 and 371).

While tobacco also may be grown almost anywhere on the island, three-quarters of the total crop is grown in Pinar del Río Province, at the extreme western end of Cuba, with Habana and Santa Clara provinces supplying the remaining one-quarter.

Habana Province, although the smallest, is the richest and most industrial portion of the island. It has sugar mills, model dairy farms, grows tobacco, oranges, pineapples, and other fruits, and is rich in mineral resources. It is best known, however, for its cigar and cigarette factories. It supplies approximately half of Cuba's exports and consumes two-thirds of its total imports!

Like other countries, Cuba has undergone some painful economic and political experiences in the past few years, the old order depending perhaps too much on sugar values and tobacco for income, and importing most of the necessaries of life.*

THE UNITED STATES' INTEREST IN CUBA

To the statistically minded, the importance of Cuba and the United States to each other may be seen by examining the figures relating to Cuba's foreign commerce. They show the United States as the largest factor in this exchange, with the United Kingdom coming second. In 1932 the United States took $57,482,000 of the $80,672,000 total exports of the island, and for the same year the total imports into Cuba amounted to $51,024,000, the United States supplying $27,653,000 of that amount.

Compare those figures with the 1927 statistics, which show total imports of $257,384,000 and exports from Cuba of $322,705,000!

On the other hand, American investments in 1927 were calculated at one and a half billion dollars; by 1932 this figure was raised to $1,750,000,000. The bulk of these investments are in sugar properties, but large sums also are in real estate, railroads, public utilities, and Government bonds.

In view of the fact that the bulk of Cuba's foreign trade is with the United States and that the American monetary investments in the island are tremendous, whatever touches Cuba affects many Americans, and whatever happens in the United States affects Cuba.

We fought a war with Spain that cost many American lives and many millions of dollars, both at the time and in subsequent pensions to Spanish War veterans, in order to help Cuba gain her freedom and place her fairly upon the path of economic progress.

Years later an American tariff deeply affected the island.

* See "Cuba—the Sugar Mill of the Antilles," by William Joseph Showalter, in the NATIONAL GEOGRAPHIC MAGAZINE, July, 1920.

Photograph courtesy Cía. Nacional Cubana de Aviación

AROUND THIS MONUMENT CENTERS HAVANA'S ANNUAL "MAINE DAY"

To the twin columns of the memorial erected in 1925 in memory of the *Maine* and its victims (see illustration, opposite page) marches a parade on "Maine Day." The monument fronts the crescent-shaped boulevard formerly known as the Malecón, now the Avenida de Antonio Maceo. The new National Hotel is in the left background.

Photograph by American Photo Studios

TO THE SLOGAN OF "REMEMBER THE MAINE"! AMERICANS FOUGHT FOR "CUBA LIBRE"

The American battleship, blown up in Havana harbor on the night of February 15, 1898, lay rusting in the mud for more than a decade before the United States Government raised the barnacle-covered hulk, towed it out to sea, and resunk it with honors. This historic photograph shows the cofferdam in place and the wreck being exposed, with the water half pumped out. The mast is now a monument in Arlington National Cemetery to victims of the disaster.

Photograph by A. W. Cutler

A WALKING DEPARTMENT STORE

This type of peddler is less frequently seen in the larger cities. From him Cuban housewives can buy notions and dress goods at their doors.

The Cubans point out that the tariff threw United States doors wide open to importation of sugar from the Philippines, where only 40 per cent of the total investment in the sugar industry is capital from the United States, and closed them in the face of Cuba, where the capital invested is 84 per cent from the United States.

Cuba formerly imported practically all of her flour and eggs from the United States. Under the depressed sugar prices she embarked upon a program of development of local industries and diversification of manufactures to supply her own needs. In 1927 she imported $8,692,000 worth of wheat flour from the United States; in 1932 she purchased only $2,948,000. For the same years the value of fresh eggs purchased in the United States dropped from $2,666,000 to zero; canned vegetables fell from $403,000 to $45,000; lard from $10,841,000 to $1,208,000, and so on—all decreases more or less directly traceable to the fact that the price of sugar fell from 2.69 cents per pound in 1927 to as low as .57 of a cent in May of 1932!

An evidence of this change is observed in the growth of home manufactures. Shirts, underwear, shoes, straw hats, and linen suits are being made on a scale never before known. A large American manufacturer of shirts and underwear, sensing the change, has erected a factory in Cuba to meet the demand for home products.

The production of cotton and rayon socks and stockings has become an important industry, and local manufacturers are turning out rayon garments for women.

The dried beef industry, which plays a major part in the island's food supply, is growing, and canning factories have recently been established for tomatoes, pineapples, and other products. Two factories are engaged in making cans.

In spite of this growth in manufacture, the itinerant salesmen and peddlers still tramp the streets.

Should you need lace, thread, a needle, or some similar article, you merely hail the peddler of notions who walks along carrying his varied assortment concealed, suspended, tied and draped on his person, or in his portable showcase. At first glance you wonder what kind of conglomerate

ghost it is, the feet being the only visible human indication!

TRADESMEN HAVE DISTINCTIVE SIGNALS

The fruit man, the butcher, and the scissors grinder, as well as dozens of others, come to your door with their wares or services. If you live upstairs you simply lower a basket on a cord and call down what you want. The tradesmen's variety of cries, calls, and special noises in the way of bells, whistles, and triangles used to announce their approach—each has his own distinctive signal for his trade—is endless and quite melodious, if at a distance.

Mango wagons, like perambulating leafy glens, creak by slowly, the fruit gleaming red-dish-gold through the green foliage. In a plaintive cry the seller calls out "Ma-a-a-ngos," with a rising inflection shut off suddenly at the end, as though he had choked unexpectedly on one of the huge seeds of this delicious fruit.

Photograph by Roberto Machado

"WHAT IS THE PRICE OF SUGAR TO-DAY?"

A cigar peddler and a friend, carrying home a chicken, discuss business and politics on a street corner. To the right is the stand of a candy man.

THE EMERGENCE OF THE CHICKEN

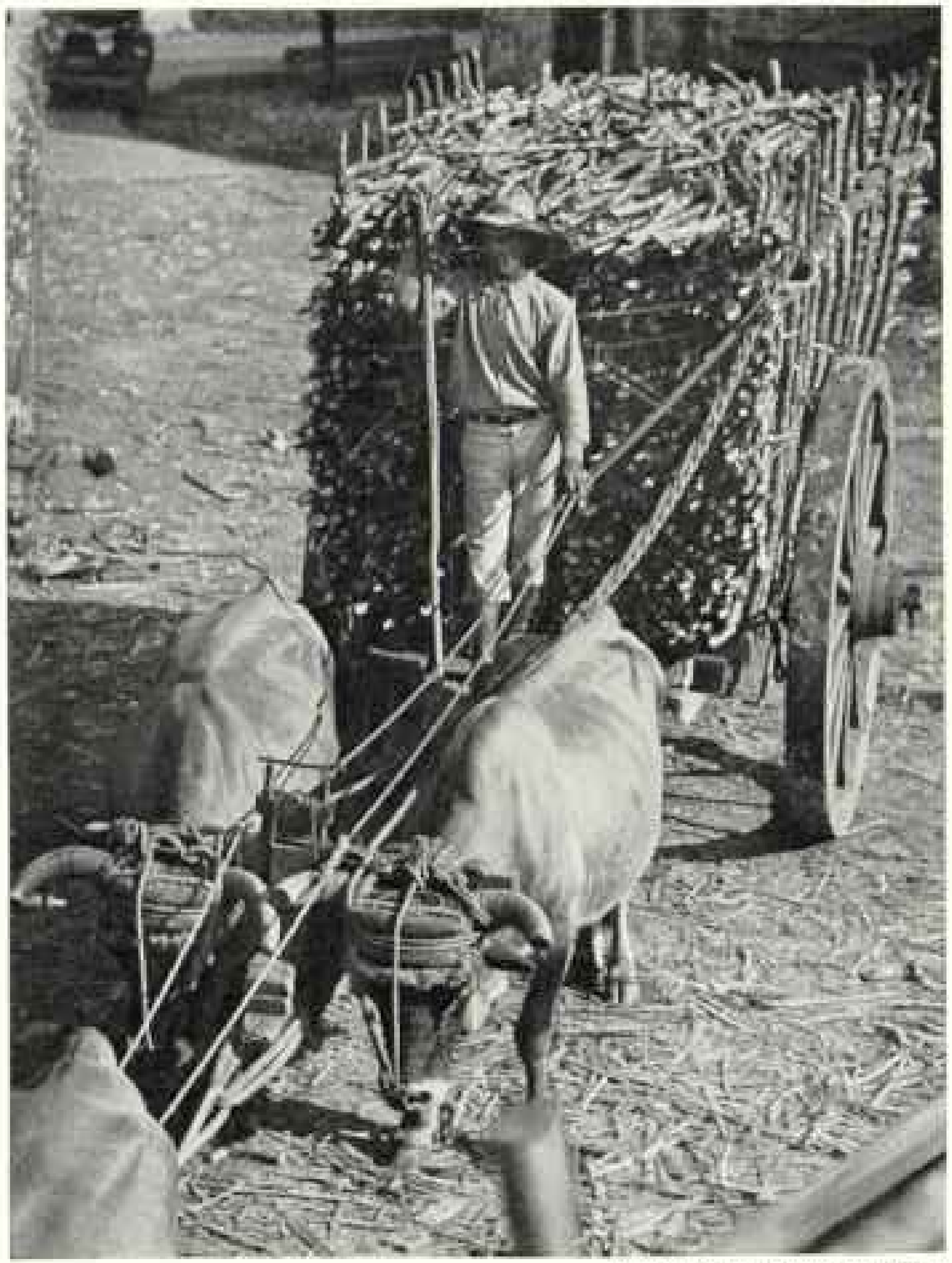
Some years ago the Cuban chicken—I am speaking from the diner's standpoint—was an awesome thing, both as to toughness and age. As for eggs, they were small and scarce.

Despite many pessimistic warnings that conditions were not suitable for raising high-grade poultry, a number of enthusiasts began to import varieties that had proved their worth in the United States, and by proper care and feeding achieved success.

Now, practically every farmer is raising hens and eggs for his own use and to trade for pork and other products at the nearest town.

Naturally, the use of chickens as a food has expanded, although Cuba has always been famous for its *arroz con pollo*, a dish of chicken and rice.

The trading of a few eggs for store foods is not limited to the country as a means of barter, for the same method of buying from day to day, or rather from meal to meal, has long held true in the cities. A housewife will buy in the most minute quantities—two cents' worth of rice or beans, a penny's worth of salt, or five cents' worth of stew beef. Many of the stores still give *contra*, a little gift of cookies, a piece of candy, or some such trifle.



Photograph by Roberto Machado

ON THE LONG SUGAR-BOWL TRAIL

After the cane is cut (see illustration, opposite page) it is hauled to the *central* or sugar mill, where it is converted into raw sugar. Sometimes as many as eight yoke of oxen are hitched to these heavy, lumbering vehicles.

Photograph by H. Armstrong Roberts

LOLLIPOPS—HAVANA STYLE

The points of the cone-shaped candles are slipped into holes in the carrier. Each piece is wrapped in paper and has a little stick to hold it by. The whole carrier is covered with a protecting net.

RAISING CANE FOR THE SUGAR MILL OF THE ANTILLES

The men are cutting and stripping the stalks. The second man from the right holds a machete, a large, heavy knife used for cutting cane, in one hand, and over his left shoulder is a stalk with the leaves stripped from it. Sugar has been Cuba's dominant crop for 150 years; sugar exports and their value determine the island's prosperity. The United States takes the bulk of the Cuban crop (see text, page 365).

Photograph by Enrique C. Canova

THE HALF-DOOR IS BOTH USEFUL AND ORNAMENTAL

It affords privacy, yet allows circulation of air. Mosaic tile flooring and walls are seen in many buildings and homes, for Cuba has one of the largest mosaic tile factories in the world. The modernistic paintings are the work of a young Cuban artist, whose home this is.

This is perhaps one of the reasons for the difference in denomination of Cuban coins, which are minted in 1-, 2-, and 5-cent pieces of nickel; 10, 20, 40 cents, and $1 in silver; and $5, $10, and $20 gold pieces. This Cuban coinage is comparatively recent; prior to its introduction, Spanish, French, and American money served, and even to-day American bills are used, since Cuba has no paper money of its own.

MANY MILES OF ROADS

Of the innumerable forms of life on the island, it is said there is not a single deadly animal, insect, or reptile to be found that is indigenous. The bite of many will cause pain and soreness or fever, but none is fatal.

During normal times one can pass weeks traveling around the picturesque island, for there are some good roads. The beautiful rolling country, dotted with quaint, palm-thatched huts, and the stately royal palms, like huge feather dusters, are never-ending sources of delight. The open fields are eye-filling scenes of green, splashed here and there with other colors.

To watch a sunset over one of these living pictures is a never-to-be-forgotten event, for the sky is a riot of brilliant, glowing colors, blending and merging in delicate nuances of elusive tints. Then darkness — suddenly, like a curtain dropped.

The new Central Highway now spans the island from Pinar del Río to Santiago, a total distance of 705 miles. It was built at a cost of $120,000,000 and is a fine piece of road. There are no railroad crossings, for all such points have been either over- or under-passed, nor are gasoline stations permitted to establish pumps at the roadside. They must be set back far enough so that any vehicle stopping for service will be off the highway and cause no obstruction to traffic (see illustration, page 378, and map, page 348).

In addition to the many miles of improved roadways shaded by rows of laurel, royal poincianas, and almond trees, there is a goodly network of railways, but here again, as in many other countries, bus competition is making itself felt. In proportion to its size, Cuba is one of the best-served

American republics as regards transportation. She was one of the first to build a railway, having placed in operation a line in 1837, more than a decade before Spain built her first railway!

Where I formerly traveled the island on horseback, or by the slow but comfortable *volanta*, an old-fashioned two-wheeled carriage, where roads permitted, to-day speeding planes, like roaring, winged dragons, will take passengers to Cuba, away from Cuba, or to different parts of the island in a fraction of the time that was formerly required.

Photograph by Enrique C. Canova

NOT AUTO PLATES, BUT LOTTERY TICKET NUMBERS

Sellers display cards with the numbers of the tickets on sale, so that if the buyer has a numerical preference, he may choose it without waste of time. This arcade along the site of the old market is literally a mass of numbers—a bookkeepers' nightmare! (See text, page 356.)

A COLUMBUS OF THE AIR

Cuba first became air-minded on January 29, 1911, when J. A. D. McCurdy made the flight from Key West to within ten miles of Havana. I shall never forget the thrill of standing for hours, a few days later, on the little balcony around the beacon on Morro Castle's towering light where a group of anxious newspaper men awaited his arrival from Camp Columbia, and cast worried looks at the shark-infested waters and menacing rocks far below.

What excitement and what cheering as the speck in the sky materialized into an airplane! It was one of those flimsy, early-day, pusher-type biplanes, with the pilot sitting out over space with nothing much between him and the earth's surface save the tiny straw seat and his trust in Providence. Three times he circled the light, then headed back to Camp Columbia.

From Key West he had flown 90 miles in two hours. Last June I flew in a luxurious Clipper ship from Miami to Havana, more than 200 miles, in two and a quarter hours.

And then, because I had no passport (which is not needed going to Cuba), I spent half an hour convincing a gray-haired customs official that I was an American citizen even though I happened to have a Spanish name, which among the older Florida families is not unusual, dating from the period when the Spanish flag waved over that vast area.

To-day there are 33 recognized landing fields, including seaplane bases, Camp Columbia being one of the foremost. Regular commercial schedules are maintained to all

Photograph by American Photo Studios

A FRUIT SALAD IN THE MAKING

Pineapples grow in protective spikes of thorny leaves that look like Spanish bayonet plants in martial array. The man is cutting one from its thick stem. At the right rear are banana trees.

parts of the island, the United States, and Central and South America, as well as to other islands of the West Indies.

A good way to see many parts of the cities or towns is to take a street car and stay on it until you come back to your starting point. By doing this on several different cars, you will see much that otherwise would be missed. This is an inexpensive way to sightsee, although it takes a little more time than exploring in an automobile.

Havana not only holds to the 5-cent fare, but in addition it gives you a sporting chance to win thousands of dollars. After you are seated, the conductor comes in and collects your fare. At the same time he issues a paper ticket, which you should keep to show an inspector should he happen to board the car and ask the passengers to show their tickets.

On this coupon is a number. Should that number correspond with the number that wins the Grand Prize in the national lottery the following Sunday, you win a whole lottery ticket for the drawing of the next following Sunday, with the consequent possibility of winning anything from a few dollars to several thousands!

HISSES AND HORNS RULE TRAFFIC

The Havana street cars are different from those in most large cities; they are short, in order to make the turns in the narrow streets, and they operate with a double trolley system.

You get on at the rear and off at the front, the conductor collecting the fare after you are seated. When you wish to get off, you hiss at the conductor and motion to the next corner, whereupon he signals the motorman to stop.

Photograph by Enrique C. Canova

IRON BARS DO NOT A PRISON MAKE

The court of an old Spanish house in Havana has iron bars for protection and ventilation. The little girl is riding a modern scooter over stone flags that are perhaps a century or more old.

This hissing is something of a national custom in Cuba. Whereas an American would call or whistle to attract attention, a Cuban will give vent to a hiss that reminds one of a steam boiler blowing off.

Busses and taxis dash up and down the narrow streets, most of which are one-way. Although there are traffic regulations, to watch the way cars are driven, one would not think so. The system seems to be to dash up to the corner, blow the horn, and if no one else blows his horn louder or is nearer the intersection than you are, then go ahead.

During rush hours there is a terrific din from hundreds of horns blowing at every corner. Accidents appear to be avoided only by inches, yet they seldom occur, and then amount, as a rule, to nothing more serious than a dented fender.

To direct this traffic, at the wider and more important intersections are policemen with the usual red, amber, and green semaphore lights, but at other points the traffic police clap their hands instead of using a whistle to control the flow!

READERS ENTERTAIN CIGAR MAKERS WITH NEWS AND NOVELS

No trip to Cuba is complete without a trip to a cigar factory. Although some of the larger ones have moved to the United States and import Cuban tobacco to be made into cigars, there are still many to be visited. It is claimed in Cuba that no matter how good the tobacco may be, the cigar must be made under the special climatic conditions of the island to insure finest flavor.

The point of greatest interest in these factories is the room where the cigars are rolled. Men and women perform the work

Photograph by Harold H. Horton

ACRES OF EMERYO ROPE AND BINDER TWINE

Cuba has started to grow henequen, or sisal fiber, though as yet its plantings of about 8,000 acres are an infant industry compared to the enormous production in Mexico.

Photograph by Capt. Albert W. Stevens

HOBSON AND THE "MERRIMAC" MADE HISTORY AT SANTIAGO DE CUBA

The white cross above Smith Cay (center foreground) marks the spot where, in June, 1898, Lieut. Richmond Pearson Hobson sank the collier *Merrimac* in Santiago harbor, in an unsuccessful attempt to bottle up Admiral Cervera's fleet. In Morro Castle, dominating the narrow harbor entrance from the point in the upper right, the Spaniards imprisoned Hobson after his capture.

THE CENTRAL HIGHWAY WINDS THROUGH THE HEART OF CUBA

Constructed at a cost of $120,000,000, the new road winds for some 705 miles from Pinar del Rio, in the west, to Santiago de Cuba in the east (see map, page 348). Graceful royal palms on a hillside frame a view of the road looking toward Bayamo. New highways like this make it possible to tour many parts of the island with few difficulties (see text, page 372).

Photograph by American Photo Studios

TOBACCO IS OFTEN GROWN UNDER CHEESECLOTH

The cloth protects the young leaves from insects and, to some extent, from too much sun. Tobacco so grown is generally used for cigar wrappers, and the coarser-textured leaves for filler. The plants are worked over and the young shoots removed, as are some of the leaves, so that those remaining will be larger and better. Cuban tobacco, especially in the form of Havana cigars, has a world-wide reputation.

deftly, and frequently without the aid of machinery. For cutting off the rough edges of the tobacco, or getting the leaves uniform, the nail of the little finger is used by the cigar makers. For this purpose it is allowed to grow very long.

The manufacture of cigars in this manner is a tedious, mechanical process. To break the monotony a reader is employed. He sits perched on a high platform and each morning starts off by reading the news in the daily paper to the workers. When he finishes the papers he reads some novel for the rest of the day, stopping at intervals to rest and to give the listeners a respite from his monotone.

Sooner or later every visitor goes to Morro Castle and La Cabaña Fortress, with their gray stone battlements pockmarked by age and bullets. Guides give full play to their imaginations as they recount thrilling stories of the happenings of bygone days, but much of what they say is true.

Principe Fortress, on a high hill back of the city, is now used as a jail. But it is interesting historically, and also affords a splendid view in all directions over the city and surrounding country.

STRANGE CONTRASTS IN HAVANA

Havana abounds in strange contrasts—modern, up-to-the-minute customs and old habits clung to through the ages. An observant visitor will note them if he wanders around quietly off the beaten tourist track.

The older houses have automobiles parked inside the front door. In days gone by, homes were built so that a carriage could be driven into the wide entrance hall and heavy, iron- or brass-studded doors swung to behind it, thus offering protection from man and the elements. So the present-day built-in garage really is nothing new!

The Cuban drug stores handle only drugs, and in Havana they must close at 6 o'clock. However, in each locality there is designated one drug store to remain open all night and on Sundays. As the stores take turns doing this, one can always obtain

necessary medicines, but there is no such thing as running down to the corner drug store for a soda or dish of ice cream!

Curfew still booms every night at 9 o'clock as a reminder of bygone times, for at this hour a cannon is fired that sends its crashing echo throughout the city.

Street numbers are a puzzle. The houses have been numbered several times in different eras and you frequently see a building with a group of numbers on it. In giving taxi directions, you often specify "number such and such, old style," or better still, tell what intersection it is near. Nor does there seem to be any definite sequence, for in some instances you will find, for example, No. 38 and then several blocks away will be No. 43, instead of their being a few doors apart!

In the evening the cafés are busy places. Many of them, continental style, spread out over the sidewalk. There the people sit, sip their drinks, smoke, talk, and watch the passers-by with thorough enjoyment. One practically never sees an intoxicated Cuban, despite the fact that they drink much wine and beer.

The poor people are the most patient and law-abiding I have ever known. I have sat at a sidewalk café table, surrounded by well-dressed, well-fed people, sipping a piña colada (see text, page 365), and listening to an orchestra of flashing-eyed beauties play and sing their native music with its strange, yearning rhythm.

Crowds shuffling by gradually piled up two or three deep to watch and listen. Thin, gaunt, and hungry looking, a woman and little girl stood on the edge of the group, straining forward with parted lips and wistful eyes as though to wring every iota of pleasure from the crumb of proximity, but smilingly moving along with the rest when a policeman walked by tapping his stick on the sidewalk to clear it.

The market would open the eyes of any woman, so far as prices go. Pineapples sell at 15 for 8 cents, the better grades being 10 cents a dozen. Hamburger steak, 5 cents a pound; lobsters, medium sized, 10 cents each; huge stone crabs, 20 cents each; soft-shelled crabs, 15 cents a dozen. One-quarter of a chicken costs 10 cents; limes are 10 cents for 100!

Bread comes by the yard, or in large rolls; nowadays sellers wrap it in tissue paper to protect it. Glass showcases display the rich candies, heavy with egg-yolk, and pastries of the Cuban's taste. The little egg and almond cakes are delicious, but very rich.

THE MATTER OF SIGNS

All this leads one naturally to the matter of signs. You will notice on many street corners the sign "No fijar carteles," which means "Post no bills," and is not, as many strangers think, the name of the street. Again, you will see the sign "Transito" with an arrow under it. This indicates a one-way street and the direction traffic should take.

"No autos" doesn't indicate any lack of cars, but simply means "No parking." In a café the sign on the wall which reads "Hay sandwiches," doesn't mean what it says in English, but means "There are (we have) sandwiches."

If you are studying a menu and see the word "cotel," that is not a special Cuban drink—it is "cocktail." Best of all, I think, is the good old "Cuban" dish of "aristú." Say this rapidly, and you will find it evolves into plain, everyday "Irish stew"—which is what it is!

Sometimes Cubans' attempts to use English words result in humorous twists. I was talking to a vender near the market early one morning. Spotting the camera in my hand, he remarked:

"Do you want to take my picture? Many of the big American papers have taken it. In fact, just a year ago one of the biggest papers in the United States sent a man down here and he took my picture. He sent me a copy of it, too," he added suggestively.

"What paper was it, do you remember?" I asked.

"Sure, it was *El Tiburón*," came the startling reply, for a *tiburón* is a shark!

I did some quick thinking, trying to associate *El Tiburón* with the name of a big American paper, then asked: "You mean the *Tribune*?"

"That's it!" he cried, delightedly, "*El Tiburón*"—and I left hurriedly, for I didn't want to hurt him by laughing.

While political turbulence occasionally manifests itself in Cuba, such as the outbreak in progress while this is written, the daily life of the masses quickly readjusts itself to conditions, and continues in the usual way.

NATIONAL GEOGRAPHIC SOCIETY

GEOGRAPHIC ADMINISTRATION BUILDINGS

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

ORGANIZED FOR "THE INCREASE AND DIFFUSION OF GEOGRAPHIC KNOWLEDGE"

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

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

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

AT an expense of over $50,000 The Society sent a notable series of expeditions into Peru to investigate the traces of the Inca race. Their discoveries form a large share of our knowledge of a civilization waning when Pizarro first set foot in Peru.

THE Society also had the honor of subscribing a substantial sum to the expedition of Admiral Peary, who discovered the North Pole, and contributed $35,000 to Admiral Byrd's Antarctic Expedition.

NOT long ago The Society granted $25,000, and in addition $75,000 was given by individual members to the Government when the congressional appropriation for the purpose was insufficient, and the finest of the giant sequoia trees of California were thereby saved for the American people.

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

TO further the study of solar radiation in relation to long range weather forecastings, The Society has appropriated $50,000 to enable the Smithsonian Institution to establish a station for six years on Mt. Brukkaros, in South West Africa.

Read here about this example of

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Why a silver case? That is a 1933 idea. Silver is a precious metal. This sterling silver is especially hardened for these cases by a new process, making them strong, durable and beautiful. It is less costly than gold. Many people now take pride in possessing less costly things—provided high quality, beauty, dignity and character are retained.

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Watches pictured. (Top of page) GRANT. 17 jewels. Special hardened sterling silver, $39.75. 10k filled yellow gold, $42.50. Raised gold figure dial, $2.50 extra. (Below, left) CARDIGAN. 17 jewels. 14k filled white or natural yellow gold. With silk cord and filled gold attachments, $55. (Right) GARDWOOD. 17 jewels. Ribbon model in 14k filled white or natural yellow gold, $55. Other Hamiltons for both men and women from $35 to $500.

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"Half the time, we didn't know the ship was moving, and we didn't have a single bad day.

"No, it didn't cost us so much. We gave up the apartment, put the furniture and car in storage, and didn't have any entertaining to do."

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If you, too, have dreamed that some time you will go 'round the world, why not make it now? *Get ship's plan,* itinerary, fare schedule . . . from any Canadian Pacific office: New York, Atlanta, Boston, Buffalo, Chicago, Cincinnati, Cleveland, Detroit, Los Angeles, Minneapolis, Philadelphia, Pittsburgh, Portland, San Francisco, Seattle, St. Louis, Washington, Montreal, London. *Or from your local travel agent*

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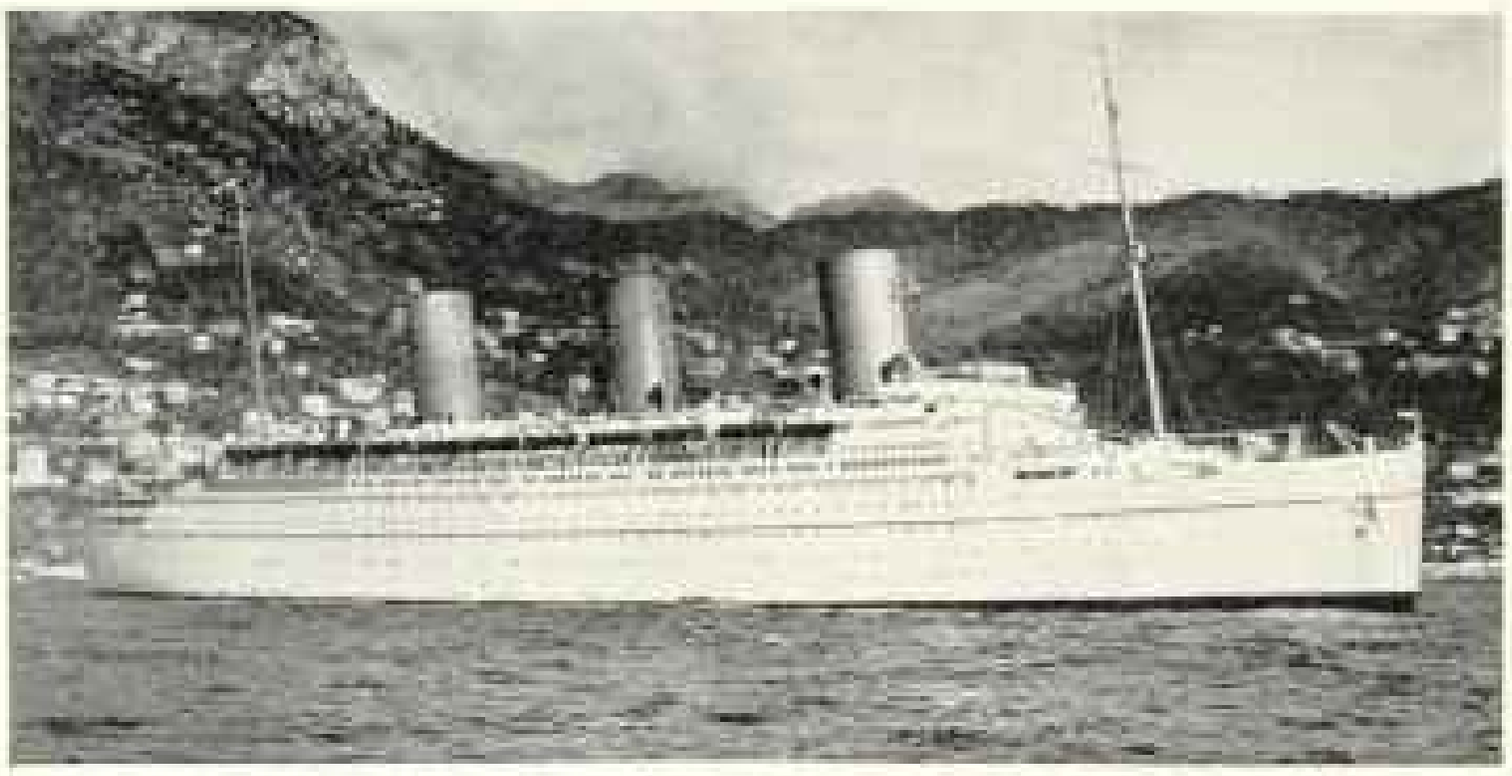

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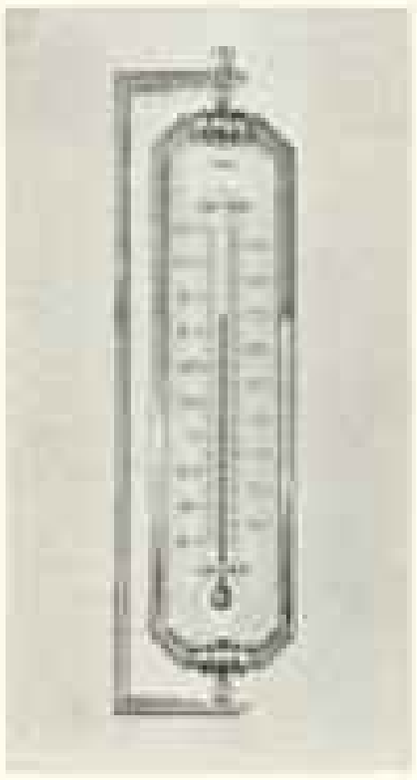

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"What caught my eye about Plymouth was its fine engineering."

"I tell my friends, 'It runs like a watch!' And that's the highest praise!"

"It's a piece of precision engineering"—says critical watchmaker

"I'M an engineer in a watch factory, where we measure through a magnifying glass. But I'll say this for Plymouth—there's no neater piece of precision manufacture anywhere. It runs like a watch!"

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Those things are *good engineering*. Of *course* they're details—when you compare them with Floating Power engine mountings—hydraulic brakes—safety-steel bodies.

But details count—and we'd like to have you see how much. Take our invitation to "look at all three," and see for yourself why Plymouth sales are growing so fast today.

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Your travel agent or any of our agents (New York, Chicago, Seattle, San Francisco, Los Angeles and other principal cities) will gladly tell you about our services: Between New York and California via Havana and the Panama Canal . . . to the Orient via Hawaii and the Sunshine Route or via the Short Route from Seattle . . . and Round the World. On any of these trips, you go as you please, stopover as you choose.

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The majority of cancers –in early stages– can be successfully and completely removed or destroyed by Surgery, X-rays or Radium

SPREAD the encouraging findings about cancer. Too many people can see only the dark side of cancer. There is a widespread and mistaken belief that cancer is incurable and that nothing can be done to stop its destructive progress. Such belief leads people, who have reason to suspect its presence, to delay having an examination—until it is too late.

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Jagged or broken teeth should be smoothed off or removed. Continued irritation of the tongue or any other part of the body is often the beginning of cancer. When any one of the first signs of cancer is discovered, there is no time to lose. If an early discovery is made, the probabilities are that surgery, X-rays, or radium can effect complete recovery.

Cancer is neither contagious nor hereditary, although the history of the disease shows that certain types of individuals and certain families are more susceptible to cancer than others.

Some forms of cancer are obscure and can be detected only by a physician who has had long experience with the disease, but many of the ordinary first symptoms would almost surely be discovered in a thorough periodic health examination.

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The Firestone Gum-Dipping Machine shown at the left saturates and coats *every fiber* within the *high stretch cords* with *pure liquid rubber*, adding eight pounds of pure rubber to every one hundred pounds of cord. This is an **EXTRA** process for safety and blowout protection *not used in any other tire*. It is one of the reasons why Firestone Gum-Dipped Tires hold all World Records on road and track for Safety, Speed, Mileage and Endurance.

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Snap back to normal

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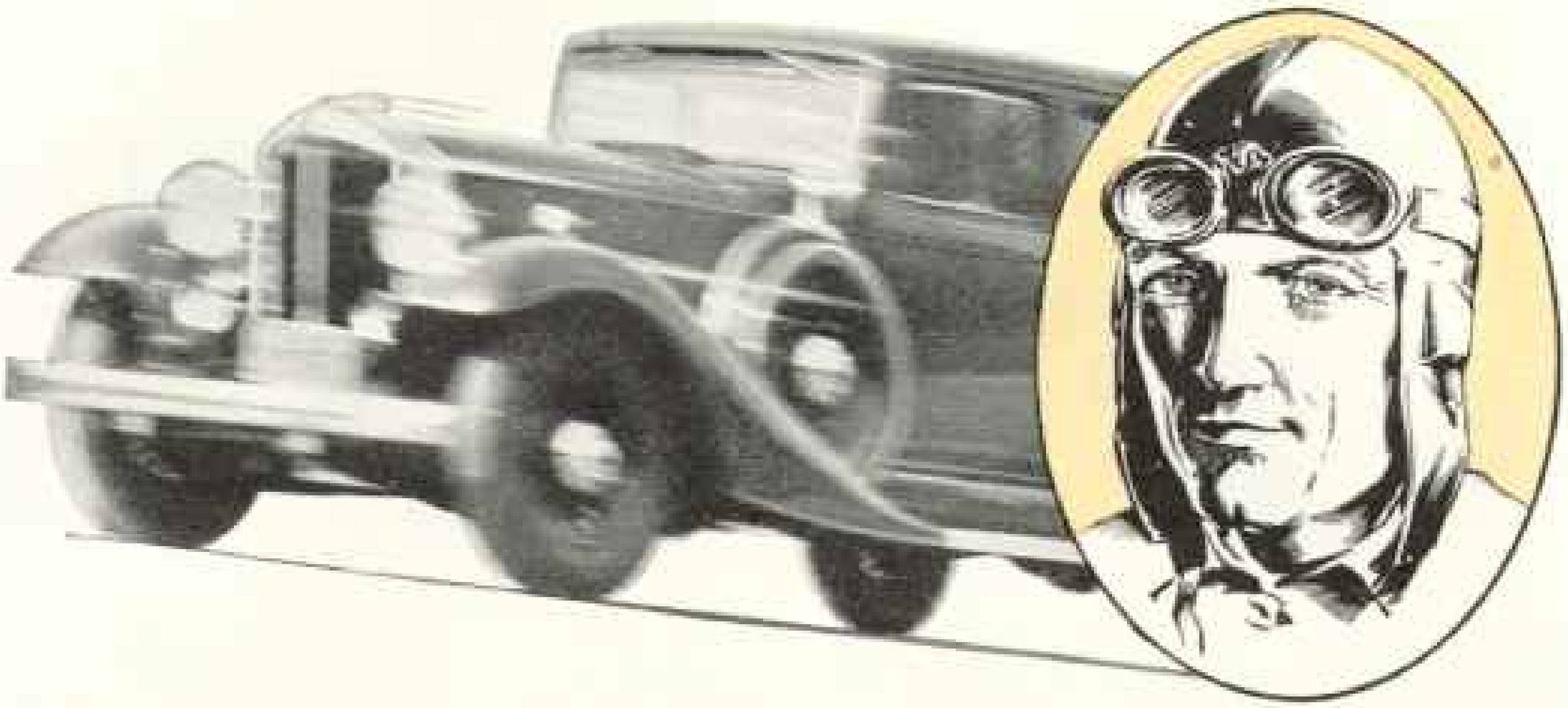

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In the truest sense, she is both friend and neighbor. Ties of kinship and association bind her to those whose voices come across the wires. Through her switchboard pass many messages that are important to the life and business of the community.

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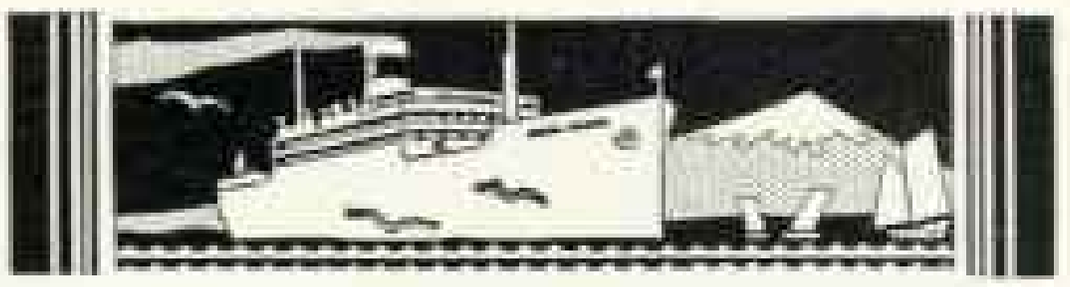

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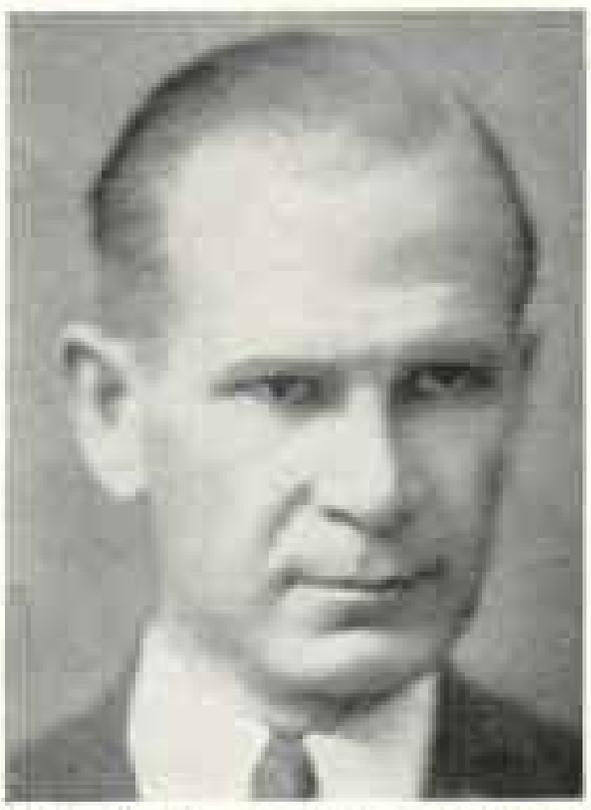

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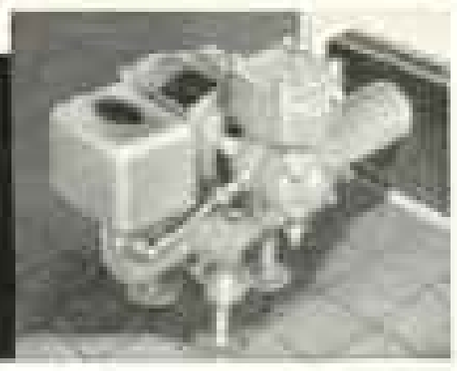

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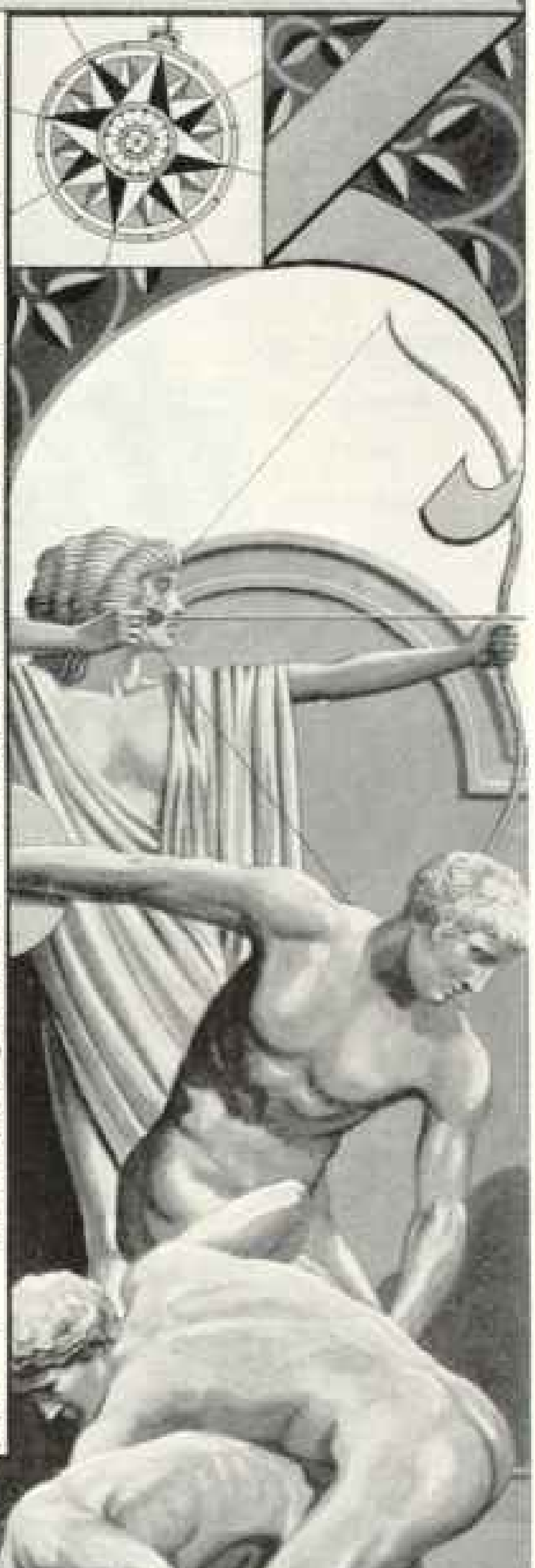

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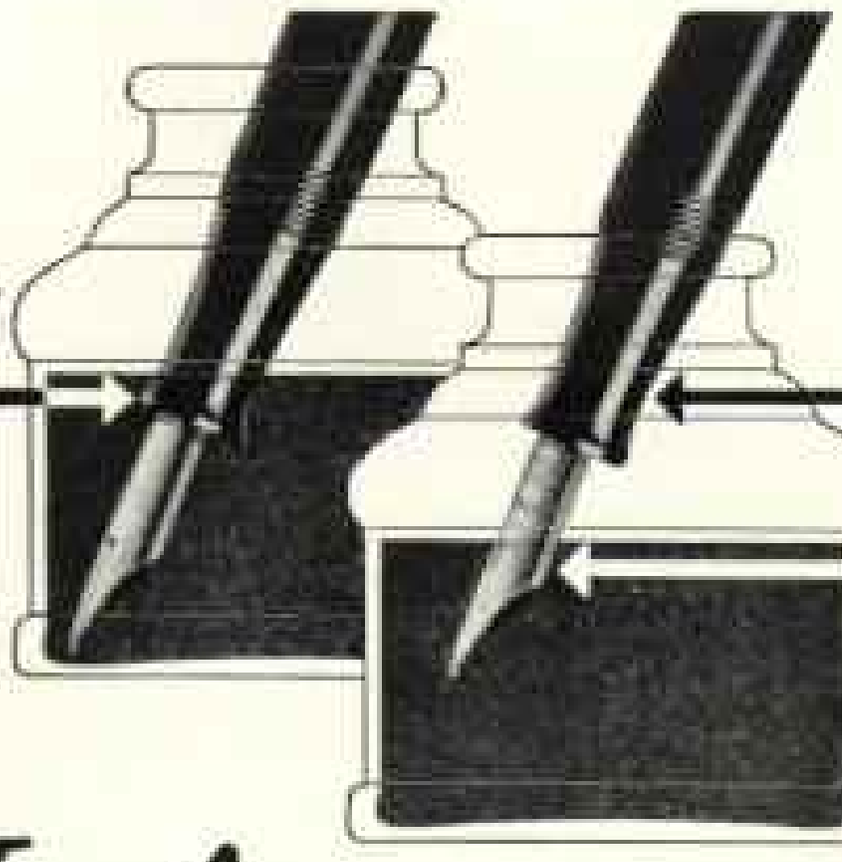

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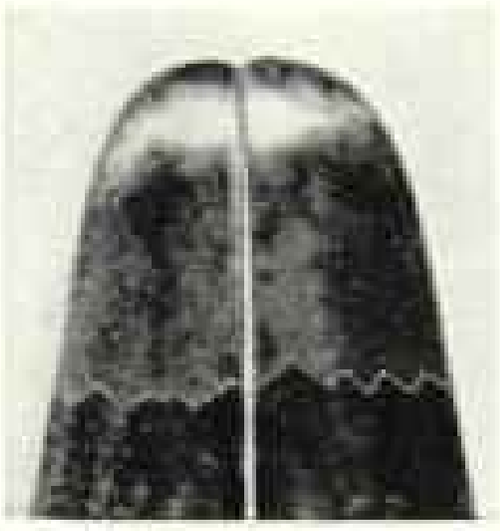

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