

Buy U. S. War Savings Bonds and Stamps

VOLUME LXXXIII

NUMBER FOUR

THE NATIONAL GEOGRAPHIC MAGAZINE

APRIL, 1943

Map of Northern and Southern Hemispheres

The Long River of New England

With 12 Illustrations and Map

ALBERT W. ATWOOD

Flow Onward, Connecticut

24 Natural Color Photographs

B. ANTHONY STEWART

Farmers Keep Them Eating

With 22 Illustrations

FREDERICK SIMPICH

Color Glows in the Guianas, French and Dutch

With 8 Illustrations and Map

NICOL SMITH

Surinam Subjects of Queen Wilhelmina

13 Natural Color Photographs

PHILIP HANSON HISS

Map of Northern and Southern Hemispheres

The British Commonwealth of Nations

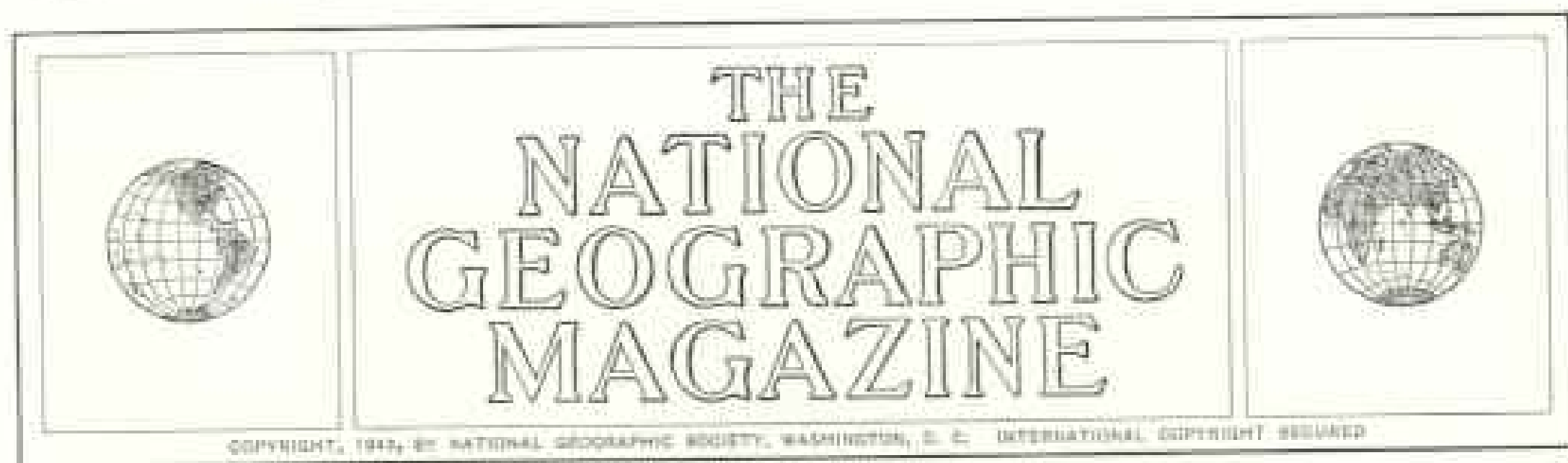
With 31 Illustrations

ERIC UNDERWOOD

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

\$4.00 A YEAR

50c THE COPY



The Long River of New England

In War and Peace, from Mountain Wilderness to the Sea, Flows the Connecticut River, Through a Valley Abounding in History, Scenery, Inventive Genius, and Industry

BY ALBERT W. ATWOOD

With Illustrations by Staff Photographer B. Anthony Stewart

OF NEW ENGLAND'S many rivers the Connecticut alone runs the full length of that rich and historic land. On the map it stands out like a giant blue artery in the very heart of its region.

Indians named it the "Long River," and today the far reaches of the Connecticut extend through a valley that is a cross section of northeastern America, so amazing is the variety of diversified human interests.

In its long southward journey from the border of Canadian Quebec to Long Island Sound, the river goes through a thousand changes in size, width, depth, surface, pace, mood, and surroundings (map, page 405).

For centuries the Connecticut has given life. True, it takes life away because from time to time, as far back as human records go, it has burst forth, in paroxysms of terrible rage, to destroy all that stood in its way.

But men soon forget. Besides, they cannot live without the river or its valley; it plays too many parts, it performs too many functions in the four States so much of which it dominates.

The settlement of the rich fields, or *intervalles* (page 407), of the Connecticut Valley in the 1630's by land-hungry and freedom-seeking groups from Massachusetts Bay was the beginning of the westward movement of English colonists in the New World.

For centuries bands of Indians worked their way up and down the river in canoes; later,

white settlers moved up in the same way. Then through the years came towns, industries, cities, highways, and railroads—all attracted to their location by the necessity of being near the river itself.

New Hampshire, Mother of Rivers

It is in a wild, rugged, heavily wooded and mountainous region in the extreme northern tip of New Hampshire, mother of several large and useful rivers, that the Connecticut takes its source.

Flowing nearly due south, between the ridges of the White and Green Mountains, with their narrow, steep valleys and rugged peaks, the highest in New England, it forms the boundary between New Hampshire and Vermont,* and crosses Massachusetts and Connecticut, in which States the valley broadens out into low, fertile, level bottom lands.

The Daniel Webster Highway, U S 3, the main north-south route through the central part of New Hampshire, is today the shortest road from Boston to Quebec. Stand beside the highway a few feet north of the international boundary and you will see before you in this French-Canadian province a peaceful panorama of long-settled rural countryside, whereas behind you, in northern New Hampshire, there is only wilderness.

* New Hampshire owns the river, the U. S. Supreme Court having decided, January 8, 1934, that New Hampshire's western boundary is the west bank of the river at low-water mark.



Relic of Horse-and-buggy Days, This Covered Bridge Serves a Single Homestead

At Pittsburg, New Hampshire, it is the first to cross the Connecticut, here only a lusty brook (opposite page). The question, "Why were such bridges covered?" arouses much controversy. To ward off snow, to provide a haven from storm, to prevent horses from shying: these are a few theories. Majority opinion is that the hoods were intended to prevent the weather from warping vital timbers.

On the left of the pass, well up on the mountain crest, a few hundred yards inside the United States, is a rough little tarn, or pool, reached by no trail and only with the aid of a guide. This is Fourth Connecticut Lake, where the river, mighty indeed in its lower reaches, has its very modest beginnings (page 406).

From there it flows into Third Connecticut Lake, a larger body of water, to Second Connecticut Lake and then to First Connecticut Lake, the largest of all. From here, still very tiny but exceedingly turbulent, it leaps joyously downward toward the sea.

First and Second were originally natural, like Third and Fourth, but have been dammed, first by a lumber company and then by the New England Power Association system. Also, until a few years ago the highway reached only to Second Lake: beyond were mere trails.

Off the main highway there are still only

trails, and guides are needed as much as ever; here is the back of beyond, utterly remote and solitary.

Aside from lumbermen, the area is visited by practically no one except fishermen and hunters, who find accommodations in a few camps on First and Second Lakes. Bear and deer are hunted.

A Sparsely Populated Pittsburg

This is one of the most sparsely populated areas east of the Rockies. Pittsburg Township is the largest in New Hampshire, but has only 820 inhabitants.

In Pittsburg hamlet one makes the acquaintance of Topsy, safe, with her many descendants, in a wire enclosure beside the road.

Her mother probably was killed by a hunter, and Topsy was found, less than a week old, weighing six pounds and half starved, by the local storekeeper in June, 1935. A highly



Two Cronies Test a Scale at the Birthplace of the Modern Weighing Machine

Fairbanks-Morse employees for half a century, they check a new balance with a weight passed by the National Bureau of Standards. Here at St. Johnsbury, Vermont, Thaddeus Fairbanks invented the platform scale in 1830 (page 403).

trained deer, with many agreeable tricks, Topsy has appeared at numerous fairs and sportsmen's shows.

South of Pittsburg, on a side road, is the first wooden covered bridge that crosses the Connecticut, still a diminutive but brawling brook. This bridge serves only a single farmstead (opposite page).

The floods of 1936 and 1938 destroyed many of the picturesque old covered bridges in New Hampshire, Vermont, and Massachusetts, one county in Massachusetts alone losing ten such bridges. Fortunately, however, many remain intact.

The White Mountains, highest and most impressive group in the northeastern United States, soon loom up on the left. One-third of the whole State of New Hampshire has an elevation of two thousand feet.

For many years after the Revolution the Connecticut Lakes region was claimed by both Canada and the United States. On July 9,

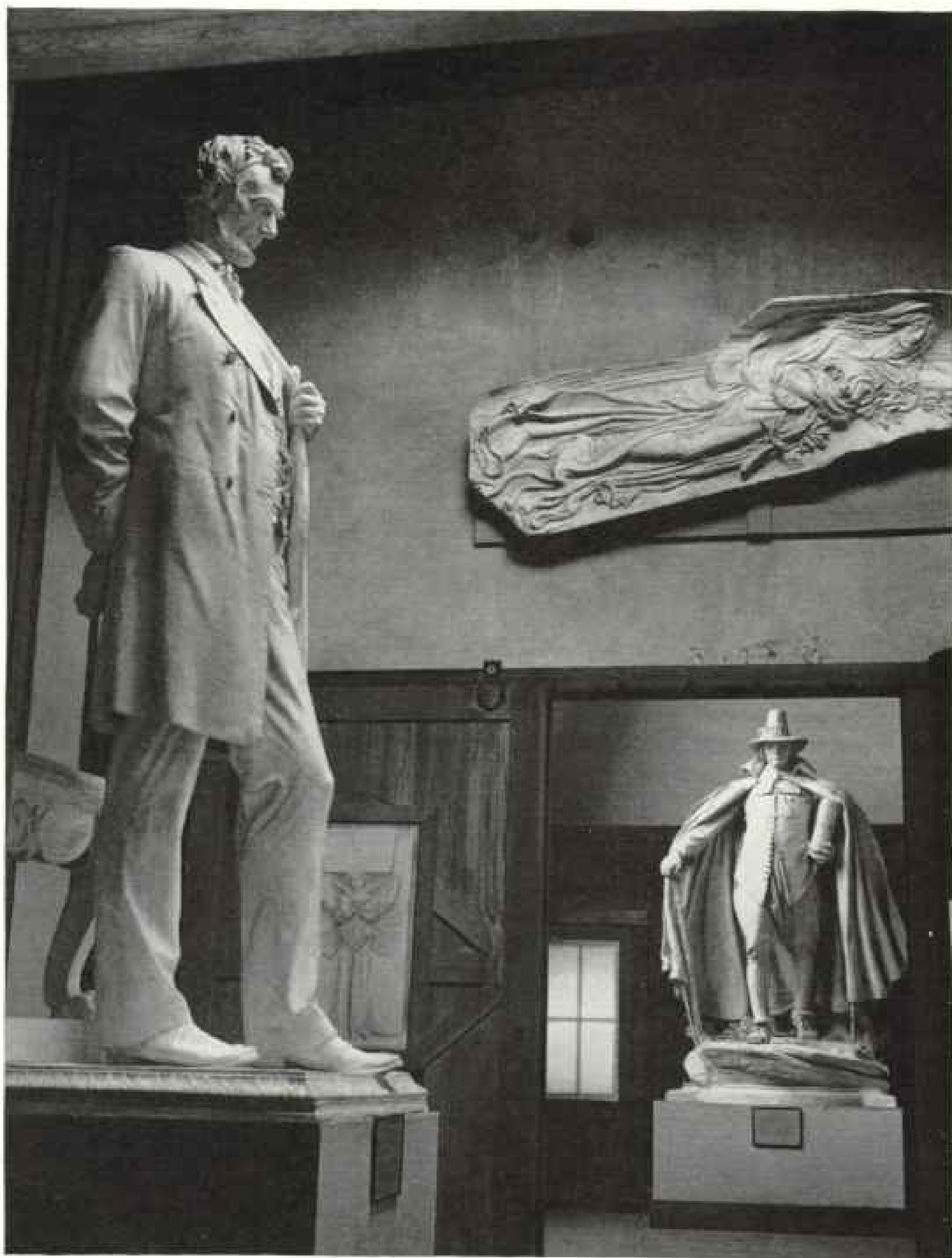
1832, the local settlers formed their own government, "The United Inhabitants of Indian Stream Republic," with constitution, council, assembly, courts, and army.

This tiny republic lasted for three years, and then the New Hampshire militia took over the territory. But Indian Stream is still there, crossing the main highway.

In early days one of New England's important industries was the driving of logs from the forests in upper New Hampshire and Vermont down the river as far as Holyoke and Hartford. But the railroad and motor truck changed all that.

This historic custom has been resumed, however, on a few short stretches of the river. But the visitor will be more impressed by the vast quantities of logs stored at places in the river or its tributaries, especially at Groveton.

Essex County, most northeasterly in Vermont, is as wild and primeval as Coos County,



"Plenty of Lincoln-shaped Men up Here" Brought This Studio to New Hampshire

The quoted remark, made by a friend, enticed sculptor Augustus Saint-Gaudens to establish his summer home in Cornish. Now the studios serve as his memorial, where replicas of his famous works are displayed. Prominent are the Puritan (Plate VI) and the Standing Lincoln, Chicago, Illinois. Above is a figure from the Shaw Memorial of Boston, Massachusetts. The original of Amor Caritas, decorating the sliding door, is in the Luxembourg Museum, Paris, France (page 408).



**From Canada to Sea,
Connecticut River
Drains Four States:**

After separating Vermont from New Hampshire, the stream slices through Massachusetts and Connecticut. Fourth Connecticut Lake is its headwater; Old Lyme and Saybrook guard the mouth. Northern wilderness lures sportsmen; the south surges with industry. Navigation begins at Hartford. The Dutch discovered the river; English-speaking people settled it. Colonial armies and Indian raiders tramped its shores.

New Hampshire, which embraces the Connecticut Lakes. But the wilderness is behind when Lancaster, county seat of Coos, is reached.

We timed our visit for the annual county fair, and marveled that the forests and mountains of this north country could produce so many thousands of sturdy farmers, farmers' wives and children, self-reliant and intelligent.

Whitefield, a few miles beyond, has superb mountain views, but strikes a still different note with its smart resort hotels and the Chase Barn Playhouse. The owner, a former New York City music critic, has filled his barn with a startling variety of theatrical equipment, including one hundred red-plush seats from the Metropolitan Opera House.

The Maple-sugar Capital

A few miles above where the Passumpsic enters the Connecticut, St. Johnsbury, principal town in northeastern Vermont, neatly bestrides three stream valleys and their intervening hills. Only town of its name in the United States, St. Johnsbury is the maple-sugar capital of the Nation (Plates V, XIII).

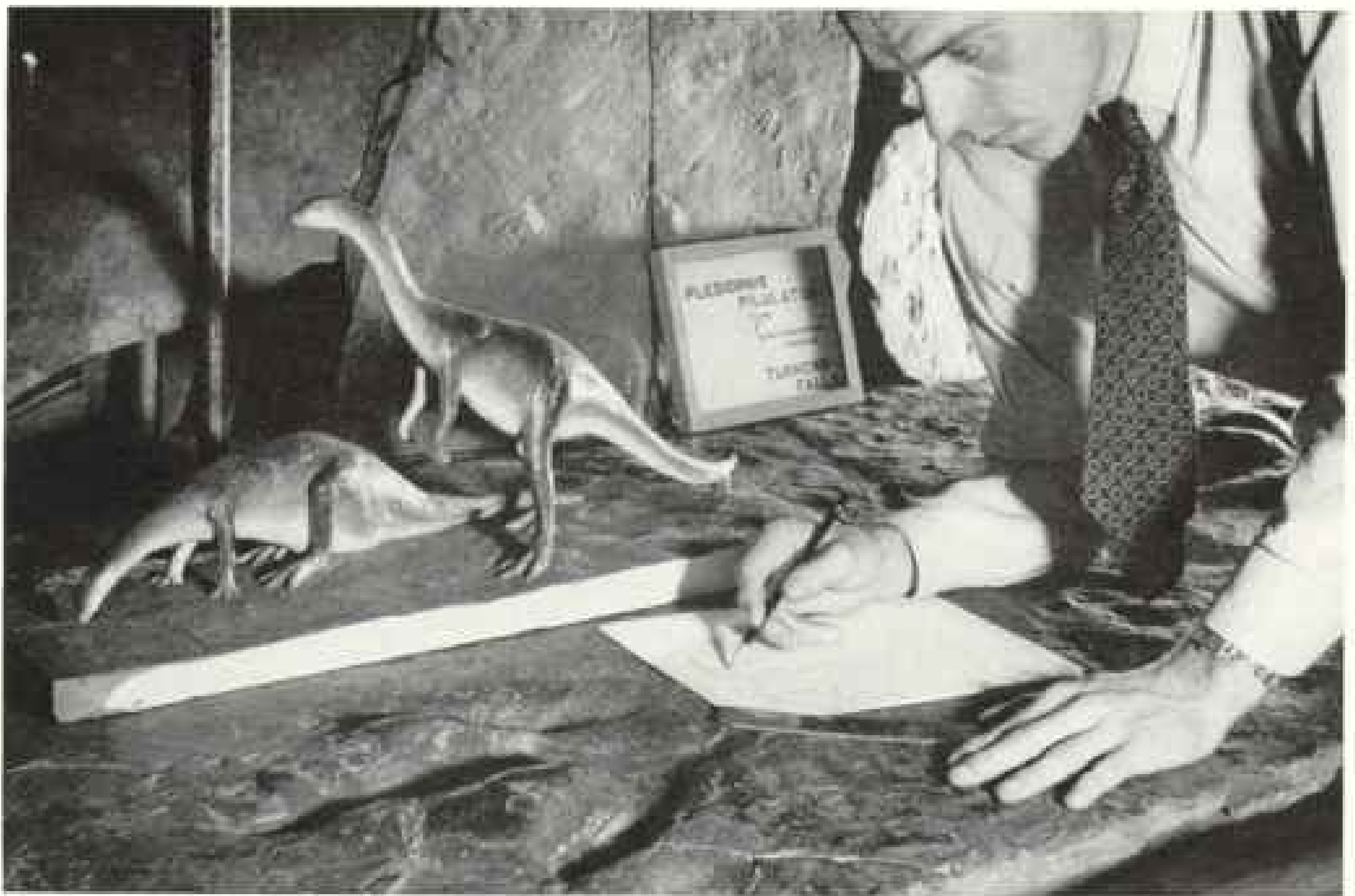
Also, because of the invention there in 1830 of the platform scale by Thaddeus Fairbanks, the little town has exerted an influence upon human welfare out of proportion to its size.

The balance was used in Egypt and the unwieldy steelyard came from Rome of the Caesars. But the young St. Johnsbury inventor decided he must have a better method of weighing wagonloads of hemp, and thus introduced the commercial manufacture of weighing machines.

Fairbanks scales are still being made in St. Johnsbury, partly in buildings used for that purpose for more than a century.



Fourth Connecticut Lake, Tiny Source of a Mighty River, Is Formed by a Beaver Dam. "Long Tom" Currier, a guide (Plate VIII), examines a stick left by the dam's "engineers." A quarter-mile beyond this mountainside pool rises the watershed dividing the United States and Canada (page 403).



When Dinosaurs Roamed the Valley, One Left This Three-toed Footprint

Beside the Amherst College student stand models of the type which made the track in mud. Other fossils carry the imprint of ancient raindrops. One exhibit traces the evolution of the horse from four-toed, 12-inch Eohippus (page 422).

Thaddeus, who continued to invent until the age of ninety, together with his two brothers founded and long supported St. Johnsbury Academy, which accomplished its centennial in 1942, to be celebrated in June, 1943. A grandson of one of the three brothers is president of its board of trustees. At this school Calvin Coolidge prepared for college.

Maple sugar, I had always thoughtlessly supposed, somehow found its way directly from the farm to the breakfast-table pancake. True, maple trees are tapped for sap on thousands of farms in Vermont, New York, Ohio, and Canada. But the actual manufacture and distribution of maple products is done largely by the Cary Maple Sugar Co., of St. Johnsbury.

Back in the eighties, George C. Cary, a young salesman for a Portland, Maine, wholesale house, had to take 1,500 pounds of maple sugar in payment for a sale of groceries. Fortunately, he was able to resell it to a tobacco manufacturer for sweetening, and thus began the use of maple sugar in plug tobacco, smoking tobacco, and cigarettes. Other important commercial uses are for confectionery, blended syrups, and ice cream.

The problem now is to find young people to stay on the Vermont farms to tap the trees. The hurricane of 1938* destroyed a considerable number of all maples.

A few miles below St. Johnsbury on the main river is F. D. Comerford Dam at Fifteen Mile Falls, the largest hydroelectric development in New England. Such power as New Hampshire and Vermont fail to use is carried over a long transmission line to Boston.

Much Remains of Unspoiled Beauty

We have left the wilderness country pretty well behind by now, but the whole length of the Connecticut River retains a remarkable degree of unspoiled beauty, despite the development of cities, railroads, industries, and hot-dog stands.

Cities cover a relatively small area, except for Holyoke-Chicopee-Springfield, and almost everywhere the distance east or west from any large community to the unspoiled hills is very short.

In this New Hampshire-Vermont reach, especially, the sides of the valley rise or spread away in a series of great intervals, or terraces, noted for their geologic perfection of form and beauty. Among the many examples are those in Newbury, Bradford, and Westminster, Vermont; Haverhill, Orford, and Hanover, New Hampshire; and Northfield, Massachusetts.

Another characteristic of the river is the

way it meanders, in great sweeping, now almost tortuous, but always majestic bends or curves. At times the bend takes the form of a gigantic S or U, the latter known as an oxbow (Plate I).

The terraces are put to different uses: the lowest to industry or dairy cattle or intensive agriculture; the next to business, where there are any towns or cities, and the higher still to residence.

In Orford, New Hampshire, an imposing distance back of the tree-shaded mall is another and higher natural terrace of the prehistoric river bed, known as the "Ridge," on which stands a row of capacious and stately white mansions, bespeaking the quiet elegance of an earlier day.

Among early American students of steam navigation is Samuel Morey. He launched a steamboat at Orford, in 1793, at Sunday morning "meeting" time to avoid jeers from the crowd in case of failure, 14 years before Fulton's *Clermont* made its first trip. Morey also invented one of the first steam engines.

Dartmouth Born in a Log Hut

South of Orford, on a terrace high above the pine-bordered, swift-flowing river, is Hanover, seat of Dartmouth College. One of the oldest, largest, and most prominent of distinctively men's colleges, it grew from a single log hut of the Reverend Eleazar Wheelock's charity Indian school (Plate XI).

Hanover is Dartmouth and Dartmouth is Hanover. Town common and college campus, deep and elm-shaded, are one and the same. The business section is confined to a small area on South Main Street, leaving the rest of the village to spacious college grounds, dignified college buildings, and homes.

Despite the presence of a thousand naval officers taking an indoctrination course, Hanover was, at my last visit, still a world of its own.

The college operates under the State of New Hampshire's recognition of a charter granted in 1769 by George III. In 1816 the State Legislature tried to change the name to "Dartmouth University" and to remove the trustees. Dartmouth's famous alumnus, Daniel Webster, carried the case to the U. S. Supreme Court and won a decision of historic significance because of its effect in guaranteeing the inviolability of contracts and charters.

On the east side of the common is Old Dartmouth, reproduction of the original building erected in 1784 and destroyed by fire in 1904.

* See "Geography of a Hurricane," by F. Barrows Colton, NATIONAL GEOGRAPHIC MAGAZINE, April, 1939.

On the north side of the green, at the heart of the campus, is the impressive, relatively new Baker Memorial Library, where one thousand men can study comfortably at the same time. Its tower, illuminated at night, rises so high that it seems to stand for learning throughout the upper Connecticut Valley.

Covering the walls of the great basement study hall are the vivid and startling murals of José Clemente Orozco, Mexican artist. They were painted in 1932-34 to symbolize the story of civilization on the American Continent, and are viewed annually by thousands of visitors. When completed, the composition was the largest fresco project in the United States, covering three thousand square feet of wall space (Plate XII).

Although Dartmouth is essentially an undergraduate college, it has three graduate schools, including the fourth oldest medical school in the country.

Research for Better Vision

Connected with the medical school is the Dartmouth Eye Institute, an outstanding research and clinical center. Among other things, it has devised tests to indicate whether the patient sees things where they really are, as people often have an inaccurate idea of the position, size, or contour of an object.

The research work of the Institute deals chiefly with that part of the visual process which takes place between the retina and the brain. More than 8,000 persons have been examined in a single year. Research is carried on in the historic old Rufus Choate House, and to the layman the apparatus for diagnosing these defects is the ultimate in ingenuity and weirdness.*

Nearly 20 miles south of Hanover is a scattered settlement on wooded hills known as the "Cornish Colony," made up of artists and other celebrities. Nearly all of these fine estates face on Ascutney Mountain, across the river in Vermont, a graceful isolated peak that towers conspicuously over the scene.

In the first decade of the 20th century the colony, one of the most noted of its kind, centered around the personality of Augustus Saint-Gaudens, the sculptor (Plate VI and page 404). His home, studios, garden, and lands are open to the public in the form of the Saint-Gaudens Memorial. The two studios contain reproductions in marble, bronze, and plaster of practically all his famous works.

During the summers of 1914 and 1915 the former Harlakenden House, burned in 1923,

* See "Glass 'Goes to Town,'" by J. R. Hildebrand, NATIONAL GEOGRAPHIC MAGAZINE, January, 1943.

where the American Winston Churchill wrote many of his historical novels, was occupied by President Wilson.

Near Mr. Churchill's present home and on a peaceful, lofty hilltop is that of Maxfield Parrish, mural painter and illustrator. We found him waiting for us in the doorway, not of his studio but of his well-equipped machine shop, through which we had to go to reach the studio.

Mechanics are Mr. Parrish's joy and relaxation, and even in his work he carefully follows the scientific methods of the engineer in laying out the most fanciful of his creations. Another example of his methodical procedure is that he cuts up the NATIONAL GEOGRAPHIC MAGAZINE to file away the illustrations for future reference.

Windsor, Cradle of Machine-tool Industry

To cross the river from Cornish to Windsor, the birthplace of Vermont, one must pay a small toll on the longest covered bridge in New Hampshire or Vermont. A bridge was built on this site in 1796, and the present structure has stood since 1866, despite destructive floods. It is recorded that 14,084 sheep and 2,208 cattle crossed in 1838.

Windsor is an orderly-appearing little place whose historic importance is often overlooked. Until the Revolution, what is now Vermont was known as the New Hampshire Grants, although claimed by New York.

Seventy-odd delegates met July 2-8, 1777, in what is now known as the Old Constitution House, still standing on North Main Street, and, after asserting Vermont's independence, framed and adopted an epoch-making constitution.

Vermont was the first State to provide for full manhood suffrage which was not dependent upon property, owned or rented, or a specified income. Vermont's constitution also was among the first to prohibit slavery in express terms.

To no little extent, the American machine-tool industry, vital to modern civilization as well as production for war, had its start in remote and secluded Windsor.

As early as 1828 Asabel Hubbard invented and began the manufacture in Windsor of a hydraulic pump, obtaining iron ore at Tyson, five miles from Plymouth, where Calvin Coolidge was born. Hubbard and his long train of Windsor inventor-successors of the National Hydraulic Company devoted most of their energies to improving the rifle and to making machinery for manufacturing rifles.

Pioneer conditions made firearms a household necessity, just as the automobile has been

Flow Onward, Connecticut!



© National Geographic Society

Colorframes by H. Anthony Stewart

Beside the Venerable Connecticut, a New Generation Gathers Goldenrod

Here the river passes East Thetford, Vermont—one stretch of its 400-odd miles of rapids, oxbow turns, and tidewater. From wilderness to lovely village, to smoking city, it nourishes a cross section of New England. Indians canoed it; early settlers made it their road. Flood and hurricane have not dismayed it.



By Husking Corn, Smith College Girls Do Their Bit and Put Roses in Their Cheeks
Slacks and dungarees may be seen even on the campus in Northampton, Massachusetts, where farmers call for the girls with trucks. Some pick apples, others plant onions. They are part of the land corps of World War II.

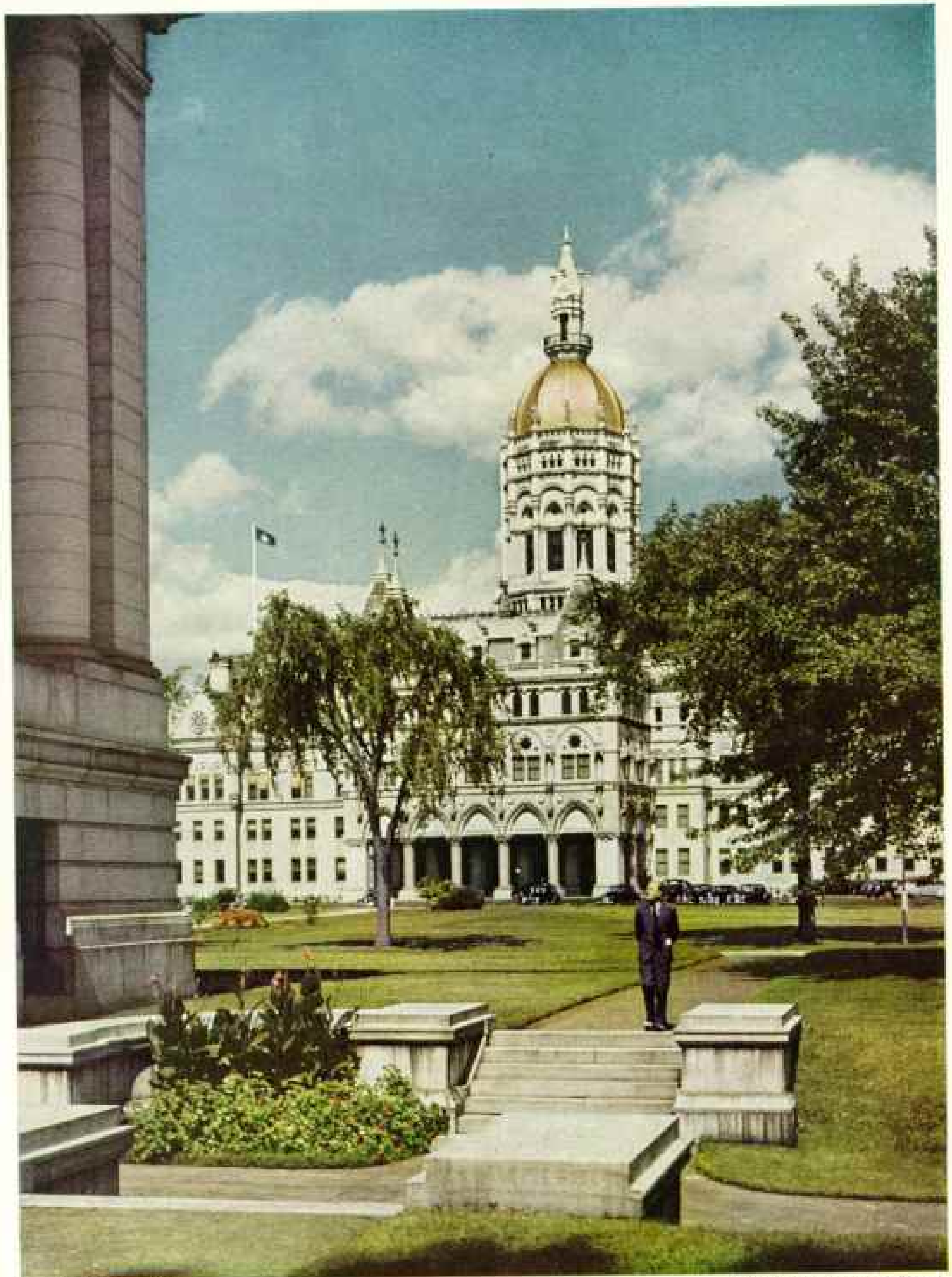


© National Geographic Society

Rephotograph by B. Arthur Stewart

Dear to the Memory of Grown-up Children, an Old-fashioned Candy Shop Survives
To Wiggins Country Store in Northampton come Smith girls to buy licorice and jawbreakers, wintergreen, peppermint, lime, and clove sticks untouched by chocolate dip.

Flow Onward, Connecticut!



© National Geographic Society

Kodachrome by B. Anthony Hittner

Golden Dome of 12 Sides Towers above Connecticut's Turreted Capitol in Hartford

Five stories of marble and granite contain Senate, House, Governor's offices, and relics of the Charter Oak. The gilded tower represents an old Hartford industry, gold beating. "Genius of Connecticut," a winged figure created to surmount the cupola, is missing. The hurricane of 1938 blew it down.



© National Geographic Society

Morgan Mares and Foals Are Judged in Vermont, Where That Sturdy All-purpose Breed Originated a Century and a Half Ago.

Upwey Farms, in South Woodstock, is host to the Green Mountain Horse Association. Morgans in the tent await judging after a 100-mile, three-day test under saddle. All Morgans sprang from a single sire, the celebrated Justin Morgan. Hilly Vermont finds the tractor no substitute for them.

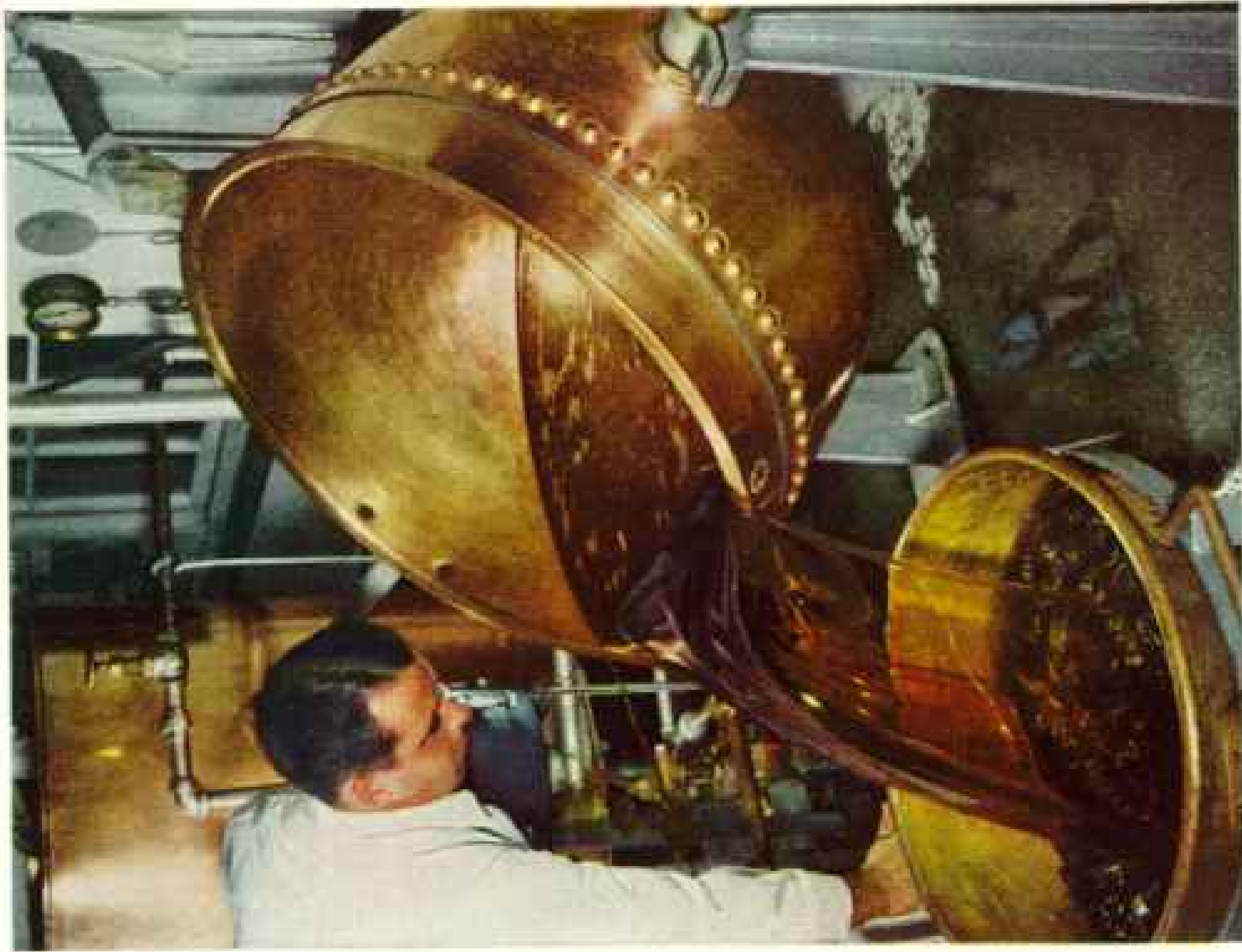
Enthusiasm by Dr. Anthony Blount



© National Geographic Society

Tobacco Farmer Inspects Golden Harvest of Russet and Green

His barn is lined with panels he turns to let in air. He lives in Suffield, Connecticut, a rich tobacco region even in Indian times. The leaf, used for wrapping cigars, enjoys a price rise now that Japan controls Sumatra's crop.



Kollman by H. Atthemp Stewart

Nectar from Vermont Maples Cascades from Copper Kettle

St. Johnsbury, maple-sugar capital, markets millions of pounds annually. Much goes to the tobacco industry for flavoring. When spring sap runs, thousands of buckets hanging from tree taps summon visions of pancakes.



© National Geographic Society

Photograph by R. Anthony Stewart

Grim Bronze Puritan Glares Past Two Moderns at His Feet

Imagine the starched and prim maidens of his day wearing sheer stockings and sweaters! He is Deacon Samuel Chapin, one of the founders of Springfield, Massachusetts, where he stands in Merrick Park. The late Augustus Saint-Gaudens created him to personify relentless piety and stern rectitude.

Flow Onward, Connecticut!



For Women Only, This Club Provides Lunch-hour Fun at Insurance Headquarters

At Hartford, home office of more than twoscore insurance firms, the Travelers company maintains these quarters for employees. Beneath the flag and Currier & Ives prints, girls read magazines and play double solitaire.



© National Geographic Society

Endorsement by B. Anthony Stewart

Smith Hockey Teams' Red, Blue, Yellow, and Green Identify Four Class Years

Nine smiling students, screened by a goal net, are representatives of one of the college's most popular sports. Although they do not play ice hockey, they freeze the field in winter and skate.



In 1773, Nathan Hale, Patriot and Spy, Taught in This Little Red School

Three years later, as he was being executed, he spoke these famous words from the gallows: "I only regret that I have but one life to lose for my country." The school overlooks the river at East Haddam, Connecticut.



© National Geographic Society

Illustration by B. Anthony Stewart

At Camp in the New Hampshire Wilderness, a Guide Displays a Landlocked Salmon
Deer head, lake trout, and bobcat skin adorn "Long Tom" Currier's cabin on First Connecticut Lake, near the river's headwaters. This solitary region was part of the tiny Indian Stream Republic of 1837.

in this century. One marked improvement came in 1835 when Hubbard's future son-in-law, Nicanor Kendall, designed an underhammer rifle after he had tried to shoot a squirrel while riding in a sleigh, with the result of wounding himself and sending a bullet through the bonnet of his bride-to-be.

Later, Richard Smith Lawrence and Frederick Webster Howe built an amazing variety of machine tools to manufacture rifles for the Mexican and Crimean Wars. Also there went forth from the Windsor group of mechanic-inventor-manufacturers men who helped to develop the Winchester rifle, Smith & Wesson revolver, and other major New England products.

Windsor still has factories, but its historic National Hydraulic Company long since gave way, like a good ancestor, to offshoots famous in the world of machinery.

The most direct of these is the Jones & Lamson Machine Company in Springfield, Vermont, 13 miles south of Windsor, on the Black River, a few miles from the Connecticut.

Remote from its sources of raw materials or markets, and not even on a main-line railroad, this little Vermont town is still one of the country's leading machine-tool centers.

It has the advantage of quality in its skilled workmen, many of whom own their farms and are native to the soil. I was told that three generations from one family were working in the plant at the time of my visit. A four-generation group had worked there a year before.

A single resident of Springfield, the late James Hartness, onetime Governor of Vermont, distinguished amateur astronomer, and long president of Jones & Lamson, took out 119 patents, usually at the rate of from two to ten a year. He set up in business for themselves ambitious young mechanic-inventors from his own shop.

Although navigation has long since disappeared from the upper and middle reaches of the Connecticut River, it was a major highway of commerce in early days, despite many rapids and shallows. The Indians had long used canoes from Barnet, Vermont, to Long Island Sound, and the early traders and settlers had no other thoroughfare.

William Pynchon, founder of Springfield, Massachusetts (page 423), and his son John shipped thousands of beaver skins and much corn, wheat, and pickled meat down the river to England. Nearly all the 100,000 settlers who entered New Hampshire and Vermont from 1760 to 1790 ascended the river by canoes or flatboats.

As early as 1792 there began a feverish

building of canals and locks around the many rapids, the Connecticut being one of the first rivers in America to be improved in this way.

Bellows Falls Canal Still Operates

Bellows Falls, next Vermont town on the way south, still has in operation the first of these canals. Today it is used for a power installation instead of for navigation.

The concern which built the Bellows Falls canal in 1792 bore the quaint name of the "Company for Rendering the Connecticut River Navigable by Bellows Falls." Up to 1839 as many as 8,000 tons of freight in a single year were carried through the canal.

As the river leaves New Hampshire and Vermont and enters Massachusetts, there appear on both sides the towers of the Northfield Schools, educational-religious center founded by the evangelist Dwight L. Moody.

These schools claim that their combined enrollment constitutes the largest private preparatory institution in the United States. They were pioneers in the field of student participation in housekeeping and farming as a phase of school life.

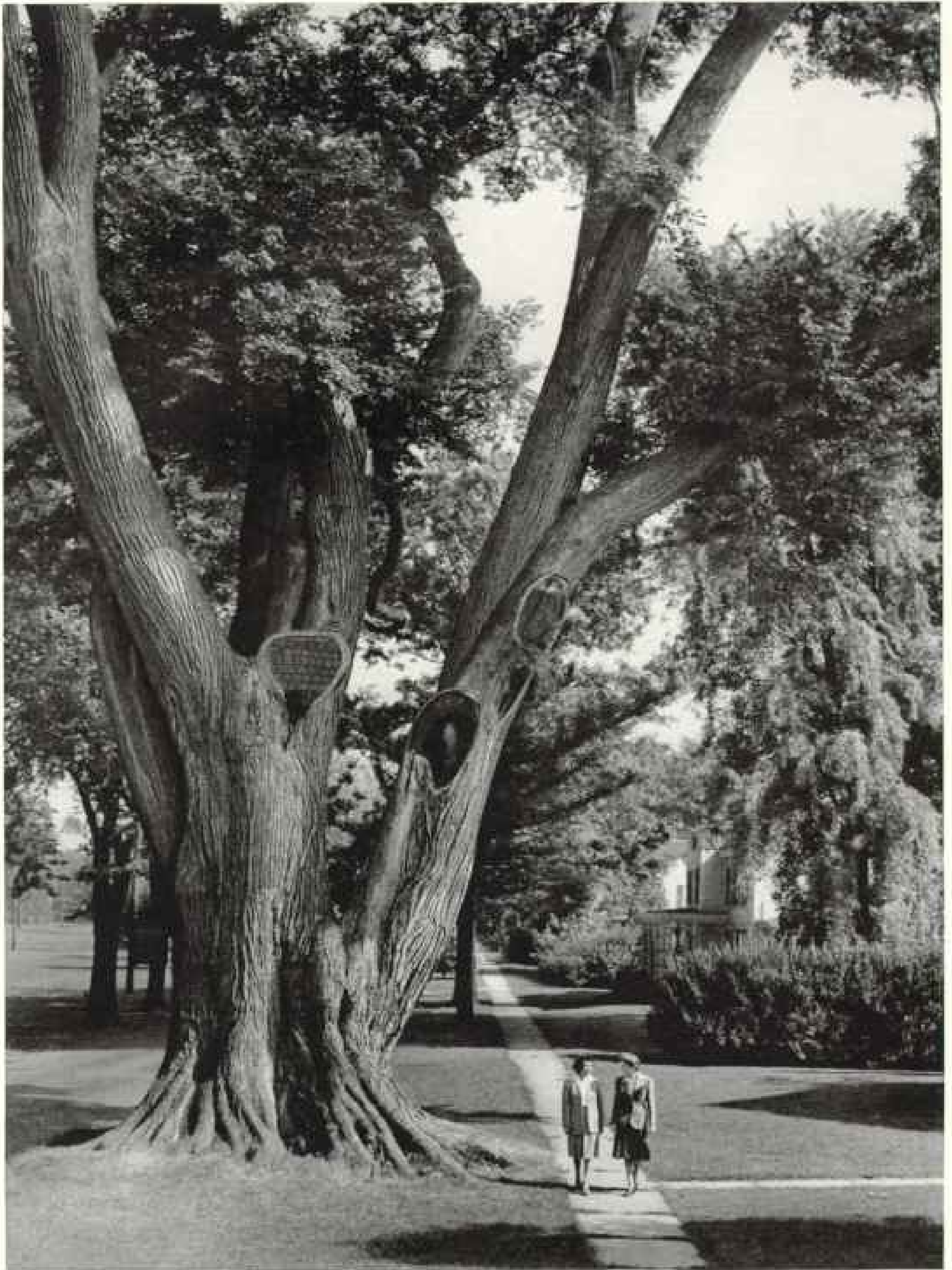
Leaving its green fields briefly, the river flows for a mile through a narrow, rocky gorge, makes a big curve to the westward, and turns almost straight south again near Greenfield, shortly to be joined by the beautiful Deerfield River, pristine from its Berkshire hills.

Thomas Carlyle said that "without tools man is nothing, with tools he is all." Greenfield is a humming tool-making center, stripping the surrounding farms, service stations, and country stores of workers. But Greenfield specializes in small tools, such as taps, dies, gauges, wrenches, and drills, instead of the complicated lathes, grinders, and gear shapers of Springfield, Vermont.

The most scenic section of the Mohawk Trail, crossing first the Hoosac Range and then the Taconic Mountains into New York State, starts at Greenfield. Also, a few miles west of the city is the nearly five-mile-long Hoosac Tunnel, which, begun in 1851, took until 1875 to complete.

North of Greenfield agriculture is pretty well limited to dairy farming, important to the consumers of metropolitan Boston. But now the valley broadens out into very rich and level intervals which, until the rise of the potato empire of Maine's Aroostook County, was the only large tract in New England where commercial farming could be conducted on the grand scale.

Tobacco is raised in both the Massachusetts and Connecticut portions of the valley, and



Saw-scarred and Creaking with Age, This Noble Elm Shaded Colonial Militia at Drill

The tree was planted around 1758, according to an old diary, at Wethersfield, Connecticut (page 433). There it borders historic Broad Street Green. Immense maples and elms are its companions. One of the largest elms in America, it is 107 feet high and 48 feet in circumference. Its branches spread 163 feet.

onions in Massachusetts. The tobacco is for cigar making and is among the best wrapper leaf produced anywhere (Plate V).

The huge and peculiarly shaped barns look, in the distance, like crouching prehistoric monsters. Much of the crop is grown under immense areas of mosquito netting; hence "shade-grown."

Old Deerfield, a Colonial Gem

Several miles below industrial Greenfield is old Deerfield, exquisite gem out of New England's mellow past.

Perhaps no colonial settlement suffered more from Indian massacres than Deerfield. It was almost completely burned by the Indians in 1675 and again, except for one house protected by snowdrifts, in 1704. But it was rebuilt so sturdily that some twenty houses erected before the Revolution still stand on its mile-long street, over which arch the great spreading elms, almost untouched by the hurricane of 1938.

Most of the ancient houses are owned by Deerfield Academy, one of the oldest and best known of the country's boarding schools for boys. More modern buildings are hidden from the "Street" enough to avoid disturbing its venerable, almost dreamlike atmosphere.

Now used as a dormitory for younger boys, the John Williams House (1707) is notable for its various structural precautions, not only against witches but against further Indian raids. The Reverend John Williams was captured once and later "redeemed."

Worth seeing is the grave of his two wives, the first, "virtuous and desirable consort," having been massacred by the Indians, or, as the inscription expresses it, "fell by the rage of Ye Barbarous Enemy."

The first large town below Greenfield is Northampton, home for many years of Jonathan Edwards, famous in the early 18th century as preacher and theologian, and later of Calvin Coolidge, thirtieth President of the United States. The second-story window of Coolidge's law office, on Main Street near the railroad station, still carries his name.

The Connecticut River makes a big bend to the west above Northampton and then, before it reaches the city, an equally wide sweep through the fertile Hadley fields to the east.

Northampton, with its tree-lined streets, spreads comfortably over its terraces. On one of the upper levels, Smith, among the largest residential colleges for women in New England (Plates II, VII), stretches along the shores of Mill River and Paradise Pond. Tradition has it that the name of the pond derives from an appropriate remark made by

Jenny Lind, the singer, during her honeymoon in Northampton in 1852.

Sophia Smith, a spinster in near-by Hatfield, spurred on by a conscientious young clergyman, the Reverend John Morton Greene, bequeathed her fortune, inherited from a brother, to found the college, which opened in 1875 with 14 students.

Now given over in part to the WAVES (Plate XIV), Smith is noted for its cottage system. There are no large dormitories but numbers of houses instead, some old and some new. None accommodates more than 70 girls.

Oliver Smith, uncle of Sophia, shrewd and successful cattle fattener and Wall Street speculator, left to Northampton and seven near-by towns one of the most remarkable charities in America.

For nearly a hundred years the Smith Charities have indentured boys to farming and girls to household work, providing them with \$500 and \$300 apiece, respectively, at the end of the apprentice period.

In addition, \$50 gifts are made to widows and the same amount to women between the ages of 18 and 45 who are about to marry. All recipients, of course, must live in one of the eight towns. In addition, the Smith Charities support a trade and agricultural school.

Although Oliver Smith left only \$400,000 in 1845, the total fund is now almost \$2,000,000, despite the payment of large sums to many thousands of recipients. In 1941, for example, 233 widows received \$50 each and 466 young women received marriage gifts of the same amount.

Oliver Smith was a bachelor and his nephews and nieces tried to break his will, retaining Rufus Choate. But Daniel Webster for the trustees won the suit.

Mount Holyoke, Pioneer Women's College

Below Northampton the river passes between Mount Holyoke and Mount Tom, two impressive peaks in the Holyoke Range of jagged hills, which, running athwart and rising abruptly from the level plain, have all the appearance of actual mountains. A favorite pastime hereabouts is to "walk the Range."

Below the Range and east of the river in the peaceful village of South Hadley is Mount Holyoke College, one of the oldest institutions for the higher education of women, "mother" of a number of women's colleges. It was founded in 1837 by Mary Lyon, pioneer in women's education. Unlike Sophia Smith, Mary Lyon headed her own institution, taught there for many years, and is buried on its beautiful campus. These words of hers are inscribed on her simple tomb:



© Chicago Aerial Survey Company

Nurtured by Insurance, Sedate Hartford Now Throbs with War Industries—Here Navigation Begins on the Connecticut

The State Capitol (Plate III) is at lower left. Dominating the skyline is the Travelers Tower, New England's tallest. Other buildings house 40-odd insurance firms. Anchored in tidewater, 52 miles from the Sound, boats crowd the river. On the far bank lies East Hartford, home of aircraft engine and propeller plants.



**Here Dwelt a Friend of Presidents, the Idol of His Students
at Amherst College**

Edwin A. Grovernor (1845-1936) was distinguished as an orientalist, historian, and head of Phi Beta Kappa. Never too dignified to lead a victory rally, he was hailed as "Grosvic, the man of fluent speech." He was the confidant of Coolidge, whom he taught; of Cleveland, Theodore Roosevelt, and Taft.



**Cobweb of Wood, a "Flying" Staircase Makes a Dizzy
Journey for the Eyes**

Mrs. John Howard Swift ascends the spiral at her home in Haverhill, New Hampshire. Over the town was a stage and tavern center, and the house, built in 1796, was an inn. Apparently lacking support, the stairs are securely anchored to wall beams. Equally graceful examples are found in stone.



With a Twist of His Wrist, He Makes Twisted-in-wire Brushes

At Hartford's Fuller Brush Company, this machine rolls bristles between two wires revolved in opposite directions. Though busy making Army and Navy gun brushes, the firm has not neglected its dealers. But that American institution, the "Fuller Brush man," may be a woman these days (page 433).

"There is nothing in the universe I fear but that I shall not know all my duty, or shall fail to do it."

Hadley, across the river from Northampton, is an old agricultural settlement. On one of its broad streets is the site of the Reverend John Russell's home where, for 15 years, in what was then the remote frontier, two of the regicides, judges who condemned Charles I to death, were hidden and protected from the avenging agents of a restored monarchy.

Beyond Hadley lies Amherst, crowning a gentle slope and rimmed about with hills. It is a spacious and serene educational center, the seat of the State College and of Amherst College.

The latter was founded in 1821, not by any single benefactor, religious denomination, or State, but by the people of the valley who wanted their sons to have an educational background for the ministry.

Through the years the college has broadened, and its graduates include an unusually high percentage of men distinguished in the professions and education and in public life and affairs (page 421).

Most colleges are engaged in various types of war training, but when Amherst was visited last autumn its most unusual activity was the large campus labor squad, which may be said to repay in part the farmers who in 1821 came in with horses, wagons, lumber, and stone to build South College, still standing and in use (Plate XI).

Near-by farmers of today, some of whose operations in tobacco, onions, potatoes, apples, and roses are on a very large commercial scale, face disas-

trous labor shortages. College students, including those from wealthy families, respond in squads to the farmer's appeal, taking such pay as he may care to give and also receiving credit from the college for "physical education."

In Amherst's museums are the Audubon collection of birds and the famous Hitchcock collection of footprints of giant reptiles which walked the valley eons ago (page 406). The Barrett Gymnasium, used from 1860 to 1884, is the oldest college building now standing that was built as a gymnasium.

Eight miles below Northampton the river makes a great bend around the city of Holyoke, drops nearly sixty feet, and feeds into a

series of ingenious water-power canals which are nearly five miles long. They crisscross the city in three different levels and are still in active service, practically unchanged after ninety years.

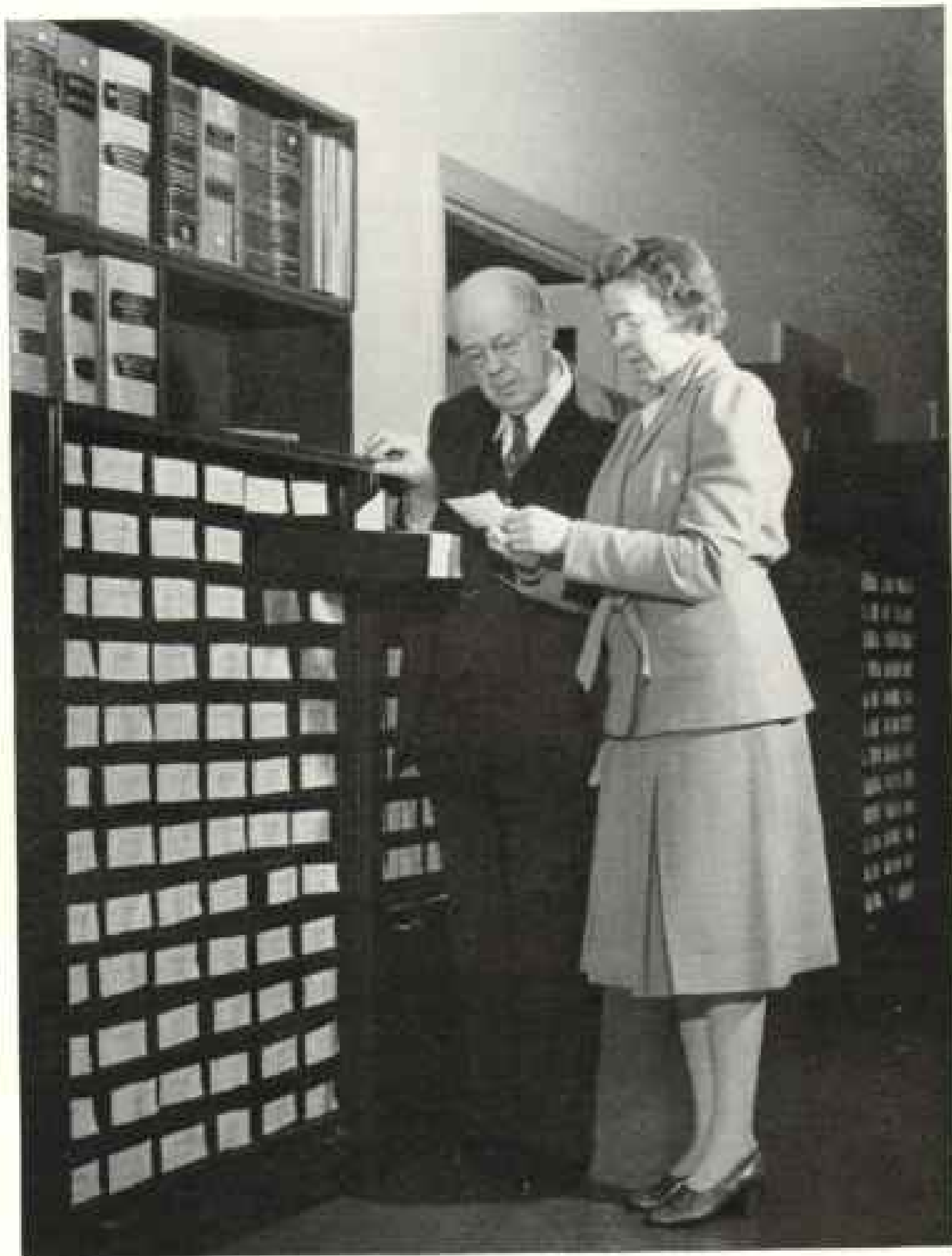
Writing Paper "Capital"

Lining the canals are large paper mills, Holyoke being the country's capital of fine writing paper, partly because of the unusually soft character of Connecticut River water. Several paper companies are still owned or managed by the original families that started the industry in the 1850's.

Springfield, named by stout-hearted William Pynchon (page 417) for his home town in England, has been the metropolis of western Massachusetts for some 300 years, largely because it stands at the natural junction of north and south routes up and down the Connecticut Valley and of east and west routes between Boston and the West.

Despite the city's age, few physical reminders of earlier years survive—not a single house of the 17th century and only a few traces of the 18th. On the other hand, Springfield has an almost comfortable, leisurely quality, despite its 300-odd industries. Its factory buildings are widely scattered, not concentrated in a single district or area.

Although Springfield was an Indian trading post to begin with, it soon proved a safe and convenient place for military stores and for recruiting troops for the French and Indian and Revolutionary Wars. All along Main Street artisans made and repaired muskets in their homes; several of Washington's victorious armies were equipped here. Thus began a great modern manufacturing center.



New Words for Your Dictionary Are Born in This File

When a new word, or a new meaning of an old one, is sent in by a reader, the G. and C. Merriam Company files it with a citation slip showing how it was used. Editors of Webster's New International Dictionary pass upon its eligibility. In these cases at Springfield, Massachusetts, are 2,500,000 slips.

The pattern was definitely set when the Armory, a Government arsenal, was officially established in 1794. It has made approximately 35 models of muskets, carbines, and rifles, and manufacturing operations have continued uninterrupted for 149 years. During the Civil War 800,000 muskets were made and 3,000 men employed.

Thomas Blanchard, inventive genius of the early 19th century, and John C. Garand, of the present era, are among those who have made mechanical history at the Armory.*

A few hundred yards from the Armory is

* See "The Miracle of War Production," by Albert W. Atwood, NATIONAL GEOGRAPHIC MAGAZINE, December, 1942.

a boulder which marks the spot where troops commanded by Gen. William Shepard repulsed the army of Shays's Rebellion, which sought to raid the Armory stores in 1787.

Skates, Shotguns, and Postal Cards

The chief characteristic of Springfield manufacturing is its extraordinary variety, past and present. In the sixties Ray & Taylor were one of the country's foremost manufacturers of paper collars. At one time the Barney & Berry Skate Company made 100,000 pairs of skates a year.

Smith & Wesson have made revolvers on a large scale since 1854, and in near-by Chicopee and Chicopee Falls, respectively, are A. G. Spalding and Brothers, makers of sporting goods, and the J. Stevens Arms Co., which, in addition to military weapons, has in the past been one of the world's largest manufacturers of shotguns.

Springfield boasts an old and important manufacturer of toys and games and is among the chief centers of the envelope industry, the Government having let its first postal-card contract to a local envelope concern.

When Noah Webster, author of the famous dictionary, died in 1843, the firm of G. & C. Merriam, now more than a century old, bought out his heirs and has issued Webster's Dictionaries ever since (page 423).

Springfield is also the site of the work of the Duryea brothers, who pioneered and constructed the first practical automobile in America in 1892-93. Their vehicle of 1892 and 1893 is in the National Museum in Washington, D. C.

The commercial manufacture of motorcycles was begun and continued in Springfield by George M. Hendee; it is now the Indian Motorcycle Company. This company's products are used by as many as 3,000 city, town, and county police organizations, as well as for sport and commercial purposes. At present its production, like that of thousands of other concerns, is entirely military. In the last war motorcycles were used for communication purposes only; now they are combat vehicles.

Springfield's "cultural quadrangle" is a quiet little space almost in the heart of the city. It is surrounded by two art galleries, a natural-history museum, the Connecticut Valley Historical Society, the main building of the very active City Library, and by the Christ Church Cathedral (Episcopal).

The game of basketball was invented in Springfield, probably in 1891, by Prof. James Naismith of Springfield College, which was founded for the training of Y. M. C. A. workers.

Not far below Springfield, in Connecticut, is the Windsor Locks canal, 5.3 miles long, built in 1829 to avoid the Enfield Rapids, and the only one of the old canals still used for navigation. Occasionally a small pleasure boat goes through, only twelve in a recent year.

Hartford a Shrine of Freedom

Hartford, metropolis of the Connecticut Valley, is the head of commercial navigation, and a far larger number of pleasure boats use this 52-mile reach to Long Island Sound than ever venture on the middle or upper reaches. Coal and oil are the only commodities transported in quantity, but their total has been large.

Like Jamestown and Mount Vernon, Hartford is a shrine for patriotic Americans who believe in independent self-government in a constitutional framework.

Adriaen Block, sailing out of New Amsterdam in 1614, discovered the Connecticut River. The Dutch were first upon the scene, both at the mouth of the river and at the head of tidewater, the present site of Hartford, where they built a fort in 1633. However, they failed to become permanent settlers.

The English came in larger numbers, settled Wethersfield and Windsor, to the south and north, in 1634 and 1635, to be followed the next year by the real founder of Hartford, the Reverend Thomas Hooker, who brought from Cambridge, Massachusetts, his immortal band of about a hundred men, women, and children, driving their herds before them through the pathless forest.

This first secession from the Bay Colony was the beginning of countless westward migrations of the English-speaking peoples from the coast.

The motives of Hooker and his followers should not be invested with an exaggerated idealism. Land was getting scarce in the Bay Colony, and the level, fertile fields of the Connecticut beckoned. But Hooker was also more liberal and democratic than the theocratic rulers of the Colony, with whom he inevitably differed.

When Connecticut Had a Pacific Coast

At any rate, in 1639 the Connecticut towns voted the "Fundamental Orders," based on a sermon delivered by Hooker in which he set forth that the "foundation of authority is laid . . . in the free consent of the people" and that the people also have power to set "bounds and limitations" on the powers of all officers and magistrates. These principles were reflected much later in the Declaration

Flow Onward, Connecticut!



© National Geographic Society

Kobachouso by H. Anthony Hewart

Amherst's "Widow," Prize of Class Battles, Is Anchored in Kidnap-proof Concrete

Sahrina, a 350-pound bronze nymph who once adorned a fountain, inspired so many student wars that the trustees retired her to Morgan Library. In yesteryear she was stolen, painted, kissed, and feted. One arm was sawed off. But the college song's "widow of each passing year" is still the most popular girl at Amherst, Massachusetts.



© National Geographic Society

Illustration by H. Anthony Stewart

Better Than Words, Old Red House, Built at Longmeadow, Massachusetts, in 1735, Tells Why Visitors Love a New England Village



© National Geographic Society

Mural © Dartmouth College

Dartmouth Mural Depicts Mythical Founding at Hanover

Richard Hovey's fanciful song and Walter Humphrey's murals tell how the Reverend Eleazar Wheelock founded the college in 1767 among the New Hampshire Indians.



© National Geographic Society

Underwritten by B. Anthony Stewart

Amherst Boys, Harvesting Pumpkins, Repay an Old Debt

Neighboring farmers, donating labor and materials, built the college's first unit in 1821. Today their successors face a labor shortage. Students, many from city families, do the work of farm hands gone to war.



© National Geographic Society

Mural © Dartmouth College

Orozeo's Exciting Frescoes Adorn Dartmouth's Baker Library

Covering 3,000 square feet, the Mexican artist's murals portray twofold origin of American civilization. Twin panels illustrate (left) a New England town hall, symbolizing Anglo-American trait of cooperation, and (right) the Latin-American soldier-farmer, representing the free man's right to protest.

Flow Onward, Connecticut!



Colt Rampant and "Six-shooter" Are Symbols of a Historic Small-arms Industry

Inventor Samuel Colt's revolver was "the law" in the pioneer West. This one is a duplicate of a gold-lined weapon he gave to a Russian tsar. The pony is a miniature of one he placed over his plant in Hartford.



© National Geographic Society

Reproduction by E. Anthony Stewart

Maple Sugar's Home Town Makes These Bowling Pins, Too

Duckpins, tenpins, and candlepins are manufactured in St. Johnsbury, Vermont (Plate V). Lathed from rectangular blocks of seasoned wood, they have been sanded and lacquered. Now stripes are being painted.



© National Geographic Society

Two Platoons of WAVES Parade on Smith Campus—Students in Mufti Admire Their Navy-blue Uniforms

These officer candidates, marching to the hockey field for drill, are accompanied by male officers. Dear to the hearts of Smith girls is Paradise Pond, Arm in arm with their fiancés, many have strolled its shores. On the hill beyond it is the president's house.

Photograph by H. Arthur Stewart



© National Geographic Society

Hooked Rug, Pride of Colonial Wives, Is Made as of Yore

With a hook, Mrs. Naomi Foss pushes fluffy loops through a patterned burlap stretched on a frame. Just so did early New England women, remote from factories, construct floor coverings. Antiques and Currier & Ives prints adorn the wall. Mrs. Foss lives near Colebrook, New Hampshire.



Reproduction by H. Anthony Herriot

Here Dwelt an Art Colony—It Painted the House!

The bull was painted by William H. Howe in the Old Lyme, Connecticut, home of the late Florence Griswold. Walls and doors of her home still blaze with artists' colors. One copied the house by moonlight on canvas and won the Washington Corcoran Gallery's \$1,000 first prize.



A Yankee Wood Carver, Surrounded by His Beloved Tools, Fashions a Piecrust Table
Clarence G. Day, a one-man firm, operates a triple enterprise in Woodstock, Vermont. His other interests are blacksmith and antique shops. All are at his home. The spiral is a standard for a tripod table.



© National Geographic Society

Rehoboth, Mass. by D. Anthony Stewart

"Mrs. Noah" Puts a Rhino in the Ark—Toyland Has Converted to Wood

Metal playthings are out for the duration at the Gong Bell Manufacturing Company of East Hampton, Connecticut. Duck scooters are stacked in the tier. A pig squirms from the ark; the roof is about to descend.

of Independence, the State constitutions, and the United States Constitution itself.

In 1662 Charles II granted the Connecticut towns a very liberal charter, two copies being made. Not only did Connecticut have more independence than most of the other Colonies, but it was given land all the way to the Pacific Ocean.

But James II did not share his predecessor's views regarding self-government in the Colonies and sent Sir Edmund Andros to Boston to become governor of New England. In 1687 Andros arrived in Hartford and at a meeting of the Assembly demanded the surrender of the charter.

Tradition has it that all candles were suddenly extinguished and the charter passed through the window to Capt. Joseph Wadsworth, who hid it in a great oak. Historical evidence to support this story is lacking.

But Wadsworth evidently did hide and protect the charter in some fashion, because the General Court in 1715 awarded him twenty shillings for "faithful and good service, especially in securing the duplicate Charter of this Colony when our Constitution was struck at."

Storm Destroyed Charter Oak

Both copies of the charter still exist, the better preserved one in the State Library, and the other mutilated, after its many vicissitudes, in the Connecticut Historical Society in Hartford. Not being recognized at one time for what it was, part of this copy was used as lining for a lady's hat.

The great tree, the Charter Oak, stood until it was destroyed by a storm in 1856 at an estimated age of 800 years. Portions of the Charter Oak are still kept as relics in many parts of the country.

Modern Hartford is surprisingly metropolitan in appearance for a city of its size (166,267 in 1940), probably because so many massive "home office" buildings of insurance companies are scattered throughout the city, in some cases in beautifully landscaped grounds (Plates III and VII, and page 420).

New York, not Hartford, is the insurance "capital" of America. But Hartford's distinction lies in having headquarters of more than forty insurance companies without itself being a city of great size, this fact giving it a stamp of dignity and stability. Several important types of insurance were originated here.

At present Hartford is one of the country's foremost centers of war production, intensely active and crowded.

In East Hartford is the mammoth Pratt & Whitney division of the United Aircraft Cor-

poration. Also, alongside the river is Colt's Patent Fire Arms Mfg. Co., manufacturer for ninety years in Hartford alone of various types of guns for the Seminole, Mexican, Civil, Spanish-American, and the two World Wars. In addition, it has been a training school for many industrialists, inventors, and mechanics, including those who made Col. Albert A. Pope's famous Columbia bicycle.

Samuel Colt, a versatile and handy person, was among the popular lecturers of his day who gave laughing gas as a stunt to members of the audience. But he also invented the first practical revolving firearm, and on it took out his first American patent in 1836 (Plate XIII).

America's use of interchangeable parts, without which guns, sewing machines, bicycles, typewriters, automobiles, and airplanes cannot be produced in volume, did not begin in Hartford, but simultaneously near New Haven and Springfield, early in the 19th century.*

One of the most unusual industries in the city, as well as one of the largest concerns of its kind in the world, is the Fuller Brush Company, widely known for its method of distributing brushes directly to the housewife through thousands of salesmen (page 422).

Alfred C. Fuller, a Nova Scotia farm boy, who began in 1906 to take orders in the mornings and make the brushes himself in the afternoons and evenings in the basement of his sister's house, is still head of the company.

Hartford is full of picturesque contrasts between old and new, especially on Main Street. The most striking is that of the Old State House, built from the plans of Charles Bulfinch in 1796, and Travelers Insurance Company tower, tallest structure in New England.

Now a branch of the public library, the large, rambling house in which Mark Twain lived for so long is open to visitors, and contains many relics of the famous humorist. Near by is the home of Harriet Beecher Stowe, author of *Uncle Tom's Cabin*.

On a commanding eminence the Gothic buildings of Trinity College are reminiscent of an older world.

Adjoining Hartford on the south is the peaceful, elm-shaded residential town of Wethersfield, probably the oldest permanent English settlement in Connecticut and once an important center of foreign commerce. It has many old houses, but historically most interesting is the Webb House. George Washington and some of his generals spent four days there in May, 1781, planning the alter-

* See "Connecticut, Prodigy of Ingenuity," by Leo A. Borah, NATIONAL GEOGRAPHIC MAGAZINE, September, 1938.



Man's Most Useful Friend Deserves a Kiss

Charles Hall, manager of Earl Brown's Burklyn Farms, lavishes affection on a yearling Morgan (Plate IV). The 1,500-acre estate is a hillside show place near East Burke, Vermont.

native campaigns against Clinton in New York and Cornwallis in Yorktown.

Like Wethersfield, the little city of Middletown was once an important and wealthy West Indies shipping port, and long known also for its diversified industries. It is the site of Wesleyan University, which, despite its name, is not a "university" but one of the older of the small New England colleges of liberal arts and sciences. It was founded through the generosity and devotion of Methodists, but is in no sense sectarian or denominational.

From Hartford the lines of transportation, population, and industry strike in a slightly southwestwardly direction past New Britain, through Meriden, and into New Haven. But ages ago the river chose to take a differ-

ent course. From Middletown it makes an abrupt turn to the east and then flows southeast into Long Island Sound between Old Saybrook and Old Lyme Townships.

The country through which the river runs beyond Middletown is as quiet, peaceful, and beautiful as in the upper New Hampshire and Vermont reaches, but naturally without the rigor of the north.

The towns were hectic centers of ship-building a century and a half ago. Today they are small, dignified, sedate, and restful.

Saybrook is one of Connecticut's earliest settlements. It was founded as a refuge for aristocratic and prominent Puritans, and Oliver Cromwell is said actually to have boarded a ship with Saybrook in mind, but was prevented from sailing.

Yale was founded on almost the same spot in 1701, only to be removed to New Haven in 1717. But the removal was not a peaceful one, for the Saybrook residents ob-

jected mightily, damaging the horses and carts sent to carry off the library.

Timothy Dwight, one of the early presidents of Yale College, in his famous and enthusiastic book, *Travels in New England and New York*, said that the Connecticut "may perhaps with more propriety than any other in the world be named the Beautiful River."

Such superlatives are difficult to justify, but no one who has followed the Connecticut from its northern mountain source to this last broad and placid stretch can deny that it is one of the most beautiful of rivers.

Finally it flows past the two lighthouses at Old Saybrook, and, once the breakwater is reached, it ceases to be, lost in Long Island Sound and the ocean beyond.

Farmers Keep Them Eating

BY FREDERICK SIMPICH

"WE SHALL fight in the fields . . . we shall never surrender," said Winston Churchill. *In the fields*. That's where American farmers, including women, girls, and school children are fighting now—fighting frost, heat, dust, drought, mud, flood, and insect pests, growing our biggest crops in history.

Food is as much a munition as TNT. Farm tractors and milk wagons, like tanks and cannon, are war machines.

Farmers don't get killed and wounded on battlefields, get decorated with medals, or have to sleep in mud and snow. Yet without this "soldier of the soil" all armies would soon have to quit, for it is still true that an army travels on its stomach.

Besides the piles of food sent to our own armed forces, whole fleetloads go overseas, through Lend-Lease agents, for our Allies. In one month we shipped more than 400 million pounds! Each month, more and more.

Last year our farmers grew thirty billion pounds of potatoes, equal to one giant potato suggestive of Gibraltar! Corn enough to stretch one big ear far across Europe!

Farmers' hens, in 1942, laid fifty billion eggs, equal to one fried egg vast enough to blanket hundreds of square miles!

Meat? Enough to pave a wide highway one inch thick from New York to San Francisco; and vegetables enough to have covered the Great Wall of China throughout its whole 1,500 miles!

American Food Sustains Britain's War Effort

I asked Mr. R. H. Brand, of the British Food Mission in Washington, what the American food that goes to Britain means to our war effort.

"It is enough to keep Britain in the war," said Mr. Brand. "It furnishes more than one-fourth of Britain's total supply of the rich protein foods we so badly need."

"Why is the share we send to Britain so vital?"

"Well, if you lift a 6-foot drowning man only a couple of inches, that small fraction may be enough to keep his nose above water and save his life.

"When Denmark, the Netherlands, and Belgium were occupied, we lost overnight about three-fourths of the bacon and eggs and dried and condensed milk that we normally imported. That brought us down to pretty

short commons after the Battle of Britain, when we stood alone against the Axis.

"When your first Lend-Lease ship arrived in May, 1941, it brought four million eggs, sixty tons of cheese, and one thousand tons of flour. But that first ship also brought something else. It brought a million tons of hope. It let us breathe again."

"What kinds of food does Britain need most from us now?"

"The same as you have been sending," said Mr. Brand. "Meat, dried eggs, dried and evaporated milk, cheese, bacon, lard, vitamins, dried fruits. These foods take the minimum of shipping space, and yet they balance our critically marginal diet and make it adequate."

Farmers would enjoy sitting about the big Lend-Lease table in Washington, D. C., when the food buyers from Moscow and London are in action (page 439).

"We'll take \$5,000,000 worth of lard," the Russians may say, "and five shiploads of wheat for Vladivostok."

"For us," announce the casual, well-groomed British, "one hundred carloads of dried milk, two million pounds of cheese, and all the canned tomatoes we can get."

Like a clerk in a big grocery store, week after week, Uncle Sam takes these dizzying Lend-Lease orders.

What Is a Shipload of Food?

Here's what the average U. S. freighter carries:

6,000 barrels of dried eggs, equal to a year's work for 229,137 hens.

6,000 barrels of dried milk, a year's work for 2,783 cows.

16,522 cases of evaporated milk, a year's work for 304 cows.

20,000 boxes of cheese, a year's work for 3,037 cows.

14,500 big cans of pork, the meat from 5,021 hogs.

16,800 boxes of lard, the fat of 27,632 hogs.

6,061 sacks of flour, the wheat from 838 acres.

26,111 cases of canned vegetables, equal to 40 acres of tomatoes, 100 acres of snap beans, and 102 acres of peas.

To load this ship took the products from 3,824 average farms. Today, American farmers feed people around the world. Under Lend-Lease all this food is bought by Uncle Sam and sold on credit to our Allies.



URDA by Foxcroft

In an American Port Lend-Lease Food Is Put Aboard a London-bound Ship

Skillful stevedores stow the cargo to prevent shifting, or damage from oil or water. Here you see bags of dried beans in the lower hold. On one deck, in upper background, are cases of raisins; barrels of dried milk and round boxes of cheese are tightly stacked at right. One fair-sized freighter can carry the yield of 3,824 average farms (page 433).

Indian, Polish, and Fighting French troops now enjoy our dried milk, dried eggs, canned meat, dried fruit, and other American foods which are sent to Africa and the Near East.

British garrisons on Gibraltar and Malta, and at Colombo, Freetown, and Darwin also enjoy American foods. Russian troops, from Murmansk to the Caucasus, are fed from field kitchens stocked with American dried eggs, powdered milk, flour, and canned meats.

Stroll among crowded Middle West freight yards, from Dallas and Kansas City to Minneapolis and Chicago, and look at all the meat, lard, flour, eggs, and dairy products moving off to seacoast cities.

Walk along any busy water front, from Brooklyn to Seattle, and look at the many big ships loading food for hungry people overseas.

In all, for us and our Allies, we're asked to grow, process, and move about 300 billion pounds of food a year for the duration, and

probably for years thereafter. In many lands yet to be occupied, we shall undoubtedly conquer more with bread than with bullets.

Can we meet this gigantic task? Such factors as weather and length of war are unpredictable. Fertilizers, farm machinery, transportation, and labor all come into the picture.

Talk with farmers, and you meet unexpected thoughts. It's easier to turn an icebox factory into a machine-gun shop than it is to turn a melon patch into an apple orchard. Changing corn into meat is slower than changing steel into tanks.

In a munitions plant three shifts keep work going day and night. But hogs and steers work only one shift, since you can't speed up gestation.

You can double tank and plane output, but not, in the same way, our output of meat and bread.



USDA by Forester

Solid as Stone Walls, Tons of Frozen Pork Are Assembled for Lend-Lease Shipment

Agents from the U. S. Department of Agriculture inspect meat to see that it is in perfect condition. In this Chicago cold-storage plant are piled some 2½ million pounds of hams and bacon.

You meet such thoughts as these when you begin to consider how war has come to the farmer.

Acres of Food to Build a Battleship

It takes 26,900,000 man-hours of work to build a 35,000-ton battleship, during which time these workers eat a year's food crop from a farm of 42,000 acres.

It takes a year's food crop from 155 acres to feed men while they build one bomber. It takes food from 43 acres to feed men while they build a single tank—and consider the thousands we're building.

To fire a 16-inch gun only once, for example, requires 680 pounds of smokeless powder, made from 476 pounds of cotton linters, and alcohol from one and one-half acres of wheat, or one-fifth acre of sugar cane!

Wool! Our farmers own nearly 56 million sheep, but all their wool is not enough to clothe our civilians, plus sailors and soldiers.

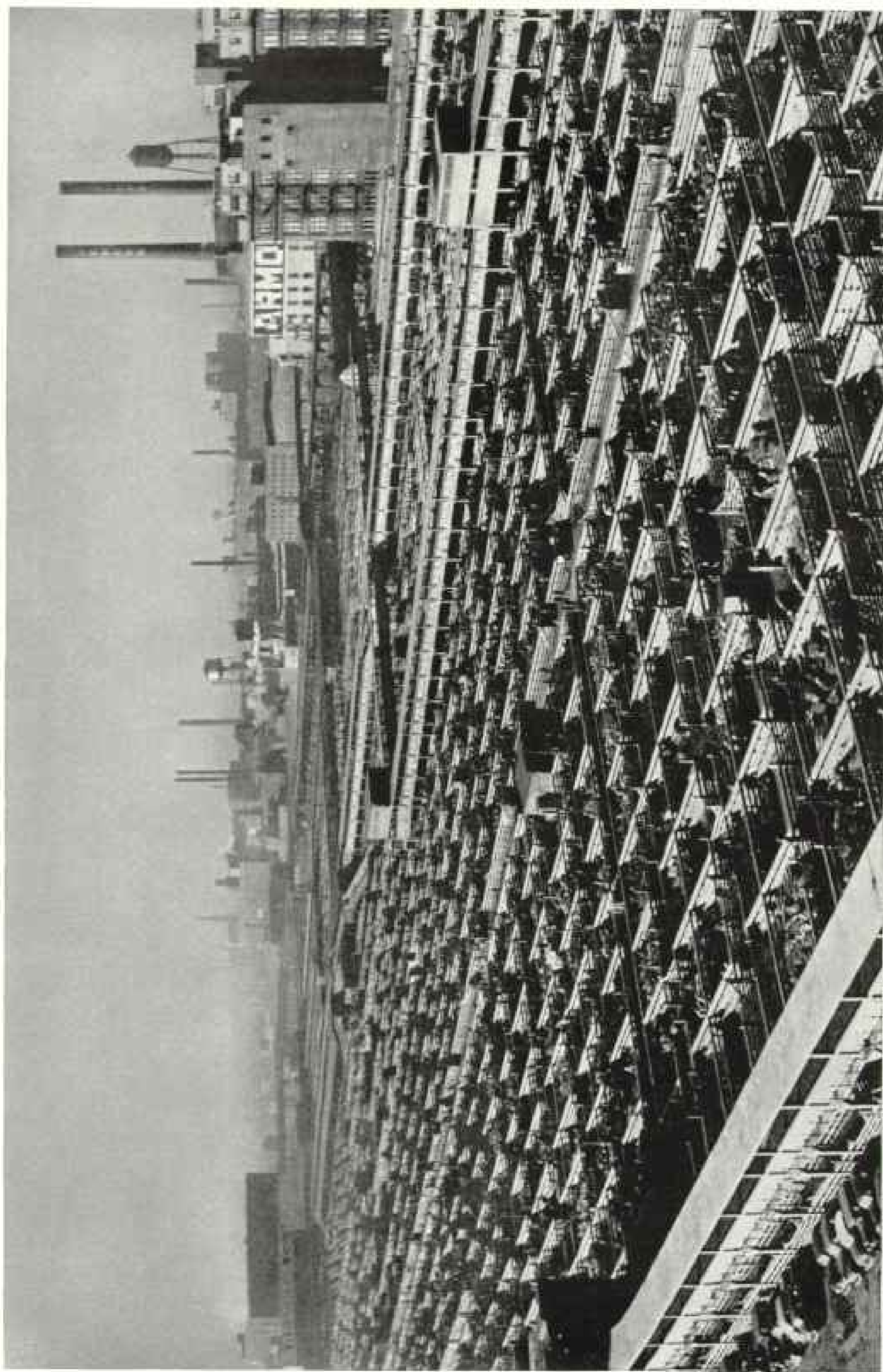
Ordinarily, we use about 600 million pounds

of wool a year. But last year, because of soldiers' needs, we used one billion pounds. In 1943 we'll need even more, for aviators' jackets, uniforms for armed forces, for fleeced-lined coats, pants, helmets, etc.

Sheep raisers have been asked by the Government to raise more sheep and to shear many animals which normally would go to market with their wool on.

Hides! Soldiers wear out two or three pairs of shoes a year here at home and may go through one pair in two weeks in Africa. If we reach a force of ten million soldiers and sailors, look how many cowhides that is! Remember, one cow has only one hide. When you peel it off, she's no more good to Army shoemakers!

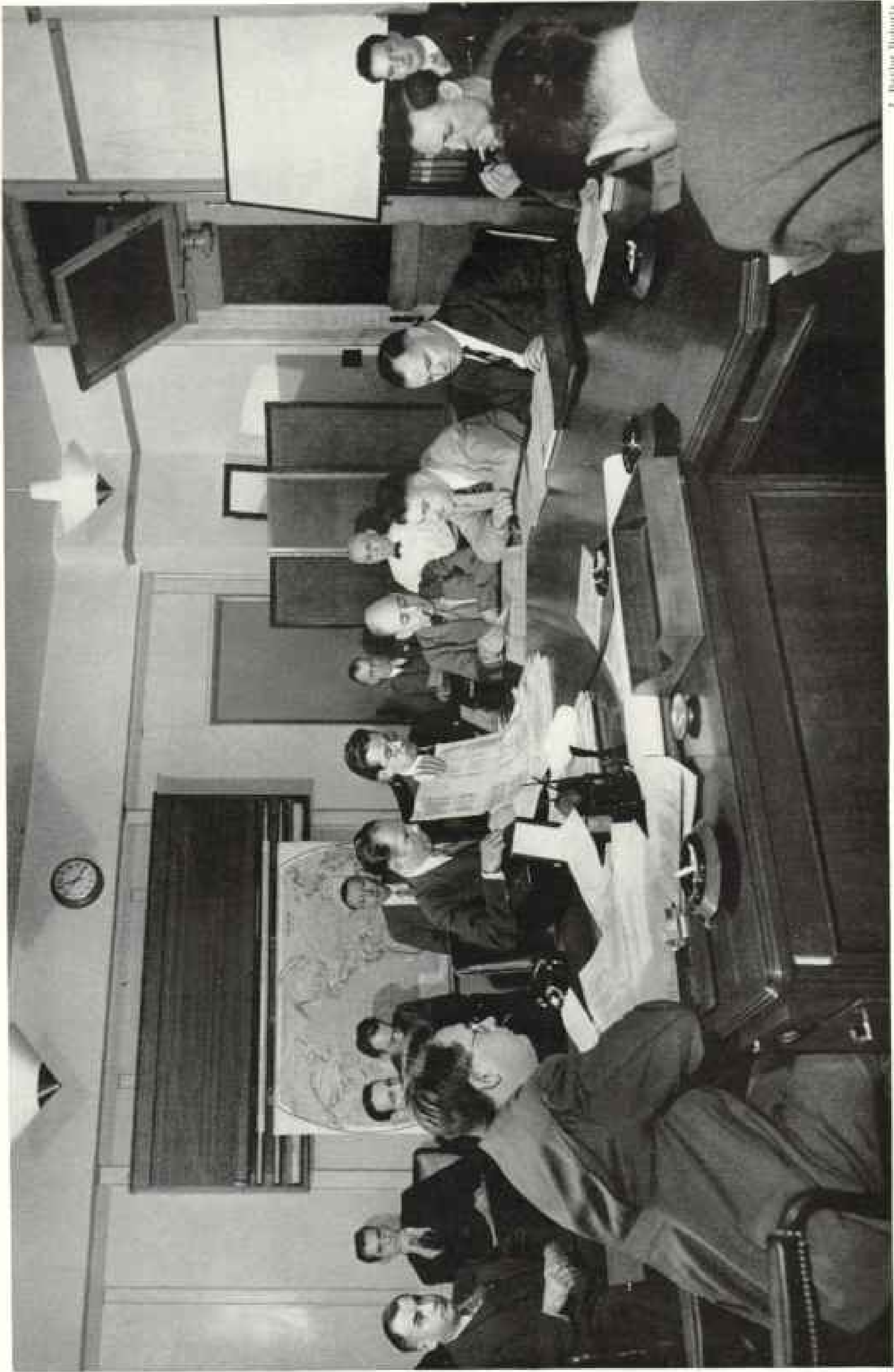
Hence, farmers must grow many things besides food. This year and next much land long planted to food crops will be switched to grow oil plants for paints and lubricants, and fiber for cordage, now that Manila hemp is cut off.



J. Herber Roberts

Into Chicago's Redolent Stockyards Marches the World's Biggest Parade of Bawling, Snorting, Bleating, Grunting Animals

Meat! Meat! Meat! From all over the hungry world that cry goes up. From Alaska to Australia, from Iceland to Egypt, soldiers, sailors, and civilians call for more meat. 1943's demands are biggest yet. Here, on the hoof in Union Stock Yards' pens, close to vast packing plants, is part of the answer (page 441).



Soviet Buyers "Go to Market" in Washington, D. C., for Lend-Lease Food

Here in the offices of the Agricultural Marketing Administration huge orders are placed by United Nations representatives (page 435). Mr. Roy Hendrickson, AMA administrator, sits in left foreground. Facing him, at center of large table at right, is Boris I. Groudinko, of the Soviet Purchasing Commission.

J. DASHBACH



British Food Ministry

American Food Turns Up in Hot Soup, Boiled in England by a Field Kitchen Crew

Equipment for this Food Flying Squadron was presented to Great Britain by the United States. Manned by Home Guards, the emergency truck carries food swiftly wherever needed. Names painted on the door show the crew has served soup from Coventry to Liverpool.

Farmers from Minnesota to California may have to plant as much as five million acres in flax to provide linseed oil. To get the needed 150,000 tons of hemp for cordage will take another 300,000 acres.

Edible fats are of supreme importance. There can't be so many fat men and "plump" women in America by the time this war ends. A sure "way to reduce" is right at hand, since we face a shortage of lard, butter, and, of course, sugar.

You marvel at Eskimos who eat pure whale blubber. But did you know that you, too, eat over 50 pounds of fat a year? The average for men, women, and children is 52 pounds. If you're a soldier, and add bacon and salt pork, you eat about 133 pounds.

"We produce most of the food fats we need," says T. Swann Harding, Senior Information Specialist at the USDA. (Short, here, for United States Department of Agriculture.)

"Though synthetic vitamins make some edible fats less indispensable, we still demand enormous quantities of fats and oils, not only for food but to make soap, paint, printer's ink, linoleum, and many other things.

"In war, fats and oils become of prime importance, because of their high-caloric value."

This year our farmers will produce 12 billion pounds of fats. That's more than ever before.

However, what with wartime exports and ever-increasing home use, reserve stock on hand in 1943 may be cut to two billion pounds. That's just one-sixth of annual production, or enough to last only two months.

Averting a Fat Famine

Seeking to avoid a fat famine, USDA urges farmers to grow more hogs and to plant more peanuts and soybeans, and to crush more cottonseed.

"Fresh roasted peanuts, five cents a bag!" Welcome words at ball parks. But peanuts mean a lot more now. Their oil not only helps take the place of the palm and coconut oil we used to get from the Far East, but more and more peanut meal and oil become a daily item of food.

When war came to the farmer, his 1941 peanuts were harvested from 1,964,000 acres. In 1942, he harvested over four million acres! In the same time, he jumped his soybean planting from less than six to about 11 million acres.

Ponder those astronomic fat figures a min-



J. Barber Roberts

This Hog Weighs About Eight Times as Much as the Man!

Raised on the Martin Berg farm in Sac County, Iowa, he's just 1,500 pounds of waddling pork and fat. In 1942, U. S. farmers raised about 105 million hogs (page 443). They hope to do better this year.

ute. Think how much work they involve!

No eight-hour day for farmers, no overtime. Just work, work, from dawn till dusk, from "kin see to kain't see," as they say in the South.

Out of every dollar we earn, we spend about 22 cents for food, and a lot of that goes for meat—and fats.

Though beef production hit a record peak in 1942, demand outran it. Late in 1942 distribution became so difficult that even in Chicago, heart of the meat-packing activity, hundreds of butcher shops had to close.

One reason for the meat scarcity is that millions of highly paid war workers can and are now buying more meat, and better cuts, than ever before.

"Since 1938 our cattle have steadily increased," said Prof. E. A. Trowbridge, head of the Department of Animal Husbandry at the University of Missouri. "January 1, 1942, we had 74 million head, an all-time high. Even though we killed 15 percent more cattle in 1942 than the year before, our herds still increased by a million head, thanks to good weather and feed conditions.

"Now, for 1943 and 1944, Uncle Sam asks farmers to raise still more meat animals. By good management and improved methods, I think we can feed the armies and still have

meat enough for America's home use—if we can get labor. But it takes labor to raise the corn that makes meat animals."

Farmers, too, need gas and tires to haul livestock to market and to railroad shipping points. It's true that years ago we drove cattle and even hogs hundreds of miles to market. But that was on dirt roads. Today a fat, heavy animal, walking on a cement-slab highway, would wear its feet out in a few miles.

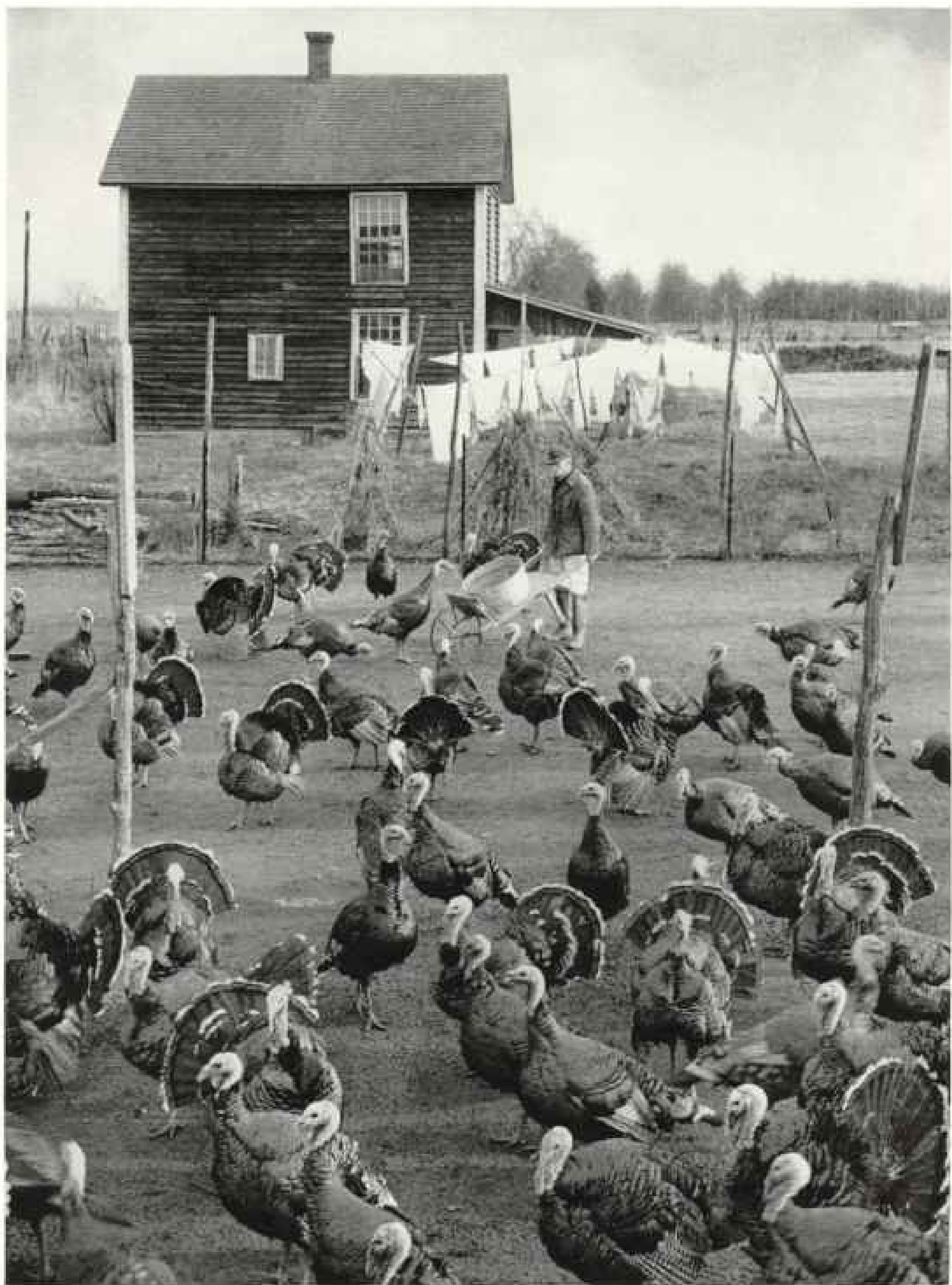
When you're counting cattle and comparing today's herds with the millions of long-horns that used to be driven up the Texas trails, you have to remember this: such half-wild animals—known to cowboys as 'hoofs-horns-and-tails,' didn't carry the meat today's steer does.

As early as 1870 we began to import European livestock to improve our herds. Since 1900 thousands of big fancy bulls have come here from abroad; now our beef cattle are among the world's finest.

Hogs Will Eat Most of 1943's Corn

"Our corn supply is bigger than ever," said an Iowa farmer. "Our 1942 crop was a record. For that, thank the weather. But we seldom get two such big crops in succession."

Since we now have more meat animals than



A. Aubrey Bodine

Husky Now, These Fat Turkeys Were Allergic to Wet Feet When They Were Poults

Young turkeys easily become ill, and often are injured, too. Raising them successfully calls for experienced farm help. Indigenous to America, the turkey was taken to Spain in 1519 and from there finally spread all over Europe. Great strides have been made in the United States in improving and "streamlining" the various breeds.

ever before, 1943 will also see bigger corn consumption.

If this year we return to normal yields of corn, we may easily run into a feed shortage the following winter.

Last year about three billion bushels of corn were used, mostly as stock feed. But now more corn than ever also goes into human food, industrial alcohol, glucose, starch, and other trades.

Fed to hogs, corn makes lard, which is not only food but also goes into munitions making.

Fat hogs mean more to armies than cattle because hogs make both meat and fats. In 1943, therefore, to get more lard farmers will feed a bigger share of corn to hogs, and less to beef cattle.

So beef will not be brought to its usual fine, fat finish. No more steaks with an inch of savory fat along the edges! That fat, made from corn, will be put into hogs instead.

Among all meat animals, the hog is the finest fat maker. We're short of fats—the whole world is. So corn's play is from field to hog lot to packing plant to lard can.

Working on a New Model Hog

Day and night rises the cry for more lard and pork, louder and louder. Russians want lard to spread on their bread, like butter. Packers are far behind, trying to fill orders for Army, Navy, and Lend-Lease.

All soldiers want pork—all but the Jews, Moslems, and a few others. These say it's unclean; and, fighting over there in the Middle East, Uncle Sam has no desire to offend any of his Allies by offering them the wrong meat!

Moses outlawed pig meat as food for the Israelites; yet for centuries most races have exalted the pig as food. Some have exalted it as a sacrificial animal.

We Americans eat more pork than beef, and during the present emergency it is expected the hog will play an even greater part in feeding the world; as a meat producer he is equaled by no other animal. With the given amount of feed he can utilize, the hog will produce more edible solids than either cattle or sheep.

The hog also converts table waste, damaged grain, and other farm wastes into highly prized meat. This, no doubt, partly explains why, in such densely populated countries as China, where people compete with animals for some of the available food, the hog has won and maintains the favor of man.

Fortuitously, I heard this porcine dialogue between Dr. W. A. Craft, Director of the USDA Regional Swine Breeding Laboratory at Ames, Iowa, and Prof. L. A. Weaver, one

of the project leaders of the Laboratory and of the Agricultural College at Columbia, Missouri:

"Our farmers in 1942 raised about 105 million hogs," said Professor Weaver, "and it requires about 20 million brood sows to do this, unless they produce two litters per year. It's true, too, that each sow may farrow twice a year, averaging nine or ten baby pigs each time, but unfortunately only five or six of these pigs get to market. There are probably between 15 and 20 million brood sows on farms now. That would look like a little-pig crop of, say, 200 million for this year, but it doesn't work out so well."

"No," agreed Dr. Craft, "because from 30 to 40 percent of the young die of 'little-pig sickness' or some other cause before they're two months old. Despite veterinary science and sanitation, losses from disease bear down heavily on the hog producer. The more hogs, the more disease. Crowd too many hogs together, and epidemics become a menace, just as soldiers in the past sooner or later have been hit by epidemics when crowded into large camps."

"At the Swine Breeding Laboratory," I interposed, "what is the one big task, Dr. Craft, that you're attempting? Is it to raise the vitality of young pigs, cut infant mortality, and thus try to meet our increasing demand for pork?"

"Well, for more than a century we've worked to build up purebred strains, like Poland Chinas, Berkshires, etc. Now we're experimenting on possibilities of forming definite lines within the breeds so that hybrids can be produced, which may give us a better hog than we now have."

"Do you mean bigger hogs, finally increasing to elephant size?"

"No. Now and then an extremely large hog occurs somewhere, an appalling giant like that prize State Fair pig that Phil Stong wrote about in his Iowa farm novel. But large hogs are nothing new, nor are they especially desirable. The English grew half-ton hogs over 200 years ago. But the average big hog, history shows, is not much bigger now than he was centuries ago. It is not bigger hogs that we need; rather, it is better doing hogs—hogs with more vitality."

"You're right, Doctor," agreed Professor Weaver. "What America needs are hogs with greater disease resistance. This would mean a larger number of pigs weaned per litter, and hogs which will consume more feed and produce more rapid gains on the same amount or less feed. That's our aim."

In 1942 the farmers of America marketed



URIA. G. KELL

"Yes, from This Pile of Fresh Meat Comes as Much Water as You See in That Bottle!"

The pile of pork weighs 60 pounds. By dehydration in a vacuum rotary dryer at Uncle Sam's Food Research Center, Beltsville, Maryland, 41 pounds of water are taken from it. Dried meat residue, like the dark pile at left, will weigh only 19 pounds. This saves weight and space in cargo ships taking food to armies and allies overseas (page 451).

more pork than any year in history, and Uncle Sam is asking for a still larger number of hogs in 1943 (pages 441, 446, 453).

Cows Give a Milk Lake 75 Miles Long

To provide needed milk, butter, and cheese for Army, Navy, and Allied use, and still feed some 130 million civilian Americans, is one of the hardest jobs farmers now face.

"How many farm cows does Uncle Sam milk?" I asked of Mr. L. A. Van Bomel, President of the National Dairy Products Corporation.

"About 25 million. Last year they gave a lake of milk big enough to float all the navies of the United Nations—a lake 75 miles long, 150 feet wide, and 31 feet deep."

"What share of our dairy products goes now to our Army and Navy, and, through Lend-Lease, to our friends overseas?"

"Quantities change, month to month. We're

now sending overseas to our Lend-Lease friends, and to our own armed forces who are outside this country, about half our cheese; from 45 to 70 percent of all dried skim milk; 25 to 40 percent of evaporated milk; 70 to 90 percent of all dried whole-milk powder, and from 10 to 20 percent of our butter.

"Then the boys in our own training camps here drink incredible tank-car loads of fresh milk. Fresh milk, however, cannot be shipped overseas; they use dried milk over there.

"Much dried milk is made by a spraying process. In that method, we just turn a Niagara of skimmed milk into a hot captive cyclone that roars inside a vast iron tent. The dried milk falls to the floor like snow, and we gather it up. Mixed with water, it makes a nourishing drink that soldiers like.

"You can take 100 pounds of skimmed milk and reduce it to slightly more than eight pounds by drying."



International News

Long Island Schoolboys Take Up the Shovel and the Hoe

War industries, plus armed forces, have drawn fully two million workers from our six million farms. Trained at the State Institute of Agriculture, Farmingdale, these boys, like thousands all over America, help relieve labor shortage (pages 451, 457).

"Can you dairymen produce even more milk, cheese, and butter to meet Uncle Sam's increased demands for 1943-44?" I asked.

"That depends. Problems of dairy farmers are the same as those of other farmers—worn-out machinery, lack of transportation, and, worst of all, labor shortage. We simply can't get enough men to milk cows and make butter and cheese," said Mr. Van Bomel.

"They tell me," I said, "that farm labor got so short in the fall of 1942 that thousands of dairy farmers sold their cows to the butchers and went out of business."

"Stories about butchering dairy cows have been greatly exaggerated," he replied. "It is true that thousands of dairy farmers, small and large, have gone out of business because of lack of manpower, but the best cows of each herd were sold to other dairy farmers and are still producing.

"Our dairymen have lost thousands of workers because producers can't pay the high

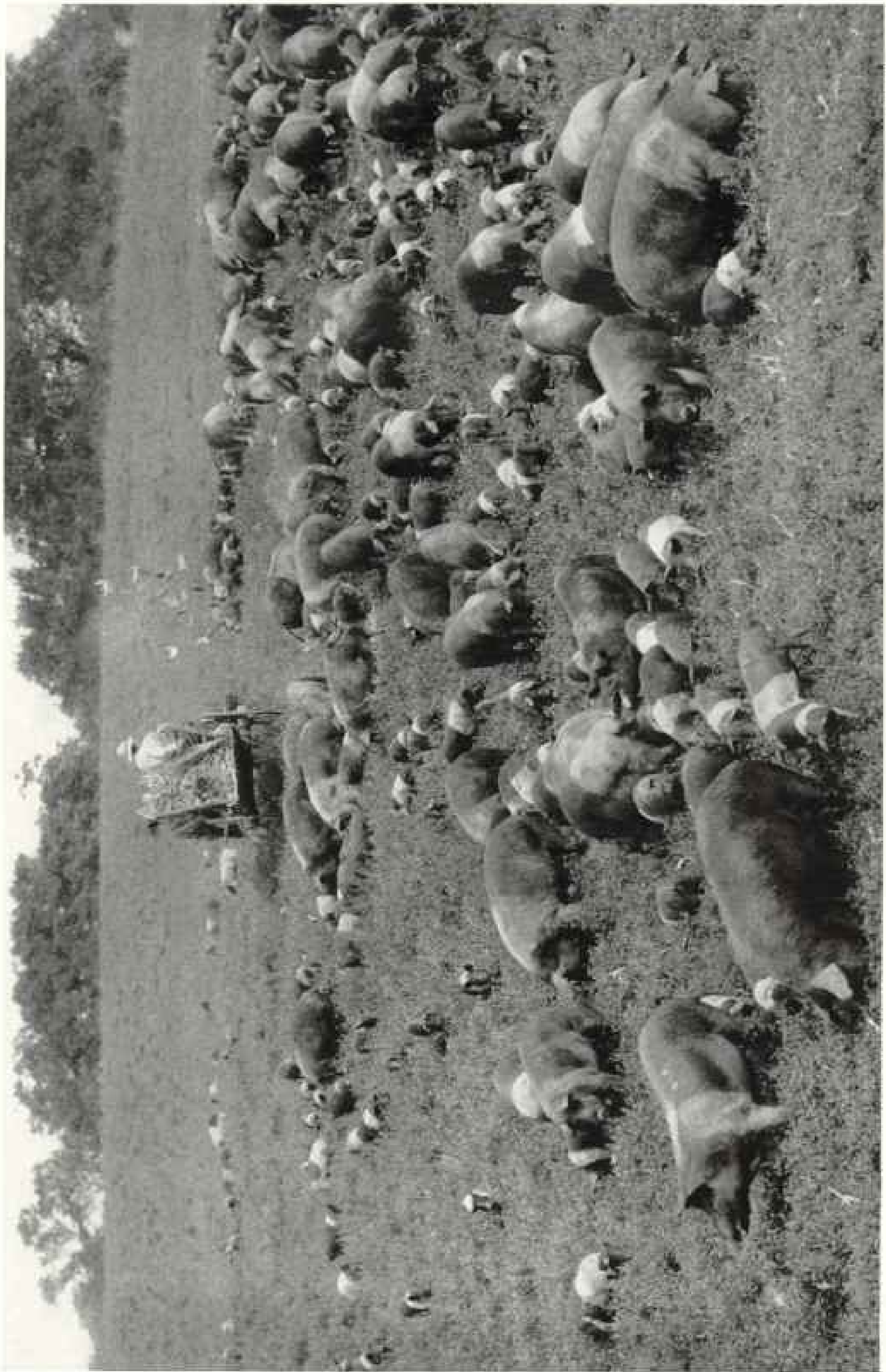
wages now paid in wartime factories. There's a limit to the wages the farmer can pay, determined by the price he receives for milk. Many farmers blame the draft for the shortage of labor, but the fact is that more men have left farms for work in factories than have been drafted by the Army."

1943 Finds U. S. with Vast Wheat Surplus

Bread made of wheat has been the chief food of many peoples from time immemorial. Europe, for example, eats huge quantities of bread, macaroni, spaghetti, but little corn.

Corn has been grown and eaten in America since pre-Columbian times. Wheat, introduced here after Europeans settled in the Western World, has now spread from Canada to Argentina.

While we may not live by bread alone, the loaves, rolls, biscuits, crackers, cakes, and doughnuts made from wheat account for a large share of our daily food.



Hogs Are Nature's Factories That Turn Corn into Lard and Pork.

Scooping unshucked corn from his wagon, an Iowa farmer drives slowly through his fattening herd. Hogs, as wartime meat-bearing animals, are more important than beaver because they produce both meat and lard—and the United Nations are short on lard (page 440).

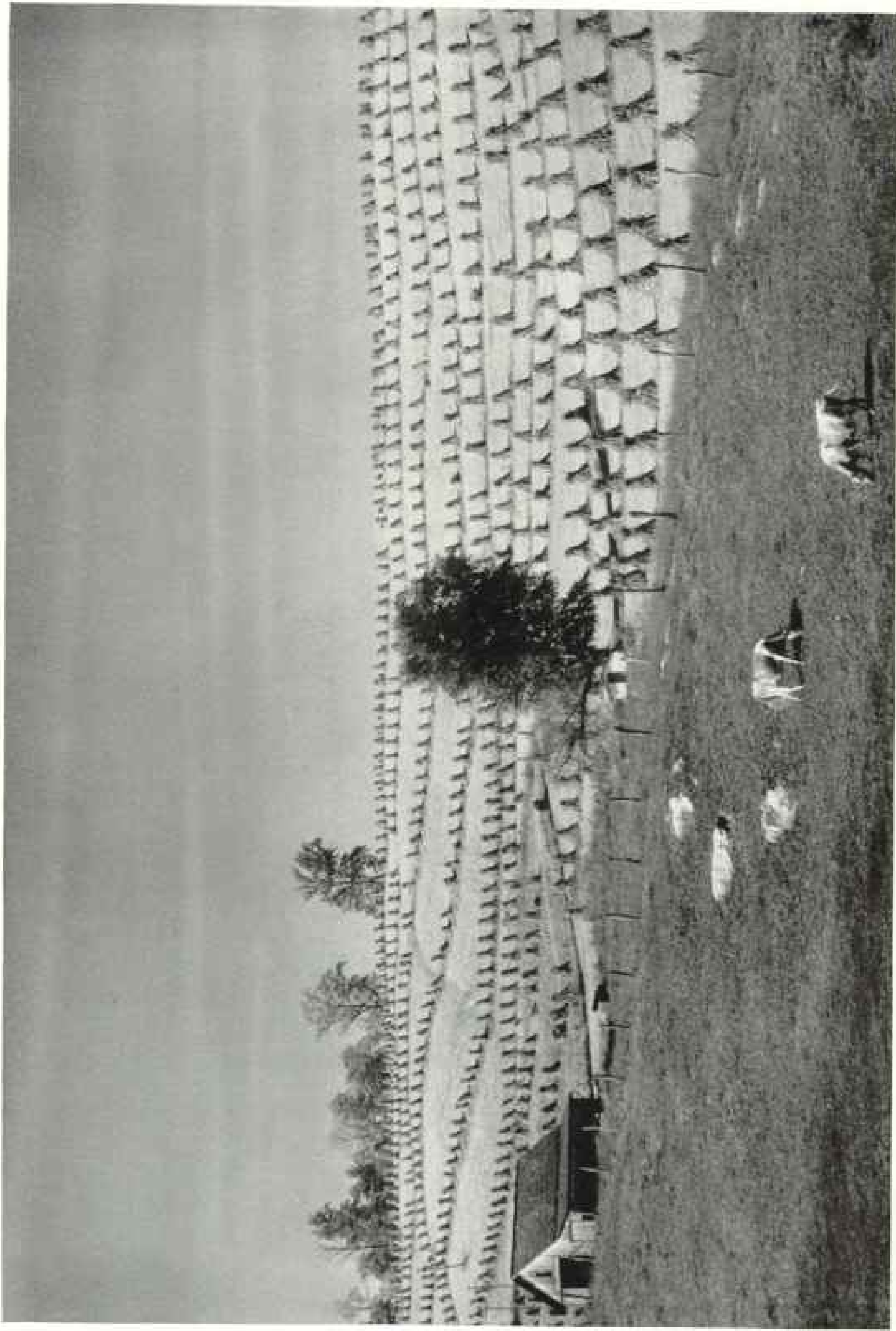
J. C. Allen & Son



J. W. McManis

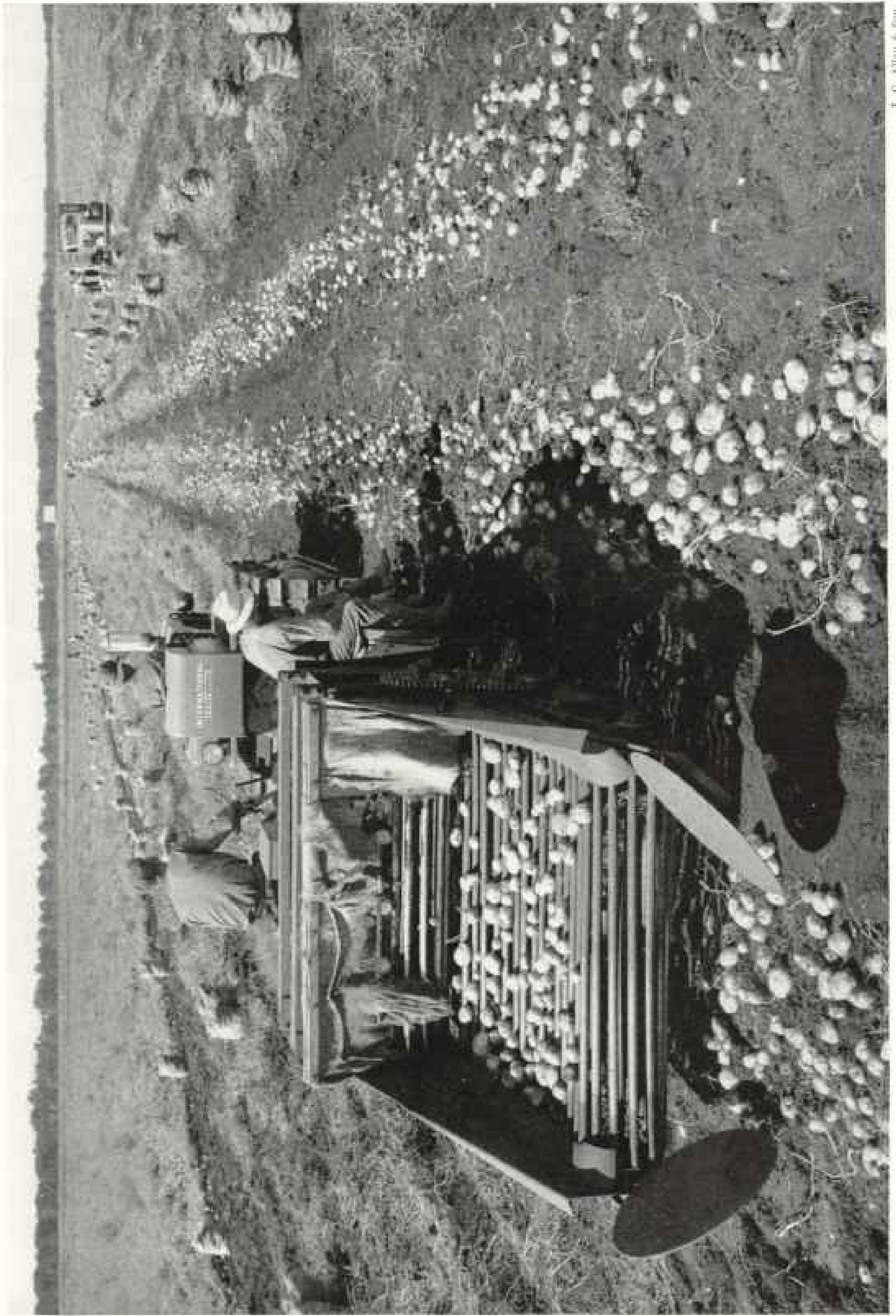
Boys and Girls of 4-H Clubs Exhibit Their Sheep at a Horton, Kansas, County Fair

These youthful students of animal husbandry also show cattle and swine. The fair has domestic art and science classes, too. Thousands of farm men and women, now helping meet wartime food needs, get their training from their famous 4-H clubs.



Like Banks of Soldiers, These Unbroken Lines of Maryland Corn Stalks Will Do Their Part in Helping Win the War

A. Anthony Bodine



Dozens of Men, Wielding Potato Forks, Couldn't Unearth Tubers as Fast as This Ingenious Potato-digging Machine in Indiana

P. C. Allen & Son



E. K. Langstaff

Her Flood of Golden Wheat Rises Ceilingward in a Nebraska Farmhouse

Marilyn Quigley, of McCook, had more grain than bins, so she stored the overflow in the wallpapered rooms of an empty cottage. Late in 1942, railroads could accept no more wheat for transport—all terminals were full. Some farmers even used old garages and airplane hangars as wheat bins (page 455).

Joseph in Egypt, you recall, urged Nile farmers to lay up surplus grain in the fat years against lean years to come. Under the Ever Normal Granary policy, we try to do that here.

Now, by hard work and good weather, our stock of wheat is fantastic. Added to what our Allies hold in Australia and Canada, grain carry-over is history's greatest.

Wheat stocks in the United States late in 1942 totaled 1,373,000,000 bushels. Our 1943 domestic consumption as food should be about 700 million bushels.

Many more million bushels are being fed to livestock, used for seed, or go into alcohol and other industries.

Even should 1943 be a bad crop year, there could be no wheat famine here. Only repeated poor crops, plus increasing demands by starving foreigners, might eventually whittle away all surplus and leave much of the wheat-eating world facing a bread famine.

Amazing quantities of eggs, meat, and vegetables are dehydrated.

No phase of this whole gigantic task of raising, packing, and shipping food is more dramatic and important than the amazing growth of egg, meat, and vegetable dehydration.

To process food so it will keep in any climate, and to save shipping space, are prime reasons for dehydrating.

Look first at eggs. China for years sent us dried eggs, but they were good only for use in bakeries.

When war broke, we started sending whole shell eggs to Britain. But some spoiled, many broke in handling, and they took up much valuable cargo space.

Then science found a new way to dry eggs, which yields a food so good that it has come to stay, even for peacetime home use.

Now three dozen fresh eggs can be reduced to one pound of powder. Broken eggs are simply blown through pipes, to emerge as



USDA. In Good!

Itinerary for This New York Carrot Crop—From Field to Dehydrating Plant to Overseas

A farm girl takes to the field with her collie companion to help harvest the heavy yield. A "land army" of some 3½ million men, women, and children may have to be raised and trained to harvest 1943's hoped-for big food crop (pages 445, 457-8).

spray in a large heated room. Falling to the floor, there lies the powdered egg!

A 175-pound barrel of dried eggs is equal to 18 cases of fresh eggs (page 455). To save their soul, many people can not tell a dish of scrambled eggs made from egg powder from a scramble made of fresh eggs.

To save ship space and ice, pork and beef are also now dehydrated. Some think you might shrink a steer to rabbit stature, or reduce a hen to humming-bird proportions and then, by adding water, blow her up to ostrich size and make soup for a large company.

But it's not so startling as all that. Actually, a 500-pound beef carcass is reduced to about 60 or 70 pounds, and dehydration of meat is laborious and costly (page 444).

We watched them knock a steer in the head, skin and dress him, cut out his bones and whittle off his fat. Then, in small pieces, they put him in the revolving dryer. He came out finally, that 700-pound steer, as enough dried

meat to fill a suitcase—meat good for soup, stew, or meat loaf.

Vegetables, too, are dehydrated (page 454). Farmers haven't yet plowed up our golf courses, as they have in England, or planted potatoes right up to the front-door knob of ancestral homes. But they're raising more vegetables than ever before.

We canned 114,500,000 cases of peas, tomatoes, corn, and beans in 1942. But because of tin shortage, more and more vegetables are being dehydrated.

To speed up dehydration, USDA set up temporary schools in vegetable-growing belts. Since most vegetables are around 90 percent water, this again saves time, money, and space.

Drying fruit and vegetables is nothing new. Indians dried beans, corn, squash, and "jerky." Soups packed for Boer War use were served to British soldiers in World War I—15 years later! Chasing flies and chickens off the roof where peaches and apples were sun-drying



J. C. Allen & Son

Even in His Most Violent Nightmare No Farmer Ever Saw Hogs Like These—They're Made of Solid Lard!

The pig-headed chorus, with basso-profundo grunts and "high C" squeals, seems to be singing the praises of its own fat. Look at the fancy twist in the choirmaster's tail! An exhibit at a Chicago Livestock show.

was long a Midwest small boy's summer task.

In World War I we used lots of rather poorly dehydrated potatoes, beans, etc. But now this is much better done and on a tremendous scale. Output in pounds is astronomical. "Ship them food, not water," is the new slogan.

Soup by trainloads is made by spraying cooked vegetables on hot revolving drums, water escaping in a few seconds. Dried products peel off the drums like paper and crumble into flakes. Tomatoes are dried the same way.

Most dried fruits come from California. These include raisins, peaches, apricots, apples, pears, prunes, etc. For the Army, Uncle Sam has commandeered 100 percent of dried apples and some others, just as he has taken most of the salmon pack.

Armed Forces Use a Ton of Sugar a Minute

After dehydration, food that would have filled 1,044 ships can be packed into 170. One freighter plane can carry the equivalent of 150,000 quarts of fresh milk in powdered form, milk that can stay out of a refrigerator 10,000 hours without getting sour. The crews of Allied bombers, off on "egg-laying" trips

over enemy lands, live while up in the air entirely on condensed rations.

It would take over a ton of sugar a minute, day and night, to supply 10 million American sailors and soldiers.

America is also the world's biggest candy eater. We're even building a special candy factory now in Honolulu to supply soldiers and sailors fighting Japs in the Pacific. We eat every confection from chocolate bars to gumdrops. We're cake eaters, too, and we like pie, ice cream, jam, soft drinks, chewing gum, molasses, sugar in our coffee.

We eat, in fact, about 104 pounds of sugar per capita every year, when we can get it. But now we can't get that much. Why?

Within territorial United States, counting both cane and beet sugar, we produce only about 29 percent of what we consume. The other 71 percent we normally import from Cuba, Puerto Rico, Hawaii, and the Philippines. Now the 15 percent we got from the Philippines is entirely cut off.

Sugar is so plentiful in Cuba and Puerto Rico that where to store it is a problem. But lack of ships keeps it from us.

To increase our home crop, beet and cane growers have planted 25 percent more land,



AP from Photo Unit

Booming Food Production in Iowa—19 Piglets of a Litter of 27 Line Up for Lunch

From 30 to 40 percent of all young pigs die before they're a month old, often from lack of attention. To raise litters successfully calls for highly skilled labor (page 443).

and Uncle Sam is paying them a premium. Also, to save labor, we shut down some refineries and consolidated others.

But Nature kindly compensates. What we lack in some foods we can make up in others. Consider, for example, the resourceful soybean.

Soybean the Cow of China

For 35 years Mr. W. J. Morse of USDA has chased the nimble soybean from China to Illinois. More than 2,500 types have been imported for scientific study. Now that war sees farmers planting ten times as many soybeans as were grown a few years ago, Mr. Morse is knee-deep in all kinds of new bean problems.

"As there are no more fats and oils from the Far East," he says, "and with our Allies clamoring for an extra billion pounds a year, this tricky bean which has been the 'cow of China' for centuries takes the spotlight in America's quest for more food."

"In today's food struggle," I asked, "what is the big role the soybean now plays?"

"Its oil goes into cooking fats, salad oils, and oleomargarine," said Mr. Morse.

"Is this oil the bean's only claim to fame?"

"Far from it. The meal left after the oil is

pressed out, once used here merely as stock feed, has now been proved even more valuable in the human diet.

"Besides making flour, macaroni, crackers, etc., we find that by injecting soybean flour into common wheat flour we can enormously increase its nutrition value. That's why the Russians and English are buying so many soybean products now under Lend-Lease.

"In fact, this magic bean has become so valuable for its fat and food content that, for the duration, its importance also in making soap, plastics, paint, varnish, glycerin for wartime explosives, etc., is largely overshadowed."

Lend-Lease now buys big cargoes of soya sausage, which has high protein content and does not "fry away" as much as pure meat sausage. Bean flour is also mixed with cereal breakfast foods.

More Crops Need More Fertilizers

Battling for bigger-than-ever crops, farmers need more and more fertilizers.

Growth of Florida citrus fruits might fall off 80 percent without fertilizer, or one-third of our huge, important tomato crop might fail. On the whole, we might lose 15 percent of all crops but for this enrichment of the soil.

Most farmers depend on cow and horse barn



USDA, by Russell

"We Can Dehydrate Even a Carrot So Skillfully That It Keeps Its Flavor and Vitamins"

She took two big raw carrots, weight two pounds, ran them through a dehydrator, and cut their weight to the three-and-a-half ounces of this vegetable which you see in the pan. After the war dehydrated vegetables will be widely used in our homes. Beans, tomatoes, potatoes, even cabbage, yield light, compact, palatable foods when properly dehydrated (pages 450-2).

manure. Last year they spread a billion tons of it. Think of the work—one billion one-ton truckloads!

Besides this natural manure, we use also millions of tons of "mixed," or commercial fertilizer.

From Chile we import normally some 700,000 tons of nitrates a year. Cotton growers, especially, like Chilean nitrates. Of late years, by taking nitrates from the air, we have enjoyed a huge domestic supply, and American farmers have been freed from dependence on Chile. But now we use our air nitrates for making powder; so back we go again

for Chilean nitrates.

Since the last war we have developed our own potash mines, leaving us no longer dependent on Europe.

From our coke and gas works we obtain also much sulphate of ammonia; this alone, with our abundant phosphate-rock deposits, insures us ample stocks of these elements for what farmers call a "complete fertilizer."

For 1943-44 crops, then, Uncle Sam assures his farmers enough or nearly enough fertilizer for the greatest farm production in history.

**Mountains of Rations
Roll on the Rails**

Farmers dispensed with about 12 million horses and mules after the motor truck came into general use. Now, because of tire and gas shortage, rigid limitations are put on the use of trucks; hence, while growing the food is one problem, how to get it to market is yet another.

Most acute is the transport riddle within 100 to 200 miles of such central food markets as St. Louis, Indianapolis, Kansas City,

Minneapolis, etc. Good examples these cities are of points to which, in normal times, nearly all milk, vegetables, and meat animals rode in trucks.

Besides these, of course, many other food-laden trucks habitually made deliveries to markets many hundreds of miles away, such as Texas cabbage to Missouri and Florida fruit to Washington, D. C.

Now, short of trucks, farmers dump all this extra food cargo onto the railroads. In 1943 railroads are hauling twice as much food and livestock as in peacetime. Last year they hauled 4½ million cars of food, including

meat animals. The Santa Fe System alone moved more than 85,000 cars of cattle, sheep, and hogs, besides many solid trainloads of fruits and canned goods.

But railroad switches can't penetrate every nook and cranny of every farm. By some means, 1943's tremendous food and meat crop must be hauled to railroad loading stations.

"You farmers must get together," orders Uncle Sam. "Cut out half loads—move no truck till it's loaded full. Share your trucks; haul your own stuff today, and your neighbor's stuff tomorrow.

"If this war lasts long, trucks that deliver city milk, bread, fruits, and vegetables may disappear entirely. Consumers will have to go to the store, buy their things, and carry them home."

Over our rails food now rides at the rate of 10 million tons a month, much of which used to go by water. Submarines have forced a lot of ocean-borne food freight to take to land routes.

Ships used to bring potatoes south from the Maine coast and citrus fruit north from Florida to New York. Apples from Washington and Oregon came east, via the Panama Canal. Now all this is dumped on railroads.

Biggest food-moving job is grain. Weeks before harvest, railways begin spotting "empties" in the Wheat Belt. Where to store the wheat, after harvest, was another 1942 farm problem. Elevator men got so jammed they had to beg the railroads not to bring in any more wheat. All through the West farmers stored wheat in houses, garages, old schoolhouses, and airplane hangars. Much was even piled on the bare ground in the open air (pages 450, 456).



USDA by Everett

This Barrel Holds 175 Pounds of Dried Eggs

In their shells, that many eggs would fill 18 cases! Dried, they also are easier to pack and easier to keep. It is hard to tell the difference between scrambled eggs made from "shells" or from egg powder (page 451).

Geographically, food streams flow south to north, west to east. For every five loaded boxcars that enter New England, three come out empty. Twenty-five percent of all cars go back south and west empty, after more food.

Biggest railroad task now is to move food trains promptly, as wanted by Army, Navy, and Lend-Lease. Queer shifts occur. At one Atlantic port 152 carloads of butter had been assembled. Suddenly orders came to move this to a West-coast port for shipment to Vladivostok. It was summer. Icing all that butter, every day, till finally it was delivered alongside the Muscovite freighter was all in the railroad crew's daily worry.

Unknown to most of us, a vast chain of food depots stretches up and down the At-



J. W. McManis

Trainloads of Wheat Converge on a Grain Terminal in Turner, Kansas

The high concrete-and-steel cylinders are grain elevators, a type originated in America. At harvesttime, railroads "spot" thousands of empty cars in wheat zones to carry out America's biggest food movement. Abundant car reserves are on hand (pages 454-5).

lantic and Pacific coasts within easy reach of ports of embarkation. I know of one such storage center of 78 huge warehouses.

Few city people realize that but for modern farm machinery such as tractors, cultivators, seed drills, disk plows, harvesting and threshing outfits, America would starve.

In my mail are these lines from a famous agricultural engineer: "To harvest our 1942 wheat crop by the methods of 1850 would have meant using every able-bodied person in the United States, and also importing millions of foreign hands!"

When our Constitution was drawn up in 1787, it took 19 farm people, without machinery, to provide enough food surplus to feed one town dweller. By 1937 those 19 farm people fed themselves and 56 townfolk and 10 people abroad.

Farm machinery, as we know it, developed in the past 100 years. These machines, with ships and modern transport, make it

possible to prevent famines of former days.

Our early settlers often faced starvation, having only crude tools brought from Europe to clear forests and break virgin sod.

William M. Jardine, when Secretary of Agriculture, said a farmer of the Pharaohs' day, if reincarnated during our pioneer times and set down in a Pennsylvania harvest scene, could have gone to work with a familiar tool at a familiar task!

It was such pioneer American inventors as John Deere, J. I. Case, and Cyrus McCormick of reaping-machine fame, who gave us the implements to open vast Midwest corn and wheat lands and make today's big crops possible. These machines, even in the Civil War, saved us from going hungry.

"Manual labor was so scarce last August (1862)," said the *Scientific American* on July 4, 1863, "that but for the horse rakes, mowers, and reaping machines, one-half of the crops would have been left standing in the field."



Bill Hibdon

Behind with Their Work, Nebraska Farmers Run Corn Pickers at Night

But for machinery, today's labor shortage would make cultivation of all our farms impossible. Last year's crops were so heavy that, without machines, we could not have harvested them, even if America's whole adult population had turned out to help. On one big plantation near a certain busy military base, men with walkie-talkie radio sets accompany these nocturnal harvesters so that, in case of an air-raid alert, they will get the warning promptly and turn off the machine's electric headlights.

Again today, as everybody knows, farm labor is so scarce that much fruit rotted on the ground last year, and some farms now lie idle.

In 1940 there were about 11,250,000 farm people 14 years of age or older actually doing useful farm work beyond chores about the house.

By now, spring of 1943, more than two million of these, all adults, have quit farms for factory jobs or to join the armed forces.

To help make up for this lack of hands, farmers depend more and more on machines. They're getting scarce, too, and so are spare parts (page 449).

Factories that made farm implements are now busy turning out war machinery.

Despite today's shortage, however, farmers do their best by keeping machinery in repair and by lending it to each other, or contracting to do a neighbor's plowing, planting, and

harvesting, and sharing what labor there is.

From marginal lands farm folk by thousands, aided by the Department of Agriculture, are being moved to richer farm regions, where they can help raise more and better food.

Californians Enlist in Vineyard Army

For picking fruit, handling sugar beets and other harvests, women, school children, and certain groups of men are being recruited in the towns. Ways of training this inexperienced labor are also devised (pages 445, 451).

Already, California has set a pattern. Over one week end, 8,000 town people quit the city of Fresno to work in vineyards.

Sugar-beet crop for 1942 was 12,969,000 tons. Its harvest was achieved, despite labor shortage, by aid of volunteer workers from among western college students, townspeople, even teachers and State officials. Some Mexi-



International News

The President Lunches from an Army Mess Kit in North Africa

The luncheon followed Mr. Roosevelt's review of United States troops at his historic conference with Prime Minister Winston Churchill at Casablanca, Morocco, in January, 1945. "And it was a mighty good lunch, too," the President told newspapermen. Seated, left to right, are Lieut. Gen. Mark W. Clark, commander of U. S. 5th Army in Tunisia; the President, and Maj. Gen. George S. Patton, Jr., commanding U. S. troops in French Morocco.

can laborers were also imported, and Japanese evacuees from West-coast points joined in helping save the beet crop.

In Kentucky, Missouri, Connecticut, and other States still more non-farm men and women spend part or all of their time helping to do farm work.

The crop season of 1943 sees hosts of city women and children working on farms, beholding for the first time in their lives the miracles of seed germination, of lush plant growth, and the benediction of abundant food harvests.

From Maine potato patches to cane and cotton plantations of the South, from Wisconsin dairy farms to wheat and corn fields of Kansas and Oklahoma farmers fight to grow more food that Democracy may survive.

Our fare gets plainer, but we can take it—just as in the days of Valley Forge and Vicksburg. Today we can tighten our belts, too, and can even eat horse meat—if we have enough horses!

Until we try, we moderns don't really know on what a simple, pioneer diet we may live and still be healthy. Possibly, until we try, we do not even know the ultimate food-

production possibilities of our own rich land.

Here in our States the American farmer has developed the world's greatest agricultural garden. It stretches from Maine to California. In it grow not only the food plants indigenous to it, but also the fruits, grains, melons, vegetables, berries, and high-class meat animals imported from foreign lands and further developed here by selective breeding.

In this new Garden of Eden science has helped by showing farmers how to irrigate, fertilize, rotate crops, and conserve soil.

Thus, for example, it came to pass that the once almost empty Great Plains are now waving seas of grain, while ingenious dams and canals turn age-old deserts into lush green valleys fragrant with fruit and cheerful with the shouts of busy workers.

Since Adam and Eve set to work in Eden, farmers and stockmen all over the world, pagan and Christian alike, have held dominion over the soil, toiling to feed mankind.

Today the American farmer carries on. His wartime job is to "Keep Them Eating." Like Adam, by the sweat of his brow he will see it through.

Color Glows in the Guianas, French and Dutch

BY NICOL SMITH

THE two Guianas, French and Dutch, lie side by side on the north coast of South America like a pair of twin beds moved close to each other. Only the brown ribbon of the Maroni (Marowijne) River divides them.

When one looks down on those huge twin beds from an enormous height, they can scarcely be told apart. Each one appears to be covered with a green counterpane, the endless roof of the green jungle. For these two Guianas are virtually all jungle, nearly a hundred thousand square miles of it.

But at ground level, as I knew from previous visits, there would be a riot of color: not only the violent colors of tropic birds but the crazy-quilt pattern of the costumes of Java and other parts of the Far East, the Congo black man and the Carib red man, all under that jungle roof.

Loren Tutell and I flew from Martinique to Cayenne, the capital of French Guiana, on the afternoon of May 31, 1941, to make motion pictures in color of the colony and of its penal camps (page 476).

Cayenne has some 13,000 people, of whom scarcely a thousand are of white blood. The Cayenne River bounds it on the west, the ocean on the north, and the jungle hems it in on the other two sides. Our Pan American Airways seaplane's "landing field" in the river seemed deep in the jungle, although actually only three or four miles from town.

At the pier we handed our passports to a diminutive French military policeman whose uniform consisted of brown shorts and an open-necked shirt, approved costume for Cayenne's hot and muggy climate.

A House of Many Colors

We went on by taxi to the center of town. Color was everywhere. I remember one little street lined with tiny houses set in gardens, no two houses alike in color. Blue, yellow, red-brown, each sang a different tune, a dancing tune. We passed a garden wall of pink stone, with a big gate of delicate iron grillwork, and behind it a hedge of vivid green.

The hedge enclosed a house of three stories, each a different color. The first floor was pale blue, the second canary yellow, the third deep blue, and the roof was bright red.

Our hotel fronted on the Savane, the city's principal public square, shaded by tall palm-trees and palmettos.

That evening we watched the citizens pa-

trading in their finery. Nine out of ten persons on the streets were black, or shades of black, although there were many Chinese, Indo-Chinese, and a few Indians.

At the gates of the Governor's Palace Senegalese soldiers in colorful uniform stood guard. Splendid fighters, these troops, numbering only a few hundred, are the entire military force of the colony, except for the military police, who guard the prison camps.

Governor Robert Chot, of dynamic personality, wiry and athletic, with coal-black hair and flashing eyes, seemed even younger than his forty-odd years. Already he had served France in the colonial administration of Madagascar and Pondichéry.

French Guiana's Wealth in Forests

Much of the wealth of French Guiana lies in the forests, whose stands of greenheart and purpleheart timber in the Territory of Inini seem inexhaustible. These woods are highly prized for shipbuilding and dock building, because of their resistance to borer insects. Much timber is felled by convict labor.

We accompanied the Governor in his little launch to one of the largest of these prison camps in the forest, near Cayenne.

Here were some 175 prisoners, all from French Indo-China. Some were felling timber with two-man saws, others pulled up stumps with a tractor. Their midmorning meal was brought them in two baskets suspended from a pole slung across the shoulders of a Tonkinese coolie.

One basket was heaped with cooked rice. The other was laden with casseroles containing shrimps, pork, string beans, corned beef, and stews of meat and fish.

"They are served this sort of meal twice a day," said the Governor.

"And on Sundays," added the commandant, "if they have behaved themselves well during the preceding week, they are allowed to fish and hunt. They find game plentiful—wild pig, agouti, deer, and birds."

We strolled from the timber clearing to the big barn, both the repair shop for the tractors and the warehouse for the food supplies, passing a meadow on the way. Rice was growing in its rich wet soil.

Back in Cayenne I met a young French physician named Floch, who had been associated with the Pasteur Institute, in Paris. He arrived in Cayenne late in 1938 and heroically attacked the leprosy problem singlehanded.



Staff Photographer W. Robert Mann

American Soldiers Show Bush Negroes that They, too, Can Paddle Dugout Canoes

They are trading cigarettes and talking in sign language with some Djukas who have come downriver. These black folk are descendants of runaway slaves who fled up the rivers of Surinam and established their own villages. They live much the same as did their ancestors in Africa (page 474 and Plate III).

Although he found one person in twenty infected with the dread disease, he at first met only with apathy from the Cayennais. Now, backed by the Governor's authority, he is enforcing the segregation of the leprous, old and young, who used to go freely about the city.

At his tiny clinic and laboratory in Cayenne, a branch of the Pasteur Institute, Dr. Floch treated leprosy and conducted researches.

A few days later I accompanied him to the site of a new leprosarium he has planned. This was to be built at the Rocks of Kourou, a seaside point some 30 miles west of Cayenne.

After crossing the Cayenne River in a

launch, we jolted off along a red earth road cut through the jungle. Soon we encountered a half-dozen convicts at work on the road. Two were Arabs, the others Frenchmen; all were naked to the waist.

They were pounding red rock into gravel with which to fill a muddy stretch. Rain began falling and the red dust on their naked bodies turned to seeming rivers of blood. They grinned.

In another mile or so, we came to a camp where several dozen convict laborers served as maintenance gangs for the road or as woodcutters in the surrounding jungle.

In the main dormitory, a thatch-roofed



Staff Photographer W. Robert Moore

From This Lofty Perch American Soldiers Keep Vigilant Watch in Surinam

Located near one of the bauxite mines, this giant ceiba tree affords a commanding view of the surrounding territory and the river approach. The ceiba, known also as the silk-cotton tree, produces pods filled with cottony kapok, which is used for stuffing life jackets, mattresses, and cushions. Natives believe that the ceiba is an abode for spirits.

building, canvas cots lined the walls, and mosquito netting was draped over each cot. Dr. Floch began peering under the nettings. He captured several *Anopheles* mosquitoes, malaria carriers, on the first netting he examined.

He turned on a sallow-faced convict who stood there, swaying on his feet, plainly dizzy with malaria.

"Is this your cot?" he demanded.

The man shook his head. "They are all alike," he said weakly.

And so they were. Few of the convicts had bothered to keep the nettings closed. The mosquitoes were everywhere.

We went on to the Rocks of Kourou, another 20 miles or so. At this lonely spot Dr. Floch planned to build the new leprosarium. Sea breezes, clearing the air of malaria, and isolation from the city prompted the choice of location.

"The two old buildings in Cayenne are too small," said Dr. Floch. "But the one we build here will be spacious, clean, and attractive. It will even have a motion-picture theater!"

"How is it to be financed?" I asked.

"Governor Chot has arranged a loan with the Bank of Guiana."

"The Bank of Guiana is a governmental in-



Drawn by Theodora Price

Bright Tabs on the Right Shoulder of South America Are the Guianas

Jungles cover much of bauxite-rich Surinam (Dutch Guiana) and the penal colony of French Guiana. Late in the 16th century, British and other adventurers began exploring here, seeking the mythical golden land of El Dorado. At the peace of Breda, 1667, the Dutch first gained possession of Surinam from the British in exchange for New Netherlands, now New York.

stitution," an officer explained. "Did you know that gold mining was our most important industry? So far, however, we have only scratched the surface. With modern machinery, our gold output could be increased many times."

"What has happened since the war broke out?" I asked.

"The bank now ships gold by Pan American planes to Rio de Janeiro and Buenos Aires."

Turning Shoes into Gold

Back in Cayenne, I met a man generally known as "M'sieu Bata," since he represented

the Bata shoe company of Czechoslovakia. He was a Czech, and, so far as I could find out, the only white man making money in Cayenne.

M'sieu Bata confided that he was investing all his money in gold. No one is permitted to take any gold out of the colony; it can only be sold to the bank. However, one may take out gold jewelry. One lady who had recently departed was wearing, when she left, a gold necklace weighing 900 grams. She had an extremely sore neck, but she was smiling.

But M'sieu Bata did not impress me so

sharply in Cayenne as did the hundreds of white men who shuffle along the streets of that little city without gold or shoes. These are the "free" convicts, men without a country and without hope.

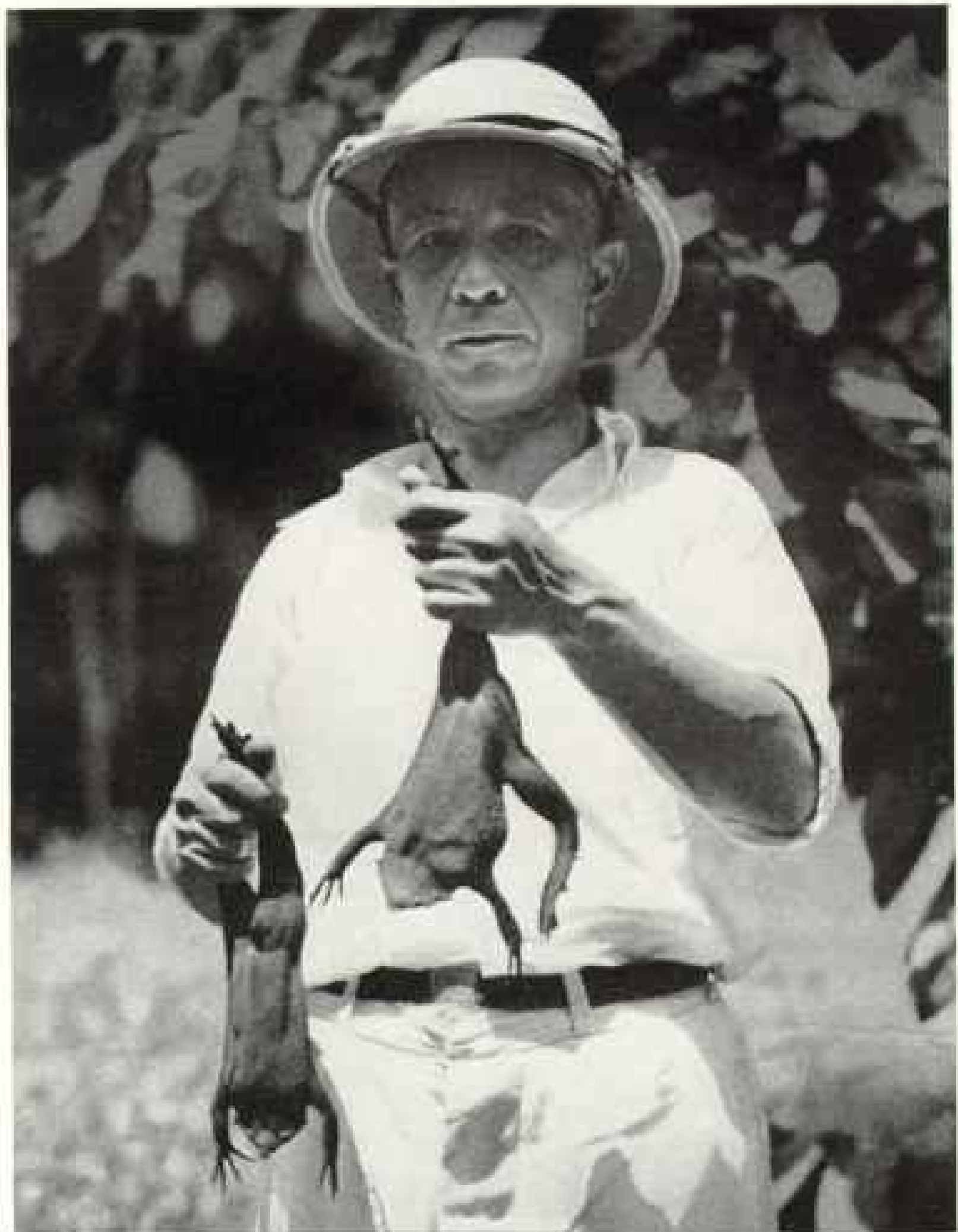
French penal law formerly provided that when a convict had served his term of years in the colony's prison camps, he must remain an equal number of years in the colony, free to go about within its borders but not free to leave its shores. These "freed" convicts are known as *libérés* (page 475).

Although France decreed in 1938 that no more prisoners were to be sent here and that the penal colony was to be liquidated gradually over a period of years, most of the *libérés* have to remain because they have no money and because now there is no place else for them to go. A few find employment as servants.

In Cayenne modern medicine walks side by side with jungle magic. A meek little witch doctor gravely assured me that he cured the bites of the most deadly snakes with a concoction whose secret he had learned from an Indian medicine man.

The waiter at our hotel, who had served his time for stealing in France, had been a vaudeville gymnast in Europe and obligingly came up to our rooms and performed. The house servants at a cocktail party were murderers; so was the keeper of the municipal zoo. I sat in a poker game one afternoon with him and four other murderers. They won my shirt.

To me the most dramatic spot in all French Guiana is a tiny island, La Mère, about four miles off the coast. To those who met Mme. Edmond Duez it remains in memory as the Island of Madame Duez.



Lorenz Titell

Jesserun, the Animal-catching Barber, Holds up Two Half-grown Surinam Toads

Mature females of this species are among the largest toads in the world. They almost equal the size of a dinner plate. Jesserun has caught many strange animals and birds and sold them to zoos and ships (pages 464 and 480).

Madame Duez was the wife of an able Parisian lawyer, who, in 1909, was accused of having appropriated more than five million francs for his own use. He was sentenced to 12 years' imprisonment on Devil's Island (He du Diable). This also meant an enforced stay of 12 years more in French Guiana.

For the first 12 years, his wife remained in France and sought a pardon for him. She had to divorce Duez, so she could recover her dowry and gain funds to carry on the fight. When his imprisonment ended, in 1922, she came to Cayenne to join him. She found him broken in health.

Undaunted, she bought the little island and took him there. Hiring a score of ex-con-

victs, she built a house and cultivated the land, which had reverted to jungle. She worked at farming, fishing, cooking, sewing, although in France she had known only luxury. Her only companions besides her sick husband were the jailbirds, whom she called "her boys" and who loved her as a mother.

Never did she give up her efforts to win for her husband a pardon from France, but all her efforts were in vain. Broken-hearted, Duez died in his island home in 1932.

When I met Madame Duez in Cayenne two years after her husband's tragic end, her house was beginning to show signs of neglect. But, remembering the courage and loyalty of the woman who had made it the sanctuary of her love, that bit of ground seemed sacred.

Surinam—a Land of Pets

When I crossed from French Guiana to Surinam (Dutch Guiana), an odd line of demarcation struck me. The people of French Guiana don't go in for pets; the people of Surinam like pets. The first one I saw pre-empted my wife's bedroom slipper.

My wife, Moira Archbold, had flown down from Washington, D. C., to make recordings of jungle music in Surinam for the Library of Congress. She arrived just as Loren Tutell and I were leaving Cayenne and flew on with us to Paramaribo, capital of Surinam.

Spotlessly clean Paramaribo, a city of 55,000, looks like a New England village transplanted into tropical jungle. We took rooms at the Palace Hotel, a white building with massive shutters which resembles a summer-resort hotel in New England.

We had scarcely settled ourselves when Jesserun, the barber, was announced. Jesserun is not only the leading barber of Paramaribo; he is also the colony's No. 1 animal catcher. On his days off, he plunges into the jungle on the outskirts of the city and returns with some strange animal or bird which he sells locally or ships to some zoo. He had sold many to Dr. William M. Mann, director of the National Zoological Park in Washington, D. C.

Cupped in his hand was a tiny monkey—a baby red howler. Its fur was then black, but Jesserun assured us it would change to a reddish color as it grew older. Jesserun put him down on the floor and he immediately climbed into one of Moira's bedroom slippers, much too big for him, and peered out, his funny little face framed in his black whiskers.

The little fellow was irresistible. We named him Jo-Jo. Moira picked him up in the slipper as if he were riding in a canoe, and, holding him close to her face, she asked him:

"You naughty little monkey, what do you think you are doing?"

Jo-Jo just hid his face in his little black hands and gave a melancholy burp. We kept Jo-Jo for the month of our stay in Surinam.

The head of the local gas and electric works owned a big red and blue macaw named Susie, and a young and playful black German sheep dog named Herman. We never grew tired of watching them at their mock battle, in which Herman's aim was to snatch a blue feather from Susie's tail.

My old friends, James S. Lawton, consular representative of the United States in Paramaribo for many years, and his charming wife, owned one of the tiniest pets I have seen. It was a species of monkey much smaller than a marmoset.

This one, a baby, was not more than three inches tall. It was covered with soft golden hair, except for its hands, which were deep brown, and made the creature appear to be wearing gloves. It sat contentedly in my coat pocket while we were at lunch.

Rarest of animal pets in Paramaribo was a bush dog, owned by the Van Kooten family. It was about two months old and resembled a chow puppy.

Lobo was very small, but we were told he would grow to the size of a cocker spaniel. The bush dog, although he is a meat eater, also likes rice, eggs, and milk. Lobo loved eggshells. His feet showed a tendency to be webbed between the two middle toes, a necessity for an animal whose habitat is swampy ground.

Lobo's sharp claws were never retracted. He loved to worry shoes, like any other puppy, and once he pulled the cloth from the dining-room table. His favorite companions were the Van Kootens' two police dogs, who were extremely fond of him and liked nothing better than to pick him up in their mouths and give him a friendly shaking. His favorite sleeping place was between their paws.

The most pet-minded family in Paramaribo was the Baukemas. Their "zoo" included a laughing parrot from the Amazon, an ocelot named Rimau (Malay for *tiger*), and a capybara, or "water hog."

The capybara is not a pig, but a large South American rodent. This one was named Minoe, pronounced Mi-Nu. She was three feet long and weighed 125 pounds. Minoe had her private swimming pool at the Baukemas', for swimming is a necessity to the capybara.

In the wild state, in which capybaras usually run in herds, they are always found near rivers. Their feet, four-toed in front, three-toed behind, are partially webbed for swimming.



© National Geographic Society

Redaction by Philip Hannon Hill

No Sleek, Clinging Gown Is the "Koto Misie" Costume of Surinam

This bulky dress (*koto*: coat or petticoat; *misie*: Miss), popular among the older town Negro women, is a variation of the Mother Hubbard introduced by missionaries. Headdresses, folded from squares of cloth, are fashioned into many shapes. Such attire is giving way to more modern dress.



© National Geographic Society.

When the Governor Is in Residence His Flag Flies above the "White House" in Paramaribo

The three white balls on the Netherlands flag signify his office. The Governor is also Commander in Chief of local land and naval forces. Backed by extensive gardens, the Palace faces a broad park in the center of town.

Residences for Philip Bannan Blos



Photographer by Philip Nassim Hlop

Carib Women Spin and Toil

Only about 2,000 aboriginal Carib and Arawak Indians remain in Surinam. Many have mixed with the Negroes or vanished. These live at the mouth of the Marowijne (Maroni) River, boundary between Surinam and French Guiana.



© National Geographic Society

For Visiting Dress the Bush Negro Dons a Toga

Ordinarily the Djukas wear only loincloths. Descendants of runaway slaves, they maintain African customs deep in Surinam jungle. They are divided into three large and three small tribes, numbering 10,000.



Surinam Gunners Move into Action in American Trucks

Much equipment used by the local forces is of United States manufacture. Except for a few Netherlands machines, the troops are mostly natives. The mobile machine gun is mounted for antiaircraft defense.



© National Geographic Society

Kodachrome by Philip Storm Hill

"Herr Hitler, Stay Away from Our Door!"

Surinam forces, manning a big American-made coastal gun, are well trained and mean business. A large contingent of American troops is also here guarding vital bauxite mines, source of aluminum.

Surinam Subjects of Queen Wilhelmina



"Keep Your Arms Straight; Then over with the 'Pineapples'!"

Students in the military school at Paramaribo learn to throw hand grenades. Recently this school has been turning out new troops to bolster the limited local forces.



© National Geographic Society

Photographer by Philip Harson III

Keen-eyed Riflemen Draw Careful Bead on a Target

These green-clad men are learning soldiering at the military school at the capital city, Paramaribo (above). Netherland, Javanese, Negro, and mixed racial strains—all work to defend Surinam.



© National Geographic Society

Stylish Stouts or Children's Sizes—Their Costumes Vary Only in Yardage

All wear the koto misle, a Mother Hubbard of stiff, paily patterned calico, as they stop on Sunday morning before the Commissioner's house at Coronie. Yards of cloth are bulked about the waist and as a bustle in back. A short jacketlike garment is worn over the blouse (Plate I).

Reproduction by Philip Barrow-Hill



© National Geographic Society

Her Lipstick and Eyebrow Pencil Seem to Have Slipped

This Carib woman, at Groningen, on the Saramacca River, is dressed for a ceremonial dance. Bits of kapok (tree cotton) are strewn on her black, wavy hair. Few of the Carib and Arawak natives still live in their natural state.



Enrichment by Philip Hensley Hill

The Devil Has White Horns and White Whiskers

At least he is so portrayed by this mask, worn by a Hindu dancer at Groningen. Originally brought to Surinam from India as contract laborers, the Indians have stayed and now make up more than one-fourth of the population.



In Glittering Crown and White Face, a Hindu Makes Up for a Drama Dance. Many of the British Indian immigrants have prospered in Surinam, now owning land and shops.



© National Geographic Society

Endarkmanns by Philip-James Hill

On This Sled She Scoots over Slippery Mud

The daughter of the Commissioner at Coronic goes for a ride, as the man, kneeling on the flat board "runners," pushes it along with his foot. Wide mud flats fringe much of the Surinam coast. Such sleds carry persons to boats for fishing.

Minoe had long, sharp teeth, but was a vegetarian. She fed on Parà grass, the long green grass found on the outskirts of the city, and on cucumbers, cornmeal mush, oatmeal, and oranges. She acquired her taste for oranges. They had to be pushed into her mouth at first.

Minoe hated children, because they teased her when she was young, but she loved her fellow pet, the ocelot Kimau. He seems to have taken the place of her former friend, an Alsatian dog which died. They had played together daily. The dog sometimes slapped Minoe's cheek with its paw, but Minoe always turned the other cheek.

Umbrella Ants Are Plantation Raiders

I don't know whether the thousands of *Atta* ants that Dr. Gerold Stabel harbors in the basement of his residence at the Botanical Gardens can be classed as pets or not. His primary interest is in studying them. He is aiming at their ultimate destruction, not their preservation. But the lives and habits of these ants are utterly amazing.*

The *Atta* ant, *Atta cephalotes*, commonly called the lowland umbrella ant, is found from Brazil northward to Central America. It causes, along with other insects, incredible damage to trees and crops in that vast area.

Under Dr. Stabel's guidance, we went about six miles into the jungle and saw an area of forest which the ants had reduced to leafless branches. He pointed out the anthill—a huge flat-topped mound about 2 feet high, 30 feet wide, and 50 feet long (page 479).

Dr. Stabel directed five laborers to go to work on the mound with shovels. They uncovered subterranean holes, about the size of a boy's head, which extended downward in tiers for several feet. They were filled with a frail, spongy, brownish mass covered with an immense number of minute white points.

We watched the endless stream of ants moving between the nest and the trees—a double stream, one line advancing, the other returning, in orderly traffic. Each ant climbed until it reached a leaf, then gripped an edge with its hind legs. Rapidly and neatly it would cut out with its sawlike mandibles a segment of the leaf, semicircular in shape and weighing probably four times as much as the ant.

Holding this proportionately huge piece in its mandibles and lifting it above its head like an umbrella, the ant would retreat down the branch and hurry back to its nest.

So rapidly does a steady procession of umbrella ants work that an entire fruit tree may be completely shredded of its leaves in a few days. The ant hordes also devastate gardens

and field crops. But they do not eat the leaves on the spot. They carry them piecemeal back to their anthill.

And what do they do with them there?

A Visit to an Ant Village

The answer was visible when Dr. Stabel admitted us to the basement laboratory where he observes the life of these ants in specially prepared villages. The umbrella ant avoids the light and warmth of the sun as much as possible. Its nests are always built under shade trees.

As leaf pieces would wither if carried in the hot sun, the ant works only at night or on cloudy, dark, and rainy days. The basement darkness, therefore, suited the ants well.

There we saw how the thousands and thousands of green leaflets brought back to the huge anthill were used. The holes filled with spongy masses are fungus gardens and the leaves are used as fertilizer for these cultures.

The ants are fungus eaters and consume no other food. To insure a continuous supply of this food, the ant colony is organized so each of its citizens has a definite task, performed with smoothness and efficiency.

Each citizen, without exception, works in one of the colony's departments—the Department of Engineering, the Department of Health and Sanitation, the Land Army, the Expeditionary Forces, or the Militia. Each is distinctively equipped, physically, for one of the occupations into which the life of the colony is divided.

Those in the Department of Engineering perform the enormous labor of building the huge city, half above and half beneath the ground level, moving literally tons of earth in its construction. Under its one roof are not only fungus gardens but also the dormitories of the residents. Sometimes there are a thousand fungus gardens in one anthill, placed underground to insure the darkness and coolness necessary for fungus growth.

From these gardens, the engineer ants dig wells straight on down to the level of water. In dry season these gardens would wither, but the ants of the Water Department keep them moistened by carrying up water in their crops—a bucket brigade. The engineer ants also construct an elaborate system of ventilating tunnels throughout the anthill. Fresh air comes through large channels leading into the fungus gardens, and then escapes through numerous small outlets.

Outside the anthill, at a distance of several

* See "Stalking Ants, Savage and Civilized," by William M. Mann, NATIONAL GEOGRAPHIC MAGAZINE, August, 1934.

yards, the engineers must dig large holes for a combination cesspool, garbage dump, and cemetery. They hold water through most of the year.

Ants of the Sanitation Squad drag to them, and throw into the water the worn-out compost of the fungus gardens and dead ants.

Finally, the engineers build the road from the anthill to the trees or plantations which are to be attacked and robbed of leafage. These roads are often more than four inches wide and provide a broad, smooth, two-lane highway for the columns of ants going and returning. The umbrella ants prune the fungus growth unceasingly. They cultivate thousands of *bromatia*, white clusters of hundreds of club-shaped fungus cells, rich in protein. These clusters, only one-quarter of a millimeter in size, are held by fragile fungus filaments and can readily be gathered by the ant field hands, the pruners and gardeners, smallest ants in the colony.

The Cleaning Squad Goes to Work

Scarcely larger than the gardeners are the ants of the Cleaning Squad. The leaf pieces brought in by the Expeditionary Forces must be thoroughly cleaned before being placed in the gardens. The leaves, especially in the rainy season, are covered with minute bacteria and fungus cells which might destroy the pure cultures of the ants' gardens.

Therefore, as each piece is brought in, ten or more members of the Cleaning Squad advance and walk slowly over both sides of the leaf segment, while two or three bigger ants hold it, until they have brushed up and swallowed all these epiphytes.

This cleansing work lasts about two hours. Sometimes the cleaners do not wait for the leaves to be brought in, but go out and begin work while they are still being cut. They hitchhike back to the nest on the leaves which are carried by the larger ants. Sometimes as many as eight of these small fry are carried home on one leaf—no doubt singing a lusty, if inaudible, chorus as they ride.

Not only the leaves, but the ants themselves, as they come back to the nest from the fields, are subjected to this careful cleaning process. During the cleaning, the big ants stand motionless, like a horse being curried, while the little cleaners brush and scrape their legs, antennae, mouth parts, bodies, and even their eyes.

After the leaf segments are cleaned, they are turned over to another squad for mastication and thorough impregnation with saliva. The pieces are cut down to tiny bits, the smallest only one millimeter in diameter, and

get a final chewing lasting 20 minutes before being placed in the fungus garden. The whole process occupies eight or ten hours.

These tiny pieces are planted vertically on the ridges of the garden chambers and fastened there by fungus threads. After the pieces are in place, the smallest ants, the gardeners, who are kept too busy ever to leave the nest, come and plant from five to ten *bromatia* on the upper edge of each leaf piece. The chamber soon fills with a frail, spongelike, brownish or blackish mass. The immense number of minute white points covering the surface is the edible matter.

The main mass is composed of the myriads of leaf pieces brought in to serve as compost. The lower part of the mass, as it dies, is removed little by little and carted off to the outdoor refuse holes.

While all this is being done by engineers, cleaners, gardeners, Sanitation Squad, and the rest, the Militia detail stands guard at the anthill entrances to repel any hostile insect invaders.

The trees, stripped of their leaves, were as bare as lands over which a ruthless totalitarian invader has passed.

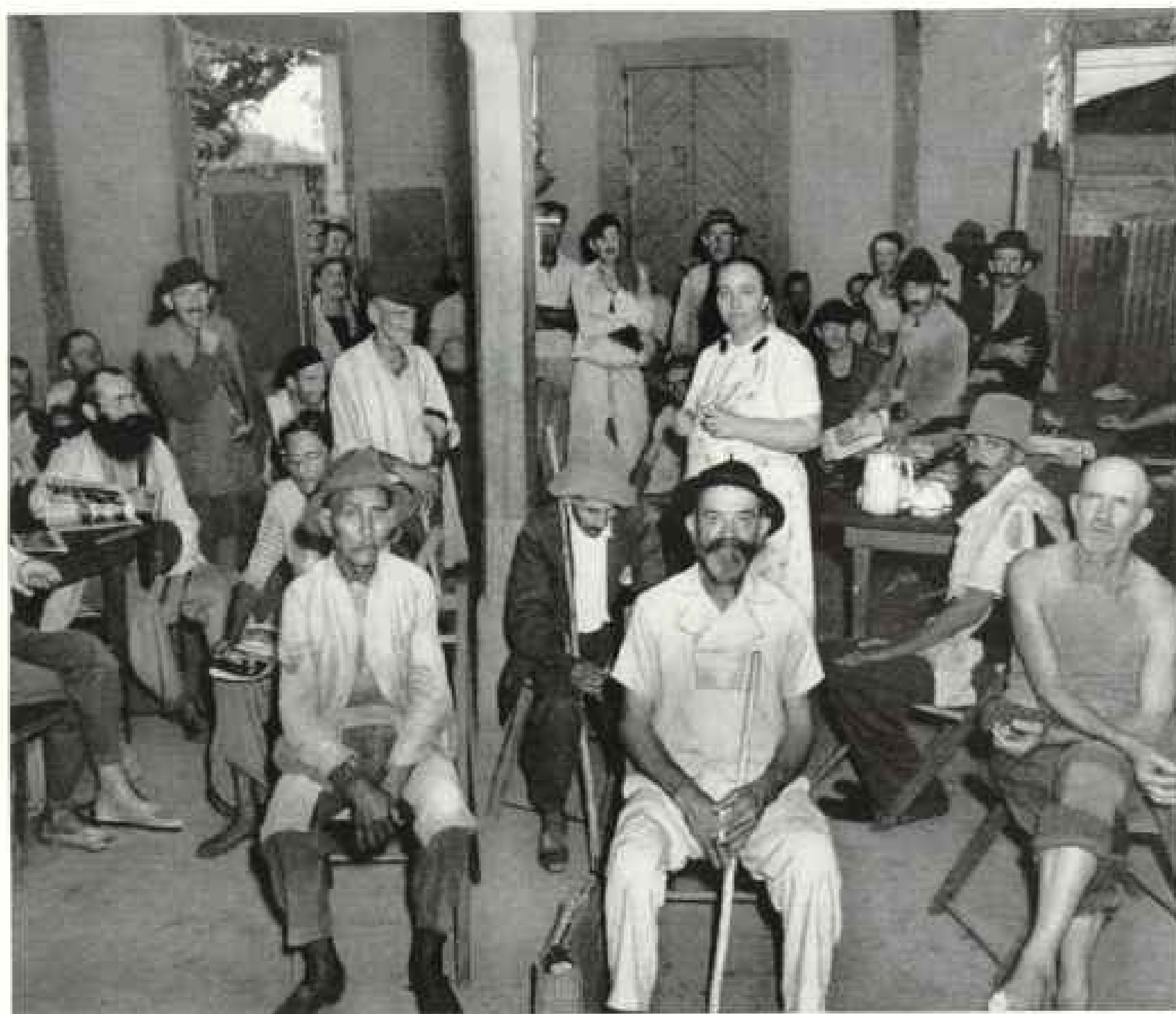
Primitive Dances Reflect the History of Surinam

Leaving the ants and returning to the human population of Surinam, we saw during our stay five different forms of primitive tribal dancing. These are rarely viewed by outsiders, even by white residents of Paramaribo.

Surinam's history explains the origin of these dances. The prehistoric inhabitants were Carib Indians, of whom a few survive. After the Dutch acquired the territory from England, in 1667, trading it for New Amsterdam (New York), they brought in Negro slaves from the West Coast of Africa to work their plantations. These soon mutinied and escaped into the jungle, continuing forays against their former masters so successfully that in 1775 the Dutch signed with them a peace treaty which has never been broken.

These Bush Negroes, commonly called Djukas from one of the tribal groups, live unmolested in the interior. A few of the slaves brought from Africa never mutinied and became the ancestors of the present-day "town Negroes," who remain content with Dutch rule and are looked down upon by the Djukas (page 460 and Plate III).

In the 1870's British Indians were brought in as plantation workers, followed by the importation of Javanese in 1890. Surinam's present population of 181,000 includes about



Loren Tait

The *Libérés* in French Guiana Are Forgotten Men of France

Formerly, having served their sentences, convicts had to remain within the colony for periods equaling their prison terms. In 1938 the French Government passed a law designed to liquidate gradually the penal colony in French Guiana, but the war intervened (page 463). Active helpers to these unfortunate people are Major and Madame Pean (right center) at Salvation Army headquarters.

70,000 Negroes, 46,000 British Indians, 34,000 Javanese, 2,200 Chinese, and only 2,000 whites, half of whom live in Paramaribo. In the interior live 2,600 aboriginal Indians of Arawak and Carib stock.

The Negro group, which forms nearly half the total population, is divided into "town Negroes," or Creoles, and some 19,000 Bush Negroes.

The dances we saw represented four historic layers—Carib, Djuka, town Negro (two examples), and Javanese.

We saw the first at a Carib Indian village some 25 miles south of Paramaribo. The village huts stood on a strip of white sand at the edge of the jungle.

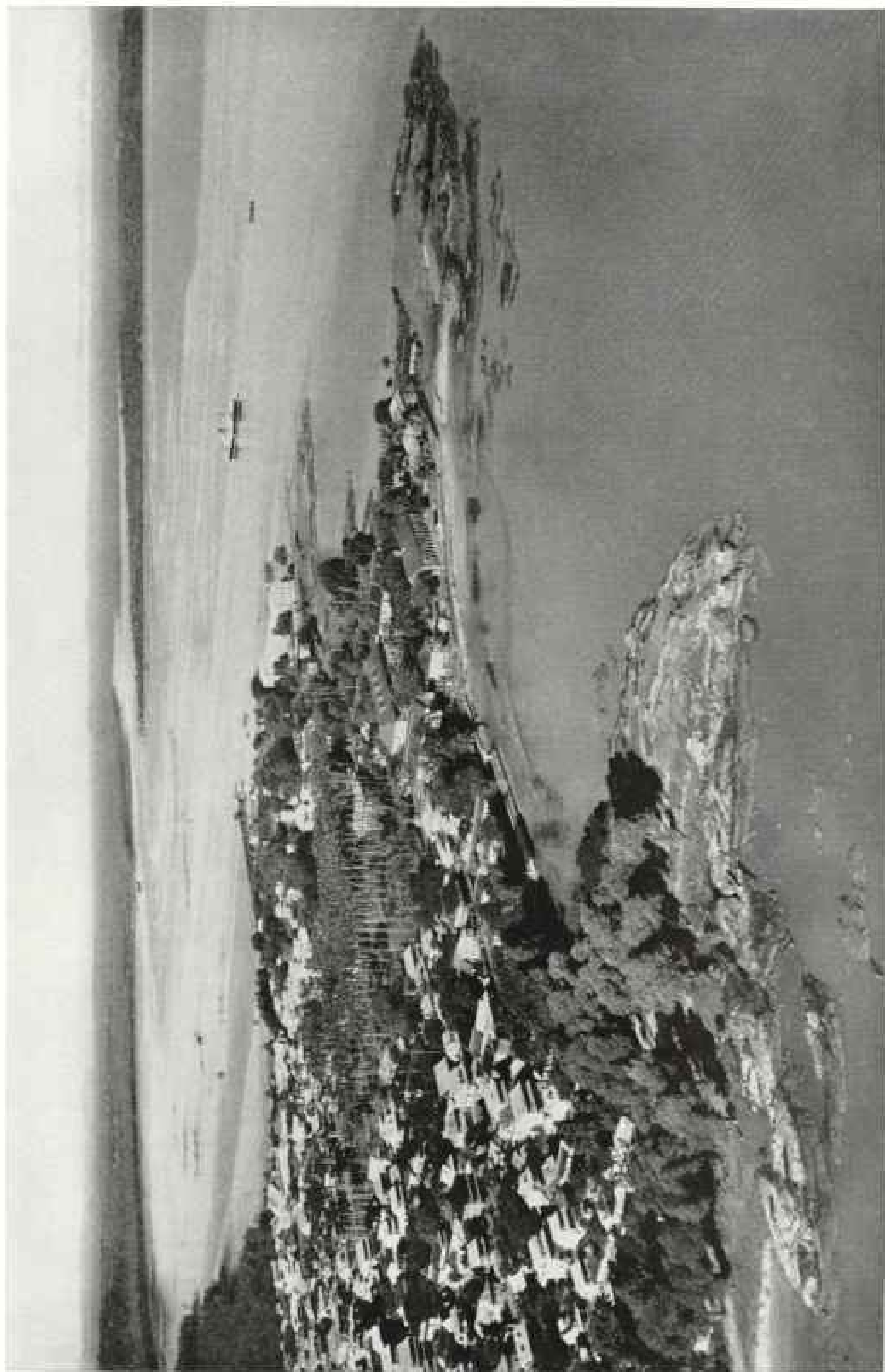
The native liquor was passed around and the dance started. Twelve men formed one line and twelve gaily dressed women a second, beyond them. The two lines swayed

back and forth in a monotonous rhythmic motion for an hour. Some mothers carried nursing babies, who did not seem to mind the constant bobbing up and down.

No less primitive was the dance of women and children in an interior Djuka village. To reach this hamlet we made a 12-hour train trip to Kabelstation, 85 miles south of Paramaribo on the Surinam (Suriname) River.

At this point the Djuka boatmen who were to take us to Kadjoe, their village, the next morning had already arrived. As we ate our basket supper and prepared for bed, they crowded around, staring at the funny white men through the screen and giggling.

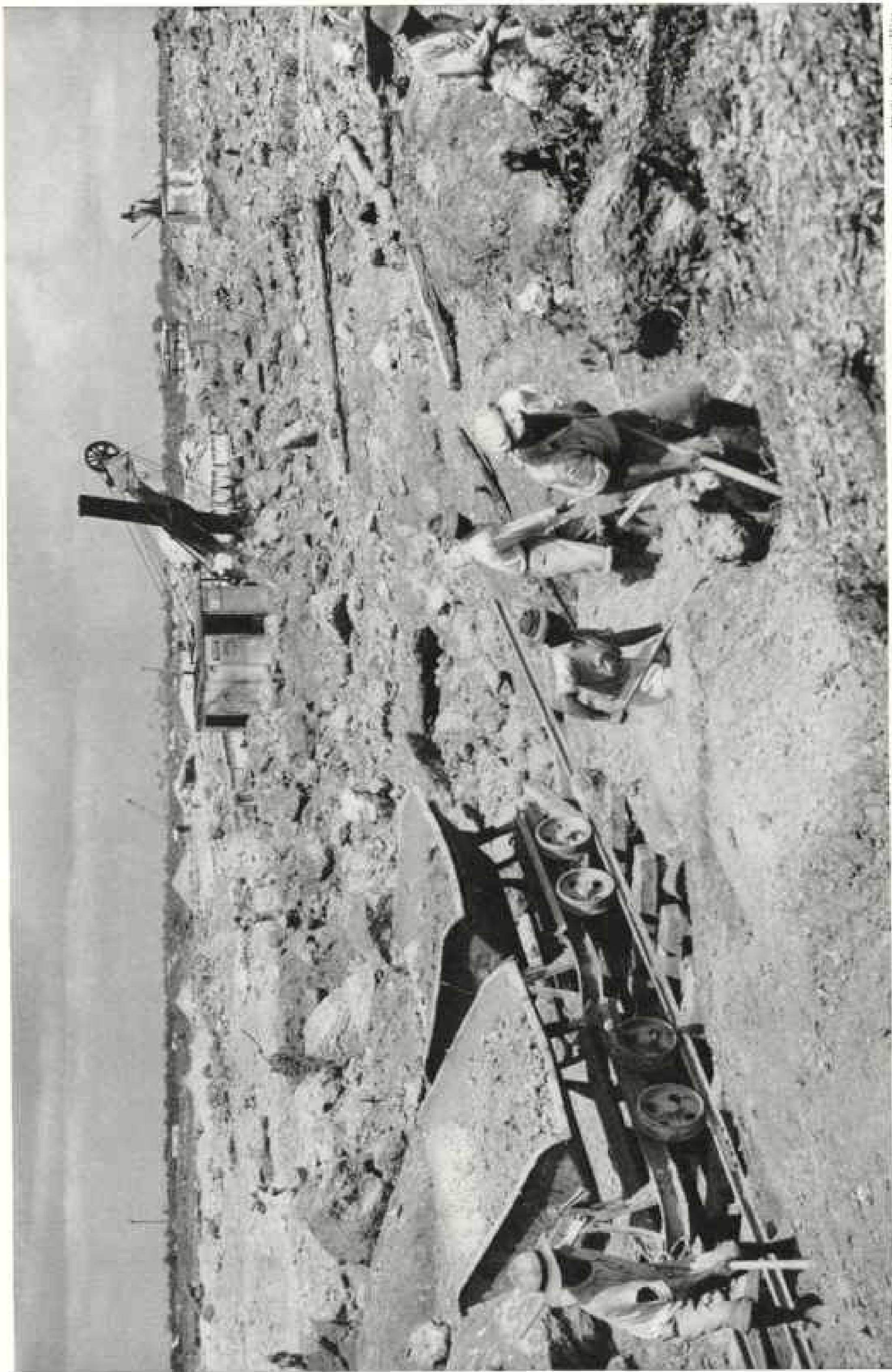
The river trip to Kadjoe lasted only an hour, for the Surinam here is wide and has a fairly swift current. The jungle, dense and unbelievably green, hemmed it in. A cayman



Albin W. Huronia

Colorful Cayenne, Facing the Atlantic, Is Capital of French Guiana

It is a city of only about 13,000 persons, many of Negro ancestry. Smallest of the trio of Guianas, this French colony is also the least developed. It has rich forests and some gold mines, but little cultivation. Pan American air-line service calls here regularly (page 459).



Philip Hansen/Bliss

From This Bauxite Mine at Moengo Comes Aluminum for Our Fleets of Warplanes

Moengo is the oldest of Surinam mines; others have been opened to fill war requirements. A shallow overburden is stripped away. Then the bauxite is loosened by blasting and loaded into cars by steam shovel. At a riverside plant the ore is crushed, washed, and dried before being loaded into ships (page 479).

slid under the water as our boatmen's paddles disturbed his sleep.

The Djuka village, a bit of Africa transplanted to South America, could not have differed much from what Stanley and Livingstone saw in the Dark Continent. Most of its inhabitants were naked, or nearly so. The women wore only a short skirt, and most of the men only breechclouts, though some swaggered in cloth capes striped with black, yellow, orange, and red. They were strapping big fellows.

With the approval of the chief, the women, girls, and children put on a dance for us, bobbing up and down and hippety-hopping industriously. Some of the men also danced, but the biggest tribesman of them all stubbornly refused to pose.

I had offered him half a guilder. He didn't even answer. I raised the bid to a guilder. He spoke up then.

"What for I let you take picture for one guilder?" he demanded. "I get ten guilders when I make picture with Clark Gable."

"You what?" exclaimed Loren Tutell.

"Sure," grinned the big fellow. "I make 'Too Hot to Handle' at Santigron, then I see me in cinema in Paramaribo."

We Watch a Voodoo Fire Dance

Far more savage, although it was performed by the town Negroes, whom the Djukas despise, was the dance we saw after our return to Paramaribo—a genuine voodoo fire dance. We went to a remote clearing in the forests, on the outskirts of the city. Shacks which stood at one end of it were the property of a squatty, middle-aged Negro, held in awe by the town Negroes as a witch doctor.

He took his seat on a low wooden bench and stared down at a circular piece of ground, in the center of which stood a small tree. Then, mumbling something to himself, he poured upon the ground the contents of a bottle of beer. His son came from the shack with a bottle of rum and went through the same ritual. This, we were told, was to bless the earth.

This done, the fire dancer appeared on the scene. He was a tall, lithe young Negro, moving with the grace of a leopard. He was naked except for a narrow loincloth and an enormous headdress of pink and white gingham tied in a huge bow. The witch doctor adorned his body with streaks of chalk.

Near by a pile of logs had been heaped. The dancer, his chalking completed, bounded over to it and spread out upon the ground a small square of oilcloth, upon which he built a

tiny wigwam of twigs covered with bits of cloth. This is called an *obeah* house.

Inside the wigwam, on the oilcloth, he spread many articles, from a bottle of rum to a voodoo ghost doll and a green bow tie.

Next, the big pile of logs was set on fire. It blazed up quickly, with a heat so intense we were obliged to retreat farther and farther.

The young dancer seemed impervious to the flames. He jumped up and down in them in his bare feet. Snatching a burning log from the fire, he put the smoking part into his mouth and gnawed at it. He whipped up the flames with another branch. When it had caught fire, he stroked his head and naked body with its flames. His leaps and bounds over and into the roaring fire went on for many minutes. At the end, he had not received the slightest burn.

We went away marveling. We had no solution of the mystery.

More civilized in comparison was the Dance of the Koto Misies, traditional name, variously spelled, for the handsome daughters of the town Negroes employed as house servants of the Dutch in Paramaribo (Plate I). Their dance had been famous in the old days.

We expected the dancers to be young, but there wasn't a debutante in the group. They ranged from middle age to downright old age.

We might have guessed it in advance. Air-minded Guiana is no longer remote from the rest of the world. The new generation goes to Paramaribo's picture shows, buys mail-order dresses from Chicago, and wears high-heeled shoes. Only a past generation remembers the dances of the slave days.

The dancers wore many multicolored petticoats and huge floppy turbans of brilliant calicoes and Javanese batiks.

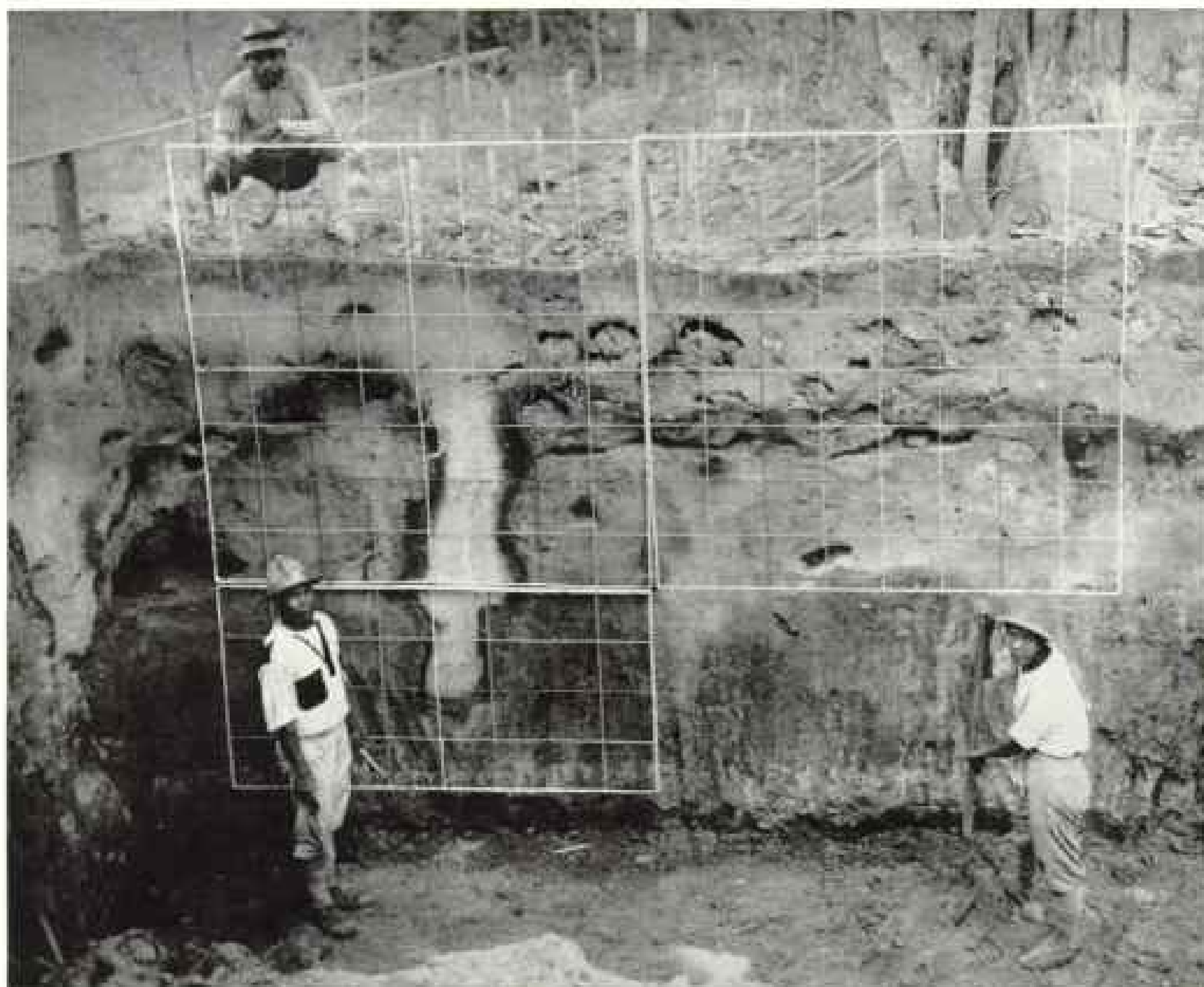
The music began. Jungle drums pounded rhythmically. The furbelowed dancers wailed an accompaniment as they bobbed about like marionettes in a never-ending circle. Two carried on their heads huge brass cuspidors filled with masses of bright flowers.

And as the dancers continued to weave their bright and stately minuet to the monotonous beat of the drums, we fancied that we had guessed the origin of the Koto Misies' Dance. It was Congo rhythm, veneered with Europe's 18th-century graces.

Most beautiful of all was the Mask Dance of the Javanese.

To see it, we crossed the Surinam River by ferry and continued by taxi to the sugar plantation at Marienburg, about an hour's drive.

The workers formerly employed on the plantation were British Indians, imported in the last century. They mutinied and murdered



Gerrit Stabel

Leaf-cutting Ants Built This Underground City, Complete with Wells, Gardens, Passages, and Even an Air-conditioning System

Here a nest has been exposed, revealing the inner workings of the colony. The cross section placed in front will aid in making scale drawings. The ants are fungus eaters and consume no other food. They cut leaves from trees, carry them on their backs—hence the name—over two-lane cleared highways into the bowels of the nest. Then other workers prepare the cuttings and plant them in the fungus gardens (page 473).

the plantation manager. All the guilty were rounded up and executed.

The Javanese, brought over to take the place of the British Indians, carried with them all the paraphernalia, musical instruments, and elaborate costumes which have distinguished the dances of Java for centuries.

Forty men, all plantation laborers, took part in the dance we saw. The parts of women were enacted by the men. The enormous and beautifully decorated masks and headdresses, and the vivid costumes, together with the marvelous grace of the dancers, made this an unforgettable pageant.

Bauxite for American Warplanes

Before we said goodbye to Surinam, we visited the colony's mine fields of bauxite ore, its chief export commodity, from which aluminum is made.

An important share of United States requirements of this vital ore is met by Surinam's production. With minor exceptions, we utilize all that Surinam can produce.

Much of the ore is mined at Moengo, on the Cottica River, about 55 miles east of Paramaribo. A smaller field is on the Surinam River, about 20 miles south of Paramaribo. A third development has started up next to it.

We went to Moengo as the guests of a Netherlander who directs the company's mining for the American interests that control it. Aboard his launch we went down the Surinam River, toward the Atlantic, passing the half-sunken hull of the German freighter *Goslar*.

The *Goslar* arrived at Paramaribo in the spring of 1940 and anchored in the river. When Germany invaded the Netherlands, the Nazis tried to sink her in the channel and



Philip Hannon Wise

A Canadian Ship Sticks Her Nose into the Jungle to Let Another Steamer Pass

So narrow is the Cottica River near Moengo that bauxite ships must push their bows into small streams to turn around or to allow other ships to pass. After this turning maneuver, empty ore boats are moved backward the last few miles to the plant for loading.

thus block bauxite shipments from above the city. Luckily, she did not obstruct the channel.

Ten miles farther down the Surinam, the launch entered the mouth of the Commewijne River and then chugged some 70 miles upstream to Moengo, on the Cottica, a tributary. Here we saw several square miles of reddish rocks and earth—uncovered bauxite ore—carved out of the jungle along the river's edge (page 477).

Barren Moengo is at the end of the world, but the modern mining machinery was operating constantly, night and day, and was safeguarded carefully. It crushed the crude ore into a form suitable for shipping. The ore is converted into aluminum in the United States.

Modern sanitary buildings house the machinery; there is a model hospital, recreation rooms, and a company bungalow.

"We cannot afford to have an accident to the machines," the resident manager told me. "It would be suicidal. We are already run-

ning at capacity, and yet we are told to turn out more and more. We are mapping new roads and opening new depots."

At that time (the summer of 1941), only a small Dutch garrison was on hand to guard this valuable mine field and its machinery. Later in the year, the United States, under agreement with the Netherlands Government and in cooperation with Brazil, sent a contingent of its own troops, and since then the Dutch have breathed more easily.

Back once more in Paramaribo, we were packing to depart for home, when there came a knock. Our visitor was Jesserun, the barber, who had sold us Jo-Jo, the baby howler. He had with him several live Surinam toads, among the biggest in the world. The female grows to almost the size of a dinner plate. These were only half-grown, and Jesserun assured us they would make marvelous pets (page 463).

We thanked him, but said no. We were going home by plane.

Map of the Northern and Southern Hemispheres

WITH this issue of their NATIONAL GEOGRAPHIC MAGAZINE members of the National Geographic Society receive a new map of the world—a Map of the Northern and Southern Hemispheres.

The North Pole is center of one hemisphere charted on the new map; the South Pole is center of the other hemisphere. Thus the only direction from the center of the Northern Hemisphere map is south, and the only direction from the center of the Southern Hemisphere map is north.

New World Map for New Aerial Routes

The new world map of the Northern and Southern Hemispheres dramatically portrays the shorter routes of airplane flights swiftly blazed by global warfare, which will be the aerial routes of passenger and freight travel in the years of peace to come.

Across the polar centers of the new map cut the new aerial transport trails, because distances and times are shorter that way.

Here the map reader sees why in the airplane age the Arctic Ocean becomes a far-northern Mediterranean Sea, focus of traffic between the Old World and the New World, as the Mediterranean long has been for Europe, Asia, and Africa.

Distances from one continent to another across the Arctic Ocean are much shorter than routes across the Atlantic or Pacific between the same places.

For example, here are a few comparisons:

Between	East-West Aerial Route	Polar Basin Aerial Route
New York and Chumuking	12,100 miles	3,380 miles
Fairbanks and Berlin	8,100 miles	4,265 miles
Chicago and Moscow	5,700 miles	4,980 miles
Honolulu and Khartoum	17,500 miles	9,790 miles
San Francisco and Moscow	7,500 miles	3,870 miles

No sooner had Magellan sailed around the world than navigators began hunting for a ship route from Europe to the Far East by way of the Arctic. They knew the quickest way to reach the Far East would be by sailing north!

Brilliant chapters of early exploration history were written in heroic attempts to find the Northwest Passage. Jacques Cartier, Henry Hudson, John Davis, Sir Francis Drake, Sir Martin Frobisher, and many more, failed.

Not until the reign of Queen Victoria did British expeditions prove the existence of the Northwest Passage.

Once discovered, the "short-cut" was found impractical. Icebound waterways and intense cold made the Arctic a "frozen ocean." Mariners found it safer to sail all the way around Cape Horn or the Cape of Good Hope than to navigate around North America.

When men began to fly, they again turned to polar and near-polar routes. Vilhjalmur Stefansson, writing in the NATIONAL GEOGRAPHIC MAGAZINE 21 years ago, predicted aerial routes over the Arctic for passengers bound from Europe to the Orient.*

Ellsworth, Nobile, and Amundsen took off from Spitsbergen in the dirigible *Norge*, on May 11, 1926. They flew to the North Pole, circled it twice, then crossed the Arctic Basin and landed at Teller, Alaska, 72 hours later. The distance covered was 3,393 miles.

Three Soviet aviators—Chkalov, Baidukov, and Beliakov—flew from Moscow to Vancouver, Washington, in June, 1937. The new map shows how direct was the route for this epochal nonstop flight between the Soviet Union and the United States. The flyers headed north from Moscow, crossed the pole, and then continued south to their landing place. The 5,000-mile flight took 62 hours.

In August of the same year, six Russians, led by Sigismund Levanevsky, set out to fly across the North Pole from Moscow to Fairbanks, Alaska. The plane never reached Fairbanks. For many months after the plane disappeared, searching parties from Russia, Canada, and the United States sought the lost flyers.

In this search Sir Hubert Wilkins explored 170,000 square miles of the Arctic Ocean, and concluded that there is no new land to be discovered in the Beaufort Sea and the area between longitudes 120° and 145° west and the North Pole.†

The late Brig. Gen. William Mitchell called Alaska America's most strategic springboard for offensive aerial warfare. A glance at the new map explains his conclusion: all the shortest Pacific routes from the United States to Japan, Siberia, China, and even India, start from or pass close to Alaska.

Northern passageways are not limited to planes. Hundreds of ships carry war supplies from New York to Moscow by way of the Arctic Ocean and Murmansk.

Soviet scientists and explorers have made valuable contributions to modern knowledge of the Arctic areas, particularly the Northeast Passage.

Scores of Soviet ships now ply the Arctic every year, carrying loads of timber, coal, ore, furs, food, and machines between Murmansk

* See "The Arctic as an Air Route of the Future," by Vilhjalmur Stefansson, NATIONAL GEOGRAPHIC MAGAZINE, August, 1911.

† See "Our Search for the Lost Aviators," by Sir Hubert Wilkins, NATIONAL GEOGRAPHIC MAGAZINE, August, 1938.

and Vladivostok. Planes locate passageways through the ice for the small fleets, and ice-breakers accompany them.

The most direct ship lane from Seattle to Japan follows the great-circle route northward to skirt Dutch Harbor in the Aleutians, then curves southwestward along Japan's Kurile Islands—a distance of 4,851 miles. From San Francisco to Japan by way of Pearl Harbor is 6,321 miles.

The new map also reminds us forcibly that Salt Lake City, Boise, Helena, and Winnipeg are as close to Japan as Los Angeles. Devils Lake, North Dakota, geographical center of North America, lies almost exactly the same distance from Japan's base at Paramushiro as Los Angeles—about 4,300 miles.

Surface travel in the Arctic is cold, bleak, formidable. But, amazingly, the stratosphere ten miles above the pole has a warmer atmosphere than that at the same height above the Equator.

Temperature at that altitude is about 40° F. below zero above the North Pole, and about 112° F. below zero above the Equator.

This is because the troposphere, atmospheric layer between the earth's surface and the stratosphere, is some ten miles high at the Equator, and only about 4½ miles high at the North Pole. The temperature falls rapidly with increase of elevation in the troposphere, but remains fairly constant at all altitudes in the stratosphere.

Four air-line tables, one in each corner of the map, give 924 great-circle distances all over the globe. One table shows distances in the Northern Hemisphere; a second shows distances in the Southern Hemisphere. A third shows distances between points in the Western Hemisphere; the fourth shows distances between points in the Eastern Hemisphere.

A small inset at the top center of the new map shows forests, deserts and other waste land, Arctic tundra, and agricultural areas. Another, at the bottom, shows international time zones.

The new map is a companion to the Map of the World, published in December, 1941, whereon the Eastern and Western Hemispheres were shown. On the 1941 World Map the center of the Western Hemisphere was in the Pacific Ocean. Center of the Eastern Hemisphere was in the Indian Ocean, south of India.

The two maps have the same border and complement each other effectively when hung side by side.

On the world map of the Eastern and Western Hemispheres members may best trace the trails of explorers and traders across sea and

land through the eras of caravans, caravels, wagons, and sailing ships to the decades of railroads and steamships.

The Society's 1943 Mapping Program

The new map is the second in The Society's 1943 wartime series of map supplements. It is printed in ten colors on sheets 41 by 22 inches.*

This map-making program, biggest ever undertaken by any educational institution in the world, calls for the printing of nearly seven million wall maps. In addition to the charts for members of The Society, tens of thousands will be run off the presses for the United States Army, Navy, Marines, Coast Guard, and other Government agencies.*

It takes a map of the world to locate all the places where American troops are fighting and to identify the United Nations engaged in the battle of the democracies for survival.

Wisely, wartime censorship does not permit complete listing of scores of areas where American forces are engaged. As these places appear in dispatches, members may locate them on their Society's world maps.

But the honor roll of the 31 United Nations enlisted as allies in this global warfare may be called. The United Nations are:

Commonwealth of Australia	Republic of Cuba
Commonwealth of the Philippines	Republic of El Salvador
Czechoslovak Republic	Republic of Guatemala
Dominican Republic	Republic of Haiti
Dominion of Canada	Republic of Honduras
Dominion of New Zealand	Republic of Mexico
Ethiopia	Republic of Nicaragua
Grand Duchy of Luxembourg	Republic of Panama
India	Republic of Poland
Iraq	Union of South Africa
Kingdom of Belgium	Union of Soviet Socialist Republics
Kingdom of Hellas (Greece)	United Kingdom of Great Britain and Northern Ireland
Kingdom of the Netherlands	
Kingdom of Norway	United States of America
Kingdom of Yugoslavia	United States of Brazil
Republic of China	
Republic of Costa Rica	

* Members wishing additional copies of the new Map of the Northern and Southern Hemispheres, or of the new Map of the World showing the Eastern and Western Hemispheres, may obtain them by writing the National Geographic Society, Washington, D. C. Particularly useful now are The Society's ten-color maps of "Europe and the Near East"; "Central Europe," showing Italy, France, Germany, etc., on scale of 79 miles to the inch; "British Isles"; "Atlantic Ocean" from Greenland to Cape Horn and Cape of Good Hope; "Theater of War in the Pacific Ocean"; "Africa"; "Asia"; "South America"; "United States"; "North America"; "Mexico, Central America, West Indies"; "Bible Lands"; "Canada." Prices, in United States and Possessions, each map 50¢ on paper (unfolded); \$1.00 on linen; Index, 25¢. Outside of United States and Possessions, 75¢ on paper; \$1.25 on linen; Index 50¢. All remittances payable in U. S. funds. Postage prepaid.

On its world maps, as on its maps of continental and oceanic areas, the National Geographic Society uses in each country the national names: Moskva (Moscow), Athēnai (Athens), Wien (Vienna), etc.

Geographic Society Pioneered in Native Place Names on Maps

The National Geographic Society pioneered in this use of native spellings for cities and physical features on its 1929 map of "Europe and the Near East," with the statement:

"The National Geographic Society has 50,000 members in Europe. Communications coming to these members from the National Geographic Society addressed to Rome (Roma), Venice (Venezia), etc., would probably seem to them as illiterate as we regard letters coming to us addressed to Nuova York, Filadelfia, Salzseestadt (Salt Lake City), or Waszyngton, which is the manner the names of a few of our cities are spelled in some European gazetteers."

The U. S. Hydrographic Office, like the National Geographic Society, long has used native spellings on its charts so that mariners operating in foreign waters will have the names in use in whatever locality they may be. The U. S. Coast and Geodetic Survey practice is in accord with that of the National Geographic Society.

U. S. Army maps, especially those for the Air Forces, use national spelling so that aviators may quickly identify places whether or not they know the English equivalents of those places.

Descriptive Terms and English Equivalents

Very often these foreign names include foreign words for physical features, such as bay, cape, desert, island, lake, etc.

A list of descriptive names used on the map of the Northern and Southern Hemispheres for their English equivalents follows:

Bay, Fjord, Gulf, Harbor:

Baai (Netherlands Indies), Bahía (Spanish America and Brazil), Baie (France and Possessions), Fjörður (Iceland), Fjord (Greenland), Golfo (Italy and Spanish America), Guba (Russia), Zaliv (Russia).

Cape, Point:

Cabo (Portuguese and Spanish), Cap (France and Possessions), Capo (Italy and Possessions), Kaap (Netherlands Indies), Kap (Greenland), Kapp (Norway), Mys (Russia), Ponta (Portuguese Possessions), Punta (Spanish America), Ras (Arabic).

Desert:

Dasht (Iran), Erg (Arabic), Hamada (Arabic), Kum (Russia), Sahara (Arabic).

Fortress, Castle:

Dzong (Tibet), Qsar (Arabic).

Island, Islets, Archipelago:

Archipel (France and Possessions), Archipiélago (Spanish America), Eilanden (Netherlands Indies), Eylandt (Australia), Gunto (Japan and Possessions), Ile and Ilets (France and Possessions), Ilha (Brazil and Portugal), Isla (Spanish America), Jima (Japan and Possessions), Ostrov and Ostrova (Russia), Øya (Norway), Poulo (French Indo-China), Pulo (Netherlands Indies), Retto (Japan and Possessions), Shima (Japan and Possessions), Shoto (Japan and Possessions), To (Japan and Possessions).

Lake:

Chott (salt lake in Arabic), Lac (Belgian Congo), Lago (Spanish America), Lagoa (Brazil), Nor (Mongolia), Ozero (Russia), Sap (French Indo-China).

Mountain, Hill, Peak, Range:

Berg (Union of South Africa), Dagh (Iran), Gali (India), Ghat (India), Giri (India), Gory (Russia), Kilima (Tanganyika), Kangri (Tibet), Khrebet (Russia), Kuh (Iran), Monte (Spanish America), San (Japan), Shan (China), Sierra (Spanish America), Tagh (Mongolia), Tepec, Tepetl (Spanish America), Top, Toppen (Netherlands Indies), Ula (Mongolia), Yama (Japan).

Peninsula:

Poluoostrov (Russia).

Plateau:

Planalto (Spanish America).

Port:

Bandar (Iran), Porto (Portugal and Possessions), Puerto (Spanish America).

River:

Kiang (China), Me (Thailand), Río (Spanish America), Darya (Iran).

Sea:

More (Russia), Zee (Netherlands Indies).

Strait, Sound:

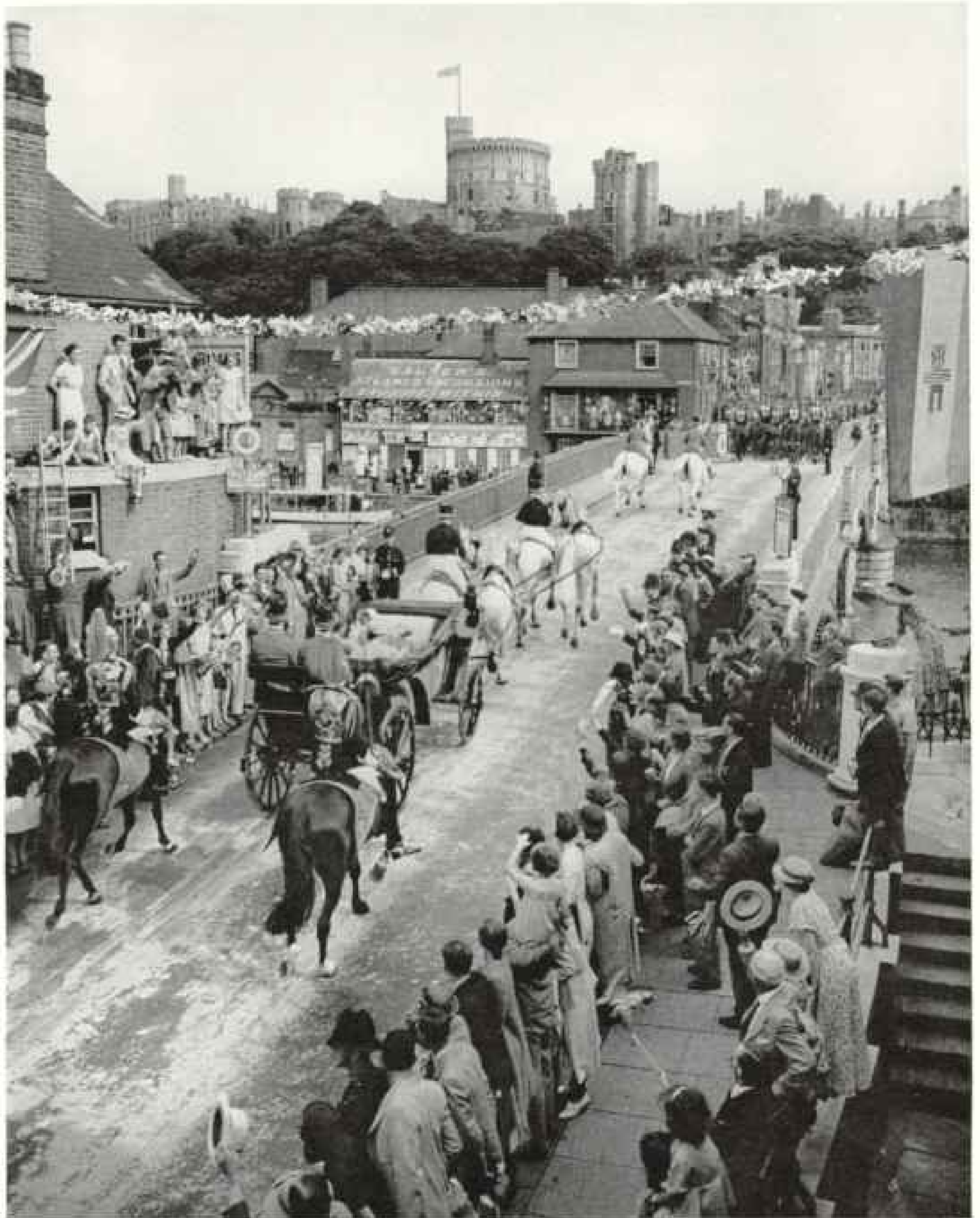
Bab (Arabic), Kaikyo (Japan), Proliy (Russia), Straat (Netherlands Indies), Sund (Greenland).

Town, City, Village:

Abad (India and Iran), Borg (Scandinavia), Bourg (France), Burg (Germany and Union of South Africa), Chow (China), Ciudad (Spanish America), Fu (China), Gorod (Russia), Grad (Russia and Yugoslavia), Hsien (China), Kent (Russia), Kota (Malaya), Patam (India), Pol (Russia), Pore (India), Pur (India), Şehir (Turkey), Shahr (Iran), Villa (Spanish America), Ville (Belgium, France and Possessions).

Miscellaneous:

Ain (spring, Arabic), Dum (marsh, in Tibet), Dar (subdivision, Arabic), Fontein (spring, in Union of South Africa), Nord (north, in Norway), Nouvelle (new, in France and Possessions), Novo, Novaya (new, in Russia), San, Sant', Santa, Santo, São, Sainte (saint, in Spanish America, Brazil, France, Spain, Portugal and Possessions), Stan (region, in Middle East), Zemlya (land, in Russia).



PICURES, INC.

Flags Flying, Windsor Welcomes Home the Newly Crowned British Sovereigns

Crossing the Thames on June 12, 1937, the Royal Family rides to Windsor Castle, home to King George and Queen Elizabeth when they are not at Buckingham Palace, London. Princess Elizabeth and Princess Margaret face them. Their carriage, preceded by Royal Horse Guards and two outriders, is drawn by four grays with postillions. Historic Round Tower flies the Union Jack. Soon it will give way to the Royal Standard, sign that the King is home. Windsor Castle, dating from William the Conqueror, has been a residence of British monarchs for eight and a half centuries.

The British Commonwealth of Nations

"Organized Freedom" Around the World

By ERIC UNDERWOOD

Sometime Member of the Council of the Overseas League

JUST over forty years ago, a young Dutch South African was causing the British Army a great deal of trouble by a new type of warfare with which its generals did not know how to cope—Commando raids. With daring, skill, and a burning hatred of the British in his heart, he led his tough Commandos on horseback against them in swift and devastating surprise attacks. His tactics cost the British many casualties and helped to prolong the Boer War.

Not long ago that same brilliant Commando leader, now Field Marshal Jan Christiaan Smuts, Prime Minister and Commander in Chief of the Union of South Africa and one of the world's great statesmen, described the British Commonwealth of Nations as "the widest system of organized freedom which has ever existed in history."

Today that former rebel against the British heads the magnificent war effort of South Africa in common cause with Britain against the Axis, and pilots his country on a course which she chose of her own free will. For South Africa was as free to choose between war and neutrality as any British Dominion, and, like them, is as independent of Britain as is the United States.

When Smuts was leading his Commandos against the British, a young war correspondent with the British forces was making a name for himself by his vivid dispatches to the London Morning Post. Fortunately this brilliant young journalist was not shot by one of Smuts' men. His name was Winston Churchill, and, years later, in tribute to his former enemy, he gave the name "Commando" to the hand-picked raiders of a world war.

Some years ago, in the musty files of the Morning Post were found some personal letters from young Winston to his editor of those days. One of these asked the editor's permission for his dispatches to be republished in the United States, where, he understood, they might pay him "as much as \$40 a column." It is interesting to reflect what American editors would pay this war correspondent today for a column, say, from Casablanca!

Last October the former rebel leader and war correspondent met in London on an unique occasion—a joint gathering of the House of Lords and House of Commons to pay tribute

to Field Marshal Smuts, who gave an address which was broadcast to the world.

One-time Rebel Leader Suggested "Empire's" New Designation

This is a spectacular example of the continuous process of change in the destiny and outlook of the leaders and peoples of the British Empire. It is typical of the constantly evolving association of free peoples around the globe to which, in 1917, at the suggestion of Smuts himself, was given its present title, the "British Commonwealth of Nations."

The title "British Empire" was officially discarded because it had never been appropriate and by 1917 was a misnomer for an association of free peoples.*

The word "empire," suggesting the rule of one people by another, is related to the Latin *imperator*, meaning a general, and has a military significance. This word always has been inappropriate, because the British have never been a military people and the British Commonwealth has little basis of conquest in its origin. Not a tenth of the vast area of the world under British rule was acquired from its former inhabitants by the sword. The British standing army has always been very small. At the outbreak of war in 1939, it numbered only about a quarter of a million men, of whom one-half were on garrison duty overseas.

This was a tiny force to protect the interests of a quarter of the earth's land surface and 500 million people. If it had not been merely a protective police force, existing with the assent of the 500 million people it protected, and had been a repressive army of occupation, it could not have lasted for a month. By contrast, we know the enormous

* The term "British Commonwealth of Nations," adopted by the Imperial Conference in 1917, is the official name for the aggregate of states and territories which are united by the British Crown. The term "British Empire," in common colloquial use, has no official existence. The British Commonwealth may be divided into: (1) The Dominions: Great Britain, Canada, Australia, New Zealand, Union of South Africa, and Eire; (2) The Indian Empire, and Burma; and (3) The "British Colonial Empire," an unofficial but convenient term to denote those territories not included under 1 and 2. There are also the Condominiums, Mandated Territories, and Protectorates. See Supplement Map of the Northern and Southern Hemispheres, and page 481.

numbers of men Hitler requires to hold down occupied Europe today.

Modern Britain has sometimes been spoken of unthinkingly in terms of Ancient Rome. The British Empire, it has been said, is the Roman Empire up to date. Few comparisons could be less apt.

Geographically, the Roman Empire was a centrifugal expansion of the city founded by Romulus, its territory being at all times compact and its major component parts contiguous.

The British Commonwealth of Nations is scattered over the seven seas and consists of hundreds of separate land areas of all sizes, from a whole continent such as Australia down to small atolls in the Pacific, or mere rocks, such as Gibraltar.

The Roman Empire grew from progressive subjection of foreign peoples and domination over them by military power. It was taken by the sword and held by the sword.

The British Commonwealth, while it has some affinities with the Athenian Empire of the 5th century B. C., is not an empire at all. It is something new in the history of the world.

A striking contrast with Rome is that, while Rome held practically all Europe, Britain's only possessions in that continent are Malta and Gibraltar.

There has always been a large and important section of her population which has maintained toward Europe an isolationist attitude. This section played a part at the "time of Munich."

So the new and more appropriate name, "British Commonwealth of Nations," was adopted at the Imperial Conference of 1917.

The Imperial Conference is a convention of representatives from all parts of the British dominions, presided over by the Prime Minister of Great Britain, which meets every few years and discusses matters of common interest. Opinions are ventilated, but decisions are not made and only unanimous resolutions are recorded.

The Imperial Conference of 1926 recorded: "The British Empire is not founded upon negation. It depends essentially, if not formally, on positive ideals. Free institutions are its lifeblood. Free co-operation is its instrument. Peace, security, and progress are among its objects."

It will be noticed that the term "British Empire" was used, showing that even a secretary can slip. And the term is constantly used colloquially without a thought of "imperialism," just as the Dominions have a "Governor General" who does anything but

govern, and England has a King who reigns but does not rule.

Some thirty years ago, a London soapbox orator in Hyde Park, dilating on the advantages of being British, ended his peroration by proclaiming: "that glorious British Empire on which the sun never sets." An Irishman in his audience retorted: "And why does the sun never set on it? Because God Almighty couldn't trust ye in the dark!"

World War I Hastened Changes

World War I did much to accelerate the continuous process of change which has always been the outstanding characteristic of the British "Empire." It has been steadily changing itself at an increasing tempo.

The British Commonwealth can be compared only with Russia in size, in population only with China, and in military strength and the wealth of its resources only with the United States. But it differs from them in one important particular: it does not consist, as they do, of one territory inhabited by one people under the control of one government. Its territories spread over the seven continents, and its people include nearly all the known races of the world in an immense diversity of color, creeds, customs, and varying stages of cultural development, from Stone Age men to the Archbishop of Canterbury.

These peoples are not ruled by a single government, nor even from one central capital. There are at least fifty governments. While some are in certain matters, such as foreign affairs or defense, subject to the control of a central government, others are entirely independent.

Nor is there one system of law for all, since it has long been the policy within the Commonwealth to encourage its parts to maintain intact their own laws and local customs. Thus today in Great Britain itself the people of Scotland have their own law distinct from that of England, the Isle of Man preserves the Manx Law, the Channel Islands the Norman; in India, Hindus and Mohammedans have their own laws; in French Canada the Custom of Paris is maintained; in Mauritius, the Napoleonic Code; in Trinidad, the Spanish law; in Burma, Burmese; in South Africa, Roman Dutch.

In many a small dependency conduct is governed by local tribal custom so long as this does not conflict with what is equitable or humane. From legal decisions in these lands the subject has the right of appeal to the British Supreme Court, the Privy Council in London.

The Commonwealth is not a unitary state;



British Information Services

Britain's Royal Family Binds a Diversity of Peoples into a United Family of Nations

King George VI, Princess Elizabeth, Queen Elizabeth, and Princess Margaret are living symbols of British life everywhere. Dominions over which the Westminster Parliament has no authority look to the King as their constitutional monarch, who stands above creeds and parties. He was crowned May 12, 1937, at Westminster Abbey (page 488).

neither is it a confederation nor an alliance.

It consists of the six Dominions, which are completely independent nations: Britain herself, Canada, Australia, New Zealand, Union of South Africa, and Eire; the "near-Dominions," including India, an empire in itself; the Colonial Empire, the protectorates, mandated territories, and the condominiums (foot-note, page 485).

Only the Dominions at present are fully independent, but in no other part of the Commonwealth is the democratic principle absent. All enjoy a greater or less measure of self-government. Great Britain herself is one

of the Dominions and in no way superior in status to the others.

The titular head of each Dominion is the King, who is "King of England," "King of Canada," etc. Their people are Canadians, Australians, or New Zealanders—comprehensively "Britons."

Dominions Function as Free Nations

The Commonwealth is in no sense a close corporation. There is no Imperial Customs Union; no free trade within the Empire. Each Dominion fixes its own tariffs, as does India. Each has its own diplomatic representatives



First Photographed by Anthony Howard

Beside the Thames Rise the Towers of Parliament, Heart of the British Commonwealth

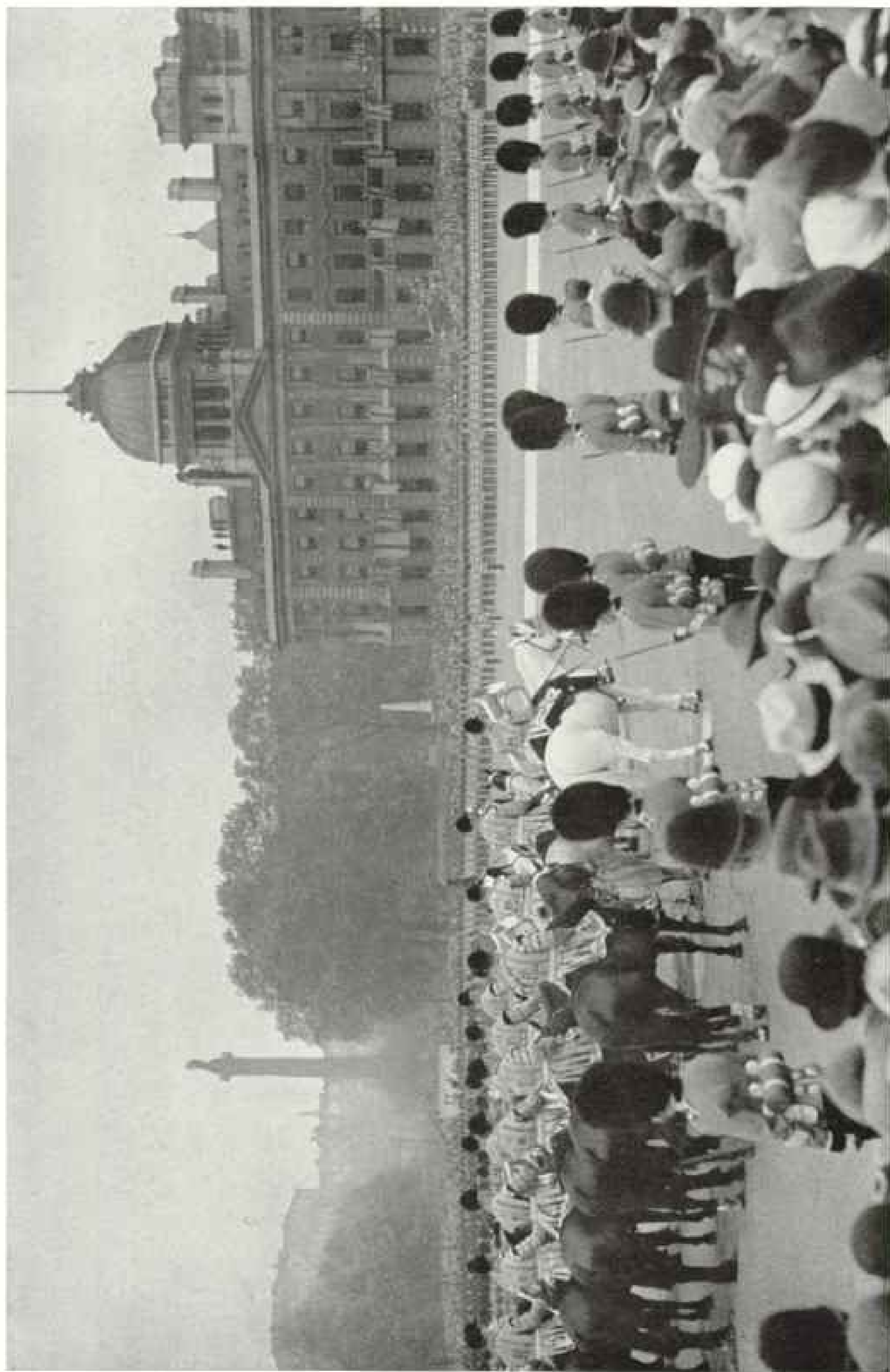
While the House of Commons has been gutted, the walls still stand. Save for scaffolding, Parliament looks today from across the river much as it does here. Big Ben, at right, though slightly damaged by bombs, has never missed booming the hour, heard by radio around the world. To the left of tall, square Victoria Tower, entrance to the undamaged House of Lords, stands Westminster Abbey.



President Roosevelt and Prime Minister Churchill Read Their Joint Communiqué Before High-ranking Officers. Casablanca, January, 1943

Left to right: Lieut. Gen. H. H. Arnold, Adm. Ernest J. King, Gen. George C. Marshall, U. S. A.; Admiral of the Fleet Sir A. Dudley Pound, Air Chief Marshal Sir Charles Portal, Gen. Sir Alan Francis Brooke, Field Marshal Sir John Dill, and Vice Adm. Lord Louis Mountbatten, Great Britain; Lieut. Gen. Beehon Somervell, U. S. A.

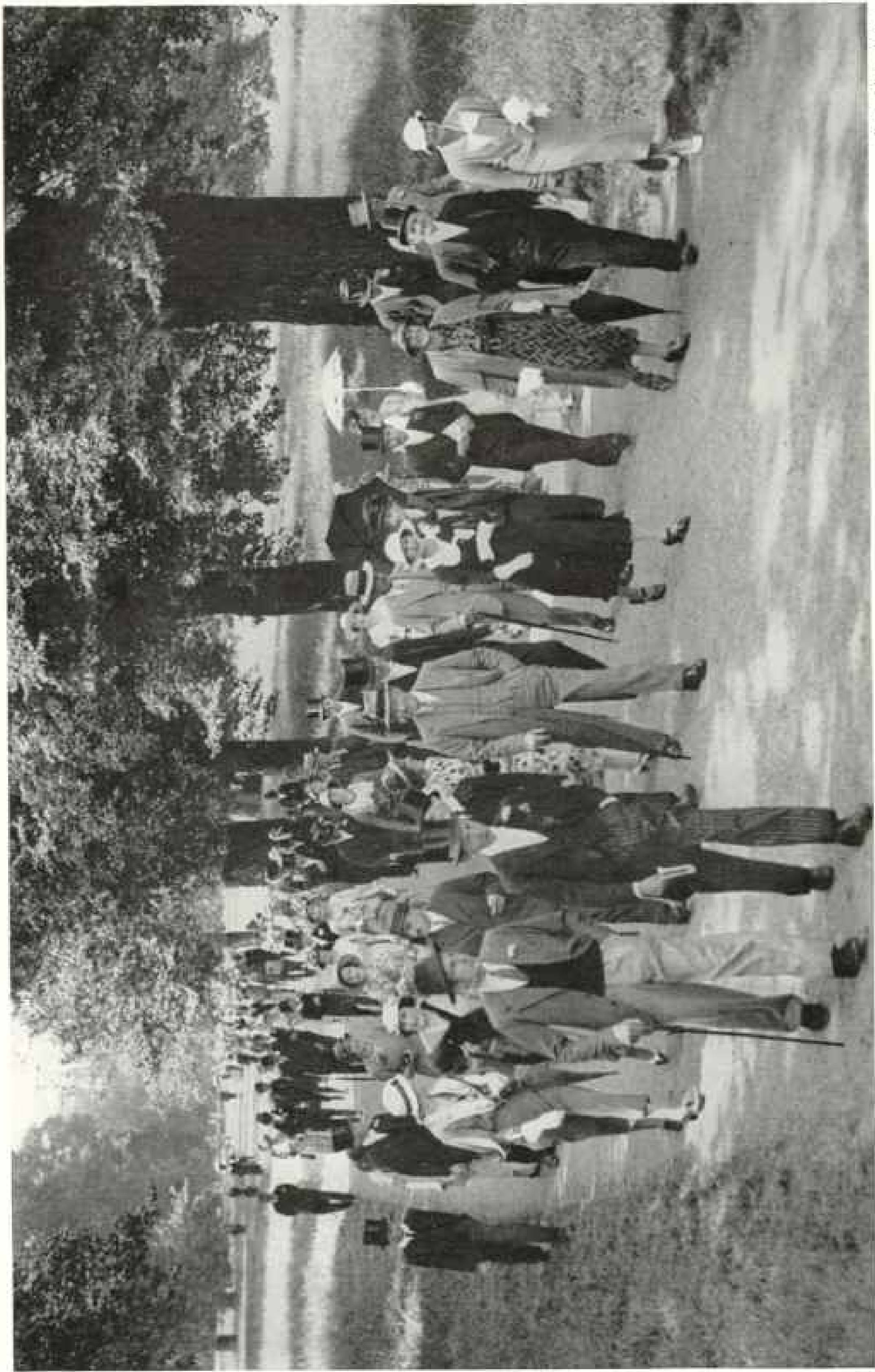
U. S. Navy from Office of War Information



Staff Photographer Marmaduke Owen Williams

With Fanfare and Saddle Drum Britain's Troops Pay Tribute to Their King

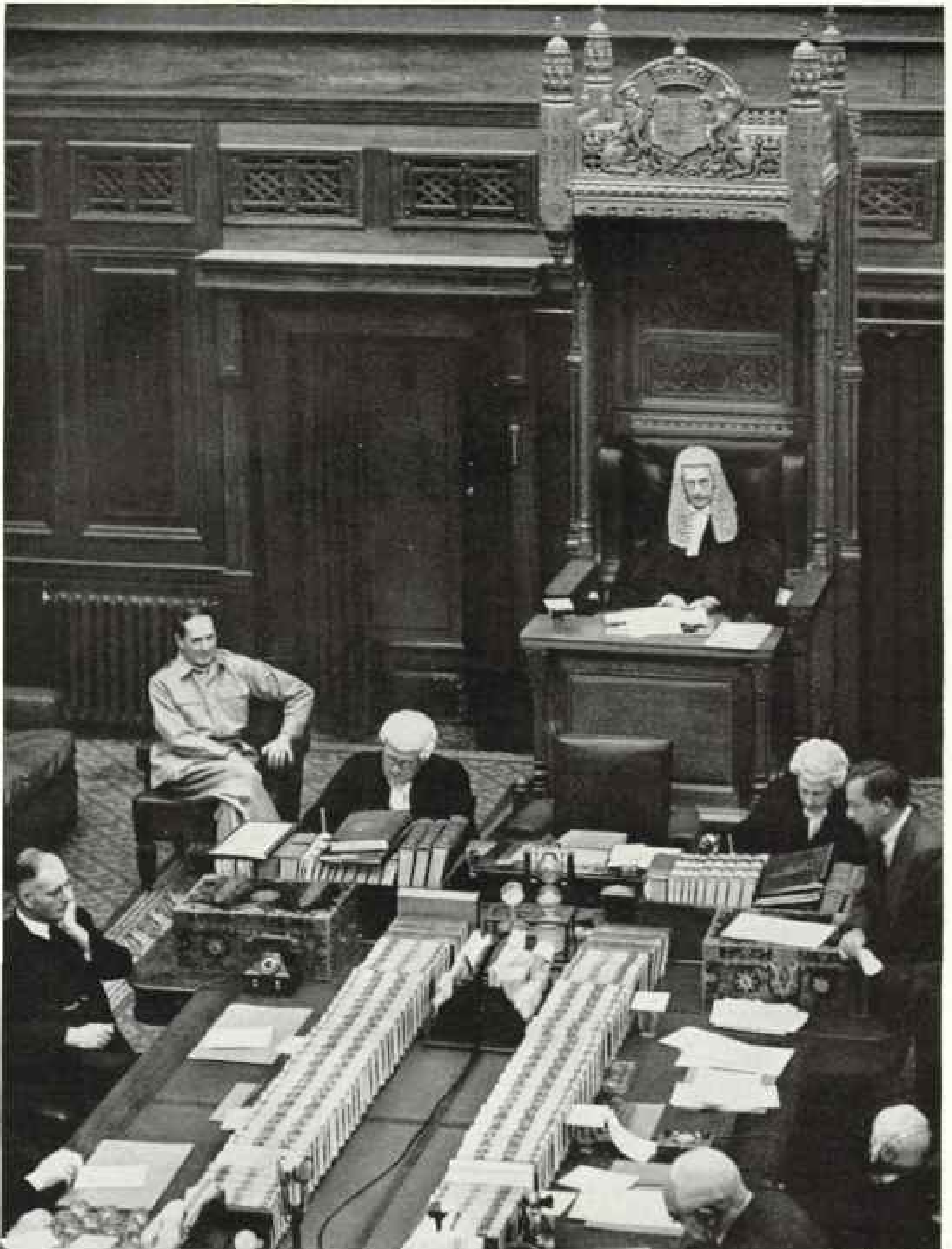
Here in peacetime with all the pageantry of gold, scarlet, and bearskin cap, regiments of His Majesty's Guards pass in review on the Horse Guards Parade. In the building in the background the Admiralty keeps contact with the far-flung British Fleet.



Typical Press Agency

Eton Boys in Top Hats March with Their Families to the Playing Fields Where, Wellington Said, "the Battle of Waterloo Was Won"

Here small boys in Eton jackets, and tall boys in tail coats and white ties, celebrate June 4, birthday of George III, friend of the school. Upon the King's death in 1820 the boys went into mourning by wearing top hats, black coats, and veils. They have remained "in mourning" ever since. Because of clothes rationing, Eton boys today are not required to wear school uniforms.



International News

Informally Dressed, General MacArthur Sits Down with Bewigged Australian Lawmakers

His uniform, on this visit to Parliament House in Canberra, was reminiscent of his arrival from the Philippines in March, 1942. When General MacArthur stepped from a Flying Fortress to assume supreme command in the Far Pacific, he wore field uniform of khaki jacket, open at the neck, and khaki trousers. The four stars of a full general were missing.

in the capitals of foreign countries. Each has its own sea, land, and air forces. Each is individually a member of the League of Nations.

Foreign nations are free to buy from and sell to any of the Dominions, and, indeed, to the colonies, on the same terms as Great Britain if their own Governments agree. In some cases, foreign countries buy on more favorable terms than does Great Britain. Foreign subjects are also free to invest money or reside in any part of the Commonwealth.

The "near-Dominions"—*i.e.*, those countries which, it is hoped, will achieve independence in the very near future, are India, Burma, Ceylon, and Southern Rhodesia.

It has been said that the "Colonial Empire" was acquired by Britain in a fit of absent-mindedness. Certainly, much of it came into her possession against her wishes; and it has not yet been proved whether it is financially an asset or a liability. Under some forty distinct governments it covers an area of a million and a half square miles and contains a population of about 46 million people.

In practically all its territories climatic conditions are unsuitable for outdoor labor by people of European stock; so, in spite of Hitler's vociferous demands for colonies, it provides no remedy for a lack of *lebensraum*. Scarcely any part of it is a white man's country; much of it, till the British introduced medical services, proper water supplies, and sanitation, was "the white man's grave."

"Colonial," like "Empire," is a word which has fallen into disrepute within the British dominions. No one likes to be called a "colonial," and few have used the word for many years past. "Possessions," implying ownership, is scarcely more fortunate. Towards those lands which owe formal allegiance to the British Crown but are not yet independent, the British nowadays regard themselves partly as trustees, partly as partners.

In theory no intelligent Englishman today would dispute that all peoples should be free to govern themselves. It has long been the policy of British Governments, frequently reiterated, and reaffirmed in specific terms as recently as December last by Lord Cranborne, then Secretary for the Colonies, to extend full self-government to all parts of the Commonwealth as soon as they are capable of working it to their own benefit.

Democratic government is the main principle on which the British Commonwealth is founded and the chief justification for its existence.

Burke, as long ago as 1785, used the word "trusteeship" when speaking of Britain's duty

towards her dependencies. From the early 19th century, England has recognized her moral responsibility towards all His Majesty's subjects.

The idea of a colony as a distant possession to be exploited by the home country in her own interest without regard for the welfare of its inhabitants is one which no Englishman would tolerate for a moment. And it must be remembered that the people of England, with their power of turning out their Government at short notice, ultimately have the say in how the Colonial Empire shall be governed.

The Problem of Primitive Peoples

While the inhabitants of a colony may enjoy a degree of personal freedom equal to that of an Englishman in England, it must be recognized that there are many peoples who are not yet ready for independence on the lines of Western democracy. Some who do not want it would not be able to make it work, and would not be happy with it.

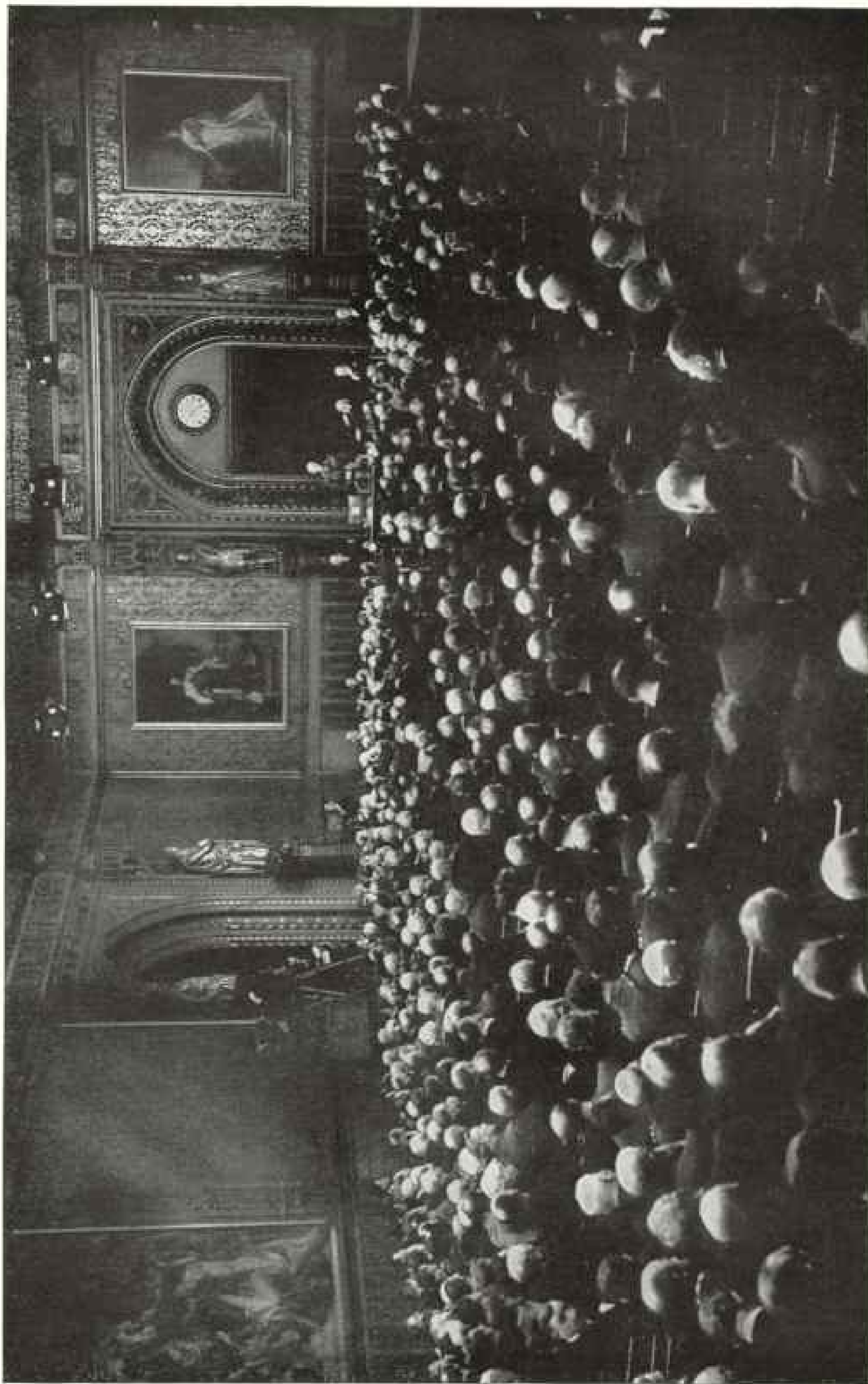
Some sentimental souls believe that the savage left to himself is a carefree, happy play-boy, enjoying an eternal *Moon and Sixpence* destiny on a blue lagoon, eating luscious fruits and listening all day to the melodious song of multicolored birds.

In fact, many primitive peoples, when found by the white man, were living in conditions of indescribable horror. Head-hunters, cannibals, slave traders, and the priests of human sacrifices were not the only enemies of the milder members of society. Constantly recurring epidemics of terrible tropical diseases took high toll. Wild beasts, venomous snakes, and poisonous insects ranged at large.

To overcome all this, thousands of heroic white men and women—officials, soldiers, missionaries, and doctors—have given their lives. There is at least one African judge, graduate of an English university and still living, whose father was a cannibal. Many Africans remember when their fathers did not dare go out for a walk three at a time, because two of them might conspire to deliver the third into slavery.

Democratic government is the highest achievement of great intellects—witness the ancient Greeks. It is not a natural state to which primitive people spontaneously revert. It demands a high standard of civilization and advanced education. Even the Italians and Germans, with their "superior" traditions, fell back to dictatorship.

If the inhabitants of New Guinea or the New Hebrides, for instance, were left to their own devices, they would almost certainly relapse into savagery or be at the mercy of



British Chamber

Field Marshal Jan Smuts, Once England's Foe, Lauds the British Commonwealth of Nations Before Parliament

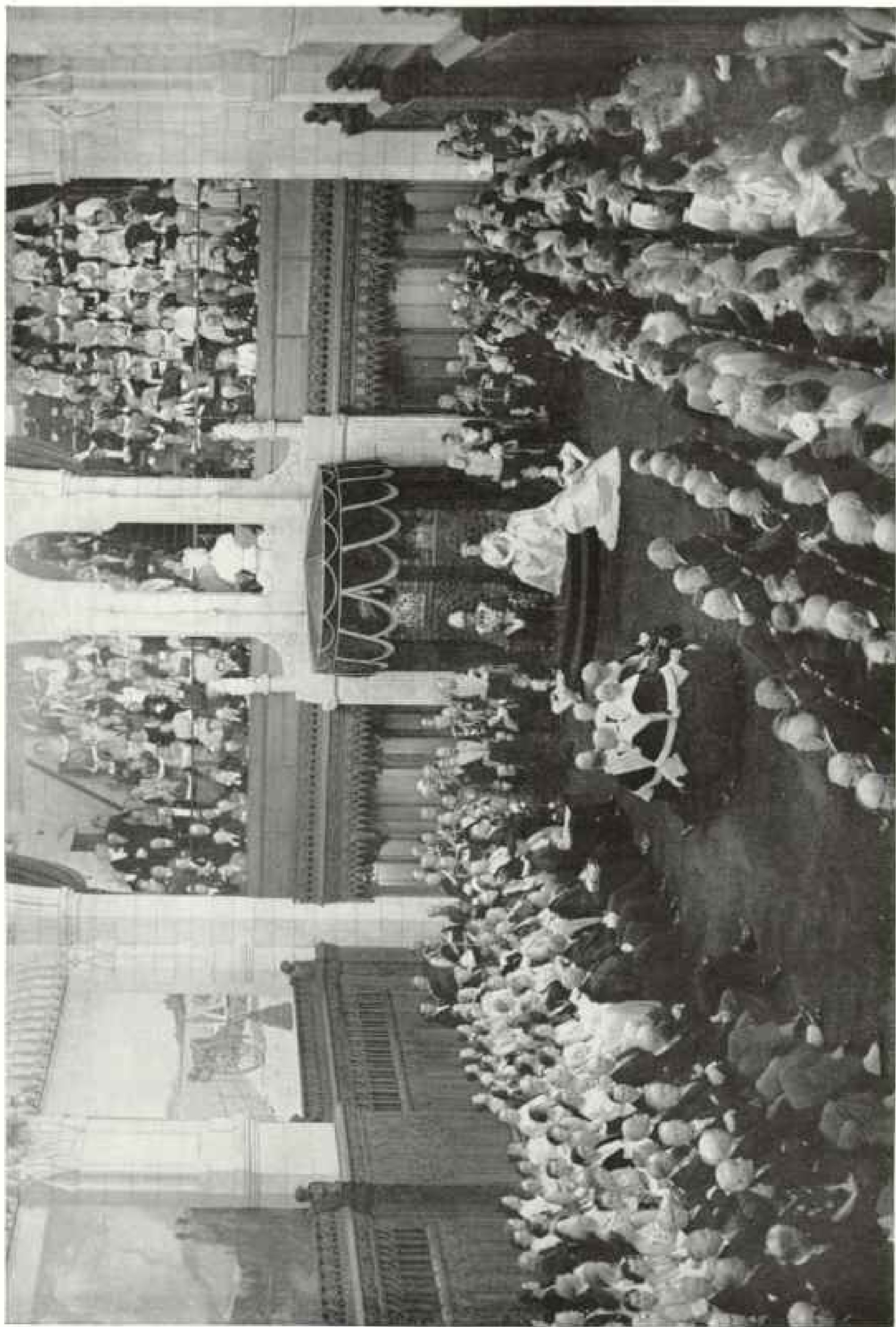
South Africa's Prime Minister, speaking in London on October 21, 1947, describes the Empire as "the proudest political structure of time." He talks in the temporary home of the House of Commons, pressed into service after Nazi bombs partially wrecked its quarters. The Lords attend in an extraordinary joint session. A little over 40 years ago, Smuts and his tough Commandos on horseback fought the British in the Boer War (page 485).



British Columbia

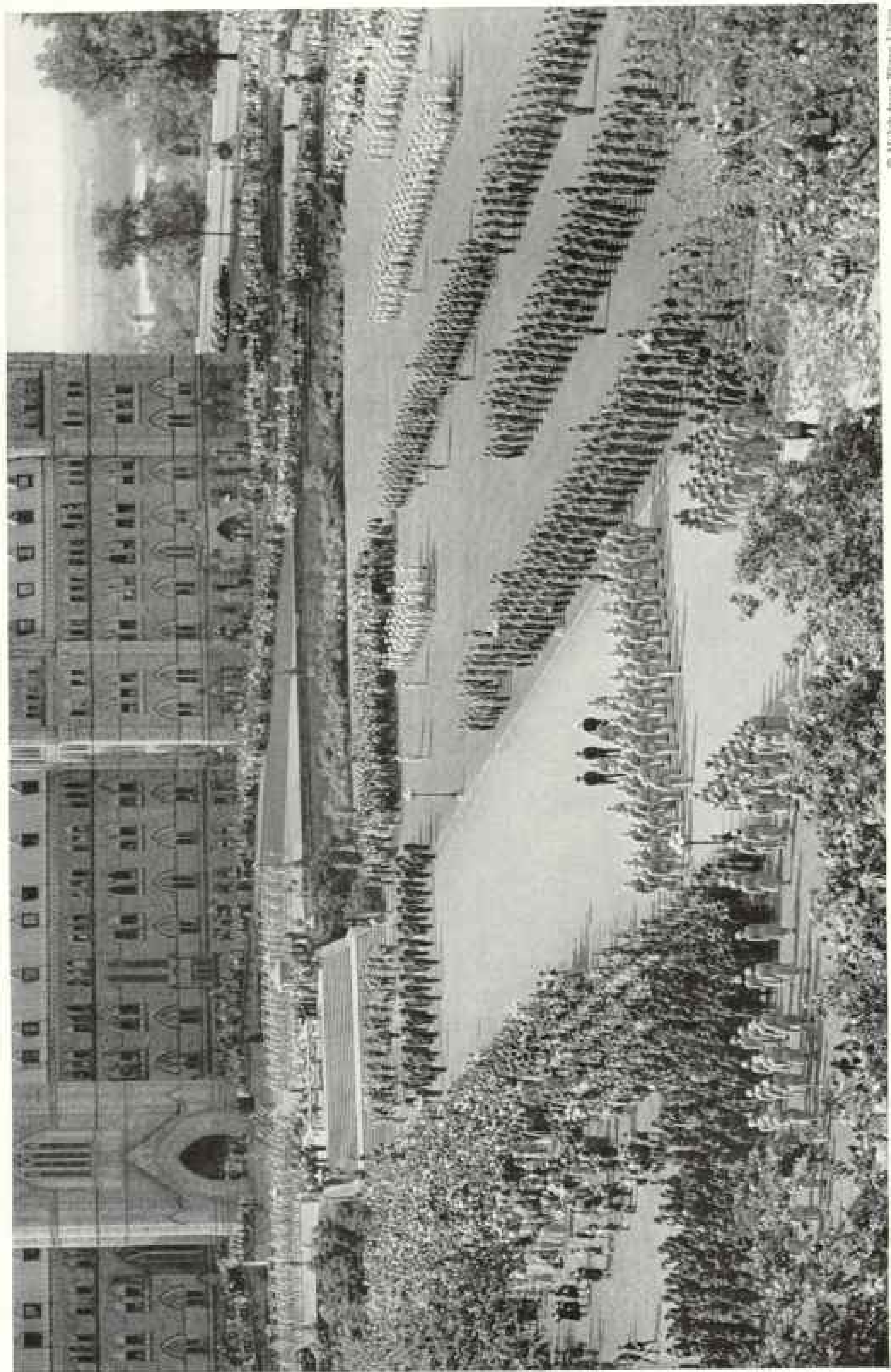
American Troops Leave Westminister Abbey after a Precedent-shattering Thanksgiving Day Service in 1942

For the first time in 600 years, a nonsectarian service was held in the famous London shrine of the Church of England. Also for the first time, the Abbey was turned over entirely to Americans. Chaplain James Blakeney, of Atlanta, assisted by three other U. S. Army chaplains, conducted the service.



War-time Information Board of Canada

Their Majesties Receive a Royal Welcome at Ottawa—King George VI and Queen Elizabeth VI, May 19, 1939



© Nutak from Three Lions

Ever Loyal to Their King, Canadians Throng Parliament Hill, Ottawa, to Hear Prime Minister Mackenzie King Call for Volunteers. Members of the Army, Air Force, Navy, and Women's Army Corps stand at attention. Recruits are massed to right of reviewing stand. Civilians jam the side lines.

exploitation by ruthless members of "superior races."

Ways Britain Acquired Territories

The British Commonwealth came into being gradually in many and various ways, and for many and various reasons. The outstanding figures in its growth have rarely been found in the armed forces of the Crown. Rather have they been drawn from the ranks of explorers, traders, and missionaries.

Great figures of colonial history are such men and women as the directors of the East India and Hudson's Bay Companies; Cecil Rhodes; explorers James Cook, Vancouver, Mungo Park, Samuel Baker, Richard Burton, Speke, and David Livingstone; Ronald Ross, pioneer of malaria research; Stamford Raffles, founder of Singapore; Mary Kingsley, living among, trading with, and caring for, the savage tribes of West Africa; John Kirk, consul general at Zanzibar who did much to stop the slave traffic; and Lord Lugard, who developed the principle of trusteeship and established the system of "indirect rule" in Nigeria and Uganda (page 520).

England, however, has never regarded the benevolent-uncle attitude as sufficient. To full manhood liberty and self-government are essentials. A man may be in prison yet possess material comforts: shelter, food, and clothing. An English member of Parliament, himself a temperance reformer, once rebuked a fellow member who was arguing the advantages of prohibition by saying if he had to choose between the two he would rather see "England free than England sober."

To an Englishman freedom is the first requisite. So it is that the British Commonwealth holds out as its ultimate aim independence for all. The Englishman would have been quicker to prohibit the evils of Indian life, such as suttee, child marriages, and the more insanitary manifestations of reverence for the cow, had he not been reluctant to interfere with the personal liberties of the Indians.

Four principal ways may be enumerated by which territories came into British possession: (1) through the expansion of trading stations, as in Nigeria; (2) after occupation in campaigns against slave traders, as in Zanzibar; (3) taken over by agreement with their peoples or rulers, as in parts of British Malaya and Fiji; (4) taken from other powers as the result of successful wars, as in Ceylon, Mauritius, Cyprus.

With few exceptions, such as in Kenya and the Falkland Islands, the non-self-governing countries have not been colonized from Brit-

ain. In 90 percent of the territories the indigenous peoples have remained in their own homes, and form today the overwhelming proportion of the population.

Often it is a case of—"Puzzle: find the white man." In India he is not one in ten thousand, the total number of English officials there being almost one thousand in a population of 389 millions. In West Africa and East Africa, the proportion is scarcely higher. In Nigeria there are nearly 21 million colored people to 2,500 white, a figure that includes, besides the administration, doctors, business men, and missionaries. It hardly looks as if the Englishman were there against the wishes of the inhabitants!

"Condominiums" are territories wherein Great Britain shares responsibilities with another country. Such are the Anglo-Egyptian Sudan, the governor general of which is nominated by Great Britain and formally appointed by the King of Egypt, and New Hebrides.

"Mandated territories" are those for which Great Britain or one of the other Dominions holds responsibility under the League of Nations as a consequence of World War I. Chief of these is Palestine.

"Test Tubes of Democracy"

A trip around the Commonwealth is a trip around the world, and it involves many side excursions. It takes in one whole continent, a large part of two others, a vast sub-continent, peninsulas, islands, fortresses, coaling stations, hundreds of individual territories, scores of states, a vast checkerboard of races and languages, a diversity of climates, fauna, and flora, a multiplicity of geographical and historical origins, and an infinity of political and ethnological problems.

From the point of view of government, it is a series of test tubes of democracy. Experiments are being tried out in all sorts of assemblies, from the Mother of Parliaments at Westminster to a tribal palaver in West Africa. All are characterized by elasticity and flexibility, for nowhere is there a written constitution and rarely is there a legal code.

There will be time to glance at only a few of these countries.

Starting with the group of small islands from which the Commonwealth, the "Expansion of England," has grown, Great Britain itself, the senior Dominion, is the largest of the 2,000 or so islands called the "British Isles."

Britain for 400 years was in the occupation of the Romans, and it is remarkable how little effect this occupation had upon the people, unless they learned from it a negative

lesson: to dislike the military and to love freedom.

After the Romans withdrew, England broke up into seven kingdoms which were ultimately united under Alfred the Great. Later, England conquered Wales but allowed her to keep her own institutions and languages and gave her as Prince the eldest son of the English King. Still later, Scotland was united to form Great Britain, and Scotland's local customs and laws were left untouched.

But the chief factor in the English tradition of freedom comes from her being a small island no place in which is more than 100 miles from the ocean. The English people have had an important Navy for a thousand years, perhaps longer. They have never forgotten that they were invaded and conquered by William of Normandy in 1066 because they then had forgotten their Navy, having laid it up for the winter.

The Navy is their very existence. It saved them against the Spanish Armada, against the Dutch in Cromwell's day, against Napoleon, against Kaiser Wilhelm, and against Hitler.

When Admiral Jellicoe was criticized for his caution in the North Sea, he replied that he was in command of a weapon the destruction of which would mean that the British Empire would have been lost in two hours.

But the Navy means more than this. It is not merely a sure shield, it is the guardian of liberty. A navy can never be a threat to the freedom of the citizen as an army can.

Self-government Developed Early

Being far from the turmoil of the European continent, England early developed self-governing forms: the Common Law, the jury system, the unpaid amateur justices of the peace. Hence she has had a parliament of almost modern design since 1264. The historian G. M. Trevelyan has said that "the English people have always been distinguished for their 'committee sense'—their desire to sit around and talk till an agreement or compromise is reached. This national peculiarity was the true origin of the English parliament."

Because the English from the earliest times have helped to make and administer the law, and because they have an unwritten constitution, they are one of the most law-abiding and the least litigious of peoples. To break the law with them is serious. It is a breach of etiquette. It is just "not done."

The greatest gift made by the English to all lands they have ruled is probably the rule of law; equal justice to all, irrespective of color, class, or creed; the administration of a recognized law by incorruptible

judges independent of the Government.

An instance of this may be taken from India. Till the coming of the English, to kill an "untouchable" was no crime. The murderer went unpunished. Under British rule, to kill the lowest untouchable became the same crime as to kill an exalted maharaja.

Peculiar Status of Ireland

Eire, on the second largest of the British Isles, is technically a Dominion, but its relation to the Crown is somewhat different from that of the other Dominions. By what some describe as a typically Irish arrangement, the King is recognized in external, but not in internal, affairs.

Eire today is completely free, but Britain could not stand by and leave the British citizens of Northern Ireland who wish to remain within the United Kingdom to face a bitter civil war with the South (Eire). Nor could England allow Eire to become a steppingstone for invasion. It would be like asking New York and the United States to allow Long Island to become independent, and, if it chose, a German colony.

Northern Ireland, though it possesses its own parliament, sitting in Belfast, forms a unit with Great Britain as the "United Kingdom of Great Britain and Northern Ireland." The Irish problem of today is to decide how the peoples of Northern Ireland and Eire may join together under one government. On this the average Englishman is impartial. It is solely a matter for the Irish.

How many Americans realize the magnitude of the contribution Northern Ireland has made to the building of America? Out of 31 Presidents of the United States, no fewer than eleven have been men of Northern Irish blood. That is a high proportion from a country the size of Connecticut, with a population smaller than that of Los Angeles.

A recent Gallup poll disclosed that one half of the people of the United States are unaware of the fact that Eire has chosen to remain neutral in the present war.

Though the English do not criticize this decision, there is no doubt that they, in common with Americans, feel deeply the fact that Germans still walk at large in Eire.

The Nazi flag flies over the German Legation in Dublin. American and English lives are lost daily because the naval bases of Eire are not available to vessels of the United Nations, and German spies in Eire keep German submarine commanders advised of American and British shipping.

Yet thousands of Irishmen are serving in British regiments as volunteers, or working in



Staff Photographer Luis Martin

Grog, Rum Ration Born of Victory Two Centuries Ago, Warms British Tars at Trinidad

Admiral Edward Vernon was known as "Old Grog" because he paced his deck in grogram cloak. He gave his nickname to the drink when he treated his men in 1739 for having defeated the Spaniards. Likewise named for him is Mount Vernon, George Washington's estate.

war industries in England. It is tragic that the wrongs of the past committed under Cromwell or Elizabeth, or even earlier, should still remain in the memories of living politicians to prevent their co-operating in warfare against the enemies of humanity.

Newfoundland Earliest British Colony

Crossing the Atlantic by the lanes which the earliest English colonizers followed—Raleigh, Hawkins, Frobisher, John Smith, Hudson, and the Pilgrim Fathers, we reach, on the east Atlantic coast of North America, the earliest British colony. Sir Humphrey Gilbert took possession of Newfoundland in 1583, five years before the Spanish Armada, the British defeat of which gave the greatest impetus to England's extension overseas.

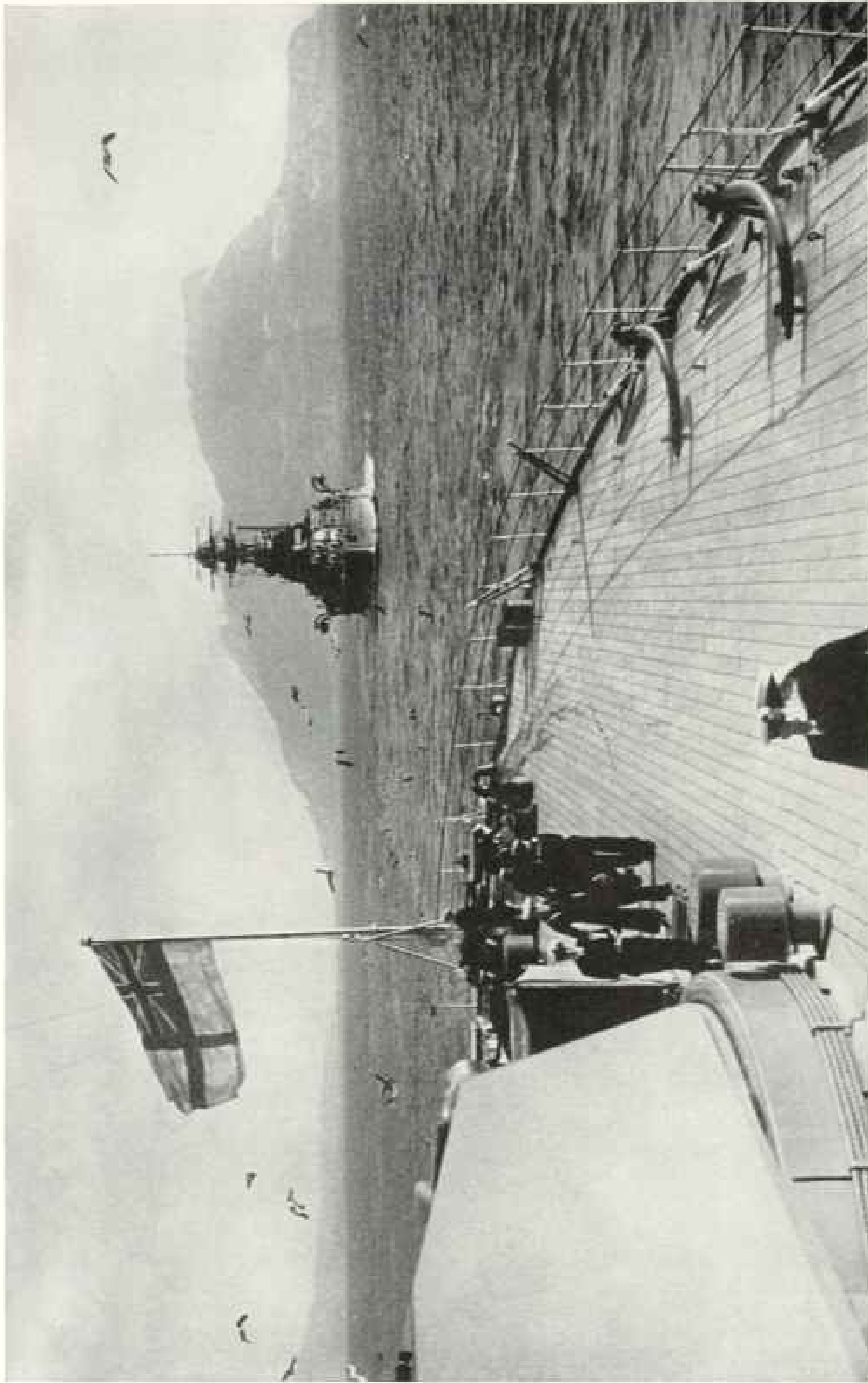
Self-governing since 1855, Newfoundland for a time was a Dominion—in fact, next to Great Britain herself, the senior of the seven Dominions. Following the world economic

crisis of 1930, she got into financial difficulties. At her request Great Britain came to her assistance on condition that till she was able to stand alone, she return to Crown Colony government. One proposed solution of her difficulty is that she become a province of Canada.

Canada is now the second senior Dominion and the largest unit of the Commonwealth. With an area larger than the United States, her population is only about a twelfth. Four-fifths live within 200 miles of the U. S. border, the longest completely undefended international boundary in the world.

The Molding of Canada

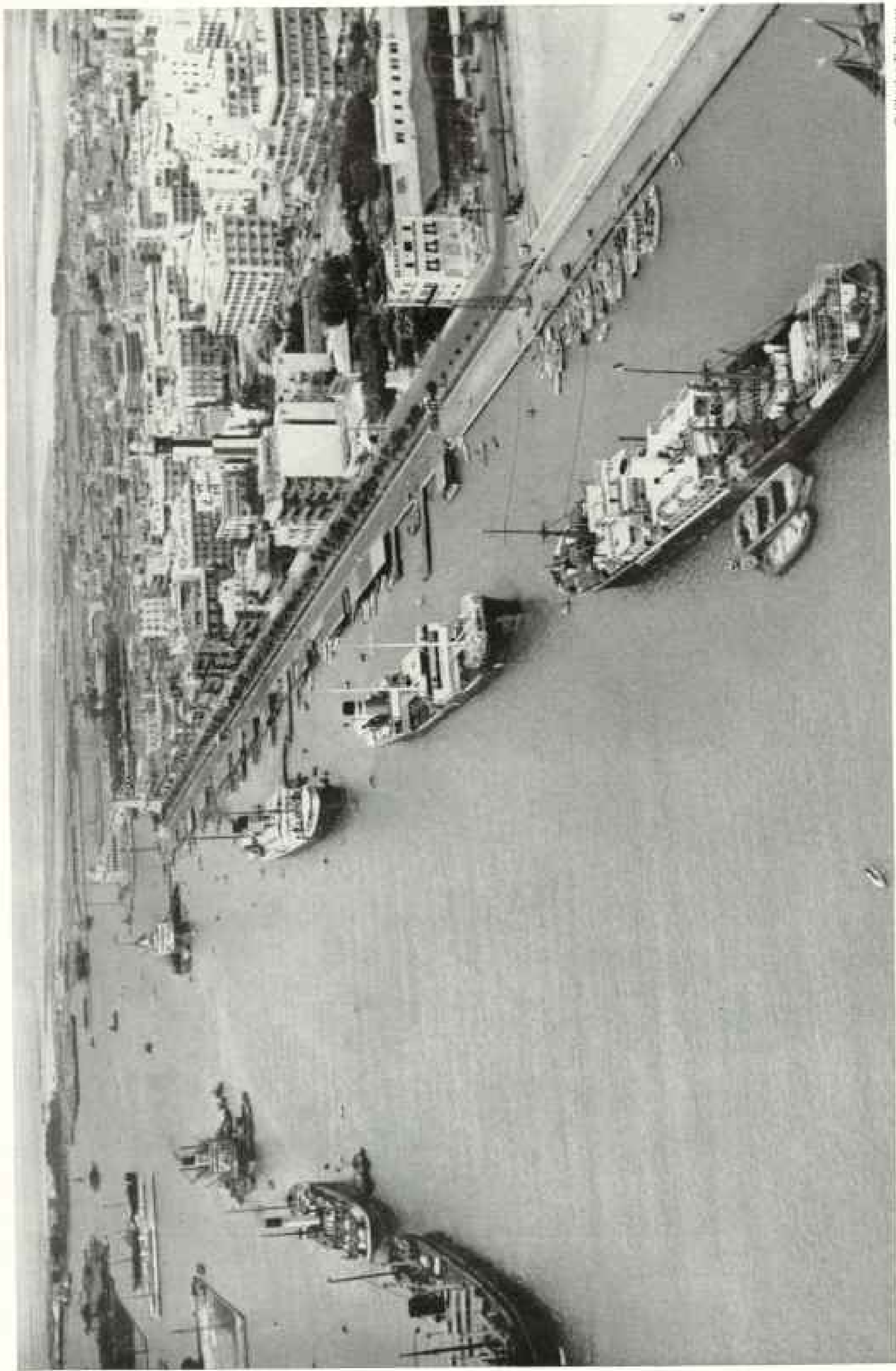
Discovered at the end of the 15th century by John Cabot, sailing from Bristol, Canada was settled first by the French. The Hudson's Bay Company, a chartered company, founded in 1670 and still in active business under its ancient title of "The Governor and Company



© British Columbia

From Gibraltar Steams the British Battle Fleet—the Mighty Rock Helps Protect Americans in Algeria

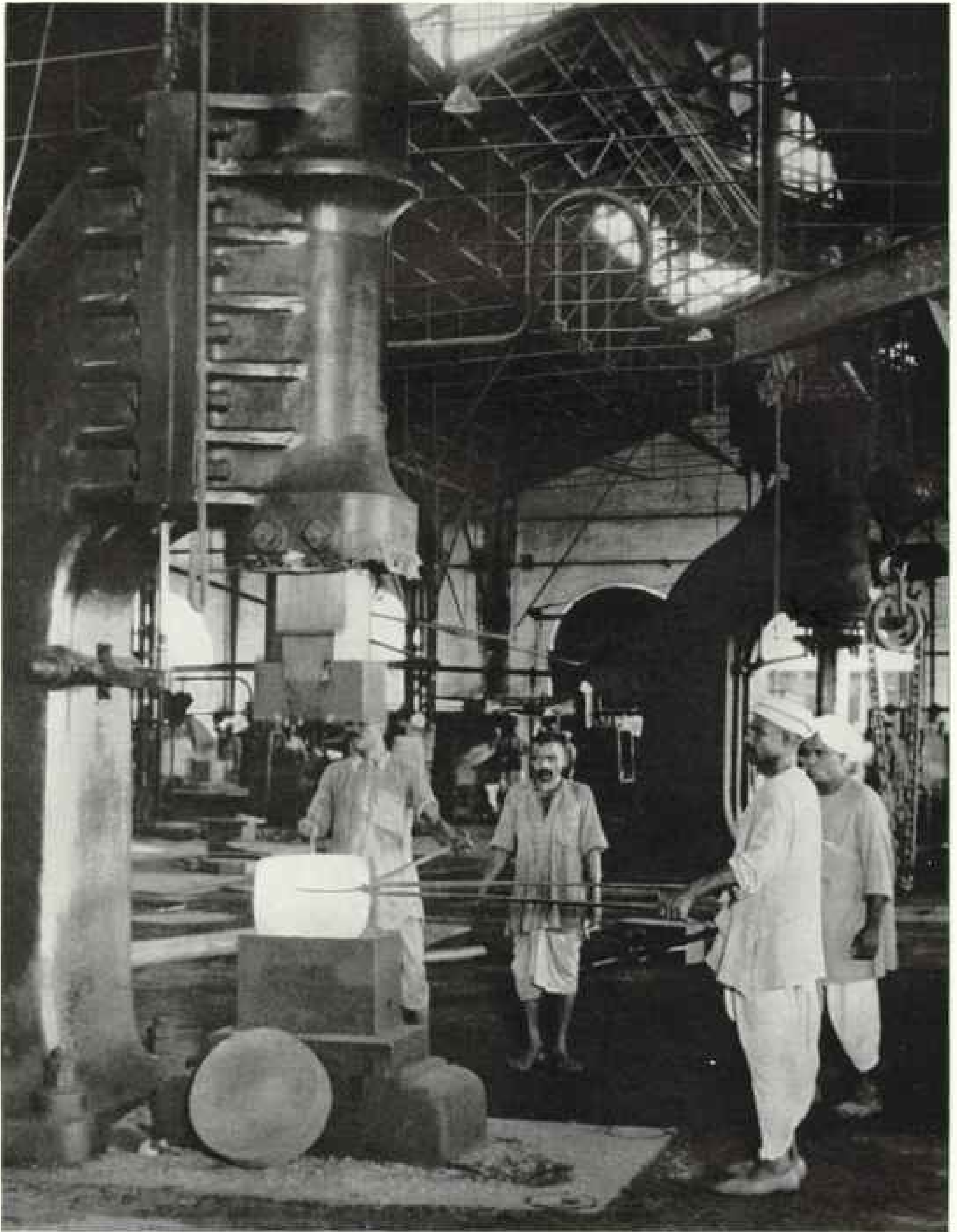
Key to the Mediterranean's 9-mile-wide front door, the fortress has been British since 1704. Tank traps, pillboxes, flame throwers, and moats guard the narrow connection with Spain. Behind antiaircraft nets, warships and seaplanes nest in the harbor. Soft limestone cliffs are honeycombed with gun pits and living quarters for 20,000 men.



© Charles E. Brown

Port Said and the Suez Canal Were Frequent Targets When Axis Air Forces Had Bases in Egypt

Bombs and submarines for a time all but sealed this busy channel from the Mediterranean. But its quick delivery of men, tanks, guns, planes, and food, coming from Britain and the United States helped save Alexandria and the Nile Valley when Rommel's army threatened. Ferdinand de Lesseps, a Frenchman, dug the canal.



Arens

A Two-ton Pneumatic Hammer Strikes a Blow for Britain in India

Workers in the steel mill of Indian railway shops forge a 12-inch billet. Although India's teeming peoples are chiefly agricultural, it ranks eighth among the industrial countries of the world. Transformed to war production, its factories supply part of its own military requirements and fill large United Nations orders. Four million pairs of Army boots yearly are produced for Allied soldiers, including Americans. India is a large manufacturer of tents and tropical pith helmets and produces 10,000,000 uniform garments monthly.



G. B. WOOD

British Regimental Badges Adorn the Red Sea Hills in the Anglo-Egyptian Sudan

The garrison at Gebel, with time on its hands after Kitchener's victory over the fanatical "Fuzzy-Wuzzies," adorned the barren landscape with badges of the Rifle Brigade, Army Medical Corps, and Warwickshire Regiment. The Sudan is a condominium of Great Britain and Egypt (page 520).

of Adventurers of England trading into Hudson's Bay," settled later in regions unoccupied by the French.

The chartered companies played an important part in the development of the British overseas dominions. The colonies of Spain and France had been founded by expeditions sent out by their rulers. Many English colonies, by contrast, were the outcome of private enterprise. Groups of merchant adventurers, individuals, or city companies, took shares in a chartered company and bound themselves to develop certain overseas lands in return for a monopoly of trade there.

The Age of Settlement began in 1607 with the foundation of the Colony of Virginia. The objects of the Virginia Company are of interest: "To propagat the Gospel. To transplant the multitude of increase in our people. To obtain goods which we are now enforced to buy . . . at the courtesy of other princes under the burdens of . . . high impositions."

The 18th century witnessed a continuous struggle for predominance in North America between the English and the French, which culminated in the victory of Wolfe over Montcalm at Quebec in 1759, and the formal cession of Canada to Britain by the Treaty of Paris in 1763.

A little more than a hundred years later the original provinces were joined by others and formed into a confederation to make a Dominion. Today there are nine provinces, each

with its own legislature, in a system closely resembling that of the United States.

From its geographical contiguity and the similar tastes and interests of its people, Canada forms a strong link between the United States and the British Commonwealth. In addition to the common border, the Alcan Highway* and the St. Lawrence power project are instances of the practical ties between the two nations. Both parties to a Joint Defense Board, they are equally concerned with the security of the Atlantic and Pacific Oceans.

Of all the Dominions, for the vastness of her territories, the wealth of her resources, and the vigor and enterprise of her people, Canada has the greatest possibilities of becoming a great nation. Indeed, her destiny may well be to become one day the center and head of the British Commonwealth.

British Islands in Caribbean Sea

Going south along the Atlantic coast of the United States, we reach several groups of islands of varying size adjacent to the Caribbean Sea: Bermuda, the Bahamas, Barbados, Jamaica, the Leeward Islands, the Windward Islands, and Trinidad. On the mainland of Central America is British Honduras, and adjoining Venezuela is British Guiana.

These territories, which were taken under

* See "Alaskan Highway an Engineering Epic," by Froelich Rainey, NATIONAL GEOGRAPHIC MAGAZINE, February, 1943.



Staff Photographer Luis Mardón

A Bicycle Built for Skirts Fits the Kilt of a Cameron Highlander in Bermuda

All during the automobile age this tiny Atlantic colony tenaciously clung to hike and buggy. But with the arrival of American forces, Bermuda let down the bars to King Gasoline. The second Scot wonders where he is going to ride on this open-frame girl's bicycle.

British control at various times and for various reasons, are very numerous and not even members of Parliament could be trusted to draw up a moderately accurate list of them. It is related that a British Colonial Secretary when asked in the House of Commons where the Virgin Islands were situated was at a loss to give even an approximate idea of their whereabouts. He brushed the query aside with a joke, and replied: "As far as possible from the Isle of Man."

Some of these islands illustrate ways the Empire was built up. Since they were discovered, many of them have changed hands several times, having been in turn under the Spanish, the French, and the British. In many cases there was no question of conquering the original inhabitants, because there were none.

Bermuda, Shakespeare's "still-vexed Bermoothes," settled in 1609, was then uninhabited. Its chief peacetime industry, besides the entertainment of tourists, is growing vegetables and flowers for American and Canadian winter markets. The lily fields of Bermuda are something to be remembered.

The Bahamas, a chain of coral islands, include the first land discovered by Columbus in 1492, Watling Island (San Salvador).

They were virtually uninhabited when the Company of Eleutherian Adventurers was formed to develop them. American loyalists settled in the Bahamas after the Revolution, and the mace of the South Carolina Legislature is still to be seen in the Nassau House of Assembly.

Jamaica, largest of the British West Indies, taken by Cromwell from Spain, had no indigenous inhabitants at the time. The same is true of Barbados, which has been continuously in British occupation since 1605. Known as "Little England" from the resemblance of its landscape and buildings to those of the mother country, it possesses in Codrington College a fine institution of learning up to the best university standards, giving an education to all, irrespective of creed or color.

Among the principal territories taken from the French at various times are St. Lucia, Grenada, St. Vincent, Dominica, St. Kitts, and Antigua. In some of these the language still spoken is a French *patois*. Nevis, in the Leeward Islands, is sometimes known as "Nelson's Island" from the fact that the great Admiral was married there. It is also the birthplace of Alexander Hamilton.

Tobago, which forms one colony with Trini-

dad, is supposed by many to be "Robinson Crusoe's Island." For its healthful climate it is known as "the Negroes' paradise." Both these islands came into British possession during the wars against Napoleon.

Trinidad is of exceptional importance to Britain today, being the largest producer of gasoline under the flag and the chief source of pitch used for asphalt. The Usine Ste. Madeleine is an enormous sugar factory. The work of the Imperial College of Tropical Agriculture at Trinidad is of benefit to colonial development everywhere.

"The Colony of a Colony"

British Honduras originated as "the colony of a colony," being settled by adventurers from Jamaica. Once a center of Maya civilization, its chief product is mahogany, now used for airplane propellers. It also abounds in chicle, the basis of chewing gum.

British Guiana was purchased from the Dutch. Larger in area than Great Britain, it may one day assume importance as a "gateway to Brazil," in which country Britain has a large financial interest. It has also been proposed as a future home for refugee Jews.

For these islands and mainland territories individually to become independent states is economically impossible, but it has been suggested that, each having self-government in local affairs, they might form a West Indian Confederation with Dominion status.

Most of these islands produce coffee and cocoa, while the Asiatic island of Ceylon is famous for its tea. The Empire is therefore self-sufficient so far as teetotal beverages are concerned. Jamaica is noted for its rum.

Some of the coffee is not of the highest quality. It is related that a newly appointed governor of one of the islands remonstrated with his native butler on the poor quality of the coffee and asked him how it was made. The butler replied that it had been strained through one of his master's socks. Seeing the look of consternation on the governor's face, he hastened to explain: "The sock was not a clean one."

Passing through the Isthmus of Panama into the Pacific, we find a vast number of islands, as well as two Dominions: Australia and New Zealand. It is almost impossible to classify, or even group these islands. Many of them are very small, though size is not necessarily a measure of value, and some of them are of great strategic importance.

Island groups of special interest under the protection or administration of Great Britain and not including those subject to Australia

or New Zealand are: Fiji, the Gilbert and Ellice Islands, the Tonga Protectorate, the British Solomon Islands Protectorate, the Anglo-French condominium of the New Hebrides, and Pitcairn Island.

Many of the islands came under the British Crown on their own initiative, some almost against the wish of the British Government at the time. Odd though it may seem, it has always been the prime desire of the British "to trade with all and rule none."

Britain's trade with "Britain overseas" has never in amount approached that which she has done with foreign countries. The United States and South America during the 19th century had large investments of British capital. Britain's financial interest in those countries is still greater than in the Colonial Empire or Dominions.

Doves of Peace Alight on Fiji King's War Club

Fiji did not become a colony until the "second time of asking," in 1874, its cession to the Crown having been urged by the leading chief Thakombau and his associates since 1859. Its population is half Fijian, half Indian, with a sprinkling of whites. The Indians came originally as temporary workers in the sugar-cane fields. They liked it so much that they stayed and are now represented on the Legislative Council.

King Thakombau presented to Queen Victoria his war club, accompanying it with a letter: "Before finally ceding Fiji to Her Majesty the Queen, the King desires to send Her Majesty the only thing he possesses that may interest her . . . his old and favorite war club—the former, and, until lately, only known law in Fiji. In abandoning club law and in adopting the forms and principles of civilized societies, he laid by his old weapon, and now it bears upon it the emblem of peace and friendship."

Years afterwards King George V restored the club to Fiji where, topped with a silver crown and embellished with silver doves of peace, it now serves appropriately as the mace of the Legislative Council.

Suva, the capital of Fiji, which has been called "The Clapham Junction of the Pacific," is the headquarters of the British High Commissioner for the Western Pacific. There are two fine institutions available to all Pacific peoples, the Government hospital for lepers and the Central Medical School (page 512).

The hospital is situated in beautiful surroundings, and the lives of the patients are made so happy by its efficient doctors and nurses that sufferers do not hesitate to declare



Times Press Agency

A Coronation Visitor, the Alake of Abeokuta, Goes to Epsom on Derby Day

Robed, crowned, and canopied, this elegant princeling made the pilgrimage to London in 1937 for the enthronement of King George VI. In faraway Nigeria, he and a native council govern the Province of Abeokuta under supervision of a British resident. The Derby has been run in unbroken succession since 1780. In motorless wartime, Derby fans attend on foot, bicycle, pony, or carriage. War has moved the races away from Epsom.

the disease as soon as they realize they have it. The proportion of cures is, therefore, high, and leprosy is disappearing in this part of the world.

The Central Medical School at Suva, whose work has been generously assisted by the Rockefeller Foundation, was founded 59 years ago to train doctors and is attended by students from all the islands of the Pacific.

The Gilbert and Ellice Islands form another colony; from Ocean Island in the west to Christmas Island in the east is 2,250 miles. Yet the total land area of this widely strewn dependency of coral atolls is only about 400 square miles.

The inhabitants of the Gilbert Islands are Micronesians, and of the Ellice, Polynesians—different peoples with different languages and customs. But on each of these low-lying atolls is an effective native government functioning with a minimum of supervision from London. They have been described as "not dissimilar on a tiny scale from the little local republics of medieval Italy."

To the west of these lie the British Solomon Islands, now playing a prominent part in the war. They form a remarkable contrast to the Gilbert and Ellice Islands, being a compact group, volcanic and mountainous. Their inhabitants are Melanesian, blue-black in color, with deeply pigmented complexions.

Pacific's Only Independent State

The Kingdom of Tonga is the only independent state in the Pacific. It consists chiefly of the Friendly Islands, so called by Captain Cook from the kindly reception he received. The present ruler is Queen Salote Tubou, Polynesian form of "Charlotte," a name which first became fashionable in those parts out of compliment to George III's consort. Queen Salote stands 6 feet 3 inches, and is a truly regal figure (page 514).

Tonga is a constitutional monarchy, modeled on the English, with a Privy Council, Cabinet, and Parliament, and conserves all its ancient customs and traditions. It is under the protection of Britain. The Tongans are a Polynesian race, Christian and literate.

Every Tongan is entitled to a piece of land for his own cultivation. Education is compulsory, and the medical and social services are well organized. The Tongans have courtly manners, are fine speakers, and their dancing has been compared to that of the Russian ballet.

Pitcairn, which contests with Tristan da Cunha the claim to being the world's loneliest island, was chosen as their seat by the muti-

neers of the *Bounty*. The community today numbers nearly 200, under a chief magistrate who still bears the name of Christian and is supported by a council of four members elected by popular vote.

"Long White Cloud" Dominion

"Long White Cloud," as the aboriginal Maoris call New Zealand, is the Dominion most remote from the Mother Country. It was discovered by Tasman, for whom Tasmania is named, in 1642. New Zealand has only recently celebrated its centenary as part of the British Empire, for it was not until 1840 that the Maoris of their own free will ceded the sovereignty to Queen Victoria.

The total population for the Dominion proper is more than 1,640,000, of whom the Maoris, who are steadily increasing, number some 92,000. They are intelligent and progressive, and enjoy complete equality with the white man, sitting in Parliament and becoming members of the learned professions.

The New Zealander is often said to be "more English than the English": his devotion and loyalty to the Commonwealth are proverbial. The scenery, though more mountainous, and the climate, though warmer, approximate more nearly to those of the British Isles than do those of the other Dominions.

New Zealand is remarkable for its political and economic systems, and for its social experiments. There are fine modern roads and waterways, the railroads are owned by the State, and airways link the country with England and America. Practically all surplus products of the "Dairy Farm of the Empire" are sold to England under a state-marketing system.

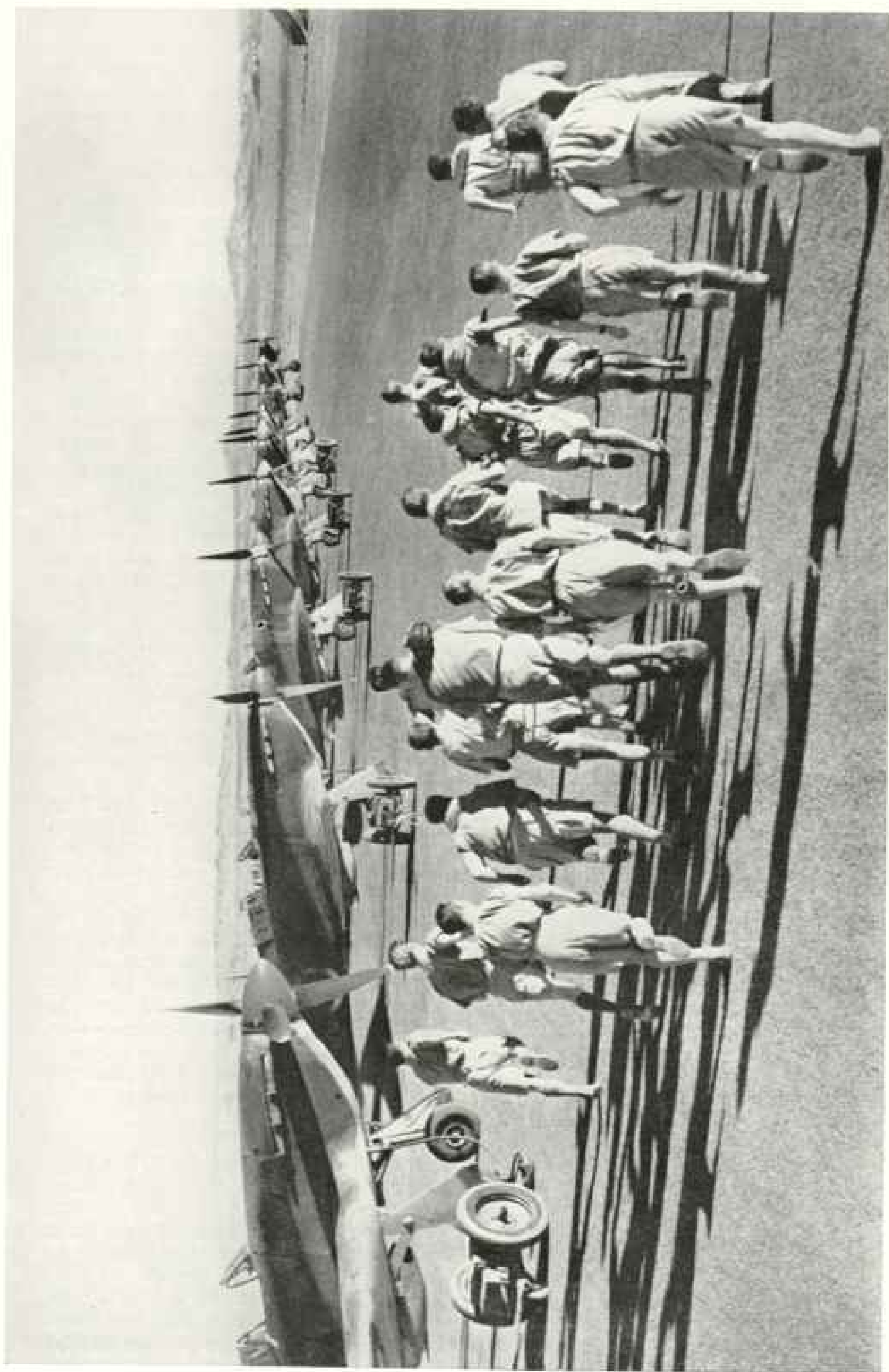
New Zealand, like the other Dominions, has colonies of her own, exercising authority over numerous neighboring islands such as the Chatham Islands, Auckland Islands, Campbell Island, and the Antipodes Islands in the deep South Pacific. She also holds a mandate over the former German colony, Western Samoa.

New Zealand is separated from Australia by 1,250 miles of sea, usually stormy.

Australia

Australia, a continent in itself, has practically the same area as the United States. Visited by Captain Cook in 1770, the first settlement was made at Sydney 18 years later. A small part of the country was scantily inhabited by a very primitive people.

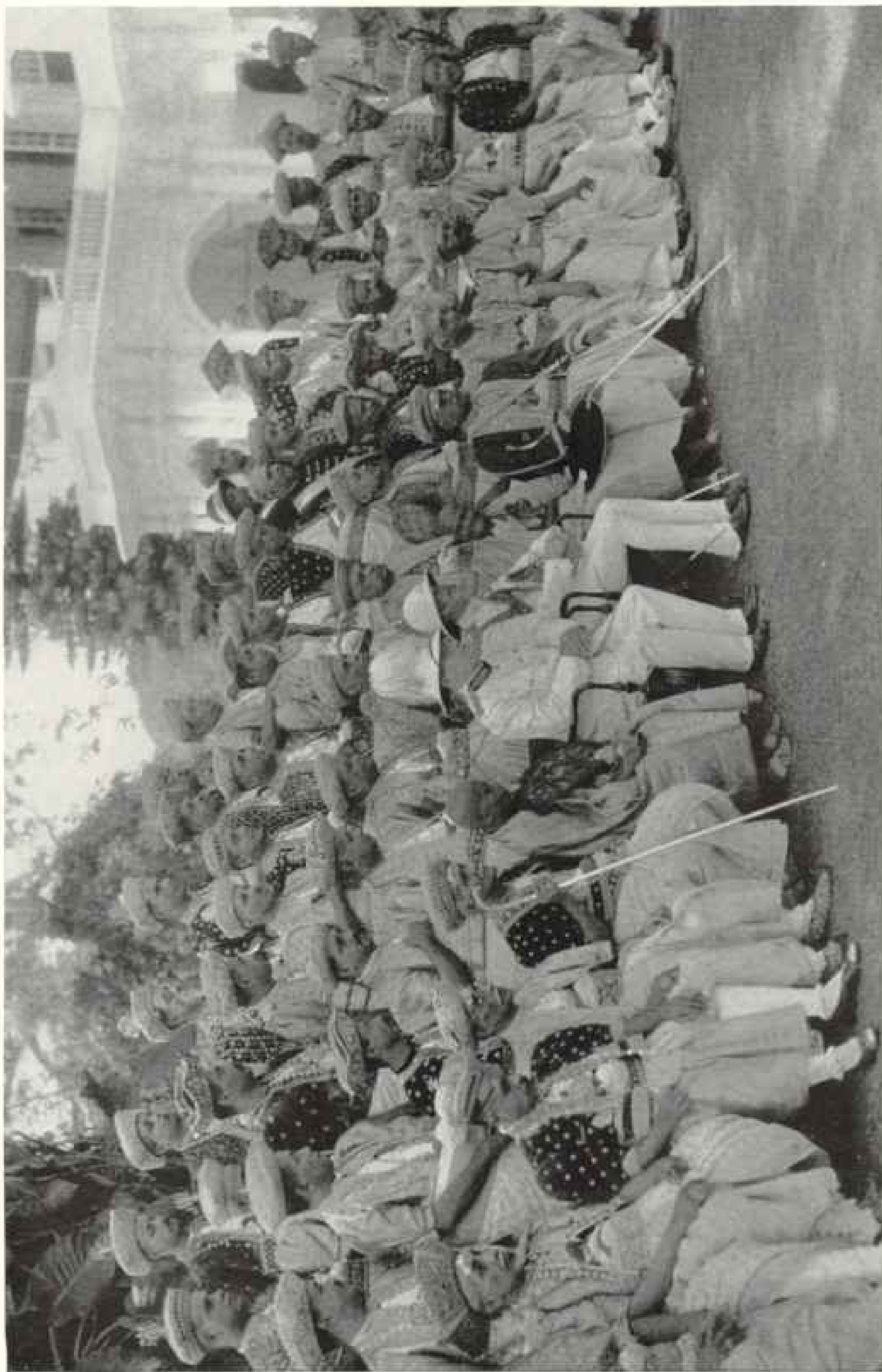
It is fertile only around the coasts; a large proportion of the interior is waterless desert and bush. The greater part of the population, 7,000,000, lives in the cities of Sydney,



British Press Service

Royal Air Force Pilots Sprint for Their Hurricanes on the Island of Cyprus, Guardian of the Eastern Mediterranean

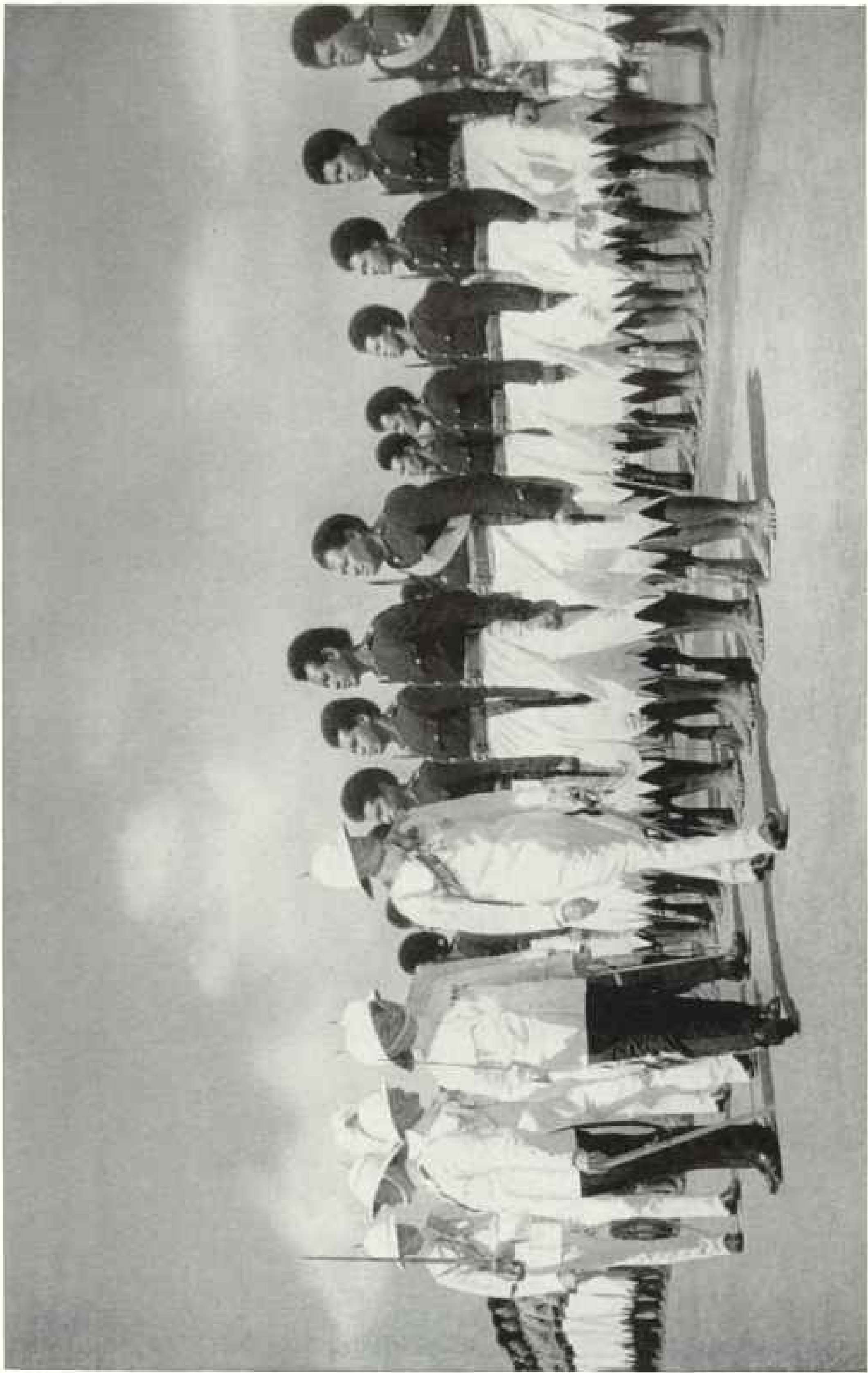
Out-invaded Cyprus has known Egyptians, Greeks, Romans, Arabs, Crusaders, Venetians, and Turks, but not Germans. The Nazis snuffed an opportunity when, after the air-borne invasion of Crete, they neglected Cyprus. Prime Minister Churchill told loyal Cypriotes they deserved well of the Commonwealth after the war.



London News Agency

Ceylonese Chiefs Give the Duke of Gloucester (right) a Royal Welcome as He Restores Throne and Crown to Kandy in 1934

These relics of the ancient Singhalese kings had been preserved more than a century in Windsor Castle (page 484). Since the fall of Singapore, Ceylon's naval and air bases guard the Indian Ocean. R.A.F. pilots stationed on this crown colony beat back a Japanese carrier-borne raid in April, 1942, with heavy losses (page 517).



London News Agency

The Duke of Gloucester Reviews Fijian Sons of Cannibal Ancestors—They Now Enforce the Law against "Long Pig"

Wearing "kilts" cut like the paper edgings of pantry shelves, the barefoot police stand at attention in Suva, capital of the South Pacific archipelago of 150 isles. East Indians, representatives of an immigrant people, form a minority on the force of 270 men. Higher officers are white. Wounded American soldiers, sailors, and marines from the Pacific front convalesce here in fine modern hospitals staffed by Johns Hopkins Hospital doctors (page 507).



© Kurt Zamboni

Pupils Decorated the Walls of This Airy School in Uyo, Nigeria, with Frescoes

Education follows the flag. In this African colony, missionary school students learn to work metal and wood, spin rope, weave nets, and make musical instruments. At the end of the year they take their handwork home. No wonder they think school is fun! (Pages 508, 519.)



E. M. Lambert

Every Inch a Queen is Salote Tubou, Six-foot-three Ruler of Tonga Protectorate

Pictured on the steps of her palace, she reigns over 34,000 Christian Polynesians in a copra-and-banana archipelago 1,200 miles northeast of New Zealand. Educated in New Zealand, she succeeded to the throne on the death of her father in 1918 (page 509).

Melbourne, Adelaide, Brisbane, and Perth. Gold, silver, and copper are mined, and the chief rural occupation is sheep farming.

It has been estimated that with improved communications—her railroads have only about a ninth the mileage of those in the U. S. A.—and irrigation schemes like those which have so vastly benefited India, Australia could maintain a population of at least 50 millions. Alive to the Japanese menace, she has for some years pursued a policy of restricted immigration.

The Commonwealth of Australia, its official name since 1901, comprises, besides the States of New South Wales, Victoria, Queensland, South Australia, and Western Australia, the large and beautiful island of Tasmania and the vast "Northern Territory," now divided into North Australia and Central Australia.

Tasmania, the capital of which is Hobart, is about the size of Eire, with a fine all-year-round climate and about a quarter of a million people.

The constitution of the Commonwealth is similar to that of the United States. The Parliament houses are called the Senate and the House of Representatives. They meet at Canberra, which bids fair to become a smaller

Washington, in Federal territory corresponding in many ways to the District of Columbia.

Each State has its own legislature, with a governor; and the Governor General of the Commonwealth, though nominally the representative of the Crown, is chosen by Australia.

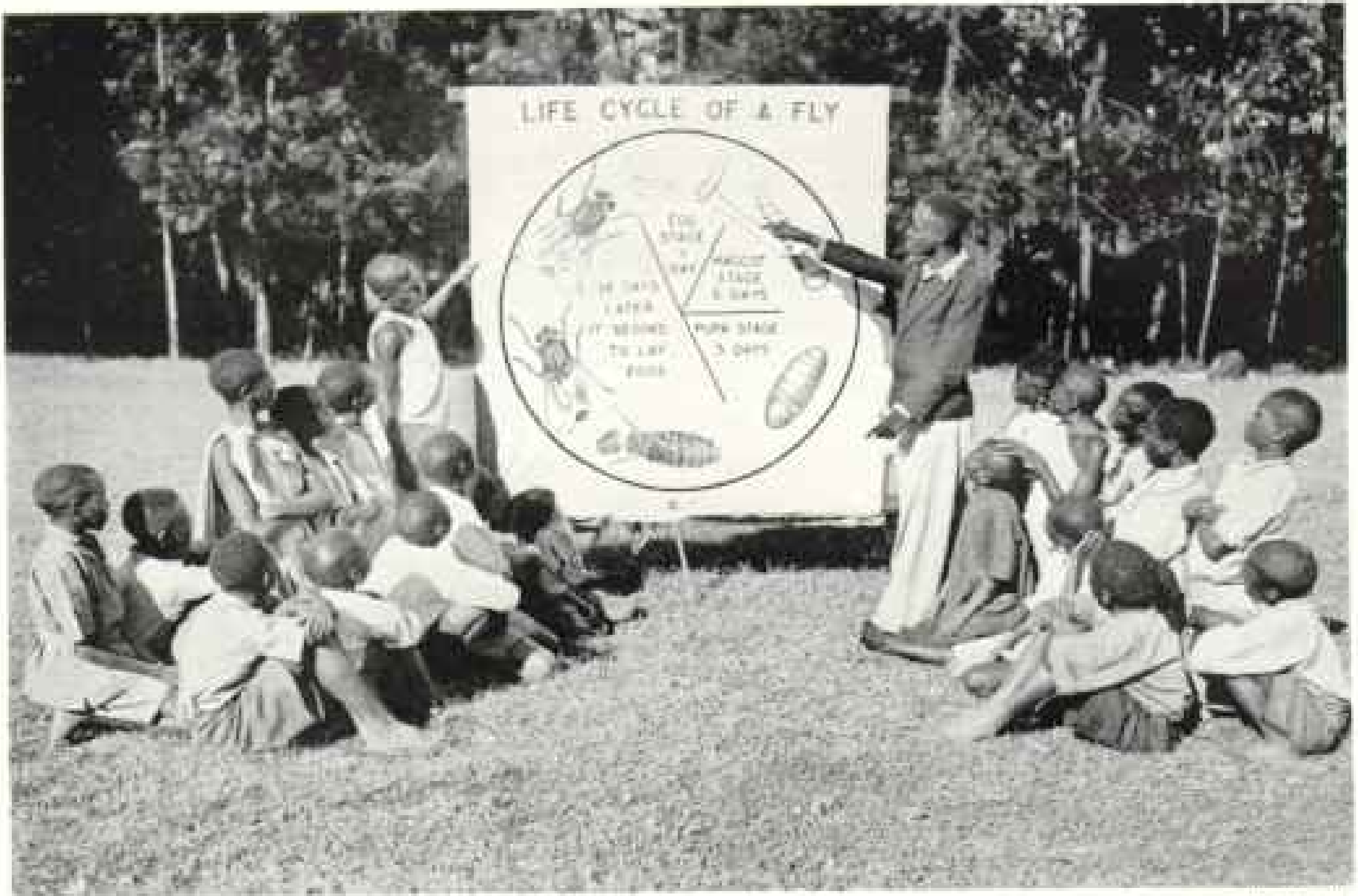
In New Zealand, on the other hand, the Governor General is appointed by the Crown, but always, of course, in accordance with the wishes of New Zealand.

Pioneer in "Flying Doctor" Service

Australia has been active in the development of air communications and their further extension will be a large factor in her future. She pioneered in setting up the "flying doctor" service to reach remote farmhouses.

Australia has her own colonies and also shares responsibility under mandates for the island of Nauru and northeastern New Guinea, both formerly German. Papua, or British New Guinea, is a territory of Australia.

Westward from New Guinea lies the greater part of the Netherlands colonial empire. A member of this is the southern section of the large island of Borneo. The northern section consists of Sarawak and British North Borneo.



John Doreally

In Kenya an Open-air School Studies the Fly, Common Enemy of All Mankind

This colony has some 2,000 schools for natives. Completion of a railroad in 1903 opened a fertile, temperate area for European colonization. But London has set aside reserves and announced that "interests of the African natives must be paramount."

Sarawak is unique in being under the hereditary rule of a British family—the Brookes. One of them, a wealthy private gentleman, acquired land there in 1841-44 after assisting the Sultan of Borneo to suppress the pirates who plagued his domains. The ruler bears the title of "Raja." The country is under British protection.

Reasons for the Loss of Malaya

Still farther west are the Malay States. Malaya may be divided into three parts: the colony, or Straits Settlements, the Federated Malay States, and the unfederated states. Part of the colony was acquired, by exchange, from the Dutch, part ceded to the East India Company to suppress piracy, and part, an all but uninhabited swamp, was taken over by treaty from the Johore princes.

The Federated Malay States were placed under British protection at the request of their Sultans. The British act as advisors and protectors, and the status of the Sultans as ruling princes is recognized and respected.

There has been considerable misunderstanding as to the loss of Malaya during the present war, some people supposing that it was because the Malaysians were not sufficiently as-

sociated with its government. Such is not the case.

The loss of Malaya was due purely to military causes. The British at the time were fully occupied against Italy and Germany and had insufficient armament for defense against Japan. It had never been Britain's policy to arm the Malays, an easygoing and unmilitary people. Britain had given them law, order, justice, and a hitherto unknown prosperity.

In the past 40 years the death rate had been reduced from 46 to 20 per thousand. There was free education for Malays from 7 to 14. The tin and rubber industries had been developed to their advantage and that of the whole world. Singapore had been transformed from a poverty-stricken jungle into one of the great ports of the world.

One of the many problems faced by the British Empire has been the "desire of those outside to get in." Malaya is an instance. Immigrants—Chinese, Japanese, and Indians—have outnumbered the Malays by nearly two to one and the population has more than doubled.

There was no national movement in Malaya, no apathy, and no nepotism. The British civil servants were appointed after

competition, open to all. The Malays had a preponderating share in internal government, and a majority of the staff were native-born. Peoples of many races worked harmoniously in administration, business, and welfare—hospitals, schools, and agricultural institutions. Respect for law and order was exceptional; in the year 1937 only two persons were sentenced to death. Though it had its night life, Singapore was as hardworking and well-conducted as any large city in the world. After Vichy France handed French Indo-China over to the Japanese and Thailand (Siam) capitulated, the fall of Singapore was inevitable.

Burma Different from India

Northwest of Malaya lies Burma. The Burmese differ from Indians in race and religion and do not desire to be part of India. They are largely Buddhists, there is no caste, and women are free. They form a link between India and China. Burma's material importance to the British Commonwealth lies in her oil and timber.

Causes similar to those operating in Malaya have been wrongly attributed for the loss of Burma to the Japanese. The most recent and most dependable report, however, shows that of the nearly 17 million Burmese not more than 4,000 actively helped the Japanese. These belonged mainly to the *Thakin* party, extremists bent on taking the country for themselves at any cost.

The Burmese ministers in office at the time of the invasion stood loyally by the Governor, as did the Burmese civil service, only one prominent member being known to have taken service under the Japanese.

The Mosaic of India

It is not easy to deal with India in the limit of an article covering the whole Commonwealth. India is not so much a single country as a continent. It contains an amazing variety of peoples, and between some of them there is great antagonism.

In all the 75 or 80 languages spoken in India there is no word for "India." This is of great significance, indicating that no people hitherto inhabiting India has ever thought of it as one country. Such unity as India possesses today is the consequence of British rule.

Scattered haphazard throughout the territories known as "British India" are 562 independent States under the rule of Indians and in treaty with Britain. These vary in extent from Rajputana, 40,000 square miles larger than Great Britain, to the smallest with an area of a gentleman's country estate.

For some years past the attitude of Britain towards India, shared by other Dominions, has been an offer of Dominion status as soon as the different elements can agree on the terms of a constitution which is workable and which no substantial minority will oppose.

Marshal Smuts has said: "India, if she wills, can be free in the same way and by the same means as Canada, Australia, and New Zealand are today. In all these States, their peoples, through their representatives, came together, worked out a constitution for themselves, and asked Britain to ratify the result. In Canada, French Canadians and British Canadians, in South Africa Dutch and English after a century of struggle came together and made those grand compromises which are always the expression of the highest political wisdom."

Why should England, who fully conceded independence to the Dominions, wish to withhold it from India?

With its greater diversity and lower standards of material comfort and education the unification of India presents as difficult a problem as would the unification of Europe. One of the chief obstacles to agreement is the fact that the Moslems, numbering about 94,000,000, refuse to be ruled by the Hindus, numbering about 206,000,000.

If there is to be only one state, it is difficult to overcome this, as the Hindus would always command a majority. It is possible, however, that the Moslems may have their own state under the name of Pakistan.

But it should not be forgotten that, though India has not nominal independence, the individual Indian in every part of the country enjoys a degree of freedom equal to that of an Englishman in England, or an American in the United States. The mere fact that political agitation is permitted is evidence that freedom of speech is not interfered with. And the provinces of British India for some years have possessed rights of self-government.

The Problem of Asiatic Poverty

India is often spoken of as a land of great wealth. This is not the case. While a few Maharajas can array themselves from head to foot in precious stones on state occasions, the vast bulk of the population are peasants living on a few cents a day. How to remedy the poverty of the Asiatic is one of the most difficult problems which face the world.

Industrial countries like the United States and Great Britain have a real interest in solving this; and India would welcome their cooperation in financial and technical assistance. A prosperous India would provide a vast mar-

ket for American and British goods.

Though Britain has a smaller financial interest in the whole Colonial Empire than she has in one foreign country, Argentina, her investments in India, which on the whole have earned rather less than 5 percent, have been of great benefit to India.

British capital has constructed the railroads, canals, irrigation systems, and industries which have raised the standard of living, low though it still is, and reduced mortality from plague and famine to such purpose that the population since 1900 has increased by 115 millions.

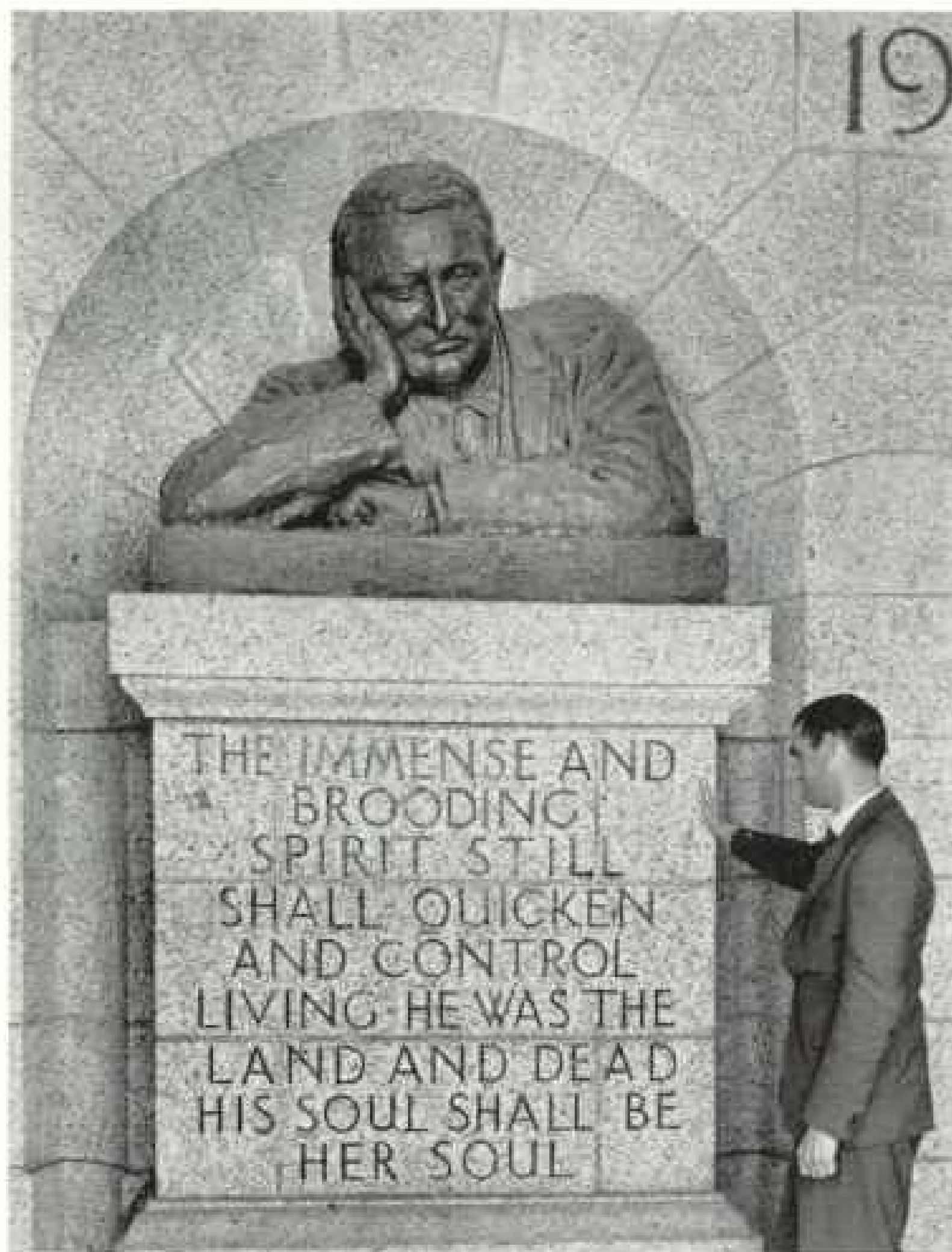
The Island of "Lion People"

The beautiful island of Ceylon, settled by the Portuguese in 1505, was afterwards subject to the Dutch for a while, and was taken by the British during the wars of Napoleon. About half the size of England, Ceylon was the site of wonderful ancient civilizations centuries before the Romans. Though once attached to the Indian mainland, it differs in certain respects from India in details of fauna, flora, and climate (page 511).

The people, mostly of Indian origin, are called Singhalese, or "lion people," though in Ceylon no lions are to be found.

Ceylon's chief product is tea and its second rubber. Practically the whole output goes to Britain and the United States, Britain normally taking three-fourths of the tea and the United States three-fourths of the rubber.

A "near-Dominion," Ceylon is democratically an advanced country, with a parliament and cabinet; both men and women have the



Staff Photographer W. Robert Meade

Given Six Months to Live as an Oxford Student, Cecil Rhodes Became the Supreme Power in South Africa

The doctor was mistaken, for Rhodes lived to make a vast fortune and to see two great countries named for him, Northern Rhodesia and Southern Rhodesia. "Africa British from Cape to Cairo" was his dream. He founded scholarships for American students at Oxford, and others for the British Colonies and Dominions. The bust is at his memorial in Capetown. Kipling wrote the lines.

vote at 21. It possesses over 150 hospitals, half of which are run by the State, more than 800 dispensaries, and more than 600 schools for a steadily increasing population which now numbers nearly six millions.

The Maldivé Islands, populated by Mohammedans under a Sultan, are a dependency of Ceylon.

Mauritius, Famous for a Stamp

Other British islands in the Indian Ocean—it is not possible to do more than mention their names—are the Andamans and the Nico-



John W. Vandercook

In the Far Reaches of the Commonwealth, Even Papua, the British Play Golf and Cricket

This tee is near Port Moresby, springboard for General MacArthur's drive against the Japs in northeast New Guinea. Like caddies the world over, these fuzzy-headed boys are left golfers. They fashion clubs from gas pipes. The Territory of Papua is administered by Australia.

bars, the Laccadives, Socotra, the Seychelles, and Mauritius.

Mauritius, then in their possession, was used by the French as a base from which to attack British shipping in the Napoleonic wars. Taken by the British, it still conserves its French characteristics, the people being mostly French-speaking Roman Catholics. Philatelists will recall the famous "twopenny blue Mauritius" misprint, now one of the most valuable of all postage stamps.

The nearest mainland to Seychelles and Mauritius is the East African coast off which lies Zanzibar. The protectorate of this island was recognized by Germany, which previously had an interest there, in return for the cession by the British of Helgoland.

A century ago Zanzibar was the capital of a vast Arab domain which gave rise to the saying, "If you play on the flute at Zanzibar, everybody as far as the lakes dances."

Egypt and the Suez Canal

More than three-quarters of the British "Colonial Empire" in point of area is in Africa. It is possible to travel from the Cape of Good Hope in the extreme south to Egypt in the north, a distance of 4,030 air miles, and

never quit soil over which a British flag waves, though part of the way will be through a Dominion and part through a Condominium.

Egypt is not, and never has been, part of the British Empire, in spite of the fact that on some maps it is mistakenly colored red. The British occupied Egypt, formerly part of the Turkish Empire, with the consent of the Egyptians from 1882 to 1922, and left it in a higher state of prosperity and enjoying a greater degree of independence than it had known for some 2,000 years.

The Suez Canal, opened in 1869, became the main route of communication with the Far East, and Egypt thereby assumed great importance. In 1882 there was a military revolt against a corrupt Turkish government and this threatened European financial interests. In consequence, Egypt was occupied as a temporary measure. The British function in the Suez Canal is comparable with that of the United States in the Panama Canal.

In the Sudan there is a cooperative Anglo-Egyptian regime.

It is convenient to divide the African territories into those of West Africa, East Africa, and South Africa.

West African colonies include Gambia, a



© Lieut. G. I. D. Dalton, R.N.

A Royal Navy Dentist Steps Ashore, and Lonely Tristan da Cunha "Opens Wide"

Descendants of seven pioneer families, 100 modern Robinson Crusoes refuse to leave their barren, forbidding island in the remote south Atlantic. Though toothbrushes are lacking, Tristanites, like the Eskimos, have little dental decay. Behind the patients rises a 7,640-foot extinct volcano whose crater rims a lake of ice-cold water.

very old settlement, the original patent for trading purposes having been granted by Queen Elizabeth in the year of the Great Armada; the Gold Coast, an expansion of trading settlements made by the British, Danes, Dutch, and others; Sierra Leone, handed over in 1787 by its native owners to the British as a home for freed slaves, an early governor of which was Zachary Macaulay, father of Lord Macaulay; and Nigeria, the largest of the British Colonial Territories.

The presidency of the Oxford Union Society, the largest undergraduate club of England's famous university, a distinction held when they were undergraduates by Prime Ministers Lord Salisbury, Mr. Gladstone, Lord Oxford and Asquith, and other leading statesmen, is today held by a colored native African of the Gold Coast.

Nigeria, Source of Chocolate and Soap

Nigeria was originally three separate dependencies.

Lagos, one of them, was occupied in 1851 in order to suppress the chief center of the slave trade. The rest grew from trading settlements.

Nigeria is four times the size of Britain and has nearly 21 million inhabitants belonging to numerous tribes and communities. Each speaks a language that few of the others can understand, and most of them are unaware of the existence of the others. There is, therefore, no national consciousness or unity, and self-government as a whole and independence on Western lines are not at present possible.

The Policy of "Indirect Rule"

Nigeria, however, has a favorable balance of revenue and is prosperous and contented. With the other West African colonies, she is an important source of the world's supply of the raw materials of chocolate, soap, and margarine. These commodities are on sale to all the countries of the world at the same price as they are to members of the British Commonwealth. They are grown by native farmers who own their farms and they are sold cooperatively. A Government Control Board now buys the whole crop and resells to the British Ministry of Food and to the United States. Moreover, outsiders, including Englishmen, are not allowed to acquire or hold land in West Africa.

But Nigeria's contentment is also largely due to the fact that the native tribes manage their own affairs under the admirable system of "indirect rule" devised by one of the greatest of colonial administrators, Lord Lugard. This is a plan by which Britain has ensured civilized standards of government and at the same time retained African kings as rulers of their own people.

Native chiefs and native councils are appointed who act in accordance with native customary law, but subject to the abolition of barbarous practices. With their own courts of justice, social service organizations for health and education, treasuries and taxation systems, and with native officials and judges, they carry out the day-to-day business of administration, assisted by the advice of officials appointed by the Colonial Office.

The effect is to keep together the African society instead of disintegrating it by introducing something unknown and unwanted like a democracy of European type. As Lord Lugard has written, the aim is "a single government in which the native chiefs have well-defined duties and an acknowledged status equally with the British officials." The system has been applied wherever possible elsewhere.

In East Africa are the Anglo-Egyptian Sudan, a million square miles in extent, which, being a condominium of Britain and Egypt, is under the Foreign Office and not, like the Colonial Empire, under the Colonial Office; British Somaliland, Nyasaland, Kenya, Tanganyika, Northern Rhodesia, and Uganda.

In South Africa, besides the Dominion known as the Union of South Africa, are Southern Rhodesia and the protectorates of Basutoland, Bechuanaland, and Swaziland.

The Union of South Africa

The Union of South Africa differs in some ways from the other Dominions. "The Cape" was first discovered by the Portuguese navigator Bartolomeu Diaz in 1488. Having been alternately in the possession of British and Dutch, it was finally ceded to Great Britain in 1814. Other provinces in the Union are Natal, the Orange Free State, and the Transvaal.

The Union dates from 1910, and was the outcome of British and Boer statesmanship following the reconciliation after the disastrous South African War. Some of the most loyal citizens of the British Commonwealth today are men who fought against Britain in that war (page 485).

The government of South Africa, like that of Australia and Canada, is federal, the Union Parliament consisting of a Senate and House

of Assembly, which meet at Cape Town. Like Canada, she has two white peoples, English and Dutch. But, unlike the other Dominions, she has a color problem.

Within her boundaries are three protectorates, Basutoland, Bechuanaland, and Swaziland, for which at present Britain is responsible. It is expected that sooner or later, with the consent of all peoples concerned, these territories will be brought into the Union, though it is possible that the northern part of Bechuanaland may be absorbed by Southern Rhodesia.

The prosperity of South Africa depends chiefly on its mineral wealth, principally gold, of which it is by far the largest producer in the world. South-West Africa, formerly German, was mandated to the Union: its population is predominantly colored.

Southern Rhodesia is another "near-Dominion," having had responsible self-government since 1923. The inhabitants have been offered the option of admission to the Union of South Africa, but elected to remain separate.

Sheep and Pennies Help Build Spitfires

The native African chiefs are conspicuous for their loyalty to the Commonwealth. They have given generously and spontaneously to the war effort. Nairobi chiefs at Kiambu expressed eagerness to help "to defend King George's House." The paramount chief of Basutoland summed up the situation in the words: "Our King is at war and so are we."

A large number of complete squadrons of fighters and bombers has been voluntarily subscribed for by different colonies. Uganda, the Gold Coast, Basutoland, Northern Rhodesia, to name a few, all have squadrons named for them.

The names of three Kenya tribes are painted on some of the finest R. A. F. bombers. One and a half Spitfires have been financed from a "penny-a-man" fund of the natives of Kano Province, Nigeria, whose incomes average \$40 a year. In the Anglo-Egyptian Sudan a chief has given the proceeds of sale of 400 sheep. The natives of Waikizi, Tanganyika, gave 90 cattle to London's bombed citizens, whereupon, not to be outdone, the Ngomi area went one better with 125 cattle.

The chiefs of North Mara, Tanganyika, provided an interest-free loan, one of many from all parts of the Empire, "in appreciation of Britain's just administration, permitting everyone to live at liberty." A citizen of Zanzibar sent \$8 "to overthrow the man who says it is a sin to educate Africans because they are half apes."



H. J. Clements from Black Star

On the Shoulders of Kenya Troops, a Symbol of "New Italy" Goes to the Scrap Heap

For 15 years this stone marked the Kenya-Italian Somaliland frontier. Now bayonet and shovel have smashed the *fascis*, ancient Roman symbol that gave its name to Mussolini's fascism. Loyal Kenya troops helped the British drive Italians out of all East Africa.

In the Atlantic are a few islands belonging to the British Empire. In the far south are the volcanic South Sandwich Group, discovered by Captain Cook; South Georgia, a whaling settlement; and the Falkland Islands, inhabited by people of Scottish origin who produce a fine wool. Farther north is Tristan da Cunha, and in the center of the South Atlantic the islands of Ascension and St. Helena, the latter the scene of imprisonment of Napoleon after Waterloo.

In the Mediterranean are those outposts of sea power: Gibraltar, Malta, and Cyprus. Occasionally the question is raised, "Why should Gibraltar not be restored to Spain?" Those who ask it are perhaps unaware that England's title to "The Rock" has firm foundations, since, by treaty in 1783, in exchange for Gibraltar England handed over to Spain Florida and Menorca, which were then British possessions.

Malta and the neighboring island of Gozo, the latter said to be Calypso's isle of the *Odyssey*, came under the British flag at the express wish of the inhabitants, descendants of the men and women whom St. Paul himself converted to Christianity after his shipwreck there.

Cyprus was conquered by Richard Coeur de Lion, King of England in the 12th century, and there he married his wife Berengaria. Following that, for several centuries the island suffered under Turkish misrule, but was returned to Britain after the Congress of Berlin in 1878.

Plight of the Channel Islands

Returning to England, we pass, off the northwest coast of France, the Channel Islands—Jersey, Guernsey, Alderney, Sark, and a few others—the first three famous for their breeds of cattle. Though we are now in home waters, this group perhaps belongs geographically more to the Continent than to the British Isles. They constitute the only portion of the British dominions in German occupation. May their delivery come soon!

Britain holds her "empire," it will have been seen, more for strategic reasons and from historic causes than for profit. She does not "own" it, her financial interest in it is less than in some foreign countries.

She does not even sell to it the major part of her manufactures. Canada buys only 17 percent of her imports from the United Kingdom, Australia 41 percent, South Africa 43



Dorcas J. J. J.

In Uganda Protectorate, the Moslem Mukama of Toro Takes His Bride Unveiled

King of a provincial district, he is entitled to four wives under the laws of Islam. Wearing tarboosh and fedora, his advisers display costumes from Orient and Occident. His realm is equally spectacular; Toro has snow peaks, crater lakes, and big game.

percent, New Zealand 48 percent, India 31 percent. All the colonies, protectorates, and mandated territories, over which Britain in the last resort has actual control, buy even less from her—only just over 25 percent of their imports.

No part of the British Commonwealth pays any tax or tribute of any kind to Britain. Taxes raised in any colony are expended within the colony for the benefit of the colony.

Of Britain's overseas investments only 8 percent is in the colonies, against 11 percent in Argentina alone. Of all capital invested in Canada, 15 percent only is British.

As to exports, the story is much the same. If we exclude New Zealand, the rest of the Commonwealth, Dominions and colonies alike, sells nearly two-thirds of its products to foreign countries.

Exports of the Colonial Empire are exclusively "fruits of the earth," agricultural and mineral. Far the greater part of them in value—rubber, tea, sugar, tin, and copper—

are the subject of restriction schemes to protect the producer and guarantee him a fair profit and the workers a fair wage. The restriction operates against the British, for, incredible though it may seem, they pay a higher price for these products than does the foreign buyer.

Nor is this all. A part of the cost of the social services in British colonies falls on the taxpayer in the United Kingdom. The Colonial Development and Welfare Act passed by the Westminster parliament in 1940—the terrible year in which France fell and the worst air raids on London took place—provided for an increasing annual sum of money—21 million dollars a year to begin—to be expended on research and economic and social development in the dependencies.

The Colonial Office in London maintains a Labor Department to assure fair working conditions in the colonies; since 1939 no less than 175 different laws and regulations have been passed. There are schools of anthropology

Evans from *Three Lions*

The Royal Indian Navy Salutes a British Cruiser Jammed with Fighting Men

Yes, India has a Navy, dating unofficially from East India Company days. Now it is rapidly expanding in Indian shipyards, where 30,000 men are at work. Vessels in commission include sloops, corvettes, trawlers, and mine sweepers. A British vice admiral is in command. Four thousand United Nations ships were repaired in Indian yards during the first two years of war.

to study racial questions and agricultural colleges for research in plant and animal diseases.

A Pattern for Democratic Government

According to British ideas, there are two requisites for democratic government: (1) a representative parliament elected by all over 21; (2) cabinet government by ministers chosen from, and by, and responsible to that parliament, who answer daily for their doings in that parliament. This is the position of the Dominions.

In the colonies no two legislatures are exactly the same. All are working toward the pattern of the Dominions. Meanwhile, the usual system embraces a legislative council in which leading officials and local representatives sit side by side, and the King is represented by a governor.

The chief matters reserved for London are foreign policy and defense, and, less directly, finance and justice. But London has no power

to pass legislation against the vote of the local assemblies.

The instructions given by London to members of the Colonial Service stress chiefly two points: their duty to see that the law rules and is respected by the ruler as well as the ruled; and not to interfere with local custom: "Develop where you can, make changes where necessary for justice or health, but interfere as little as possible with religion, customs, land tenure, and local systems of government."

Foreign critics often say: "Britain must oppress her people. See how they agitate against her." But this is the very evidence of freedom. The natives of West Africa did not agitate against Germany, nor the Koreans against Japan. They were not free to do so. But under democracy there is continual agitation, nowhere more than in Britain herself, where there is opposition to the government all the time.

The British Commonwealth is not an end, but a means to an end: "to promote the common weal" of all the nations within its compass; to create such conditions as will enable the peoples within its borders to live happier lives than they would outside them.

The British colonial system has been marked by the peopling of empty lands by industrious colonists, and the production in those lands, often formerly waste areas, of goods which have helped to raise the standard of living of the whole world; the advance of backward populations from poverty and hardship to prosperity and self-reliance; the overthrow of cruel tyrants in many regions and their replacement by the rule of law and the abolition of slavery.

British Commonwealth in the War

It has been said that after the fall of France England was left alone to face the world's enemies. This is not quite accurate. The British Commonwealth was left to face the world's enemies.

Britain had still her Navy, and this was able to protect the transshipment of the sons of her overseas Dominions to her support, and of manufactures and raw materials from all parts of the world.

The work of the Navy was possible because of the existence of the Commonwealth, the one dependent on the other; the string of outposts and bases around the world from which the ships could be operated and maintained, and the territories from which the men and materials could be brought. It was not just England then, but the Commonwealth which saved the world from tyranny.

And America's part and interest in the Commonwealth must not be forgotten. British sea power, dependent on the Empire, has been for 150 years the principal guarantee of the world's peace and has helped to make it possible for America to develop her vast, compact territory without foreign interruptions.

Malta and West Africa play a vital part in the North African offensive plans. Possession of the Suez Canal and the forces in the Near East keep Japan and Germany apart; their junction would be fatal to the United Nations. The West Indies provide a protective screen for the Panama Canal and the southern coast of the United States.

The bases and stations around the world make possible the delivery of munitions and supplies to Russia and other allies. The bastions of the Commonwealth are the bastions of Democracy, the bastions of defense of the United States as well as of Britain.

The British system which insured the

early cooperation in the war of Canada, Australia, New Zealand, South Africa, India, Palestine, Malta, and Gibraltar helped save the world from the clutches of Hitler and Hirohito.

Britain heartily welcomes the interest of Americans in British colonial questions as evidence of an enlarged concern in the international situation, a growing realization of responsibilities reaching beyond the Western Hemisphere, and the possibility of a basis of collaboration which will ensure world peace and prosperity.

Future of America and Britain Linked

All British citizens who know their own history, whether from the Mother Country or the Dominions or the Colonial Empire, are proud of their association and the achievements of their kinsmen in creating and maintaining it. They share the feelings of Lord Halifax who, speaking at Baltimore on December 7, 1942, said:

"I am proud of what men of my race have done over long years for millions of people throughout the world. They have given them security, justice, and the right to live, speak, think, and worship in freedom. The British Commonwealth has been one of the greatest unifying forces the world has seen. And it has found this unity through diversity, by the magic stone of freedom."

An eminent American historian, James Truslow Adams, has written in *Empire on the Seven Seas* (Charles Scribner's Sons): "In recent centuries the greatest political factor in the modern world has been the British Empire. This is particularly true of the last 150 years. . . . 'The Mother of Parliaments' in London has brought into being the free governments in all quarters of the earth which now make up the British Commonwealth of Nations. Its story is the story of the steadily increasing freedom of the individual citizen and of the free human spirit. . . . We in America were not only a part of the British Empire for a longer period than we have been independent, but since achieving independence our history touches that of the Empire at almost every point, decade by decade.

"We are linked to the future of the Empire as to that of no other nation. Its history and destiny have a deeply intimate relation to ourselves. If, in a world tossing on the wild waves of chaos and in which distance no longer means safety, we ever need a friend whose ideals of life and liberty agree with ours, whom among the great powers can we turn to with more understanding or more hope of being understood?"

NATIONAL GEOGRAPHIC SOCIETY

GEOGRAPHIC ADMINISTRATION BUILDINGS

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

GILBERT GROSVENOR, President
ROBERT V. FLEMING, Treasurer
HERBERT A. POOLE, Assistant Treasurer
LYMAN J. BRIGGS, Chairman; ALEXANDER WETMORE, Vice-Chairman, Committee on Research

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

EXECUTIVE STAFF OF THE NATIONAL GEOGRAPHIC MAGAZINE

GILBERT GROSVENOR, EDITOR

JOHN OLIVER LA GORCE, Associate Editor

J. R. HILDERRAND
Assistant Editor
MELVILLE BELL GROSVENOR
Assistant Editor
McFALL KERHEY
Chief of School Service
JAMES M. DARLEY
Chief Cartographer
NEWMAN BUMSTEAD
Research Cartographer
CHARLES E. HIDDIFORD
Cartographic Staff
WELLMAN CHAMBERLIN
Cartographic Staff

FREDERICK SIMPICH
Assistant Editor
LEO A. BORAH
Editorial Staff
LEONARD C. ROY
Editorial Staff
WILLIAM H. NICHOLAS
Editorial Staff
F. DARROWS COLTON
Editorial Staff

FRANKLIN L. FISHER
Chief Illustrations Division
MAYNARD OWEN WILLIAMS
Chief Foreign Editorial Staff
W. ROBERT MOORE
Foreign Editorial Staff
INEZ B. RYAN
Research Assistant
EDWIN L. WISHERD
Chief Photographic Laboratory
GERARD F. HUBBARD
Illustrations Division
WALTER M. EDWARDS
Illustrations Division

BOARD OF TRUSTEES

CHARLES EVANS HUGHES
Formerly Chief Justice of the
United States
WALTER S. GIFFORD
President American Telephone and
Telegraph Co.
WILLIAM V. PRATT
Admiral U. S. Navy, Retired
LYMAN J. BRIGGS
Director National Bureau of
Standards
GEORGE R. PUTNAM
Commissioner of Lighthouses,
Retired
THEODORE W. NOVES
Editor of The Evening Star
L. G. COLBERT
Rear Admiral, Director U. S. Coast
and Geodetic Survey
GEORGE W. HUTCHISON
Secretary National Geographic
Society

ROBERT V. FLEMING
President and Chairman of the
Board, Riggs National Bank
H. H. ARNOLD
Lieutenant General, U. S. A., Com-
manding U. S. Army Air Forces
LEROY A. LINCOLN
President Metropolitan Life
Insurance Company
EMORY S. LAND
Rear Admiral U. S. Navy, Retired;
Chairman U. S. Maritime Commission
DAVID FAIRCHILD
Special Agricultural Explorer, U. S.
Department of Agriculture
ALEXANDER WETMORE
Assistant Secretary, Smithsonian
Institution
JUAN T. TRIPPE
President Pan American Airways
GILBERT GROSVENOR
Editor of National Geographic
Magazine

JOHN J. PERSHING
General of the Armies of
the United States
CHARLES F. KETTERING
President General Motors
Research Corporation
CHARLES G. DAVES
Formerly Vice-President
of the United States
GEORGE OTIS SMITH
Formerly Director U. S.
Geological Survey
ELISHA HANSON
Lawyer and Naturalist
LLOYD B. WILSON
President Chesapeake and
Potomac Telephone Companies
ERNEST E. NORRIS
President Southern
Railway System
JOHN OLIVER LA GORCE
Associate Editor of the National
Geographic Magazine

ORGANIZED FOR "THE INCREASE AND DIFFUSION OF GEOGRAPHIC KNOWLEDGE"

To carry out the purposes for which it was founded fifty-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 The Magazine uses, generous remuneration is made.

In addition to the editorial and photographic surveys constantly being made, The Society has sponsored more than 100 scientific expeditions, some of which required years of field work to achieve their objectives.

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

In Mexico, The Society and the Smithsonian Institution, January 18, 1919, discovered the oldest work of man in the Americas for which we have a date. This slab of stone is engraved in Mayan characters with a date which means November 4, 291 B. C. (Spinden Correlation). It antedates by 200 years anything heretofore dated in America, and reveals a great center of early American culture, previously unknown.

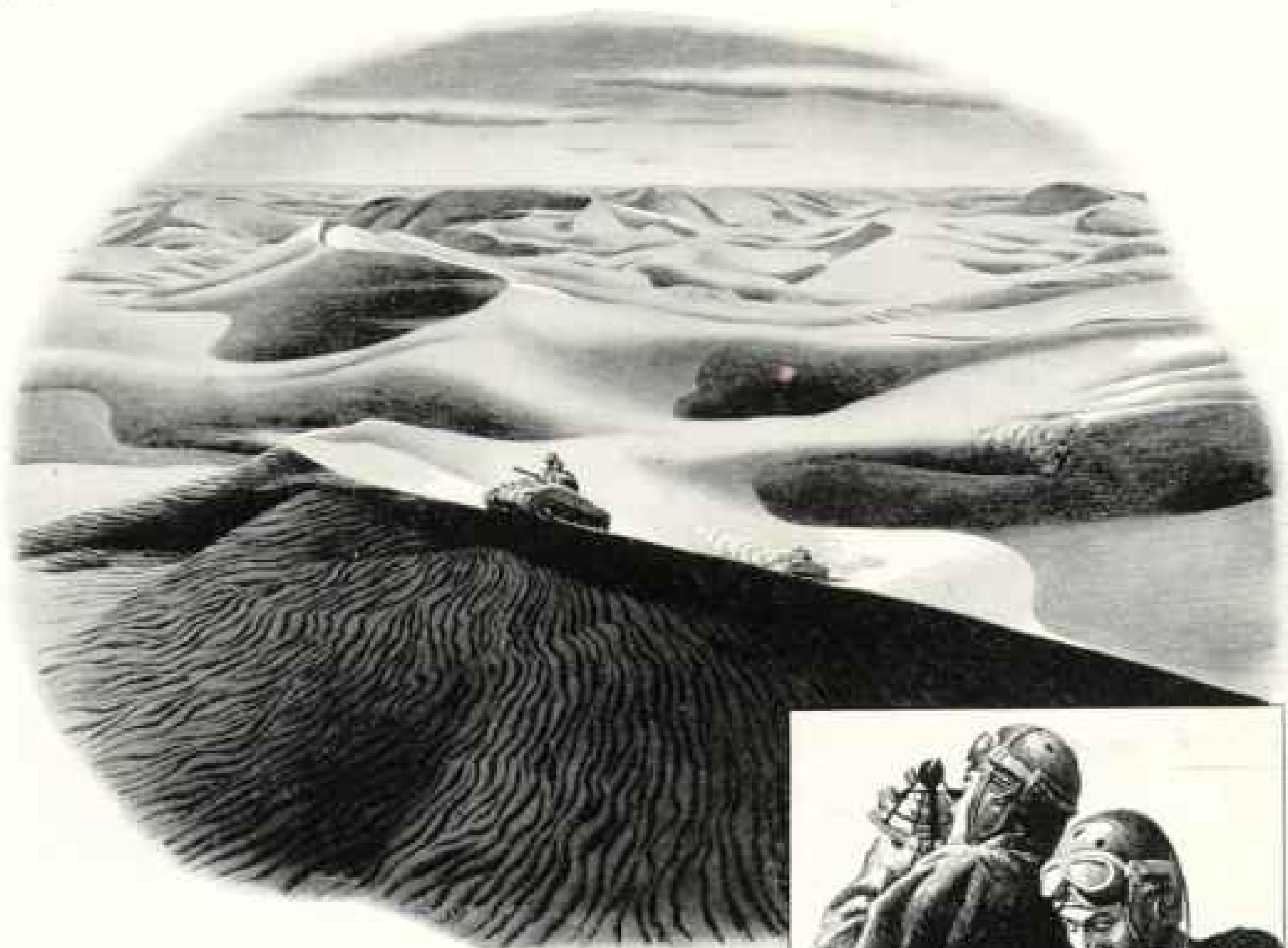
On November 11, 1935, in a flight sponsored jointly by the National Geographic Society and the U. S. Army Air Corps, the world's largest balloon, *Explorer II*, ascended to the world altitude record of 72,395 feet. Capt. Albert W. Stevens and Capt. Orvil A. Anderson took short in the gondola nearly a ton of scientific instruments, and obtained results of extraordinary value.

The National Geographic Society-U. S. Navy Expedition camped on desert Canton Island in mid-Pacific and successfully photographed and observed the solar eclipse of 1937. The Society has taken part in many projects to increase knowledge of the sun.

The Society cooperated with Dr. William Beebe in deep-sea explorations off Bermuda, during which a world record depth of 3,028 feet was attained.

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

One of the world's largest icefields and glacial systems outside the polar regions was discovered in Alaska and Yukon by Bradford Washburn while exploring for The Society and the Harvard Institute of Exploration, 1938.



They go to sea...on land!

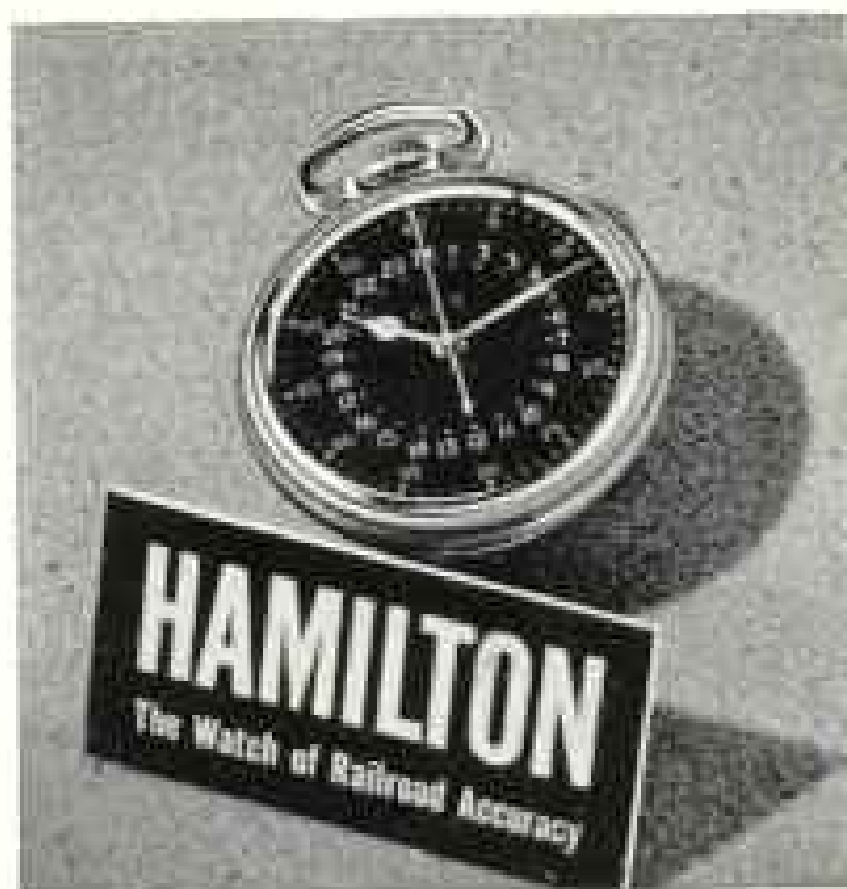
THIS strange land stretches monotonously to the horizon. It flows in rippling waves when the wind blows. To be lost in its burning emptiness may mean death!

That's why tanks of the desert are navigated, just as ships are, by the sun and stars, and by an extraordinary timepiece called a master navigation watch. It's one of the instruments tank officers depend on to find their way in the desert. Despite the jolting of the tank, grinding sand, and temperatures as high as 140 degrees, the Hamilton master navigation watch keeps unbelievably steady time, month after month.

Hamilton workers are proud that they are able to build these and many other precise timing instruments for the Government. It means that few Hamiltons can be made for civilians. But this experience promises a post-war Hamilton that will more than live up to its reputation as "The Watch of Railroad Accuracy." Hamilton Watch Company, 344 Columbia Ave., Lancaster, Pa.

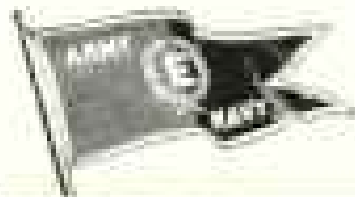


TANK MEN depend on the Hamilton master navigation watch, shown below, to help find where they are and where they're going. Like all precision instruments Hamilton is making for our armed forces, it is not available to the public.



Hamilton's experience building watches for railroad men and precision instruments for the Government insures greatest possible accuracy in all grades.

BUY WAR BONDS



AND STAMPS



How **NOT** to fight a **ZERO**

There isn't time to *think* at 400 miles an hour . . . reaction must be automatic. One mistake can be a pilot's last. To prevent such mistakes, motion pictures of actual battles are shown to our men in training . . . motion pictures often made with Filmo Cameras and shown on the screen with Filmosound Projectors. Filmo equipment is helping to teach our pilots *how to fight to win*.

Could *any job* be more important to them? To you? We think not. That is why Bell & Howell's energy, craftsmanship, and facilities are concentrated on the production of unsurpassed motion picture equipment and sighting devices for the armed forces.

We look forward, as you do, to the day when Filmo Cameras and Projectors and

America's fighting men will be back in civilian clothes. Our most important job is to do our part to speed that day.



Filmo

Bell & Howell Company, Chicago;
New York; Hollywood; Washington,
D. C.; London. Established 1907.

MOTION PICTURE CAMERAS AND PROJECTORS

PRECISION-MADE BY

Bell & Howell

The Goblin that works for America

THE INQUISTIVE alchemists of the Middle Ages were looking for silver. Repeatedly, they smelted certain ores and got a silvery-looking metal. But it was only *silvery-looking*. It never turned out to be silver. So the alchemists thought that a malicious spirit was thwarting them, and they called the strange metal Kobold, meaning goblin.

Today that same goblin, known in America as cobalt, has become one of this country's great fighting elements. Cobalt is alloyed with chromium and tungsten to make "Haynes Stellite" alloys which have the property of "red hardness." Metal-cutting tools made of these alloys keep on cutting even when red hot! Cobalt improves red hardness and toughness in other kinds of metal-cutting tools. Thus, cobalt has contributed greatly to the tremendous output of planes, tanks, guns, and other war materials.

Cobalt is also used to produce improved magnet steels. Permanent magnets of cobalt-tungsten steel are more powerful, and last longer. Permanent magnets are necessary in much electrical equipment.

This country's cobalt formerly came from Belgium, where it was refined from African ores found in the Belgian Congo.

As war clouds loomed, and as accelerated American industry made rapid inroads on the stockpiles shipped out of Belgium during 1938 and 1939, ELECTRO METALLURGICAL COMPANY, a unit of UCC, designed and built facilities in this country for the Belgians. ELECTROMET now operates these facilities so that HAYNES STELLITE COMPANY, another Unit of UCC, and other American companies can have the cobalt they need for essential war work. Operations began in 1941. Today, these facilities annually produce more cobalt than was ever imported in any year previously.

BUY UNITED STATES WAR BONDS AND STAMPS



RED HOT... STILL CUTTING! Faster production of metal equipment of all kinds is made possible by high-speed metal-cutting tools containing cobalt.



SIGHTED SUB! Better radio-transmitting tubes and improved electrical equipment are assured by cobalt.



CALLING HEADQUARTERS! Telephones and other electrical equipment require permanent magnets. The better magnet alloys contain cobalt.



WEAR-FIGHTER! Planes fly farther with fewer repairs, thanks to exhaust valves protected with "Haynes Stellite" cobalt-chromium-tungsten alloys.

UNION CARBIDE AND CARBON CORPORATION

30 East 42nd Street  New York, N. Y.

Principal Products and Units in the United States

ALLOYS AND METALS

Electro Metallurgical Company
Haynes Stellite Company
United States Vanadium Corporation

CHEMICALS

Carbide and Carbon Chemicals Corporation

ELECTRODES, CARBONS AND BATTERIES

National Carbon Company, Inc.

INDUSTRIAL GASES AND CARBIDE

The Linds Air Products Company
The Oxweld Railroad Service Company
The Pres-O-Lite Company, Inc.

PLASTICS

Bakelite Corporation
Plastics Division of Carbide and Carbon Chemicals Corporation



Able Seaman

"... a man can think, up here"

"The trade wind's warm tonight. That's good. Not so good, that bright tropic moon. Too good a target, in a crow's nest.

"Lots of time for thinking up here, watching. Nobody to butt in. Nobody but . . . maybe a black plane out of a white cloud, or a white streak out of that black water. Gotta keep your eyes peeled in a convoy.

"Some load aboard. Crammed with cargo for Uncle Sam's boys. One of our destroyers off the port. Comfortable feeling. *Wish that moon wasn't so bright, though.*

"Never was a fighting man. But we've gotta fight now. Gotta get these cargoes through. Man a gun, maybe. Never can tell. Okeh, if that's what it takes to win this war. We all feel the same, even if we don't talk much.

"But a man can think, up here. About folks back home. About getting this thing over with. Say, those two clouds up there in the moonlight, sure look like a V."

Just the thoughts of a MATSON able seaman at his post. Pieced together from a few words, now and then, and actions *at all times.*

Back in 1776, they would have been heroes in homespun. *Only the clothes are different today.* Hundreds of such men man our ships, and our plants ashore. They don't "talk much" but they are *doing.*

And, what they're *doing* expresses the homespun patriotism of the *total* MATSON organization, devoting its *total* resources to the only cause that counts today . . . *total* victory.

Matson Line TO Hawaii NEW ZEALAND-AUSTRALIA
USA-CANADA-JAPAN

MOSQUITO...WITH A DEADLY STING!

"Mosquitoes" are bad in Europe this year.

Spawned and bred in Britain, these lightning-fast, plywood bombers are whining over the big Rhine cities in broad daylight, or darting in at dusk to lead the way for the big fellows . . . raising welts and leaving scars awful to Nazi eyes.

It's Britain's pride—this new "Mosquito" that's streaking over Europe—and it's propellers for the "pride of Britain" that we're building here.

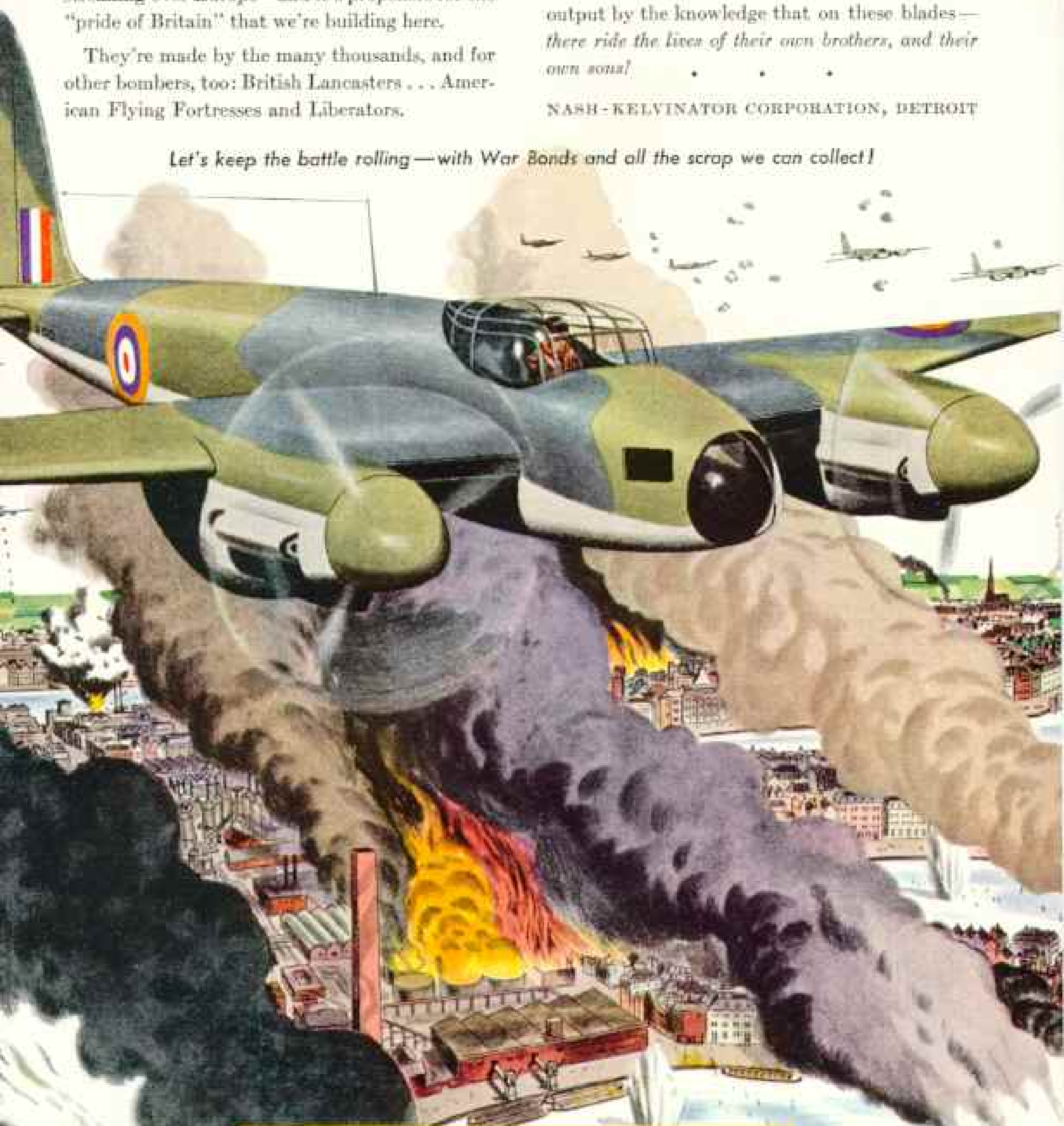
They're made by the many thousands, and for other bombers, too: British Lancasters . . . American Flying Fortresses and Liberators.

Bearing these planes aloft, each Nash-Kelvinator-made Hamilton Standard propeller is an engineering masterpiece—so beautifully machined that a puff of a man's breath can set it turning.

Into these "props" the men of Nash-Kelvinator are pouring not only their skill, but their heart's blood and the sweat of their brows! For their swift hands are guided to new records of accuracy and output by the knowledge that on these blades—*there ride the lives of their own brothers, and their own soul!*

NASH-KELVINATOR CORPORATION, DETROIT

Let's keep the battle rolling—with War Bonds and all the scrap we can collect!



NASH   **KELVINATOR**

In War . . . Builders of Pratt & Whitney Engines and Hamilton Standard Propellers. In Peace . . . Nash Automobiles and Kelvinator Refrigerators.

*Lift up your eyes
to something good*

OVERHEAD you hear the steady, reassuring drone of mighty engines.

You look—and drawing its sure bee-line across the sky is a giant twin-rudder, four-engine bomber.

You won't see that sight as often as our fighting men do. Most of our B-24's—or "Liberator" bombers—promptly move overseas.

But watching their record on the fighting fronts, we're mighty proud to have had a part in putting this big ship in the air, for the "Liberator" is powered by Buick-built engines.

Buick skill, Buick precision, Buick craftsmanship built the Pratt & Whitney engines that pull those wings through the sky—and are building plenty more every month.

But that isn't the important thing. What counts is—those engines are there—those planes are there—and have been for months.

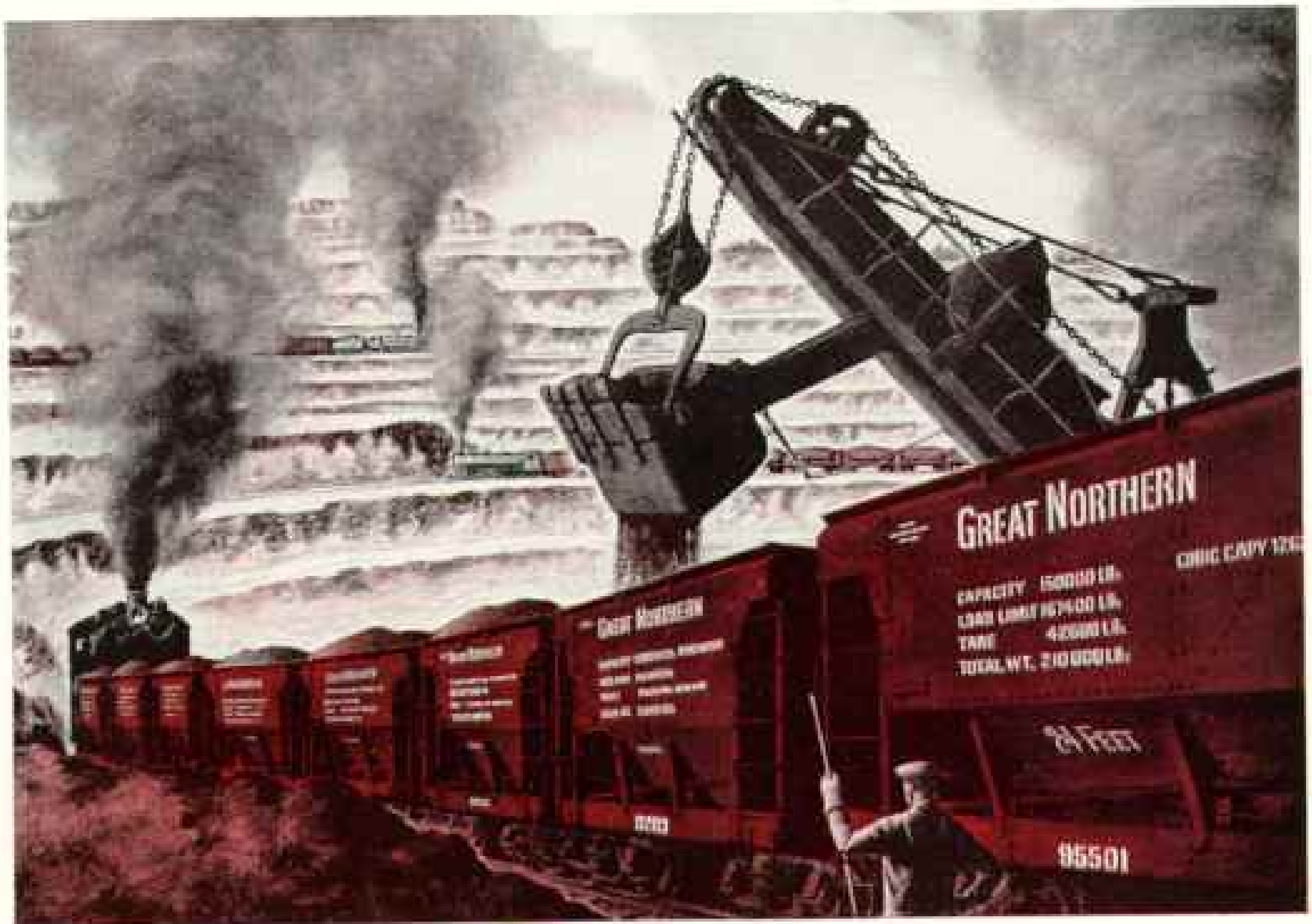
And we'll leave it to you to judge, from what you read about the B-24 "Liberator," if they aren't doing the kind of job you've come to expect of Buick.



BETTER BUY BONDS
*Let your dollars
lend a hand*

When better automobiles
**WHEN BETTER AUTOMOBILES ARE BUILT
BUICK WILL BUILD THEM**

BUICK DIVISION OF **GENERAL MOTORS**



more **V**ital than gold

All the gold buried at Fort Knox, Ky., is less important to Victory than the rich iron ore deposits of the Mesabi, Cuyuna and Vermilion Ranges of Northern Minnesota.

The Mesabi Range alone contains the world's largest developed deposits, and much of this ore lies in open pits.

From these pits giant shovels scoop the vital "red dust" into Great Northern cars, which dump it a few hours later into docks in Duluth and Superior, at the Head of the Lakes. There ore boats are swiftly loaded for delivery to the nation's steel mills.

When the shipping season closed Decem-

ber 5, new mining records had been set on the Minnesota ranges, and Great Northern Railway handled nearly 29,000,000 long tons — a third of the Lake Superior district's total production.

With the necessity of conserving equipment, Great Northern, between shipping seasons, is reconditioning motive power, cars, trackage, and its Allouez docks in Superior, making ready for a still bigger job in 1943.

The fabulous iron ore deposits in Minnesota are only part of the wealth contributed to America by the *Zone of Plenty* — and delivered by this vital artery of transportation.

GREAT NORTHERN RAILWAY

ROUTE OF THE EMPIRE BUILDER—BETWEEN THE GREAT LAKES AND THE PACIFIC





"OVER HILL, OVER DALE, WE WILL RIDE THE IRON RAIL..."

© 1943, The Pullman Co.

AS THE PULLMANS GO ROLLING ALONG"

GROWING AND **GOING**—that's the story of our armed forces.

Growing every day. And going every night, for long distance troop movements are usually under cover of darkness, in Pullman sleeping cars.

It's a big job for the railroads to haul so many cars. And a big job for Pullman to provide them. But it's a welcome job to both of us, one we're proud and happy we were prepared to handle.

Prepared? Oh, yes. The way Pullman and the railroads worked together in peacetime—through the Pullman "pool" of sleeping cars—fitted right into the wartime picture.

Here's how that "pool" works:

- ▶ Railroad passenger traffic in different parts of the country fluctuates with the season. Travel south, for instance, is heaviest in winter. And travel north increases in the summer.
- ▶ If each railroad owned and operated enough sleeping cars to handle its own *peak loads*, many of those cars would be idle most of the year.
- ▶ With the Pullman "pool", however, over one

hundred different railroads *share* in the availability of a sleeping car fleet big enough to handle their *combined* requirements at any one time. As the travel load shifts north, south, east or west, these cars shift with it. They are seldom idle because when *fewer* cars are needed on one railroad, *more* are needed on another.

Now that war has come, this "pool" operation of sleeping cars enables *troop trains* to be made up on short notice—at widely scattered points—and routed over any *combination* of railroads.

That's what we meant when we said that Pullman and the railroads were *prepared* to handle the tremendous mass movement of troops that goes on *constantly*.

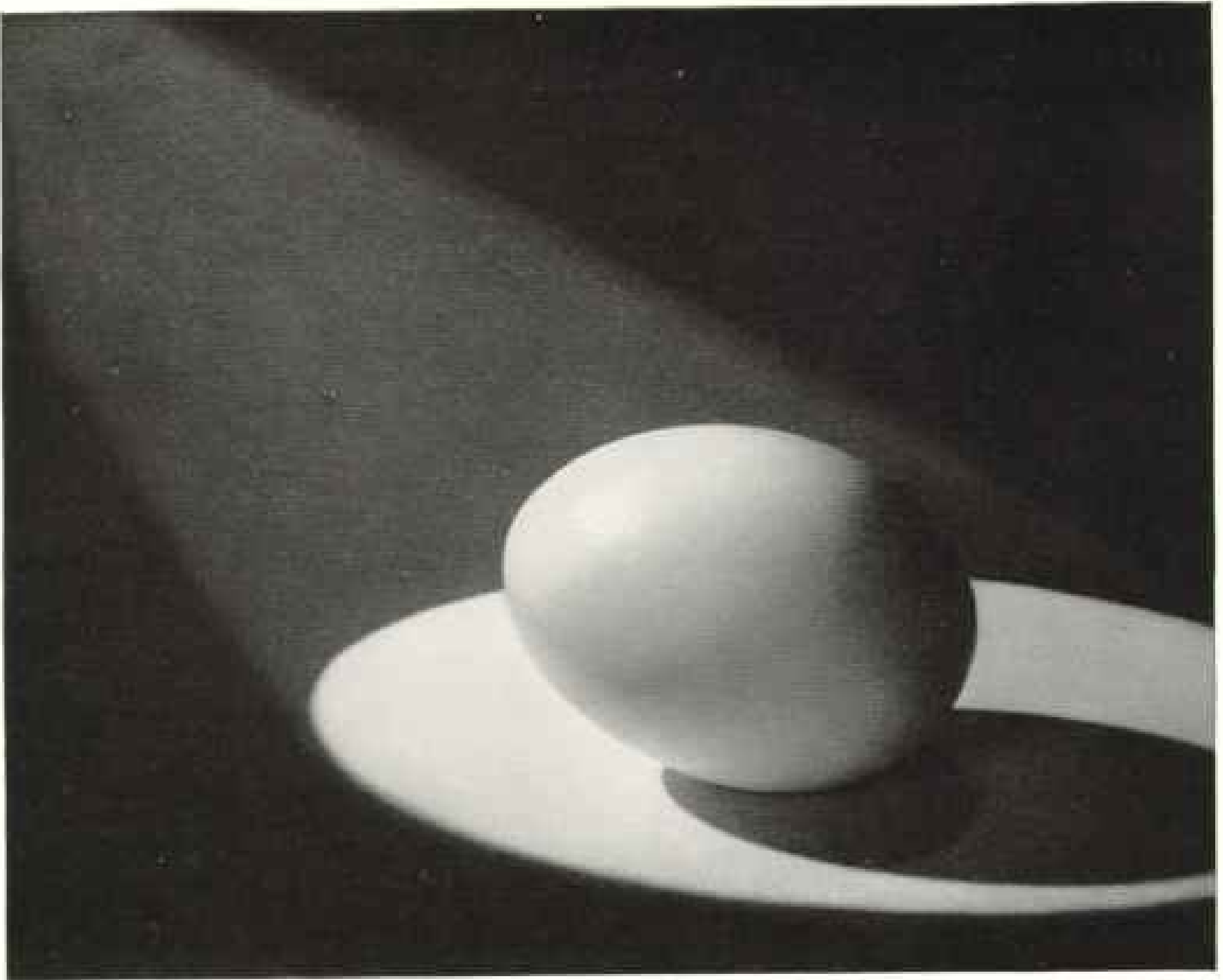
It takes a lot of sleeping cars to do it. Almost *drains* the Pullman "pool" at times. As a result, civilian travelers are sometimes inconvenienced.

But the war comes first with the railroads and first with Pullman—just as it comes first with you!

AN AVERAGE OF MORE THAN
25,000 TROOPS A NIGHT NOW—

GO PULLMAN

Buy War Bonds and
Stamps Regularly!



BUY WAR BONDS AND STAMPS

The egg of the month

"The one egg we are allotted each month is rarely obtainable in the shops, and if bought in the black market, costs about fifty cents. The hens are so poorly nourished they won't lay. I know a priest in a village near Cannes who performs the marriage ceremony only for eggs, and refuses to accept money."

Quoted from "How We Live in France,"
in the January, 1943, *Reader's Digest*,
condensed from December 13, 1942, *Vogue*.

If you had only one egg a month, what a banquet that egg would be! . . . The tragedy of France accents America's good fortune. Hens here are well-nourished—and working overtime to keep you well-nourished too!

Much of the credit goes to poultrymen who are feeding their flocks scientifically prepared emulsions of buttermilk, cheese whey, wheat germ, fish oil, and other ingredients.

American poultrymen use several million pounds of this specialized, protective feed every month—with remarkable results, reported in their letters. The feed helps chicks grow fast and resist disease. Added to the diet of hens, it encourages production of more eggs.

This balancing feed first grew out of an effort to make milk by-products more useful. It was developed in National Dairy laboratories and proved on a National Dairy experimental farm. It uses many million pounds of by-products, once wasted but now helping to increase the egg supply of the United Nations.

Yet this is only one side of National Dairy's broad, ceaseless research . . . research over and above the big day-by-day job of supplying quality-controlled milk products to millions of American families.

Dedicated to the wider use and better understanding of milk as a human food . . . as a base for the development of new products and materials . . . as a source of health and enduring progress on the farm and in the towns and cities of America.

**NATIONAL DAIRY
PRODUCTS CORPORATION**
AND AFFILIATED COMPANIES

Originators of the Sealtest System of Laboratory Protection



**Put it
on the Scrap Pile,
and see your Insurance Agent!**

YOU can't trust to luck, these days: Although war news may push this fact off the front page, it's none the less true that crime has shown no abatement. In this case, burglars looted the safe of a county treasurer's office, obtaining more than \$6,000 in currency and negotiable securities. Contrary to his agent's recommendation, the county treasurer had insured the contents of the safe for only \$3,000.

Illustrated on this page are other actual cases which are taken from U. S. F. & G. files, showing some of the hazards that demand complete insurance coverage as a

safeguard against financial loss.

*Consult your Insurance Agent
or Broker as you would
your Doctor or Lawyer*

To help you avoid financial jolts, your local U. S. F. & G. agent places at your disposal knowledge of insurance — plus on-the-spot service in the payment of losses. He will be glad to make a Graphic Audit of your insurance — to help you guard against wartime risks which make such an audit imperative. Your U. S. F. & G. agent is one of thousands serving communities throughout the United States, its possessions, and Canada. Consult him today.

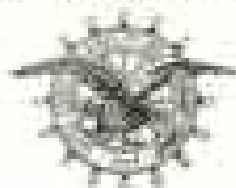
U. S. F. & G.

UNITED STATES FIDELITY & GUARANTY CO.

and its affiliate,

FIDELITY & GUARANTY FIRE CORPORATION

Home Office



Baltimore, Md.

*— Could
any of these things
happen to you? —*



STAMP THEFTS

Total \$9,722.86

THE assistant manager of a New York credit office was a stamp collector . . . collecting \$50 to \$60 a week from the association's stamp box. This amounted, over the years, to \$9,722.86, but under a Fidelity bond, U. S. F. & G. paid the claim. If you are hiring new, untried employees or carrying larger cash balances, or larger inventories, you need added protection against employee dishonesty . . . now.



Hit by a

FALLING TRANSOM

BETWEEN by a falling transom when he slammed a door behind him, this man suffered a scalp wound and internal injuries. But the landlord was spared the trouble and expense of a lawsuit when U. S. F. & G. settled the claim out of court. If such an accident occurred in your home or business property, would you be protected against suit or claim?



Boy Breaks

EXPENSIVE WINDOW

WHEN a boy meets plate glass window, it's bad, as a New York storekeeper discovered. A youngster swung on an awning, causing an unattached support to strike and break the glass. Cost of this "swing session" was nearly \$150.00. The glass was replaced by U. S. F. & G. under a plate glass insurance policy. Today plate glass is expensive and scarce. Are your display windows insured?



Vladimir Horowitz painted by Boris Chaliapin for the Magnavox series of great contemporary musicians.

With flour and butter they paid to hear him . . .

VLADIMIR HOROWITZ has been honored by old-world royalty . . . and by starving peasants. During his early career in the hungry, moneyless Russia of 1920, poverty-stricken men and women from the farms paid in flour and butter for the privilege of hearing the young pianist.

In 1928, this Russian-born musician made his American debut and received a stirring ovation. Today he is recognized as one of the world's greatest living pianists. Critics speak of his "Pied Piper hands" and his "electrifying personality." His magic touch on the piano has brought inspiration to millions through his concerts and records.

In all America it would be difficult to find a more musical household than the California home of Vladimir Horowitz. His wife is the daughter of Arturo Toscanini. At eight, their daughter, Sonia,

already shows great promise on the violin. Naturally, when the members of such a family select a radio-phonograph, they are far from easy to please. It is a tribute to the clarity and tonal qualities of the Magnavox that in his own home, Vladimir Horowitz uses this famous instrument to check his recordings and to give pleasure to his family.

Music Cheers Fighting Men — is a treasured tie to home. See your Magnavox dealer for a wide selection of records to send to *your* soldier or sailor.

BUY WAR BONDS FOR VICTORY TODAY—SECURITY TOMORROW



The fine craftsmanship which won for Magnavox the first Navy "E" award (and White Star Renewal Citation) among instrument manufacturers has made these radio-phonographs the first choice of discriminating buyers. The Magnavox Co., Fort Wayne, Ind.

Magnavox

THE OLDEST NAME IN RADIO

Victory hangs in the balance.



ROHR
PARTS ✪ ASSEMBLIES

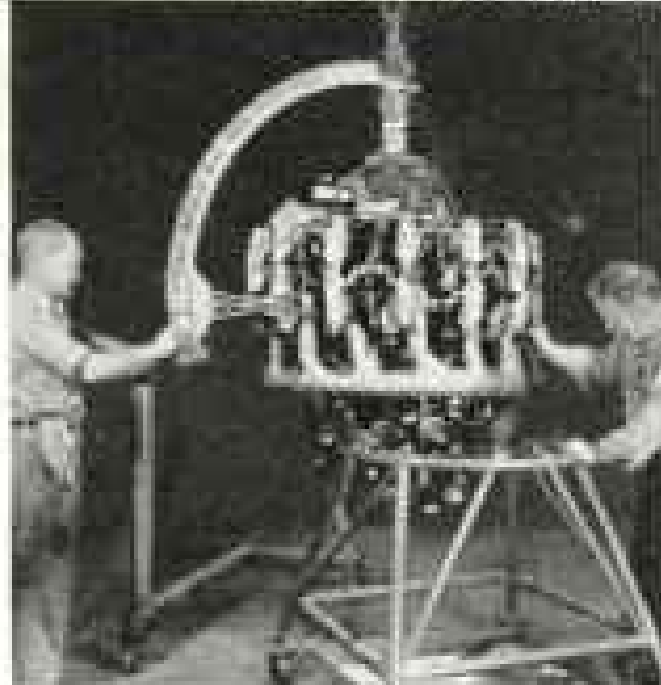
The **ROHR TILTING Arc** is typical of American ingenuity which is swinging the production balance further in favor of the Allies. It is just one of the many specially conceived devices and methods by which Rohr Production Fighters speed their thousands of tasks to ready Rohr equipped planes for the war front.

The Rohr Tilting Arc enables *fewer* men to turn out *more* work in *less* time and with *less* fatigue. It suspends heavy aviation motors in so delicate a balance that the pressure of a workman's hand moves them to any position within a 90° arc. Its application to fields of final assembly and advanced base repair increases its win-the-war service immeasurably.

HELPING TO WRITE
THE STORY OF TOMORROW



CLEANING A MOTOR
MOTOR ASSEMBLY



ROHR AIRCRAFT CORPORATION

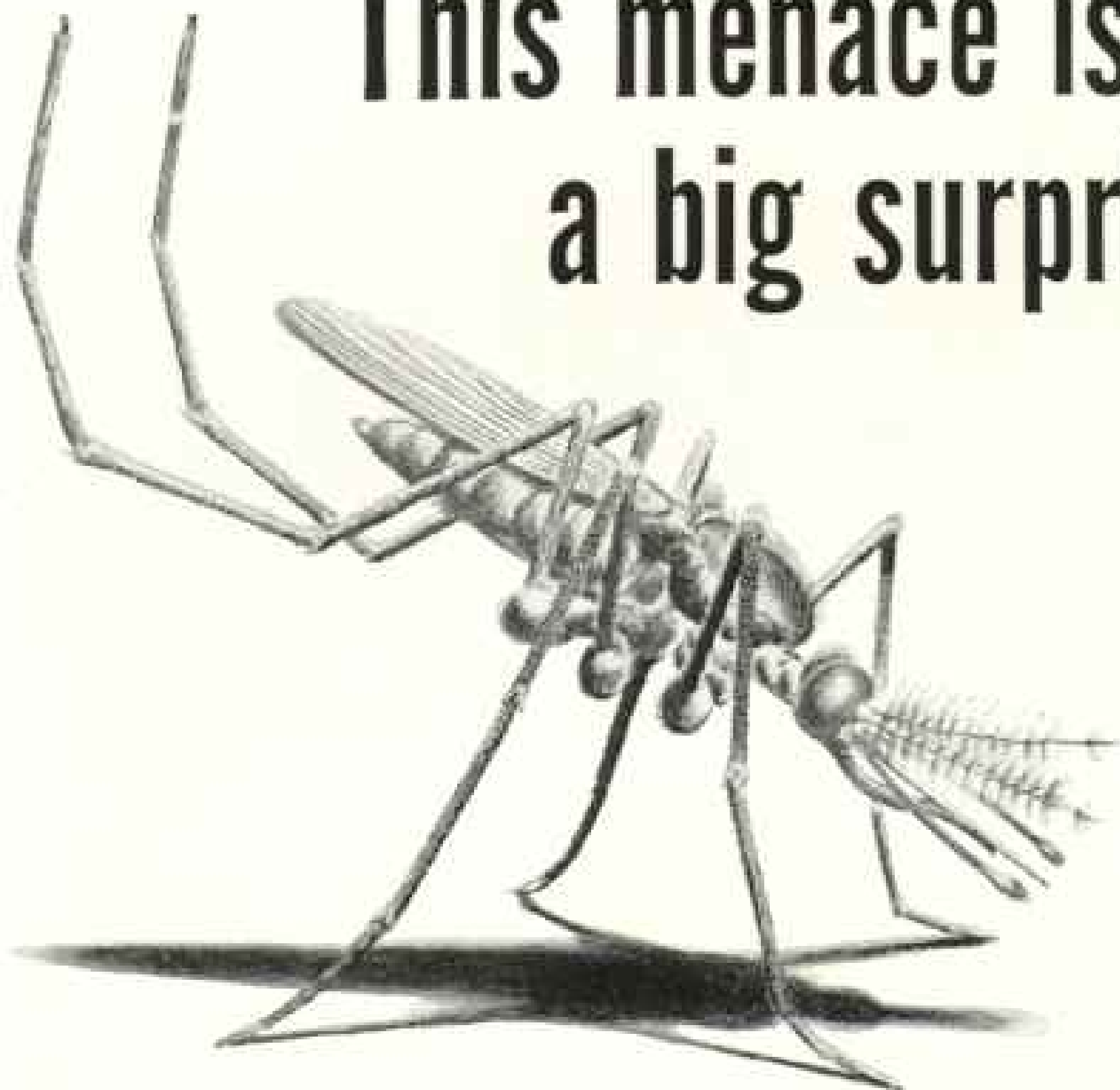


MATING A WING
FIELD SERVICE



CHELA VISTA, CALIFORNIA

This menace is in for a big surprise



Her name is *Anopheles*.

She is the mosquito that carries malaria.

From now on, she'll be much less of a menace to our fighting forces in Africa and the Pacific, and to all of us here in America . . . thanks to a new Westinghouse development in the field of insect control.

Insect control! Funny thing for an electrical manufacturer to be concerned with?

Not when you know that this new device—a small metal cylinder containing Aerosol, a development of the U. S. Dept. of Agriculture—was made possible by Westinghouse "know how" gained in building electric refrigerators.

With this device, soldiers in combat zones can destroy every deadly insect in barracks, dugouts, captured enemy positions, in an amazingly short time—with complete safety to themselves. Cargo and transport planes returning to America from malaria-infested areas can be rid of disease-laden insects *in flight*, long before there is any danger of bringing these unwelcome stowaways into the United States.

Is this so important? A high military authority has said that *this new Westinghouse device may save more American lives than any other single invention of the war to date.*

And it is only one of many Westinghouse products that are helping to bring Victory nearer. In addition to all the electrical products we are making—and there are literally thousands of them—we are turning out such things as precision Army binoculars, huge steam turbines and reduction gears for ships of the Navy and Merchant Marine, plastic linings for Army helmets, control pulleys for aircraft, anti-tank shot, mountings for big Navy guns.

In peacetime, our principal business is *electricity*.

But in wartime, our only business is Victory. And that means we are vitally concerned with anything—electrical or not—that our "know-how" can design or build to help win this war.

Westinghouse Electric & Manufacturing Company, Pittsburgh, Pennsylvania.

TUNE IN the Westinghouse Program starring John Charles Thomas—NBC Network, Sunday, 2:30 P. M., Eastern War Time.

Westinghouse

PLANTS IN 25 CITIES—OFFICES EVERYWHERE

“RIGHT OF WAY FOR THE U. S. A.”

One passenger - or one million

THOSE carefree days when a man could take a train almost as easily as he'd buy a morning paper are out for the duration.

Folks have to share the railroads with the Army and the Navy, just as they're sharing almost everything else these days.

We wish we could still offer you an unlimited choice of departure times and accommodations, *but more than a million and a half troops per month must be cared for first.*

That takes a lot of cars and a lot of locomotives.

It takes the time of a lot of railroad men, for these movements must be handled swiftly and secretly.

After meeting all the vast demands of a nation at war, we are not always able to serve the public as well as we'd like to — but nevertheless, with a little cooperation, *we'll get you where you have to go.*

Transportation is our business as well as our duty — and we want you to know that every railroad man worthy of the name has his heart in his job.

Association of
AMERICAN RAILROADS
Washington
D. C.





"Everybody talks about the weather . . .

. . . but nobody does anything about it." No longer is this famous old quotation true. For Boeing engineers have done something about it!

They designed the Stratoliner*—the only transport airplane built to fly in the substratosphere, *above* the weather—where the air is thin, but smooth—where greater speed, safety, passenger comfort, and economical operation are possible.

In order to open up this new super-highway of the air, Boeing engineers designed the first cabin with automatically controlled atmosphere-conditioning. Thus at 20,000 feet, where the bitter-cold air is too rarefied for sustained breathing, the atmospheric "alti-

tude" inside the Stratoliner is maintained at a level at which passengers and crew are comfortable. That's why the Stratoliner represents the greatest advance yet reached in the design and manufacture of commercial airplanes . . . a guide-post to the future of flight.

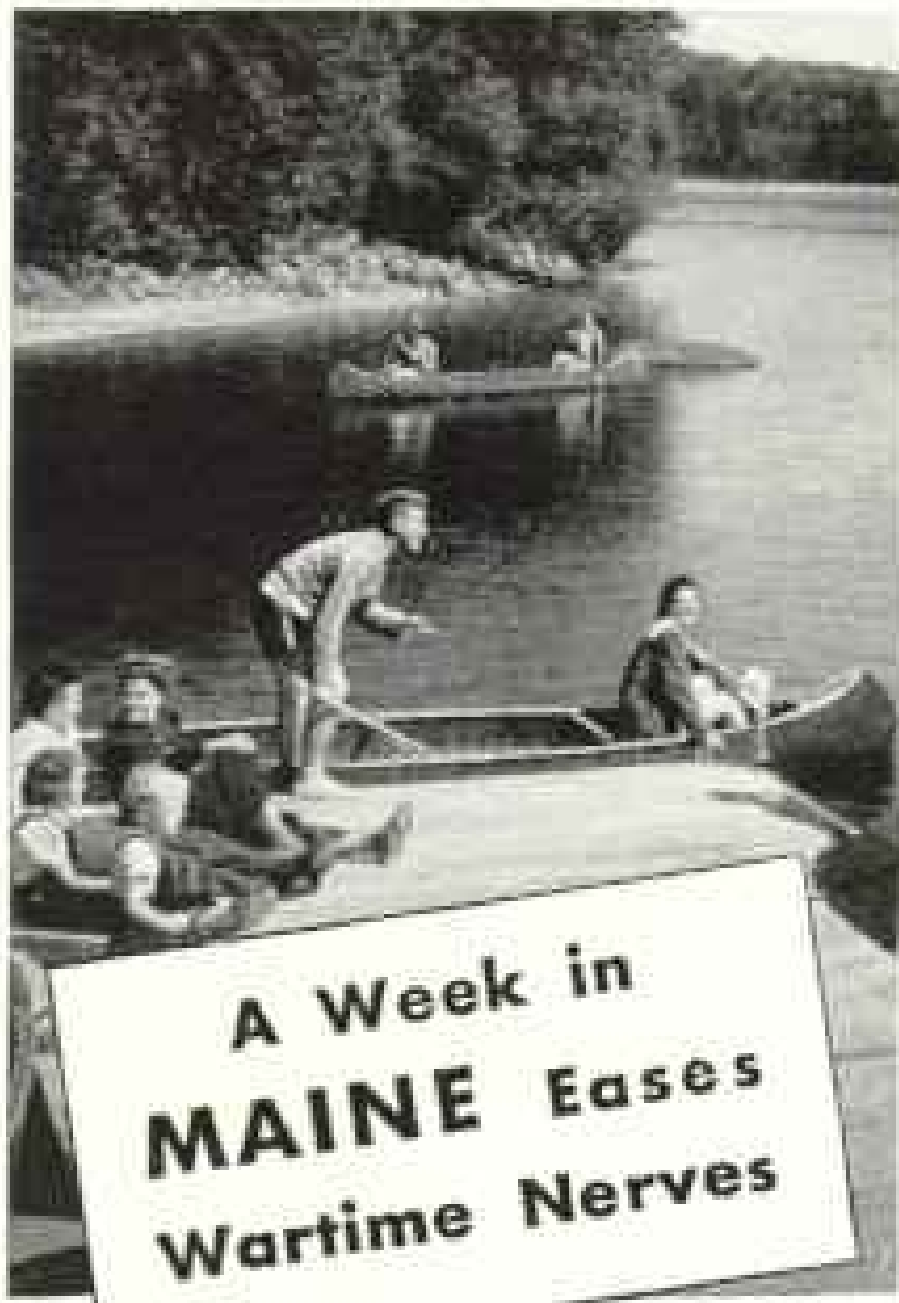
Today, Boeing Stratoliners have discarded their gleaming multi for drab camouflage, and employ their great speed and huge load capacity on errands of war . . . shuttling across seas and continents, hurrying men and materials out to the front lines.

And in another way, too, the Stratoliner is helping to win the Battle of the Skies . . . supplementing the work of another

Boeing-designed and Boeing-built airplane—the Flying Fortress.* For the engineering and manufacturing lessons learned in building the Stratoliner and the Fortress are today being applied to creating still better military planes.

The engineering and production know-how acquired by Boeing in many fields—structural, electrical, metallurgical, aerodynamic and a score of others—this know-how will some day be converted . . . from making America victorious, to making the fruits of science and industry available to free men everywhere.

Engineering leadership . . . manufacturing efficiency . . . now and tomorrow, these are implicit in the phrase "Built by Boeing."

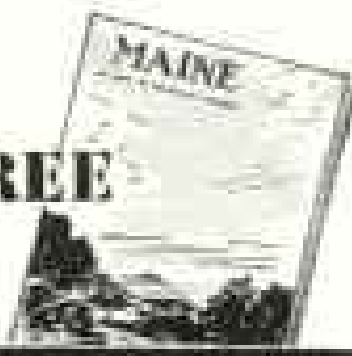


**A Week in
MAINE Eases
Wartime Nerves**

A VACATION in Maine may be one of many things you'll do without this year, because of wartime duties. But if you *can* come, you'll go back to work refreshed and relaxed. For Maine still offers fishing and swimming, camping and canoeing, sailing and golfing . . . all the sports and scenery and relaxation that make Maine a glorious vacation land.

Of course, you may still find it possible to send your family to a Maine hotel or camp or cottage. In any case, you'll get a real "kick" out of the free MAINE VACATION GUIDE. For your copy, mail this coupon today.

FREE



HAVE THE TIME OF YOUR LIFE IN MAINE!

MAINE DEVELOPMENT COMMISSION
Tourist Service, 11 St. John Street
Portland, Maine

Please send me the new illustrated Official
Maine Vacation Guide for 1943.

Name _____

Address _____

City _____

State _____

HOW DID THE ANIMALS GET THEIR NAMES?

Dinosaur
means literally a
"terrible lizard"

THE name *dinosaur* comes from the Greek words *deinos*, "terrible," and *sauros*, "lizard." Both you and your children will enjoy the hundreds of fascinating word origins in **WEBSTER'S NEW INTERNATIONAL DICTIONARY, Second Edition.** Its completeness makes it truly the foundation book for home education! 600,000 entries—122,000 more than in any other dictionary. 12,000 terms illustrated; 3,350 pages. Ask any bookseller to show you the **MERRIAM-Webster.** Write for free illustrated booklet of interesting word origins to G. & C. Merriam Co., 259 Federal Street, Springfield, Mass. Advertisement Copyright, by G. & C. Merriam Co.

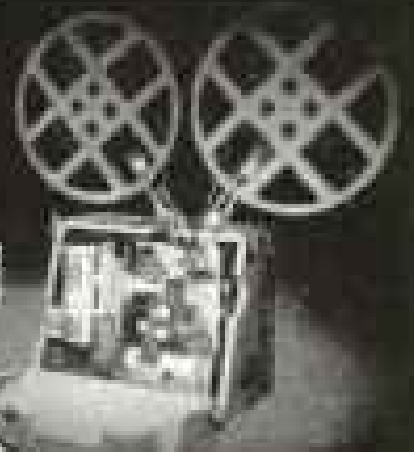


THE GENUINE WEBSTER

**WEBSTER'S
NEW INTERNATIONAL
DICTIONARY
Second Edition**



ANIMATOPHONES



VITAL

**In Today's War—
and Tomorrow's Victory**

Outstanding in training millions for War . . . Outstanding in training more millions for Peace . . . Victor Animatophones provide the most modern medium for faster learning, more intelligent understanding, and lasting knowledge. These amazing 16mm Sound Motion Picture Projectors are continually doing their dynamic training job. Look to Victor for your future training and teaching methods.



Distributors
Throughout
the World

VICTOR ANIMATOGRAPH CORP.
DAVENPORT, IOWA
888 W. Randolph Street, Chicago
242 W. 52th Street, New York



"I'm going your way, Soldier!"

**In uniform or in "civvies" their goal is the same
— and Greyhound speeds the war job of both**

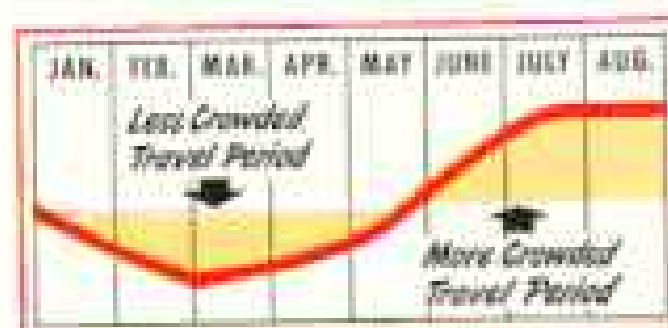
It takes many men in uniform *behind the lines* to keep one soldier *fighting at the front*. It takes a whole nation working at top-speed to keep all that vast force fed, clothed, equipped, financially supported.

This whole giant effort requires transportation on a scale never approached in history—*especially in the movement of manpower by motor bus, to the tune of three-quarters of a billion passengers in a single year!*

Greyhound is proud to carry millions like these—determined to keep its fleet of buses fully in service for America, in spite of severe wartime restrictions. All of you have taken occasional discomfort like good soldiers—responding willingly to suggestions for making the best use of wartime travel.

Thank you—please keep it up! And when Victory is won, look to Greyhound for brand-new standards of highway travel comfort, convenience, scenic enjoyment. They're coming, sure as sunrise!

**To Keep Wartime Transportation
Serving at Top Efficiency:**



It is best to plan necessary trips for the less-crowded Spring months—and midweek days. If possible, avoid travel in the crowded midsummer months, on week-ends, and on holidays.

GREYHOUND



Dear Sue:

I knew about this...

...but I didn't know about this



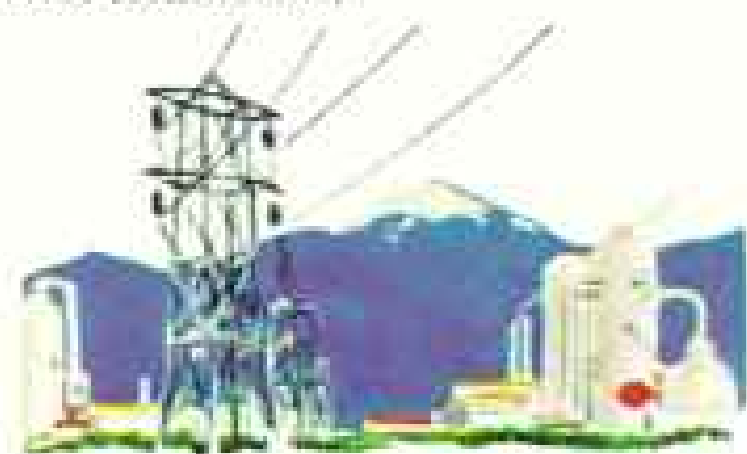
"...I didn't know that Southern Californians were building boats today—big boats on ways strung like beads along the shore. Building them fast, too—smashing ship-building traditions, ship-building records and Axis hopes.



"... had forgotten this is the heart of American aviation; that planes are assembled here outdoors and in; that flying and flight-testing weather is year-round.



"...I didn't know the movie and radio people were making technical films to shorten our training, sending 'features' to fighting fronts and training thousands of service technicians.



"... I didn't know glaciers feed roaring, white water into swift-turning turbines—that power for ships, shells, and planes—was coming from scenery.

"... I didn't know these oil wells were fueling much of the Pacific war—giving high-octane for fighters, fuel oil for convoys and hundreds of Victory products.

"... that millions of orange trees were supplying high-vitamin orange juice concentrate for British children and pectin (rendered from peel) a blood serum alternate used in the treatment of shock!"

Buy War Bonds For Your Post-War Vacation—Yes, we're all busy now. But after Victory is won, come to Southern California for a Victory Vacation. To make your trip a reality then instead of just a dream today, start buying war bonds to pay for it. Send coupon below for interesting post-war vacation information about Southern California.

Essential Travelers Only. Patriotism demands you use transportation wisely. If you are coming today on business, or to visit boys in training, or if you are a soldier or sailor visiting on furlough, the ALL-YEAR CLUB, Southern California's non-profit community organization, has special, free, wartime services for you at its famous VISITORS' BUREAU, at 505 West 6th Street, Los Angeles. Send coupon below for valuable information.

This advertisement sponsored by the Los Angeles County Board of Supervisors brings you a wartime message from the citizens of the County's rich agricultural and industrial areas and of its famous cities—Beverly Hills, Glendale, Hollywood, Long Beach, Los Angeles, Pasadena, Pomona, Santa Monica and 182 other communities.

SOUTHERN CALIFORNIA

Copyright, 1943, by All-Year Club of Southern California, Inc.

All-Year Club of Southern California, Dept. C-4, 629 So. Hill St., Los Angeles, Calif.

Please send helpful, post-war vacation information on Southern California. Name _____ Street _____

Please send free explanatory folder of Helpful Hints for wartime travelers to Southern California. City _____ State _____

(Please print name and address)

CAUTION!

Tuberculosis usually increases in Wartime



DOCTORS KNOW that tuberculosis usually increases in time of prolonged warfare. Such increases occurred during the last war, and have already been reported in some of the nations now at war.

Thus forewarned, the people of our country can forearm themselves with the facts about tuberculosis, to help avoid this dangerous disease.

Discovered early, tuberculosis is not often hard to cure. Unfortunately, early tuberculosis seldom advertises itself. Weeks or months may pass before even such vague signs appear as "touches of indigestion," a tired out feeling without good cause, or a steady loss of weight.

By the time more definite symptoms appear—a cough that hangs on, persistent pains in the chest, or blood-streaked sputum—severe damage may have been done. Curing the disease will then take longer and be more difficult.

Furthermore, during this period of development an infected person may have spread the germs among his family, his friends and his fellow workers. For tuberculosis is a germ disease and it may be "caught." Often, the germs picked up in childhood lie quiet for years, only to become active at some time when bodily resistance has been lowered through sickness, undernourishment, or unusual physi-

cal strain. Wartime demands upon our energy make it doubly important to guard against such conditions.

How to be forearmed

If you have the slightest suspicion that a member of your family has tuberculosis, or if any member has been in contact with someone who has active tuberculosis, have him see the doctor at once. By means of a thorough physical examination, including the use of the X-ray, the doctor usually can determine whether the disease is present. His advice regarding treatment or subsequent "check ups" should be followed to the letter.

The modern treatment of tuberculosis makes use of rest—complete rest for 24 hours a day. This gives the infected lung a chance to heal. The natural resistance of the body is built up by a well-balanced diet of nourishing food. While it may not be necessary to "go away" to be cured, the doctor sometimes advises a stay in a sanatorium. The latter assures scientific treatment, educates the patient in self-care, and protects members of the family from possible infection.

The best preventive measure against tuberculosis is to get sufficient sleep, rest and exercise, and a well-balanced diet.

Metropolitan will send upon request a helpful booklet, 43-N, "Tuberculosis."

Metropolitan Life Insurance Company

(A MUTUAL COMPANY)

Frederick H. Eckler, CHAIRMAN OF THE BOARD

Larry A. Lincoln, PRESIDENT

1 MADISON AVENUE, NEW YORK, N. Y.



Red Cross Home Nursing Courses. Red Cross Chapters are offering women practical instruction in Home Nursing. Learning to keep your family well is a patriotic service, which will release more medical and nursing aid for the armed forces. Apply directly to your Red Cross Chapter.

BUY
WAR BONDS
AND STAMPS
TODAY

*Keep America
Free*



Better than a rabbit's foot!"

First in the automotive industry to fly the Navy "E" with two stars, Fisher has also been awarded the Army-Navy "E" for its ahead-of-schedule tank production.

Our fighting men have a tough job to do, and they are doing it.

They are finding out, in all parts of the world, what they have to work with. They are the best judges of the weapons with which American industry is supplying them.

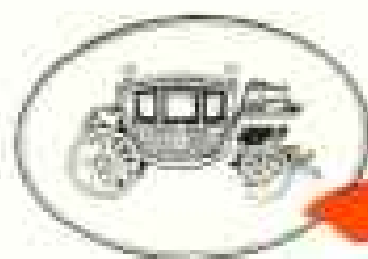
They know just how fast the General Sherman M-4 medium tank will go—how accurate that seventy-five is—and whether or not direct hits will bounce off the armor plate.

The test of action in actual service gives them the final answer—the only one that matters.

Here at Fisher, we want to make sure it's the right answer. That's why we give our tanks,

bombers, and anti-aircraft guns the best we've got in us. We're using every craft we've mastered, every special skill we've developed—and they add up to an impressive number—to give our armed forces that all-important edge.

Come the pinches, craftsmanship always counts. And it's only natural that our fighting men should rate such craftsmanship as "better than a rabbit's foot."



armament
BOSS BY

Fisher

DIVISION OF GENERAL MOTORS

*"I'm saying this
for Uncle Sam!"*



FOR VICTORY



BUY

**UNITED
STATES
WAR BONDS
AND
STAMPS**

I speak for the pleasant, happy things in life . . . all the things we necessarily now have less of. You know . . . tires, radios, gas, fuel, food, fun, leisure and all the like. In its own way, your bottle of ice-cold Coca-Cola, or your glass of Coke at the soda fountain, is almost a casual symbol of such pleasant things.

"Everybody eagerly accepts wartime restrictions. We'll have the good things, again, someday. But now it's work harder and fight, too. We've got a tough war to win. And no matter what anybody is doing to help (this doesn't go for fighting men) nobody is doing his full share if he's not buying U. S. War Bonds and War Stamps regularly. Are *you* buying them? Are you buying your share in Victory and in the good American way of life?"



Studebaker craftsmen again give "more than they promise"

The devastating bombing power and matchless fighting power of the Boeing Flying Fortress make comforting daily items in the war news.

Studebaker, America's oldest manufacturer of highway transportation, is privileged to collaborate with Wright, America's oldest producer of airplane engines, in providing flying power for this invincible dreadnaught of the skies. And Studebaker is also building much other war matériel, including tens of thousands of big, multiple-drive military trucks for the forces of the United Nations.

Today, as for generations past, Studebaker craftsmen make their watchword—"give more than you promise." Every Studebaker employee is justly proud of the achievements of his organization in the arming of our Nation and its Allies.



War Trucks for the United Nations! Studebaker, famed for years for dependable transportation, has now become one of the largest producers of big, multiple-drive military trucks for the forces of the United Nations.

Studebaker BUILDS WRIGHT
CYCLONE ENGINES
FOR THE *Flying Fortress*

☆ ☆ **On Guard**
at 50° below



**-but looking forward
to evening Movies**

IN the bleak loneliness of Arctic regions where fighting men maintain our defenses . . . motion pictures are more than a diversion! They are a vital link to that far away homeland . . . to that world of sunshine, trees, friends, and family. They are an effective force for counteracting the rigors of "OUTPOST DUTY." They are making life more bearable.

No wonder officers in Iceland say: "Motion pictures are as necessary to the men as rations."

Enlist Your Projector! The War Department urges civilian owners of 16mm. sound projectors to resell them to the makers who are authorized to pay a reasonable price for acceptable machines which will be reconditioned and shipped overseas.

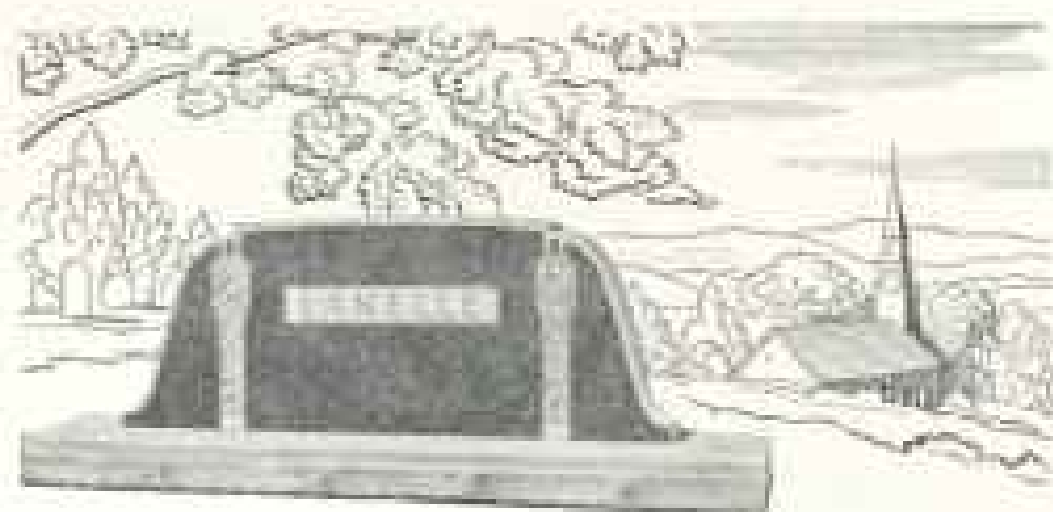


The above dual unit Ampro-stands are typical of those used in "special services" overseas.

100% of Ampro facilities are engaged in the production of precision war equipment and projectors for education, training and maintenance of morale —assuring more efficient projectors than ever when the war is over. Plan for the future by keeping up with the newest developments in 16mm projectors. Write today for latest Ampro Catalog!

The Ampro Corp., 2831 N. Western Ave., Chicago, Ill.

★ **AMPRO** ★
PRECISION CINE EQUIPMENT



and this Truth shall make you
Free from Uncertainty

This is the truth . . . The lasting quality of a Rock of Ages monument is a certainty. Fully guaranteed, its flawless texture always retains its original beauty. Ask your dealer to show you proof in the cemetery.



The book "How to Choose a Memorial" describes our exclusive National Surety guarantee and illustrates Rock of Ages monuments of dignity and refinement. Free copy on request.



ROCK OF AGES CORPORATION
Department N-16, Barre, Vermont

ROCK OF AGES BARRE GRANITE MONUMENTS

**CHAMPION-INTERNATIONAL
COMPANY**

Manufacturers of the paper used in
THE NATIONAL GEOGRAPHIC MAGAZINE
and other high-grade coated paper

OFFICE-MILL - - LAWRENCE, MASS.



**Orchids that
never fade!**

The exquisite beauty of orchids etched in Heisey's handwrought crystal. Reasonably priced, despite its rare beauty, and available in scores of open-stock pieces. See Orchid Etching. Write for illustrated folder. A. H. Heisey & Co., Newark, Ohio.

HEISEY'S
HAND-WROUGHT CRYSTAL



Hitler came the closest . . . by using the air

Recurring attempts to conquer the world bloody the pages of history. Let us tabloid the tale: When the ancient *flat world* bordered the middle ocean, the Mediterranean, conspicuous contenders were the Carthaginians and Romans. With the discovery that the earth is *round*, attempts at world-conquest grew in intensity on a widening scale: Philip II, Louis XIV, Napoleon, William of Hohenzollern! Until World War I, battles were confined to the earth's *surface*. Then came the dress rehearsal, in Spain, for World War II,

with aviation the dominant factor. "It was the handwriting, not on the wall of Belshazzar's Palace, but upon the universal sky for all mankind to read." This, the first global-war, is the birth pain of the human race entering its greatest era, the Air Age. To hasten victory, our entire aviation industry continues to perform miracles of war-plane production. But the ocean-of-air will remain after this war, *and we must remain dominant in it*. To that end too Vultee labors, because the Air Age has just begun.



VULTEE AIRCRAFT, INC., VULTEE FIELD, CALIFORNIA

Builders of Trainers, Dive Bombers and Fighters

Member, Aircraft War Production Council, Inc.

Phoenix has

Wings Across Its Sun
this year



Silhouetted against Arizona's turquoise skies and glowing sun, casting rich shadows over the vast, colorful desert, are countless planes in which future pilots and bombardiers are training to keep America free. The war effort will overshadow many vacations this winter. If this is your case, buy more War Bonds and be consoled that this same friendly *Certified Climate* and all the famous pleasures of a vacation in the Valley of the Sun, will await your future arrival!

**This climate was literally "Certified" when the Valley of the Sun was chosen by U.S. government officials for one of America's foremost aviation training centers because of its unequalled weather conditions—high percentage of clear, warm, sunny days; low humidity, wind velocity, rainfall; ideal altitude.*



Phoenix Arizona

For free, profusely illustrated booklet and cartograph map, write Valley of the Sun Club, 429 Chamber of Commerce Bldg., Phoenix.

In the Valley of the Sun

PROTECT YOUR BOOKS WITH G/W SECTIONAL BOOKCASES

Attractive and economical Globe-Wernicke sectional bookcases protect books from dust and damage. They are excellent examples of wood craftsmanship . . . used in home and office. Additional units may be added as needed . . . "grow as your library grows."
Free . . . Ask our dealer for 32 page booklet, "The World's Best Books" . . . or write to us.

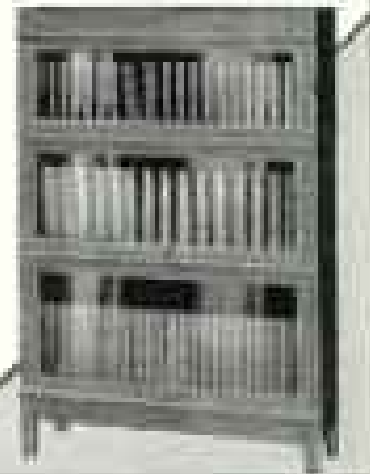


Illustration shows the Economy style made in several finishes.

The Globe-Wernicke Co. . . CINCINNATI, O.

WATER LILY

Beautiful new decorative art pottery that will distinguish your loveliest setting. Fifty graceful shapes—choice of exquisite, hand-painted colors—Rose, Ciel Blue or Walnut Brown. Modestly priced at dep't stores and gift shops.



Send 10c for fascinating pottery booklet

ROSEVILLE POTTERY, INC., Dept. N-43, ZANESVILLE, OHIO

ROSEVILLE DECORATIVE ART POTTERY

SAVE THAT OLD CANVAS!

Beach Chairs, and Umbrellas, Awnings, Cabanas, Tents, Gliders, Canvas Shoes and Leggings, Canvas Auto Tops—these are but a few of the articles in your home that can be painted with Setfast Canvas Paint so they'll look as good as new and last far longer. Setfast Canvas Paint leaves the fabric pliable. It will not crack. Is water-repellent, Sun-resistant, Retards mildew and rot. Just brush or spray it on. Ten attractive colors—also Black, White and Clear. When painting Canvas Furniture, Wearables or Fiber Rugs, follow, when dry, with Setfast OVERCOATING. Get Setfast at your nearest Department Store, Hardware or Paint Store.

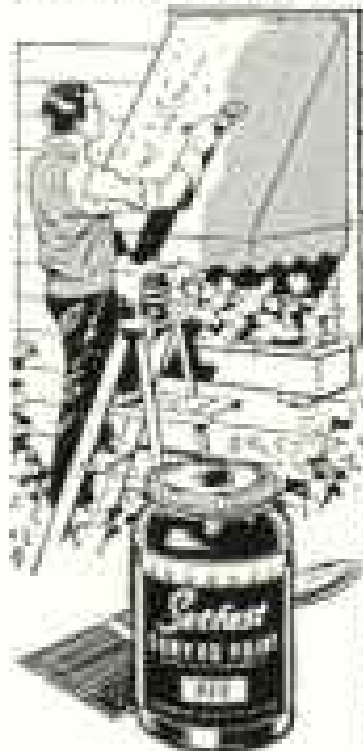


LEAVES CANVAS PLIABLE
WILL NOT CRACK

Setfast
CANVAS PAINT

ARLICO CORP.,
Dept. G-24 Fair Lawn, N. J.
 Send Folder with Setfast-painted samples.

Name _____
Address _____
My Dealer's Name _____



HEAR A WORLD OF SOUND THROUGH THIS TINY MAICO



MAICO
Vacuum Tube
Hearing Aid

Small as a pocket watch, yet enables hard of hearing person to carry on normal conversation at 20 feet—to hear even a whisper with loud noises cushioned.

Send name of relative, friend or your own name for a new experience in hearing. No obligation. Address Maico Co., Inc., Dept. 40-A, 2632 Nicollet Avenue, Minneapolis.

A product of the Maico Company which provides 90% of America's precision hearing test equipment. Choice of ear physicians, hospitals, universities, clinics, airlines, U. S. Army and Navy.

Judd & Detweiler, Inc.

(Established in 1868)

Printers

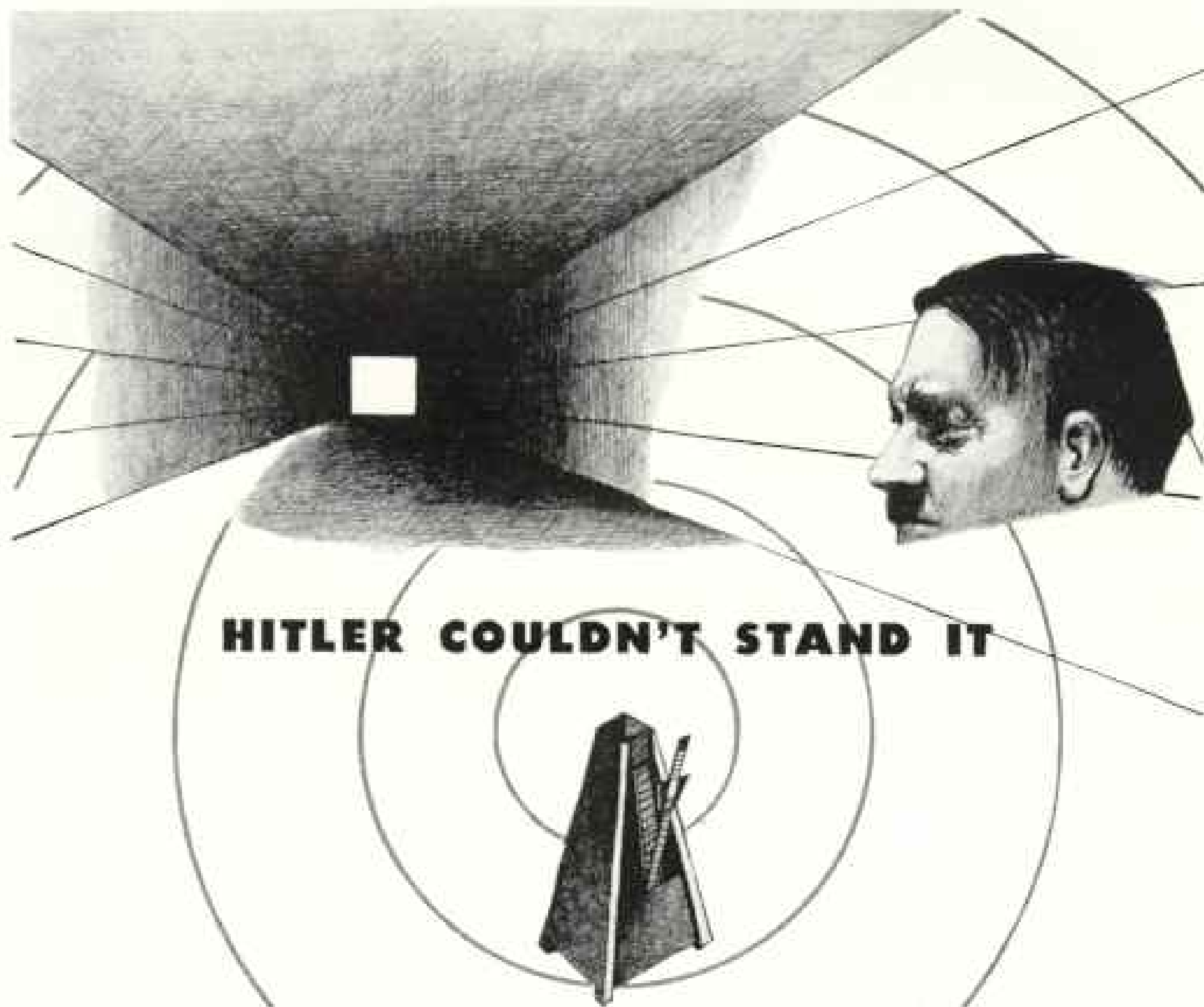
EDDINGTON PLACE AND FLORIDA AVENUE
WASHINGTON, D. C.

THIS MAGAZINE IS OUR INDORSEMENT

IMAGINE a room so still that all you can hear is the beating of your own heart. A room as quiet as the depths of the sea — as silent as the stratosphere. It is double-walled and spring-suspended. Inside, you have a feeling of absolute deadness.

The soundless room we're talking about is in the Dictaphone Research Laboratory at Bridgeport, Conn. What a place to put history's prize renegade! Here he could meditate upon his crimes. With no sounds but those made by his own misbegotten self, each slightest move would be accusation, each whisper a shout of the vengeance to come.

Frankly, we don't think a man with much on his conscience could stay sane for long in the Soundless Room.



We may never have a chance to try it out on Der Fuehrer, but here at Dictaphone we're using the Soundless Room every day for his undoing. In this pool of profound quiet, some of the world's leading sound engineers are working to perfect new acoustical devices, some for war use, others for further development when peace comes.

All the experience these sound scientists have gained through years of research on dictating equipment is now at Uncle Sam's disposal, to evolve better ways of recording

and reproducing the human voice to meet the exacting requirements of the Army, Navy and vital war services.

When peace comes, this same skill and experience will make these new conveniences and services available to *all* business.

Dictaphone Corporation, 420 Lexington Avenue, New York.

DICTAPHONE

ACOUSTICORD DICTATING EQUIPMENT
ELECTRICORD RECORDING EQUIPMENT

The word DICTAPHONE is the Registered Trade-Mark of Dictaphone Corporation, Makers of Dictating Machines and Accessories to which said Trade-Mark is Applied.

Girls' Camps

BROWN LEDGE MALLORY'S Bay, Vermont. "... one of New England's finest camps." Daily riding for all included in fee! All sports. Sailing, golf, drama, etc. 15 selected girls. No "extras." Catalog. (Give age.) Mr. and Mrs. Harry E. Brown, The Tarrytown School, Box 2180, Tarrytown, N. Y.

OGONTZ WINTER MOUNTAIN Camp for Girls. 105 acres in N. H. Private lake, rustic cabins. For girls 5-18 in separate age groups. Sailing, canoeing, aquaplaning, lawn and trail riding, golf, tennis, music, art, dramatics. Also tutoring. Mountain trips. Victory program. Booklet, Abby A. Sutherland, Box 600, Ogontz School P. O., Pa.

SARGENT A boy's world of sport and fun-making for any girl to treasure! All sports, crafts, dramatics, many unusual activities. Riding included in reasonable fee. Lakeside headquarters near Peterborough, N. H. Ages 5-20. Counselor training. Catalog. Nelson S. Watke, Dir., 2 Everett St., Cambridge, Mass.

Boys' and Girls' Camps

ALOHA FAIRBANKS, VERMONT, 8th Season. Girls 12-18. Aloha Hike, separate camp at Ely, Vt. Girls 8-12. Lamkilla for boys 5-14. Informal, cooperative programs adapted to today's needs for special training for young people. Catalog. Mrs. E. J. Gulick, 12 Ferris Road, Brookline, Mass.

RED WING, RED CLOUD LAKE CRAW-PLAIN, N. Y. Happy, healthy summer for girls, boys, 5-18. Separate camps. Unexcelled facilities for riding, sailing, canoeing, camp craft, sports. Individual care. Victory programs. Booklet. Robert L. Lamborn, McDonough School, McDonough, Md.

Boys' Camps

ADIRONDACK WOODCRAFT CAMPS Boys 7-12. 3 divisions. On private lake 60 miles north of Utica, Canada. 20 crafts. Canoe and horse trips. 20 horses. Fee includes riding. Booklet—Wm. H. Abbott, Dir., Box 63-N, Univ. Stn., Syracuse, N. Y.

FARRAGUT NAVAL CAMP NAVAL training, boys 9-14. July 7-Aug. 27. 60 boats. Land, water sports. Cruising, radio comm., commando course. Ground work, academic work available. Box 17, Toms River, N. J.

CULVER SUMMER SCHOOLS on Lake Maxinkuckee. Eight weeks of Culver training. Regular Academy personnel. Exceptional housing, dining and medical facilities. Naval or Cavalry (Boys 14-17); Woodcraft (9-14). Specify catalog desired. 49 Lake Shore Walk, Culver, Indiana.

CAMP GREENBRIER ALDERBROOK, W. Va. 45th year. On main line of C. & O. R. R. Ideal climate. Excellent opportunities for boys' development in all branches of camp life. Carefully supervised. Booklet. F. E. Carter, Dir., Episcopal High School, Alexandria, Va.

LEN-A-PE INDIAN, cowboy, magician, physician, nurse, naturalist. On natural lake in Puenos near New York City and Philadelphia, Pa. Boys 7-17. Excellent food and care. Riding, sailing, aquaplaning, tennis. Write for booklet. David E. Kelsor, 7733 Mill Road, Elkins Park, Pa. Call Phila. Maltosa 1881.

MON-O-MOY THE SEA CAMP for Boys, 5-18. Cape Cod, Brewster, Mass. Sailing, swimming, cruising, canoeing, land sports. Camp farm. Riding. Special training in Navigation. First aid. Rifle training. Nurse. Cabins. Five age groups. **WONO**, a separate camp for girls from 5-15. H. N. Dodd, Auburn, Mass.

ST. JOHN'S MILITARY ACADEMY SUMMER PROGRAM • Summer soldier training for boys 14 to 18. Special section for younger boys. Infantry drill, training in machine gun, rifle, trench mortar—firing if you wish! Superb recreational facilities. A profitable and enjoyable summer. Same management as CAMP NAGAWICKA FOR GIRLS. Catalog. N-134 De Koven Hall, Delafield, Wis.

SUSQUEHANNA Boys 5-15. Mountain camp on private lake. New Milford, Pa. 20th year. 700 acres. Daily riding, complete course in horsemanship. Fine lake swimming. All other sports. Skilled leader for each 4 boys. Personal development our aim. Booklet. Robert Smith, 243 W. End Ave., New York City.

Coseducational SCHOOLS

GEORGE SCHOOL QUAKER. Established 1898. College preparatory. Known for its modern curriculum and excellent college preparatory results. Boys and girls in the same school under conditions that meet with approval of discriminating parents. G. A. Walton, A.M., Principal, Box 265, George School, Pa.

Boys' Schools

AUGUSTA MILITARY ACADEMY Fort Defiance, Virginia Rates \$100 a month

Aviation under C.A.A. R.O.T.C. 1000 acres. Chosen by the government to train Naval Air Cadets. College preparatory with military training for strong moral character. Personal supervision. All sports. 78th year. Write for catalog.

Col. T. J. Roller or Major C. S. Reifer, Jr.

BERKSHIRE



UNUSUAL accelerated program gives actual flight training under C.A.A. to boys preparing for college. Graduates may qualify for Air Corps commission, private pilot license. Navigation, meteorology, radio and communications, topography, military science. Grades 8 through 12. Boys can complete 1 1/2 years' work in one year—obtain diploma before military age. Beautiful location convenient to railroad. 17th year. Write for information.

Albert Keep, M.A., Box N, Sheffield, Mass.

BLAIR ACADEMY

EXCELLENT preparation for success in college or in the country's service. Experienced teachers. Health program. Country location, 45 miles from New York. Fast train service. Address Charles H. Breed, Headmaster, Box 17, Blairtown, N. J.

THE BOLLES SCHOOL
On St. Johns River
Accredited. Prepares for colleges and Government Academies. 50-12th grades. Pre-Induction program. Fireproof dormitory. Gymnasium. Military training. Honor Naval School. Summer session begins June 15. For catalog and summer bulletin, address: Col. Roger D. Painter, Pres., Jacksonville, Fla.

BORDENTOWN MILITARY INSTITUTE College preparatory. Fully accredited—business and general courses. R.O.T.C. Vigorous physical training. Experienced teachers—boys taught how to study. Near Trenton. Juniorschool. 58th year. Summer session. Catalog. Registrar, Box 554, Bordentown, N. J.

CASTLE HEIGHTS MILITARY ACADEMY R.O.T.C. Preparatory. Jr. College Dept. P. 41. Separate Jr. School—special instructors, house mothers. 17 modern buildings. New \$100,000 Chapel. Endowment. For catalog write Col. H. N. Armstrong, Pres., Lebanon (near Nashville), Tenn.

COLUMBIA MILITARY ACADEMY 12 BUILDINGS built by U.S. Government. Fully Accredited. Special Department preparing for Gov't Academies. R.O.T.C. Post-Graduate & Junior Schools. New \$60,000 gymnasium. Athletics: swimming, golf. Catalog. Dept. N, Columbia, Tenn.

CRANBROOK SCHOOL Beautiful, modern school of recognized standing. Grades 7-12 and postgraduates. College preparatory. Also arts, crafts, music. Athletics and hobbies encouraged. Single rooms. Near Detroit. The Registrar, 4000 Long Pine Rd., Bloomfield Hills, Michigan

CULVER MILITARY ACADEMY on Lake Maxinkuckee. Educates the whole boy. College preparatory, Junior College, 8th grade. 40 graduates in 10 colleges. 2 Senior R.O.T.C. units—Artillery, Cavalry, Infantry. 1000-acre campus. All sports. Catalog. 49 Pershing Walk, Culver, Ind.

FISHBURNE MILITARY SCHOOL HIGHEST Gov't rating. 64 years experience preparing boys for college. West Point, Annapolis, business. R.O.T.C. Also Junior School. All sports. For catalog, address Col. Morgan H. Hudgins, Box N-3, Weynesboro, Va.

FLORIDA MILITARY ACADEMY

One of the outstanding schools of the South. Fully accredited, R.O.T.C. High standards. Individual attention. Separate Junior Dept. Fine health record. All-inclusive rate. Enrollment limited. Col. Walter Mandels, Pres., Box 1, St. Petersburg, Fla.

FORK UNION FULLY accredited. Small classes. ROTC. Supervised study. Prepares for college or business. Junior school small boys. Home-mother. Athletics. Swimming. 40th year. Catalog. Dr. J. J. Wicker, Fork Union Military Academy, Box N, Fork Union, Va.

GEORGIA MILITARY ACADEMY

Winter and Summer School. Prep School—Junior College—Separate Junior School—R. O. T. C.—War Courses. Moderate rates. Write for catalog. Col. W. N. Brewster, Pres., College Park, Ga.

GREENBRIER MILITARY SCHOOL 112ND YEAR. Accredited. Lower School, High School, Junior College. Fireproof connected buildings. All sports. Near White Sulphur Springs. Summer Camp. For Catalog, address: Major D. T. Moore, Registrar, Box N, Lewisburg, W. Va.

HOWE MILITARY SCHOOL

Episcopal. Accredited. College preparatory, business courses. Junior school. Small classes. Sports. R.O.T.C. "A Clean Mind in a Bound Body." Est. 1864. Summer Camp. Catalog. Burrett B. Denton, M.A., Supt., 943 Academy Place, Howe, Indiana.

99th YEAR KEMPER

Military School—High School Junior College

Fully accredited. Superior scholastic, military, athletic instruction. Modern buildings. \$200,000 gym. Indoor pool, rifle range. Golf course. Five athletic fields. 14 acres. Reasonable rates. Write for Catalog and View Book.

Col. A. M. Hitch, 43-B Third St., Boonville, Mo.

KENTUCKY MILITARY INSTITUTE

A SCHOOL with a winter home in Florida. Preparation for college under ideal climatic conditions all year. Oldest Private Military School in America. For illustrated catalog, address Col. C. B. Richmond, Pres., Box N, Lyndon, Ky.

LA SALLE MILITARY ACADEMY

ACCREDITED college preparation under Brothers of the Christian Schools, 7th grade through High School, meeting war and peacetime demands. R.O.T.C. Two regulation rifle ranges. 8th yr. Moderate rates. Catalogue. Brother Brendan, Headmaster, Box G, Oakdale, L. I., N. Y.

MANLIUS SCHOOL

Develops initiative, character, fitness. R.O.T.C. Ski troop. Aviation ground course. Excellent background for gov't academies. Accredited college preparatory. 7th, 8th grades. All sports. Catalog. Wm. H. Abbott, Dir. of Admissions, Box 443, Manlius, N. Y.

MERCERSBURG

Develops self-reliance, good judgment. Grades 7-12. Superior instruction in "pre-service subjects": math., sciences, geography. Special attention to younger boys. Summer session. Founded 1836. Catalog. Charles S. Tippetts, Ph.D., Box N, Mercersburg, Pa.

MISSOURI MILITARY ACADEMY AND JUNIOR SCHOOL

6th yr. Fully accredited. R.O.T.C. Individualized instruction teaches boy How to Study. Complete guidance program prepares for future. All sports. 5 athletic fields. 100 ac. campus. Riding. Aviation. Catalog. Col. C. R. Strubling, 943 Main St., Mexico, Mo.

MORGAN PARK MILITARY ACADEMY

FOUR-TEAM U.S. Army Reserve Officer training program. Superior prep. course. Fully accredited. 85% of graduates go to leading colleges. All sports. Gym. Near Chicago's cultural advantages. 7th yr. Lower, Jr. Schools also. Catalog. Box 743, Morgan Park, Ill.

NEW MEXICO MILITARY INSTITUTE

HAL-ANGED program of academic, military, physical training. High School, Junior College. Outdoor life year round; dry climate—8700 ft. alt. All sports. Cavalry R.O.T.C. Catalog. Col. D. C. Pearson, Supt., Box F, Roswell, N.M.

NEW YORK MILITARY ACADEMY

The School of Distinction

The Academy feels proud that in this war so many of its graduates are prepared to serve our country as officers in the armed forces. N.Y.M.A. training continues to meet the demands of the national emergency.

For Catalog, address 22 Academy Avenue Cornwall-on-Hudson, New York

School of Future Commanders



ESSENTIALLY military training. Home rating, R.O.T.C. Accredited by War Dept. Small classes. Supervised instruction. College preparatory. Fireproof buildings. Non-athletic. Athletics in 19th year. Also summer training camp. Send for Camp literature.

NORTHWESTERN MILITARY AND NAVAL ACADEMY
LAKE GEORGE, MICHIGAN

PEDDIE Pre-industrial courses emphasizing mathematics, sciences. Physical fitness (obstacle course). Pre-flight aeronautics. College preparation for 75 years. Acceleration for older boys. Summer session. **Wilbour E. Saunders**, Box 4-N, Hightstown, N. J.

THE PENNINGTON SCHOOL Courses, well-balanced program develops whole boy. Graduates in 48 colleges, technical schools. Small classes. Gym, pool, sports. Near Princeton. Also lower school, 16th year. Catalog. **Francis Harvey Green, Litt. D.**, Box N, Pennington, N. J.

RANDOLPH-MACON MILITARY ACADEMY Year. At northern entrance to Skyline Drive. Prepares for college through intensive study methods. Fireproof buildings. Supervised athletics. Write for catalog. **Col. John C. Boggs, Prin.**, Box E, Front Royal, Va.

RIVERSIDE

MILITARY TRAINING

Supervised by U. S. War Department

Highest official R. O. T. C. rating with commission in Army of U. S. to qualified graduates. Reward, honor, and GUARANTEE of progress added to boys and parents. Optional accelerated program. Individual attention of carefully selected faculty. Complete program for physical fitness. Preparatory and Post Graduate Courses. Junior College. Separate school for younger boys. Total expense of 2-semester year 1936. Catalog, address

GENERAL SANDY BEAVER, President, Box N-4, Gainesville, Ga.

Year-round school in Georgia

(Florida plant occupied for the duration by U. S. Naval Gunnery School)

ST. JOHN'S MILITARY ACADEMY Inspiring military discipline helps your son develop confidence, leadership. Balanced program of conference study, recreation. Accredited. All sports, 9th year. Summer session. Catalog. **1343 DeKoven Hall, Delafield, Wis.**

ST. THOMAS MILITARY ACADEMY A CATHOLIC preparatory school ideally equipped for scholastic, military, athletic development. Accredited, R. O. T. C. Full sports program. Limited enrollment. Reasonable rate. Catalog. **St. Thomas Military Academy, Box N, St. Paul, Minn.**

SHATTUCK SCHOOL ACCREDITED Episcopal school offering a complete program of academic, military, spiritual, and physical training for the development of boys in grades 7 through 12. Complete Summer Session. Catalog and Viewbook. **The Registrar, Box N, Faribault, Minnesota.**

STAUNTON MILITARY ACADEMY

Distinguished for excellent academic, military and athletic training. In historic Shenandoah Valley of Virginia. High altitude. Unexcelled health record. Modern fireproof buildings. R. O. T. C. (Honor) Unit. Separate Junior School. Visitors cordially welcomed. For illustrated catalog, address Superintendent, Box D-4, Staunton, Va.



TENNESSEE MILITARY INSTITUTE High academic and military standards, developed through 70 years, encourage scholarship, develop character. R. O. T. C. Grades 8-12. Athletics for all. Restricted to 300. Catalog. **Col. C. R. Endley, Box 147, Sweetwater, Tenn.**

TODD SCHOOL AND CAMP

Boys 4 to 25. 9th year. Accredited, Vitalized Individual College Preparation. Study help. Business courses. Sleep, Radio, Music. Friendly teachers. Swimming. Riding. Hear from Chicago. Catalog. **Hager Hill, Prin.**, Box G, Woodstock, Illinois.

"At the Nation's Shrine"

VALLEY FORGE

Parents appreciate importance of young gentlemen under 18 being educated at distinguished M. Acad. for civil life and commission in U. S. Army (over 100th annual anniversary). Small classes. By R. O. T. C. 22 modern dormitory buildings. All sports. National Field Artillery, Cav., Inf., Band. Highest Gov't rating. Catalog.

Box M, Wayne, Pa.
Military Academy

WENTWORTH MILITARY ACADEMY 4-Year high school—Separate 2-Year College R. O. T. C. All untried. 14 years. Center of Amusements. Large Gym. Indoor pool. All Sports. Stadium. C. A. A. Flying. Large campus. Summer School. Catalog. **Col. J. M. Sellers, 843 Wash. Place, Lexington, Mo.**

WESTERN MILITARY ACADEMY Distinguished military records of alumni in service prove value of training at Western. Fireproof barracks. Complete athletic and social program. 16th year. Catalog. **Col. R. L. Jackson, Pres.**, Box N-4, Alton, Ill. (near St. Louis).

WILLISTON ACADEMY UNUSUAL educational opportunities at modest cost. Endowment. Over 20 graduates in 48 colleges. New recreation center; gymnasium, swimming pool. Understanding masters. Separate Junior School. **Walter A. V. Galtreith, Box 21, Easthampton, Mass.**

Girls' Schools

EDGEWOOD PARK ACCREDITED College preparatory. Advanced courses in liberal and fine arts, experimental science, medical art, home ec., dramatics, journalism, photography. Costume design, interior decoration, merchandising, kindergarten. All sports—riding. **Box N, Belair Cliff Manor, N. Y.**

FAIRFAX HALL STANDARD accredited work. 2 years college, 4 years high school. Secretarial, Fine Arts. Safe, healthful location in Shenandoah Valley. Spacious grounds. Happy social life. All sports. Private stable. Indoor, outdoor pools. **Wm. B. Gates, Pres.**, Box 4-N, Park Station, Waynesboro, Va.

GREENBRIER COLLEGE For young women. Junior College and Preparatory. Founded 1812. In the Alleghenies. Art, Music, Dramatic Art, Secretarial. Recreational and Social Activities. Modern fireproof dormitory. Address **French W. Thompson, Pres.**, Dept. N, Lewisburg, W. Va.

HILLCREST More than a quarter-century of successful experience with junior girls, 6 to 14. Safe, healthful location in beautiful hill country, 118 miles from Chicago. Accredited preparation for high school or academy. Music, dancing, dramatics, sports. Catalog. **Sarah M. Davison, Box 4-N, Beaver Dam, Wis.**

KINGSWOOD—CRANBROOK GRADES 7-12, post-graduate. College preparatory and general courses. 50 acres on lake near Detroit. Unusual opportunities in arts, handicrafts, sciences, music, dramatics, sports. **Secretary, 156 Cranbrook Road, Bloomfield Hills, Mich.**

LASELL JUNIOR COLLEGE TEN MILES from Boston. Two years Junior College, two years high school. Academic, Home Ec., Secretarial, Merchandising, Fashion, Pre-nursing, Art, Music. Catalog. **Guy M. Winslow, Pres.**, 123 Woodland Rd., Auburndale, Mass.

LINDEN HALL Junior College and School for Girls. Cultural and Vocational. Music, Home Economics, Secretarial Studies. Fine and Commercial Art. Dramatic Art. All sports. Preparatory and General Courses. Beautiful Campus. Riding, Swimming Pool. Moderate Tuition. **F. W. Stengel, D.D.**, Box 64, Lititz, Pa.

OAK GROVE

A FRIENDS SCHOOL FOR GIRLS
Emphasizes Preparation for College and Gracious Living. Music, Art, Dramatics. Upper and Lower Schools, Junior College Secretarial Studies. Joyous Outdoor Recreation features Winter Sports, Riding included. Beautiful New Fireproof Buildings.
Mr. and Mrs. Robert Owen, Box 140, Vassboro, Maine



LOW-HEYWOOD

PREPARES for College or other fields of study. Separate residence for younger girls. **Miss Marjorie L. Tilley, Mrs. Henry Heywood Fox, Principals**, Box N., Stamford, Connecticut.

PENN HALL JR. COLLEGE

ACCREDITED 2-yr. College with degree; 4-yr. Prep. Career Courses, Music, Art, Drama, Home Ec., Merchandising, Radio, Journalism, Medical Ass't, Secretarial, Connecting baths, Sports, Riding, Trips. Social life. Catalog—**Box W, Chambersburg, Pa.**

SALEM ACADEMY THE SOUTH'S oldest girls' preparatory school, noted for high scholastic standing, exceptional music training, well-planned extracurricular program. Year-round sports on 50-acre campus. Modern buildings. Founded 1772. Catalog. **Mary A. Weaver, M.A.**, Box N, Winston-Salem, N. C.

Warrenton Country School

Forty miles from Washington. Selected group of students from ten to eighteen years old. Eleven buildings. Beautiful gardens, charming outdoor theatre. Two hundred acre farm operated in connection with school. Thorough College Preparation, well-planned General Course. Music, art, crafts. All sports, riding.
Miss Lea M. Souigny, Principal
Box N, Warrenton, Virginia.

Colleges FOR WOMEN

CHRISTIAN COLLEGE ACCREDITED Junior College and Conservatory (A.A. degree). Terminal, transfer, pre-career courses. Music, Art, Drama, Secretarial, Nursing, Int. Dec., Costume Design, Home Mgmt. All sports, pool, 250-year. Catalog. **James C. Miller, Ph.D., Pres.**, Box D, Columbia, Mo.

LINDENWOOD COLLEGE A. B., B. S. degrees. Also 2-yr. Junior College. Prepares for civic and social leadership. Masterized curriculum. Vocational courses. Semitutorial. Special work in music, art. Near St. Louis. Sports. Catalog. **President, Box 243, St. Charles, Mo.**

Aviation SCHOOLS

SPARTAN SCHOOL OF AERONAUTICS

Train at SPARTAN for a place in America's war program, and for a lifetime aviation career. \$2,000,000 worth of new buildings, new equipment. Government Approved. Aircraft or Engine Mechanics, Flight Engineering, Radio, Instruments, Meteorology. Qualified graduates quickly employed. Spartan factory, contractor to the U. S. Navy, directly connected. Next semester starts May 21. Write for catalog. Give age and education. **Captain Maxwell W. Balfour, Director, Dept. NG43, Tulsa, Okla.**

Vocational

KATHARINE GIBBS SECRETARIAL. Practical courses for high school graduates. Special courses for college women. Catalog. **Assistant Deen, Boston: 90 Marlborough St.; New York: 230 Park Ave.; Providence: 155 Angell St.**

BE A DIETITIAN!

ONE YEAR INTENSIVE COURSE qualifies you for position in hotels, schools, hospitals, aircraft, food mg., corps., dept. stores, etc. Day or Eve. Co-ed. Age no obstacle. Advanced credit for college students. Licensed by N. Y. State. Free Placement Service. Catalog at.

NEW YORK INSTITUTE OF DIETETICS

860 MADISON AVE. (at 60th St.) N. Y. C., WEsp 4-7400

NORTHWEST INSTITUTE OF MEDICAL TECHNOLOGY offers intensive course in Clinical Laboratory technique and Blood Metabolism in 3 months. X-Ray and Electrocardiography 3 months. Catalog. **Kalah, 34 years, 3437 E. Lake St., Minneapolis, Minn.**

TRI-STATE COLLEGE B. S. Degree in 27 months in Civil, Electrical, Mechanical, Chemical, Aeronautical, Radio Engineering. Men and Women. 2-year high school students with good records admitted. Living costs, tuition low. Enter June, Sept., Jan. **Dir. Catalog: 1443 College Ave., Angola, Ind.**



"Good thing I was here"

Two-thirds of all Bell telephones are now dial. There would be more if the necessary materials weren't needed for war.

Today's rush of business couldn't be handled without dial telephones. They take care of more than 75,000,000 calls a day.

Even with millions of dial telephones in use, the number of operators increased more than 23,000 last year. The total number is now over 160,000.

BELL TELEPHONE SYSTEM



Bruiser



This is the Vega Ventura, a tough looking, tough acting new bomber with some definite family characteristics. It *looks* like the Hudson only bigger. It's sleek and powerful, with stamina in every spar. It acts like the speedy, record-breaking airline Lodestar only faster and more maneuverable. In action it's a *bruiser*, the biggest, hardest-hitting bomber yet designed and pro-

duced by Vega. It carries a bellyful of destruction in its whopping bomb bay and throws 50 caliber death from five gun positions.

United States and Royal Air Force pilots can tell much more about this deadly bomber in the days to come, and they *will* in stories of blasted Axis supply lines, smashed Axis tanks and silenced Axis guns.



A subsidiary of Lockheed

Vega

Aircraft Corporation

