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Insignia of the United States Armed Forces

991 Illustrations in 32 pages of Color:
First Complete Color Reproduction of All Approved
Insignia, with Full Notes on the Designs and Symbols

The Traditions and Glamour of Insignia

ARTHUR E. DU BOIS

Aircraft Insignia, Spirit of Youth

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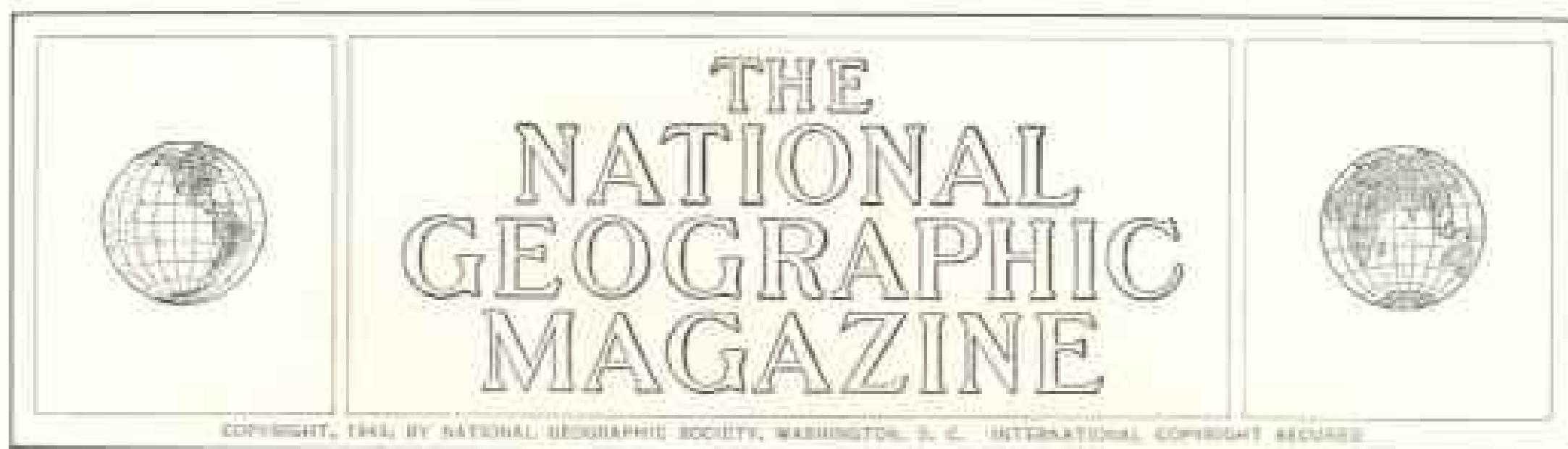
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Insignia of the United States Armed Forces

BY GILBERT GROSVENOR

President, National Geographic Society

IN CORRECT color and design the insignia of all the armed forces of the United States are reproduced in this issue of the NATIONAL GEOGRAPHIC MAGAZINE.

Of these illustrations, the first complete set to be published in color, 654 show the insignia of the Army, Navy, Marine Corps, and Coast Guard; 337 show the lively and apt insignia of military and naval aircraft.

Never before have all these insignia been presented with full notes. Not even the services themselves have printed them in color. Authorities of the armed forces consider insignia not only an aid to recognition and a spur to pride but a means of establishing and maintaining discipline. For these reasons they have encouraged the National Geographic Society to publish this compilation.

Through many months of painstaking research, the most comprehensive and authoritative material has been gathered. The National Geographic Society is proud to offer this labor of love as it has offered its up-to-the-minute maps for the benefit of the Nation it has served faithfully for more than half a century.

The Army compilation was made and the general introduction written by Arthur E. Du Bois, foremost American military heraldic expert. The whole project was supervised by Gerard Hubbard and Elizabeth W. King, of the National Geographic Society staff.

Brief descriptions, keyed to the numbers of the color plates, tell "who wears what insignia,

and where"—cap, lapel, sleeve, shoulder, etc.

In 400 cases National Geographic Society artists made drawings of designs from official records of the services. In others official insignia were photographed in The Society's photographic laboratories.

High-ranking officers of the Army and Navy lent valuable framed series of insignia from their office walls and archives.

The superintendent of the Navy Nurse Corps, Capt. Sue Dauser, entrusted her hat—of new design, and at the time hard to replace—to the Society's photographers, with the stipulation that it be sent back in time for her to wear it at a meeting! (Plate XIV.)

Anyone possessing a copy of this issue of the NATIONAL GEOGRAPHIC MAGAZINE will be able to answer whatever questions may arise concerning the meaning of any form of military and naval insignia, except those of the new women's organizations.

Recently authorized designs of insignia for the women's military and naval services will be published when the complete official list is ready for release. Those services are the Women's Army Auxiliary Corps ("Waacs"); the Women's Reserve of the U. S. Naval Reserve ("WAVES" from initials of the descriptive title, Women Accepted for Volunteer Emergency Service); the Marine Corps Women's Reserve (no official nickname); the Women's Reserve of the U. S. Coast Guard Reserve ("SPARS" from the Coast Guard motto, *Semper Paratus*, Always Ready).

The Traditions and Glamour of Insignia

BY ARTHUR E. DU BOIS

Chief of Heraldic Section, Office of the Quartermaster General, United States War Department

THE knight of the Middle Ages, with an identifying symbol on his shield, was the forerunner of the young American of today who wears upon his left sleeve at the shoulder an arrow "shot through a line," to recall that in World War I the men of his division, the Thirty-second, "shot through every line the Boche put before them."

Insignia are a modern phase of heraldry. They are distinguishing devices of authority, rank, office, or service. A red rose in a buttonhole at the railroad station may be the *insigne** of a blind date. Joseph's coat of many colors was the sign by which his father, Jacob, believed him dead.

Great is the variety and wide the use of insignia within the armed forces of the United States: the Army, the Navy, the Marine Corps, and the Coast Guard. To which service a man belongs, what rank he holds, what skills he has—these are some of the questions insignia answer.

Insignia, form of shorthand, are kin to peacetime fancy jerseys on the gridiron, to pins of fraternal lodges and college fraternities. The soldier, sailor, marine, or Coast Guardsman, displaying insignia, makes known his organization and his place within it.

Sleeves, shoulders, lapels, and collars, as well as hats and breasts of uniforms, are thus adorned. Devices are made of metal, embroidered or woven cloth; lately, plastics. Colors are most effective when solid and substantial—gold or yellow, silver or white, blue, red, green, purple, and black. Once adopted, designs are followed faithfully.

Insignia Speak in Symbols

Those devices which reveal a man's personal heroism (decorations); his participation in specified campaigns (medals); or his attainments, such as expert rifleman (marksmanship badges), are not included in the present article. Certain insignia of attainment or qualification, most numerous in the Navy, do appear, but they fall within a different category.

Here the chief purpose is to set forth insignia by which to tell organization and grade.

No heraldic Gregg or Pitman has arisen to systematize these devices uniformly throughout the services. To an extent it may be said that the Army has one system, the Navy another, the Marine Corps a combination of

the first two, and the Coast Guard an abbreviation of the Navy system.

Insignia of United States armed forces closely resemble those of armies and navies of other countries. Insignia for each service have grown out of the particular needs of that service. New devices have come in, old ones have gone out, as conditions have changed.

One may wonder why fighting men throughout the world pay so much heed to insignia, why specifications for each device and directions for wearing it are drawn up so minutely and followed so exactly. Why would it not be better for each man to put on a good stout suit of clothes and to assume the business of warfare without bothering about insignia? Without caring whether he is properly garbed, like all his fellows, in accord with standards so highly refined that the stitches in embroidered designs actually are counted before approved?

The experienced officer replies that close attention to dress, both as to what is worn and as to how it is worn, is important not only as an aid to recognition and as an element to create and support pride, but also as a means of establishing and maintaining discipline.

Obviously, recognition of individuals, in connection with their organizations and positions of authority, is simplified by the insignia worn upon their uniforms. Conceivably, identification could be attained by some less colorful and less distinctive insignia than those in use—a string of numbers, possibly, sewn to a man's coat. But to adopt so prosaic a code would be to ignore the truth that human beings respond more forcefully and more happily to beauty, poetry, and romance, all of which insignia convey, than to cold fact.

Symbols Build Morale

Military and naval insignia, all the way from the least involved to the most intricate, express a warmth and a fraternity which men—and, more recently, women—of all services know from experience. These devices are sources of pride in oneself and in one's organization. From this pride springs discipline; not discipline born of necessity and fear, but that which essentially is self-discipline, the essence of respect for self, for service, for country.

* Within the services custom has abolished the singular "*insigne*." "*Insignia*," plural, does for both.

George Washington devised badges early during the Revolutionary War so that rank might be readily identified. Since the Revolution, the number of insignia has multiplied, and the purposes of them have expanded; yet the President of the United States wears neither uniform nor insignia to denote his position as commander in chief of all our forces. Nor, indeed, are there uniforms or insignia for the Secretary of War and the Secretary of the Navy.

But to return to Washington's order:

"As the Continental Army has unfortunately no uniforms, and consequently many inconveniences must arise from not being able to distinguish the commissioned officers from the privates, it is desired that some badge of distinction may be immediately provided; for instance, that the field officers may have red or pink-colored cockades in their hats; the captains yellow or buff; and the subalterns green. They are to furnish themselves accordingly. The sergeants may be distinguished by an epaulette or stripe of red cloth sewed upon their right shoulder, the corporals by one of green."

A few days before this order was issued, Washington directed that for the purpose of preventing mistakes "the general officers and their aides-de-camp will be distinguished in the following manner: the Commander in Chief by a light blue ribband worn across his heart between his coat and waistcoat; the Major and Brigadier General by a pink ribband worn in like manner; the Aides-de-Camp by a green ribband."

After the order to field and line officers was



Staff Photographer William B. Carter

She Wears a Star for a Man at War

This enameled pin or lapel button is designed for members of the immediate family of a person serving in the armed forces of the United States. The design—blue star on a white field within a red border—is the same as that of the service flag approved for display in windows or upon walls. Only this lapel button is sanctioned for civilian wear. Unauthorized wearing of naval or military insignia is prohibited by law (page 655).

issued, Washington directed that major generals' sleeves be distinguished from those of brigadier generals by a "broad purple ribband."

The original order was the beginning of a series of orders and regulations, all calculated to mark the uniforms of the members of the armed services with designs in symbolic form as insignia of identification.

Through the years that followed, particularly in times of war, development of insignia continued. A complete history would parallel the history of naval and military progress. It would trace and reflect the story of American



A Tiger with Wings—Insignia of the "Flying Tigers"

Gen. H. H. Arnold examines the design on a scarf presented to him in China. Holding it is Field Marshal Sir John Dill, of the British Joint Staff Mission in Washington. The Flying Tigers were organized by Maj. Gen. Claire L. Chennault as the American Volunteer Group to defend China against Japan. When the Volunteers disbanded last year, many joined the China Air Task Force, now the U. S. 14th Air Force. Arnold, now a full general, commanding the Army Air Forces, wears four stars today.

engagements upon sea and land and would mirror advancements in the science of warfare. How methods and techniques are recorded in insignia may be seen in many modern instances, as in recent adoption of insignia for the Air Forces, the Armored Force, Tank Destroyer Forces, radarmen, parachute troops, and aerial gunners.

Earlier Wars Had Their Insignia

Shoulder sleeve insignia, next to distinctive insignia the largest single class of insignia for the Army, apparently originated during World War I. Many were cut-out patches of felt, applied on a background. Those most recently produced are embroidered.

These brightly colored insignia, worn on the left sleeve below the shoulder to denote divisions, corps, and armies, resemble in purpose the enameled badges of the Civil War and Spanish-American War.

The first shoulder sleeve insignia is credited to members of the Eighty-first Division (Plate VIII). On their way to France in 1918, the men spontaneously adopted this figure of a wild cat, and on October 19, 1918, permission to wear it was granted. General Headquarters recognized the value of this means of building morale and of helping troops to reassemble under their own officers after an offensive.

Subsequently, all organizations of the American Expeditionary Force were directed to adopt similar insignia. The terms "shoulder patches" and "divisional insignia" were common during World War I, but the expression "shoulder sleeve insignia" is now the official designation.

One of the most striking uses of insignia in the present war was reported when American troops landed in Africa. An effective representation of the Flag of the United States



(Photo 2001)

An American Sergeant Makes Friends in French Morocco

The United States Flag upon his sleeve indicates the good intentions of himself and all his countrymen. Above the flag are his chevrons (Plate I), and the shoulder sleeve insignia of the Third Division (Plate VII). Three diagonal stripes on the French sailor's sleeve show he holds rank equivalent to petty officer, third class, in the U. S. Navy. The youngster wears a badge bearing the word *Moroc* (Morocco). The plaque refers to the bombardment of Casablanca rioters in 1957 by the *Gallée* and other French warships.

was worn upon arm bands or helmets to identify United States forces. Army headquarters credited this device with facilitating landings and preventing casualties.

It is particularly significant that General Washington recognized the advantages to be obtained by color and symbolic form. Today, laws of visibility are carefully considered. Availability of materials is taken into account.

A new design must not conflict with an existing one, nor may it resemble too closely a symbol employed by the enemy. Instant recognition of insignia is essential.

Most of the insignia used by the United States Army are based on historic facts or on some attribute of the organization concerned. Local stories or mythology often are the basis of design. Army arm and service insignia ordinarily include adaptations of early weapons. Not only are military insignia authorized, they are prescribed for wear as directed. Four-star

generals and both chiefs and former chiefs of the General Staff may exercise discretion with respect to their own insignia.

Navy insignia show strong links with naval tradition antedating creation of our Navy. Many of the symbols have their origin in devices used by the British Navy.

Military and naval insignia definitely are not classified as jewelry. A fine or a prison term is punishment for use by civilians.

For many months now the selling of insignia has been limited to official outlets, such as Army exchanges, ships' stores, and authorized dealers. For civilians, a lapel button for immediate members of a service man's family has been sanctioned (page 653).

Illustrations and text herewith presented are limited, with few exceptions, to insignia worn with service or working uniforms. Many of the same insignia are worn on dress uniforms.

United States Military Insignia

Army Cap Insignia

(Illustrations Plate I about three-fourths actual size)

Officers and enlisted men wear the coat of arms of the United States in gold-color metal, the former in cut-out form, the latter on a disk. An olive-drab plastic insignia will replace the enlisted man's brass cap insignia.

The cap insignia for warrant officer, U. S. Military Academy, and aviation cadet are identical in design with insignia worn on lapels (pages 657, 658, and Plates II and III). The aviation-cadet insignia is shown in relative size for garrison cap. The Reserve Officers' Training Corps insignia was approved February 10, 1920.

Army Officers' Insignia of Grade on Shoulder Loops

(Illustrations Plate I about one-fifth actual size)

Officers' grade insignia have developed gradually. In 1780 major generals were ordered to wear two stars on each epaulette; brigadier generals, one star. In 1799, when the rank of lieutenant general was established, three silver stars were specified.

Embroidered spread eagles for epaulettes of a colonel were prescribed in 1832. In 1856 shoulder straps on frock coats replaced epaulettes for field duty. On these straps were embroidered leaves for majors; leaves of silver for straps with gold borders and leaves of gold on straps with silver borders, according to branch of service. Captains were ordered to wear two embroidered bars; first lieutenants, one.

In 1851 the colonel's eagle was prescribed in silver. For lieutenant colonel, the insignia was an embroidered leaf in silver; for majors, gold-embroidered leaf; for captain and first lieutenant, bars in gold. Change to silver for these last two came in 1872.

Insignia of grade for second lieutenants was established in December, 1917—one gold bar.

Modern insignia, except for colonel, are alike for both shoulders. The colonel's eagle always faces front. Leaves for lieutenant colonel and major are prescribed as oak.

General officers of the line wear grade insignia on both sides of the collar of shirts, when worn without coats. Other officers wear the insignia of grade on the right side, and insignia of arm or service on the left side. All officers wear grade insignia on the left side of garrison caps.

Bars for chief warrant officer and warrant officer, junior grade, were designed by the writer and approved January 14, 1942. Gold is combined with brown, which is the distinc-

tive color for warrant officers (for Army colors see Plate V). Warrant officers, junior grade, and chief warrant officers are appointed and are given warrants, not commissions. A warrant officer, junior grade, may be appointed after three months' service as an enlisted man. A chief warrant officer must serve many years before attaining his grade.

Colors of the Air Forces, ultramarine blue and golden orange (as shown on Plate V), are represented on the bar for flight officer. The design was approved September 19, 1942. The grade of flight officer corresponds to warrant officer, junior grade.

The shoulder loops illustrated are of summer khaki, with the regular Army button (Plate III).

Three groupings of Army officers, wherever assigned, are recognized. They are: general officers—all generals; field officers—colonels, lieutenant colonels, majors; company officers—captain, first lieutenant, second lieutenant.

Substantially the same insignia down through second lieutenant in the Army are used by the Navy. Compare illustrations for Navy Pin-on Miniature Rank Devices (Plate XVI). Comparable ranks have different names in the Army and Navy. For example, the Army colonel and the Navy captain both wear the eagle.

Army Chevrons and Service Stripes

(Illustrations Plate I about one-fifth actual size)

A chevron consists of two bars meeting at an angle. For certain grades, arcs are tied in. For first sergeant, 1st grade, a muscle (or lozenge) is used. "T" stands for technician. Technician grades were announced January 8, 1942. The illustrations show olive-drab chevrons as worn on olive-drab winter uniforms. Blue is the chevron background.

For each three years of honorable service, an olive-drab service stripe is worn, with blue background for Federal and buff for National Guard.

Gold wound stripes were prescribed during World War I. Now wounded men are awarded the Purple Heart. They may wear on service coats the service ribbon for this decoration.

Each World War I gold service stripe represents six months' service overseas.

Chevrons and stripes are worn as shown on Plate IV.

Army Officers' Insignia of Arm and Service

(Illustrations Plates II and III actual size)

A cut-out metal "U.S." is worn on both ends of the collar of the service coat by an

officer in the Regular Army or Reserve Corps. A member of a federally recognized National Guard formerly wore an abbreviation of his State name superimposed upon the U.S. With the National Guard now on active duty, the abbreviation is not in use.

Officers' metal arm and service insignia are worn centered under the U.S. on both lapels of service coats (see Plate IV). All officers except generals of the line wear arm and service insignia on the left end of collars of shirts, when worn without coats. Grade insignia are worn on the right. Generals of the line wear grade insignia on both ends of the collar.

ADJUTANT GENERAL'S DEPARTMENT. The shield differs from the shield of the United States by having stars on the blue chief. Design established in 1872.

AIDES TO GENERALS. Shields surmounted by eagle. Stars in chief indicate grade of general whom the aide serves. Insignia created in 1902.

AIR FORCES. Design in substantially same form adopted during World War I. Same design used for aviation cadet's garrison cap.

ARMORED FORCE. Prescribed on February 25, 1942; this insignia shows the Mark VIII tank, the first successfully operated tank used in World War I. The same tank was formerly shown on crossed muskets, when tank units were part of the infantry.

CAVALRY. Adopted in 1851.

CHAPLAINS. The Latin cross used by Christian Chaplains was adopted in 1898. Mosaic tablets surmounted by the Star of David were adopted for Chaplains of Jewish faith in 1918.

CHEMICAL WARFARE SERVICE. Adopted during World War I, this insignia consists of a benzene ring superimposed in the center of crossed retorts.

COAST ARTILLERY CORPS. Crossed cannon were first authorized for the Artillery in 1836. After 1901 Coast Artillery continued to use the crossed cannon, but there was superimposed in the center a red enamel oval bearing a projectile pointing up. (See Field Artillery.)

CORPS OF ENGINEERS. The castle was adopted by Engineers in 1840.

FIELD ARTILLERY. From 1901 to 1907 the Field Artillery was distinguished from the Coast Artillery Corps by a wheel on an oval in the center of the cannon. (See Coast Artillery Corps.) In 1907 the wheel was dropped and lighter cannon (field guns) were adopted.

FINANCE DEPARTMENT. The diamond was originally used by the Pay Corps. When that

corps was combined with the Quartermaster Department about 1912, the diamond disappeared. It was revived in 1920 when the present Finance Department was established.

GENERAL STAFF CORPS. Design created in 1904. United States coat of arms on silver star.

INFANTRY. In 1875 crossed rifles appeared on the uniform of Infantry. Attempts to keep insignia up to date with changing models of rifles were abandoned in 1924, when the writer executed the present design based upon the original musket used by the United States troops.

INSPECTOR GENERAL'S DEPARTMENT. Insignia appeared in 1890. It consists of crossed sword and fasces, with wreath. The fasces, composed of an ax in a bundle of rods, were the symbol of authority of Roman magistrates. The motto *Droit et Avant* is translated "Right and Forward."

JUDGE ADVOCATE GENERAL'S DEPARTMENT. Insignia created in 1890; the pen represents the recording of testimony and the sword the military character of the department.

MEDICAL DEPARTMENT. First used as a cloth insignia by hospital stewards in 1851, the caduceus in its present form was adopted for the department in 1902. The superimposed dark-brown, almost black letters, are initials of the various corps in the department. The design is the staff of Mercury, with serpents and wings.

Contract Surgeons, civilian employees of the War Department, wear the uniform of the Army officer with the "U.S." and the Contract Surgeon insignia. They have no grade, and they wear no insignia on shoulder loops. There are part-time and full-time contract surgeons. Part-time surgeons may continue private practice, and they serve only in specified locations. Full-time surgeons may be called upon to serve anywhere.

In April, 1943, Congress provided:

"During the present war and for six months thereafter there shall be included in the Medical Departments of the Army and Navy such licensed female physicians and surgeons as the Secretary of War and the Secretary of the Navy may consider necessary." The women are accorded the same rights, privileges, and benefits as members of the Officers' Reserve Corps of the Army and of the Naval Reserve.

MILITARY POLICE. When this insignia, which was designed by the writer, was created, the old-type pistol, sometimes called the Harpers Ferry pistol, was chosen rather than a current weapon which would be outmoded. Military police are armed with pistols.

NATIONAL GUARD BUREAU. The Militia Bureau, established in 1921, was given this insignia as created by the sculptor, Anthony de Francisci, designer of the United States silver dollar of 1921. The Militia Bureau was later redesignated the National Guard Bureau. The citizen soldier is represented by the fasces, denoting the unity of the States, and the Federal Government is represented by the eagle.

ORDNANCE DEPARTMENT. The shell and flame, adopted in 1832, is the oldest military service insignia.

QUARTERMASTER CORPS. The Quartermaster Department established its insignia in 1896; it was retained when the department was changed in 1912 to a corps. After World War I the eagle was redrawn; in the earlier design, the eagle's head was superimposed on one wing. When the design is used in larger size for other purposes, the sword handle carries the letters "U.S."

SIGNAL CORPS. Crossed flags were first worn by enlisted men on the sleeve; in 1884 the torch was added. Wigwag flags are represented.

TRANSPORTATION CORPS. This insignia, created in 1942, is based on that of World War I Transportation Corps, with shield and ship's wheel added. The winged car wheel is for rail transportation; the ship's steering wheel for transport by water. The U. S. highway marker shield is for land transportation.

TANK DESTROYER FORCES. Created in 1942, this insignia is a 75-mm. gun motor carriage M-3.

OFFICER NOT MEMBER OF ARM OR SERVICE (SPECIALISTS' RESERVE). Coat of arms of the United States within a ring.

U. S. MILITARY ACADEMY. Academy coat of arms, adopted October 8, 1898. The design consists of the shield of the United States, bearing the helmet of Pallas over a Greek sword, surmounted by an eagle displayed with scroll and motto: *Duty, Honor, Country—West Point, MDCCCH, U.S.M.A.* Worn by permanent professors, masters of the sword, and civilian instructors.

WARRANT OFFICER. Modeled by Anthony de Francisci. Prescribed May 12, 1921.

ARMY BAND. Lyre with "U.S." superimposed.

Army Sleeve Insignia

(Plate III)

General officers wear black braid bands around both sleeves of overcoats. One band is $1\frac{1}{4}$ inches wide; the narrow band, $\frac{1}{2}$ inch.

On both sleeves of the officer's service coat is one half-inch band of olive-drab braid.

Warrant officers wear the warrant officer's

insignia (Plate III) on both sleeves of the overcoat.

The insignia of the Air Forces (Color Plate II) appears on the right sleeve of aviation cadets.

On both sleeves of enlisted men and warrant officers who served honorably as commissioned officers in World War I is a half-inch band of forest-green braid.

War Department General Staff Identification (Plate III)

This device, created under personal direction of Gen. Douglas MacArthur while chief of staff and announced August 23, 1933, incorporates the coat of arms of the United States. It is worn on the upper right pocket of the service coat by officers of the Army of the United States who, since June 4, 1920, have served not less than one year as regular or additional members of the War Department General Staff; and, in exceptional circumstances, by other officers assigned to the General Staff during the present emergency. For chief of staff and former chiefs of staff, the diameter of the device is 3 inches; for others, 2 inches.

Buttons

(Plate III)

The regular Army button, of gold or gold-color metal, carries the coat of arms of the United States. Enlisted men's buttons of the same design will be made in olive-drab plastic. Buttons are measured by the line (ligne)—40 lines to the inch. Buttons are 36-line and 25-line for all service coats. Buttons for enlisted men's overcoats are 45-line. Officers do not wear gold buttons on overcoats.

The button for officers of the Corps of Engineers, of gold-color metal, has for the device a flying eagle holding in its beak a ribbon scroll bearing the word *Essayons* (Let us try). In the distance is a bastion with embrasures surrounded by water. On the horizon is a rising sun.

Officer Candidate School

(Plate III)

The letter "O" encloses a monogram of the letters "CS." The outside diameter is $2\frac{1}{4}$ inches. This cloth insignia, prescribed in 1941, is worn on the left shirt pocket and above the right cuff of service coats.

Sleeve Insignia, Warrant Officers, Army Mine Planter Service

(Plate III)

Stripes are of brown braid, half inch wide. Above the stripes appears a foul anchor or

a three-bladed propeller, embroidered in brown. The sleeves are shown in service olive drab.

Army Arm and Service Insignia for Enlisted Men

(Plate IV)

Collar insignia for enlisted men, regularly designed for one-inch metal disks of gold color, are now being made of olive-drab plastic.

The letters "U.S." normally are worn on the right (or "stronger") side; arm, service, or bureau insignia on the left. Selectees not yet in training centers wear "U.S." on both sides. Before the present war, regimental numbers, when applicable, were added to the "U.S."

Before the present war, the National Guard was distinguished from the Regular Army by addition to the "U.S." of the State abbreviation or the State abbreviation and regimental number. Today the National Guard, now in active service, uses the same insignia as the Regular Army.

The collar insignia of arm, service, or bureau was called "insignia of branch" during World War I. Then the regimental number was placed above the insignia and the letter of the troop, battery, or company below.

Most of the arm, service, or bureau insignia have counterparts among insignia for officers. There are a few exceptions:

ARMY MINE PLANTER SERVICE. Same device as for Coast Artillery Corps, with addition of mine case.

DETACHED ENLISTED MAN. Coat of arms of the United States. Worn by men not assigned to any arm or service but on detached service or special duty.

FIRST SPECIAL SERVICE FORCE. Two crossed arrows, as formerly prescribed for Indian Scouts. Authorized August 27, 1942.

RESERVE OFFICERS' TRAINING CORPS. The torch of knowledge, taken from the Statue of Liberty, is worn on each end of the collar.

Position of Army Insignia on Collar, Lapel, and Sleeve

(Plate IV)

Officers and warrant officers wear the letters "U.S." on the service coat on both ends of the collar. The insignia of arm or service is worn on both lapels. The insignia of the warrant officer (Plate III) is worn as insignia of a service.

The enlisted man wears the letters "U.S." on the collar at the right; arm or service insignia, left. Distinctive insignia are worn on both lapels of the enlisted man's service coat.

Enlisted men wear shoulder sleeve insignia

on the left sleeve; chevrons of grade on both sleeves; World War I service chevrons on left sleeve; World War I wound chevrons on right sleeve; and service stripes on left sleeve—all in the positions shown in the drawings. Shoulder sleeve insignia, World War I service chevrons, and World War I wound chevrons are worn by both officers and enlisted men. There are no wound chevrons for the present war. Instead, the ribbon for the Purple Heart decoration is prescribed for wear on the left breast of the service coat.

Miscellaneous Army Distinctive Insignia

(Illustrations Plate V actual size)

Many hundreds of distinctive insignia are in use. The designs are enameled on metal. Officers wear these insignia on shoulder loops; enlisted men on garrison caps and lapels.

Distinctive insignia, more closely than any other type of insignia for the United States armed forces, follow the laws of heraldry. Certain specific rules apply. Thus, no part of the coat of arms of the United States or any complete arms, seal, or flag of any State or country may be used. A metal design may not be placed on metal, or a color on a color. All symbols, whether animals, birds, or inanimate figures, must face the honorable (dexter: right) side.

Heraldry is picture writing: every symbol should have definite significance. The history of an organization is represented in its distinctive insignia.

2D INFANTRY. Approved June 19, 1936. Motto: *Noli Me Tangere* (Do not touch me). Civil War service shown by blue saltire from the Confederate flag. The red cross pattée is the badge of the 18th Division, 5th Corps, in which the regiment served during the greater part of that war. Mexican War service is shown by the cactus; Spanish War, by the five-bastioned fort, the badge of the 5th Corps in Cuba. The two Indian campaigns of the regiment are represented by arrows and quiver; service in the Philippine Insurrection, by the bolo.

501ST PARACHUTE INFANTRY REGIMENT. Approved April 9, 1941. Motto: *Geronimo* (the name of an Apache Indian chief). An Ojibway thunderbird. Blue indicates Infantry. The motto originated in a cry uttered in the maiden jump of the first parachutist, and the cry is now traditional.

AIR FORCE PROVING GROUND GROUP. This insignia was originally approved for the 23d Composite Group on May 9, 1940. Colors black and gold were selected for the group. The opinicus is a fictitious heraldic monster, similar to a griffin, having a lion's body and



When American Troops Entered Africa, Many Wore Small Flags of the United States under Helmet Nets

Residents of Oran, Algeria, watch peace-bringing visitors swing up the street. Camouflage nets prevent reflection of light from the helmets and break their outlines. When foliage is stuck in the helmet nets, the wearers may be invisible at short distances; enemy flyers may see only "bushes" below.

June

legs, a bear's tail, an eagle's head and wings.

196TH FIELD ARTILLERY. Authorized April 23, 1934. The blue half of the shield indicates service as Infantry; the taro leaf, Spanish-American War service in Hawaii; the fleur-de-lis, World War I service in France. The other half of the shield is red for Artillery. The red cross of St. George and the blue saltire in the canton indicate the Revolutionary War and the Civil War services of the earlier component units.

21ST COAST ARTILLERY. Approved June 4, 1941. Red is associated with Coast Artillery. In standard symbols of heraldry, this design represents defense of the coast line.

217TH COAST ARTILLERY. Approved February 9, 1942. Shield and motto of the organization's coat of arms. The shield is red for Artillery. The pile (wedge-shaped), representing a searchlight beam, symbolizes anti-aircraft operations of the regiment. The quarter is composed of elements from the coats of arms of the 205th and 206th Infantry regiments; it indicates descent of the 217th Coast Artillery from those organizations.

243D COAST ARTILLERY. This insignia consists of shield and motto of the coat of arms of the organization, which is part of the Rhode Island National Guard. Shield is red for Artillery. The pine tree symbolizes service as New England troops during the Revolutionary War; maple leaf, service during War of 1812; blue saltire, Civil War (blue for service as Infantry). The battlements below the tree represent service as Coast Defenses during World War I. The Rhode Island Red rooster shows allocation of the regiment to the State of Rhode Island.

649TH ENGINEER TOPOGRAPHIC BATTALION. Approved March 5, 1942. Red and silver are colors of the Corps of Engineers. The stadia rod and drafting dividers represent the surveying and drafting activities of the organization.

511TH ENGINEER SEPARATE BATTALION. Approved November 22, 1939. Corps of Engineers colors. The fleur-de-lis represents World War I service overseas. The star (mullet) stands for the home station of the organization, Texas.

30TH ENGINEER TOPOGRAPHIC BATTALION. Approved May 1, 1940. Motto: *Imprimis* (In the first place). Corps of Engineers colors. The drafting triangle and dividers are instruments used in topographic layout.

27TH ENGINEER BATTALION. Approved March 25, 1941. Motto: *Nunquam otiosi* (Always busy). This organization shares the history of the 1st Engineer Battalion, and

the insignia for both organizations is the same, with red and silver reversed. Black was the color of uniform facings of the corps in 1846. The anchor behind crossed oars comes from the principal part of the Civil War badge of the Engineers and Pontoniers of the Army of the Potomac. The two crescents are from the arms of General Winfield Scott; they show the service of Company A under that general in Mexico. Designs in the chief (top section) show that the regiment (as part of the First Division) was cited by the French in corps orders for distinguished service at Menil-la-Tour, Cantigny, and Soissons. The bend (or diagonal band) is taken from the arms of Lorraine, where Menil-la-Tour is situated. Cantigny is in Picardy, and the lion is from the arms of that province, while the fleur-de-lis is from the arms of Soissons.

HEADQUARTERS 18TH WING, AIR FORCES. Approved January 1, 1940. The volcano represents inherent power; arising from the ocean, it depicts air bases in Hawaii. The leaves of the trefoil stand for the three groups composing the wing. The propeller represents the Air Forces and the tie that links them all together.

11ST FIGHTER GROUP, AIR FORCES. Approved June 18, 1941. The shield is in the colors of the Air Forces. The partition line is the heraldic symbol for clouds. The wyvern is a strong and fierce mythical animal, symbolizing overthrow of a vicious enemy. It is shown without legs to indicate that all of its work is in the air.

Army Chart of Arm, Service, and Bureau Colors

(Plate V)

Single colors or two colors in combination are used in the military service in different forms, including cord edge braid, hat cords, distinctive insignia, and rank devices for warrant officer and flight officer. These colors are found in ornamentation and trouser stripes of dress uniforms. Many of the colors are seen as cord edge braid ornamentation on enlisted men's garrison caps. The colors, indeed, are used wherever the colors of a unit are required. Regimental coats of arms, colors, and standards incorporate them.

General officers' hats and caps are usually identified by gold cords; other officers, by cords of gold and black; warrant officers, by cords of black and silver.

The colors as shown in the chart are listed by their official names, as follows:

Adjutant General's Department, dark blue and scarlet; Air Forces, ultramarine blue and

golden orange; Armored Force, green and yellow; Cavalry, yellow; Chaplains, black; Chemical Warfare Service, cobalt blue and golden yellow.

Coast Artillery Corps, scarlet; Corps of Engineers, scarlet and white; Detached Enlisted Men's List, green; Field Artillery, scarlet; Finance Department, silver gray and golden yellow.

General Staff Corps, gold and black; Inactive Reserve, brown and white; Infantry, light blue; Inspector General's Department, dark blue and light blue; Judge Advocate General's Department, dark blue and white; Medical Department, maroon and white.

Military Intelligence Reserve, golden yellow and purple; Military Police, yellow and green; National Guard Bureau, dark blue; Ordnance Department, crimson and yellow; Quartermaster Corps, buff.

Signal Corps, orange and white; Specialists' Reserve, brown and golden yellow; Tank Destroyer Forces, golden orange and black; Transportation Corps, brick red and golden yellow; U. S. Military Academy, scarlet and silver gray; Warrant Officers, brown.

Army Shoulder Sleeve Insignia

(Illustrations Plates VI through XI nearly half size)

Shoulder sleeve insignia, approved by the War Department, to be worn on the left sleeve below the shoulder, are made of textiles. To simplify manufacture and to aid memory, only one combination of colors for each insignia is authorized. All designs are simple, preferably in silhouette. Designs which include faces or heads are made to face either to the front of the wearer (*dexter*) or to appear in full face (*affrontée*).

In the introduction of this article is given a brief account of the history of these insignia. In many of the following descriptions the words "originally approved" are used. In such cases minor changes may have been given subsequent approval.

ARMY GROUND FORCES. A horizontally striped red, white, and blue disk was personally selected in World War I by Gen. John J. Pershing to represent General Headquarters. The inspiration underlying the design is said to have been the brassard worn by staff officers while visiting the front. In 1941 the wearing of the insignia was reversed; so blue is now uppermost. In 1942 the organization was redesignated the Army Ground Forces.

ARMY AIR FORCES. Approved March 21, 1942. The original Army insignia for its planes—a blue circle with a white star on which was superimposed a red disk—was the

basis for the Army Air Forces shoulder sleeve insignia. Here gold wings have been added in the adaptation of the design. In the plane insignia, the red disk was dropped in 1942 because it was confused with the Japanese plane insignia, but the original design was maintained in the sleeve insignia. The ultramarine disk represents the sky and air. The golden wings surmounting the star are an indication of victorious operation.

ARMY SERVICE FORCES. The Army Service Forces until recently was the Services of Supply, and before that the War Department Overhead. The Service Forces insignia had its origin in the crest of the coat of arms of the United States, and it uses the national colors.

FIRST ARMY. Originally approved October 26, 1918. The black "A," first letter of the alphabet, represents the First Army.

SECOND ARMY. Originally approved December 11, 1918. Red and white are colors used in flags identifying armies.

THIRD ARMY. Originally approved December 20, 1918. The white letter "A" within the red "O" represent the initials of Army of Occupation, with reference to World War I.

FOURTH ARMY. Approved January 26, 1927. Four leaves of clover give a clue to this Army's number.

Corps insignia I through IX had their origin in the period of World War I and were reapproved, sometimes with slight modifications, in orders by the Secretary of War in 1922.

Most corps insignia are primarily indicative of the corps numbers; a few of special significance are given below:

II CORPS. American eagle and British lion show that the organization operated with the British in World War I.

III CORPS. The design is of a caltrap, an old military instrument with four points, so disposed that, with any three being on the ground, one will project upward, thereby impeding the progress of the enemy's cavalry.

X CORPS. This device was approved in 1942.

XI CORPS. A shield was approved for this corps in 1922, but it was replaced in 1942 by the dice shown.

XII CORPS. Approved October 26, 1923. Blades of a windmill superimposed on a shield of the City of New Amsterdam (old name for New York), in the Dutch colors of orange and blue. New York was the original allocation of the corps.

XIII CORPS. Approved June 7, 1923. The corps number is suggested by the "X" shape of the clover leaf, plus the three sides of the



Promotion in North Africa Comes at the Hands of a General

First soldier to reach the hotel rooms of the German Armistice Commission at Fedali, French Morocco, Richard N. Ryan stood guard over documents during intense bombardment. For his heroism he was awarded the Silver Star, and was one of the first enlisted men in the African campaign to win a commission in the field. Here Lt. Gen. George S. Patton (then major general) watches while the sergeant's chevrons are cut from young Ryan's sleeves, after which gold bars of a second lieutenant were placed on his shoulders. Lieutenant Ryan's grandfather was the late Thomas Fortune Ryan, patron of the arts and financier.

Army

triangle. Ten plus three equals thirteen. The sides of the triangle represent Pennsylvania, Maryland, and Virginia.

Plate VII

(Army Shoulder Sleeve Insignia, continued)

XIV CORPS. Approved September 29, 1923. This insignia is composed of a shield of Confederate gray, a blue saltire (taken from the Confederate flag), and a red caltrap (see text on III Corps insignia, Color Plate VI). The "X" of the cross and the points of the caltrap indicate 10 plus 4, the corps number.

XIX CORPS. Approved April 6, 1936. A mission bell in the old Spanish colors shows the territory to which the corps is allocated.

FIRST DIVISION. Originally approved October 31, 1918. In World War I this division achieved a number of "firsts," including arrival in France, at the front, to fire at the enemy, to attack, to make a raid, to suffer casualties, and to be cited in general orders.

SECOND DIVISION. Originally approved November 6, 1918.

THIRD DIVISION. Originally approved October 24, 1918. The "Marne Division" has

three white stripes to show the three major operations in which it participated in World War I.

FOURTH DIVISION. Originally approved October 30, 1918. The leaves of the "Ivy Division" represent its number, while the word "i-yy," as pronounced, suggests the characters used in the formation of the Roman numeral "IV."

FIFTH DIVISION. Originally approved October 20, 1918. This was called the "Red Diamond Division."

SIXTH DIVISION. Originally approved October 20, 1918. The "Sight-seeing Sixth" is reported to have marched more than any other division in the American Expeditionary Force in World War I.

SEVENTH DIVISION. Originally approved October 23, 1918. The hourglass was formed by using two number 7's, one inverted and one superimposed.

EIGHTH DIVISION. Originally approved April 8, 1918. The "Pathfinder Division's" nickname is represented by the golden arrow.

NINTH DIVISION. Originally approved November 18, 1925. The design of a double



Pilots Back from Fighting Fronts Talk to Reporters

Insignia of grade (Plate I); collar and lapel insignia (Plate II); aviation wings (Plate XIII); and the Army Air Forces shoulder sleeve insignia (Plate VI) may be identified. On right breast of the pilot with hands upon knees is the Qualified Pilot's Wings badge of the Royal Air Force, authorized for U. S. pilots who served with the British early in the war. The pilot second from right wears upon his left shoulder the design (not yet officially approved) of the 10th Air Force in the India service.

quatrefoil (in heraldry a quatrefoil is a four-leafed flower) is the sign of a ninth son. Red and blue are designating colors of an infantry division headquarters flag; white is for the numbers used in divisional flags.

TWENTY-SIXTH DIVISION. Originally approved October 26, 1918. The "Yankee Division" is represented in the letters "Y.D."

TWENTY-SEVENTH DIVISION. Originally approved October 29, 1918. The name "Empire" or "New York Division" is indicated by the monogram "N. Y." The constellation of Orion was in compliment to the division's World War I commander, Maj. Gen. J. F. O'Ryan.

TWENTY-EIGHTH DIVISION. Originally approved October 19, 1918. The "Pennsylvania" or "Keystone" Division used the keystone, the symbol for the State.

TWENTY-NINTH DIVISION. Originally approved October 21, 1918. Made up of northerners and southerners in World War I, the "Blue and Gray Division" used the Korean symbol for good luck.

THIRTIETH DIVISION. Originally approved October 23, 1918. The "Old Hickory" Division has the letters "O.H." in blue for its

name, and three N's to represent its number. When this insignia was first issued in France, it was inadvertently worn with the "O" on its side, and the custom of wearing it in this position has continued.

THIRTY-FIRST DIVISION. Originally approved March 7, 1919. Two D's stand for the name "Dixie Division."

THIRTY-SECOND DIVISION. Originally approved November 11, 1918. The "Iron Jaw" or "Terrible Division" selected an arrow "having shot through a line" because the division "shot through every line the Boche put before them."

THIRTY-THIRD DIVISION. Originally approved October 21, 1918. The colors of the "Prairie" or "Illinois Division" are said to have been chosen because they were the only paints available when it became necessary to mark the equipment in Texas before sailing for France in 1918.

THIRTY-FOURTH DIVISION. Originally approved October 29, 1918. The "Sandstorm Division" shows a bovine skull on an olla (Mexican water flask), both suggestive of New Mexico, where the division trained for World War I.

Plate VIII

(Army Shoulder Sleeve Insignia, continued)

THIRTY-FIFTH DIVISION. Originally adopted March 27, 1918. The "Santa Fe Division" used the Santa Fe cross, employed in old days on the trail. In training for World War I, this division used Camp Doniphan, Oklahoma (now part of Fort Sill), near which the trail started.

THIRTY-SIXTH DIVISION. Originally approved November 12, 1918. The "Panther" or "Lone Star Division" chose a flint arrowhead to represent the State of Oklahoma (once the Indian Territory) where it trained for World War I; and a "T" for Texas. Men of the command came from these States.

THIRTY-SEVENTH DIVISION. Originally approved November 5, 1918. Soldiers of the "Buckeye Division" selected a red and white disk which appears in the State flag of Ohio.

THIRTY-EIGHTH DIVISION. Originally approved October 30, 1918. A spade-shaped shield bears the monogram "C.V.," first letters of the name "Cyclone Division."

FORTIETH DIVISION. Originally approved November 23, 1918. The "Sunshine" or "Rattlesnake Division" uses a sun with twelve rays.

FORTY-FIRST DIVISION. Originally approved December 28, 1918. The "Sunset Division" shows twelve rays of the sun, which is setting over the blue waters of the Pacific Ocean.

FORTY-THIRD DIVISION. Approved March 15, 1923. The lobes of the red quatrefoil represent the four States which made up the division—Maine, Vermont, Rhode Island, and Connecticut. The black grape leaf indicates that New England was the Vinland of the Norsemen.

FORTY-FOURTH DIVISION. Approved October 6, 1921. The blue 4's show the number of the division. The colors are those of the House of Nassau, under which the Dutch settled what is now New York and New Jersey.

FORTY-FIFTH DIVISION. Approved May 22, 1939. The thunderbird, Indian symbol meaning sacred bearer of unlimited happiness, is worn on a square. The old Spanish colors indicate that the four States (Colorado, Oklahoma, New Mexico, and Arizona) represented by men in the division were settled by the Spaniards. Each side of the square represents a State. The division's first insignia, approved August 11, 1924, was a yellow swastika on a red square.

SEVENTY-SIXTH DIVISION. Originally approved March 14, 1919. The eared shield

carries in its chief a three-pronged "label" which in medieval times was given to the oldest son.

SEVENTY-SEVENTH DIVISION. Originally approved October 23, 1918. The "Metropolitan" or "Liberty Division" selected the Statue of Liberty for its insignia.

SEVENTY-EIGHTH DIVISION. Originally approved October 29, 1918. A streak of lightning suggests the name of the "Lightning Division."

SEVENTY-NINTH DIVISION. Originally approved November 16, 1918. The "Lorraine Division" shows a Lorraine cross, symbol of triumph since the 15th century. The cross illustrated is technically a patriarchal cross botonée, whereas a Lorraine cross consists of an upright with one short transom near the top and a longer transom near the bottom.

EIGHTIETH DIVISION. Originally approved October 20, 1918. The "Blue Ridge Division" shows peaks in the mountains.

EIGHTY-FIRST DIVISION. Originally approved October 19, 1918. The "Stonewall Jackson," "Bob Cat," or "Wild Cat Division" was probably the first to have a shoulder sleeve insignia. The wild cat is common in the Carolinas, from which part of the World War I personnel was drawn.

EIGHTY-SECOND DIVISION. Originally approved October 21, 1918. The letters "A A" are for the name "All American Division." On August 31, 1942, permission was granted the division to use the word "Airborne" on a tab over the shoulder sleeve insignia.

EIGHTY-THIRD DIVISION. Originally approved December 29, 1918. The "Ohio Division" uses a cipher spelling out "Ohio."

EIGHTY-FOURTH DIVISION. Approved February 16, 1924. The "Lincoln Division" uses an ax in a half-split rail to recall President Lincoln's youthful use of the ax.

EIGHTY-FIFTH DIVISION. Originally approved December 24, 1918. The "Custer Division" uses its initials for insignia in honor of General Custer, for whom its World War I training camp was named.

EIGHTY-SIXTH DIVISION. Originally approved November 26, 1918. The "Black Hawk Division" uses a hawk with a shield bearing its initials.

Plate IX

(Army Shoulder Sleeve Insignia, continued)

EIGHTY-SEVENTH DIVISION. Approved May 27, 1922. The "Acorn Division" uses the acorn as a symbol of strength.

EIGHTY-EIGHTH DIVISION. Originally approved November 12, 1918. The "Clover

Leaf Division" uses two 8's, forming a four-leaf clover to represent the four States from which its personnel was originally supplied.

EIGHTY-NINTH DIVISION. Originally approved October 25, 1918. The "Middle West Division" insignia is the letter "W," which when reversed becomes "M" and stands for Middle West.

NINETIETH DIVISION. Originally approved October 25, 1918. The "Oklahoma and Texas" or "The Alamo" Division uses the letters "O" and "T," the initials of Oklahoma and Texas, from which part of the personnel was furnished when the division was originally formed.

NINETY-FIRST DIVISION. Originally approved December 8, 1918. The evergreen represents readiness.

NINETY-SECOND DIVISION. Originally approved October 20 and December 6, 1918. The "Buffalo Division" was composed of colored troops.

NINETY-THIRD DIVISION. Originally approved December 30, 1918. A French helmet is symbolic of the service of the regiments of this division with French divisions during World War I.

NINETY-FOURTH DIVISION. Approved September 5, 1942. This insignia replaces an earlier design which incorporated the silhouette of a Puritan, bust in profile, with flintlock blunderbuss on shoulder.

NINETY-FIFTH DIVISION. Approved August 29, 1942. This insignia is the Roman numeral "V" and the Arabic numeral "9." An earlier design used the letters "O" and "K" for Oklahoma and Kansas, from which the personnel was formerly derived.

NINETY-SIXTH DIVISION. Approved February 14, 1927.

NINETY-SEVENTH DIVISION. Approved October 18, 1922. A vertical trident.

NINETY-EIGHTH DIVISION. Originally approved December 20, 1922. The territory of this division is the greater part of New York State. Colors are those of the Dutch House of Nassau. The device is an Iroquois chief, with feathers to represent the Five Nations.

NINETY-NINTH DIVISION. Approved May 21, 1923. Black represents the iron district of Pennsylvania. The horizontal band of white and blue squares was taken from the arms of William Pitt, for whom the city of Pittsburgh was named.

ONE HUNDRETH DIVISION. Approved May 29, 1923.

ONE HUNDRED FIRST DIVISION. Originally approved May 23, 1923. "Airborne" was added on August 28, 1942. Wisconsin, territory of the division, has a Civil War tradition

on which the design is based. The black shield recalls the "Iron Brigade," one regiment of which possessed the famous war eagle, "Old Abe."

The story is that a Chippewa Indian, Chief Sky, captured an eaglet on the Flambeau River, Wisconsin, in 1861, and sold him for a bushel of corn. A subsequent purchaser, having paid five dollars, gave him to the Eau Claire Eagles (Company C of the Eighth Wisconsin Regiment). A sergeant carried him into battle, perched on a shield between the National Color and the Regimental Color. Old Abe flew to the end of his tether and screamed while the guns roared. The brigade shouted in response. Thus the eagle went through 36 battles. He was wounded in the assault on Vicksburg and again in the Battle of Corinth. During this latter engagement the Confederate general Sterling Price is said to have offered a reward for the bird's capture or death.

ONE HUNDRED SECOND DIVISION. Approved on March 24, 1924. The insignia consists of the letters "O" and "Z," and an arc, in reference to the Ozark Mountains.

ONE HUNDRED THIRD DIVISION. Originally approved October 14, 1922. A giant cactus.

ONE HUNDRED FOURTH DIVISION. Approved August 16, 1924. A timber wolf.

ONE HUNDRED SIXTH DIVISION. Approved January 18, 1943. Lion's face. Illustration, page 691.

HAWAIIAN DIVISION. Approved September 9, 1921. Taro leaf.

PHILIPPINE DIVISION. Approved July 8, 1922. Head of carabao, or water buffalo.

Plate X

(Army Shoulder Sleeve Insignia, continued)

FIRST CAVALRY DIVISION. Originally approved January 5, 1922. A triangular Norman shield, with thoroughbred horse's head and a stripe which is known in heraldry as a bend.

SECOND CAVALRY DIVISION. Approved May 3, 1928. A triangular Norman shield, with blue chevron and two eight-pointed stars. The colors are taken from the coat of arms of the Second Regimental Cavalry.

THIRD CAVALRY DIVISION. Approved February 17, 1928. Army yellow is the official cavalry color.

TWENTY-FOURTH CAVALRY DIVISION. Approved August 29, 1922. This division is composed of States in which cavalry took part in Indian campaigns. A rosebud, enclosed in a McClellan stirrup, is taken to represent the Rosebud Campaign and Indian Reservation.

The National Geographic Magazine



Officer



Aviation Cadet



U. S. Military Academy



Enlisted Man

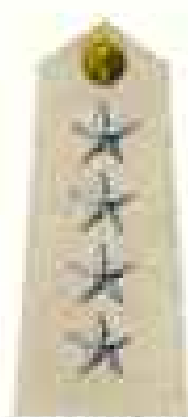


Warrant Officer



Reserve Officers' Training Corps

ARMY CAP INSIGNIA



General



Lieutenant General



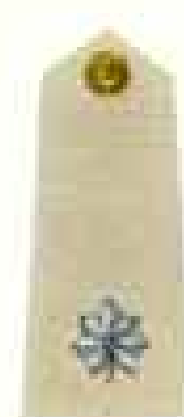
Major General



Brigadier General



Colonel



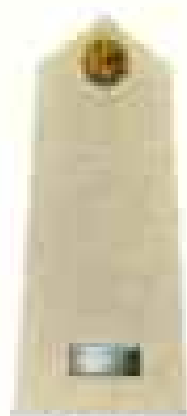
Lieutenant Colonel



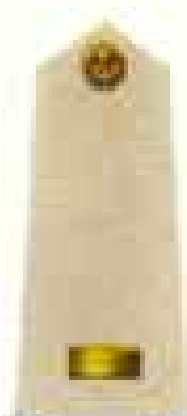
Major



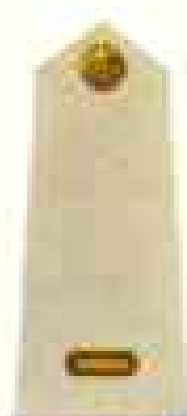
Captain



First Lieutenant



Second Lieutenant



Chief Warrant Officer



Warrant Officer Junior Grade



Flight Officer

ARMY OFFICERS' INSIGNIA OF GRADE ON SHOULDER LOOPS



Master Sergeant 1st Grade



First Sergeant 1st Grade



Technical Sergeant 2d Grade



Staff Sergeant 3d Grade



Technician 3d Grade



Sergeant 4th Grade



Technician 4th Grade



Corporal 5th Grade



Technician 5th Grade



Private First Class 6th Grade



Federal Service Stripes



National Guard Service Stripes



Wounds (World War I)



War Service

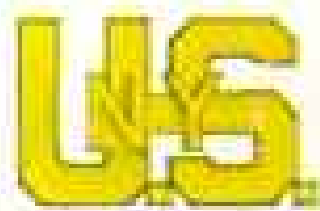
ARMY CHEVRONS AND SERVICE STRIPES

(Enlisted Men)

The National Geographic Magazine



Officer



National Guard



Adjutant General's Department



Aide to General



Aide to Lieutenant General



Aide to Major General



Aide to Brigadier General



Air Forces



Armored Force



Cavalry



Chaplain (Christian)



Chaplain (Jewish)



Chemical Warfare Service



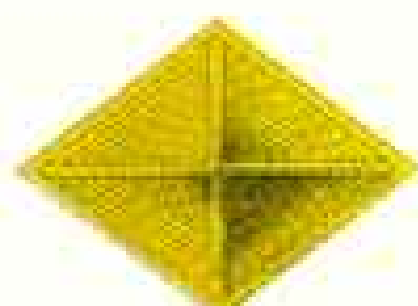
Coast Artillery Corps



Corps of Engineers



Field Artillery



Finance Department



General Staff Corps



Infantry



Inspector General's Department



Judge Advocate General's Department



Medical Corps



Medical Administrative Corps



Dental Corps



Veterinary Corps

ARMY OFFICERS' INSIGNIA OF ARM AND SERVICE

(Collar and Lapel—Continued on Plate III)



Army Nurse Corps



Contract Surgeon



Sanitary Corps Reserve



Military Police



National Guard Bureau



Ordnance Department



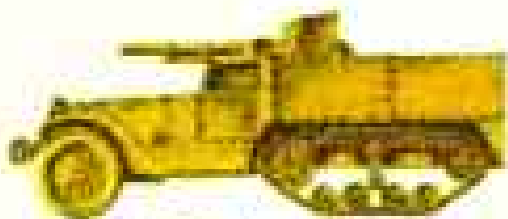
Quartermaster Corps



Signal Corps



Transportation Corps



Tank Destroyer Forces



U. S. Military Academy



Warrant Officer



Army Band



Officer not Member of Arm or Service (Specialists' Reserve)

ARMY OFFICERS' INSIGNIA OF ARM AND SERVICE
(Collar and Lapel—Continued from Plate II)



General (Overcoat)



Officer (Coat)



Warrant Officer (Overcoat)



Aviation Cadet (Coat)



Enlisted Man, Warrant Officer, World War I (Coat)

ARMY SLEEVE INSIGNIA



War Department General Staff Identification



Army Button



Officer's Button, Corps of Engineers



Officer Candidate School



Master



First Mate



Second Mate



Chief Engineer



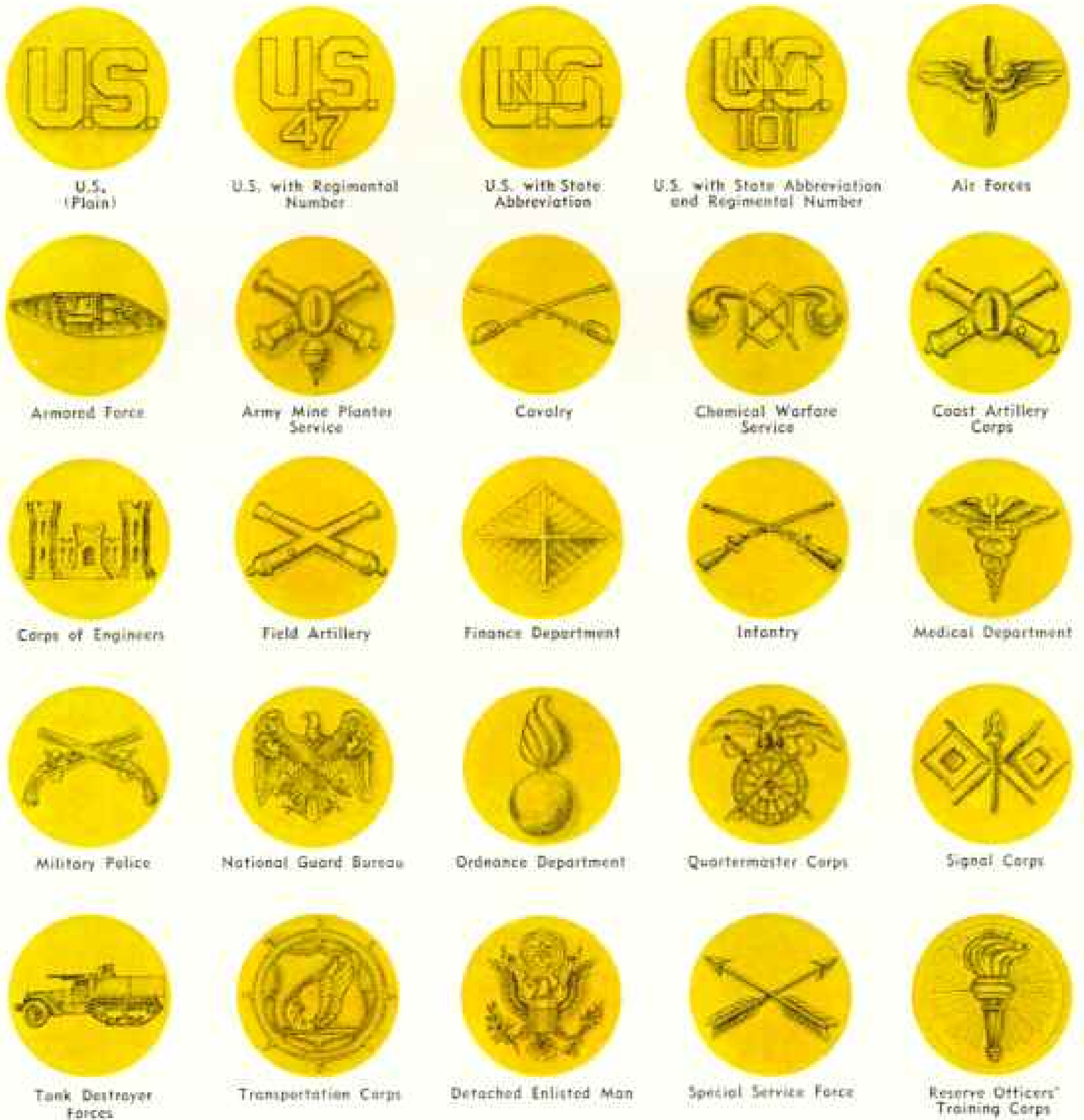
Assistant Engineer



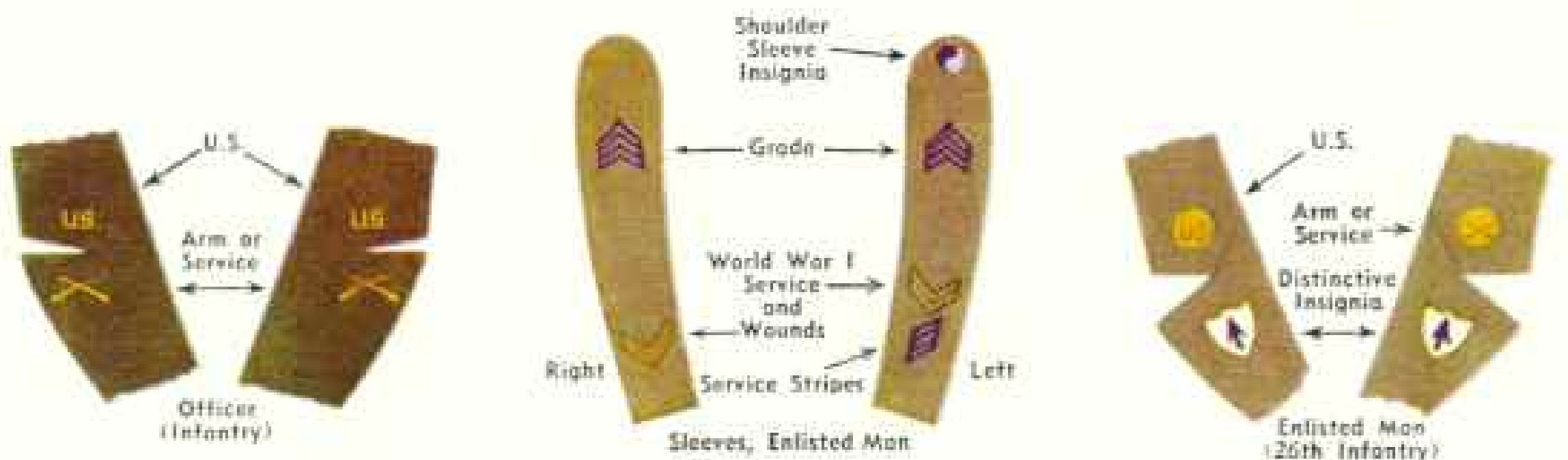
Second Assistant Engineer

SLEEVE INSIGNIA, WARRANT OFFICERS, ARMY MINE PLANTER SERVICE

The National Geographic Magazine



ARMY ARM AND SERVICE INSIGNIA FOR ENLISTED MEN
(Collar)



IV POSITION OF ARMY INSIGNIA ON COLLAR, LAPEL, AND SLEEVE

The National Geographic Magazine



2d Infantry



501st Parachute
Infantry Regiment



Air Force Proving
Ground Group



156th Field Artillery



21st Coast
Artillery



217th Coast Artillery



243d Coast Artillery



649th Engineer
Topographic Battalion



511th Engineer
Separate Battalion



30th Engineer
Topographic
Battalion



27th Engineer
Battalion



Headquarters 18th Wing,
Air Forces



51st Fighter Group,
Air Forces

MISCELLANEOUS ARMY DISTINCTIVE INSIGNIA



Adjutant General's
Department



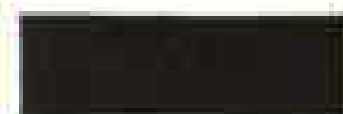
Air Forces



Armored Force



Cavalry



Chaplains



Chemical Warfare
Service



Coast Artillery
Corps



Corps of Engineers



Detached Enlisted
Men's List



Field Artillery



Finance Department



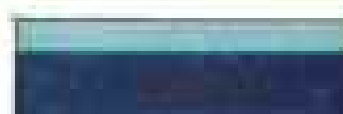
General Staff Corps



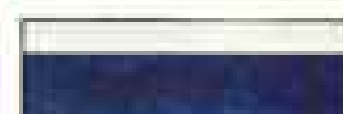
Inactive Reserve



Infantry



Inspector General's
Department



Judge Advocate
General's Department



Medical Department



Military Intelligence
Reserve



Military Police



National Guard Bureau



Ordnance Department



Quartermaster Corps



Signal Corps



Specialists' Reserve



Tank Destroyer
Forces



Transportation Corps



U.S. Military
Academy



Warrant Officers

ARMY CHART OF ARM, SERVICE, AND BUREAU COLORS

The National Geographic Magazine



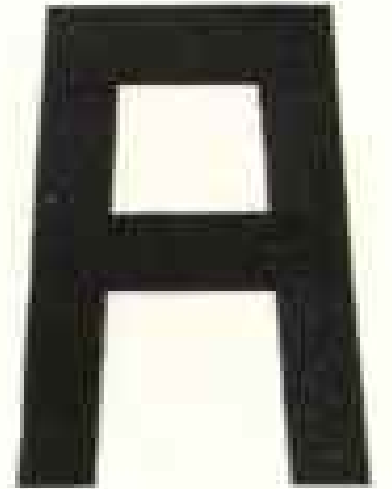
Ground Forces



Air Forces



Service Forces



First Army



Second Army



Third Army



Fourth Army



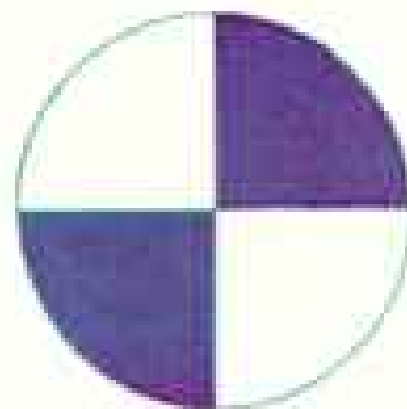
I Corps



II Corps



III Corps



IV Corps



V Corps



VI Corps



VII Corps



VIII Corps



IX Corps



X Corps



XI Corps



XII Corps



XIII Corps

The National Geographic Magazine



XIV Corps



XIX Corps



First Division



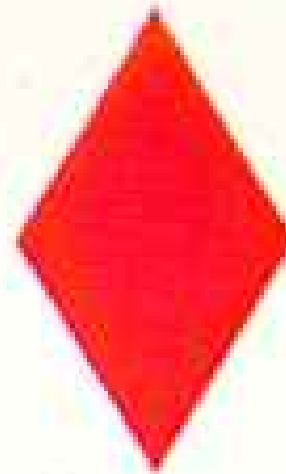
Second Division



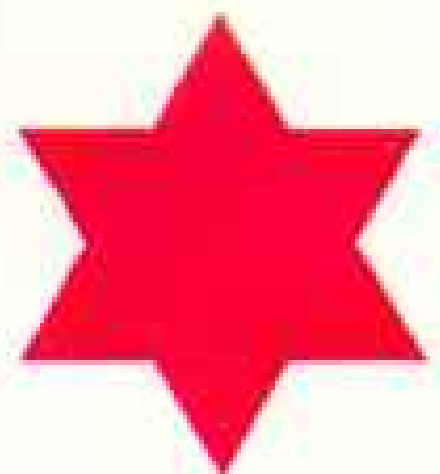
Third Division



Fourth Division



Fifth Division



Sixth Division



Seventh Division



Eighth Division



Ninth Division



Twenty-sixth Division



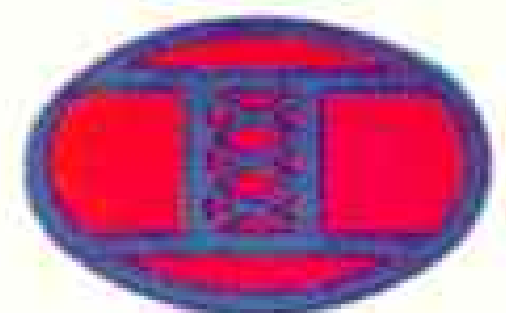
Twenty-seventh Division



Twenty-eighth Division



Twenty-ninth Division



Thirtieth Division



Thirty-first Division



Thirty-second Division



Thirty-third Division



Thirty-fourth Division

ARMY SHOULDER SLEEVE INSIGNIA
(Plates VI through XI)

The National Geographic Magazine



Thirty-fifth Division



Thirty-sixth Division



Thirty-seventh Division



Thirty-eighth Division



Fortieth Division



Forty-first Division



Forty-third Division



Forty-fourth Division



Forty-fifth Division



Seventy-sixth Division



Seventy-seventh Division



Seventy-eighth Division



Seventy-ninth Division



Eightieth Division



Eighty-first Division



Eighty-second Division



Eighty-third Division



Eighty-fourth Division



Eighty-fifth Division

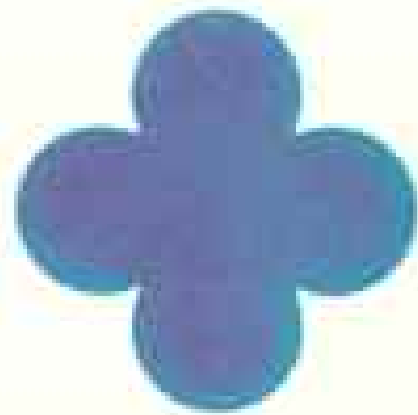


Eighty-sixth Division

The National Geographic Magazine



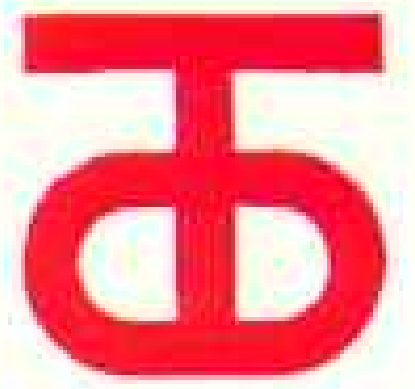
Eighty-seventh Division



Eighty-eighth Division



Eighty-ninth Division



Ninetieth Division



Ninety-first Division



Ninety-second Division



Ninety-third Division



Ninety-fourth Division



Ninety-fifth Division



Ninety-sixth Division



Ninety-seventh Division



Ninety-eighth Division



Ninety-ninth Division



One Hundredth Division



One Hundred First Division



One Hundred Second Division



One Hundred Third Division



One Hundred Fourth Division



Hawaiian Division



Philippine Division

ARMY SHOULDER SLEEVE INSIGNIA

(Plates VI through XI)

The National Geographic Magazine



First Cavalry Division



Second Cavalry Division



Third Cavalry Division



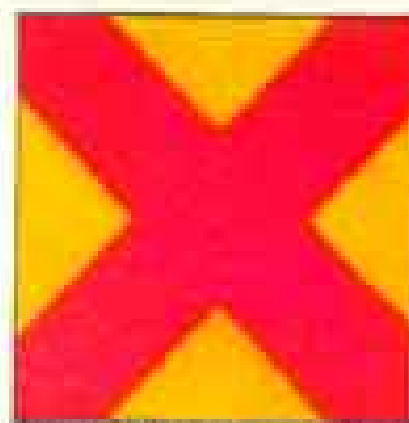
Twenty-fourth Cavalry Division



Sixty-first Cavalry Division



Sixty-second Cavalry Division



Sixty-third Cavalry Division



Sixty-fourth Cavalry Division



Sixty-fifth Cavalry Division



Sixty-sixth Cavalry Division



Armored Force



Armored Corps



Armored Division



Tank Destroyer Forces

The National Geographic Magazine



First Service Command



Second Service Command



Third Service Command



Fourth Service Command



Fifth Service Command



Sixth Service Command



Seventh Service Command



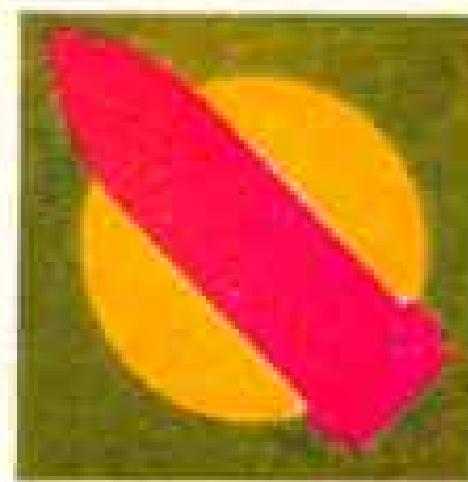
Eighth Service Command



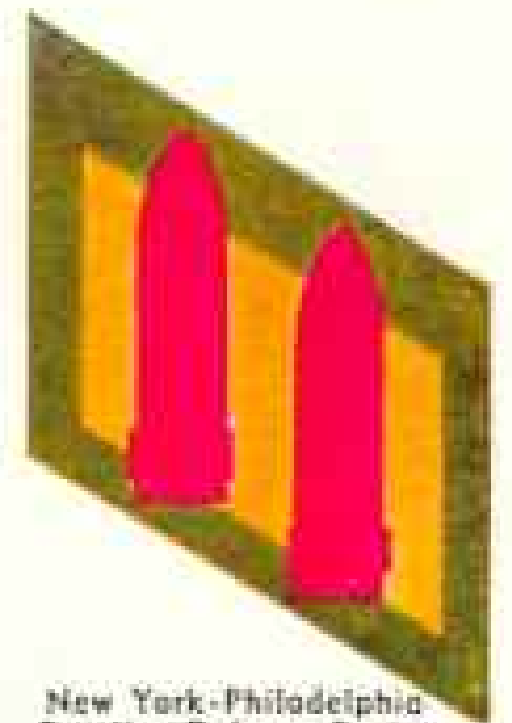
Ninth Service Command



Antiaircraft Artillery Command,
Western Defense Command



New England Frontier
Defense Sector



New York-Philadelphia
Frontier Defense Sector



Chesapeake Bay Frontier
Defense Sector



Southern Coastal Frontier
Defense Sector



Pacific Coastal Frontier
Defense Sector



Military District
of Washington



Panama Canal
Department



Philippine Department



Hawaiian Department



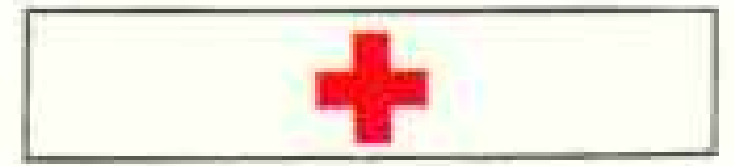
General Headquarters
Reserve



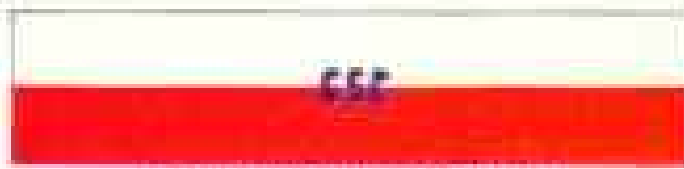
Headquarters of Field Forces and War Department



Acting Sergeant



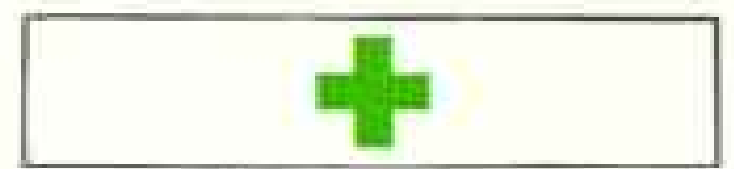
Geneva Convention (Red Cross)



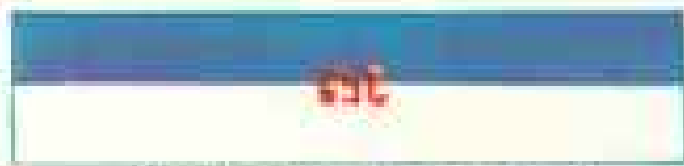
Headquarters of Armies



Acting Corporal



Veterinary Service



Headquarters of Corps and Corps Areas



Military Police



Headquarters of Divisions



Fire Truck and Hose Companies



PARACHUTIST'S BADGE

ARMY BRASSARDS



Battalion Commander



Company Commander



Lieutenant



Battalion Adjutant



Color Sergeant



First Sergeant



Battalion Sergeant Major



Supply Sergeant



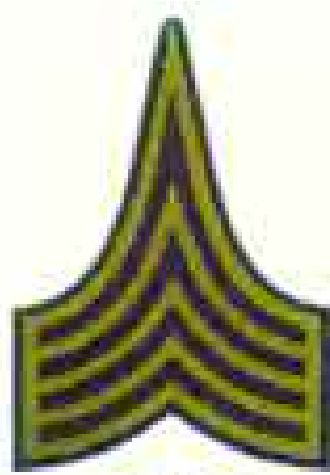
Sergeant



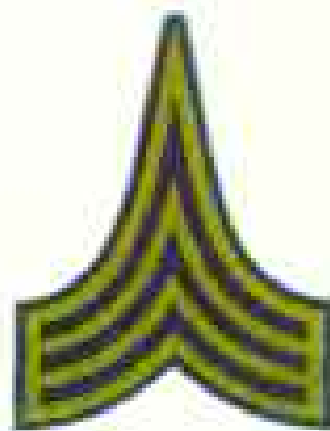
Color Corporal



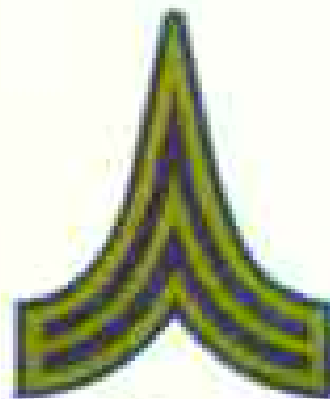
Corporal



Battalion Commander



Company Commander



Lieutenant



Battalion Adjutant



Color Sergeant



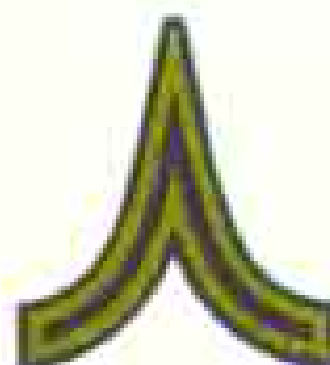
First Sergeant



Battalion Sergeant Major



Supply Sergeant



Sergeant



Color Corporal



Corporal

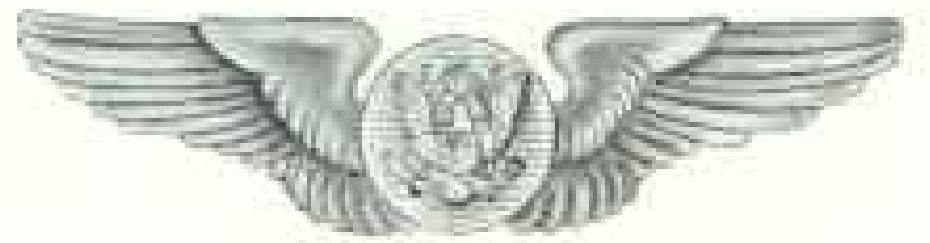
ARMY AVIATION CADET CHEVRONS

(Coats, above; overcoats, below)

The National Geographic Magazine



Command Pilot



Air Crew Member



Liaison Pilot



Senior Pilot



Senior Balloon Pilot



Aircraft Observer



Pilot



Balloon Pilot



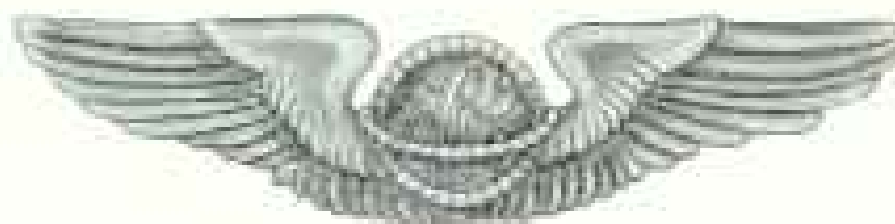
Bombardier



Glider Pilot



Technical Observer



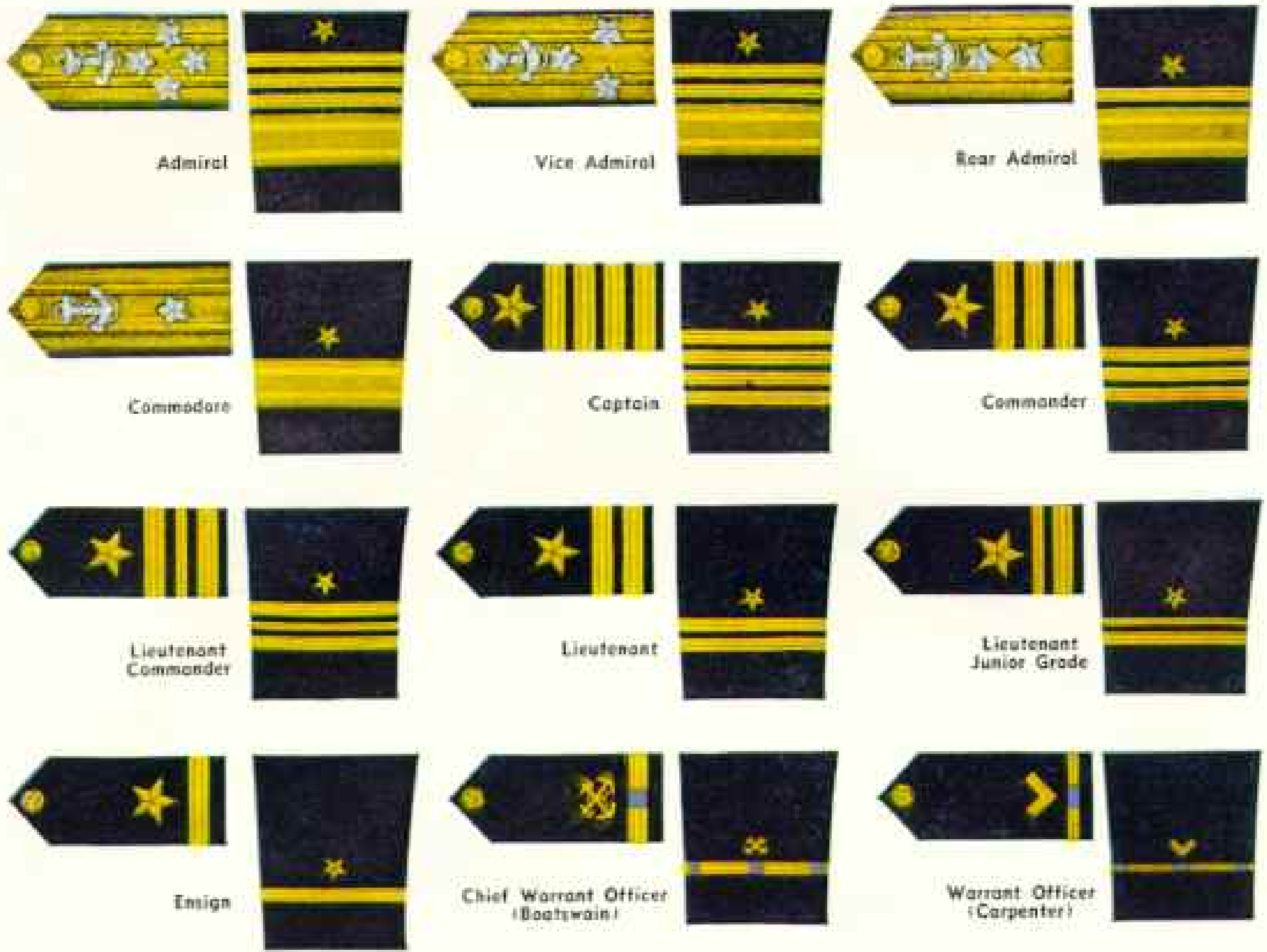
Navigator



Service Pilot



Flight Surgeon



NAVY SHOULDER MARKS AND SLEEVE STRIPES



NAVY CAPS AND CAP DEVICES

The National Geographic Magazine



Line



Medical



Dental



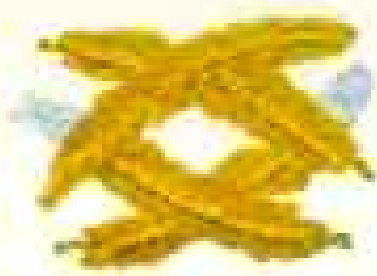
Supply



Christian Chaplain



Jewish Chaplain



Civil Engineering



Nurse



Band

NAVY OFFICERS' CORPS DEVICES



President



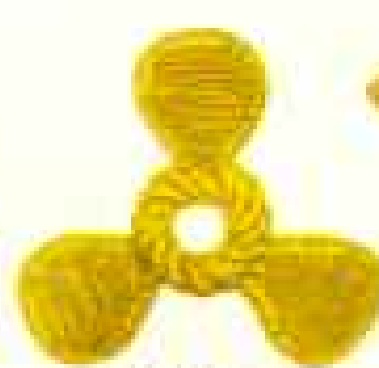
Admiral



Boatswain



Gunner



Machinist



Carpenter



Vice Admiral



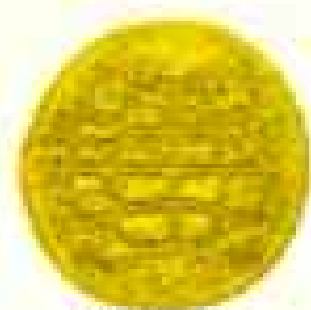
Rear Admiral



Pharmacist



Pay Clerk



Electrician

UNDRESS AIGUILLETTES
(Worn by Aides to the President
and to Flag Officers)



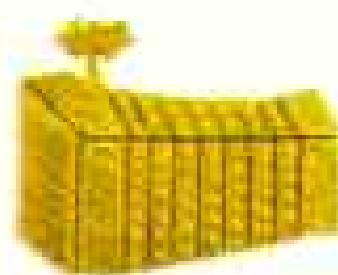
Radio Electrician



Aerographer



Torpedoman



Photographer



Ship's Clerk

NAVY CHIEF WARRANT AND WARRANT OFFICERS' CORPS DEVICES



Naval Aviator



Naval Aviation Observer



Submarine



Flight Surgeon



Naval Reserve Merchant Marine

NAVY BADGES

The National Geographic Magazine



Admiral



Vice Admiral



Rear Admiral



Captain



Commander



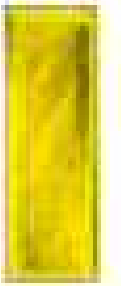
Lieutenant
Commander



Lieutenant



Lieutenant
Junior Grade



Ensign

NAVY PIN-ON MINIATURE RANK DEVICES



Medical



Dental



Supply



Christian
Chaplain

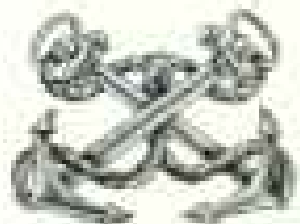


Jewish
Chaplain



Civil
Engineering

NAVY OFFICERS' PIN-ON MINIATURE CORPS DEVICES



Boatswain



Gunner



Machinist



Carpenter



Shore Patrol



Pharmacist



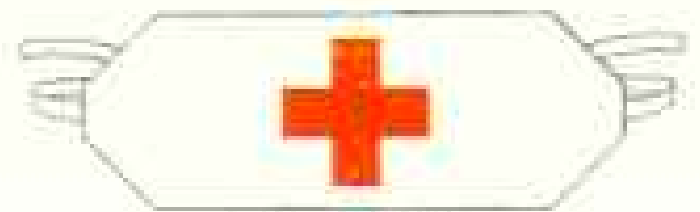
Pay Clerk



Electrician



Radio Electrician



Geneva Cross



Sick-List Badge

NAVY CHIEF WARRANT OFFICERS' PIN-ON
MINIATURE CORPS DEVICES

(Warrant Officers—Same Devices in Gold)

NAVY BRASSARDS



Chief Petty Officer
(Summer)



Officers' Cook and Steward



Lt. Comdr., Asst.
Supt. Navy
Nurse Corps



Lt., Asst. Supt.
Navy Nurse Corps



White Hat



Blue Cap



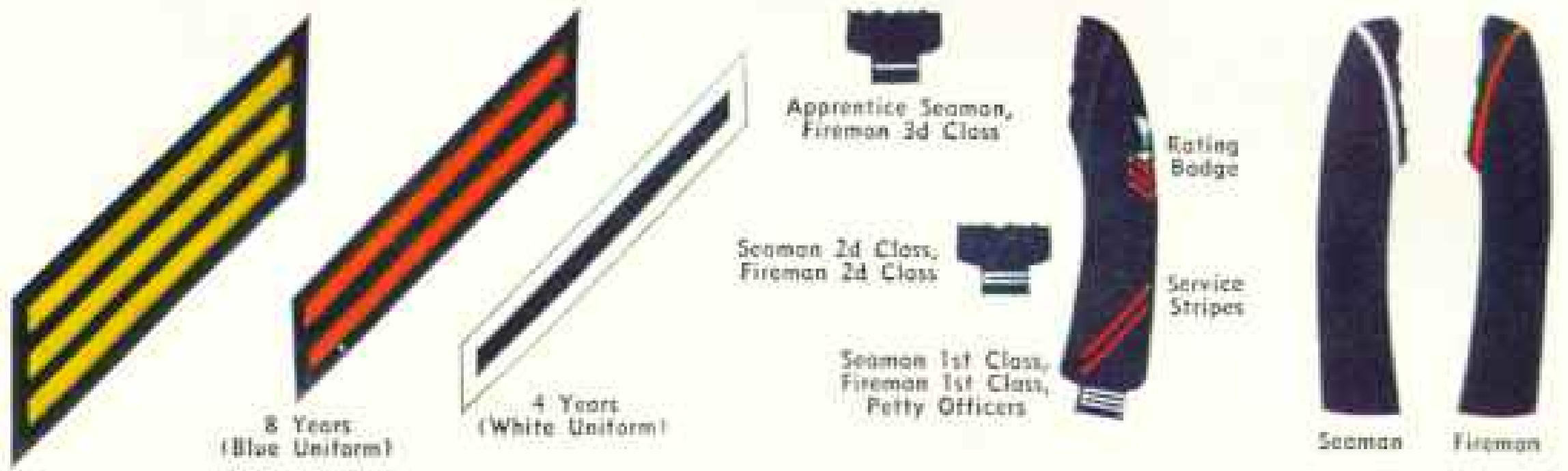
Lt. (jg), Chief
Nurse



Ensign, Nurse

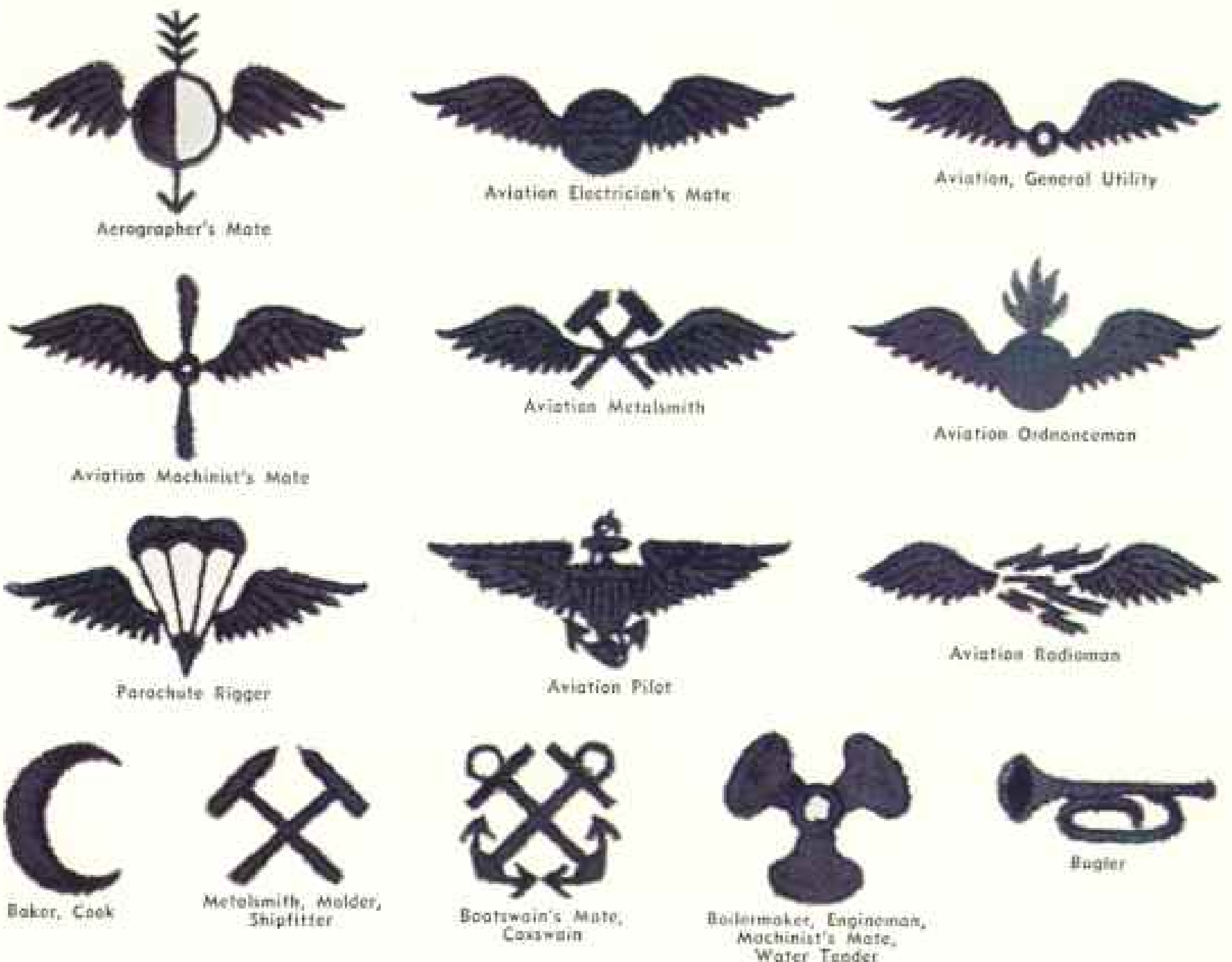


NAVY RATING BADGES FOR PETTY OFFICERS



NAVY CUFF MARKINGS

BRANCH MARKS



NAVY SPECIALTY MARKS
(Continued on Plate XVIII)

The National Geographic Magazine



Carpenter's Mate,
Painter, Pattern
Maker



Chief Commissary
Steward



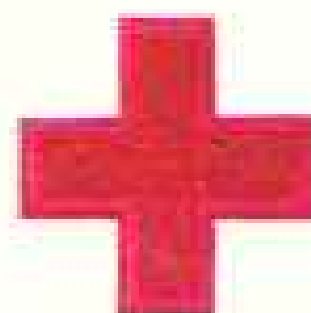
Electrician's Mate



Fire Controlman



Gunner's Mate



Hospital Apprentice,
Pharmacist's Mate



Motor Machinist's Mate



Musician



Photographer's Mate



Printer



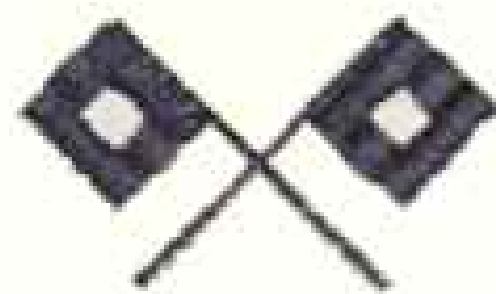
Quartermaster



Radarman



Radioman, Radio
Technician,
Telegrapher



Signalman



Soundman



Storekeeper



Officers' Steward, 1st
Class; Officers' Cook,
1st Class (Size Reduced)



Torpedoman's Mate



Turret Captain



Yeoman

NAVY SPECIALTY MARKS

(Continued from Plate XVII)



Athletic Instructor



Gunnery Instructor



I.B.M. Operator



Mail Clerk



Inspector of
Naval Material



Photographer



Recruiter



Shore Patrol



Teacher



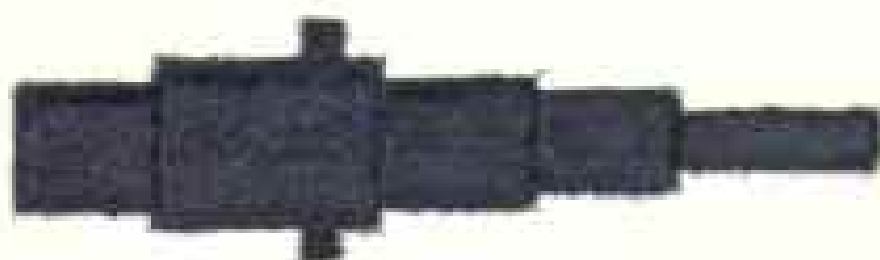
Transport Airman



Welfare



Seaman Gunner



Gun Captain



Gun Pointer Second Class



Gun Pointer First Class (Size Reduced)



Gun Range Finder Operator



Navy "E" in Gunnery



Bombsight Mechanic



Expert Rifleman, Expert Pistol Shot



Navy "E" in Engineering



Construction Battalion



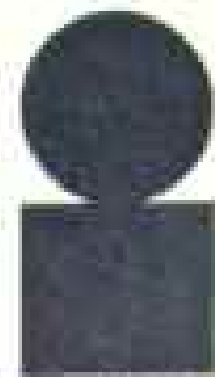
Radioman



Rifle Sharpshooter



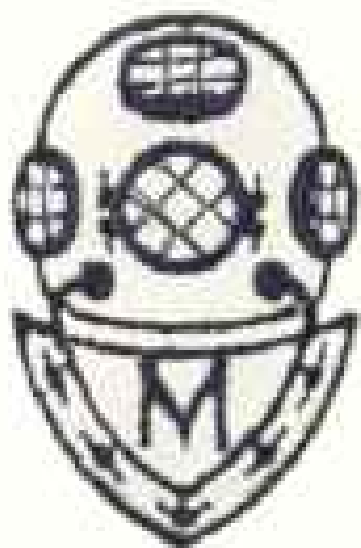
Ex-Apprentice



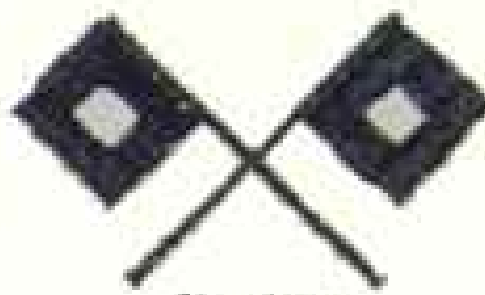
Mine Warfare



Aerial Gunner



Master Diver



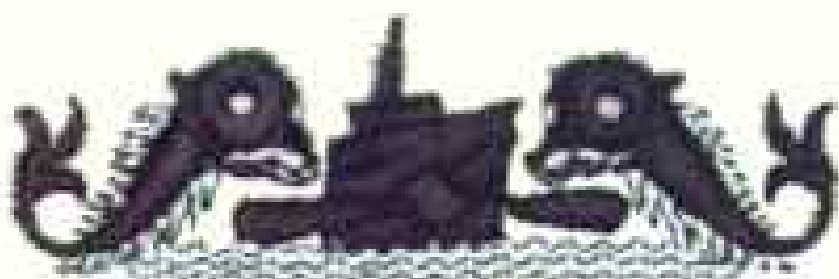
Signalman



Diver, First Class



Master Horizontal Bomber (Size Reduced)



Submarine Insignia



Parachute Man



Airship Insignia

NAVY DISTINGUISHING MARKS



Officer (40-line—Overcoat)



Enlisted Man (50-line—Overcoat)



Enlisted Man (30-line—Dungaree)



(30-line, Blue Uniform)

Officers' Cook and Steward



Officer (35-line—Service Coat)



Enlisted Man (25-line—Trousers)



(30-line—White Uniform)

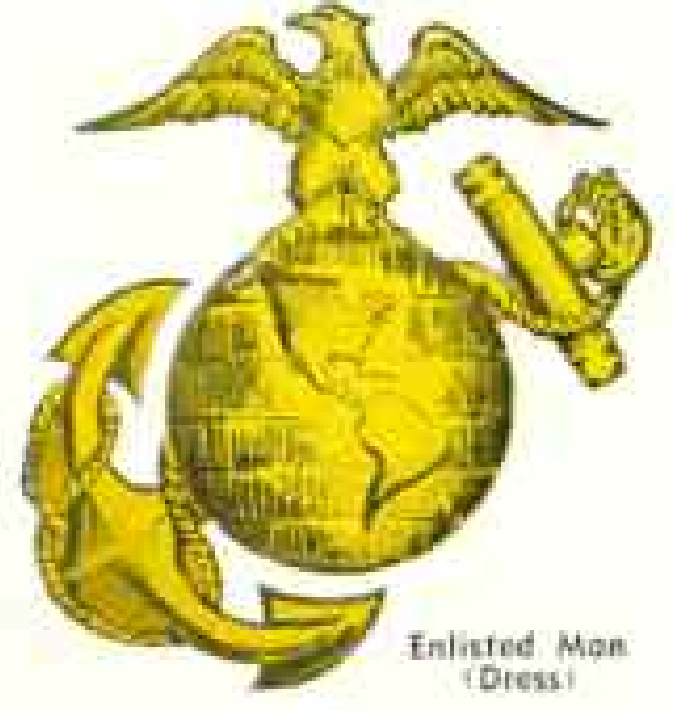
NAVY BUTTONS



Officer
(Dress)



Officer
(Service)



Enlisted Man
(Dress)



Officer
(Garrison Cap)



Enlisted Man
(Service)



Enlisted Man
(Garrison Cap)



Officer
(Crown of Cap)

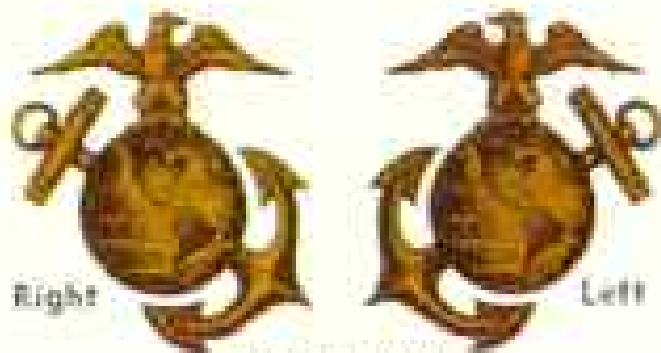


Aviation Cadot

MARINE CORPS CAP ORNAMENTS



Officer-Left
(Service)



Right
Enlisted Man
(Service)
Left



Adjutant and
Inspector's Department
(Dress)

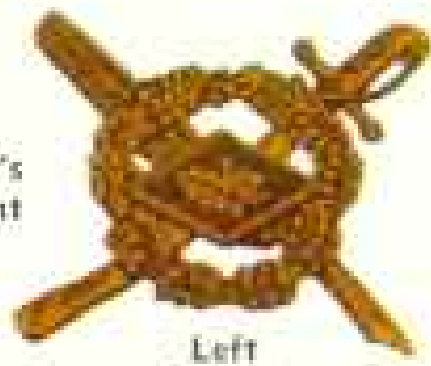


Marine Gunner
(Dress)

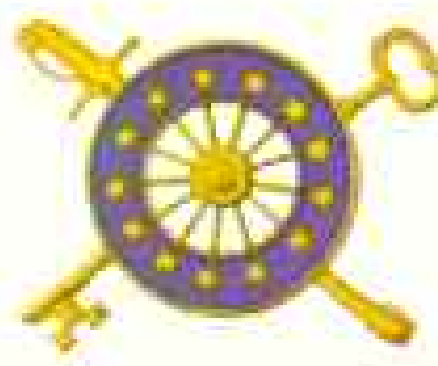


Paymaster's
Department

Right
(Dress)



Left
(Service)



Quartermaster's Department
(Dress)



Aviation Cadet
(Dress)



Aide to
Lieutenant
General
Left (Dress)



Aide to
Major
General
Left (Service)



Aide to
Brigadier
General
Left (Dress)



Second Leader
Marine Band

The National Geographic Magazine



Lieutenant General



Major General



Brigadier General



Colonel



Lieutenant Colonel



Major



Captain



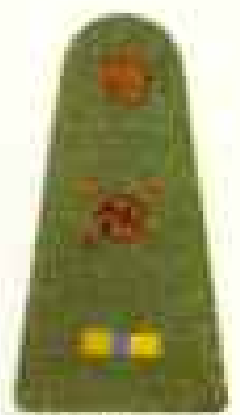
First Lieutenant



Second Lieutenant



Chief Warrant Officer



Chief Warrant Officer, Paymaster's Dept. (Overcoat, Raincoat)



Adjutant and Inspector's Dept.



Quartermaster's Department



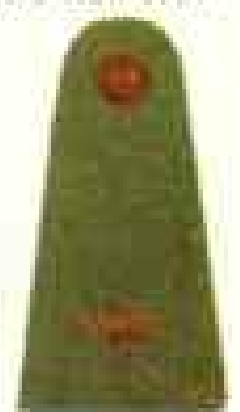
Paymaster's Department



Marine Gunner



Second Leader Marine Band



Aviation Cadet

MARINE CORPS SHOULDER STRAPS



Dress (above)



Winter Service (below)



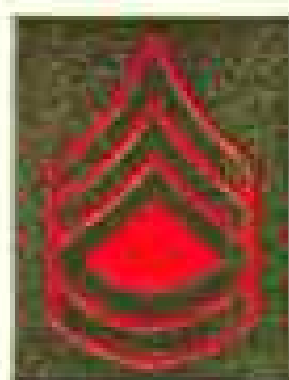
Summer Service (above)



Sgt. Major, Master Gunnery and First Sgts.



Master Technical, Quartermaster, and Paymaster Sergeants



Gunnery Sergeant



Technical Sergeant, Drum Major, Supply Sergeant



Platoon Sergeant



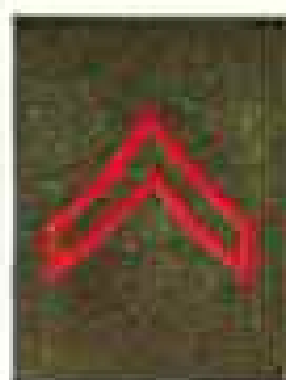
Staff Sergeant



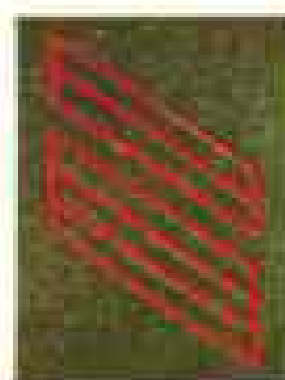
Sergeant



Corporal



Private First Class



Service Stripes 8 and 12 Years



Musician Marine Band

MARINE CORPS CHEVRONS AND SERVICE STRIPES



FOURRAGÈRE



Aide to Secretary of the Navy or Admiral



Aide to Lieutenant General or Vice Admiral

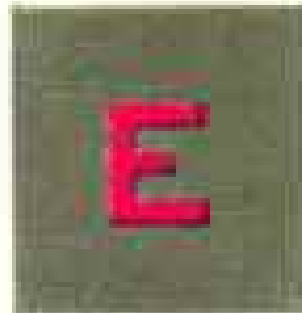


Aide to Major General, Brigadier General, or Rear Admiral

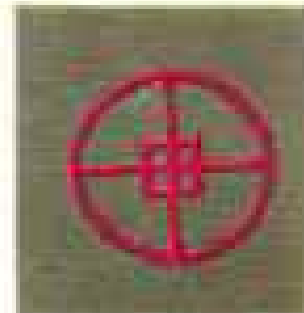
MARINE CORPS SERVICE AIGUILLETTES



Gun Captain



Navy "E"



Gun Pointer Second Class



Gun Pointer First Class

DISTINGUISHING MARKS
(Navy Insignia Worn by Marine Corps)



Military Police



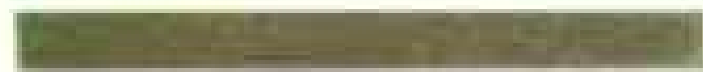
Sick-List Band



Agent or Signaller



Orderly, Messenger, or Runner



Guide or Scout



Carrying Party



PARACHUTIST'S BADGE

MARINE CORPS BRASSARDS



Officer



Enlisted Man



Fiber



Steel

MARINE CORPS BUTTONS

MARINE CORPS HELMETS



Naval Aviator

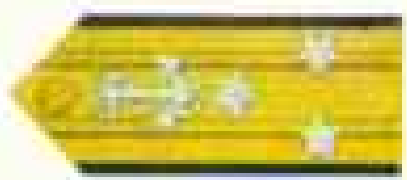


Naval Aviation Observer

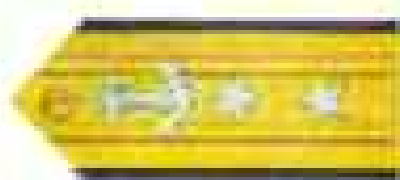
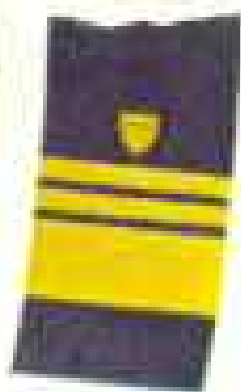


Naval Aviator (Miniature)

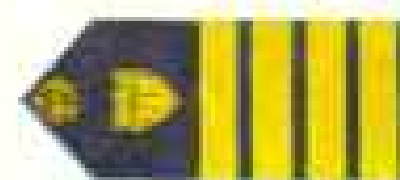
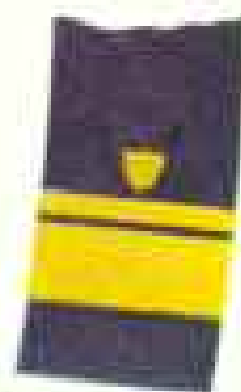
MARINE CORPS AVIATION BADGES



Vice Admiral



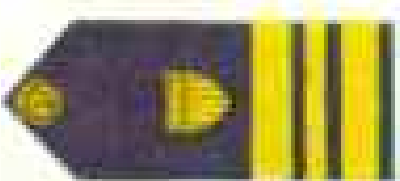
Rear Admiral



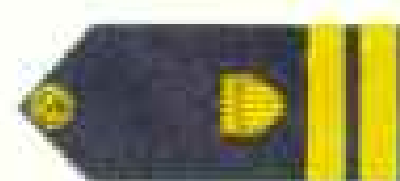
Captain



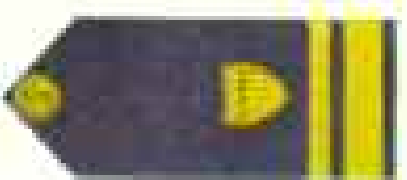
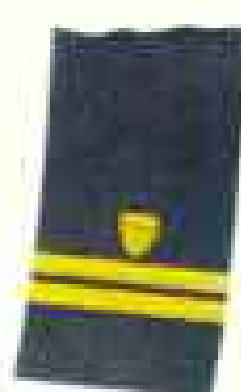
Commander



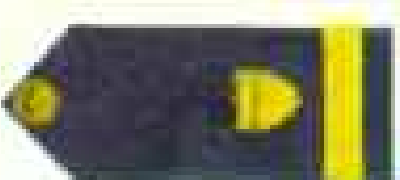
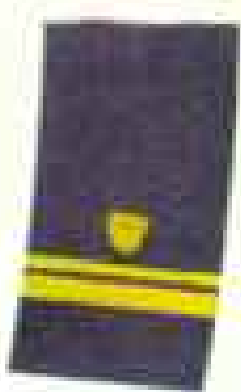
Lieutenant
Commander



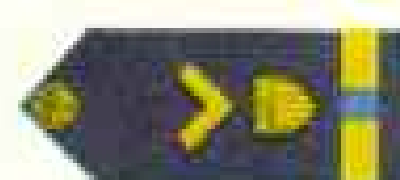
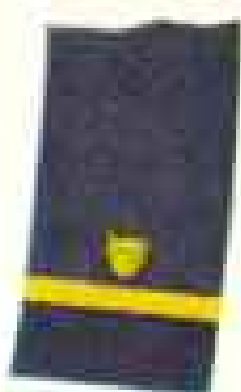
Lieutenant



Lieutenant
Junior Grade



Ensign



Chief Warrant Officer
(Carpenter)



Warrant Officer
(Carpenter)



COAST GUARD SHOULDER MARKS
AND SLEEVE STRIPES



AVIATOR



Service Stripe
(Enlisted Man)



Officer and
Warrant Officers



Chief Petty
Officer



Enlisted Man
(Winter)



Enlisted Man
(Summer)



BUTTONS

COAST GUARD SHIELDS



Officer and Chief Warrant Officer



Warrant Officer



Chief Petty
Officer



Shore Establishments



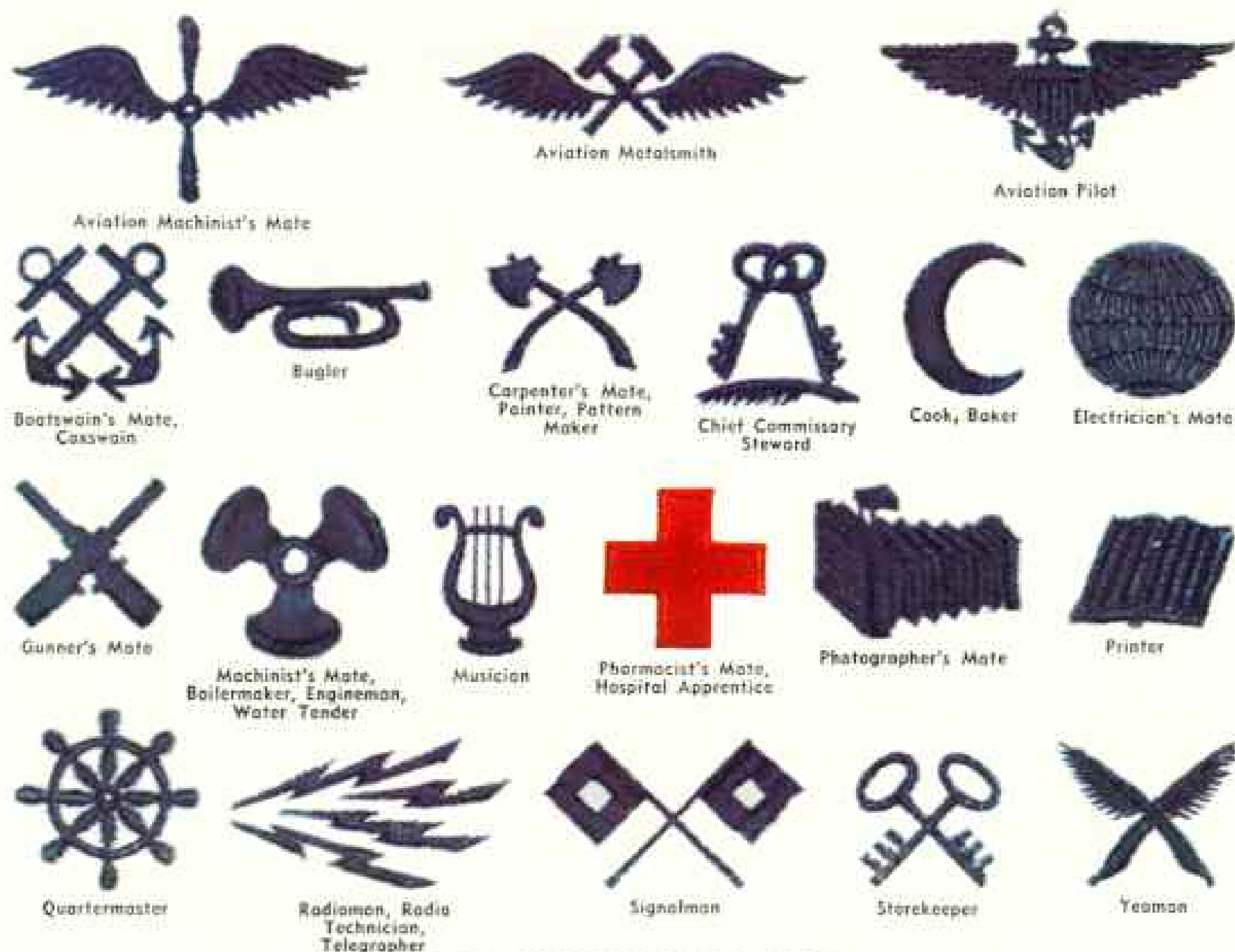
Officers' Steward

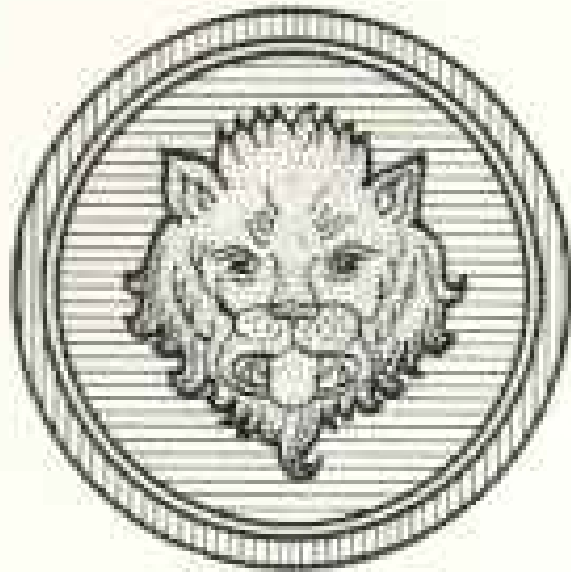
COAST GUARD CAP INSIGNIA

The National Geographic Magazine

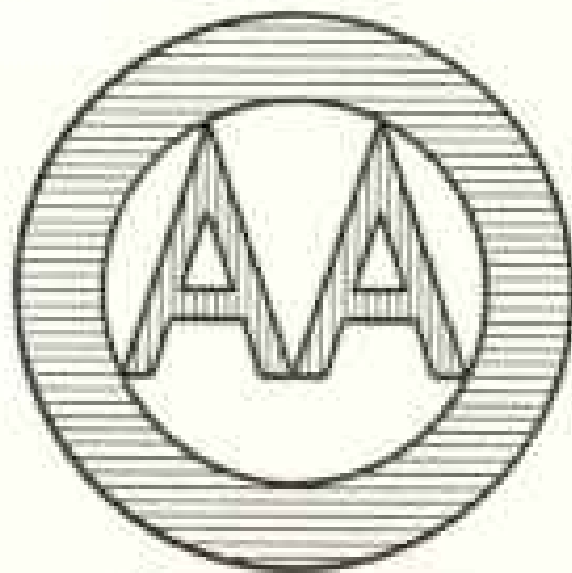


COAST GUARD CHIEF WARRANT OFFICERS AND WARRANT OFFICERS' SPECIALTY DEVICES

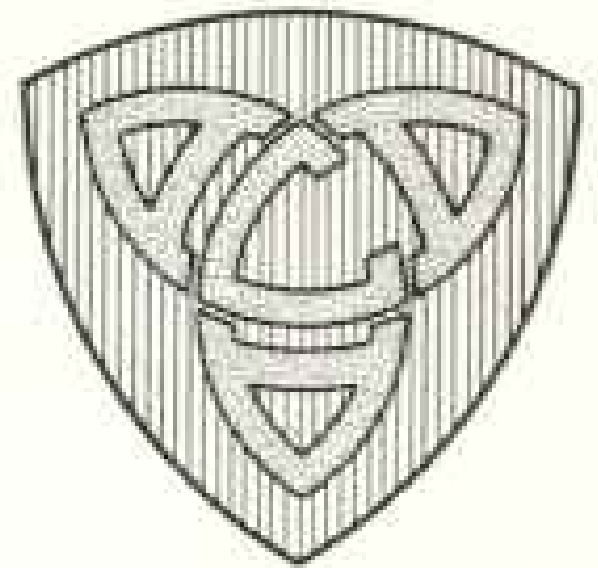




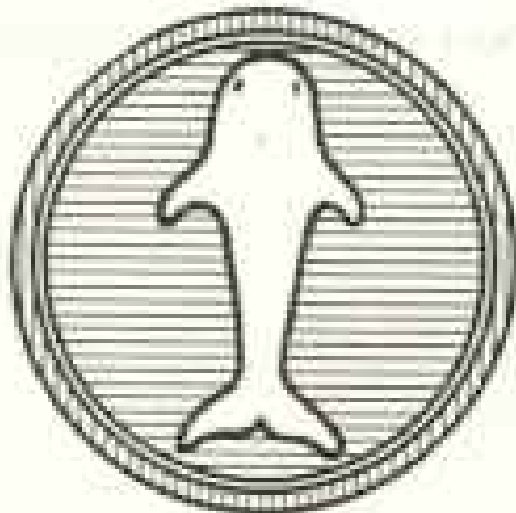
One Hundred Sixth Division



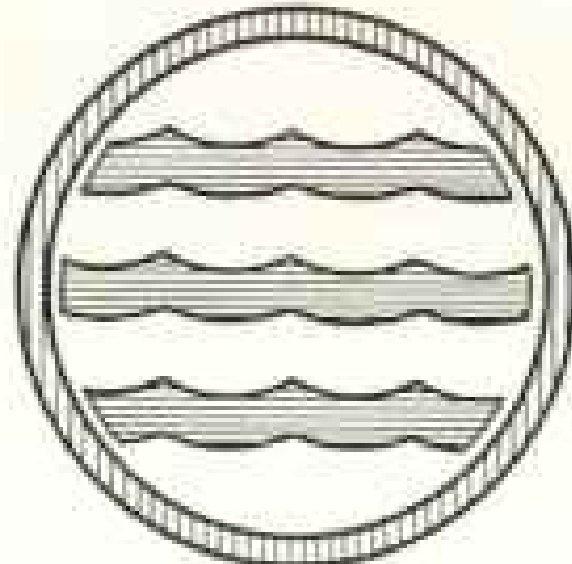
Antiaircraft Command



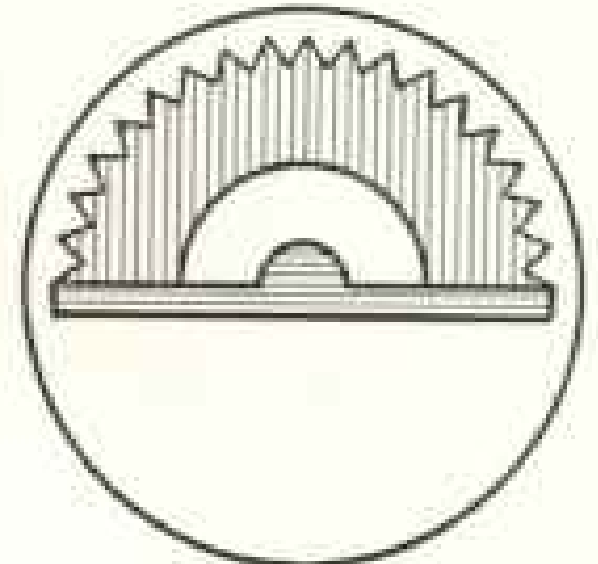
Antiaircraft Artillery Command
Eastern Defense Command



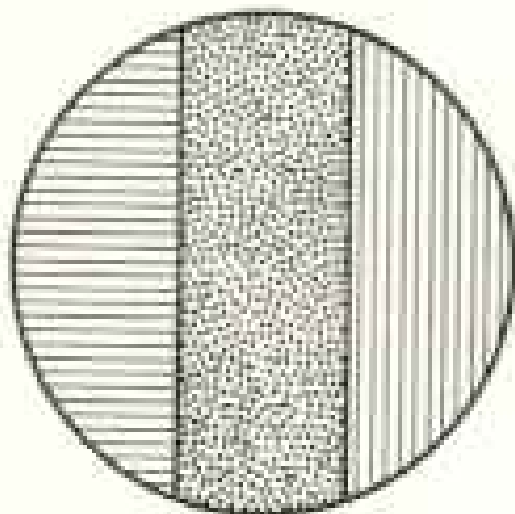
Atlantic Base Command



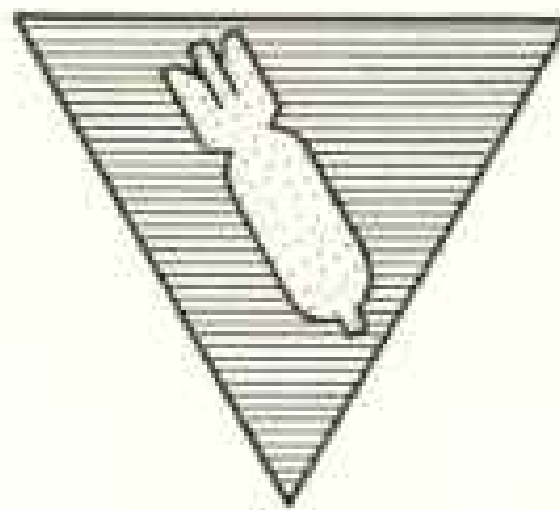
Greenland Base Command



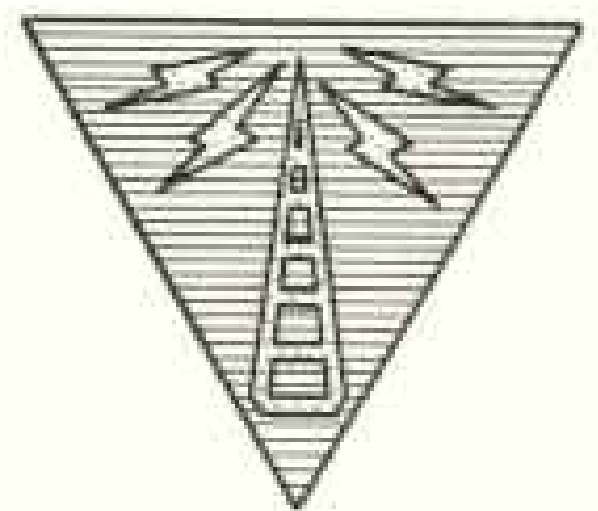
Labrador and Northeast
Canada Command



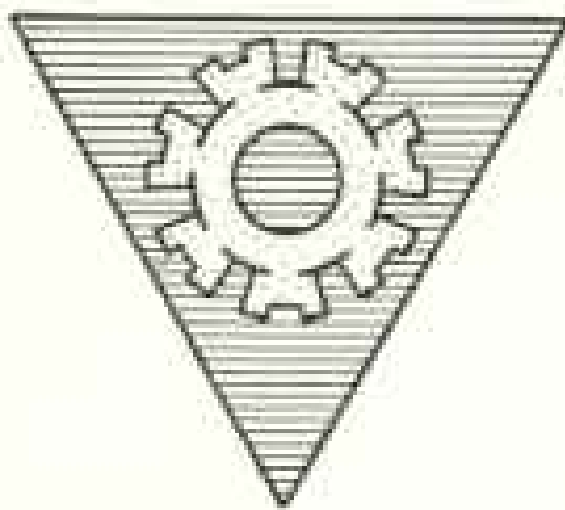
Replacement and School
Command



Armature Specialist,
Air Forces



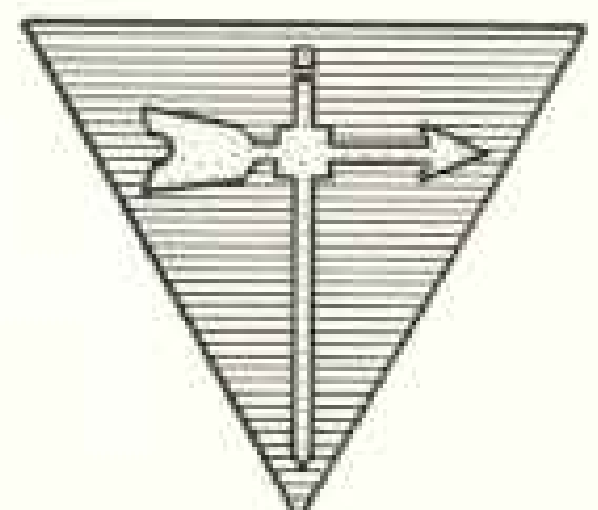
Communication Specialist,
Air Forces



Engineering Specialist,
Air Forces



Photography Specialist,
Air Forces



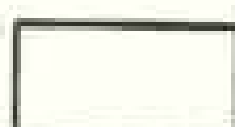
Weather Specialist,
Air Forces



Blue



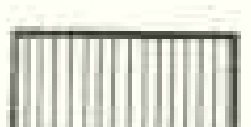
Yellow



White



Golden Orange



Red

Drawn by Arthur E. De Bata

Latest Additions to U. S. Military Insignia Are These Sprightly Designs

An ever-expanding Army constantly requires new devices, represented here in two groups. First are Shoulder Sleeve Insignia (pages 666, 692). The last five are for Army Air Forces Specialists (page 692), worn four inches from end of right sleeve. Illustrations, about half actual size.

SIXTY-FIRST CAVALRY DIVISION. Originally approved February 18, 1924. Triangular shield, with silhouetted horse's head framed by an inverted spur.

SIXTY-SECOND CAVALRY DIVISION. Approved January 31, 1923. The territory of this division included Pennsylvania, Maryland, Virginia, and the District of Columbia. The shield is Confederate gray within a border of Union blue. The saltire cross (yellow diagonals) appeared on the Virginia Confederate flag; the fess (yellow horizontal) upon the arms of Pennsylvania (from the arms of William Penn). The cross botonée (blue) appears on the arms of Maryland (from the arms of Lord Baltimore). The blue cross and border represent the District of Columbia.

SIXTY-THIRD CAVALRY DIVISION. Approved April 23, 1925. The square with the saltire suggests the Southern Cross. Red and yellow are Spanish colors as well as colors of the designating flag of a cavalry division.

SIXTY-FOURTH CAVALRY DIVISION. Approved July 25, 1922. Flint Indian arrowhead, with pioneer's coonskin cap and cavalry saber.

SIXTY-FIFTH CAVALRY DIVISION. Approved February 19, 1924. A triangular shield, with a tilting spear erect on a blue pile inverted.

SIXTY-SIXTH CAVALRY DIVISION. Approved January 27, 1927. The double six-pointed star represents the division number.

ARMORED FORCE, ARMORED CORPS, AND ARMORED DIVISION. Approved May 7, 1941. Gun and lightning bolt superimposed on tank wheels and tracks. Without numerical designation, authorized for Armored Force Headquarters and Headquarters Company. Roman numerals identify corps; Arabic numerals, divisions.

TANK DESTROYER FORCES. Approved September 22, 1942. A cougar crunching a tank.

Plate XI

(Army Shoulder Sleeve Insignia, continued)

SERVICE COMMANDS are geographical units set up for administrative purposes. Each insignia design readily reveals the number of the Service Command for which it stands. All the designs originated during the present war.

ANTIAIRCRAFT COMMAND. Approved December 24, 1942. Illustration, page 691.

ANTIAIRCRAFT ARTILLERY COMMAND, EASTERN DEFENSE COMMAND. Approved September 21, 1942. Stylized letters "A A C." Illustration, page 691.

ANTIAIRCRAFT ARTILLERY COMMAND, WESTERN DEFENSE COMMAND. Authorized August 14, 1942.

ATLANTIC BASE COMMANDS. Approved August 15, 1942. Grampus (*Grampus griseus*). Illustration, page 691.

GREENLAND BASE COMMAND. Approved January 19, 1943. Blue waves. Illustration, page 691.

LABRADOR AND NORTHEAST CANADA COMMAND. Approved January 19, 1943. White igloo on blue base, with red lights. Illustration, page 691.

REPLACEMENT AND SCHOOL COMMAND. Approved March 22, 1943. The blue is worn to the front. Illustration, page 691.

FRONTIER DEFENSE SECTORS were created to prepare and initiate the carrying out of plans for the use of Army forces against enemy action.

The insignia were adopted for Coast Artillery districts in 1941 and redesignated, in 1941 and 1942, for Frontier Defense Sectors. Designs show projectiles against different backgrounds.

MILITARY DISTRICT OF WASHINGTON (D. C.). Approved September 26, 1942.

This design shows the function of the organization by the double-handled sword, a symbol of protection for the Washington Monument. Blue represents the Navy and the Infantry; scarlet, Field Artillery, Coast Artillery, and Engineers; green and gold, the Military Police.

PANAMA CANAL DEPARTMENT. Approved August 16, 1922. Old Spanish colors. The yellow narrowed by the red indicates the Isthmus of Panama.

PHILIPPINE DEPARTMENT. Approved July 8, 1922. Sea lion brandishing a sword.

HAWAIIAN DEPARTMENT. Approved January 10, 1922. The eight sides refer to the eight islands of the Hawaiian group. The letter "H" (for Hawaii), is in yellow. Scarlet and yellow are the old royal Hawaiian colors.

GENERAL HEADQUARTERS RESERVE. Approved July 19, 1941.

The design consists of the shoulder sleeve insignia of the former General Headquarters (now Army Ground Forces; Plate VI), with a white border to distinguish General Headquarters Reserve troops from the immediate family of the Headquarters of the Army Ground Forces.

Specialists' Sleeve Insignia, Army Air Forces

(Illustrations, page 691)

Recently authorized are five insignia which are to be worn on the right sleeve by Specialists. These insignia are in the colors of the Army Air Forces, ultramarine blue and golden orange. Approved January 25, 1943.



Technical Training Command



Air Service Command



Air Transport Command



Materiel Command

Distinctive Insignia Worn by Four Army Air Forces Commands

Army Brassards

(Plate XII)

In the armor of the 15th and 16th centuries, that part which covered the arm was a brassard. Today the brassard is a badge or band (usually about 4 inches by 18 inches) worn encircling the left sleeve above the elbow.

The letters "G.S.C." of the four headquarters brassards stand for General Staff Corps.

Men selected to act as sergeants or corporals during training at Replacement Training Centers wear the designated brassards.

The Red Cross brassard is worn in time of war by persons rendered neutral under terms of the Geneva Convention. This device was selected in honor of the Swiss Government for arranging the convention. The Swiss flag consists of a red background with a white cross.

Parachutist's Badge

(Plate XII)

This device, a qualification badge rather than an insignia of identification, consists of parachute and wings. Length, 1½ inches. Approved March 10, 1941. Worn on left breast.

Army Aviation Cadet Chevrons

(Plate XII)

For coats, these chevrons are 3¾ inches wide; overcoats, 7½ inches wide.

When Flying Cadets were authorized to wear slate-blue uniforms, they were all dressed alike. As the organization expanded, cadets designated for special duty were given chevrons similar in design to those worn at the United States Military Academy; black on slate-blue background.

When later the cadets were designated as Aviation Cadets, they were taken out of the slate-blue uniform and placed in an olive-drab uniform similar to that of an officer. Olive-drab chevrons on dark-blue background were adopted. As the Air Forces expanded, however, and as more and more Aviation Cadets were in training, the uniform was changed to the enlisted man's type,

Three of the coat chevrons are the same as Army chevrons. These are for lieutenant (same as Army sergeant, fourth grade); sergeant (same as Army corporal, fifth grade); and corporal (same as Army private, first class).

Army Aviation Badges

(Plate XIII)

Devices which have been prescribed by the military service for wear upon uniforms to indicate qualification in aviation are designated as Aviation Badges. The word "badge" is applied because they are authorized for qualifications, and so may be worn in one size only. The length is about 3¾ inches.

These badges are worn on the left breast. Aviation badges awarded by foreign governments to American aviators may be worn on the right breast.

The first type of badge, of solid gold, was authorized for those members of the Signal Corps who were classified as Military Aviators. On December 31, 1926, Aviation Badges were prescribed to be either embroidered or made of oxidized silver. Embroidered badges were discontinued as regulation on March 16, 1938.

For individual qualifications, badges are sterling silver.

Between wings several of the badges have a United States shield. Several letters are used, including "O" for Aircraft Observer.

BOMBARDIER. A drop bomb, point down, superimposed on circular target.

NAVIGATOR. An armillary (or ringed) sphere.

AIR CREW MEMBER. Coat of arms of the United States.

SENIOR BALLOON PILOT. Star above balloon with basket.

TECHNICAL OBSERVER. Letter "O" in front of letter "T."

FLIGHT SURGEON. Approved March 4, 1942, this badge is of gold-color metal. The Medical Corps insignia is used. The badge is worn by Medical Corps officers who are rated as Flight Surgeons only while they are on duty with the Army Air Forces.

United States Navy, Marine Corps, and Coast Guard Insignia

IDENTIFICATION insignia of the United States Navy, Marine Corps, and Coast Guard, like Army insignia, show rank or grade of the individual within his organization, and indicate certain specialties in which he excels. Other insignia, such as aiguillettes and brassards, are evidences of special assignments. On the uniform of enlisted men also are worn devices revealing length of service.

As in the Army, insignia are worn upon shoulders, sleeves, caps, breasts, collars, and lapels.

Detailed descriptions of designs and wear refer to the illustrations on Plates XIV through XXIV.*

United States Navy insignia are similar, in many respects, to those of navies of other countries. Some are similar to insignia of the United States Army. Thus Army insignia for Signal Corps, Quartermaster Corps, and Chaplains (Plates II and III) may be compared with Navy insignia for Signalman, Quartermaster, and Chaplains (Plates XV and XVIII).

Similarity in insignia does not necessarily mean similar functions. The Quartermaster Corps of the Army, for example, provides food, shelter, and clothing. A quartermaster in the Navy steers a ship. One dissimilarity is that Army chevrons (Plate I) point up, while Navy chevrons (Plate XVII) point down.

Rank of Navy officers is shown in two forms: stripes (on sleeves and shoulder marks, Plate XIV) and miniature pin-on rank devices (on collars and garrison caps, Plate XVI). The Navy pin-on rank devices and the Army grade insignia are similar in design. Distinctions in wear are given in text for Plates I and XVI.

Marine Corps usage in indicating rank of officers follows Army custom. The Coast Guard follows the Navy.

The United States Marine Corps employs only a fraction as many identification insignia as the Army or Navy. The service is smaller, and it has fewer subdivisions. However, the individual marine, especially if he wears the marksmanship badges which many marines win, may display as many insignia as soldiers and sailors.

Chief and most definitely distinctive of Marine Corps insignia is the ornament worn on caps and collars—the well-known combination of American eagle, anchor, and globe.

The Marine Corps is a permanent component of the Naval Establishment.

Coast Guard and Navy uniforms are the same; so only by differences in insignia may members of the two services be told apart.

Slate-gray working and fighting uniforms, with blue-black plastic buttons and flexible slate-gray shoulder marks (braid and insignia in black), will gradually replace khaki uniforms during the coming months. Slate-gray will blend with the "battleship gray" of the Navy's warships.

The chief distinction for the Coast Guard is use of the Coast Guard Shield on shoulder marks and on sleeves in positions occupied on Navy uniforms by the line officer's star or by the staff officer's corps device. The enlisted man wears the shield on the right sleeve above the cuff.

In peacetime the Coast Guard is under the direction of the Secretary of the Treasury. In wartime, since 1799, it is under the direction of the Secretary of the Navy. There is a tendency to refer to the Coast Guard in time of war as a corps of the Navy and to regard the Coast Guard Shield as a Navy corps device. "Service" is the better designation, because this takes into account the separate entity of the Coast Guard in peacetime. The present Executive order transferring direction of the Coast Guard to the Navy was signed November 1, 1941.

World War II has developed a trend within the Navy, Marine Corps, and Coast Guard to extend their insignia toward the type represented in the Army by the new Specialists' insignia (page 691). One new device already has been approved for the Marine Corps. This is the "blaze" illustrated in black and white on page 708.

On a quasi-official basis the Marine Corps is permitting men of certain organizations, particularly within the Fleet Marine Force, to wear cloth insignia designed in the field. Some of these are being seen on uniforms of

* Text and illustrations covering insignia for the Navy, Marine Corps, and Coast Guard were compiled by Gerard Hubbard and Elizabeth W. King of the editorial staff of the NATIONAL GEOGRAPHIC MAGAZINE, with cooperation of officer and civilian personnel of the services. Special acknowledgment is made to Lt. H. A. Lamar, former recorder of the Navy Department Permanent Uniform Board, now at sea; Lt. C. A. Appleby, present recorder of the Navy Department Permanent Uniform Board; William E. Springer, chief clerk of the Quartermaster's Department of the Marine Corps and recorder of the Marine Corps Uniform Board; and Ralph Clifton Smith, assistant to the Public Relations Officer of the Coast Guard.—Editor.

men who have returned to the United States, but as soon as these men are assigned to new stations the insignia must be removed.

Navy Shoulder Marks and Sleeve Stripes

(Illustrations Plate XIV—Shoulder Marks about one-fifth actual size)

Shoulder marks, which indicate rank and corps of naval officers, are worn on white service coats, mess jackets, overcoats, and khaki working uniforms. A small regulation button (Plate XIX) fastens the shoulder mark near the collar.

The shoulder marks for all flag officers (usually admirals) are covered with gold or yellow "lace." The mark carries a silver fowl anchor. Rank is shown by the number of silver stars.

The rank of commodore was not used for officers in active service from 1899 till April, 1943. When the rank was dropped, the pay grade was maintained.

There are now two types of rear admirals, indistinguishable by insignia. These are rear admirals of the upper half who have the pay grade of rear admiral, and rear admirals of the lower half who have the pay grade of the recently restored rank of commodore.

Shoulder marks for all officers below flag rank indicate rank by the number and width of stripes. Chief (commissioned) warrant officers and warrant officers have broken stripes.

In addition to rank, the shoulder mark shows whether the wearer is a line officer or a member of a corps (Plate XV shows Corps Devices). The shoulder marks illustrated from admiral through ensign are for line officers. In the case of flag officers who are not of the line, a miniature gold device of the appropriate corps is surcharged on the shank of the anchor, the stars merely indicating rank. For staff officers with the rank of captain through ensign, the appropriate corps device is substituted for the "line" star in the illustrations.

A line officer is one who is qualified in all respects for command at sea of a specified vessel or class of vessels. In matters pertaining to the operation of a ship, line officers take precedence over staff officers.

Chief warrant and warrant officers do not wear the line star, but always wear one of the corps devices. Aviation cadets wear neither the line star nor corps devices.

SLEEVE STRIPES, primary indication of rank of the naval officer, are bands of gold worn on dress and blue service coats. Stripe widths range from two inches to one-quarter inch. Formerly these bands encircled the sleeve, but at present they may extend on the out-

side of the sleeve from seam to seam only. After January 1, 1944, only the shorter sleeve stripe will be authorized for service dress.

Sleeve stripes for all ranks from captain to aviation cadet match stripes on shoulder marks.

Black sleeve stripes, but not corps devices, are worn on overcoats (except winter aviation working overcoat, which has no indication of rank). Only on overcoats are both shoulder marks and sleeve stripes worn on the same garment. The overcoat should not be confused with the raincoat (also navy blue) which, at the time of writing, has neither shoulder marks nor sleeve stripes.

Black sleeve stripes are also worn on the green winter working aviation coat, but in this case the line star, embroidered in black, is also used.

Navy Caps and Cap Devices

(Illustrations Plate XIV)

Officers and chief warrant officers' caps are the same in shape and color, except that the visors with gold are navy blue. After January 1, 1944, all officers will wear plain polished black visors except for formal occasions. Frames are made so that, by changing covers, officers may have blue, white, or khaki-colored caps.

The officer's cap device, worn by all ranks from flag through chief warrant officers, in both metal and embroidered styles, shows the new position of the eagle. In May, 1941, the eagle was changed to face right instead of left. In this way the eagle faces the wearer's sword arm, the heraldic position of honor. After January 1, 1944, the chin strap, except in gold for formal wear, will be of black braid.

The designs on visors are oak leaves and acorns.

OFFICER'S GARRISON CAP. Commissioned and warrant officers may wear the garrison cap in place of the regulation cap. The garrison cap is made in blue, white, khaki, or green material to match the uniform. Commissioned officers wear the insignia of rank on the right side of the cap and a miniature cap device on the left side. Warrant officers wear corps devices (Plates XV, XVI) on both sides of the cap.

WARRANT OFFICER. Cap device is crossed gold fowl anchors. Metal or embroidered.

BANDSMAN (Full Dress). Cap device, gold silk or rayon musician's lyre surcharged on anchor.

AVIATOR'S GARRISON CAP. Green winter working uniform cap. Until the spring of 1943 naval aviators and naval aviation ob-



Staff Photographer Willard H. Carter

Nine Gold Service Stripes Show 36 Years with Good Conduct

This smiling Chief Torpedoman's Mate (identified by rating badge on right sleeve) is qualified also for submarine duty. The submarine insignia appears above his right cuff (Plate XIX). Chief petty officers wear sack coats instead of the jumpers worn by other enlisted men.

servers wore miniature aviation insignia on the left side of garrison caps. Now they follow the rules for officer's garrison cap (page 695).

METAL AND EMBROIDERED CAP DEVICES. Crossed foul anchors with shield and spread eagle. A band around the cap holds the device in place.

NURSE'S HAT. Adopted in 1942. Worn by all nurses in street uniform.

Navy Officers' Corps Devices

(Illustrations Plate XV about three-fourths actual size)

Officers of the line and of the several corps may be identified by the star or corps devices

(also called sleeve markings). These devices are worn above the gold stripes on shoulder marks and sleeve stripes. The devices may be embroidered in heavy gold thread or made of metal. Metal is for shoulder marks only.

MEDICAL. A spread oak leaf surcharged with an acorn.

Women, since April 1943, may be commissioned officers of the Medical Corps. The law covering this new status is discussed on page 657.

DENTAL. A spread oak leaf with acorns on each side of stem.

SUPPLY. A sprig of three oak leaves with three acorns.

CHRISTIAN CHAPLAIN. A Latin cross inclined toward the rear of the sleeve.

JEWISH CHAPLAIN. Star of David attached to the Tablets of the Law.

CIVIL ENGINEERING. Two sprigs of two live oak leaves and an acorn.

NURSE. A bright-gold fowl anchor on which is superimposed a rose-gold oak leaf and acorn surcharged with the letters "N.N.C." in bright silver. Worn on the indoor uniform on each side of the collar with the oak-leaf stem pointing toward the neck. Left device worn on nurse's hat (Plate XIV).

BAND. Except in full dress, the leader of the United States Navy Band wears the uniform of a lieutenant in the Navy, with the exception that in lieu of the star on the sleeves of the blue uniform and on the shoulder mark of the white uniform, he has a gold lyre.

Navy Chief Warrant and Warrant Officers' Corps Devices

(Illustrations Plate XV about three-fourths actual size)

Chief warrant officers and warrant officers wear embroidered corps devices above blue-and-gold stripes on shoulder marks and sleeves. Although labeled merely "Boatswain," "Gunner," etc., the devices are for "Chief Boatswain and Boatswain," "Chief Gunner and Gunner," etc.

BOATSWAIN. Two crossed fowl anchors.

GUNNER. Bursting bomb.

MACHINIST. Three-bladed propeller.

CARPENTER. Carpenter's square.

PHARMACIST. Caduceus, representative of the staff of a herald in Roman times; now the symbol of a physician. In practice, the eyes of the serpents are embroidered in scarlet. The Army Medical Corps also uses the caduceus as its symbol.

PAY CLERK. Same device as for Supply Corps, without acorns.

ELECTRICIAN. A globe showing lines of latitude and longitude.

RADIO ELECTRICIAN. Four zigzag rays of lightning.

TORPEDOMAN. In 1942 the torpedoman, which had been a Navy Specialty Mark used in rating badges, was raised to chief warrant and warrant officer's ranks. The petty officer whose specialty is that of torpedoman (Plate XVIII) is now a torpedoman's mate. Torpedomen must understand the mechanism and predict the performance of torpedoes at various distances, under different conditions. They lay mines and drop depth charges.

AEROGRAPHER. This device was formerly a Specialty Mark for aviation branch petty officers (Plate XVII), who are now aerographer's

mates. Duties of this corps include study of weather, especially for flying.

PHOTOGRAPHER. Raised from petty officer's rating (Plate XVIII) in 1942.

SHIP'S CLERK. Same device as that used for yeoman, crossed quill pens. Corps formed in 1942.

Aiguillettes

(Illustrations Plate XV)

Aiguillettes are worn by officers when on duty as personal aides to the President; aides at the White House; aides to the Secretary, Under Secretary, and Assistant Secretaries of the Navy; aides to flag officers; and by naval attachés. They may be worn on official occasions by commissioned officers appointed as aides on the staff of a governor of a State or Territory. Aides to the President at the White House wear aiguillettes around the right shoulder; all others around the left. Undress aiguillettes illustrated are worn on service dress uniforms. Dress aiguillettes are more elaborate, braided cords in same colors.

Navy Badges

(Illustrations Plate XV about two-thirds actual size)

Navy badges, embroidered or metal, are worn on the left breast. The badge for naval aviator is also worn by both the Marine Corps and the Coast Guard. The naval aviation observer badge also is worn by the Marine Corps.

FLIGHT SURGEON. Wings surcharged with Medical Corps oak leaf and acorn.

SUBMARINE. Bow view of a submarine, proceeding on the surface, with bow rudders rigged for diving, flanked by dolphins in horizontal position, with their heads resting on upper edge of rudders. Enlisted men wear this insignia, embroidered, as a Distinguishing Mark (Plate XIX).

NAVAL RESERVE MERCHANT MARINE. Worn on the left breast of the merchant marine uniform.

Navy Pin-on Miniature Rank Devices

(Illustrations Plate XVI actual size)

Pin-on miniature devices are worn on shirt collars of summer working uniforms. The designs of the devices are substantially the same as for Army and Marine Corps officers' insignia of rank (Plates I, XXI). The designs represent comparable ranks in the different services, but the titles are not the same. The eagle, for example, is for a colonel in the Army or Marine Corps; in the Navy it is for captain.

Officers of the line wear rank designations on both sides of the collar. Officers of the staff corps wear them only on the right side.

Navy Officers' Pin-on Miniature Corps Devices

(Illustrations Plate XVI actual size)

Officers of the staff corps wear metal rank devices on the right collar tip, but on the left they use pin-on miniature corps devices. These devices, discussed under Navy Officers' Corps Devices (text, page 696, and Plate XV), are approximately $\frac{5}{8}$ actual size of the devices as used on sleeves and shoulder marks. They are not to simulate embroidery.

Navy Chief Warrant Officers' Pin-on Miniature Corps Devices

(Illustrations Plate XVI actual size)

Chief warrant officers wear on both collar tips of the khaki shirt silver corps devices of the same design and approximately $\frac{5}{8}$ the size of the corps devices used on sleeves and shoulder marks (page 695, and Plate XV).

Warrant officers wear the miniature pin-on corps devices in the same way and in the same design and size, but their pins are gold rather than silver.

Eight chief warrant officers' miniature corps devices are shown. Devices for the four most recent corps are now being manufactured. Embroidered devices for the new corps (Aerographer, Photographer, Torpedoman, and Ship's Clerk) are shown on Plate XV.

Navy Brassards

(Illustrations Plate XVI)

Two brassards, 4 inches wide, are in general use in the Navy. Shore Patrol is worn on the outer clothing on the arm opposite the rating badge, halfway between shoulder and elbow. The Geneva Cross is fastened around the right arm. Not generally considered a brassard, the Sick-list Badge, two inches wide, is worn by enlisted men on the sick list.

Navy Enlisted Men's Caps

(Illustrations Plate XVI)

Caps for chief petty officers and officers' cooks and stewards are similar to those of warrant officers (Plate XIV). The chief petty officer's cap ornament is a gold foul anchor on which is surcharged the silver letters "U.S.N." On garrison caps chief petty officers wear their device on the left. The cap for officers' cook and steward is the same as for chief petty officer, except that letters "U.S.N." are the cap device and black buttons are substituted for gilt.

Navy Nurses' White Uniform Caps

(Illustrations Plate XVI)

Nurses wear a white cap with a $1\frac{1}{2}$ -inch black velvet band across the front. Gold

markings on the band indicate rank. The stripes correspond to Navy officers' sleeve stripes.

In March, 1943, the Superintendent of the Navy Nurse Corps was raised in rank from lieutenant commander to captain. Capt. Sue Dauser is the first woman to hold this rank in the Navy. The rank of commander for the corps also was established. Captain Dauser and the commanders, as administrative officers, do not wear the white uniform cap. Their ranks are shown by sleeve stripes and shoulder marks, as for all officers.

Nurses with ranks of commander through lieutenant have the title "Assistant Superintendent, Navy Nurse Corps."

Navy Rating Badges for Petty Officers

(Illustrations Plate XVII about one-fourth actual size)

Chief petty officers wear Rating Badges on sleeves of service coats, and petty officers wear them on jumpers.

Rating Badges are worn between shoulder and elbow on the right sleeve for the seaman branch and on the left sleeve for other branches.

Rating Badges consist of eagle, chevrons, arcs, and Specialty Marks.

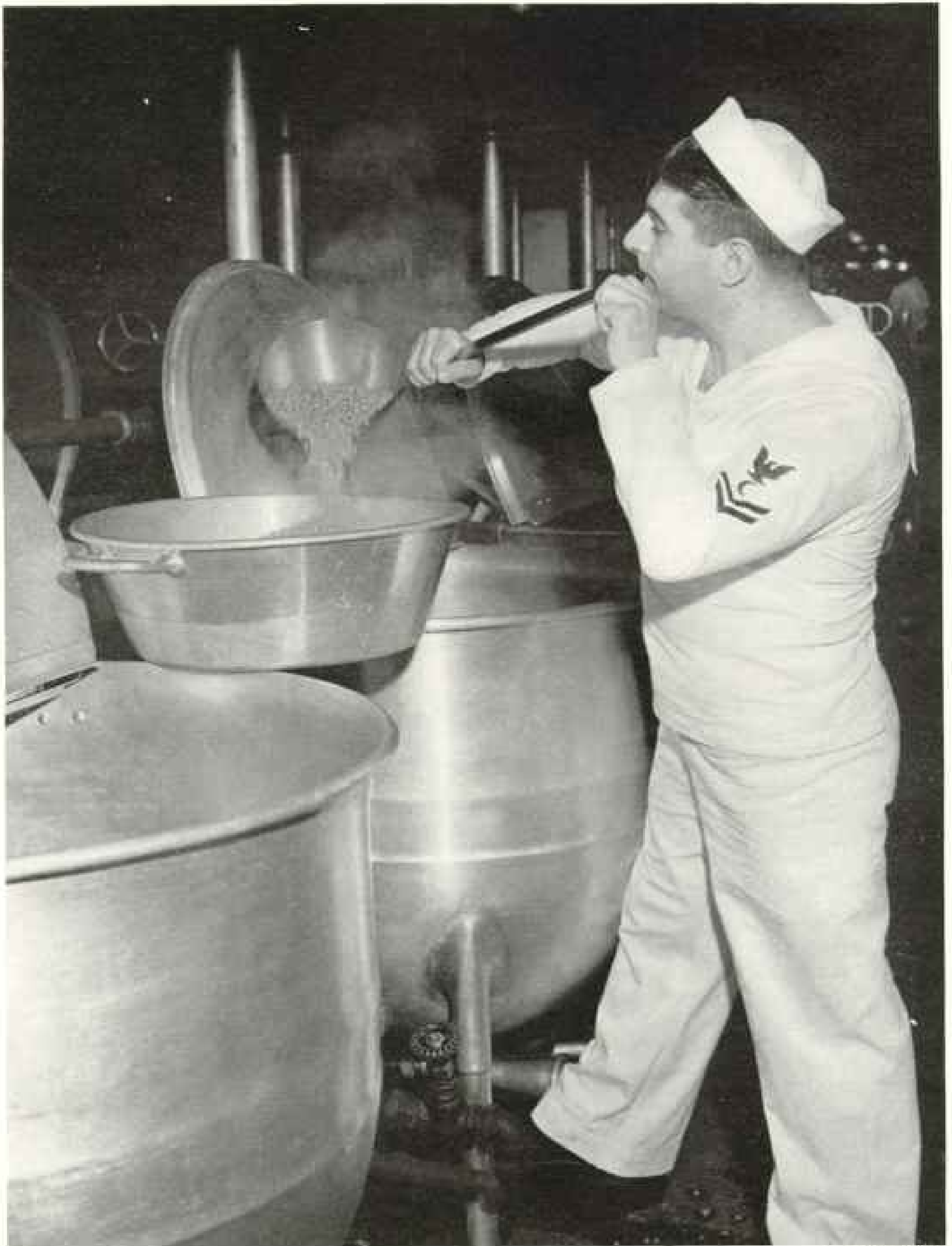
Backgrounds of chevrons for blue uniforms are blue; for white uniforms, white. For white uniforms the eagle and chevron are embroidered in blue; for blue uniforms, in white. Except as qualified below, chevrons are scarlet for blue clothing and blue for white clothing.

On blue uniforms, gold chevrons are combined with silver eagle and silver Specialty Mark for chief petty officers and petty officers of not less than 12 years' service, if they hold three consecutive good-conduct awards or if they have equivalent records.

Chief petty officers not qualified for Rating Badges with gold chevrons wear on blue clothing Rating Badges with red chevrons and with white eagle and Specialty Mark. Silver eagles and Specialty Marks may be substituted for white, at the wearer's option.

On chevrons on the left arm the eagle faces to its right; right arm, to its left. Thus the eagle always faces forward of the wearer—toward the enemy. This is the latest ruling of the Navy Department Permanent Uniform Board. Old rating badges, with eagle reversed, may still be worn.

Chevrons are not worn without Specialty Marks. Insignia similar to Specialty Marks, known as "Distinguishing Marks," are awarded for certain proficiencies. They are worn separately, not in Rating Badges (Plate XIX).



U. S. Navy, Official

That Moon on His Rating Badge Means He Really Can Cook

But it's not beans this time, Jack, it's green peas. A Navy cook, second class (moon and two chevrons), has all the answers of the galley when it comes to preparing a tasty dish. Old-timers, with some regret, hark back to days when beans were a mainstay on a ship's menu; today's sailor on a United States warship finds well-balanced meals, wholesome and appetizing.

Specialty Marks; in normal times, are the only devices worn as parts of Rating Badges. A recent war order, however, established a group of Specialist Ratings (Plate XVIII). These are now also worn as part of Rating Badges by men taken into the Navy for special service.

The entire Navy, indeed, is an organization of experts. If a man has a trade or specialty when he is taken in, he may continue in the same type of work. Such men sometimes become petty officers immediately upon enlistment. Others advance to positions as petty officers after practical experience at sea or after completing courses at Navy trade schools.

Service Stripes

(Illustrations Plate XVII about one-fifth actual size)

Each service stripe represents four years of active service. Of scarlet cloth for blue clothes and of blue cloth for white clothes, service stripes are worn on the left sleeves of chief petty officers' coats and re-enlisted men's jumpers.

Enlisted men holding three consecutive good-conduct awards (or equivalent) wear service stripes of gold on blue uniforms.

Commissioned officers do not wear service stripes.

Navy Cuff Markings

(Illustrations Plate XVII)

The young man who joins the Navy ordinarily finds himself at first an apprentice seaman. His dress jumper bears a cuff stripe of white tape. The first advance is to seaman, 2d class, or to fireman, 3d class. The Cuff Marking for fireman, 3d class, is the single stripe.

The chief petty officer wears a blue, white, or khaki service coat, without Cuff Markings.

Cuff Markings are white, whether for blue dress jumper or white dress jumper. The white garment has blue cuffs. Undress jumpers, with sleeves cut square at cuff openings, have no Cuff Markings. All jumpers, whether dress or undress, have wide sailor collars. For undress, collars are plain.

Dress collars are edged with white stripes. There are always three collar stripes, regardless of the number of Cuff Markings. Undress collars match the color of the uniform; dress collars are always blue. Dress collars have two white stars, placed in back inside the white stripes.

Dress uniforms are worn for ceremonies or when on liberty or leave. For ordinary occasions either on or off duty the undress uniform is worn. For work which would soil

these uniforms, dungarees (with trousers and jumpers of blue denim) are specified.

Branch Marks

(Illustrations Plate XVII)

Branch Marks are stripes of braid $\frac{3}{8}$ inch wide around the sleeve at the shoulder of jumpers of enlisted men, except petty officers. For men of the seaman branch, these marks are on the right sleeve—white for blue clothing; blue for white clothing. Red braid appears on the left sleeve of all others, on blue and white uniforms both.

Navy Specialty Marks

(Illustrations Plates XVII and XVIII about three-fourths actual size)

Branch Marks are worn until the enlisted man has earned a "rating." Then, as a petty officer, he wears a Rating Badge, which shows by his Specialty Mark his particular job, and by his chevrons his class. His branch now is shown by the position of the Rating Badge: right sleeve for men of the seaman branch, left sleeve for all others.

The Seaman Branch includes men with ratings as Boatswain's Mate, Fire Controlman, Gunner's Mate, Quartermaster, Signalman, Torpedoman's Mate, Turret Captain.

Other branches are: Artificer, Artificer (Engine Room Force), Aviation, Commissary, Special, and Messman.

Specialty Marks are embroidered in white for blue clothing and in blue for white clothing. An exception is the mark for hospital apprentice or pharmacist's mate (Plate XVIII), which is scarlet for both uniforms. In special cases, explained under Navy Rating Badges for Petty Officers (p. 698, and Plate XVII), Specialty Marks may be silver instead of white.

The Specialty Mark indicates a special line of work in which a man has attained skill. Such attainment also is represented by Distinguishing Marks (Plate XIX), but these are not worn as part of Rating Badges. It is possible to earn a Distinguishing Mark without having advanced to petty-officer rating.

Specialty Marks with names including the word "mate" are those for which there are corresponding grades among the warrant officers. Thus an Aerographer's Mate does the same sort of work as that assigned to an Aerographer, who is a warrant officer.

Classifications under which Specialty Marks are awarded have been extended and modified in recent months, as the Navy has adjusted itself to changing demands of the war. There has been noticeable increase in the number of Specialty Marks for aviation.

Familiar terms for ratings are in common

use within the service. These expressions are employed by officers and enlisted men alike when addressing petty officers up to chief. A chief petty officer, regardless of what specialty he has, is called simply "chief," but for other petty officers a carpenter is *chips*; a boatswain, *boats*; a signalman, *flags*; a bugler, *bugs*.

The radioman is *sparks*; gunner, *guns*; mess cook, *grease ball*; storekeeper, *keys*; yeoman, *pens* or *quills*; pharmacist, *doc*; fireman, *snipe*; electrician, *sparkie*; quartermaster, *wheels*.

For most of the ratings there are four classes: third class, second class, first class, and chief.

Examples of the usual abbreviations for classes recognized under the different ratings follow: Gunner's Mate—CGM, GM1c, GM2c, GM3c. Here we have chief gunner's mate; gunner's mate, first class; gunner's mate, second class; gunner's mate, third class.

Most designs of Specialty Marks and most duties under them are self-explanatory. In a few cases brief explanation is required.

AEROGRAPHER'S MATE. Makes weather observations, computes balloon soundings, and installs and operates meteorological observatories afloat or ashore.

AVIATION ORDNANCEMAN. Bursting bomb.

AVIATION RADIOMAN. Wings, with electric sparks.

BAKER, COOK. Crescent moon. There is no class above first. The next class is chief commissary steward.

BOATSWAIN'S MATE, COXSWAIN. There is no boatswain's mate, 3d class. The term for that class is coxswain. His duties are to know Navy signals, to steer ships, handle powerboats and sailboats, chart compass courses, direct salvage operations, and handle rope, wire, and anchor chain.

BOILERMAKER, ENGINEMAN, MACHINIST'S MATE, WATER TENDER. Three-bladed propeller.

CHIEF COMMISSARY STEWARD. The only class is "chief." Crossed keys and quill pen.

FIRE CONTROLMAN. Fire control pertains to firing of ship's guns. The design of the gun range finder is also used as a Distinguishing Mark (Plate XIX).

MUSICIAN. A lyre.

QUARTERMASTER. Ship's wheel. His varied duties are: to steer a ship; take soundings; use range finder; plot bearings; operate signal-control apparatus and searchlights; correct sailing charts; determine ship's position by sun and stars; navigate by dead reckoning, radio bearings, and soundings; send and receive International Code by blinker searchlight; signal by semaphore; have knowledge

of rules of the road, military honors, and ceremonies.

RADARMAN. Operates special sound equipment.

RADIOMAN. The same design is used as a Distinguishing Mark (Plate XIX).

SIGNALMAN. Crossed semaphore flags. The same design is used as a Distinguishing Mark (Plate XIX). A similar device, in metal, is worn as Army lapel and collar insignia for the Signal Corps (Plates III and IV).

SOUNDMAN. Earphones crossed with arrow.

STOREKEEPER. Crossed keys.

TURRET CAPTAIN. Gun turret.

YEOMAN. Crossed quill pen. The yeoman does clerical work.

OFFICERS' STEWARD, 1ST CLASS; OFFICERS' COOK, 1ST CLASS. These ratings of the Messman Branch include the rating of mess attendant. A crescent moon with a bar for each rise in class, up to four. The fourth bar, for chief cook or chief steward, was added in 1942.

Navy Specialist Ratings

(Illustrations Plate XVIII)

In block letters $\frac{5}{8}$ inch high (white letters for blue uniforms, blue letters for white uniforms), on diamond of blue or white cloth matching the uniform, Specialist Ratings, all recently created, are worn. Like Specialty Marks, the marks for specialists are part of Rating Badges. They are a wartime development for men who have gained certain proficiencies in civilian life.

Names of Specialist Ratings give a clue to the duties of persons wearing the insignia. The letter "I" is for International Business Machines. A new Specialist Rating, "C" for Classification Interviewers, has recently been added. Men holding this rating classify men entering the Navy.

Navy Distinguishing Marks

(Illustrations Plate XIX about three-fourths actual size)

Distinguishing Marks for petty officers, as defined in Navy *Uniform Regulations*, are sleeve markings for men who have met certain qualifications additional to those required for their ratings, or who are members of crews or of parties that have attained specified merits in certain competitions. For nonrated men, who may also wear the Distinguishing Marks shown on Plate XIX, there are other Distinguishing Marks identical in design with certain Specialty Marks shown on Plates XVII and XVIII.

Distinguishing Marks in the Navy are of two kinds. All but one represent personal qualifications. The "E" represents qualifica-

tion by special crews or parties, members of which wear the letter.

Three of the insignia on Plate XIX are identical in design with Specialty Marks (Plate XVIII). As Distinguishing Marks, these three insignia are designated as follows: Gun Range Finder Operator, Radioman, and Signalman. In the same order, the designations for Specialty Marks are: Fire Controlman, Radioman, and Signalman.

For nonrated men, the Distinguishing Marks additional to those shown on Plate XIX are illustrated as Specialty Marks on Plates XVII and XVIII under the following designations: aerographer's mate, aviation general utility, aviation machinist's mate, aviation metalsmith, boilermaker, electrician's mate, fire controlman, gunner's mate, machinist's mate, musician, quartermaster, storekeeper, torpedoman's mate, and yeoman.

Position of wear of Distinguishing Marks is explicitly prescribed in each case. The usual position is above or below the elbow on either sleeve. Sometimes the Distinguishing Mark appears just below the Rating Badge. The chief petty officer wears the Ex-Apprentice Distinguishing Mark on the coat sleeve below the Rating Badge midway between elbow and wrist; other petty officers wear it on the breast of the jumper just below the loop for holding the neckerchief.

Distinguishing Marks, except the red "E" in Engineering, are white on blue uniforms and blue on white uniforms. Gun Pointer, first class, and Master Horizontal Bomber are shown on blue backgrounds for wear on blue uniforms.

Certain Distinguishing Marks require individual mention.

SEAMAN GUNNER. Bursting bomb.

GUN CAPTAIN. Gun, with axis horizontal, muzzle pointing forward. Worn by men regularly detailed by the commanding officer of a vessel as a gun captain, except of a secondary gun battery.

GUN POINTER, FIRST CLASS. Cross wires of a gun sight. This insignia is also worn by Gun Director Pointers. Second classes for Gun Pointer and Gun Director Pointer use the same insignia without the star.

GUN RANGE FINDER OPERATOR. A range finder.

NAVY "E." There are two "E's," one in Gunnery, one in Engineering. The Engineering "E" is always red. The Gunnery "E" is blue for white uniforms, white for blue uniforms.

The "E's" are worn by members of crews or parties who have made exceptionally high scores in special forms of mine, torpedo, or

gunnery exercise; by recommended men of the engineer's force of vessels awarded the Navy "E" for excellence in engineering; and by recommended men of the communications force of vessels awarded the Navy "C" for excellence in communications.

The white or the blue "E" is worn as a gunnery award; for the award of the white Navy "E" to a vessel for excellence in engineering; and for the award of the white Navy "C" to a vessel for excellence in communications.

In the case of the gunnery award, the "E" is worn in accordance with the official *Orders for Gunnery Exercises*. In the case of awards for engineering and communications, the "E" is worn for one year from the time of notification of the award.

For a second award, a bar $\frac{1}{2}$ inch long and $\frac{1}{8}$ inch wide is embroidered $\frac{1}{4}$ inch below the "E." If other bars are added, they are spaced $\frac{1}{4}$ inch apart. Letters and bars match in color.

EXPERT RIFLEMAN; EXPERT PISTOL SHOT (also Rifle Sharpshooter). In addition to these Distinguishing Marks, the Navy gives metal breast badges comparable to marksmanship badges given by the Army. As already explained, marksmanship badges do not fall within the scope of this article.

CONSTRUCTION BATTALION (CB). The "Seabees," which originated at Pearl Harbor, construct mobile and advance bases and supply depots overseas. They build roads, runways for air bases, ponton landings, bridges, hospitals, barracks, hangars, living quarters, docks, fortifications, and evaporator plants. They excavate for underground fuel tanks and install sanitary facilities. Also, they drive piles and camouflage guns and buildings. On all battle fronts, the CB's serve (page 706).

RADIOMAN. Four horizontal shafts of forked lightning.

EX-APPRENTICE. "Figure-of-eight" knot. Worn only by enlisted men who have passed through the rating of apprentice. This Distinguishing Mark, though still worn, is no longer issued.

MINE WARFARE. Mine (circle) and anchor.

AERIAL GUNNER. Winged machine gun with sights.

MASTER DIVER. Diving helmet and breast plate, with letter "M" on breast plate.

DIVER. With figure "1," First Class; figure "2," Second Class; letter "S," Salvage.

MASTER HORIZONTAL BOMBER. Cross wires of a gun sight with falling bomb in center; white star above.

SUBMARINE INSIGNIA. Same design as metal breast badge on Plate XV.

Navy Buttons

(Illustrations Plate XIX)

For commissioned and warrant officers, buttons are gilt. The design, stamped on the surface, consists of an eagle, dexter, perched on the shaft of an anchor, encircled with 13 stars. Sizes are measured by the line, about 10 lines to a quarter of an inch. Four sizes are in use, as follows: 40-line, overcoats; 35-line, coats; 28-line, mess jackets; 22½-line, waistcoats. Chief petty officers wear the same button in 28-line for coats; 22½-line for waistcoats. On overcoats, chief petty officers wear Navy standard black anchor buttons (50-line).

Also illustrated are other black buttons for enlisted men: 30-line for dungarees; 25-line for wear on blue trousers. Thirteen trouser buttons are worn—seven across the waist, three down each side.

Bandsmen wear 35-line gilt buttons on full-dress coats.

Officers' cooks and stewards wear the standard Navy black anchor button, 30-line, on blue coats; and white anchor buttons of the same size on white coats.

On coats of aviation winter working uniforms, officers wear the standard Navy design of officer's button in bronze metal: 35-line in front; 22½-line for shoulder marks and pocket flaps.

Marine Corps Cap Ornaments

(Illustrations Plate XX about actual size)

Marine Corps cap ornaments, adaptations of the Marine Corps emblem, are basically the same, showing variation in size and metal and in a few details.

In the device for officers, the rope in several places stands free of the anchor. For enlisted men, spaces between the rope and the anchor are not cut out. When the device is used for garrison caps, whether for officers or enlisted men, the entire rope is dropped. Thus modified, the same device is also worn on the collar. The complete device, including the rope, is the familiar Marine Corps emblem (adopted in 1868) when a ribbon bearing the Marine motto *Semper Fidelis* (Always Faithful) is placed above the eagle's head.

OFFICER (Dress). Worn on full dress, dress, and white caps.

OFFICER (Service). Dull-finish bronze throughout.

ENLISTED MAN (Dress). Gilt. Worn on dress and white caps.

OFFICER (Garrison Cap). Same as left service bronze collar ornament for officers (see

Collar ornament text, below). Worn on left side of garrison cap, with center of ornament two inches from front. Rank insignia (smaller than those illustrated on shoulder straps, Plate XXI) are worn on right side.

ENLISTED MAN (Garrison Cap). Same as left service bronze collar ornament for enlisted men (see Collar ornament text, below). Worn on left side of cap.

AVIATION CADET. Until recently, aviation cadets in training for service in the Marine Corps were considered part of that corps. They wore the cap ornament illustrated. Now aviation cadets are in the Navy until commissioned in the Marine Corps.

OFFICER (Crown of Cap). Ornamentation, green tubular braid. Use of this design, according to one legend, goes back to Revolutionary War days, when men fighting on decks wore rope crosses sewn on top of their hats so that their marine comrades, who were stationed aloft to pick off the enemy during hand-to-hand fighting, would not shoot them by mistake. The ornamentation shown is for the winter service uniform. The same design in other colors is used on other caps.

Marine Corps Collar, Lapel, and Shoulder Strap Insignia

(Illustrations Plate XX about actual size)

Illustrations give examples of all collar, lapel, and shoulder strap insignia worn by the Marine Corps, with exception of rank insignia shown on Plate XXI.

On each side of the collar of service and dress uniforms officers and enlisted men wear the Marine Corps ornament.

There are three departmental insignia which may be worn by officers and commissioned (chief) warrant officers on lapels of service coats. These are for permanent staff officers of the three Marine Corps departments—the Adjutant and Inspector's Department, the Paymaster's Department, and the Quartermaster's Department.

On dress and white uniforms, which have no lapels since they are made with standing collars, departmental insignia are worn in the center of each side of the collar behind the collar ornaments.

The departmental insignia are also worn by warrant officers on the shoulder straps in lieu of rank insignia. Thus, on the winter service coat, a commissioned warrant officer who is a chief pay clerk would wear his gold-and-blue chief warrant officer's bar on his shoulder strap and his Paymaster's Department insignia on his coat lapels.

The warrant officer, however, who is a pay clerk, would not have a rank bar, and so he



Staff Photographer: Willard W. Culver

Many Uniform Insignia Are Hand-embroidered

To the right of the young woman's deft fingers are completed Navy rating badges for chief commissary steward (Plate XVIII). The embroidering is done on uniform cloth, according to stenciled design.

would show his status by wearing his departmental insignia on his shoulder strap.

The marine gunner's insignia for chief warrant and warrant officers is worn in the same way as departmental insignia. The chief marine gunner wears his insignia on the lapels of the service coat and on the collar of the dress and white coats. The marine gunner wears it on his shoulder straps in lieu of a rank device.

Illustrations of the use of departmental and marine gunner's insignia on shoulder straps are given on Plate XXI.

A lapel insignia is worn by commissioned officers who serve as aides-de-camp. It is worn on the lapel of the service coat and on the collar of the dress and white coats

in the same manner as that described for officers' departmental insignia.

OFFICER—LEFT (Service). Collar ornament. Worn also on garrison cap. Dull-finish bronze. Same ornament, with facing of eagle and direction of anchor reversed, is worn on right collar; hemisphere unchanged. Dress collar ornaments are of same design, with hemisphere $\frac{1}{16}$ inch in diameter, in gold and silver as for officer's dress cap ornament. Dress ornaments are worn on dress and white coats.

ENLISTED MAN (Service). Left and right. Left ornament is also worn on garrison cap. Bronze. Same collar ornaments in gilt worn for dress.

ADJUTANT AND INSPECTOR'S DEPARTMENT (Dress). Sword crossed with fasces, surmounted with wreath encircling shield. Designs for right and left identical. Service ornaments, of dull-finish bronze throughout, are of same design and size. For wear, see intro-

duction to this section; also Marine Corps Shoulder Straps text (Plate XXI and p. 705).

MARINE GUNNER (Dress). Chief marine gunner and marine gunner wear a chased-silver bursting spherical shell with flame. Service insignia is dull-finish bronze. For wear, see introduction to this section; also Marine Corps Shoulder Straps text (Plate XXI).

PAYMASTER'S DEPARTMENT. Right, dress; left, service. Sword crossed with quill pen, surmounted by a wreath of oak leaves and acorns. The service insignia is dull-finish bronze. For wear, see introduction to this section; also Marine Corps Shoulder Straps text (Plate XXI).

QUARTERMASTER'S DEPARTMENT (Dress). Sword crossed with key, surmounted by wheel

with rim set with 13 stars. The service insignia is dull-finish bronze. For wear, see introduction to this section; also Marine Corps Shoulder Straps text (Plate XXI).

AVIATION CADET (Dress). See text on Marine Corps Cap Ornaments (page 703).

AIDES-DE-CAMP (Dress and Service). Aides to general officers wear a shield of the United States with a star or stars to indicate rank of the general whom the aide serves. Service ornament is dull-finish bronze. Insignia worn in pairs, the eagles facing. For wear, see introduction to this section.

SECOND LEADER, BAND. Lyre for wear on shoulder straps. The same insignia, reduced one quarter, is worn on collars of shirts. This lyre was formerly worn by the leader of the Marine Band. It is now worn by the second leader, because the present leader is a commissioned officer with the rank of captain. The Marine Band was established soon after the Marine Corps was authorized. It played at the White House reception on New Year's Day, 1803. For many years it was under the direction of John Philip Sousa. It long has been the official band of the President.

Marine Corps Shoulder Straps

(Illustrations Plate XXI)

The shape of the Marine Corps shoulder straps differs from those used by the Army, Navy, and Coast Guard, in that the end at the collar is rounded rather than pointed. The straps, illustrated for the Marine Corps green service coat, are three inches wide at the armhole seam. The strap is fastened to the uniform near the neck by a Marine Corps button, shown in large size on Plate XXII.

Shoulder straps of Marine Corps uniforms carry insignia of rank. Like the Army, the Marine Corps uses five-pointed silver stars to show the rank of its general officers. On January 20, 1942, the Commandant of the Marine Corps was raised from the rank of major general to that of lieutenant general. He has three silver stars.

Certain rank insignia require individual mention.

COLONEL. Eagle with right talons grasping olive branch, left talons a bundle of arrows. Insignia made in pairs; only the head of the eagle is reversed for left and right. Eagle faces to the front of wearer.

LIEUTENANT COLONEL. Seven-pointed silver oak leaf.

MAJOR. Gold oak leaf.

CAPTAIN. Two silver bars.

CHIEF WARRANT OFFICER. Commissioned warrant officers have the titles of chief marine gunner, chief pay clerk, and chief quarter-

master clerk. There is a chief warrant officer for each of the three Marine Corps departments, as explained in the section on Marine Corps Lapel Insignia (see page 703, and Plate XX). In the Adjutant and Inspector's Department, however, the chief warrant officer is called a Chief Quartermaster Clerk (A. and I.). The initials are added to avoid confusion with the chief quartermaster clerk in the Quartermaster's Department.

Chief warrant officers have a diagonally chased gold bar with blue stripe.

Information about other insignia worn by chief warrant officers is given in text for Lapel insignia (see page 703, and Plate XX).

CHIEF WARRANT OFFICER, PAYMASTER'S DEPARTMENT (Overcoat and Raincoat). The commissioned warrant officer wears both his gold-and-blue rank bar and his departmental insignia on overcoats and raincoats. The chief pay clerk overcoat shoulder strap on Plate XXI is shown as an example.

WARRANT OFFICERS. Warrant officers, unlike chief warrant officers, are not commissioned. They show their status by wearing one of the three departmental insignia or the marine gunner's insignia in lieu of rank insignia. The warrant officers' insignia shown on Plate XXI are for service uniforms. Dress insignia are displayed on Plate XX.

SECOND LEADER, MARINE BAND. In lieu of rank device, the second leader of the Marine Band wears a silver lyre.

AVIATION CADET. See text on Marine Corps Cap Ornaments (page 703).

Rank insignia, $\frac{5}{8}$ full size, are worn on both ends of collar of cotton and flannel shirts, when shirts are worn without coats.

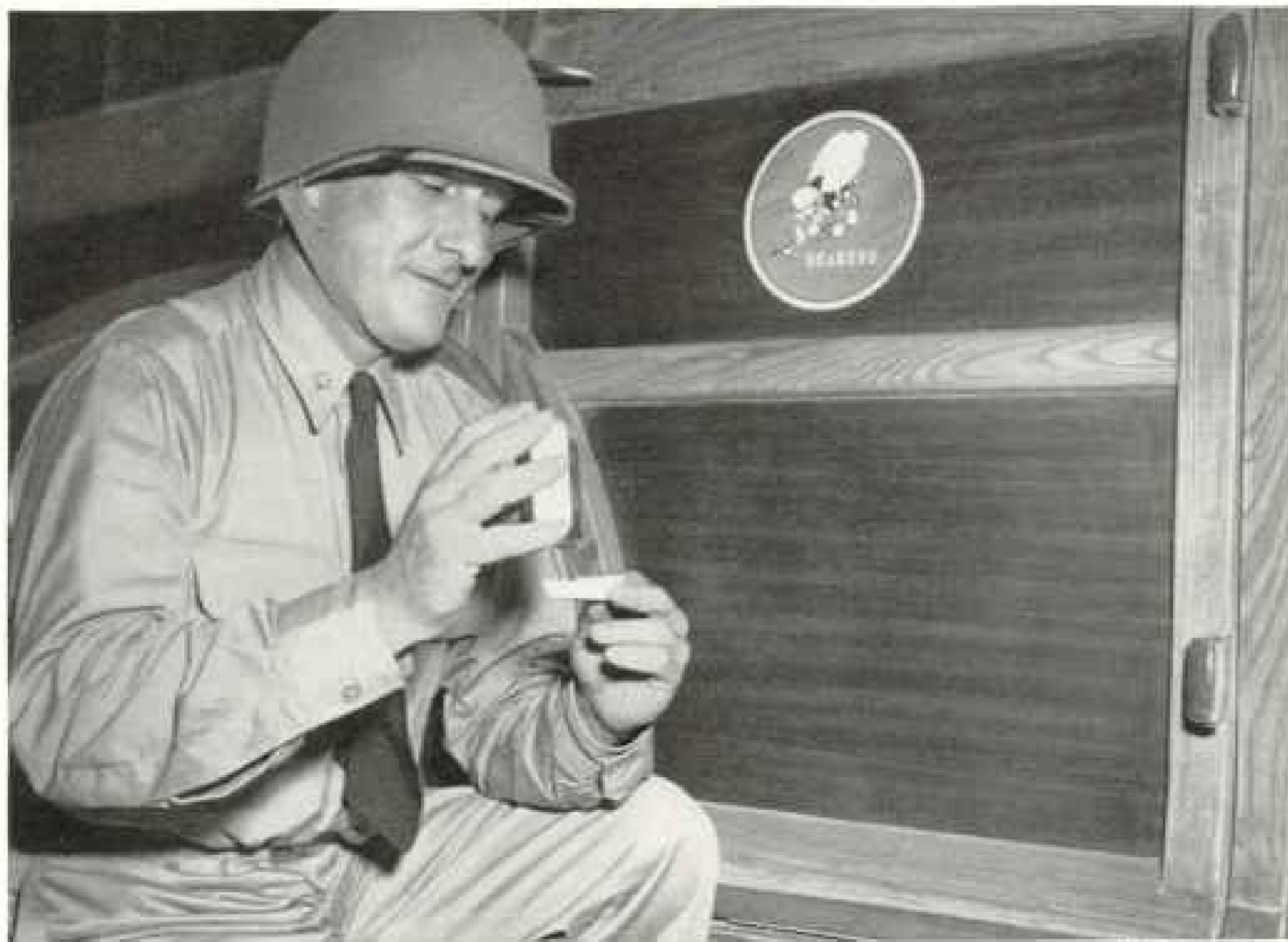
Marine Corps Chevrons and Service Stripes

(Illustrations Plate XXI)

Ranks of noncommissioned officers and privates first class in the Marine Corps are indicated by chevrons. Formerly chevrons were worn on both sleeves, but by an order of September 9, 1942, chevrons are now worn only on the left sleeve. They are placed halfway between elbow and shoulder.

Three types of chevrons are illustrated: those on dress uniforms, the famous "dress blue"; those on summer service, or khaki; and those on the winter service, or Marine Corps green uniform. Only examples are given for dress and summer service. A complete set of chevrons is shown for winter service. The chevrons are $3\frac{1}{4}$ inches wide.

Noncommissioned officers of the line have bars "joined" by arcs. The noncommissioned officers of the staff have bars joined



U. S. Navy, Official

A Flying Bee, Fighting Mad, Signifies the "Seabees"

Insignia of the Navy's Construction Battalion puts a sailor's hat on the bee's head; a tommy gun, wrench, and hammer in its "hands." On its sleeves are rating badges for gunner's mate, machinist's mate, and carpenter's mate. The gold oak-leaf insignia on the officer's collar shows him to be a lieutenant commander. Were it of silver, his rank would be that of commander.

by ties. Specialization in either line or staff duties begins with the marine's advance from enlisted man to private first class, but the observer cannot tell to which group a man belongs until he reaches the third grade and acquires either an arc or a tie.

There are seven branches from which the enlisted man may choose his course of advance, the line branch and the six others: music, signal and radio, quartermaster, paymaster, aviation, and mess. The enlisted man in the line branch (which permits of specialization within the branch itself) advances toward bars with arcs, and the enlisted man of any of the other six branches works toward bars with the ties of the staff man.

There are seven pay grades in the Marines, from private (7th grade; no chevrons) to highest sergeants with three bars and three arcs (line) or three bars and three ties (staff). Pay grades for line and staff are comparable.

SERGEANT MAJOR, MASTER GUNNERY AND FIRST SERGEANTS. (Line, 1st grade.) The sergeant major is master of drills, regulations, billeting troops, and handles office ad-

ministration. The master gunnery sergeant is an expert in the care and use of arms and ordnance. First sergeant is the leading soldier of his company and is an expert in military drills, department, and routine.

MASTER TECHNICAL, QUARTERMASTER, AND PAYMASTER SERGEANTS. (Staff, 1st grade.) The master technical sergeant is proficient in music, radio and telephone equipment, assembly and repair of aviation equipment, or in the selection and distribution of food, according to his branch. The quartermaster sergeant acts as custodian of food, clothing, and field equipment, and assists in movements of troops and supplies. The paymaster sergeant assists the paymaster in disbursement of funds and rendering accounts.

GUNNERY SERGEANT. (Line, 2d grade.) Gunnery sergeant is proficient in care, mechanism, and operation of various weapons.

TECHNICAL SERGEANT, DRUM MAJOR, SUPPLY SERGEANT. (Staff, 2d grade.) Technical sergeants have duties of the same nature as those of the master technical sergeants. Drum major is a qualified instructor or leader in

routines followed by service bands at guard mounts, parades, and other ceremonies. Supply sergeant is skilled in the care, handling, custody, and transportation of supplies, and among his duties are maintenance and operation of Quartermaster trucks, and power plants.

PLATOON SERGEANT. (Line, 3d grade.) Second-in-command, company subdivision.

STAFF SERGEANT. (Staff, 3d grade.) Familiarity with skills required in any of the six staff branches. For example, in the aviation branch a staff sergeant might be an enlisted pilot; in the mess branch, he would manage the details of providing subsistence for several hundred men.

SERGEANT. (4th grade.) Proficiency in one of the six branches of the staff or in duties performed by the line.

CORPORAL. (5th grade.) Line or staff man who has shown aptitude in one of the branches.

PRIVATE FIRST CLASS. This insignia marks the first step taken by the enlisted man; it indicates his ability to perform specialized duties, for at this stage a specific branch is chosen.

SERVICE STRIPES. Each stripe, or "hash mark," indicates a completed enlistment, or "cruise," of four years. Only one stripe or set of stripes is worn on a uniform. Two sets of stripes are illustrated to show the appearance of the stripes for different numbers of years of service. Stripes, $\frac{1}{8}$ inch apart, are now worn on the outer half of the left sleeve only, above the cuff, of dress and winter service coats and overcoats. On Plate XXI are shown stripes for the winter service coat.

MUSICIAN, MARINE BAND. Five grades of musicians in the United States Marine Band, all wearing the lyre, are distinguished by bars and arcs, as follows: principal musician, three bars, two arcs; first class musician, three bars, one arc; second class musician, three bars; third class musician, two bars; first class private, one bar.

The chevron for first class private, illustrated, is shown in colors for overcoats. Colors for blue dress uniform jackets are yellow for bars, arcs, and lyre upon scarlet background.

Fourragère

(Illustration Plate XXII)

The Fourragère was instituted by Napoleon I of France for units which distinguished themselves in battle. The decoration, revived during World War I, was presented by the French Ministry of War to organizations which were cited more than once in the French Orders of the Army.

The Fourragère is worn around the left shoulder. A small loop is buttoned under the shoulder strap. A brass "pencil" hangs in front. The braided cord is green with four red stripes, colors of the ribbon of the French Croix de Guerre. Total length approximately $38\frac{1}{4}$ inches. Worn by officers and enlisted men of cited units.

Individuals may wear the Fourragère not only as a unit award but also as a personal decoration. For this latter use a miniature bronze device of the division to which the wearer was attached when he received his last citation is placed on the knot, and a miniature bronze Marine Corps emblem is fastened below the divisional insignia.

The Fourragère never was issued with a secondary braid inside the main braid. Some officers, especially in France after the last war, have bought the Fourragère with two braids. Careful research and analysis of French records by Marine Corps officials have shown that the center braid is not authorized for either officers or enlisted men.

Marine Corps Service Aiguillettes

(Illustrations Plate XXII)

Aides-de-camp to the Secretary, the Under Secretary, and the Assistant Secretaries of the Navy; on the personal staff of a flag officer of the Navy; to general officers; and to visiting foreign officers, as well as naval attachés or assistant attachés, wear aiguillettes at all times. Service aiguillettes illustrated are worn on the blue undress, white undress, winter and summer service uniforms, and on overcoats. They are fastened under the left shoulder strap and go around the arm. The loops are made of gold wire and scarlet cord.

Dress aiguillettes are worn on the right side by an aide-de-camp to the President and by officers detailed to duty at the White House. They are worn on the left side by all other officers for whom prescribed. Dress aiguillettes, not illustrated, are more elaborate than service aiguillettes. The dress aiguillette for an aide-de-camp to the President is gold. If an aide also possesses a Fourragère, it is worn under the aiguillette.

Aides-de-camp to general officers wear, in addition to aiguillettes, the lapel insignia shown on Plate XX.

Distinguishing Marks

(Illustrations Plate XXII)

Four of the Distinguishing Marks awarded to Navy personnel may be earned by members of the Marine Corps. Marks illustrated are red on Marine green winter service uniforms.



Staff Photographer Ernest J. Cottrell

"Battle Blaze" Commemorates Guadalcanal

This Marine Corps insignia, sewn to the left sleeve below the shoulder, is of blue cloth, with red numeral and white lettering. White stars represent the constellation of the Southern Cross, under which the Solomon Islands fighting took place. Other "battle blazes" may be adopted.

See text on Navy Distinguishing Marks, Plate XIX and page 701).

GUN CAPTAIN; GUN POINTER, FIRST CLASS; GUN POINTER, SECOND CLASS. Placed on the right sleeve of coat, halfway between elbow and bottom of cuff.

If service stripes are still worn on both sleeves, the mark is placed above them. Worn on dress and winter service coats only. Gun captain's insignia faces front.

NAVY "E." On right sleeve of dress and winter service coats only. On winter service coat the letter is $2\frac{1}{2}$ inches above bottom edge of sleeve, centered under cuff.

Marine Corps Brassards

(Illustrations Plate XXII)

Brassards are worn on the left sleeve, midway between shoulder and elbow, or below chevron. The brassard for Military Police is in current use.

The other brassards which are illustrated are specified in Marine Corps *Uniform Regulations*.

SICK-LIST BAND. Though worn on the arm, this mark for men requiring medical attention is not generally considered a brassard. It occupies the position of a brassard, but on the right sleeve.

Parachutist's Badge

(Illustrations Plate XXII)

The parachutist's badge is the same as that worn in the Army; it is discussed with Plate XII on page 693. Marine Corps parachutists are popularly called "paramarines."

Marine Corps Buttons

(Illustrations Plate XXII)

The design of the Marine Corps buttons is said to date back to the 1790's. Line drawings show comparison of buttons for officer and for enlisted man. For officer's buttons the anchor rope and the eagle's tail are longer than for the enlisted man's buttons. Service buttons are dull-finish bronze; dress and white uniform buttons, gilt.

Marine Corps Helmets

(Illustrations Plate XXII)

FIBER. The fiber helmet was authorized in December, 1940, for wear by officers and enlisted men in the Tropics or wherever the climate permits. It is of khaki color with dark-brown chin strap. The Marine Corps emblem is worn on the front.

STEEL. The steel helmet, very different in shape from the one worn in World War I, is the same as that now authorized for Army wear.

Marine Corps Aviation Badges

(Illustrations Plate XXII)

The two aviation badges worn by the Marine Corps are the same as two of those worn by the Navy. These badges are discussed with Plate XV on page 697. Miniatures of both are made approximately half size. They are worn on evening dress and white mess jackets.

Coast Guard Insignia

(Illustrations Plate XXIII)

Coast Guard Shoulder Marks and Sleeve Stripes

Rank by rank, Coast Guard shoulder marks and sleeve stripes are the same as for the Navy (see page 695, and Plate XIV), except that the Coast Guard uses a shield in place of the Navy's line star or corps devices.

The commandant of the Coast Guard, since March 10, 1942, has held the temporary rank of vice admiral.

Formerly the rank was rear admiral. Commandants are appointed by the President for four-year terms. The highest permanent rank is rear admiral.

Coast Guard Service Stripe

(Enlisted Man)

Coast Guard service stripes are identical with Navy service stripes (see page 700, and Plate XVII).

Coast Guard Aviation Badge

The aviation badge is the same as the one for Naval aviator (see page 697, and Plate XV).

Coast Guard Shields

OFFICER AND WARRANT OFFICERS. Gold on all uniforms except winter aviation (black).
CHIEF PETTY OFFICER. Silver on all uniforms except winter aviation.

ENLISTED MAN (Winter). White.

ENLISTED MAN (Summer). Blue for white uniform. Same shield in white for blue uniform. The shield is worn on all uniforms on the right sleeve above the cuff, whether the Rating Badge is worn on the right arm or the left arm.

Coast Guard Buttons

Buttons are gilt for officers. The smaller illustration was taken from an actual button, the larger from an ink drawing by a Geographic staff artist who worked under direction of the Coast Guard. The eagle's head on the button now in use faces sinister (left). The drawing shows the eagle's head facing front, which is the correct position according to Coast Guard regulations. It is anticipated that after the war new buttons will be made like the drawing.

Enlisted men wear regulation Navy black buttons (Plate XIX).

Coast Guard Cap Insignia

OFFICER AND CHIEF WARRANT OFFICER. Eagle with wings $2\frac{3}{4}$ inches from tip to tip. Metal device illustrated; embroidered device also authorized.

WARRANT OFFICER. Width $2\frac{1}{8}$ inches. Metal and embroidered devices authorized.

CHIEF PETTY OFFICER. Height, $1\frac{3}{4}$ inches.

SHORE ESTABLISHMENTS. Width $1\frac{3}{4}$ inches. Shield centered upon disk bearing words "United States Coast Guard 1790" and superimposed upon crossed anchors. The insignia of the Coast Guard itself is substantially the same as this cap insignia. Difference lies in

omission from the cap insignia of the word *Semper* above the shield and the word *Paratus* below the shield—*Semper Paratus* (Always Ready), the Coast Guard motto.

OFFICERS' STEWARD. Letters about $\frac{3}{8}$ inch high.

Like the Navy, Coast Guard commissioned officers, chief warrant officers, warrant officers, and chief petty officers are authorized to wear garrison caps.

Coast Guard Insignia

(Illustrations Plate XXIV)

Coast Guard Chief Warrant Officers and Warrant Officers' Specialty Devices

These devices, discussed in the section of Navy text for Plate XV, are identical with corresponding insignia for the Navy. The Navy refers to them as Corps Devices, because they are representative of the several Navy corps.

When worn by members of the Coast Guard, they are commonly grouped as Specialty Devices, because the Coast Guard is itself, in a sense, a corps.

Specialty Devices are worn above the shields on shoulder marks and sleeve (Plate XXIII).

Coast Guard Rating Badges

Petty officers wear upon their sleeves some of the Navy Rating Badges.

For Coast Guardsmen as for Navy men, summer uniforms are white, winter uniforms navy blue. The illustrations of Rating Badges shown are for summer uniforms.

Coast Guard Specialty Marks

Coast Guard and Navy Specialty Marks are identical, though fewer are used in the Coast Guard. Abilities required of men wearing them in the two services are practically the same. Discussions of the individual marks will be found in the section of Navy text for Plates XVII and XVIII, pages 700-1.

Coast Guard Specialist Ratings

Like the Navy (page 701), the Coast Guard uses Specialist Ratings in Rating Badges. Coast Guard Specialist Ratings include "M" for Mail Clerk (Plate XVIII) and three others. These are "CW" for Chemical Warfare; "TR" for Transportation; and "D" for Dogs and Horses.

Members of the National Geographic Society wishing separate reprints of the 72-page presentation of Insignia of the Armed Forces of the United States may obtain them from The Society's headquarters, Washington, D. C., upon remittance of 25¢ per copy postpaid. If requested The Society will mail reprints direct to any members of the Armed Forces in the United States at 25¢ per copy postpaid.

Aircraft Insignia, Spirit of Youth

BY GERARD HUBBARD

THE young American flying fighter—cheerful, resourceful, courageous—studies the spirit of his organization, its mission, its goal, and finds there something to be expressed; something to him worth fighting for. He turns to pictures.

Hilarious, fanciful, or grim, his paintings are always young. After the artist has done his sketch and his squadron colleagues have given assent, down goes the paintbrush into the can. Soon, on the side of another plane, a new symbol appears.

Thus aircraft markings are born.

Remember the "Hat-in-the-Ring" of Capt. Eddie Rickenbacker, World War I ace of aces, and his 94th Aero Squadron? (Plate XXVIII: 94th Fighter Squadron.) The 94th was officially the first American squadron representing the American air forces to arrive on the Western Front. The design was adopted because it was symbolic of Uncle Sam throwing his hat into the ring.

Already, insignia of World War II have recorded enduring pages of daring and bravery.

Great is the record of the 19th Bombardment Group, stationed in the Philippines when the Japanese attacked Manila. Insignia of two of the Squadrons are shown—the 30th and the 93d (Plate XXVI). The 19th Group, after helping to evacuate Manila, participated in actions around Java and moved on to Australia.

The 11th Bombardment Squadron and the 14th Bombardment Squadron are great names, too (Plate XXV).

From these Squadrons, as from those of the Navy, emerge names of individual officers and enlisted men standing for deeds of singular merit.

Key Words of Fighting Men

In the quick tempo and brilliant colors of paintings upon the sides of aircraft the young American seems to say: "Me? Not a care in the world! It's all fun!"

But the key words and phrases in official descriptions of the designs indicate a deeper meaning. Such words are: Determination—Destructive Fighting Power—Readiness—Knowledge of Flight—Keen Vision—Fierce Pursuit—Able, Clean, and Tough Fighter.

The insignia of the Army's 65th Fighter Squadron is described as "a red gamecock in fighting attitude, wearing a flying helmet and carrying a chip of wood on his left shoulder" (Plate XXVIII).

The 78th Fighter Squadron's insignia portrays "the bushmaster, a native of Central America, one of the few pugnacious reptiles greatly feared by man and beast." A bushmaster "lies quietly waiting to attack its adversary quickly and effectively by complete surprise" (Plate XXVIII).

Sometimes designs are more serious, as when they show "Neptune, or Poseidon, with trident, mounted on a sea horse," to suggest that the 2d Observation Squadron of the Army operates seaplanes (Plate XXIX).

Again, the airman turns to modern symbolism, as when the 3d Observation Squadron adopts a yellow disk to "represent the lens of a camera with a yellow filter, which permits penetration of atmospheric haze. The winged aerial camera signifies speed, while the lightning flash symbolizes the piercing of the elements of ignorance" (Plate XXIX).

The Army's 66th Fighter Squadron represents itself as "a brown bird having the body and head of a penguin, the yellow claws and beak of a falcon; holding a lighted cigar, wearing the clothes of a pug." The garb is listed as "a red cap with visor pulled down and worn backwards, a yellow turtle-necked jersey with sleeves rolled up; and boxing gloves" (Plate XXVIII).

Official descriptions of Army insignia often tell revealing stories. Thus:

10th Bombardment Squadron (Plate XXV)—"The moon and star are celestial bodies used in long-range flights where accurate navigation is essential. The lion and bomb represent the force and striking power of a heavy bombardment unit."

25th Bombardment Squadron (Plate XXVI)—"The Executioner was adopted by the old 25th Squadron in 1917. The notches in the axe stand for the number of enemy aircraft credited to each pilot while with the British Air Forces."

91st Observation Squadron (Plate XXIX)—This Squadron visualizes itself as "a mounted knight in armor chasing the devil."

97th Observation Squadron (Plate XXIX)—The basic purposes of observation aviation—to observe, record, and report, with deadly results—are indicated in a skeleton made up of radio earphones, binoculars, a radio set, aerial camera, and two microphones.

Navy Squadron designs, approved by the Bureau of Aeronautics, also are often whimsical.

Patrol Squadron 31 (VP-31; Plate XXXI)



U. S. Army, Official

Put Boxing Gloves on His Hands and You Have His Squadron Insignia

The captain's gestures illustrate his views on the all-absorbing topic of officers of the 11th Army Air Force—how to drive the Japs out of the Aleutian Islands. He wears his bars (Plate I) upon his shoulder loops while the listening captain wears his upon his cap. On the plane, at right, is the U. S. Wing Marking (Plate XXV). The aircraft insignia was adopted in the field and has not yet been submitted for approval.

implies that its primary mission is patrol by displaying "a policeman chasing an imaginary enemy."

The missions of Utility Squadron 2 (VJ-2; Plate XXXI) are represented by a safety pin, "an implement of general utility, which certainly is an agent with odd and sundry duties, being utilized as a replacement of regular agents when such agents fail or are missing."

While Bombing Squadron 41 (VB-41; Plate XXXI) was casting about for an appropriate insignia, one of the pilots appeared in a battered top hat. A "High Hat" immediately was adopted as insignia, for no other reason than that "it seemed like a good idea at the time."

Other Navy Squadrons also have good ideas:

VB-136 (Bombing Squadron 136; Plate XXXI)—"A husky licks his lips in anticipation of jumping into the fray." Eagerness for combat characterizes Bombing Squadrons.

VP-81 (Patrol Squadron 81; Plate XXXI)—A polar bear, "patrolman of the North," stands on Mount Edgecumbe, volcanic cone outside Sitka Harbor, Alaska. The constellation of the Great Bear points to the North Star.

VF-10 (Fighter Squadron 10; Plate XXXI)—Under the battle cry "Mow 'em down!" members of this Squadron, calling themselves "The Grim Reapers," selected a skeleton in a headlong dive, his scythe cocked ready to strike, representative of sudden death to the enemy.

White Star Marks All Planes

There is one aircraft insignia which is displayed on all military and naval airplanes of the United States, whether Army, Navy, Marine Corps, or Coast Guard. This U. S. Wing Marking, a large white star on a blue disk (Plate XXV), is painted on planes in four

places: upper surface of left wing; under surface of right wing; both sides of fuselage.

The marking had a red dot in the center of the star until it was discovered that it too closely resembled a marking of Japanese aircraft, and that it afforded too good a target.

Squadron insignia for the Army, Navy, and Marine Corps are painted on planes on both sides, near the nose. The Coast Guard has no Squadron insignia. A single design for all Coast Guard planes is about to be adopted.

Plates XXV through XXX show insignia of Squadrons of the Army Air Forces. The underlying idea of such designs has the blessing of Gen. H. H. Arnold, commander of all U. S. Army Air Forces. As this is written, 243 insignia have been approved for active Squadrons. All are shown. Others are coming in, through the Army Air Forces' own Insignia and Design Section, at the rate of two a day. Pilots of the flying units say what they'd like to have; the Assistant Chief of Air Staff, Personnel, Washington headquarters, answers yes or no; generally yes.

Insignia, by regulation, "may be of caricature design, not necessarily classic or heraldic, but must be in good taste and of composition to enable painting on airplanes by simple stencil." Formerly, the Coast Guard seal (see Shore Establishments under Cap Insignia text on page 709 and Plate XXIII) was transferred by decalcomania to both sides of the fuselage of Coast Guard planes. This device, with the words "United States Coast Guard" in large letters, often has given hope to marooned persons.

Robert D. Ewin, Heraldic Consultant of the Army Air Forces, is guided by provision that each design shall be sufficiently clear to be distinguished at a distance of 150 yards; and that it must not include any of these elements: numerals; the letters "U. S."; the Air Forces insignia; the Flag of the United States; the United States coat of arms or any part of it; the complete coat of arms of any State or country; the motto of any State or country, of any other arm or service of the United States, or of any other organization of the Army; outlines of geographical maps; military decorations; campaign ribbons.

Not all suggestions made by the flyers are streamlined. For Squadron insignia the proposals have a decidedly modern trend. But there are other designs, hundreds of them, which are staid and dignified. These are for headquarters Squadrons of units larger than Squadrons: the Groups, Wings, Commands, each individual Air Force, and the Army Air Forces as a whole. The Squadron is the basic unit.

Insignia for headquarters planes of the larger units are similar in design to corresponding Distinctive Insignia for wear upon uniforms. Examples of Distinctive Insignia for Headquarters 18th Wing, Air Force Proving Ground Group, and 31st Fighter Group are shown on Plate V.

Besides the U. S. Wing Marking and the insignia for Squadrons and larger units, planes have other marks, such as the manufacturer's number, and numbers required by any of the services for identification. All such marks, including insignia, are called "aircraft markings."

Squadron insignia, two or three feet in diameter, are painted on both sides of planes wherever there is room, generally near the cockpit.

The grinning, lively images are not permitted, technically, in zones of operation; but when a lad sets his eyes to the skies, if he wants a bit of encouragement to go with him, commanding officers have been known to wink at breaking the rule.

The Squadron designs are so much in favor, indeed, with command and personnel alike, that without official approval so far, in a sort of semiofficial status, the aircraft insignia, in small size, generally embroidered, are worn as breast patches on left pockets of flight jackets.

Yet even with breast patches repeating fanciful aircraft insignia, the fighters are not satisfied. Names and designs for individual planes are being painted on both sides of the cockpit. The imagination of youth is at work here, too: *Phyllis*, *Yankee Doodle*, *Superman*. World War I gave life to aircraft insignia, but this war adds personality to the individual planes.

Aircraft Carriers and Tenders

Below the line on Plate XXXII are grouped Navy insignia of two carriers and an aircraft tender, which have been reported lost in the war, and of Squadrons attached to them. The designations were lost with the ships; but just as most of the members of the Squadrons are still in service, so the insignia themselves survive.

The insignia may be claimed anew by other units attached to other ships. If the designs of the old insignia seem appropriate to the spirit of new units, they may continue indefinitely to carry on the ideals of those who originated them. There is precedent for such adoption. The insignia for VB-11 is the old VB-2. The present VB-20 is the old VS-2.

Some aircraft insignia have been passed along as many as six or seven times, perpetuated by succeeding Squadrons. Like flags,



AP from Press Ass'n

Mustard Earns "Bone" Wings—and Buries Them

Proudly posed against the aircraft insignia of the Air Transport Command, Ferry Division, Army Air Forces, the only cocker spaniel "pilot" in the world wears across his throat a badge of honor, especially made for him of bone. It marks his 500 hours in the air and his 10 round trips across the United States. Mustard later pawed a hole in soft dirt and planted his wings where he always could find them.

they possess traditions of their own. Particularly rich in association are insignia of Squadrons of the carriers (such as the old *Yorktown*) now gone.

Ships' insignia, labeled in italics, are distinct from Squadron insignia. Squadrons have their own. The insignia of a ship (which is not painted on the ship itself) is the device of utility flying units which serve the ship, and perhaps of the captain's plane. Plates XXXI and XXXII illustrate the insignia of ships, of Squadrons, and of Naval Air Stations.

Among the oldest Squadrons of the air arm of the fleet were those of the carrier *Lexington*. The *Langley*, first aircraft carrier of the Navy, had been converted into an aircraft tender when she was sunk south of Java in February, 1942. Her insignia was referred to affectionately as "the Covered Wagon."

Squadron insignia for the *Hornet*, one of the Navy's latest aircraft carriers, was awaiting approval at the time of her sinking.

Memory of the *Hornet* is particularly alive in the National Geographic Society, for one of the few officers killed during the last engagement of that ship was Lt. Comdr. Byron Bruce Newell, son-in-law of Dr. and Mrs. John Oliver

La Gorce. Dr. La Gorce is Vice President of the National Geographic Society and Associate Editor of The Society's Magazine.

Commander Newell, graduate of the United States Naval Academy in the class of 1930, was a damage-control officer aboard the *Hornet*. He was buried at sea.

Key to Identifications

Illustrations (Plates XXV through XXX) of Army aircraft insignia are for Army Squadrons (except the U.S. Wing Marking, which is for all aircraft of all services). The word "Squadron" does not appear with the individual illustrations, but it is to be understood. For "338th Bombardment," for example, the full meaning is "338th Bombardment Squadron." For Air Bases the full reading is "Base Headquarters and Air Base Squadron."

Plates XXXI and XXXII illustrate aircraft insignia of the Navy, first; then, where the letter "M" appears in the labels, insignia of the Marine Corps; finally, below the line on Plate XXXII, Navy insignia of carriers now gone and of Squadrons originally attached to them.

The arrangement of illustrations for Navy



Army Air Forces (official)

Aircraft Heraldic Experts Approve "Bomby-the-Bear" Insignia Designs

Families of characters often are carried through the several Squadrons of a Group. Bomby-the-Bear (Plates XXVII and XXVIII; 476th, 471st, 473d, and 473d Bombardment Squadrons), was created for the 334th Bombardment Group by the Insignia and Design Section of the Army Air Forces.

and Marine Corps—by code, in numerical sequence—is solely for convenience. There is nothing in the present system of official classification to enable anyone to tell to what area, Group, or to which ship a unit is assigned. Air units are so readily moved that designation is by type and number only.

"V" means heavier-than-air craft; "Z," lighter-than-air.

For Plates XXXI and XXXII the code and other designations follow: VB, Bombing; VF, Fighting; VO, Observation; VD, Photographic; VP, Patrol; VJ, Utility; VS, Scouting; VT, Torpedo; VCS, Cruiser-Scouting.

The insignia labeled *Enterprise*, *Ranger*, and *Saratoga* refer to aircraft carriers of those names. The *Wright* is an aircraft tender.

Three designations are not code, but they

are well understood in the Navy; CASU, Carrier Aircraft Service Unit; CQTU-G. L., Carrier Qualification Training Unit, Great Lakes; TTS-Pacific, Transition Training Squadron, Pacific Fleet.

Naval Air Stations (NAS) are designated by place names: Cape May, N. J.; Coco Solo, Canal Zone; Hutchinson, Kans.; Jacksonville, Fla.; Norman, Okla.; Pearl Harbor, Hawaii; Pensacola, Fla.; Quonset Point, R. I.; San Diego, Calif.; Seattle, Wash.

Further in code: MAW, Marine Air Wing; MAG, Marine Aircraft Group; VMF, Marine Fighting Squadron; VMSB, Marine Scouting-Bombing Squadron; VMS, Marine Scouting Squadron; VMJ, Marine Utility Squadron. ZMQ has Z for lighter-than-air, M for Marine Corps, Q for balloon barrage.

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3d Antisubmarine



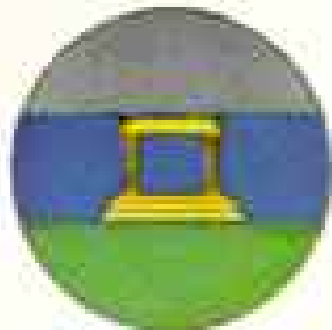
U. S. Wing Marking



4th Antisubmarine



11th Antisubmarine



2d Air Base



5th Air Base



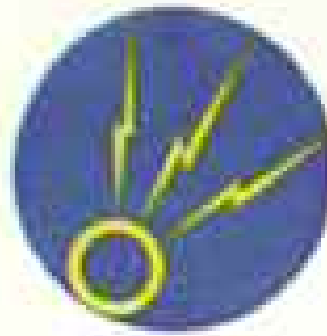
6th Air Base



18th Air Base



20th Air Base



30th Air Base



34th Air Base



35th Air Base



36th Air Base



54th Air Base



73d Air Base



304th Air Base



307th Air Base



311th Air Base



428th Air Base



475th Air Base



1st Bombardment



2d Bombardment



3d Bombardment



4th Bombardment



5th Bombardment



6th Bombardment



7th Bombardment



9th Bombardment



10th Bombardment



11th Bombardment



14th Bombardment



15th Bombardment



17th Bombardment



18th Bombardment



19th Bombardment



20th Bombardment



23d Bombardment

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25th Bombardment



27th Bombardment



29th Bombardment



30th Bombardment



31st Bombardment



32d Bombardment



33d Bombardment



34th Bombardment



37th Bombardment



41st Bombardment



42d Bombardment



43d Bombardment



44th Bombardment



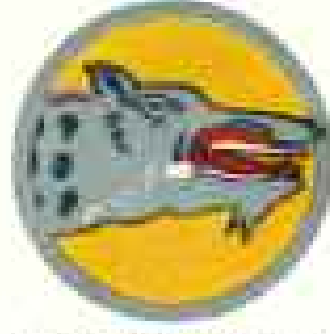
45th Bombardment



46th Bombardment



48th Bombardment



49th Bombardment



50th Bombardment



52d Bombardment



53d Bombardment



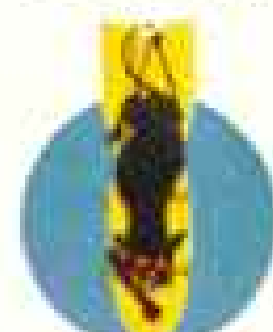
54th Bombardment



55th Bombardment



56th Bombardment



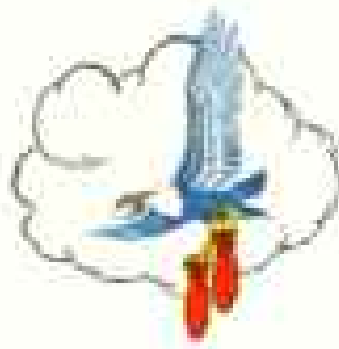
57th Bombardment



61st Bombardment



63d Bombardment



70th Bombardment



72d Bombardment



73d Bombardment



76th Bombardment



81st Bombardment



82d Bombardment



84th Bombardment



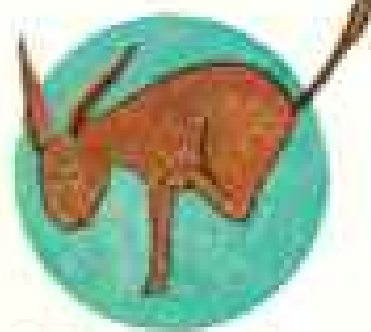
87th Bombardment



93d Bombardment



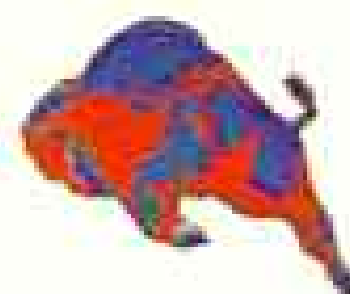
94th Bombardment



95th Bombardment



96th Bombardment



99th Bombardment



305th Bombardment

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306th Bombardment



307th Bombardment



308th Bombardment



309th Bombardment



311th Bombardment



312th Bombardment



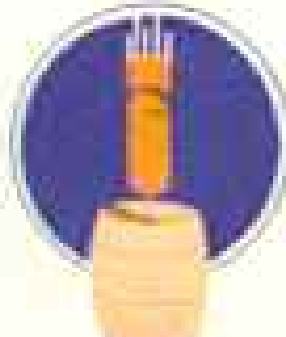
316th Bombardment



322d Bombardment



323d Bombardment



338th Bombardment



339th Bombardment



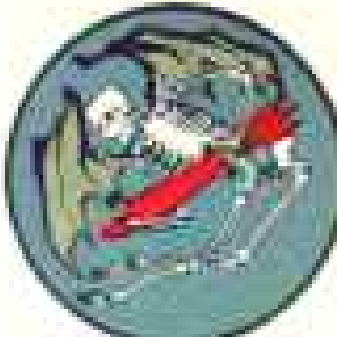
370th Bombardment



372d Bombardment



375th Bombardment



382d Bombardment



383d Bombardment



385th Bombardment



388th Bombardment



391st Bombardment



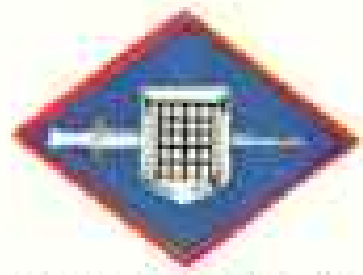
392d Bombardment



393d Bombardment



394th Bombardment



397th Bombardment



399th Bombardment



402d Bombardment



404th Bombardment



408th Bombardment



409th Bombardment



411th Bombardment



417th Bombardment



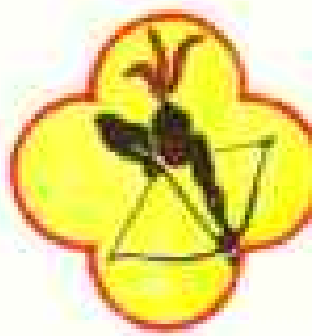
420th Bombardment



424th Bombardment



427th Bombardment



429th Bombardment



430th Bombardment



431st Bombardment



432d Bombardment



436th Bombardment



461st Bombardment



462d Bombardment



463d Bombardment



470th Bombardment

ARMY AIRCRAFT INSIGNIA
(Plates XXV through XXX)

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471st Bombardment



472d Bombardment



473d Bombardment



1st Communications



2d Communications



3d Communications



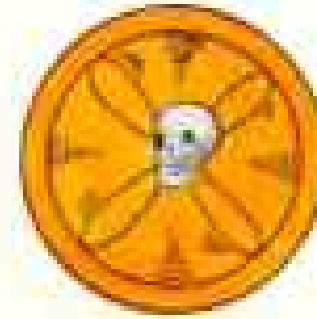
1st Composite



24th Ferrying



3d Fighter



6th Fighter



12th Fighter



17th Fighter



19th Fighter



21st Fighter



24th Fighter



27th Fighter



29th Fighter



33d Fighter



35th Fighter



36th Fighter



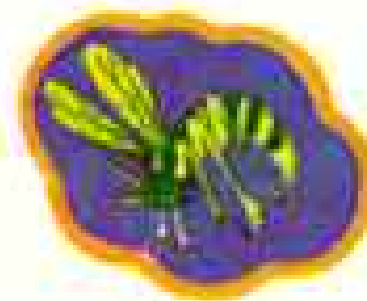
37th Fighter



38th Fighter



41st Fighter



43d Fighter



44th Fighter



46th Fighter



48th Fighter



50th Fighter



55th Fighter



60th Fighter



65th Fighter



66th Fighter



69th Fighter



73d Fighter



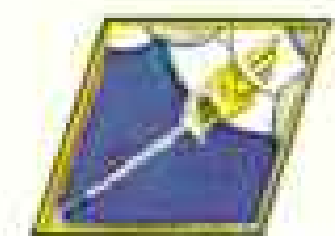
74th Fighter



77th Fighter



78th Fighter



79th Fighter



84th Fighter



88th Fighter



94th Fighter



96th Fighter



97th Fighter

The National Geographic Magazine



313th Fighter



319th Fighter



320th Fighter



321st Fighter



322d Fighter



327th Fighter



341st Fighter



1st Observation



2d Observation



3d Observation



5th Observation



7th Observation



11th Observation



12th Observation



13th Observation



14th Observation



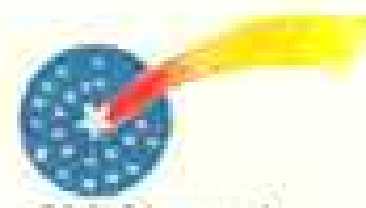
15th Observation



16th Observation



20th Observation



22d Observation



23d Observation



24th Observation



25th Observation



27th Observation



39th Observation



82d Observation



91st Observation



97th Observation



101st Observation



102d Observation



103d Observation



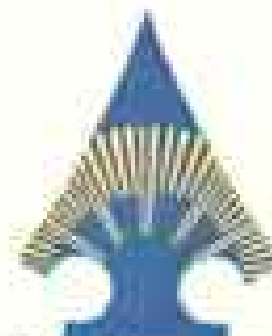
106th Observation



107th Observation



108th Observation



109th Observation



110th Observation



111th Observation



112th Observation



113th Observation



115th Observation



116th Observation

The National Geographic Magazine



118th Observation



119th Observation



120th Observation



124th Observation



152d Observation



153d Observation



154th Observation



46th School



47th School



52d School



53d School



2d Sea Search Attack



3d Service



40th Service



57th Service



58th Service



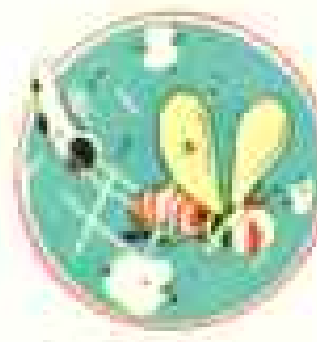
87th Service



100th Service



3d Staff



1st Tow Target



2d Tow Target



4th Tow Target



8th Tow Target



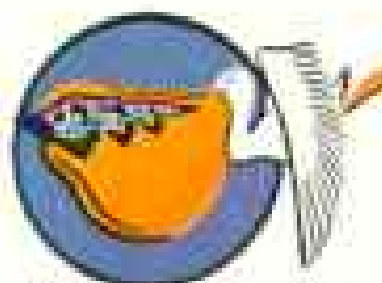
9th Tow Target



4th Troop Carrier



6th Troop Carrier



9th Troop Carrier



14th Troop Carrier



20th Troop Carrier



21st Troop Carrier



26th Troop Carrier



27th Troop Carrier



30th Troop Carrier



38th Troop Carrier



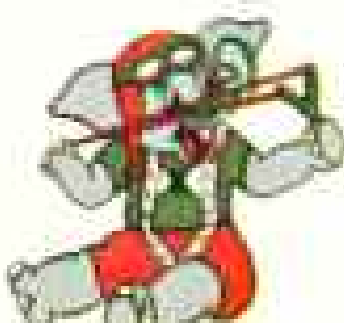
39th Troop Carrier



40th Troop Carrier



41st Troop Carrier



43d Troop Carrier



46th Troop Carrier



47th Troop Carrier



49th Troop Carrier

XXX

ARMY AIRCRAFT INSIGNIA
(Plates XXV through XXX)

The National Geographic Magazine



The National Geographic Magazine



Scotland in Wartime

BY ISOBEL WYLIE HUTCHISON

"YOU'D better take cover! That's the siren!"

The siren! Take cover! Bewildered, I looked down the long straight road. From the village on the hill to my home a mile away by the river it stretched bare as Mother Hubbard's cupboard between fields of ripening wheat. There was no cover to take. Not so much as a tree. And anyway, who was going to take cover from the Germans on a Scottish Sunday morning, and on the way to church, of all places? The whole thing was fantastic.

Scarcely an hour before, Mr. Chamberlain had announced over the air that Britain was at war with Germany. Now, just as the beadle had gone round to ring the old church bell (cast in Edinburgh in 1687), just as the children were trooping out of Sunday School and their elders converging on the gray kirk which the Crusaders had founded 800 years ago, the siren from the distillery, at the bottom of the green brae where the forefathers of the hamlet slept their quiet sleep, had sent forth its raucous, intermittent pant, the agreed signal for German raiders!

"They havena' lost much time!"

A man on a motorcycle had stopped beside me. In the perturbation of the moment he broke a Scot's natural reserve and addressed himself to the only other person in sight. The A.R.P. warden, shouting out a hurried invitation to go into his house, had dashed off again shouting, "I can't wait. I'm on duty."

"Thunder; Bright Intervals"

It was a symbolic cry, symbolic as the weather on that fateful morning of September 3, 1939, which is registered in my diary as "Thunder; bright intervals."

For the next four years "Duty" was to be the stern watchword for every man and woman in Great Britain, and "Thunder; bright intervals" their wartime barometer.

Fortunately the thunder on this first morning of wartime proved to be a false alarm, at least so far as Scotland was concerned. But it served to put us on our mettle, and when the raiders did come a few weeks later we were ready for them.

On October 16, 1939, the Auxiliary Air Force Fighter Squadrons of Glasgow and Edinburgh had the honor of being the first squadrons to intercept enemy bombers attempting an attack on Britain. These squadrons consisted of young Scotsmen who, long before the threat of war, had become flying

enthusiasts and had spent their spare time learning to become accomplished pilots.

It was only because of their exceptional keenness and thorough training in peacetime that they were able to cope with the Luftwaffe. Though Scotland's contribution to the war effort may be measured in statistics, far more important than the impressive figures is the spirit behind them.

From the beginning, Scotland had no illusions about the nature of the conflict and all that depended on its successful outcome. Her people have played their parts in the struggle with resource and resolution.

Nor should it be forgotten that it was on a Scot's cottage in the distant Orkney Islands* that the first bomb fell on October 17, 1939, and the first civilian in the long list of civilian casualties in the British Isles was killed at Bridge of Waith, Orkney, in March, 1940, six months after the outbreak of war.

Raiders over the Firth of Forth

When, in October, German raiders also visited the Firth of Forth area, no one in our village could at first believe that the puffs of white smoke, budding like guelder-roses amid the clear autumn sky, could be other than a practice raid.

A shopkeeper came to his door and stared up; village urchins, arrested in their play, greeted the spectacle with shouts of delight. Not till one of the enemy planes far off flashed like a silver streak across the sky and disappeared—it fell into the sea—did the village folk, like Cortes' mariners, look on each other "with a wild surmise."

"What's yon lying there?" someone asked the storekeeper, pointing to a cylindrical object lying a few yards off on the pavement. "Yon" proved to be an unexploded shell from one of our own guns.

Stories of that morning are still told in our area. There was the dear old lady whose daughter had taken her for a little turn in the car after delivering some messages. The ladies suddenly found themselves just underneath a plane bearing an unmistakable swastika. So close did it swoop over the hedge that they could see the pilot plainly, and presently the Irish "tattie howkers" in a near-by field were scattered, for the rest of that day, by a burst of shrapnel!

"Dear me," remarked the old lady placidly,

* See "Map of Europe and the Near East" supplement with this issue of the NATIONAL GEOGRAPHIC MAGAZINE.



© Pictorial Press

Battle Dress and Academic Gown Contrast in Wartime Edinburgh

On stately Princes Street a Highlander displays rifle, gas mask, and Glengarry bonnet. But where is your kilt, mon? In this war he reserves it for dress review. Beside him walks a professor or lecturer. Edinburgh is Scotland's venerable seat of learning.

"there seems to be a lot going on here to-day!"

Another time, by some error, a train was allowed to proceed across the Forth Bridge in the midst of a "tip and run" raid, its excited passengers having a ringside seat for the bombing going on on either side.

But it was in another fashion, and one to many housewives hardly less upsetting than an air raid, that the conflict really made itself felt in Scotland in these first historic months.

Covenanters Shelter Refugees

The brown River Clyde (page 735), which empties its turgid waters into the Atlantic beyond the great city of Glasgow, beside ship-building yards strident with wartime activity (page 733), has its crystal sources amid the quiet hills of Lanarkshire.

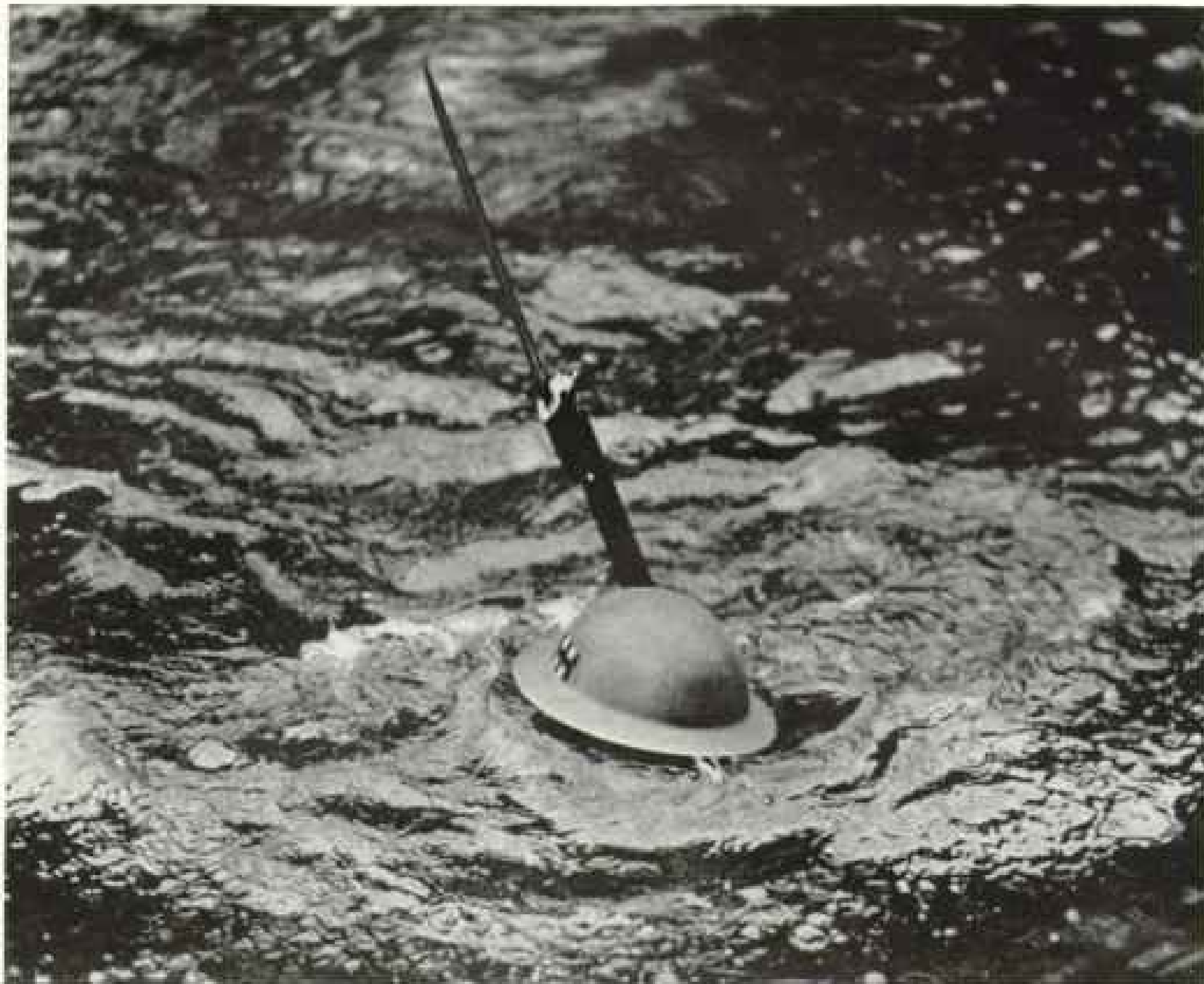
Here the Covenanters sought refuge from their persecutors and sang their psalms to the

wailing of the winds. In the placid valleys little gray kirks and chapels are dotted, sometimes surrounded by gray stone villages, sometimes lonely on the green hillsides, where only a handful of farmers and shepherds with their dogs congregate of a Sunday. The dogs sleep quietly under the seats while their masters worship.

The inhabitants of these hill villages are mostly elderly or retired folk, who have left the busy life of cities for the rural peace of the sheep-dotted braes.

Among the quiet villages of upper Lanarkshire there is one whose long street runs parallel with the silvery Clyde, which is here a pellucid stream beloved of anglers. The street is in fact part of the main road to Carlisle and the big industrial towns of northern England.

The autumn of 1939 in this village, which is typical of a thousand others in rural parts of Scotland, is memorable to its inhabitants not so much for the invasion of Poland—



British Columbia

There's a Scotsman under That Helmet!

Crossing a stream with rifle and fixed bayonet is part of this Scots Guard's training. His country's rugged terrain is ideal for strenuous assault exercises.

though that event was also to have its repercussions presently in that quiet Lanarkshire parish and its neighbors—as for the Great Invasion from Glasgow!

One never-to-be-forgotten afternoon long trains from the city emptied 700 child evacuees and their guardians into the valley, where every house, large and small, had to accommodate its prearranged quota of guests. Their arrival had been planned weeks previously by harassed billeting officials.

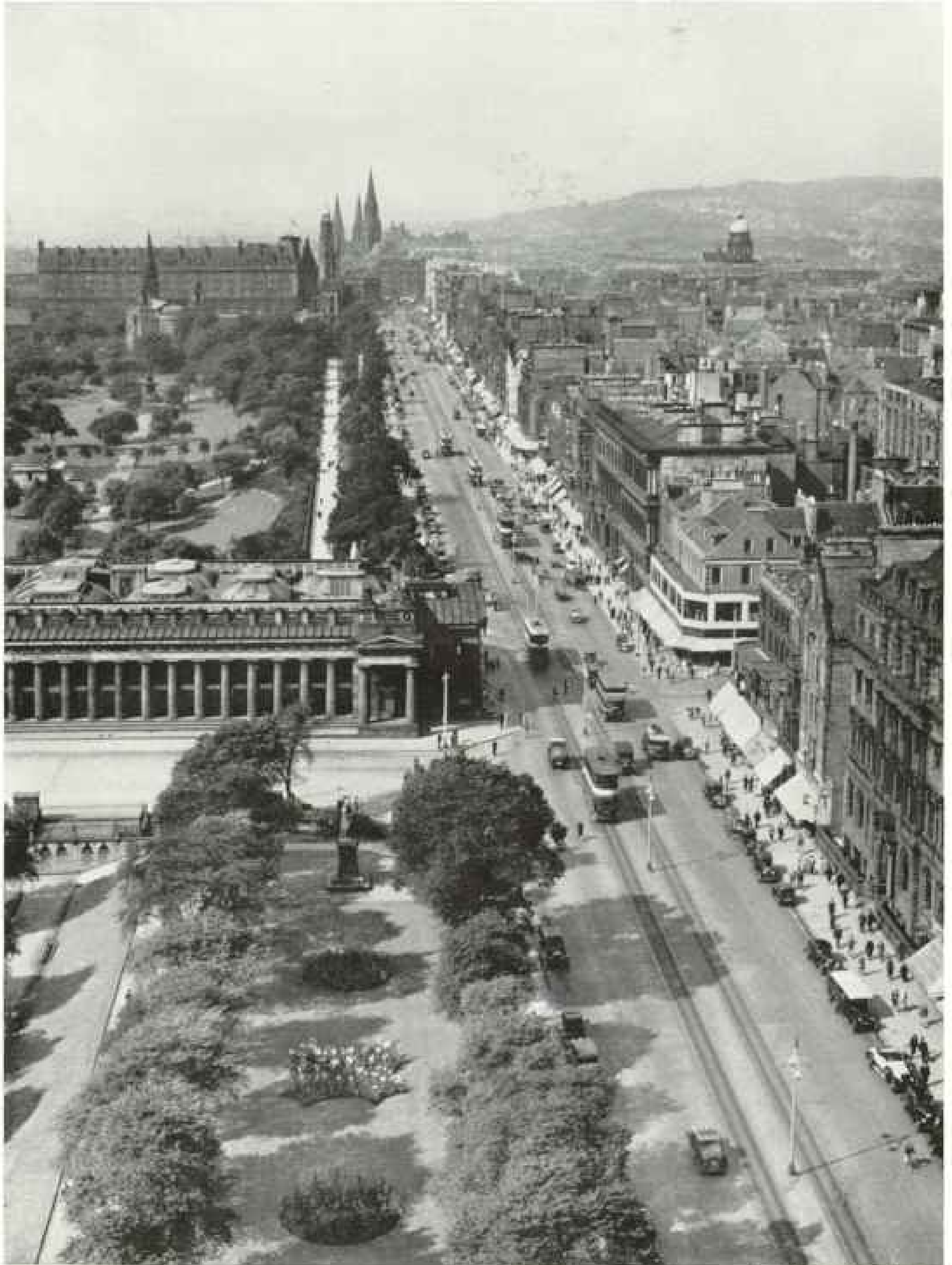
An Englishman's home is his castle, and perhaps this saying applies still more nearly to the Scot. It speaks volumes for the kindness and pity in the hearts of these good housewives, from the chatelaines of the finest mansions down to the humblest crofters, that this enormously difficult social event was accomplished so well.

In many cases the children had been hurriedly evacuated without previous medical inspection, but, somehow or other, by that evening shelter for all had been found.

"It's no' the bairns we'd mind if they didna' bring their mothers wi' them," said one much-taxed hostess, who had had thrust upon her household an unwashed family whose mother had refused to do a hand's turn for herself or her numerous offspring, remarking complacently, "I'm the King's guest!"

Such misunderstandings were at first fairly common, and the influx of evacuees diminished once more, for the scheme was not compulsory, when the first modest levies were made upon parents who could afford to pay the very small sum asked for the upkeep of their families in the country. But despite such setbacks and difficulties, a new page of history rustled and was turned in the breezes of that autumn evening in rural Scotland.

Though many of the city mothers found life in the country insupportable without "the wee shop round the corner," the cinema, or in some cases the gin palace, others discovered for the first time the joys of the countryside. Some of the children have remained for good.



L. J. Hoffman from Goodman

Princes Street, Edinburgh's Fifth Avenue, Splits Park and Fashion Center

For almost a mile this famous promenade cuts through the heart of the city. Sunken, statue-studded gardens lie on the left. Princes Street was named in honor of two sons of King George III. Older Edinburgh called it the "Lang Gait." War has crowded it with Highland troops and their allies (page 730).

Little Eddie, for instance, is still the "King's guest" at a hospitable manse in upper Lanarkshire, cared for by the minister and his wife.

In his Glasgow life Eddie was accustomed to sleep five to a bed, but at this manse, despite the presence of fifteen other evacuees, he quickly learned to be more fastidious. One night, when force of circumstance had made it necessary to put another small bedfellow at the other side of his large double bed, a loud wailing was heard from Eddie's room.

The minister dashed upstairs two steps at a time, to be greeted with the tearful rebuke, "Minister, this is shairly an awfae crush!"

There are hundreds more Eddies all over rural Scotland, strong, stout, and happy, in whom it would be hard to recognize the city waifs of those dark days of 1939 and 1940.

"Are you yins no' comin' in, tae?" That was the surprised query put to their hosts by two other small slum dwellers who had been placed in one large bed and were asked why they both lay at the extreme edges of it!

It was in this fashion, in those first grim days of war, that three quarters of Scotland began to realize how the other quarter lived, and to make plans for better housing and hygiene.

Then Came the Poles

Scotland's geographical situation has brought many other claims on native hospitality during wartime besides those of her "ain bairns."

By the summer of 1940 the evacuee problem had faded somewhat into the background in upper Clydesdale, and the inhabitants were able to give more attention to the war in Europe, which had hitherto been relegated to a back place. Europe, in fact, was now thrust upon their notice by a second great invasion.

One morning thousands of Poles, refugees from the Continent and the blood-stained beaches of Dunkirk (Dunkerque)—princes, counts, generals, captains, and ordinary soldiers, as well as personnel from embassy staffs and civilians—all these were disentrained at the quiet hillside stations in the upper Clyde Valley and elsewhere in Scotland (page 733, 742). Many of them were broken men who required nothing so much as time for rest and recuperation in healthful surroundings.

They were welcomed with open arms by the Scottish people, for Scotland has strong links with Poland dating from the 15th century. Historians estimate the number of Scottish merchants and "pedders" in Poland during the 16th century at as many as 40,000. In the phrase of one writer, Poland was for

the Scot "the America of those days." It was an outlet for her younger sons, some of whom established themselves in good businesses and eventually became naturalized Poles.

It must have been a descendant of one of these who arrived at a Scottish manse one night, talking no word of English but able to introduce himself to the minister's wife as Capt. Malcolm Campbell!

The good folk of Scotland found many other Scottish names among their new guests, concealed by Polish terminations, for the names had long become "polonized." Thus a Macaulay became Makalinski; a Gore, Gorki; a Forbes, Fribes, and a Brown, Brun.

One minister in upper Clydesdale was a good Latin scholar, though he had yet to learn Polish. He records that in his own dining room, where the Roman Catholic padres and many of the Polish officers were wont to congregate, he heard "every single Aberdeen joke ever invented in the Granite City" retold to him in Latin, which was at first the only means of communication by his distinguished clerical guests! Among his other visitors were politicians and artists, and at least one world-famous operatic singer.

To this minister the Poles have given the proud name of "The Father of the Polish Choir," for this delightful group had its origin in the dining room of his manse. A silver coffeepot with a grateful inscription is cherished by his wife, who has made her home a refuge for so many exiles. Some of the inscriptions in her autograph album bear still more eloquent tribute to the value of this period "mid pastures green" for overshadowed and shattered lives. Here are three of them:

"A wandering Polish soldier leaves this house with a memory of a Scottish fireside that he shared."

"A lovely time which I have spent in your so hospitable home shall remain in my mind forever."

"To the soldier wanderer, leaving this hospitable Scottish home, the time will remain in his memory forever which he spent at the fireside in family atmosphere."

Bonds That Outlast the Sword

Bonds like these will not easily break. They will help to cement international understanding and sympathy when the swords are beaten into plowshares.

There is another of them in the ancient parish church of Dalmeny in West Lothian, where a Polish officer of the Roman Catholic faith has presented to this beautiful old Protestant church a fine window in memory of his family lost in Poland.



© Pictorial Press

It's a Date!

Before Edinburgh's Royal Scottish Academy, U. S. Marines and British Waafs (Women's Auxiliary Air Force) cement Anglo-American relations. Note the bareheaded woman. Many a lass goes hatless because new "bonnets" are almost unobtainable. Permanent waves are scarce, too, but somehow the girls manage.

Scotland, which has been the refuge of so many European exiles besides the Poles, has been able to make a very valuable contribution to Britain's war effort. Not only the Poles, but the Norwegians, the Czechs, and the Fighting French have now their own special houses in Edinburgh where they meet for social intercourse.

In these houses, under the auspices of the British Council, frequent lectures are given, sometimes by British lecturers, sometimes by the exiles themselves, which help towards mutual understanding between hosts and guests.

In Leith, the port of Edinburgh, the Scandi-

navian sailors meet at the Seven Seas Club along with seafaring men from all over the world (page 732). They had the special privilege of a visit from the King and Queen on their Majesties' last visit to the city.

America, too, has now her Red Cross Service Clubs in Glasgow and Edinburgh, and in Glasgow the club for American seamen of the merchant navy is the first of its kind in Britain.

At the American Red Cross Service Club in Princes Street, America's First Lady was entertained on her recent visit to Scotland. Here, on Thanksgiving Day, 1942, the famous Scottish choir of Newhaven fishwives sang to American soldiers the old Scots songs,



Bernad Linton from *These Times*

Skirls of the Pipers' Parade Herald the Opening of Highland Games

Proudly they wear Balmorals, kilts, sporrans, and military shoulder straps. One displays his medals of World War I. Summer sports competitors toss the caber, put the shot, and dance the Highland fling.



© Dundee People's Journal

"Why, It's His Very Most Favorite Cake!"

So spoke Mrs. Franklin D. Roosevelt when Mrs. Grant of Pumpherston proudly displayed her shortbread baked for the President of the United States. Treasured ration coupons were essential (page 732).



British Inebriation Services

With Medieval Pomp, Edinburgh "Adopts" the *Howe*, a Modern British Battleship

Halberdiers and mace-and-sword-bearers precede Edinburgh's Lord Provost (Mayor) and city elders at the yards in Glasgow. Camouflaged 14-inch guns jut from a turret lined with workmen. Part of the *Howe's* complement of 1,500 men stand at attention. The 35,000-ton vessel was named for the admiral who defeated a French fleet on the Glorious First of June, 1794. Sisterships are *Anson*, *King George V*, and *Duke of York*. Of the same class, *Prince of Wales* was sunk by Japanese planes off Malaya in 1941.

Caller Herrin', Laird o' Cockpen, Jock o' Hazeldean, arousing immense enthusiasm in their friends from across the "Herring Pond."

Stately Edinburgh Takes on Gaiety

Since 1939 the capital of Scotland has acquired an almost international atmosphere and a certain foreign gaiety. The city is for the moment not so much the "Modern Athens" as the "modern Paris." * Today the crowds that throng Princes Street have met from all corners of the earth (pages 724, 726).

There are Norwegian sailors, Fighting French marines with their distinctive red pompons, Poles with their picturesque dash of black or maroon and silver, Americans in their parti-colored outfit, Australians in slouch hats, men in the bright blue of hospital suits, colonials with dark faces and flashing smiles—all these thread their way through

the hurrying, laughing throng of Scots men and women.

Then there are "Afs," "Waafs," "Wrens," the British Navy, the Army, the Home Guard. Small wonder if the douce citizen of Edinburgh, doing his bit at the office all day and often fire-watching nearly all night, is apt to feel a little bewildered by the strange turn of events, and to wonder what is going to happen to all these uniforms when the war is over.

But it is largely Jock Citizen who is lending his money to the Government to help pay for it all. Scotland has a reputation for thrift, and it is not surprising to learn of the remarkable success of the war savings movement north of the Tweed.

In the first three years of war a total equivalent to nearly \$1,340,550,000 has been

* See "Edinburgh, Athens of the North," NATIONAL GEOGRAPHIC MAGAZINE, August, 1932.



British Inhomation Services

Toytown Served a Grim Purpose—Here Glasgow Rehearsed Invasion Defense

Before strategy turned to the Second Front, the Home Guard Town Fighting School used this miniature to prepare for street battles and house-to-house fighting.

raised in Scotland.* This includes over \$202,500,000 during special War Weapons Weeks held in different parts of the country, and nearly \$234,900,000 gathered in Warships Weeks. In Glasgow, for example, a total of \$42,829,734 was raised during a week, and Edinburgh's contribution was scarcely less, being \$41,452,762.

One of the smaller Scottish towns, however, has the best record for thrift in Scotland, if not for the whole of Great Britain. Kelso, the Border town, has saved, up till the beginning of June, 1942, \$1,472,835, which represents \$267 per head of the population. Kelso has already saved \$60,750 more than during the last war, and is aiming at \$1,620,000 to purchase a destroyer.

Points, Not Price, Count in Buying

Despite the war, Scotland is still, especially to the visitor from south of the Border, the "Land o' Cakes."

"Edinburgh doesn't know there's a war on,"

is another remark frequently heard from these evacuees. "You've got things in the shops that we never see down south. Look there! If that's not real *honey!* And I counted nine different kinds of scones in a shop yesterday!"

Iced cakes are now off the market, sweets are strictly rationed, and Alaska tinned salmon, even second grade, costs 32 of the housewife's hard-won points. As I write, her ration book supplies her with 20 per month.

In spite of such restrictions, and a winter shortage in the milk supply, Scotland has never really "felt the pinch," thanks to the generous and successful efforts of the United States and the British Commonwealth to grow the food, and of the allied navies to transport it safely to her shores.

Scotland's women have volunteered in increasing numbers to fill the gaps left by the men who are now fighting her battles by land,

* These figures are based on the exchange rate of February 25, 1943.



© R. R. C.

Having Run the U-boat Gantlet, Merchant Seamen Relax at Seven Seas Club in Leith

Here United Nations' sailors get acquainted, spin adventure yarns, and eat. Their hostesses are members of the Women's Voluntary Services. "My toast—your toast—and a toast to all the beautiful girls," says the Norwegian mural (page 728).

sea, and air. They are working in factories, hospitals, and with the fighting services. Up to the end of August, 1942, the Women's Voluntary Services had enrolled the remarkable total of some 104,300 volunteers for the various organizations it provides—work parties, canteens, evacuation, transport, nursing, and so on.

In the battle of the kitchen front, too, Scottish housewives have taken a foremost place, and some of them have been sent to London to teach English cooks the intricacies of cockie-leekie soup, Scotch oatcakes, and the like. But the proudest of all Scottish bakers are the women of Broxburn's Rural Institute.

Broxburn is a mining town in West Lothian, which is one of the few districts in Europe (Estonia is another) where the valuable oil shale is mined. From its long and rather dreary street the red "bings" tower upward, blotting out all view to northward.

At night, ink-blue against a crimson sun-

set, crowned, as they used to be before the days of blackouts, by brilliant lights where the "tippers" emptied the trucks of spent shale down the rattling walls of the bings, there is grandeur in these great pyramids of industry when seen from afar, comparable to that of the tombs of the Pharaohs. They rise in the very heart of Scotland's Black Country, between her two great cities.

Shortbread Across the Sea

On a memorable afternoon of November 1942, Mrs. Roosevelt alighted at Broxburn on her way from Glasgow to Edinburgh, to visit the West Lothian Federation of Women's Rural Institutes. There she accepted from its proud members a 2-pound tin of shortbread baked from an old recipe by one of its members, Mrs. Grant of Pumpherston, Secretary of the Guild of Housewives, with a remark which won all wifely hearts: "Why, it's his very most favorite cake!"



British Columbia

It's Thumbs Up, a Cheerful Smile, and Drill on Shoulder in a Scottish Shipyard

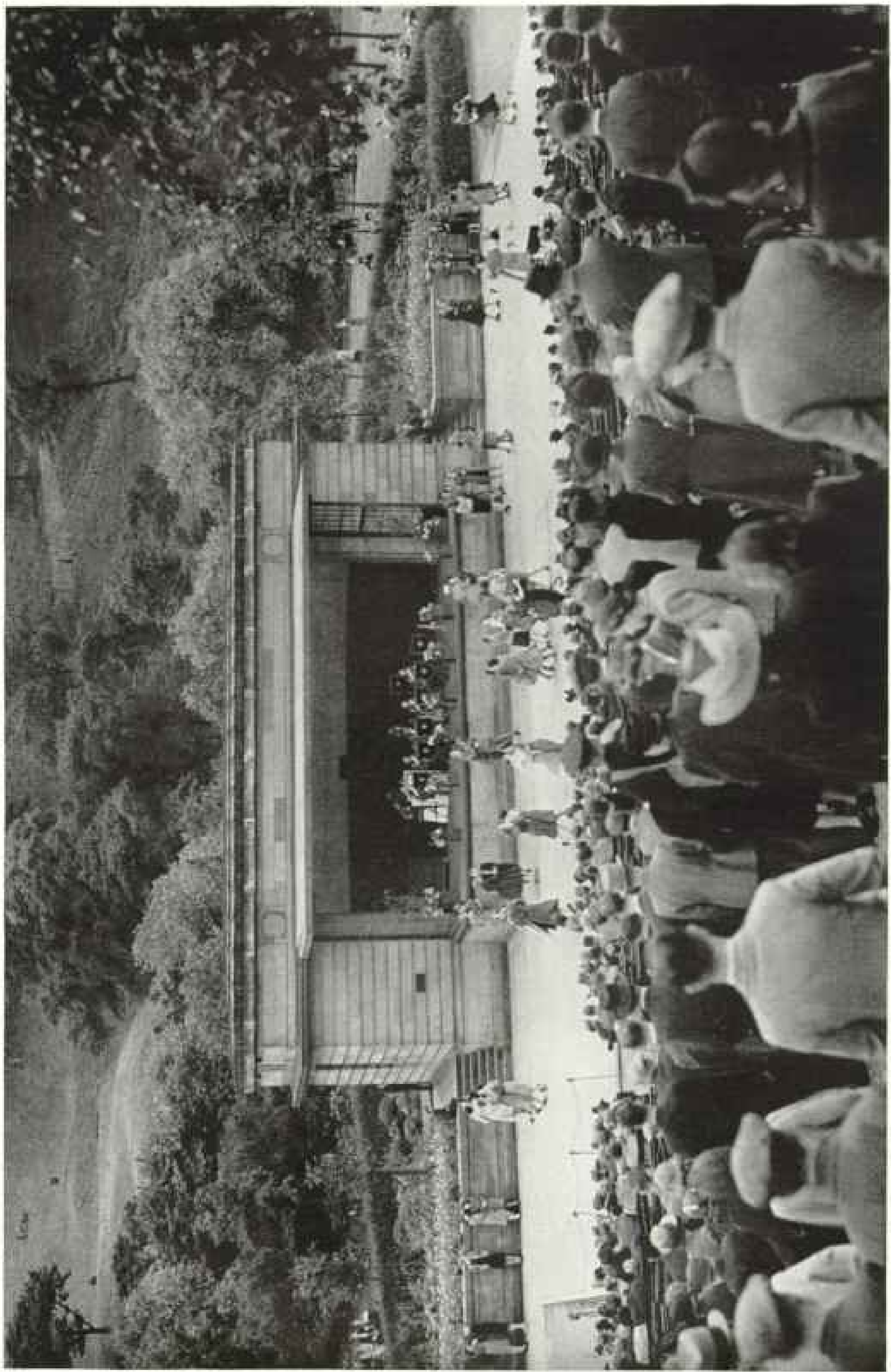
Nightly blackouts and winter's early twilights are added handicaps to shipbuilding on the Clyde. Sometimes exposed work must cease by 4 P.M. Covered work goes on.



British Columbia

R.A.F. Wings Unite Pole and Briton at a Translation Session in Scotland

The airman interpreting "gliders' group" and "mechanics' group" wears his country's name on his shoulder. Polish soldiers are so popular that many have been informally adopted into Scottish homes. Their newly acquired English has a Scottish burr (pages 727, 742).



Girls Dance Together as Edinburgh Men, Too Bashful to Speak to a Strange Lass, Stand by Like Wallflowers

Orchestra music is free as war workers and others find noontime relaxation in Princes Street Gardens. Known locally as the "Dip," this spot is a favorite of holiday makers.

© Floral Press



Bettus Cambay

At Greenock the Clyde Meets the Firth and the Firth Rolls on to the Sea

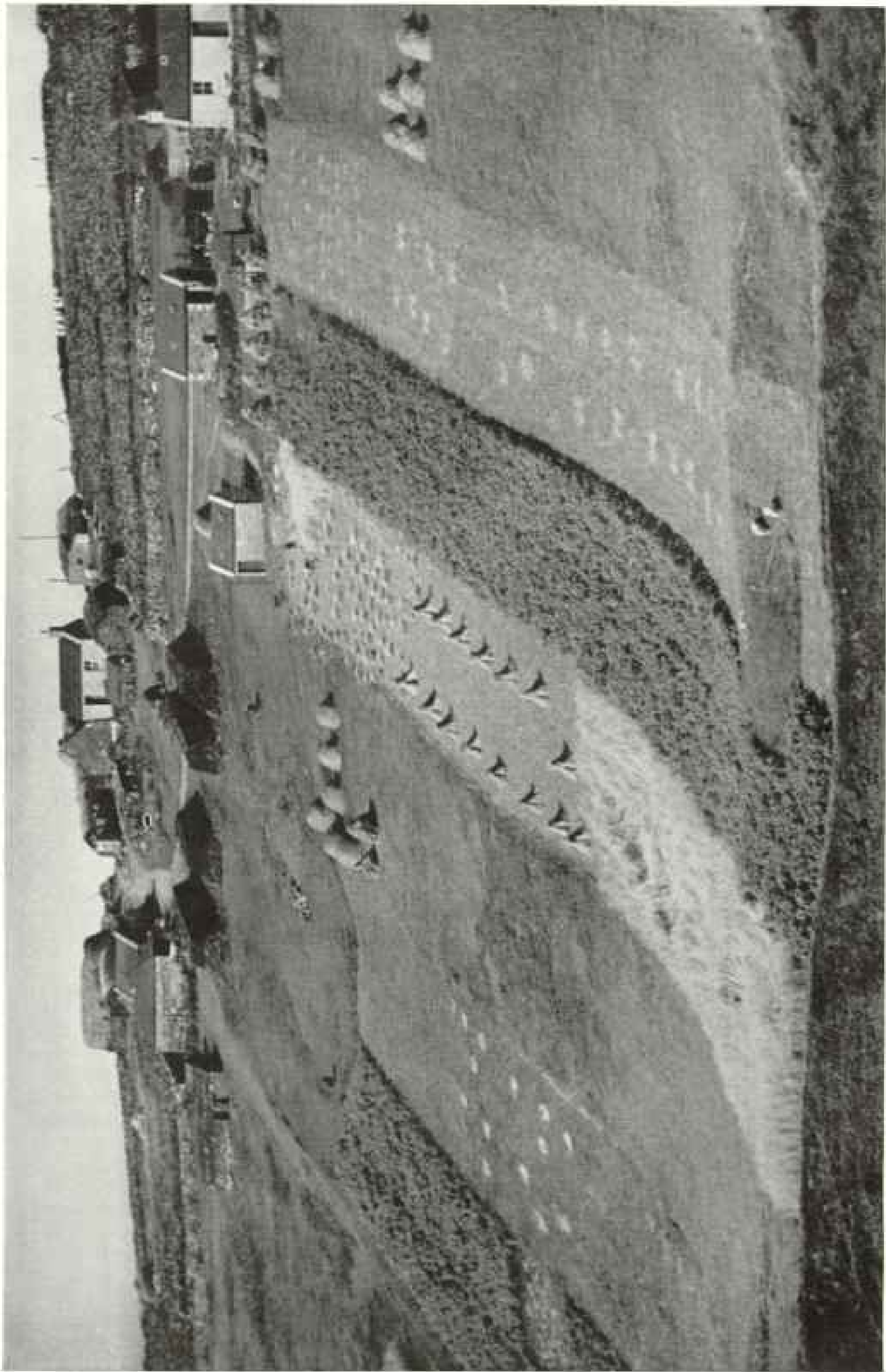
Once Glasgow's chief port, Greenock now is an industrial and shipbuilding center. In this misty, fog-bound city, Robert Burns's Highland Mary died and was buried. Here, too, Captain Kidd was born. From "Tail of the Bank" (left), emigrants sailed for America. Greenock was bombed early in the war



© George Duriam and Co.

Bombed Out, a Clydebank Family Takes the "High Road" in Search of a New Home

Clydeside had scarcely begun to recover from the depression when the blitz set in. Hard hit, this Glasgow area rose from its ruins and grimly settled down to its shipbuilding job. *Queen Mary* and *Queen Elizabeth*, giant liners, were launched from Clyde yards (page 738).



Harold Lohse from Three Lions

"Dig for Victory" Is a Wartime Slogan on Hilly, Storm-swept Shetland Islands

Hardy women till the rocky, stony soil. Their menfolk serve the Royal Navy and fish the seas despite U-boat, mine, and flying raider. Home-grown mutton supplements their diet. Beside the road are four black heaps of peat. It warms these far-north stone houses.

The shortbread was presented to Mrs. Roosevelt on Thursday (page 729). By the following Tuesday it had reached its destination in Washington! A new link, made of something much stronger than flour, was welded between Scotland and the United States. The women of America had already sowed the seeds of this good feeling very literally by presenting to the Scottish Federation a gift of vegetable seeds and a canning machine.

The latter was a gift to each Federation of Women's Rural Institutes in Scotland, and in West Lothian has already produced more than 50,000 cans of preserved fruit.

At Broxburn Mrs. Roosevelt told her enthusiastic audience that she felt sure the women of Britain and the United States could be of great mutual help to each other in such schemes for agricultural and rural areas, not only in time of war, but also in peace.

Though Mrs. Roosevelt found Broxburn wrapped in its usual November gloom that afternoon, this small township, along with some of the neighboring villages, has had its place in the center of war's spotlight. On a March night in the spring of 1941 some of the Lothian fields and "bings" were lighted by thousands of incendiaries, described by one enthusiastic onlooker as "one of the loveliest sights I have ever seen!"

Many of these German fire bombs rattled harmlessly down the sides of the great slag heaps like lighted cataracts. High explosives which accompanied this baptism of fire did little damage in the district beyond breaking numerous panes of glass.

The real blitz reached Scotland on March 13 and 14, 1941, when the first bombs fell on the great shipbuilding and industrial area around Clydeside, doing damage no less grievous than at Coventry and other English centers. Eleven hundred persons lost their lives and 40,000 homes were wrecked.

Since the outbreak of war, and particularly since the fall of France, the wheels of Scottish industry have been turning to a new and rapid rhythm in Clydeside and elsewhere. Not only ships of war and vessels for the Merchant Navy are being built there, but guns, shells, boots, and clothing are also manufactured. War has brought an overwhelming amount of work for the heavy industries which have come through periods of great depression in the past.

The Battle of the Atlantic and the great shipping losses sustained on our vital sea routes have underlined the importance of shipbuilding's contribution to the war. The vast shipyards of the Clyde, which gave birth to

such leviathans as the *Queen Elizabeth*, are once more clamorous with activity. Raids have only served to stiffen the resolution of the shipworkers, and moving stories could be told of men, their homes destroyed, appearing on time at work the next day.

Raids That "Make You Forget the War"

The story of these March nights has passed into history in the Government's publication *Front Line*. It is good, amid all the horror and anguish, to read there of the resourceful Clydebank father who heated his baby's milk bottle on a German incendiary bomb, and of the Clydebank woman who remarked as she swept the debris from her front path next morning, "Well, there's one thing about these raids, they do make you forget the war!"

A new page, and a glorious one, was added to Scottish history on these spring nights. Most of us have our memories of them.

At that time I was working daily in Glasgow, but lived some fourteen miles out of the city in the beautiful country village of Killearn on the slopes of the Campsie Fells. Even the quiet Campsies, however, had their share of the blitz, for it was through the valley of the upper Forth that some of the raiders penetrated from the east, guided towards Glasgow, so it was said, by the brilliant moonlight reflected from the calm breast of "bonnie Loch Lomond."

As these raiders reached their target, we at Killearn could see, away to southward, the umbrella-shaped flares dropping like gigantic inverted tulips suspended against the velvet blackness. While we watched, this blackness blossomed here and there into a rosy glow, and the walls of our solid old stone-built cottage rattled to the roar of gunfire, punctuated by duller thuds which we knew instinctively, though we heard them for the first time, to be fallen bombs.

About midnight a tremendous bang awakened those of us who, mindful of next morning's duties, had gone cannily to bed. We learned later that a bomb had alighted on the empty hillside close at hand. A time bomb was found suspended in trees on a neighboring estate, and yet a third dumped a crater in a corner of a field just down the road.

But a village several miles down the valley received a direct hit and several persons were killed. By a strange freak of fortune one of these was a man who had arrived by bus from Glasgow an hour or two previously in order to escape the raid.

Next morning on our way to work, we found the road blocked, and our bus was diverted citywards by a circuitous route. As we ap-

proached the battle zone, we found devastated blocks of small shops with shattered windows, their contents strewn helter-skelter across the pavement. A pair of pink silk corsets lay side by side with a cabbage and a box of cigarettes!

After a Raid—"More Open Than Usual"

But some of the shopkeepers were already sweeping their steps and setting things to rights in the spirit of the Cockney tradesman who advertised his business premises after a raid as "Open all day—more open than usual!"

When we reached our office, we found that most of Glasgow's citizens who were not on duty had spent that night in their shelters. One friend, whose boardinghouse had received a direct hit by a time bomb, had a narrow escape. The bomb struck the roof and penetrated to the floor below, where it remained wedged between the floor and ceiling of a room occupied by an invalid lady.

Because of the obstruction, which partly blocked the door, the invalid could not easily be removed, but as nobody at first realized what this obstruction was, nobody was particularly perturbed till the arrival of our friend's soldier son, whose rapid diagnosis of the situation quickly cleared not only the invalid's room, but the whole block!

For some days after this first Clydeside attack, the chief anxiety of war workers living outside Glasgow was how to reach their work on time, for the country buses were invaded by a host of refugees from the blitzed area.

In a surprisingly short time, however, the authorities had the situation in hand. Canteens were improvised, and a big community



© Glasgow Daily Herald

These Men Caught Rudolf Hess, Hitler's Deputy

Armed with pitchfork and Scottish suspicion, David McLean, tenant farmer, untangled the Nazi visitor from his parachute following a mysterious flight from Germany in May, 1941. McLean took Hess to his cottage on the Duke of Hamilton's estate at Dungavel. Then he called the Home Guard, "Hess—ay, that was a funny business," says your Scotsman (page 743).

feeding center set up. The workers, more than ever anxious to carry on, returned to hattered Clydeside.

Scotland's second serious raid occurred about seven weeks later. This time the attack was more general. Greenock and the towns around the estuary of the Clyde were all affected, though in no case was the damage so concentrated as on Clydeside in March.

Raiders Come at Vespers Time

It was a beautiful Sunday evening when the raiders came. We were returning by bus from a visit to Edinburgh, and as we approached the long village of Balfron, which lies



© B.B.C.

A Scottish Family Broadcasts Christmas Day Cheer to Loved Ones in the Service

Singing kettle and crackling fire lend a homey touch to this British Broadcasting Corporation "Home Forum." Many Scottish families do not consider home complete without a pair of "wally dogs," or china dogs, to guard the mantel.

tucked away behind the Campsies on the road between Stirling and Glasgow, we suddenly saw again, far off beyond Loch Lomond, the golden tulips blossom on the green lawns of sunset.

The bus stopped in the village street and presently, one by one, its few passengers alighted. We stood in the quiet road looking at each other and wondering what to do next.

Presently the peculiar, intermittent pant which many of us had come, rightly or wrongly, to associate with "Jerry" planes, could be heard approaching along the hills.

Five or six of the raiders passed right overhead, flying fairly low. In the green peace of that Sunday evening there was something indescribably sinister in their steady, remorseless approach. They were past before anyone awakened to the danger, and we were shepherded from the darkening street into the village shelter—a little cottage basement packed round with sandbags.

No sooner were the planes out of sight, however, than our driver, anxious to keep to his time schedule despite the flares ahead, started his engine again with the laconic remark—"Well, we'd better get on wi' it." Back we all tumbled into the bus en route for Glasgow.

These drivers and bus conductresses—most of the latter were young girls—who kept vital transport going through the worst raids, deserve a very special mention on the civilian roll of honor.

"War Is Making Geographers of Us All"

Two years have passed since that Sunday night, and now at last the long silent church bells of Britain have rung in the approaching dawn.

The Scottish people have always been interested in other lands, and now the war is making geographers of us all. Britain is much more intelligently interested in Amer-



International News

America Matches Smiles with Scotland

Visiting Glasgow last year, Mrs. Roosevelt opened the first of a chain of hostels for United States merchant seamen. There she met cook and waitresses.

ica than of yore, and my work as a lecturer takes me to many parts of Scotland outside the industrial belt.

One afternoon I was seated in a train which wound its slow way through green hills far from the business centers. On either hand stretched the moors and glens, here and there a grove of gnarled birch, here and there a foaming brown stream, its emerald verges overhung with russet bracken fronds. Sometimes a sheep—one of the eight million which Scotland is rearing—raised a startled head to gaze with its bright eyes at the train as it clanked slowly up the gradient.

As I watched the landscape roll past me in the fading December light, I thought how little after all war had changed the external aspect of the countryside. An occasional farmhouse had its yellow stacks dispersed cautiously, for fear of incendiaries, about its fields, and as the train wound its way nearer the flat coastal area one could see that brick barriers with huge concrete blocks, prepared

in the dangerous days of 1940, still waited for the invader at road junctions.

But Scotland was Scotland still. Beyond the great cities, her rural population is making a contribution to her war effort no less important than that of her miners and ship-builders, for they are concerned with the vital matter of the food supply.

More Crops; More Sheep

The Scottish Department of Agriculture is making a great drive to reclaim for the plow an additional two million acres, and the increased number of golden harvest fields last autumn north of the Border was one of the most significant alterations in the rural aspect.

People living in the islands and on the desolate uplands and lonely moors are making their own contribution, and on such pastures they are raising more sheep in relation to population than in any other country in the Northern Hemisphere.



British Information Bureau

Above Snow-covered Hills of the Scottish Border Country, Fighting Poles Make a Photographic Reconnaissance in R.A.F. Planes

Bitterly hating the Nazis for torturing their homeland, these exiles have won a reputation for reckless gallantry in the skies. Their two-seat Lyanders took part in French, Greek, and North African campaigns. Here they are used as trainers (pages 727, 733).

The gloaming deepened, but no friendly lights flashed from the farm windows, or flashed only to be immediately "doused" by the cautious housewife with hurriedly drawn blackout.

In the railway compartment itself a dim roof light, which cast its glow in two narrow slits through a hood, shed a subdued glimmer on the other occupants. Reading was impossible, and conversation was not encouraged by the A.R.P. notice, which reminded passengers that "Careless Talk Costs Lives," and urged them, "If danger seems imminent, lie on the floor."

No easy matter, that, in a compartment seated for six or eight persons, but it was no unnecessary warning in certain coastal districts. There were more than 50 "tip and run" raids on Scottish coast towns in the first two years of war, and they continue to occur.

Regardless of the warning notice, two men in the opposite corner were discussing political matters, and I caught the word "Dungavel." To a Scot, the name of this little Lanarkshire village is inextricably bound up with the strangest event that has happened to wartime Scotland—the descent of Hess (page 739).

This is Scotland's very own story, and when the full history of the war comes to be written, one of its most dramatic pages will tell of how on a May night in 1941 Hitler's deputy descended Dungavelwards on a parachute from his abandoned plane, was secured by a Scottish plowman and the Home Guard, and drank tea in the kitchen of a Scottish farmhouse!

Mystery of Hess Unsolved

This incredible story—a kind of New Order Symphony—still requires a deal of explaining away to the layman, who persists in regarding it as an unsolved mystery.

"Hess," I heard one of my fellow travelers saying now, "ay, that was a funny business!"

"Of course, he might easily have come as an accredited agent."

"No doubt, no doubt. Ay, we won't get to the root of that till the war's over."

"It'll be a very interesting story when it does come out, anyway."

"It will that."

The train was now running by the sea margin where little waves broke placidly on pale sands. Far off, against the gold of sun-down, a few trails of smoke showed on the horizon where some great convoy, bearing us the sinews of war from our friends across the sea, was nearing home.

An old man, dressed in the dark blue and peaked cap of the fisherman, sat up suddenly in the corner opposite me, his face eager.

"A convoy," I pointed.

"Ay," said the old man gleefully, "they'll be coming to us for all that Hitler can do. He can't stop them." *

"It's a dangerous life," said one of the men who had been discussing Hess, "but we're all living dangerously these days."

"Ay," said the old fisherman, "we are in the Lord's Hand."

He spoke in the soft accents of one used to the Gaelic, and I remembered how half the families in Lewis, one of the large islands off northwest Scotland, were affected when the *Rawalpindi* went down in November, 1939.

Training Ground for Commando Raiders

Scotsmen have borne their full share of the fighting in all services, and Scotland herself has provided the training ground for some of the most daring Commando raiders. Certain areas in the Highlands are still forbidden ground to the traveler without a pass.

There were Scotsmen in the Lofoten Islands and in Libya, at Dunkirk and Crete, at Hong Kong and Singapore. Men of the Fifty-first Highland Division fought valiantly in France, and their ultimate surrender at St. Valery en Caux during the second phase of the campaign followed only after eleven days of the hardest fighting, when stores and ammunition were exhausted.

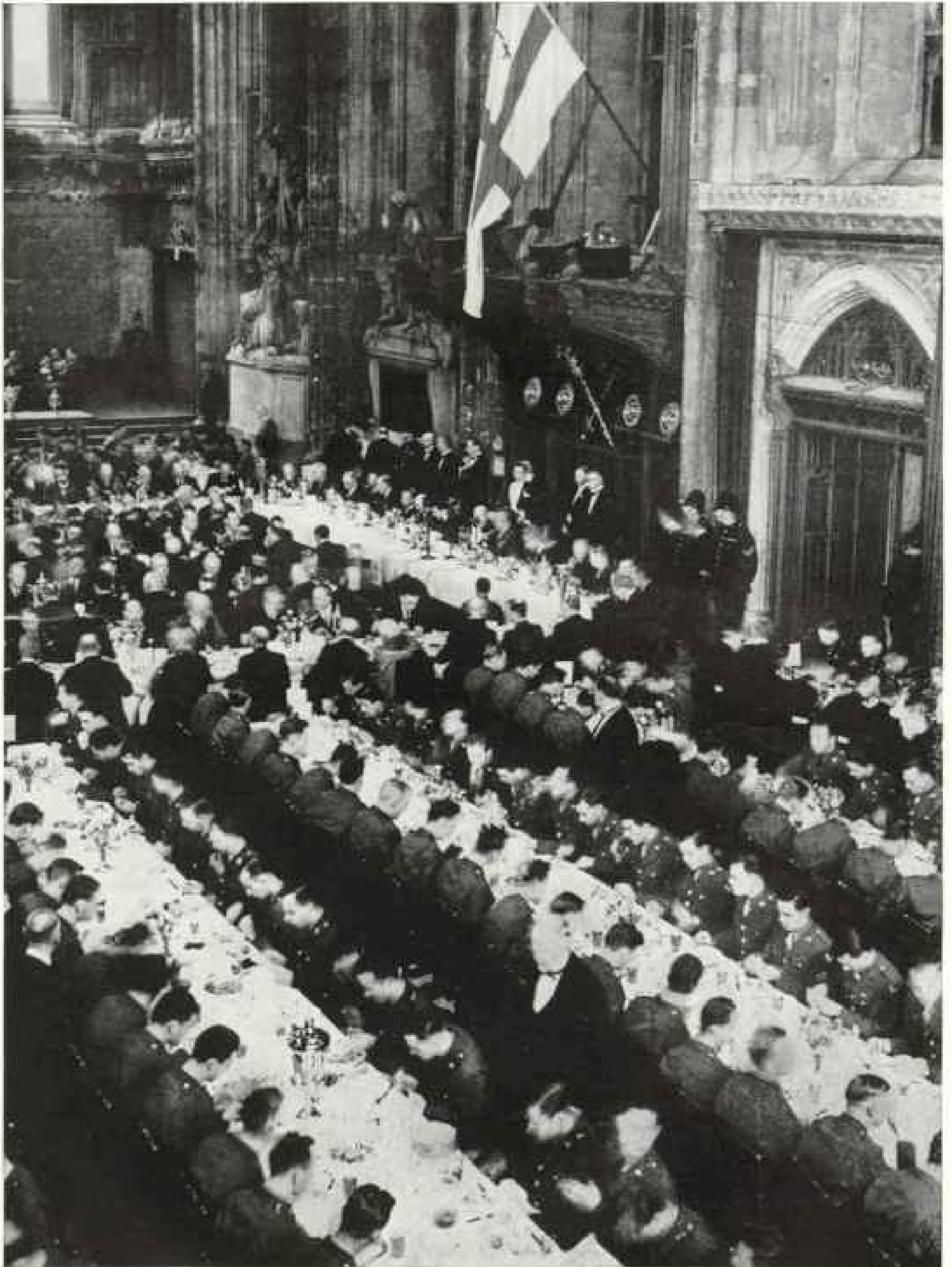
Fishermen from the Hebrides, or Western Islands, seamen born and bred, are serving in the Navy, and many besides the heroes of the *Rawalpindi* have lost their lives in the great naval battles. Others are manning trawlers in use as mine sweepers, and there are thousands in all branches of the Merchant Navy.

Even Scottish weather and Scottish mists have played their part in the defense of Britain. The work of the British Navy would have been still more difficult but for the protection afforded by Scottish harbors—mists and all!

Scotland enters the fourth year of war in the spirit of the Clydeside navy who was overheard remarking to his mate one day when the London blitz was at its height:

"If this blizzin' goes on much longer, maybe England'll make peace wi' Hitler, and we'll be left to cairry on the war by oorsels!"

* See "Convoy to Victory," by Harvey Klemmer, NATIONAL GEOGRAPHIC MAGAZINE, February, 1943, and "Lend-Lease Is a Two-way Benefit," by Francis Flood, in this issue of the NATIONAL GEOGRAPHIC MAGAZINE.



British Combine

Guests of London's Lord Mayor, U. S. Service Men Dine Off Bombed Guildhall's Gold Plate

Great Hall's new roof covered these 300 men September 2, 1942. Around them, the walls, dating from 1441, withstood the 1940 blitz as they did the fire of 1666. Bobbies stand below the Cross of St. George. Marching in on silent rubber soles, the Americans astonished Britons used to 'Tommy's' clumping leather.

Lend-Lease Is a Two-way Benefit

Innovation in Creative Statesmanship Pools Resources of United Nations, and Supplies American Forces Around the World

BY FRANCIS FLOOD *

PAINT sprayers, blankets, water barrels, cookstoves, watches, socks, bicycles, gasoline, barbed wire. It reads like an inventory from an old-time general store back in the forks of the creek.

But this list calls for a million blankets, two million suits of underwear, four million pairs of wool socks. It is part of a list of supplies given to the United States Army in Britain by the British Government, under reverse Lend-Lease.

If those figures are too big for the beginning of a story, here is a smaller one. There is a \$20 limit on any single expenditure that a United States Army officer may make for Army supplies in Britain. Supplies of any higher value are simply requisitioned from the British Government, under reciprocal Lend-Lease, which means we get them free.

The result is that our own expenses for supplies for an American soldier in Britain are down to less than 25 cents a month.

2,500 to 1

The Lend-Lease principle is an innovation in creative statesmanship. In World War I, equipment, supplies, and food furnished to our A.E.F. were paid for by Uncle Sam. In this war much of it is given to us under Lend-Lease.

We spent only about one million dollars for supplies for all our forces in Britain during the first 13 months of this war. That one million dollars compares with the 2,500 million dollars we spent during the other war for supplies for our soldiers in Europe.

The list of these supplies given to our Army in Britain is too long to publish here. Briefly, it includes whatever we need. And the test of whether or not the U.S. forces need a particular article is simply the signature of the United States officer on the requisition.

More than a million tons of equipment and food were given us in Britain during the last seven months of 1942. But the dollar value of these supplies has never been figured, and for an interesting reason. Our Engineer Corps estimates that the bookkeeping job would keep half an Army division constantly employed.

It has seemed more necessary to devote the limited manpower in Britain to furnishing these supplies to us than to keeping a record of their value. The British civilian labor employed for U.S. forces, and paid for by

the British, varies from 12,000 to 25,000 people at all times.

Any really sound business benefits both parties. It was to defend America that we sent aid to Britain, aid to Russia, aid to China. And the supplies now given by our allies to our forces abroad are as much for their own defense as for ours.

Call it bread cast on the waters which returns after many days. Call it mutual aid against a common enemy.

It started early, this two-way benefit, though in the early days we recognized it simply as sound business. It was in their own interests that Britain and the other Empire countries, excluding Canada, spent seven billion dollars in the United States, most of it before the Lend-Lease Act was passed. One and one-half billion was to finance the start of our infant war aircraft industry, but this helped us get off to a flying start. When Britain ran out of dollars, we formally recognized our responsibility and continued our aid as Lend-Lease.

To retool a nation to war production takes a long time. Those British cash orders, some of them two years before Pearl Harbor, followed in turn by Lend-Lease orders, meant that by the time we jumped into the fight we "lit a-runnin'," gun in hand, already in production, with a two-year start.

With America in the war, Britain and our allies adopted the same Lend-Lease principle toward us and freely provide all the assistance they can under the name of reciprocal aid.

Whose Patrol Is It?

We send 50 destroyers to Britain. Then a fleet of Royal Navy ships, complete with officers and men, is lent to the U.S. Navy to escort our U.S. tankers off our North Carolina coast. They fly the British flag, pay their crews from His Majesty's treasury, operate under our admiralty, eat our food, and drink their tea and rum.

Just whose patrol is it, anyway?

Follow it further. The cargo of fuel from that protected tanker later goes to England as Lend-Lease. There it may be refunded to one of our Army Air Force units operating

* Associate Editor of the *Farmer-Stockman*, Oklahoma City, on leave with the British Supply Council, Washington, D. C.



Keith Donham, Oakland Tribune

Return Gift for Dry Milk Is a "Rubber Cow"

This British barrage balloon protects a California shipyard. The mound houses winch and cable. Repairs are made on the canvas "bed." Hydrogen cylinders for inflation are stacked along the walk. Several thousand balloons, as well as antiaircraft guns, were rushed from Britain when Pearl Harbor caught us short.

from a British-built base, maintained by British paid labor. It may power a British Spitfire plane, hundreds of which were lend-leased to the U.S. Air Forces, or it may help escort a combined United States-British convoy taking English troops to fight in Africa under General Eisenhower.

British Guns Help Defend U.S. Cities

British antiaircraft guns, the quickest-working and most effective ack-acks in the world, guard our Panama Canal, on which their shipping, and ours, depend. And a large shipment of these same ack-acks was sent to defend American cities against possible raids, which *can* happen here.

Not content with sending guns to us, the British went even further. They shipped us the factories that made them. It was a pooling of the combination of our manpower and raw materials with their machinery, already made, for the finest big guns of their type.

This was before Pearl Harbor. It would have taken us many months to make these machines.

Three complete gun-barrel factories in Britain were actually dismantled, and the enormous machine tools loaded onto British ships and brought to Brooklyn.

There they were unloaded and sent to various parts of the United States to swing again into production of guns to batter the Axis. Months of precious time, which means lives of American soldiers, were saved.

Shortly thereafter, 12 complete shell-producing plants, with a capacity of 50,000 shells a week, were shipped to the United States as a gift.

Barrage balloons, those grotesque but successful weapons of defense that were developed in Britain's costly laboratory of trial by fire, were sent by the thousands to protect vital areas of our own coastline immediately after Pearl Harbor.

The telephone rang. It was late at night in the War Office in Whitehall—just before the great British push against Rommel began. The department, and the nation, were organized to the split second behind Britain's biggest offensive of the war.

The whole British railroad system, every truck line, ordnance store, supply depot, every tank of oil, were scheduled down to the last minute of those busy days. British civil and military workers were secretly geared to the one first job of equipping the armies for their Africa plunge, and everyone had been told that nothing could be more urgent than the job he was on.

A gray-eyed lieutenant colonel of the Royal



© Associated Press of Great Britain

British 6-inch Guns on Lend-Lease Convoy Take Setting-up Exercises Lest Ice Paralyze Them

Skyward they point, then down, then side to side, like a numbed man waving his arms to restore circulation. Spray has formed a skating rink on deck. Winter's pack ice indicates this cruiser may be on the Murmansk run.

Army Service Corps picked up the phone.

An American voice answered him.

"Colonel, this is the U.S. Army Headquarters in London. Can you arrange for 25 rail cars of gasoline to be delivered to us at Depot——tomorrow? And continuing every day for a week or 10 days?"

It is a standing order in Britain that an emergency request from the American Command in the European theater must have priority above everything, must be fulfilled.

The colonel stuck to his telephone through the night. He had railroads rearrange their already upset timetables for the next 10 days, and the petroleum board's vast organization of pumping, transport, and storage revised its strained facilities.

The gasoline was delivered. And when the Americans asked for 20,000 barrels of motor transport oil at about the same time, it was delivered on the nail.

Reciprocal Lend-Lease provides a way for some of our allies, including Britain, to make payments to us for our war effort, in advance, and in kind, without our face getting too red in accepting. Stand a moment on the two-way street and see some examples.

Here's one. Ever support a boy in college? He takes a lot of equipment, food, gasoline, clothes, transportation. But a boy on the North African front, in Britain, or in the Pacific takes a lot more of all these things.

We have two million or more of them overseas now. But we spent only \$25,000 in the month of December, 1942, in Britain for supplies for all our forces there. The rest was furnished by the British.

Of course we shipped a great tonnage of supplies over to them from here. But the British lend-leased them still more, 1,121,000 tons of supplies—besides another 1,595,000 tons of construction materials.



British Ministry of War

Who Wouldn't Share His Vegetables to Keep These Little Allies Healthy and Smiling!

Somewhere in England, a year after the blitz, evacuees from London sample American vegetable concentrates. Rehydrated, they contain full food values. Only the keenest palate can tell they are not fresh.

An American soldier goes into his own army post exchange in Britain to shop around for some shaving cream, razor blades, or any of the hundreds of other items the commissary stocks for his convenience. Maybe he sees a bargain in a good English pipe. It's a bargain for Uncle Sam, too. For many of these items are reverse lend-leased by the British to the post exchange, and the money that the soldier pays remains with the U.S. Army Finance Department.

The list of post-exchange goods, lend-leased by the British and sold by the United States post exchanges, includes brushes, candy, tooth-paste, hair tonic, handkerchiefs, lighter fluid, matches, mirrors, tobacco pouches, playing cards, razors, thread, flashlights, and many other things.

Very largely these are items that the British civilian himself has the utmost difficulty in getting because the manufacture of all such "luxuries" as playing cards and nail files and paper tissues has been stopped in Britain.

Poker chips were a problem. The United States post exchange needed 24,000 poker chips to meet the soldier demand. They couldn't be had in Britain. So Americans used British farthings for chips instead. When British wanted to learn the game, Americans were glad to accept the cash consequences.

American Food Keeps Britain Fighting

Pinochle was something else. When the U.S. Army post exchange put in a requisition for 100,000 cards there were none to be had, because pinochle is not an English game. But the British made special blocks and had the cards printed and supplied, under reverse Lend-Lease.

Food? Mutual aid in supplying food has been the salvation of the United Nations in the shipping it has saved alone.

We lend-lease to our allies the concentrated foods, some of them taking only a third to a tenth of the cargo space they would require in their normal form, dried and evaporated milk,

dried eggs, cheese, meat, dried beans. These foods have kept the British Empire, its armies, navies, and its R.A.F. in the fight.* (Pages 748, 750, 752, 755.)

And, in return, our allies, Britain, Australia, New Zealand, supply our armies under Lend-Lease, delivered to them right where they are fighting, almost all their food, including the bulky foods that would take fleets to bring from the United States.

In 1942 we received under reverse Lend-Lease more beef, veal, lamb, and mutton from Australia and New Zealand for our troops down under than we lend-leased to all our allies, including Britain, Russia, and the rest. This was in addition to a much greater tonnage of other foods given to our armies there.

In the last six months of 1942 we lend-leased food at the rate of about 16 pounds of food for each person in the United States, while Australia and New Zealand lend-leased food to us at the rate of 26 pounds for each person in those two countries.

Ever since I visited New Zealand before the war I've thought of that rich dairyland down under, that little spot at the foot of the world, as the tip of the horn of plenty. (It's about equal to Colorado in size and only half a million larger in population.)

One-third of all New Zealand's farm workers, and one-half of all the men of military age, are under arms. That is a mobilization equivalent to 21 million men under arms in the United States, 13 million in the Army, and 8 million in the home guard.

Ask any U.S. dairyman what such a loss of manpower means to a dairy country such as New Zealand. "They'd have to sell their cows, of course. You can't dairy without skilled labor." But New Zealand has increased her farm production 15 percent in the face of it, with the increase in dairy production substantially greater still.

And now these New Zealanders, after limiting their diet down to such levels as three eggs a month and even cutting out their school milk program, have joined with Australia in lend-leasing to us more beef, by 40 percent, than we lend-lease to all our allies.

Of all the Lend-Lease facts this prodigious feat is one of the most impressive. First, these agricultural democracies like our own, Australia and New Zealand, prove that farm production can be maintained and increased in spite of tremendous military and war-industry demands on labor. Second, after producing this extra food under such difficulties, they are willing to ration themselves rigidly.

Far more important than the beef is the

tremendous saving in shipping, not only of the beef but of a much greater tonnage of other foods. Faraway Australia and New Zealand furnish to us, there on the ground, most of all the food our soldiers eat, freeing thousands of tons of shipping to carry more planes and tanks and guns to that distant theater.

Besides shipping saved, Australia has turned over to us scores of trawlers and coastal steamers and has made hundreds of landing craft, barges, and other small boats in her own shipyards and given them to us under reverse Lend-Lease.

Yes, we lend-lease food to Britain. They need it. I lost enough weight in a few weeks there to know. An island only a third larger than New England can't grow enough food for a third as many people as there are in the whole United States. And the ships that once brought them food are now sunk or carrying their soldiers and ours, and munitions of war, to all parts of the world.

Potatoes in Bomb Craters

So they plant cabbages in churchyards and potatoes in bomb craters, which dot the farms in every county in England. They plow the golf courses in Scotland and the lawns up to the front-door knobs. They raise food on thousands of acres of land so rough and steep that it has never been farmed before and which costs them more to farm than the crops are worth.†

Critically short of farm labor and machinery, and in spite of the blackout and all the other obstacles, they have increased crop acreage by more than 50 percent and tonnage of food produced by even more.

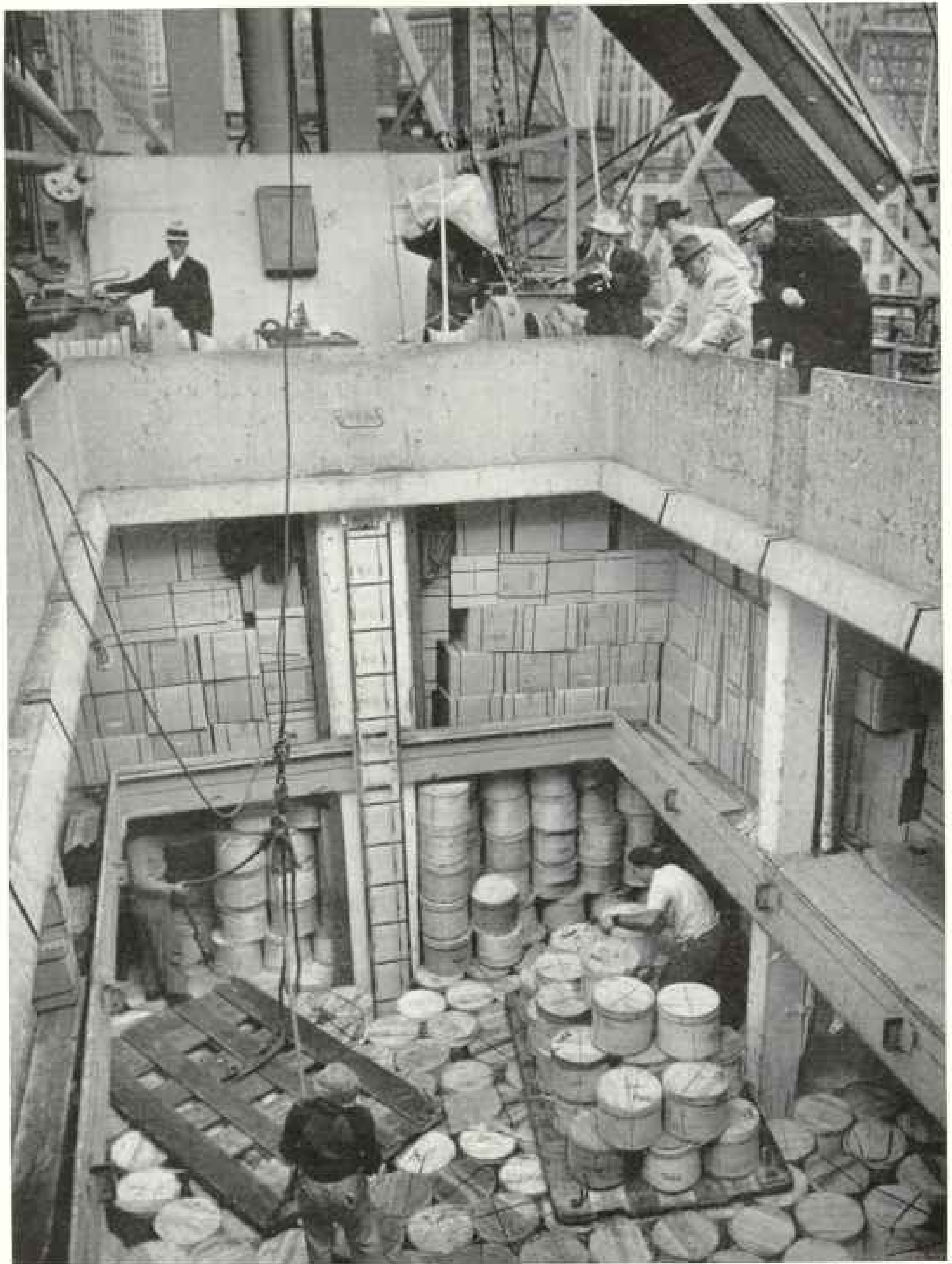
But the British are still on short rations, with one to three eggs a month, 2½ pints of milk a week, two ounces of butter, two of tea, about a pound and a half of meat (including canned), four ounces of cheese; canned fruits and vegetables, breakfast cereals, canned meats, and many other foods on a points rationing system.

But they still furnish us, on Lend-Lease, about half of all the food our soldiers in Britain eat, and all their potatoes, bread, flour, and fresh vegetables. They have agreed to furnish our soldiers in the European area some 200,000 short tons of food this year.

All these provisions reduce America's need for sterling to buy these goods, and save money; but they also economize in the most

* See "Farmers Keep Them Eating," by Frederick Simpich, NATIONAL GEOGRAPHIC MAGAZINE, April, 1943.

† See, in NATIONAL GEOGRAPHIC MAGAZINE, by Harvey Klemmer, "Everyday Life in Wartime England," April, 1941, "Rural Britain Carries On," October, 1941, and "Convoys to Victory," Feb. 1943.



J. Bayler Roberts

Why Ship Water Overseas? "Featherweight" Dried Foods Save Five-sixths the Cargo Space

Every ton saved in this food-ship loading in New York harbor is the equivalent of a small block-buster aimed at the Axis. Above the cheese in round cases, powdered eggs in cartons reduce volume 90 percent. Stored elsewhere, dry skim requires a fourth the space needed for evaporated milk.

critical instrument of war, shipping. Other foods furnished our soldiers by the British include cereals, sugar, and chocolate.

And we lend-lease them food, the concentrated kinds that take only a tenth to a third of the cargo space they would take in their regular form. We send dried and evaporated milk, dried eggs, cheese, meat, dried beans. The main value of these food supplies to Britain is that they have enabled Britain to remain in the war, and to produce armaments on a scale which we, with about three times their population, have only recently exceeded.

There has never been doubt of the United Nations' ability to beat the Axis in sheer production. The catch is to deliver it, through that narrow and vulnerable bottleneck of shipping. To transport the more than two million men we now have overseas to all world battle fronts, with their arms, equipment, and stores, and to keep them supplied and reinforced, requires far more shipping than America alone has to spare.

The British, with the largest merchant service, have about 2,500 ships continuously at sea. These merchant ships must be convoyed by naval vessels and aircraft. The Empire navies have 600 warships constantly at sea. These merchant and naval armadas are pooled with ours.

The carrying of our troops to Britain and North Africa and other areas has been chiefly by British ships, convoyed by the Royal Navy and the R.A.F. It has enabled us to keep more of our Navy and merchant ships in the Pacific. It has amounted to an increase in our Navy.

The American-British November landing in North Africa was dramatic as the greatest amphibious operation the world has ever seen and as the greatest massing of fleets in the history of the seas. It is also a spectacular example of reciprocal aid. The soldiers and cargoes were mainly American; the ships, 500 transports and 350 naval ships, were mainly British (page 756).

The whole fleet was under a British commander, but when H.M.S. *Walney* and H.M.S. *Hartland** charged the boom at Oran they flew the Stars and Stripes above their own White Ensign, because the invasion was under the command of General Eisenhower.

And to back up the landing at Oran the British supplied 2,000 miles of electrical twisted wire, 500,000 antitank mines, 4,800 submachine guns, transportable army buildings, and the local boom defenses.

Then came the job of maintaining the supplies of food, arms, ammunition, and reinforcements. In the first two months the

British Navy escorted between Gibraltar and the North African ports nearly 1,000 transports, supply ships, and other vessels, a total of eight million tons.

The Ships Must Go On

Just as the most serious threat to the United Nations is the enemy's submarine, the strongest weapon of Britain and America is sea-power. The lanes must be kept clear.

In the North Atlantic alone the Royal Navy employs a quarter of a million British sailors to protect that life line, so that United States supplies and food for Britain, as well as our own supplies and troops, can be transported.

The Royal Navy is operating on a front of 60 million square miles. These include the most dangerous waters in the world: the coast of the British Isles directly under the enemy's guns and planes; to Gibraltar and through the Mediterranean to Suez or North Africa; the North Atlantic to America; around the North Cape on that deadly route to Murmansk, what with the icebergs, the Nazi land-based planes, and the surface raiders from the Norwegian fjords (page 747).

All the mine sweeping and mine laying in the Mediterranean, a continuous operation to protect the supply ships for the British and American forces in Africa, is done by the British Navy and the R.A.F. They have laid over 100,000 mines.

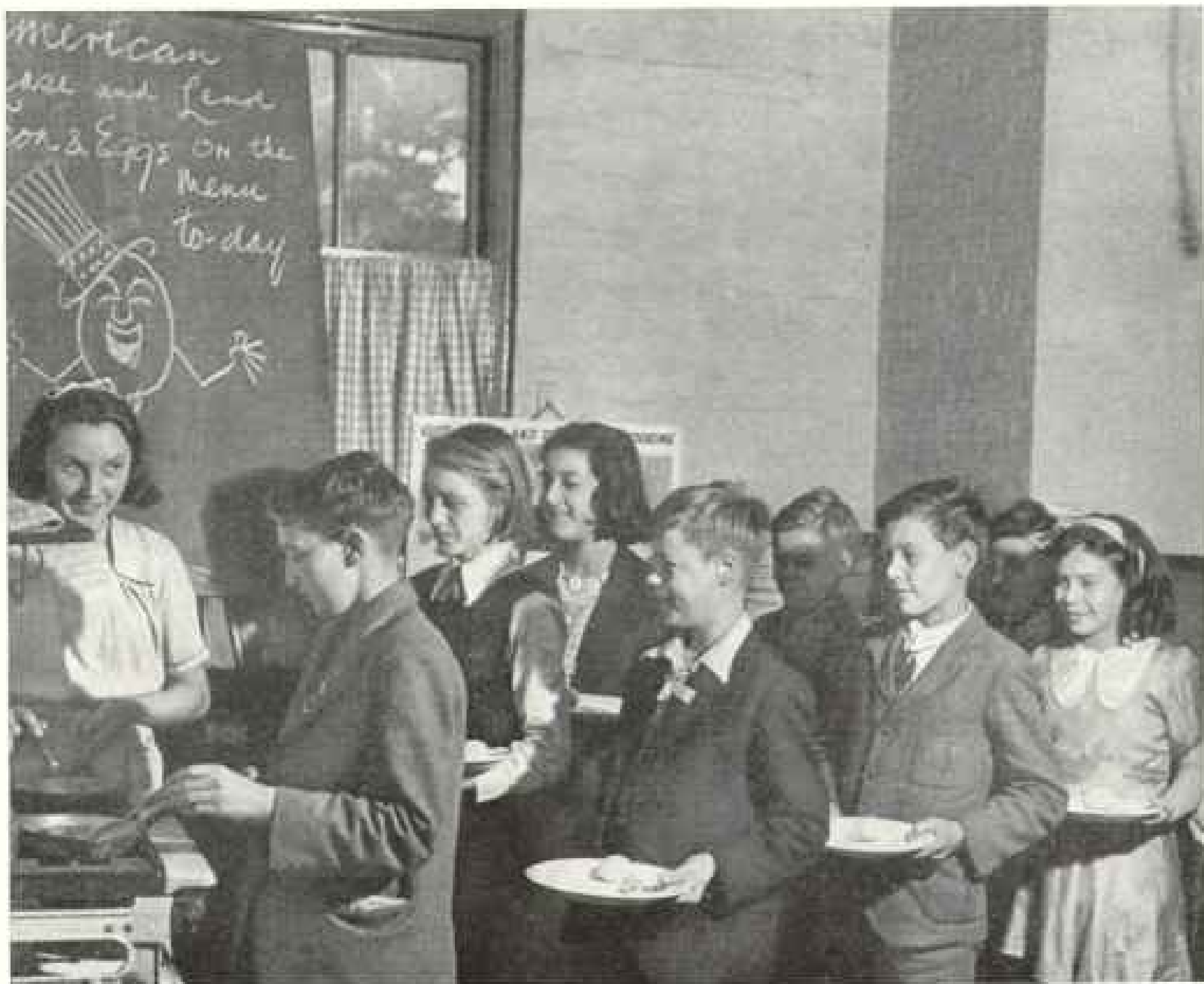
Mine sweeping keeps 25,000 officers and men busy in all kinds of weather over 14,000 miles of sea lanes. This is one of the most hazardous and exhausting of all the demands that war makes upon the tortured bodies and minds of men. It is done in cockleshells of boats and involves a constant, minute searching of dangerous waters in all kinds of weather.

In addition to fighting alongside us, the Royal Navy has given the U.S. Navy such appliances as antisubmarine nets, boom defenses, smoke generators, air-purification apparatus for submarines, besides such valuable things as charts and signals.

When the American soldiers landed in Britain by the hundreds of thousands for an indefinite stay, the invasion was a problem. The tight little island was already crowded to the attic. One home out of every five had been destroyed or damaged by German bombs. Evacuees from the cities were quartered wherever there was room—whether there was room or not.

Britain's house was hardly in order to receive so many guests. But there they were, those hordes of in-laws, and they had to be

* Both were formerly U. S. Coast Guard cutters, transferred to Britain in 1941.



British Ministry of Information

"Uncle Sam Is a Good Egg," British School Children Agree

The blackboard tells the story as hungry youngsters take bacon and eggs to frying pans in September, 1941. Then an egg was an event, and it was still in its shell. Not so today; dehydration removes shell and moisture, too. (page 755).

provided for, housed, and fed. There was no spare bedroom and the cupboard was pitifully bare.

But down the gangplanks of the *Queen Mary* and *Queen Elizabeth*, from convoy after convoy, swarmed these grinning, friendly relatives. Here was a problem.

To accommodate the American visitors, vast barracks and camps had to be built today. But who had time to do that? Nearly 70 percent of the British people—practically every man, woman, and child between 14 and 65—was already engaged, either in the fighting forces or the war industries. The labor for building could come only from these people; they had to be withdrawn from work already part of the war effort (page 754).

Barracks for United States Troops

Two-thirds of the Army and civilian labor available for military projects was set to work to provide housing and services for the Ameri-

can guests. The wages bill for civilian workers alone, working for the U.S. forces, averages \$240,000 a week, and is paid by Britain.

Hundreds of barracks, supply depots, and airfields have been constructed, and new roads and railroads laid down by the Royal Engineers. Special hospitals with 89,000 beds, built, equipped, and presented to Uncle Sam, cost \$60,000,000.

The job took first priority. In August the conscription of 28,000 builders, called and ready for induction, was deferred until they had completed what Ernest Bevin, British Minister of Labor, called "Britain's biggest job"—housing the hordes of American guests.

The American authorities chose the sites, said "Put it there," and building materials were rushed on new railroads built for the purpose. In one camp 800,000 man hours were saved when barracks for 3,000 men were built in 10 weeks, 8 weeks under schedule.

"If anyone tells you the British can't put

their foot on the gas, remind him that the British hold the world's speed records for automobiles, motorboats, and ocean liners, and now this depot is another!" This from Maj. Gen. John C. H. Lee, commanding the Army Supply Force for the European theater.

"We'd like this department store converted to specifications and turned over to us," said the U. S. General Purchasing Board. It was near London. It was estimated as an eight weeks' job, with the full force of Britain's labor and materials concentrated then on the armies in Africa and the Russian convoys.

But Col. D. C. MacKearchie, at that time chief purchasing agent for the United States forces in Britain, said that was too long. The British Minister of Works and Planning, Lord Portal, rushed 300 Londoners to the site. Every man worked a 12-hour shift, with the electricians finishing the last lap with a day, a night, and a day straight through. Then the 300 workmen, spattered with paint and sweat, stood before the American colonel.

"You've done it in nine days," he told them, "and it's one hell of a good job!"

Half of the entire strength of the transport and construction troops of the Royal Engineers were employed for a time on building roads and railroads to handle the unprecedented traffic when the Americans came.

The Americans needed automobiles before their own transport arrived, so 3,000 cars, complete with drivers, were lend-leased. Now R.A.F. drivers salute U.S. Air Forces officers into their cars.

Wanted: 13,000 Bicycles

When our Air Forces found that dispersal of hangars and barracks, for safety against bombings, meant some distances for air crews to walk, they asked for bicycles. Bicycles are in great demand in Britain, where the civilian is forbidden to motor except on highly important business, but the United States got the 13,000 bicycles it requested (page 759).

British standards require heating their Army barracks to a temperature of 60°. Because of the fuel shortage in Britain last winter, most homes were colder than that, Parliament sat in overcoats, and a 5-inch line was drawn on the bathtubs in Buckingham Palace and Windsor Castle. But when U.S. medical officers asked that barracks for our troops be heated to a minimum of 65°, it was instantly agreed to by the British, and they gave us the necessary coal.

Perhaps a little pettish at first, and reasonably, squadron after squadron of the R.A.F. was nudged out of its favorite airfield to make way for the U.S. Army air squadrons

as they arrived in Britain. At the same time, British civilian skilled labor was taken off all other work to build new airfields, hangars, runways, barracks—some for the homeless R.A.F., some for the U.S.A.A.F., new and built to their specifications.

The home of the three Eagle Squadrons, a fighter base of unusual value, was handed over to the U.S.A.A.F., complete with maintenance and defense personnel, when the Eagles, America's pioneers of the air over Europe in this war, stepped out of the R.A.F. blue into United States uniforms.

The Eagles also kept their full complement of Spitfires, giving them back to the British only when they crash or are due for major factory overhaul. And then a replacement Spitfire is flown out from the production line.

Let's visit one of these airfields. It is a 1,000-acre airfield and aircraft repair depot built in 1940. Its thousands of workers, 24 percent of them women, had learned every wire and rivet and symptom of the U.S. Douglas and Lockheed bombers, bought by the British or lend-leased from America, as fast as convoys could deliver them.

And when a plane limped home, broken in battle, it soon rose again from their hands, to fly back against the Luftwaffe.

Catalinas of the R.A.F. Coastal Command, shrouded with ice and salt, have passed continually through their healing hands to fly again on that critical front that has known no letup, the U-boat-infested Atlantic. Flying Fortresses have been repaired to fly again over the Rhine.

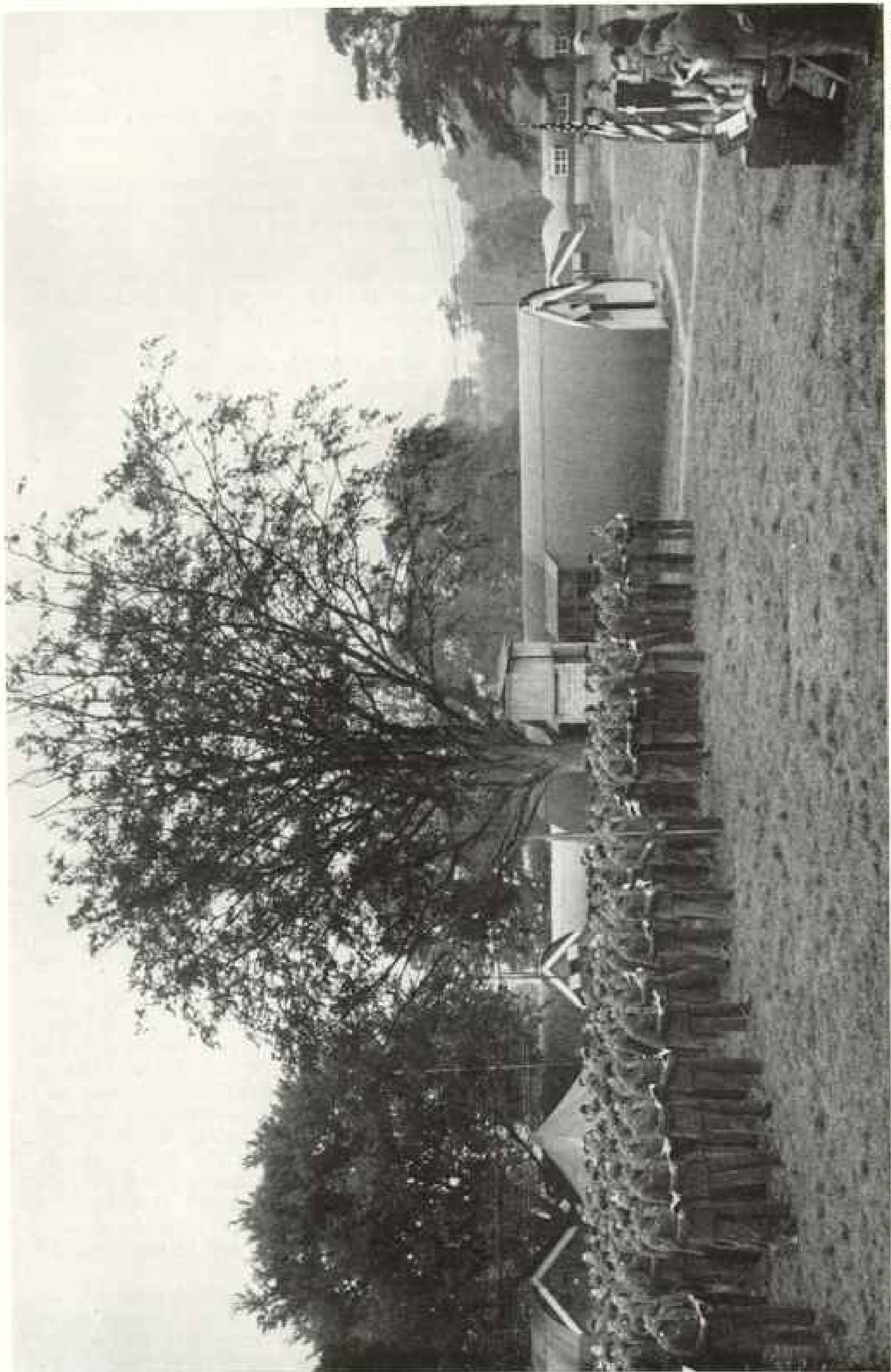
Here was a huge physical plant, equipped to the last detail and manned with a veteran crew of aircraft experts, not only skilled but spurred by that extra urge that comes from the pride of a record made. It was the pride of the R.A.F.

It was handed over, complete with personnel, to the U.S. Army Air Forces, when they came with their Flying Fortresses. The R.A.F. moved out; the U.S. flyers moved in.

The experienced British management and the skilled civilian maintenance workers stayed on the job, and on the British payroll, but the U.S. pilots fly the depot's output, and Lieut. Col. H. C. Short, U.S.A.A.F., sits across the corridor from Mr. D. Gregory, a Londoner who has been running the place.

"Now we've got the best of two systems," says Gregory.

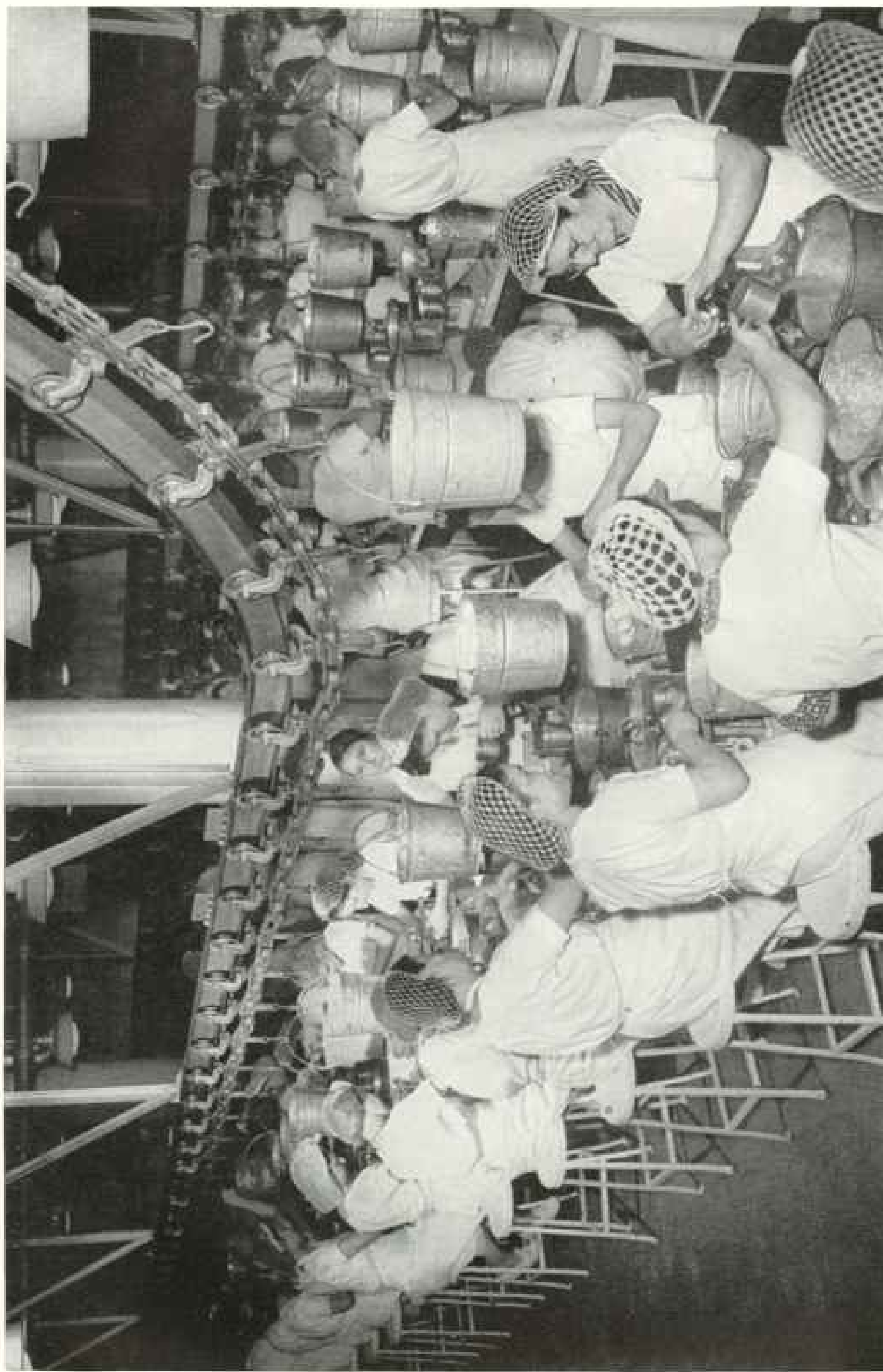
"Actually, we've changed the setup scarcely at all," said Colonel Short. "British workers knew all about these U.S. planes, and the administration was in perfect order. We have imported some hundreds of civilian



U. S. Army, Official.

In an English Wood, Hymns Break the Sunday Stillness of a U. S. Army Camp Built by the British.

The corrugated-iron, storm-proof sheds are known as Nissen huts. Hundreds of barracks were erected for Americans on or before schedule. John Bull, disregarding his own troubles, gave the job first priority. "If you think the British can't put their foot on the gas . . ." said an American general (page 752).



U.S. I. N. A. by Everett

Unlike Humpty Dumpty, Eggs Broken Here Will Be Put Together Again to Feed Our Allies Omelets and Scrambles

But these eggs, arriving in palls on an endless chain, will not be served soft-boiled or "sunny side up." When yolk and white leave the benches, a jet of spray and blast of heat will convert them into powder. Women in this Kansas City plant wear hair nets.



British Admiralty

Off Morocco, British Sailors and American Soldiers Team Up in History's
Biggest Armada

This transport, one of 850 ships in last November's combined operation, has nets spread as ladders. A landing barge is ready to drop its ramp on the beach. Americans wear the new round helmet; their Royal Navy allies have the flat, World War I type (page 751).

experts from the States to work out the expansion with Gregory's people."

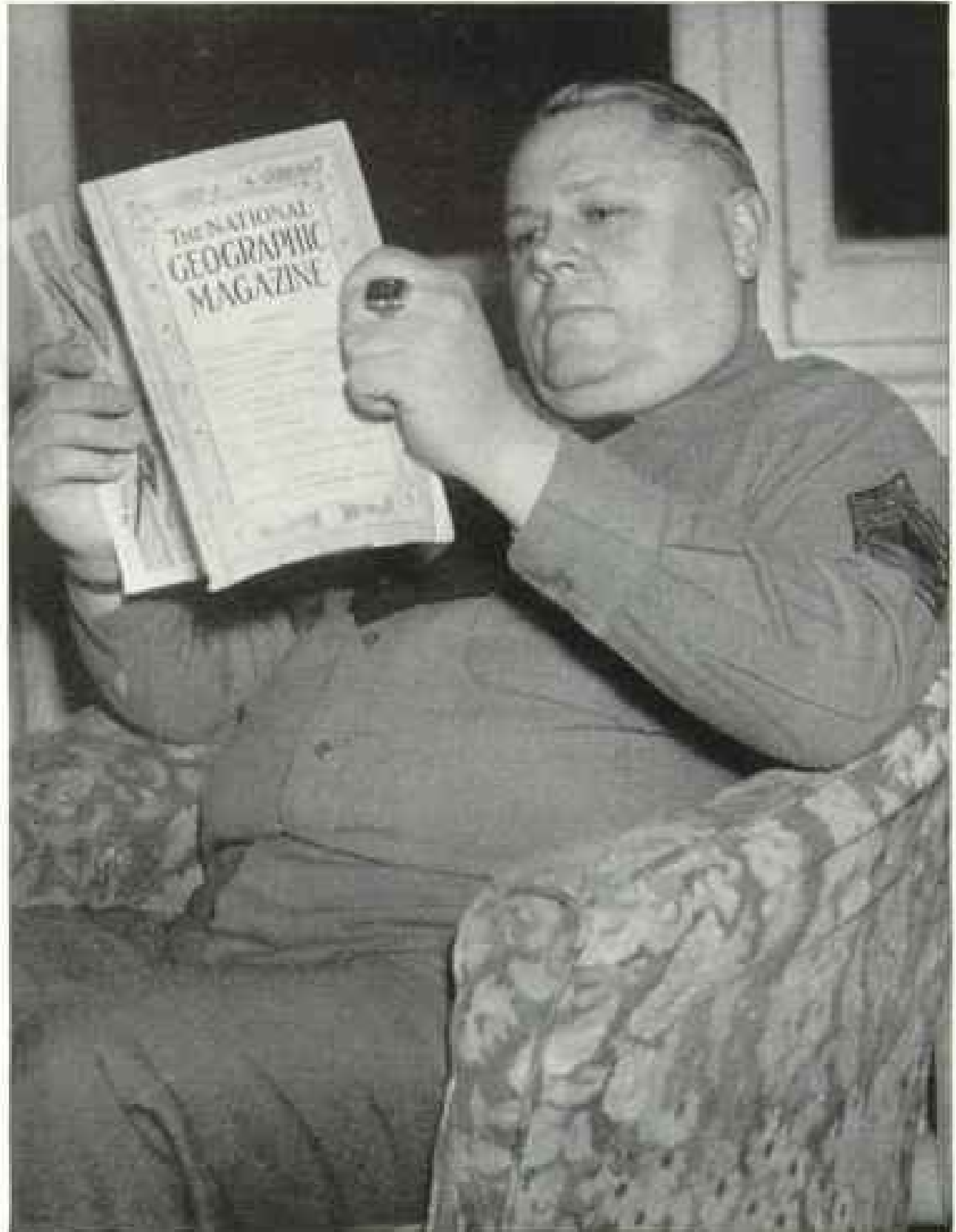
Many of the civilian experts were young Texans, complete with cowboy boots and ten-gallon hats—which the U.S. military authorities had to limit to holidays in the work-day austerity of Britain. But the Texans and the British work side by side and pool their knowledge and tricks of the trade. Three-tier trucks carrying dismantled engines pass down the lines of men and girls at their drills and lathes at inspection and assembly benches.

In one engine-repair hangar three kids are tinkering with an Allison crankcase. Elsie Astley, 20-year-old North England girl in blue overalls, hands tools to Ernest T. Eastwood of San Antonio, Texas, and as proud of it as every Texan is. The third is Hans Besler in blue denim, 22, an Austrian who escaped to Britain and has been assembling and repairing American aircraft for the R.A.F. for two years (page 761).

The only difficulty they have is in language, "because Ernest seems to have a different name for every tool in the shop," says Elsie.

Sgt. James Ball of Kansas City is responsible for the records of mutual aid at this depot. His files show that at his depot the U.S.A.A.F. draws just about 20 times as much from the British as the R.A.F. near by draws from the U.S.A.A.F. supplies. Sergeant Ball has long since given up trying to draw the line of demarcation between how much each is giving the other in this corner of the United Nations' effort.

There is still another form of Lend-Lease. It is less easily demonstrated in direct terms



Wide World from Press Ass'n.

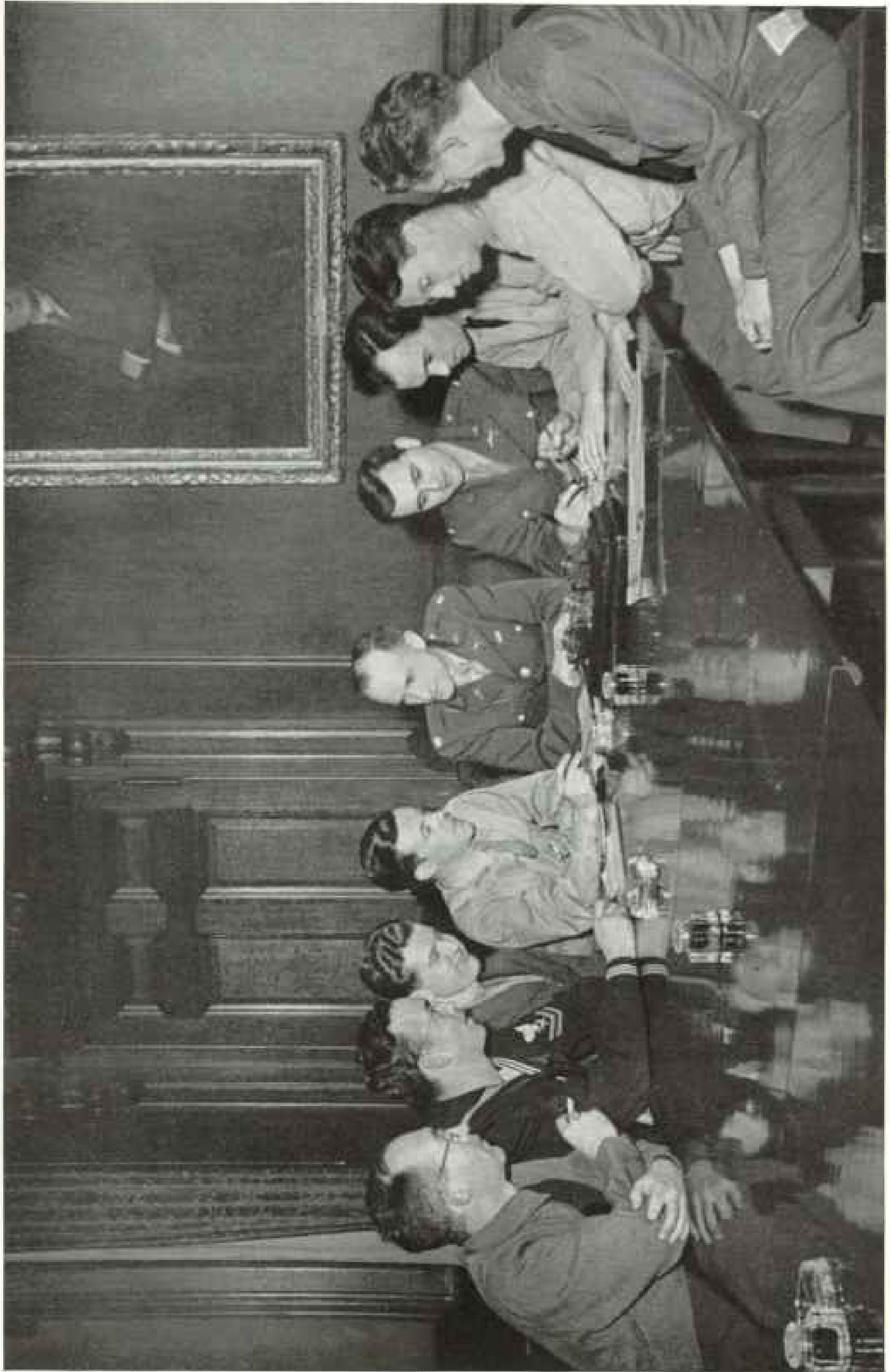
"Sarge" Relaxes with His Favorite Magazine at a London Club

Washington Club is one of 64 established by the American Red Cross during the first year over there. Thanks to rent-free quarters under reverse Lend-Lease, bed, bath, and breakfast cost only 50 cents. Dances, games, and shows are free. Despite U-boats, 34,600 NATIONAL GEOGRAPHICS went to the British Isles in May.

of men, money, and materials transferred, but it is more valuable to the United States than many more apparent gifts.

These are the vast and precious stores of British inventions and technical information on the intricate science of war, learned by Britain at the fearful cost of experience and handed over freely and fully to America.

They include lessons in connection with tanks, magnetic mines, explosives, and submarine devices in use by the enemy and the best methods of counteracting them. They also include Britain's own discoveries, such as radiolocators, astrographs, medical appliances for aviation, and other instruments.



© Associated Press of Great Britain

Shirt Sleeves Blossom as Editors of the Stars and Stripes Confer at the London Times, Their Sedate Lend-Lease Host

Présaca of the "Thunderer" print Joe Palooka, Blondie, Terry and the Pirates, baseball scores, and bathing beauty "art" for overseas Yanks' penny daily. The austere Times staff is puzzled. Lord Northcliffe, in oils, surveys the scene.



U. S. Army, Official

"Not What We Learned to Fly for, but It Beats Walking," Say U. S. Pilots Pedaling English Gift Bikes to Their Planes

Revetments are dispersed so widely that Americans complained of long hikes. Britons, already without gasoline, did without bicycles, too, so that 13,000 might go to their guns. Tricky hand brakes often give new riders a lesson in "flying" (page 753).



British Ministers of Food

Made in Britain, but It Tastes Like Home!

There are perhaps two ways of measuring the value of these. One is the terrific cost of learning them the hard way, as Britain did during the blitz. As the Luftwaffe flew nightly over England, scientists, both American and British, watched the British guinea pig being vivisected, and they shared the lessons learned.

The other measurement of their value is the thousands of American lives, the months of time, the millions of dollars that would have been necessary for American genius and enterprise to have learned these things in a laboratory of war of their own.

Many of our scientists and observers were invited over to study England under a rain of bombs, the threat of invasion, and the U-boat menace. The United States was still a neutral nation, but all doors were open in Britain's operational experience, and all her research secrets, all her war techniques were placed freely at the disposal of the visitors, along with blueprints, specifications, methods.

A Master Mechanical Spy

This information was one of England's most valuable gifts to the Arsenal of Democracy. How many months or years of costly trial-and-error, how many American lives were saved, how many mistakes averted, no one will ever know.

Among these gifts was the famous secret

air weapon, the radiolocator, which detects the approach of invading planes. Perhaps the Battle of Britain in the fall and winter of 1940-1 decided the fate of the Commonwealth, decided whether the armies, navies, and R.A.F. of Britain would now be fighting by our side.

Goering knew that if he could defeat the R.A.F., England would be wide open to invasion. His air force greatly outnumbered the British. His night-and-day attack was broken the day the British brought down nearly 200 German planes in one raid.

Although the British fighter planes had superior combative qualities, higher gun-power, and readier maneuverability, perhaps of equal importance was the part played by the radiolocator.

This mechanical master spy forewarned the British of the approach of the raiders, their direction, distance, number, and strength. It assured that the defense was employed with the strictest accuracy and economy.

Without it, many squadrons of planes and men would have had to be employed as patrols to watch for the enemy, consuming precious gasoline brought thousands of miles in precious ships, using up—and expending—planes and men, which themselves could never have been as effective as the radiolocator in telling when the Germans took off from their airfields only 15 or 20 minutes away in France.



British Ministry of Information

What a Lend-Lease Team! Lancashire Lass and Austrian Exile Flank a Texan

Elsie Astley and Hans Besler, on John Bull's payroll, and Ernest T. Eastwood, on Uncle Sam's, work on an Allison motor for the Army Air Forces. Eastwood wears wings of a San Antonio airfield. Ten-gallon hats so slowed the war effort that they now are limited to holidays (page 757).

"The Battle of Britain was won," according to Air Chief Marshal Sir Philip Joubert de la Ferté, "by a combination of fighter force and radio-detection. Radio waves, or call them ether waves, which are not affected by wind, fog, or darkness, constantly are sent out far beyond the limits of our shores.

"If they strike any object, such as a plane, they are reflected instantly. It is a 24-hour watch of the air. The system obviates the necessity of constant fighter patrols and means a tremendous saving in fuel, material, and strain on personnel."

Did Radiolocator Save Midway Islands?

Long before the United States entered the war American radio engineers were adding to our own research that had been under way here by operating these radiolocators in England under fire and acquiring a mastery of technique now being used by our forces at our own fighting fronts.

It is believed that the Midway Islands might have been captured but for the radiolocator.

The British secrets were given only to the United States, though for long they were kept so secret in England that in the British serv-

ices radiolocation was referred to by three letters only, and even these could not be whispered outside.

The invention was not the outcome of a sudden inspiration, but has been developed by gradual research. The first evidence of real progress was in the early spring of 1935.

A battered truck was parked on the frozen grass in a quiet English lane while an airplane flew back and forth on a prearranged course. In the truck was the first primitive radiolocator, detecting the aircraft flight. Tens of millions have since been spent perfecting it, but it has saved the investment and more.

Dozens of other devices, in the complicated fields of mines, submarines, planes, and tanks, have been worked out in the same painful and costly laboratory of war and their secrets given to the United States, a Lend-Lease gift that has meant enormous savings to the United Nations and the United States.

Lend-Lease is a pouring of the men, money, and materials of war into the United Nations' war machine. Everybody grabs a bucket and pours whatever he has into the hopper. At the other end the machine is grinding out a finished product, now beginning to emerge—Victory.

New Map of Europe and the Near East

TIMELY addition to the National Geographic Society's series of supplement maps is the new revised Map of Europe and the Near East, distributed with this issue of the NATIONAL GEOGRAPHIC MAGAZINE.

The comprehensive chart, printed in 10 colors on a sheet 39 by 34 inches, goes to The Society's 1,250,000 members while the United Nations are poised for an invasion of Europe.

Whether Norway, the Low Countries, Spain, France, Italy, or Greece and the Balkan States become battlegrounds, the course of invasion can be followed on the new chart, which is scaled at 94.7 miles to an inch.

The map reaches from the Persian Gulf, with its ports for Lend-Lease supplies to Soviet Russia, to American-occupied Iceland, and from sunny Casablanca, Morocco, to bleak Archangel and the Urals.

It reveals that continental Europe has become a Nazi fortress. Four nations remain neutral—Spain and Portugal, on the Iberian Peninsula, landlocked Switzerland, and Sweden. Only other continental territory free from Nazi domination is eastern Thrace, a patch of European Turkey.

On the map 225 new place names are listed. In North Africa scores of obscure names where American and British troops have made history are now familiar—Faid, Maknassy, Kasserine, Pichon, and other scenes of bitter fighting. They appear along with more familiar cities: Algiers, Tunis, and Bizerte.

New place names of importance in Norway include the big Nazi submarine base of Sörskjomen and the air base of Vaggetemjaure.

Soviet Russia's place names have been completely revised.

When the war ends, where will the Nazi "unconditional surrender" be accepted?

The map is dotted with many places, some obscure for centuries, which attained fame with the signing of a treaty. Such are Aix-la-Chapelle (Aachen), Brest-Litovsk, Ghent, Locarno, Pressburg, Rapallo, Utrecht, Versailles, Vienna, Zürich.

The map shows that the only oil pipe lines in Axis territory are in Romania and Albania.

Members may follow intensified United Nations' bombing raids. Along with famous targets such as Cologne (Köln), Essen, Hamburg, Berlin, and Bremen are shown hundreds of smaller European industrial communities which are important military objectives.

Across the English Channel, in Britain, lie the cities and towns for which famous R.A.F. bombers are named—Manchester, Lancaster, Bristol, and Hereford.

The map is drawn on an azimuthal equidistant projection, centered on 50° north latitude and 22° 30' east longitude. Therefore it is adapted for measuring distances by the scale shown on the map. For example, the scale shows the distance from Lisbon to Basra, on the Persian Gulf, as about 3,258 miles. The computed distance is 3,235 miles—a difference of only 23 miles over this vast stretch.

In the upper right-hand corner of the map is a large inset of the Middle East, on a scale of 252.5 miles to an inch. It reaches from Aden to Baku and from Port Said to Karachi, Quetta, and Stalinabad. Within this area Somalis, Indians, Persians, Afghans, British, Russians, and Americans work side by side handling enormous shipments of war materials for United Nations' armies.

The map also carries a table of ship-route distances in nautical miles, between principal European ports and other big world ports.

Careful selection of lettering style for place names and their arrangement keep the map clear and concise despite the vast amount of information it contains.

GEOGRAPHIC Maps Abreast of History

GEOGRAPHIC 10-color wall-map supplements have kept abreast of the changing fortunes of European nations since before World War I.

In 1913 the Editor of the NATIONAL GEOGRAPHIC MAGAZINE was traveling in Europe. He concluded that war on the Continent was inevitable within a year.

On his return to Washington, D. C., he directed preparation of a map supplement of the New Balkan States and Central Europe. When it was printed early in 1914, the entire press run was stored away.

Upon the outbreak of World War I, August 1, 1914, members of The Society received this new map of Europe with the August, 1914, issue of their NATIONAL GEOGRAPHIC.

When Hitler seized Austria in March, 1938, a map of Europe and the Near East, showing Austria as part of the German Reich, was issued. A few days after the invasion of Poland, in September, 1939, members received a map of Central Europe and the Mediterranean.

This was followed, in March, 1940, by a Map of Classical Lands of the Mediterranean, replete with historical data and valuable in

* Members may obtain additional copies of the new Map of Europe and the Near East by writing the National Geographic Society, Washington, D. C. Prices, in United States and Possessions, 50¢ on paper (folded or rolled); \$1 on linen (rolled only); 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.



Army, U. S. Army Official

The Secretary of War and His Chief of Staff Scan a National Geographic Map of Europe and the Near East

Mr. Stimson and General Marshall spend long hours over maps to plan global strategy. Beneath the chart they are consulting is The Society's Map of the Indian Ocean. Two hundred thousand copies of Geographic maps have gone to war, requisitioned by the Army, Navy, Marine Corps, Coast Guard, State Department and other government agencies.

following the progress of events in Albania, Greece, and Crete.

The 1940 Map of Europe and the Near East reached members in May, just as the Nazi drive through the Low Countries and France began. It had been revised in the light of eight months of war.

Fighting was still going on in Norway. The Germans had seized the larger ports of Oslo, Stavanger, Bergen, Trondheim, and Narvik. The British were forced to make their landings at small fishing villages such as Åndalsnes, Namsos, Bodø, and Tromsø. All could be located on the new map.

With the opening of the Nazi drive on the Netherlands, Belgium, and France, this map's value increased. Maastricht, Liège, Dunkerque, St. Quentin, and Abbeville, headline names, were prominently listed on the chart.

Smaller places which gained prominence overnight were also easily located: Montmédy, northern anchor of the Maginot Line; historic Sedan, scene of the disastrous break-through by Nazi armored forces; Evreux, near where the invaders crossed the Seine.

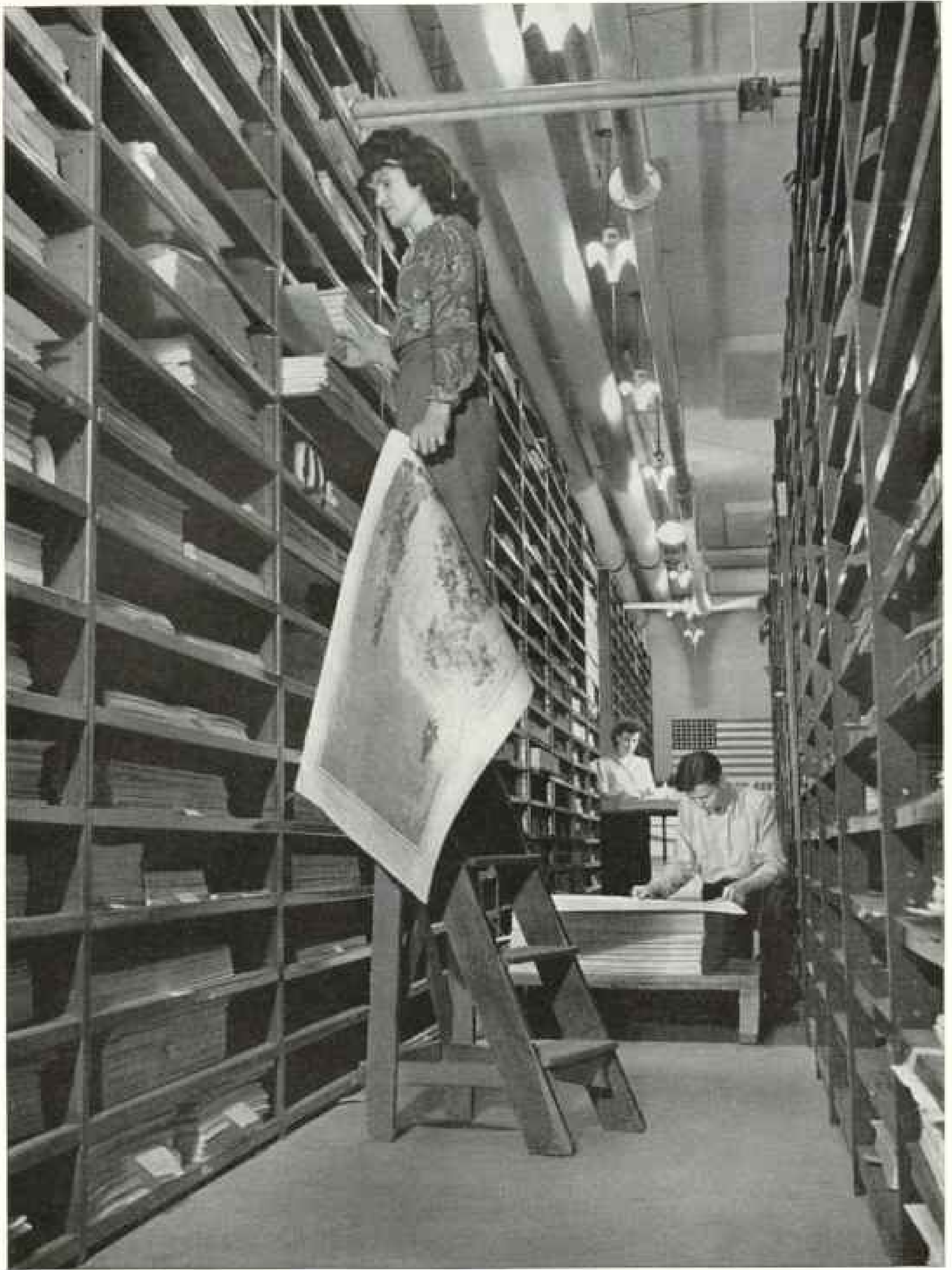
Tongue-twisters of the Greek-Italian war, such as Argirocastro, Ioánnina, Corizza, were

all on the map. The advance in Russia could be followed step by step, from Brest Litovsk to Stalingrad. Here, too, were listed the unattained Nazi objectives—Batumi, home of the Soviet's Black Sea fleet; Astrakhan, strategic control center of the Volga Basin; and Tiflis (Tbilisi), center of Caucasus mineral wealth.

More than 20,000 copies of this chart already have gone to the Army, Navy, Marine Corps, Coast Guard, State Department, and other Government agencies.

In September, 1941, The Society's Map of the Atlantic Ocean was mailed to members. It spanned the area of Nazi submarine warfare. Copies appeared at the time of the Roosevelt-Churchill Atlantic meeting in August. As the British began to step up bombing attacks on the Continent, the Map of the Theater of War in Europe, Africa, and Western Asia rolled from the presses in July, 1942.

In November, 1942, at the time of the North African invasion and the Solomon Islands sea battle, presses were printing a map of Asia and Adjacent Areas for the December number, which covered the scene of every operation from Casablanca to Guadalcanal.



Army Charts and National Geographic Maps Lie Side by Side in This Storage Room

Here the Army Map Service keeps copies of about 20,000 military maps, ready for immediate delivery. Many more are stored in warehouses at strategic points. The Army has requisitioned 200,000 National Geographic Society 10-color wall maps, which supplement large-scale military maps (page 766).

The Making of Military Maps

BY WILLIAM H. NICHOLAS

With Illustrations by Staff Photographer Willard R. Culver

WHEN the Army Expeditionary Force landed troops on the North African coast in November, 1942, baggage included 110 tons of military maps. Within three months our troops received 400 more tons of maps. These consignments made more than ten million maps in all.

Printed on one long sheet, these 510 tons of charts would stretch from Washington, D. C., beyond Algeria and Tunisia, to Bengasi, Libya—a map streamer of more than 5,000 miles.

These maps were made in a rambling, closely guarded building on the outskirts of Washington, D. C. They represent only a fraction of the streamlined production from this map-making factory where the output now runs to 5,000,000 military maps a month.

Exact location of this right arm of our overseas forces all over the world may not be published. If Nazi bombers flew over the National Capital, they could not spot it because there is not a window in the vast structure, where work goes on night and day. No tell-tale ray of light escapes.

Lives of Soldiers Depend on Accuracy of Maps

Over a loud-speaker system 30 minutes before quitting time for each shift, Weather Bureau reports tell Army Map Service workers about the weather outside. If it is raining, they may wish to put on their overshoes; if Washington has a balmy spring day, they may prefer to leave their overcoats behind.

At other times the loud-speakers are used to play music to cheer the workers. For it is a mental strain—this work of making maps with accuracy of detail upon which soldiers' lives depend.

Maps to Africa went on many different ships so that any toll the Nazi submarines took would not deprive our North African troops of essential military maps.

Army Map Service officers are especially proud that no leak occurred in the making of these maps. Hundreds were engaged on the job; nearly every employee must have known what was going on. Yet no one talked.

Making and shipping the maps to North Africa played a major part in the award of an Army-Navy "E" for the Army Map Service. On January 5, 1943, the entire personnel of the Washington plant was on hand for the

War Production award. More than 3,500 map workers, including those in other cities, were authorized to wear "E" award pins.

Today the "E for Excellence" banner flies over the entrance to the big plant in Washington. Beside it waves the Treasury "T" flag, showing that more than 90 percent of the Army's map makers invest at least 10 percent of their salaries in War Bonds.

Handkerchief Maps and Maps for Night Flying

Millions of military maps and millions more for special purposes are made in the windowless mystery building.

The Army Air Forces wanted maps impervious to water for aviators forced down in desolate country or at sea. One week later an Air Forces officer was on his way to a theater of operations with the first consignment of 18-inch "pocket-handkerchief maps." These are printed on a square piece of balloon cloth which can be folded like a handkerchief and tucked into the flyer's pocket (pages 771, 774).

When a plane is forced down at sea, the crew of a life raft have only to unfold their "handkerchief maps" to locate their position. Salt water does not hurt the balloon cloth, and the ink is fast. Downed in wilderness or jungle, pilots can find their way out with these maps.

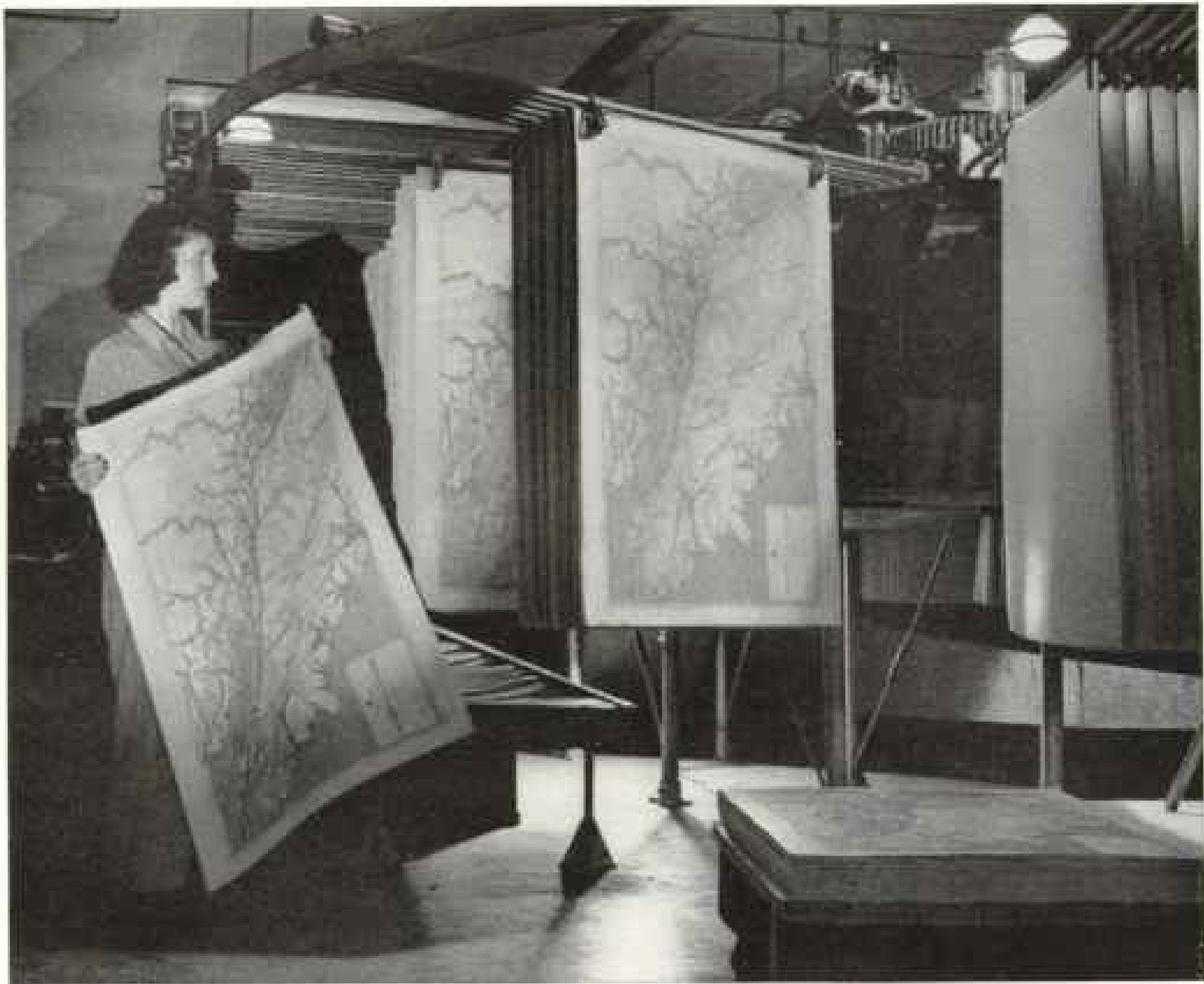
Airplane pilots asked for maps to chart their courses by night over enemy territory. They could not switch on lights to consult ordinary maps without revealing themselves to spotters.

I saw the answer to this problem in a darkened test chamber. Beneath a small ultraviolet lamp an officer spread out a chart. When a lamp was lighted, I could scarcely read it.

Then the officer placed a sheet printed in fluorescent ink under the ultraviolet light. The map sprang into life; every detail stood out (page 771).

Aloft over Germany, a pilot now can flash a small ultraviolet lamp worn on his helmet upon such a map and read its every detail with the assurance that no Nazi spotter can detect the light. Such maps also respond to red or amber lights.

Military maps wear out fast. Smudged hands, oil, grease, and weathering blur them quickly. The Army Map Service Research



Maps of Vancouver Island Hang Up to Dry after a Color Impression

Separate press runs are required for each color on an Army map. Ink from one must dry before a second can be printed. Warm air circulates as the charts revolve in the dryer. Unprinted sheets (right) also must pass through for seasoning.

Department has found an answer to that problem. Soon tank units battling in Tunisia will have a supply of waterproof maps printed on treated paper. When the maps get dirty, they can be cleaned and will be as legible as new ones.

In tests, gobs of grease were dropped on these new sheets and left undisturbed for an hour. When they were wiped off, scarcely a trace of soiling remained, and minutest cartographic details were still legible.

Large-scale military maps of small areas serve a different purpose from the small-scale National Geographic Society maps of vast areas.

National Geographic Maps Go to War

The Army has acquired 200,000 National Geographic Society maps. Many thousands more have been ordered by the Navy, Marine Corps, Coast Guard, and civilian agencies of the Government.

The Army's Map Design Section is bombarded with directives for special maps. American soldiers fighting in jungles, deserts, frozen wastes, and lonely islands need detailed maps of different kinds.

Cartographers first study all available data on areas to be mapped. They decide the projection and scale to be used and the correct spelling of place names.

Choice of projection here presents few problems. The area covered by the military and special maps usually is small; therefore distortion, inevitable when a larger surface of the globe is mapped on a flat surface, is negligible.

Scales of military maps usually run from a maximum of 1 to 5,000 to a minimum of 1 to 3,000,000. A scale of 1 to 5,000 means that one inch on the map represents 5,000 inches on the earth's surface, or one foot represents 5,000 feet, or one centimeter represents 5,000 centimeters.



From a Japanese Map She Culls Details for a U.S. Bomb-target Chart

This Army Map Service cartographer is locating factories, docks, railroads, and other man-made works on a chart of a Nipponese city. They will be entered on the Army chart in the making, beneath her right arm.



On a Basic Blue Map She Drafts Shore Lines, Lakes, and Streams

Free-hand tracing in black ink will include all the hydrographic features of the area. When the map is rephotographed, the original blue lines will be filtered out, leaving the black tracing to be photographed and etched into a color plate.



Patiently She Affixes Place Names on a Large-scale Map of Oran, Algeria

The names are set up in type, then printed on a sheet of paper in a column. They are cut out (right) and pasted in proper position. When American troops entered Oran last November, their commanders had large-scale maps such as this, identifying every dock, street, important building, and other landmarks.

The average scale of automobile road maps formerly distributed at gasoline filling stations is about 1 to 1,000,000.

Compare these scales with that of a National Geographic Society 10-color supplement, which maps an entire continent. The scale used for The Society's Map of Asia, for example, was 1 to 17,500,000.

"The Army Map Service is the Chief of Engineer's principal establishment for the production and distribution of maps required by the military forces under his responsibility for mapping and map supply," explained Col. H. B. Loper, Chief, Intelligence Branch, Office of Engineers.

"The commissioned personnel are officers of the Corps of Engineers, especially selected for their administrative and technical duties by reason of experience and aptitude for work of this character."

Through the courtesy of Maj. Gen. Eugene Reybold, Chief of Engineers, the National

Geographic Society, which has cooperated closely with Army map makers for many years, was given permission for a staff writer and a staff photographer to visit the Army Map Service plant.

Col. William A. Johnson, veteran of World War I, commands the Army Map Service. When he was assigned to his present post 18 months ago, headquarters were in the Engineer Reproduction Plant at Army War College. With a skeleton force he moved to the new plant six months after Pearl Harbor.

This move was effected without missing a single order for maps, although demands kept increasing daily.

Today some 1,700 civilian geographers, cartographers, lithographers, and others work there in night, day, and Sunday shifts.

The Army Map Service utilizes plants in other cities. Aerial navigation maps come from Detroit, where Col. P. S. Reinecke is in command. Other charts and map informa-



Target Circles on the Transparency Will Be Superimposed on This Bomb Chart

A completed sheet for American bombardiers has maps on both sides. One side charts the general area to be bombed, encircled with a target up to a radius of some 20 miles. The other is a close-up, showing objectives in detail. On it the circles cover an area of about five square miles (page 775).

tion funnel through Washington from New York, Chicago, Cleveland, Louisville, St. Louis, Kansas City, Cincinnati, Pittsburgh, New Orleans, San Francisco, San Antonio, Indianapolis, Quincy, Illinois, and elsewhere.

Storage warehouses stand at secret strategic distribution points.

Colonel Johnson's task is: "To collect, catalogue, and store foreign and domestic maps and map information required by the War Department; to furnish such map service as is required by the General Staff and other authorized agencies; to compile and reproduce maps required for initial operations of field forces; to develop and improve mapping and map-reproduction methods, with particular emphasis upon those most suitable for use in theaters of operations."

A Library of 700,000 Maps

Lieut. Col. Frederick W. Mast, executive officer of the Army Map Service, escorted Na-

tional Geographic Society representatives through the plant.

In the library are nearly 700,000 maps in cases, each one instantly available to compilers of new charts through an elaborate cross-reference index system. Thousands more, not in active use, are stored elsewhere.

The old War Department collection was the nucleus of this library. Last year 251,000 new sheets were added. By the end of this year another 200,000 will be on the shelves.

The maps come from many sources. Refugees dig into their trunks and bring out detailed charts and drawings of factory locations, underground hangars, fuel dumps, coastal guns, and other installations. Baedeker and Cook guidebooks supply valuable town plats. Engineers who in peacetime built bridges, factories, and railroads in Axis or Axis-controlled lands reveal all their available information. Army Map Service field workers unearth useful maps in libraries and



Hundreds of Overlapping Aerial Photographs Fit into Mosaics to Make a Complete Picture Map

The aerial cameraman takes pictures as his plane flies, keying the interval between exposures to the speed of the plane. Thus he makes sure that each photograph will overlap its neighbors by at least 60 percent. Workers here in the Army Map Service mosaic section meet this guiding overlap to put the prints together.



A Water-repellent "Handkerchief Map" Has a Test Bath

The Army Air Forces wanted such a map for aviators forced down in desolate country or at sea. Immediately the Army Map Service devised this 18-inch map, printed on balloon cloth, and sent a consignment to the front. Folded like a handkerchief, the map may be carried in a pilot's pocket and pulled out in emergency (pages 765, 774).



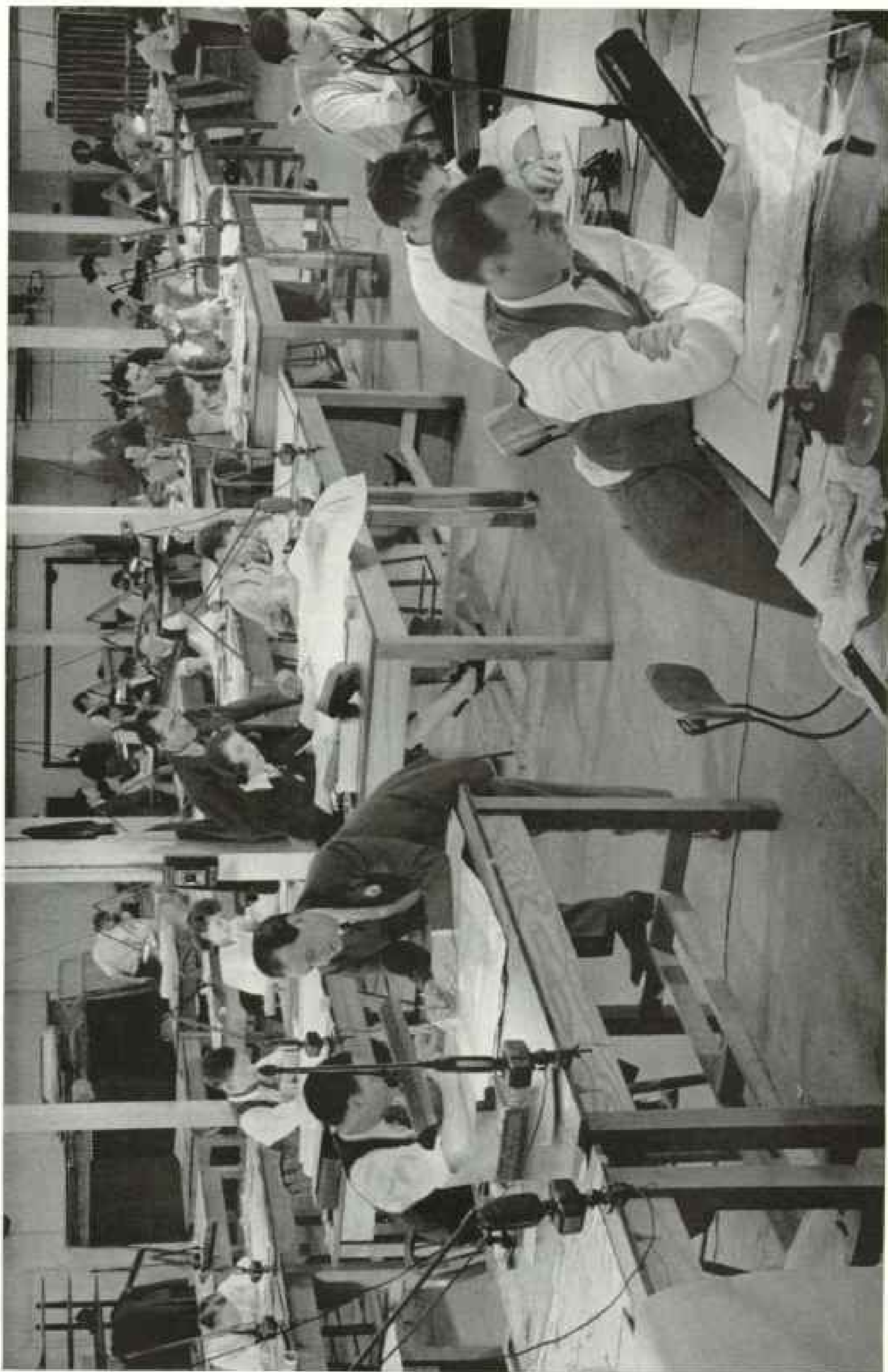
This Map Lights Up in the Dark to Guide Pilots over Tunisia

Lieut. Col. J. G. Strohbridge, chief of production, Army Map Service, shows how the chart, printed in fluorescent ink, glows under an ultraviolet light. When American flyers switch on tiny ultraviolet lamps on their helmets, they can read such maps without betraying their presence to Nazi spotters because the beams are visible for only a few feet (page 765).



Army Draftsmen Trace Sections of Charts Projected on Their Drafting Boards by Mirrors

The man at the left is placing a section in a reflecting chamber. When the lights are turned on, the map is mirrored below and features for the military chart are traced. Unnecessary details vanish when the lights are switched off. Raising or lowering the lens enlarges or reduces the reflected map.



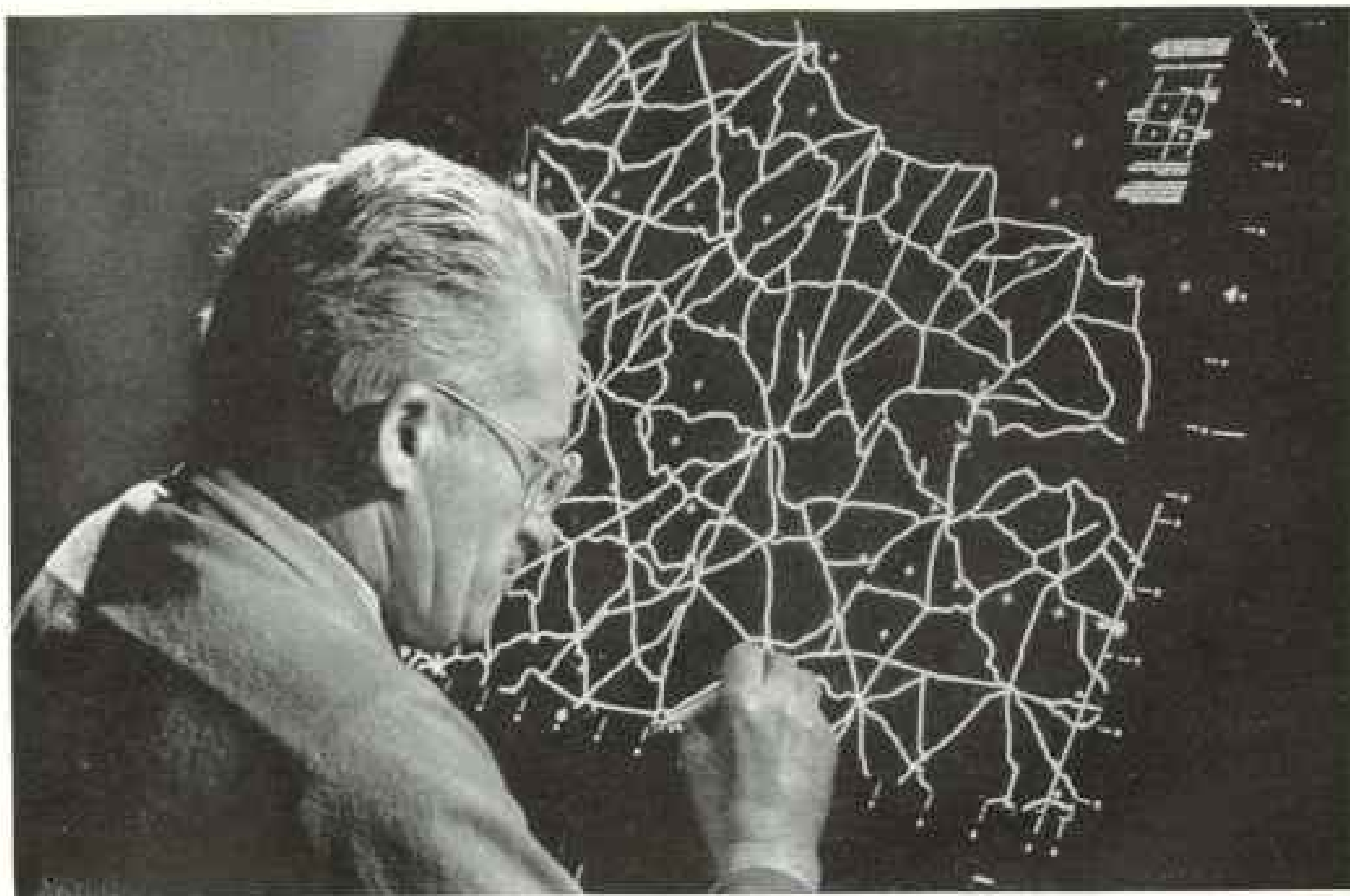
Maps to Guide American Soldiers in Europe, Asia, and Africa Take Final Shape in This Drafting Room

Skilled draftsmen are supervisors. Young men and women, inexperienced until trained by the Army Map Service, fill most of the jobs. They are part of the 1,700 employees who kept African invasion plans secret for four months. They helped make 510 tons of maps for General Eisenhower's armies (page 765).



One Good Tug Strips Paper Backing from a Balloon-cloth Map

Before printing, the cloth must be strengthened so that the impression from the press will be clear and even. When the paper is pulled off, this "handkerchief map" can be rumpled up without damaging it.



With an Etching Tool He Sharpens Lines on an Illuminated Glass Negative

Every detail must stand out clearly before this photographic negative of an Army map color plate is turned over to the lithographers (pages 776-7).

private collections in all parts of the country. The Library personnel alone, including field workers, numbers 150.

Examiners, at desks piled high with charts and books, go over all material received and cull new data from the mass of duplicated information. Many pertinent facts come from travelers and repatriated Americans.

The Library of Congress, with its collection of 1,500,000 maps and atlases, is a vast reservoir of cartographic knowledge. Maps and travel books in the National Geographic Society library have yielded rich returns to the Army Map Service. Staff writers who have surveyed many lands have helped provide information. The Society's mammoth collection of geographic photographs has been of high value.*

Backed by such painstaking research, trained officers of the Corps of Engineers in Washington direct compilation of field maps which tell commanders of combat troops exactly what they want to know in battle areas thousands of miles away.

Place names become a knotty problem when large-scale foreign maps are used as source material.

For example, a detailed Chinese chart of a small area bears the names of hundreds of villages, all printed in Chinese characters. Few of these settlements appear on English maps, so the job of transcription is extremely difficult.

Maps for Our Flying Fortresses

Characters on large-scale Japanese charts bring many headaches to our military map makers. Original Japanese sheets are valuable in making bomb-target charts.



Tilted Lens and Easel Correct Aerial Photographs

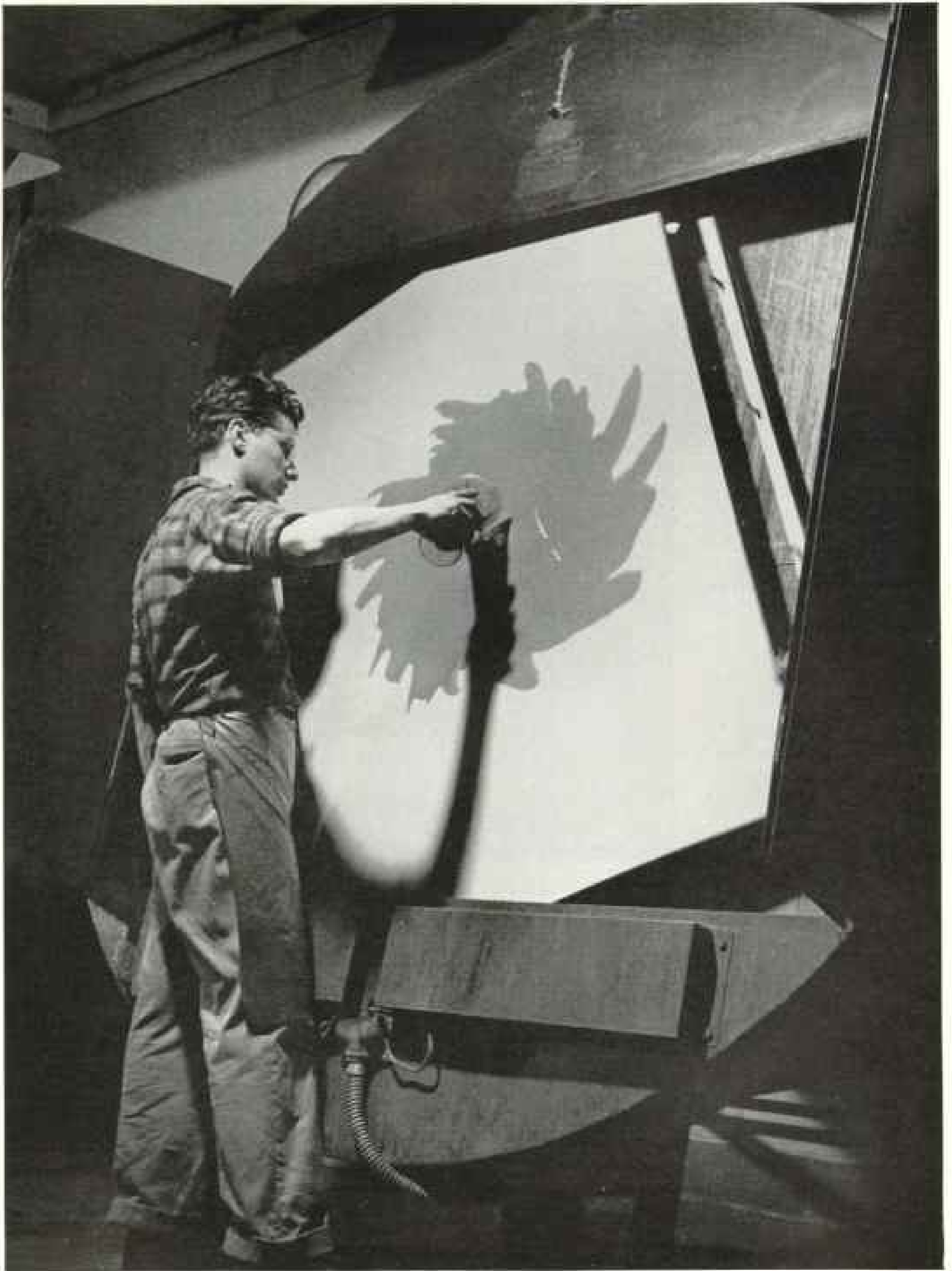
Just as an aerial cameraman snaps a picture, an air pocket may cause the plane to lose altitude, or a wing to tip, throwing the image out of line. Printing the negative with this enlarging camera restores the proportion. With a "dodging card," the printer controls the light passing to the sensitized paper. Some areas of a negative, denser than others, require more light.

The Army Map Service turns out millions of bomb-target charts. These are maps of enemy areas with targets superimposed. The bull's-eye lies at the center of the area to be bombed (page 769).

On one side of the sheet is printed a map with an outside target radius of, say, 20 miles. On the other side is a close-up of the same section with a target area of maybe five square miles. On it the bombing objectives are plainly marked.

The navigator brings the plane into the 20-mile circle. Then the bombardier takes

*See "Maps for Victory," by Gilbert Grosvenor, NATIONAL GEOGRAPHIC MAGAZINE, May, 1942.



First Step in Making a Lithographic Plate for an Army Map

Whirling in a giant turntable, an aluminum plate receives a sensitizing coat of albumen and ammonium bichromate. This solution fans out and spreads evenly over the entire surface. After the coating has dried, the plate is placed in direct contact with a glass photographic negative for printing (pages 774, 777, 778).



Wash Away the Ink Smear and You See a New Lithographic Plate

Where the light struck the plate during printing, the sensitized coating hardened and became water-repellent. Then ink was smeared over the plate. Here some of it clings tightly to the hardened coating and reproduces the map in every detail; the rest washes away. After rubbing and etching, the plate is ready for the press (page 778).

charge, using the enlarged map on the reverse side of the sheet. He directs the plane over his objective, which the map enables him to pick out by sight, and lets go.

The Army Map Service also makes many maps and bomb-target charts from aerial photographs (page 770).

Although most military maps are less than 36 inches in length, the Map Service has made three giant Mercator-projection charts for the Staff Operating Room of General Army Headquarters. Each is a hand-colored map of the world, 24 x 15 feet, and on a scale of 1 to 7,500,000. When these maps were in preparation they were placed on the floor. Often four girls would be perched on them at one time, doing the coloring and marking.

When a certain area is to be mapped for ground troops, the best available maps, as well as other civil and military information, are obtained. By means of combined photographic and hand methods, a rough map is constructed by cartographers, who enter every possible type of information for troops operating in unfamiliar territory.

This drawing is then photographed and prints made for the final drawing. A separate

print is required for each color on the final map.

On one print the draftsmen indicate contours—mountains, hills, valleys, and other terrain features. On another they show man-made works—towns and villages, railroads, telegraph lines, highways. On the third they record water—oceans, lakes, rivers, and small streams.

Each of these three partial maps is then photographed, and the new negatives go to the lithographers, who reproduce them on sheets of flexible aluminum as color plates for the presses.

On one sheet of paper the plate showing contours is printed in brown ink, the plate showing man-made works in black, and the one showing water in blue.

Plates on the whirling presses must be adjusted in perfect register, so that they superimpose exactly to produce an accurate three-color map (page 778).

The Army Map Service has a battery of 17 high-speed offset presses. Each can print 4,000 to 4,500 impressions an hour.

High-school boys and girls, art students, and other young workers, to whom cartog-



With the Plate on the Press, He Strengthens a Line Here, Corrects a Detail There

Accuracy is the goal of Army map makers, for soldiers' lives depend on their charts. This high-speed lithographic offset press is one of a battery of 17 at the Army Map Service plant; each one can print from 4,000 to 4,500 impressions an hour. Every month the presses turn out from four to five million military maps.

raphy and lithography were mysteries only a few months ago, help the Army Map Service.

Today experienced cartographers and lithographers are scarce.

Boys and Girls on a Map-making Assembly Line

Colonel Johnson acquired the few available for teachers and supervisors. Then he brought in the boys and girls and taught each one a few simple operations. Now each does his stint daily on the assembly-line principle (page 773).

Such innovations are the key to the unprece-

dent job of printing maps by the ton.

A few months ago the Army Map Service set up 20 cartographic schools scattered over the country. First classes of youthful cartographers, mostly girls, will be graduated this month.

Colonel Johnson hopes to get about 400 additional workers, schooled in geography, map reading, projections, and other fundamentals.

Girls fill many mechanical jobs. These youthful newcomers have a record to shoot at in the photographic developing and printing room—43,500 prints in 3½ days by two shifts of experienced printers. Now these men are in uniform. Girls have taken their places. On the Map Service Honor Roll 407 names are inscribed.

Shipping-room records show how the Army Map Service grew the last 18 months.

Three hours after Pearl Harbor, the presses at the old plant were turning out hundreds of additional strategic maps of the

Philippines. They were rushed to the west coast by plane. In all, about 530,000 maps were shipped in December, 1941.

In June, 1942, the figure had risen to 3,100,000 maps for the month, and a year after Pearl Harbor had climbed to double that number.

In March, 1943, 2,670,000 maps were shipped out in one week. That was exceptional.

For the last six months the maps shipped out from Washington by the Army Map Service, including National Geographic Society maps, have averaged 6,000,000 a month.

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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 researches solved secrets that had puzzled historians for three hundred years.

In Mexico, The Society and the Smithsonian Institution, January 16, 1909, 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. (Stüdenen Correlation). It antedates by 200 years anything heretofore dated in America, and reveals a great center of early American culture, previously unknown.

On November 11, 1935, in a flight sponsored jointly by the National Geographic Society and the U. S. Army Air Corps, the world's largest balloon, *Explorer II*, ascended to the world altitude record of 72,395 feet. Capt. Albert W. Stevens and Capt. Orvil A. Anderson took aloft in the gondola nearly a ton of scientific instruments, and obtained results of extraordinary value.

The National Geographic Society-U. S. 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 forest 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.

Just before the battle
... he puts the
time to bed!



DECK CREWS dive for their guns. But this man makes a bee-line for the navigator's stateroom. He tucks a square wooden box into the bunk, as carefully as a mother tucks her child to bed. That box is so vital that it must be cushioned against the shock of the ship's broadsides!

It contains a chronometer—an instrument that keeps such exact time that its daily rate varies no more than a *half-second*, month after month! The finding of the ship's position at sea depends on the chronometer's accuracy. It times the sending of every message, the take-off of every plane, the firing of every salvo.

For the first time in the world, Hamilton is building precision chronometers in quantity—along with many other instruments to help speed the war. It means that few Hamiltons are available for civilians. But, thanks to this experience, the postwar Hamilton will more than deserve its famous reputation as "The Watch of Railroad Accuracy," Hamilton Watch Company, 364 Columbia Ave., Lancaster, Pennsylvania.

*BUT U.S. WAR BONDS NOW—
HELP AMERICA WIN ON TIME!*



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makers of The Watch of Railroad Accuracy
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Back in the training camps, too, from Iceland to Australia—motion pictures of actual combat are flashed on the screen and our men learn what not to do when fighting a Zero . . . what not to do in a clash with German tanks . . . and where to "scratch a flat top."



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“Betcha Dad worked on those engines!”

They're talking of a Flying Fortress powered by Studebaker-built Cyclone engines

JUST a little while back, these two Williams boys and their father were working together at Studebaker. Today, they're still working together—but many miles apart.

The father is building Wright Cyclone engines for the Boeing Flying Fortress. The boys have changed their working clothes for the fighting uniforms of Uncle Sam.

There are many families, such as the Williams family, whose names shine brightly these war days on the Studebaker roster. They're steadfastly maintaining the Studebaker father-and-son tradition at home or far away.

And when victory finally comes, you can depend upon it that Studebaker father-and-son teamwork will again produce Studebaker cars and trucks of outstanding quality for America's peacetime needs.



STUDEBAKER

Builder of Wright Cyclone engines for the Boeing Flying Fortress, big multiple-drive military trucks and other vital war matériel



Craftsman father of craftsman sons! John H. Williams has been with Studebaker 21 years. He is one of many Studebaker veterans whose aptitude for fine work inspired their sons to become Studebaker craftsmen, too. Studebaker is proud of its assignments in the arming of our Nation and its Allies.



Go ahead on SYNTHETIC RUBBER . . .

the Japs might take Malaya some day

IT was exciting news to millions of Americans when the Washington Senators won their first World Series from the New York Giants, back in 1924. But not many saw anything to get excited about when the news leaked out, that same year, that the Japanese were fortifying the mandated islands in the far Pacific.

Then it was that Goodyear research chemists were given the go-ahead to develop an all-American synthetic rubber—something that would equal or excel the natural product. By 1927 they had evolved a process which produced a liquid latex closely approximating natural rubber latex and patented it in both the United States and Great Britain.

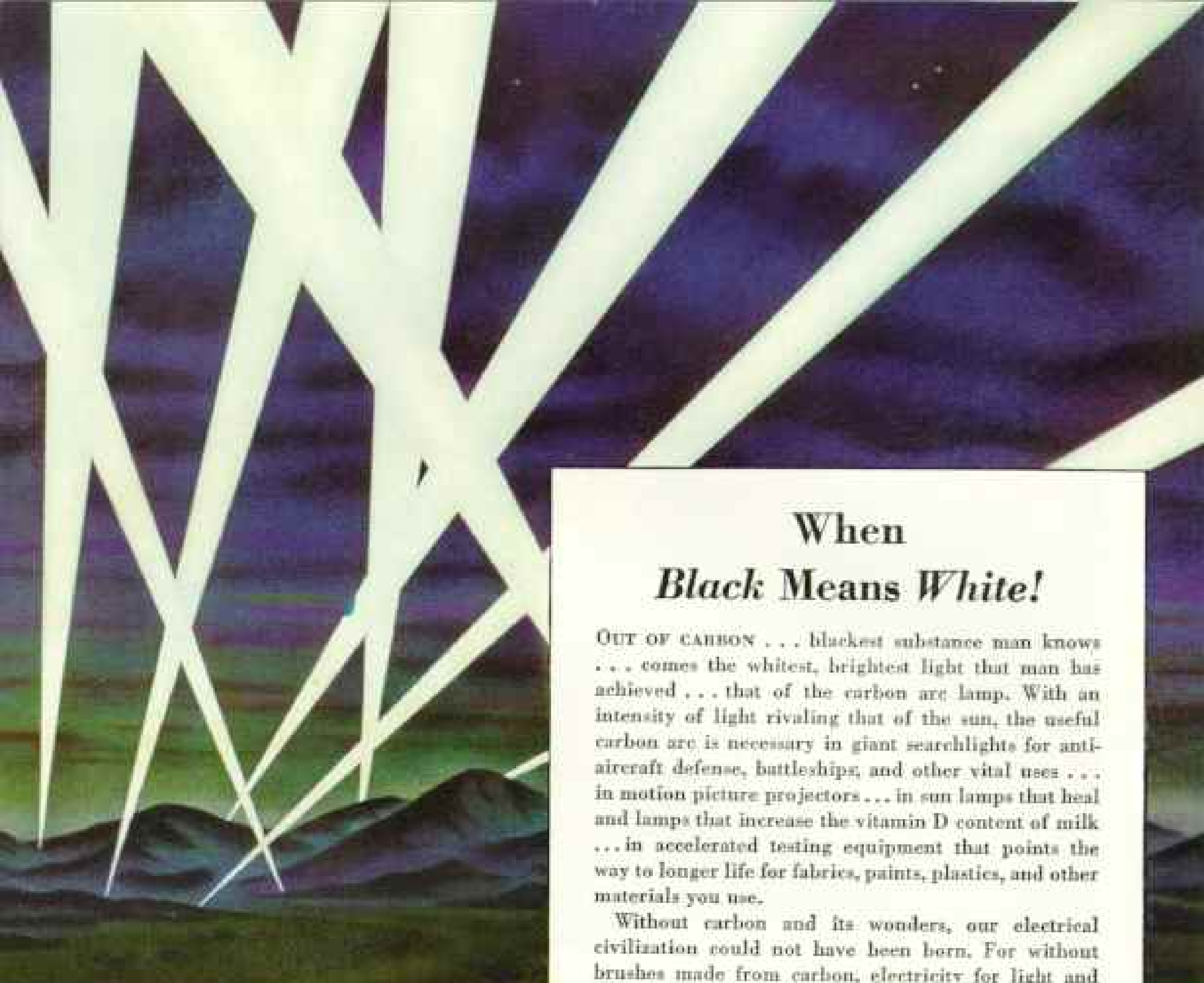
CHEMIGUM

When the Japs did take Malaya a year ago we had, by the aid of this process, made an improved product, now called Chemigum, superior to natural rubber for many uses, including a wide range of industrial applications. And we had a complete manufacturing plant in operation, others under construction.

This was fortunate, because all our Chemigum production was immediately needed to build bullet-puncture-sealing tanks for airplanes, tires for combat cars and a host of other military needs. Today, as output increases through added facilities provided by the government war program, the day is not too far off when synthetic rubber will be produced in sufficient quantity to supply both soldiers and civilians.

GOOD YEAR
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OUT OF CARBON . . . blackest substance man knows . . . comes the whitest, brightest light that man has achieved . . . that of the carbon arc lamp. With an intensity of light rivaling that of the sun, the useful carbon arc is necessary in giant searchlights for anti-aircraft defense, battleships, and other vital uses . . . in motion picture projectors . . . in sun lamps that heal and lamps that increase the vitamin D content of milk . . . in accelerated testing equipment that points the way to longer life for fabrics, paints, plastics, and other materials you use.

Without carbon and its wonders, our electrical civilization could not have been born. For without brushes made from carbon, electricity for light and power could not be generated in vast amounts . . . today's automobiles would not run . . . today's airplanes would not leave the ground.

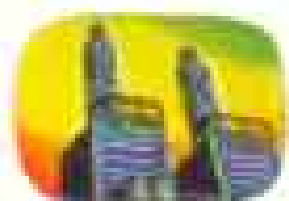
Without carbon, in the form of electrodes and anodes, much of the highest quality steel, many of the chemicals, and other useful substances vital to this nation could not be made. For years, NATIONAL CARBON COMPANY, INC., a Unit of UCC, has studied carbon and graphite . . . their properties and uses . . . and has made useful things from them. Much has been accomplished. Through further research in carbon, more answers for tomorrow's problems are being found.

Research and engineering developments in carbon made by National Carbon Company, Inc., have been tremendously facilitated by the electric-furnace experience and the knowledge of industrial gases and chemicals of other Units of Union Carbide and Carbon Corporation.

BUY UNITED STATES WAR BONDS AND STAMPS



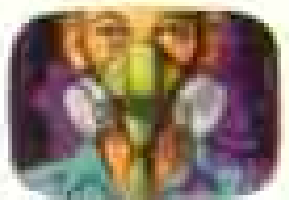
ACTION! CAMERA! Without the high-intensity carbon arc . . . used for photographing motion pictures and projecting them in theaters . . . we would not have the high-quality motion pictures of today.



CARBON, THE VERSATILE. In addition to its electrical uses, electric furnace graphite, a form of carbon, is used for making absorption towers, heat exchangers, and pumps for corrosive liquids; and metallurgical molds.



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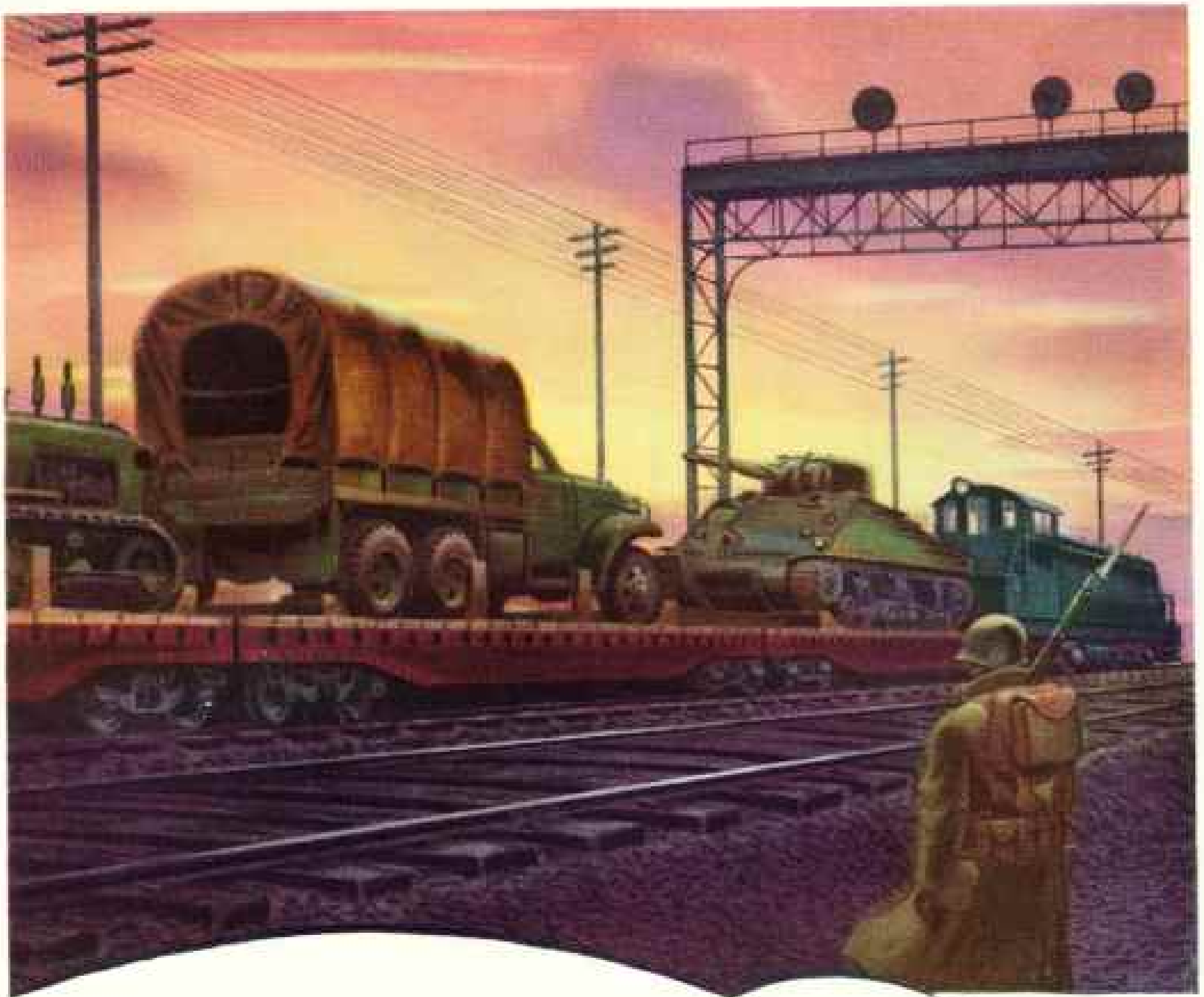
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Plastics Division of Carbide and Carbon Chemicals Corporation



WAR JOBS WELL DONE MEAN LOWER FUTURE POWER COST

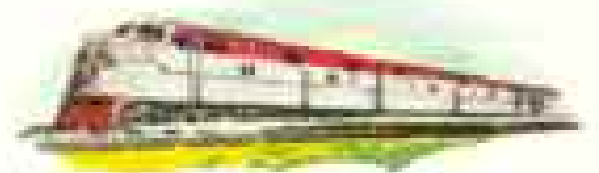
SCARCELY anything you can name fills so many different war jobs as the General Motors Diesel engine. In tanks, landing boats, patrol boats, trucks, tractors and auxiliaries—everywhere sturdy dependability is needed—they're supplying power for our fighting forces.

The result is that, though plant facilities have mushroomed and production records are broken time and time again, everything we can make is hustled off to war.

But there is this important compensation. These acceler-

ated war demands are advancing GM Diesel production and technique years faster than could the demands of ordinary peacetime manufacture.

So we can look forward to lower-cost power and to new peacetime applications for these engines when the war is won—to broadened fields where this power will serve.



New eras of railroading follow in the footsteps of war. Another new era of railroading is assured in the wake of this war. General Motors Diesel locomotives already are establishing new standards of transportation.



ENGINES... 15 to 230 H.P. ... DETROIT DIESEL ENGINE DIVISION, Detroit, Mich.

ENGINES... 750 to 2000 H.P. ... CLEVELAND DIESEL ENGINE DIVISION, Cleveland, Ohio

LOCOMOTIVES... ELECTRO MOTIVE DIVISION, La Grange, Ill.



O. K.

You'll find no simple "O. K." stamped on a Boeing Flying Fortress.*

Nine thick volumes—hundreds of pages of individual O.K.'s—are accumulated during the manufacture of a Fortress. All are part of the inspection data on each plane. It's in the record.

Every one of two hundred fifty thousand-odd rivets has been individually O.K.'d. Every single part has been inspected. Every operating part and system has been functional-tested. Nothing is taken for granted—or taken on faith—by these highly trained inspectors.

And when the huge Boeing bomber is rolled out onto the flight-apron, ready to take off for distant fighting fronts, the nine thick volumes are recorded on microfilm and carefully stored: a permanent history of a B-17, and a guarantee that the airplane is flawless in every detail.

This Boeing-developed inspection system is so organized as to be rigidly, painstakingly thorough without slowing up the ever-accelerating flow of production . . . and to compensate, where necessary, for shortages of skilled labor. It is another evidence of the

manufacturing know-how which made possible, on desperately short notice, volume production of America's first four-engine bomber.

And when peace returns, and Boeing-designed-and-built Flying Fortresses, Stratoliners* and trans-oceanic Clippers have completed their last wartime mission, then Boeing's talent for manufacturing—plus equal talent for design, research and many varied fields of engineering—will serve you for better living.

Then "Built by Boeing" will mean greater convenience, greater safety, greater economy.

BUY
WAR BONDS
AND STAMPS
TODAY
Keep America
Free



Nice goin', baby!"

First in the automotive industry to fly the Navy "E" with three stars, Fisher has also been awarded the Army-Navy "E" for its ahead-of-schedule tank production.

SO it goes, on a dozen fronts — American industry backing up American men with fire-power, with a rising flood of war tools and transport, with a heightening volume of all kinds of ordnance.

The Fisher contribution to this effort, in terms of volume, is huge. But volume alone fails to tell the whole story of the Fisher effort. For the long-acquired skills of the Fisher craftsmen are today playing a part of national importance. They have a vital and specific value of their own.

Our country's leaders realize that it takes precision men to do a job precisely — that extreme standards of mathematical exactness must be met in order to surpass the

technical excellence of our enemy's war machines. And Fisher, as a precision center, has been honored with a number of very difficult assignments.

Our fighting men are doing the big job. But the vicious snick of our well-turned breech-blocks, the roar of our tanks, the bark of our anti-aircraft guns are music to their ears.



armament
BOSS BY

Fisher

DIVISION OF GENERAL MOTORS



HANDLE WITH CARE!

Contents of this head essential to winning the war. Place on soft pillow in comfortable Pullman bed and deliver rested, refreshed and ready to pitch in.

This is a war of movement at home as well as abroad.

The men responsible for thinking things out and getting things done must be here today—there tomorrow—somewhere else on Tuesday. And they must be not only at the job, but on the job, for how well they do the job is mighty important to Uncle Sam.

That's where Pullman comes in.

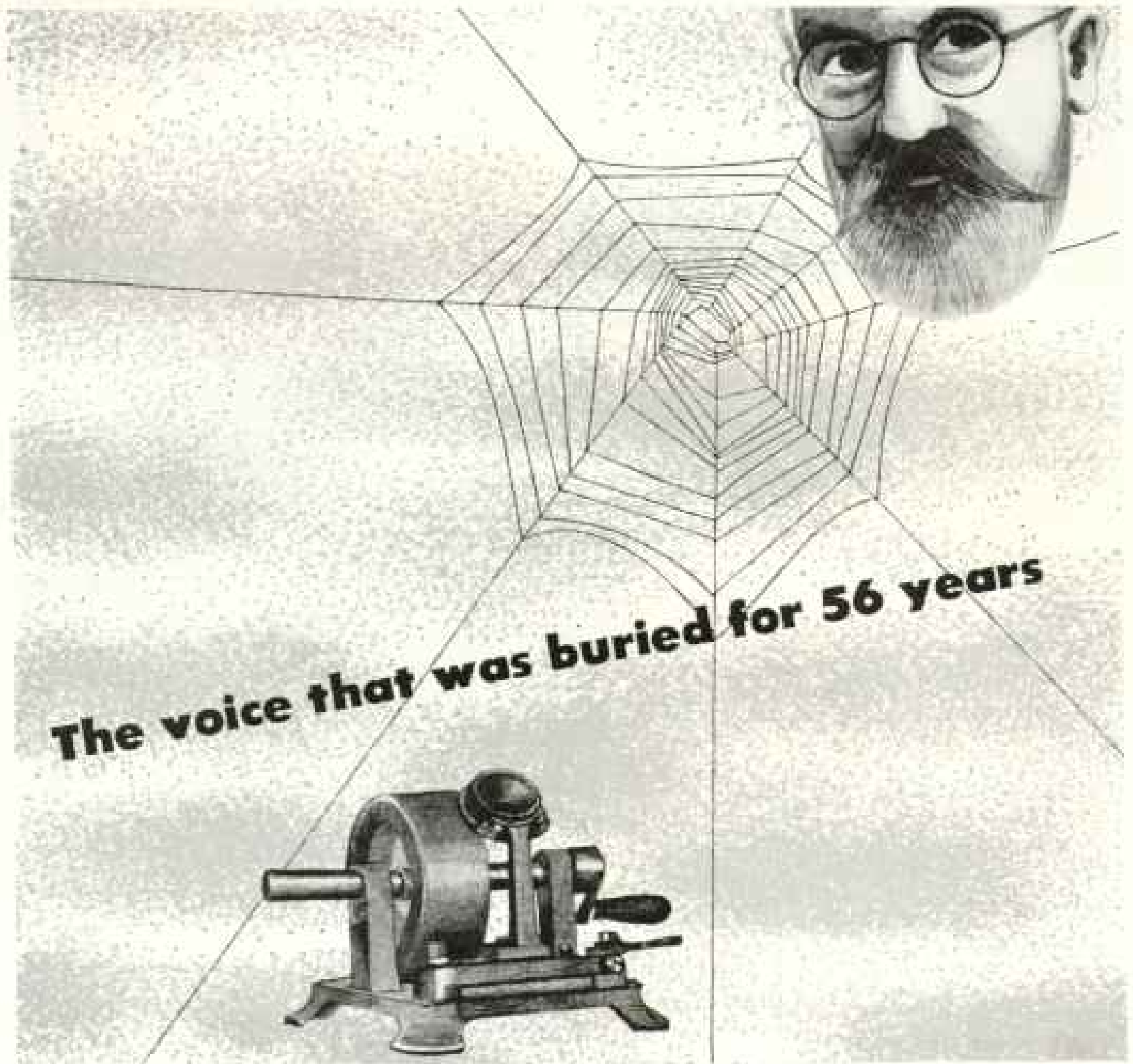
When you go Rail-Pullman, you get there—safely and dependably. You get the service and the privacy that make your trip a pleasant interlude. And you get the sleep you need to keep going at an all-out wartime pace.

● The exact accommodations you request may not always be available, for it takes many sleeping cars to move an average of almost 30,000 troops a night. But whether you sleep in an upper, a lower, or a room, you'll get a good rest in a swell bed whenever you

GO PULLMAN

"**THERE ARE MORE THINGS** in heaven and earth, Horatio, than are dreamed of in our philosophies."

That passage from Hamlet was spoken to the original "graphophone" invented in 1881 by Alexander Graham Bell, Chichester Bell and Charles Sumner Tainter. It was recorded on a wax cylinder, which was sealed in a metal box. For over half a century, that box reposed in a dark vault at the Smithsonian Institution, Washington. In 1937, in the presence of representatives of the inventors, the box was opened and the first practical sound recording was replayed. Every word was heard plainly . . . and precisely as it had been spoken 56 years before!

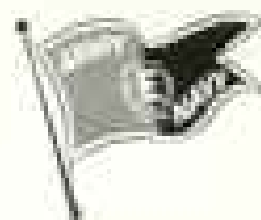


During the busy years bridged by those two events, thousands of Dictaphone dictating machines, developed from the original Bell and Tainter Graphophone patent, had gone into service in business offices around the world.

Coming as the first challenge to an out-moded system of dictation which had endured since the days of the Greeks and Romans, Dictaphone saved time and effort—expedited the flow of work—made executives the *masters* rather than the *slaves* of daily routine.

Today, sound recording technique is being developed further in the Dictaphone Laboratories. While a host of Dictaphone users

are finding literally no limit to the capacity and versatility of Dictaphone in meeting the pressure of war work, Dictaphone sound engineers are readying improved voice recording methods for the Army, the Navy and vital war services. After the war, the Dictaphone method of dictation will more than ever be a "must" for busy men everywhere.—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.

What's different about Southern California these days?



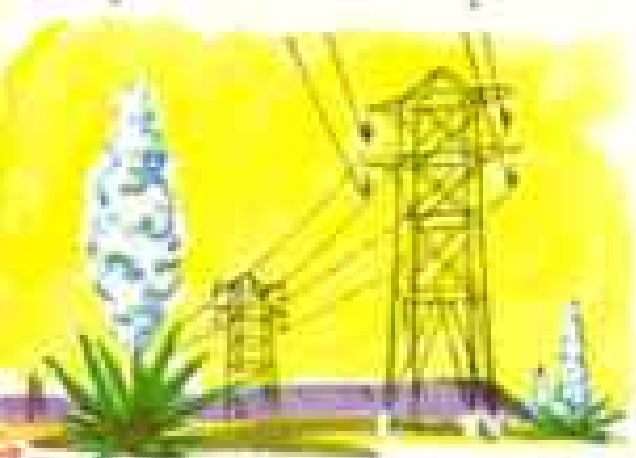
Before the War—Pleasure craft for yachtsmen to test Pacific waters.

Today—Great cargo vessels, transports, fighting craft sliding down the ways in record-shattering procession—smacking the water with a mighty resolve of an angry people.



Before the War—Airplanes built out-of-doors in year 'round flying weather—heart of American aviation. Transports and private planes for America's moderns.

Today—Plane supply center for our United Nations. Factories spawning the deadliest bombers to bludgeon the Axis—giant cargo and troop transports for men and supplies—fighting planes to whine higher, faster, farther into enemy skies.



Before the War—Building dams and power lines to bring current across 300 miles of mountain and desert.

Today—Power already here—by the billion kilowatt for a war-effort proportionately one of America's largest. Power for aluminum, for planes, ships and shells. Power for farms, for movies, for radio.



Before the War—Oil and gasoline for America on wheels. Great underground pools of petroleum.

Today—Fueling much of the Pacific war... 100 octane gas for tanks, for fighters to sweep the skies clean... fuel oil for convoys, for "battle-wagons"... hundreds of petroleum products vital to victory.



Before the War—Oranges, lemons, grapefruit and other nutritional foods—vitamins and bone builders.

Today—Tons of foods for Services, for Allies... orange juice concentrate for the children of Britain, canned juices for soldiers—an exhaustion preventive... pectin rendered from orange and lemon peel—a blood serum alternate used in the treatment of shock... lemon juice concentrate for Russians... powdered lemonade for paratroopers.



Before the War—Entertaining one and a half million vacationists annually. Showing them the sights.

Today—Entertaining more visitors than ever—but they are in uniform. Taking them to our homes, showing them the sights, wishing them God-speed, adding to yours our prayers for their safety.



Before the War—Movie and radio capital.

Today—Producing training films for the Services. Teaching radio, sound, and camouflage to thousands of Service technicians... movie and radio "favorites" entertaining the boys in the camps, and bringing the camps into your home, working to keep us United.

Buy War Bonds For A New Purpose—Yes, we—like you—are striving for victory. But *after* it comes, enjoy the greatest vacation of your life—*here*, in this famous land. Today's stirring progress will make this a better-than-ever place to visit. Start buying war bonds now to pay for your trip. To learn how much post-war fun a war bond will buy, just sign and mail the coupon below.

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, services for you at its famous VISITORS' BUREAU, at 505 W. 5th Street, Los Angeles. Send coupon below for valuable information.

NOTE: 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.

Copy, 1943, by All-Year Club of Southern California, Ltd.

All-Year Club of Southern California, Ltd.
Dept. C-6, 629 So. Hill St., Los Angeles, Calif.

Please send me information to help me plan a post-war vacation in Southern California.

Please send free folder of Helpful Hints for wartime travelers to Southern California.

Name _____

Street _____

City _____ State _____

—(Please print name and address)—



**Sighting on victory
... seeing beyond**

For the ships and men of America's Merchant Marine, winning the war is today's *one and only job*. The merchant navy is battling side by side with the fighting navy . . . just as it has done in every crisis which involved America's freedom of the seas.

But though we keep steady on our course in this war by sighting on the sun of victory, we can't help seeing a vision beyond. And that vision of a bright future for the American Merchant Marine gives added strength to our fighting efforts.

Today, modern ships of all types are being put into service at an almost incredible rate. New thousands of stout-hearted, capable

Americans are being trained to man this great fleet. With such ships and such men we hold the hope that, once again, our nation will know the maritime supremacy of the glorious Clipper Days . . . that once again ships flying the *American flag* and manned by *American seamen* will carry the bulk of our country's trade with all the world.

In such a bright new era, the ships of AGWI and its subsidiaries will play their part, plying between the Americas, as they have for more than one hundred years . . . furthering the growth of vital trade and friendly relations between the United States and our Good Neighbors to the South.

ATLANTIC GULF and WEST INDIES STEAMSHIP LINES

Foot of Wall St., New York

CUBA MAIL LINE ★ PORTO RICO LINE ★ CLYDE-MALLORY LINES ★ SOUTHERN S. S. CO.

Cuba, Mexico, Puerto Rico, Dominican Republic, Texas, Florida and the South

★ BUY U. S. WAR BONDS AND STAMPS ★





***What it takes
to move a division***

IF, like the eagle, you could look down on the amount of railroad equipment it takes to move a single armored division, here is what you would see . . . *75 trains!*

For a division takes all its equipment with it—tanks, jeeps, armored cars, supply trucks, tractors, anti-aircraft guns, many things. And its men, numbering about 12,000, need berths in which to sleep!

Those 75 trains *taken out of civilian service and put into military service, are about equal to the number of passenger trains running daily over the Pennsylvania Railroad between two of the busiest places on the face of the globe—New York and Washington.*

Multiply this one division by the many moving in this country and you can understand why . . . you may have difficulty getting a berth . . . or be obliged to stand in a coach . . . or arrive at your destination late. In fact, demand for equipment is now so great that on arriving at terminals cars must be put right back into service, so you may find them not quite so spic and span as we would like. Housekeeping facilities are adequate but there's not always time.

But Americans are taking all this like good soldiers. For they know this is a war of movement, and that movement begins right here—in *America, on the rails.*



BUY UNITED STATES
WAR BONDS AND STAMPS

★ 27,917 in the Armed Forces ★ 21 have given their lives for their country

Would you trust this man?

(Case No. 199267 from U. S. F. & G. files)

A southern real estate company trusted him. And why not? He was secretary of the concern . . . employed for over 15 years . . . enjoyed an irreproachable reputation . . . was married and had several children. Yet he embezzled nearly \$30,000! Fortunately he was bonded through U. S. F. & G., so his company was spared financial loss.

Appearance, reputation, background provide no absolute clue to character. The only sure protection against embezzlement losses lies in insurance, and when an insurance company is willing to write fidelity bonds covering your employees that is a tribute to their honesty and integrity. If your company has not reviewed its bonding program in the light of today's employment problems, we suggest that you do so at once.

Illustrated on this page are other cases, showing some of the hazards that demand insurance protection as a safeguard against financial loss. Your local U. S. F. & G. agent will be glad to make an audit of your present insurance program to help guard against wartime risks. He is one of thousands serving communities great and small throughout the United States, its possessions, and Canada. Consult him today.



U. S. F. & G.

UNITED STATES FIDELITY & GUARANTY CO.
affiliates

FIDELITY & GUARANTY FIRE CORPORATION

HOME OFFICES  BALTIMORE, MD.
BRANCH OFFICES IN 43 CITIES

Consult your insurance agent or broker as you would your doctor or lawyer

(Case No. 1-B-2524)

Robber makes off with company payroll

It was an unhappy payroll for employees of the dressmaking concern when a robber held up the bookkeeper and stole the \$2,140.49 payroll. But thanks to payroll insurance, the concern suffered no loss and the employees received their pay. Crime usually increases during a war. Are you protected against such losses?

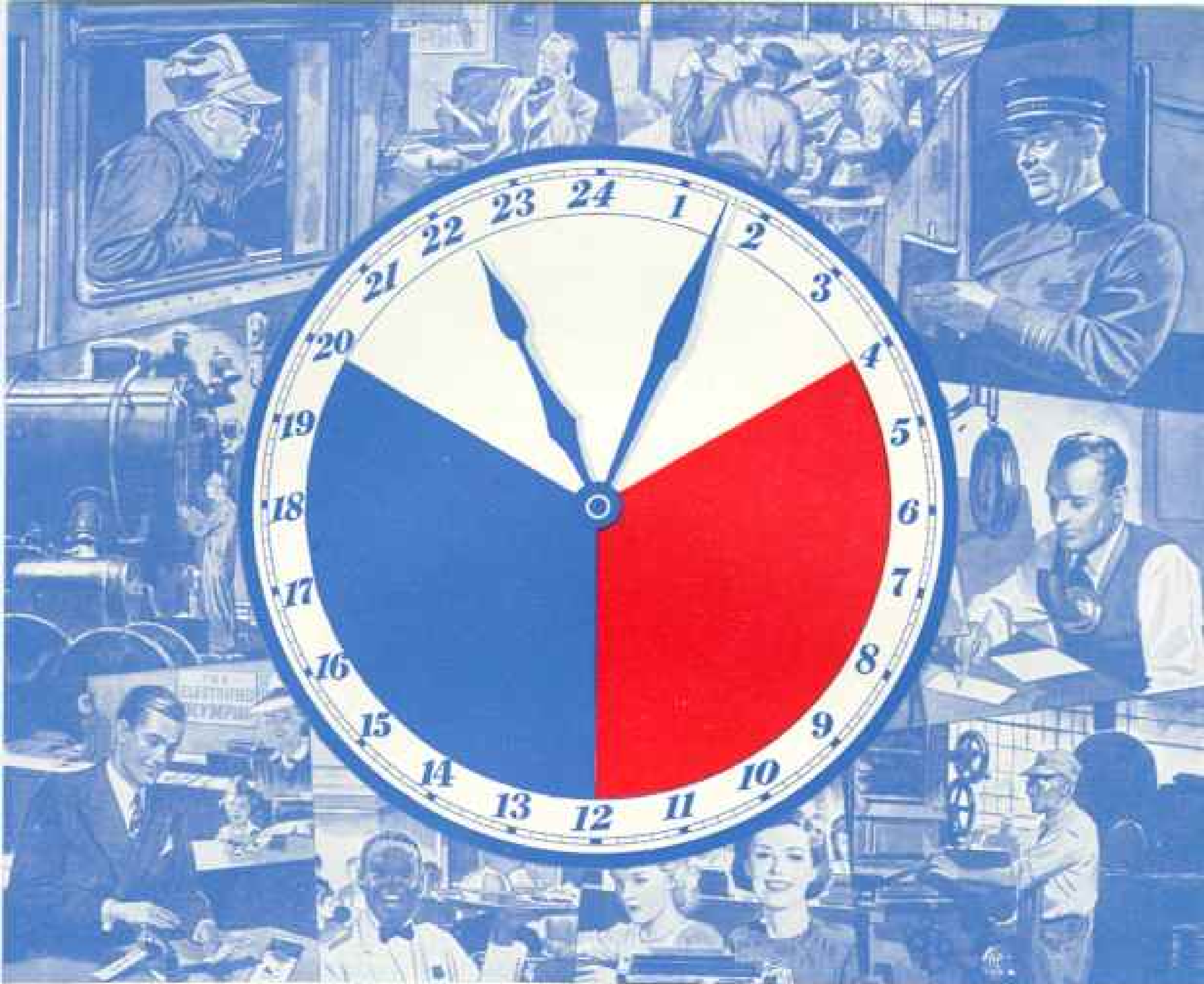


(Case No. 21-G-1326)

Tire spins stone through store window

One moment the shopkeeper was sitting peacefully in his store . . . and the next, his display window was shattered to bits. The cause: a stone kicked up by a passing car. The cure: plate glass insurance with U. S. F. & G. who replaced the window and saved the shopkeeper loss. Are your windows, doors, or display cases protected?





The Milwaukee Road Victory Clock

★ *24 hours a day for U.S.A.* ★

There's never any stopping the clock on a railroad—but it's when a war is on that railroads must really wheel 'em.

Troop trains must reach embarkation and transfer points with speed, secrecy and precision.

Precious freight must be delivered to its destination exactly when it's needed, or vital hours of production may be lost.

Tracks must be always clear for war cargoes—and often shipments must be rerouted with scarcely any notice in advance. Weather conditions must be anticipated and mastered.

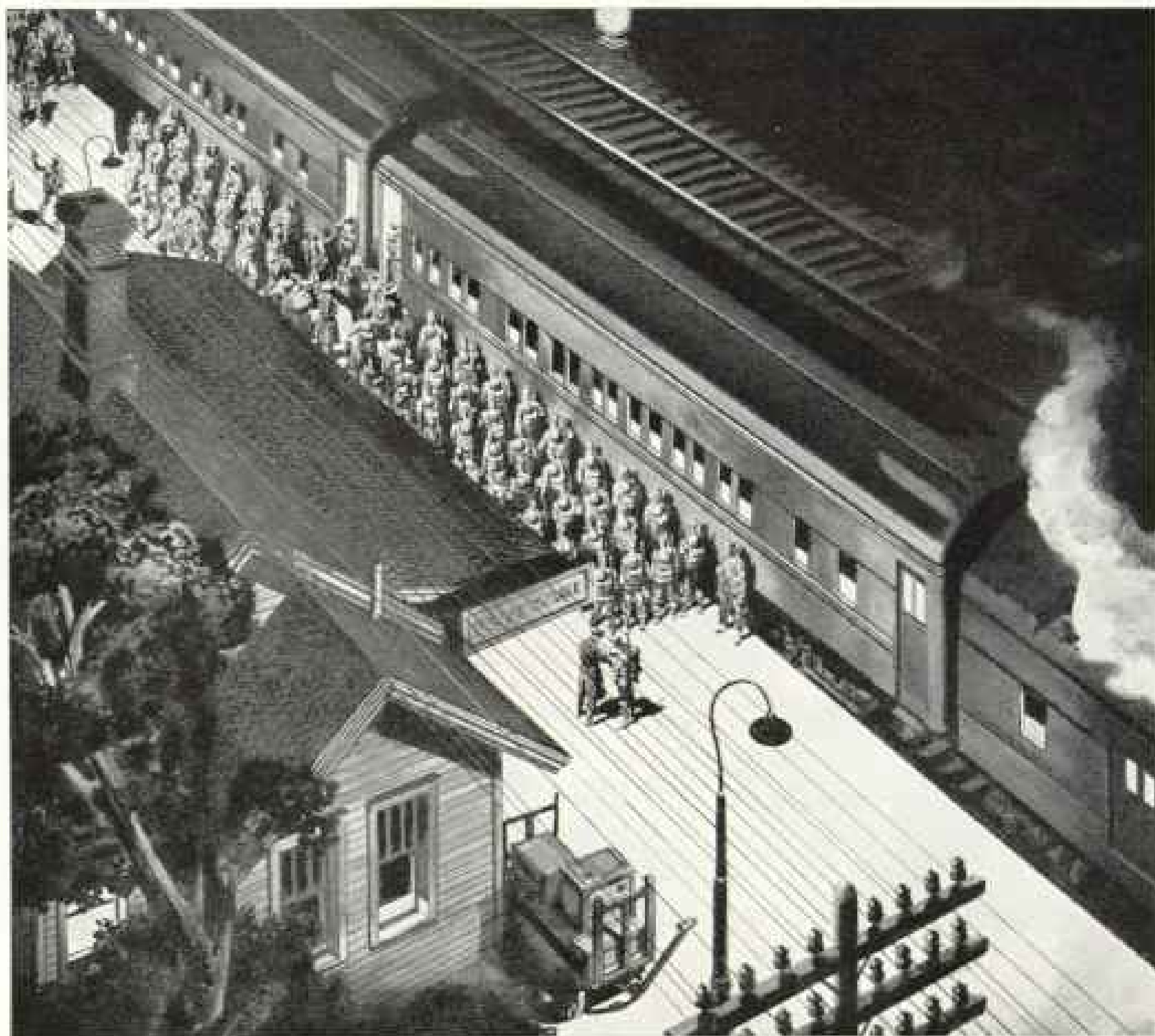


Today the clock on The Milwaukee Road is a Victory Clock in scope as well as in spirit. 35,000 loyal, alert employees in more than 100 different classifications—track men, car men, shop mechanics, roundhouse men, trainmen, dispatchers and division superintendents, to name a few—all fully realize the solemn responsibility of their jobs.

24 hours a day for U. S. A. is the war schedule on The Milwaukee Road. And we're putting all the accumulated experience of 92 years of railroading into every hour of achievement our Victory Clock ticks off.

THE MILWAUKEE ROAD

11,000-MILE SUPPLY LINE FOR WAR AND HOME FRONTS



Battle Stations

America is at battle stations all over the world—in North Africa, in the South Pacific, in Northern Europe, in Burma and India, on the islands, on the sea, in the air.

And railroad trains are at battle stations right here at home—wherever one loads troops, or picks up raw ma-

terials, or hauls the finished goods of war, or does any one of a thousand necessary wartime tasks.

Railroad men and railroad trains are working harder today than ever before—carrying one - and - a - half times the tonnage of freight

and more than double the volume of military passenger travel they carried in the first World War.

For America, waging war on the gigantic scale that spells eventual victory, depends now more than ever upon the mass transportation service of its railroads.

AMERICAN  RAILROADS
ALL UNITED FOR VICTORY

**"IN THE ROAR OF AN ENGINE...
I HEAR THE BEATING OF YOUR HEART"**

"Up here, the light still lingers.

"Below, the sea is swept with shadows that swallow up a carrier ship—herself a shadow on the sea—as though she had never been.

"If I should fall from here, my long, steep plunge into the night would go unwitnessed by friend and foe alike.

"And even then, I could not cry for help. For if I break radio silence to call 'Where are you?'—and my ship whispers to every listening ear, 'Here I am'—I break faith with a thousand men. And so . . .

"Up here, I put my trust in my engine!

"It will not fail me now. For in its steady roar, I hear the faithful beating of the hearts of men and women who put into its making their own heart's blood and the power of their hands. On this guide, this friend, this almost human thing, *this engine . . .* depend my hopes of seeing home again.

"Home . . . where I can work again in the noise and the heat, the beat and the pace of the factory where

men and women build engines like these! And where I can create in metal the line, the pattern and design of the even greater engine I've been shaping in my mind!

"That's the America I left. And that's the America I want to find when I come back . . . the one land where a man can live and work and build the future he dreams of . . . where every man has the opportunity to go as far and climb as high as he wants! Don't change that, ever! That's the only America worth fighting for."



Here at Nash-Kelvinator, we're building 2,000 horse-power super-charged engines for U. S. Navy Corsair fighters . . . propellers for United Nations bombers . . . working to hurry the day when our boys will come home, the day when we'll turn again to peaceful things, to the building of an even finer Kelvinator, an even greater Nash!

To them we pledge to do our part to keep America just as it is, just as it must always be—a land of progress, free enterprise and limitless opportunity!

NASH-KELVINATOR CORPORATION, DETROIT

Speed the Day of Victory!
Let's Get in the Scrap —
BUT MORE WAR BONDS



NASH   **KELVINATOR**

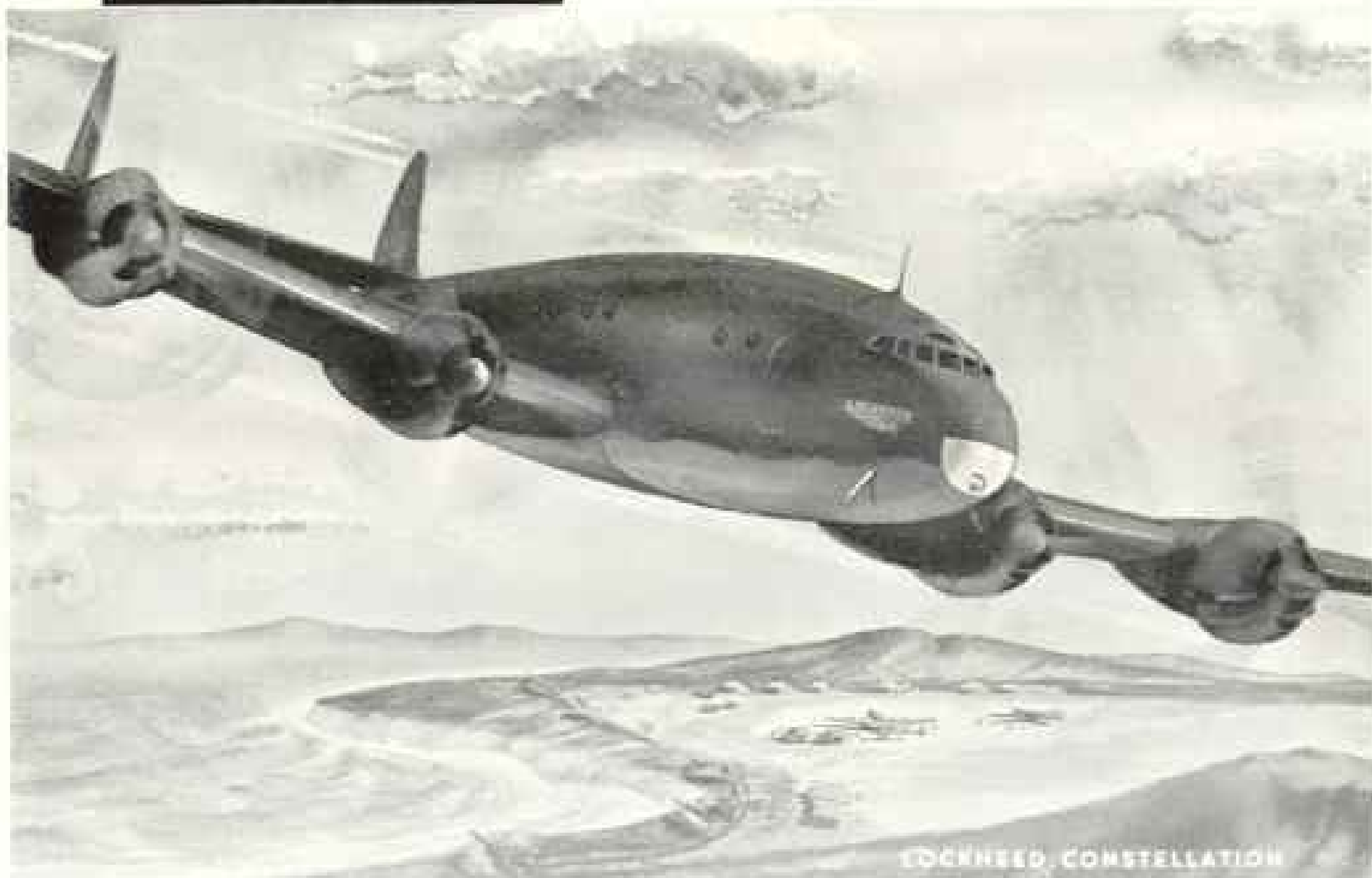
*In War, Builders of Pratt & Whitney Engines and Hamilton Standard Propellers.
In Peace, Nash Automobiles, Kelvinator Refrigerators and Appliances.*

ROHR

PARTS ✦ ASSEMBLIES

*"Get thar Fustest
with the Mostest!"*

Expressive phrase of a famous Confederate fighter



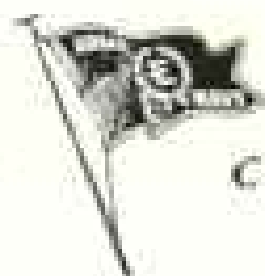
LOCKHEED, CONSTELLATION



HELPING TO WRITE
THE STORY OF TOMORROW

ROHR AIRCRAFT CORPORATION

BUILD 'em bigger, fly 'em fuster, do it first and do it in quantity--America's axiom for supremacy of the air! No goal in American history was ever more urgent! ROHR production fighters force their tasks of precision parts manufacture and vital assemblies toward this end. ROHR-equipped air giants fly to battle in ever-increasing numbers, rushed there by the men and women on production lines who know that *speed saves lives!*



CHULA VISTA, CALIFORNIA



BUY WAR BONDS AND STAMPS

Here's what one leatherneck dreams about!

One Marine's dream of the post-war world is a mountain of strawberry ice cream. He wrote his girl from Guadalcanal that he wants it three times a day, every day for five years. In standard servings, that's over 900 quarts!

Strawberry ice cream was a symbol, of course, to a hot, tired fighting man in a fox-hole—a symbol of his home town—a symbol of America. It must have appealed to lots of folks, for many newspapers carried the story.

There are good reasons why ice cream is on Army menus regularly—good reasons why busy war workers eat so much of it. It's more than a delicious dessert—it's a valuable food—rich in vitamins and calcium.

Right now, of course, ice cream must come from the same milk supply that furnishes milk, butter and cheese to soldiers, civilians and allies alike. That means less ice cream for your family's use. If you'll be content with your fair share—and accept part of your order in fruit ices—you can continue to enjoy ice cream.

And we'll continue to improve ice cream processing and packaging—controlling its quality—keeping it pure and good.

We'll continue our intensive laboratory research . . . developing important new products from milk . . . bringing to America's fighters, workers and friendly allies the full benefits of nature's most nearly perfect food.

Dedicated to the wider use and better understanding of dairy products as human food . . . as a base for the development of new products and materials . . . as a source of health and enduring progress on the farms and in the towns and cities of America.

NATIONAL DAIRY PRODUCTS CORPORATION

AND AFFILIATED COMPANIES

Originators of the Sealtest System of Laboratory Protection

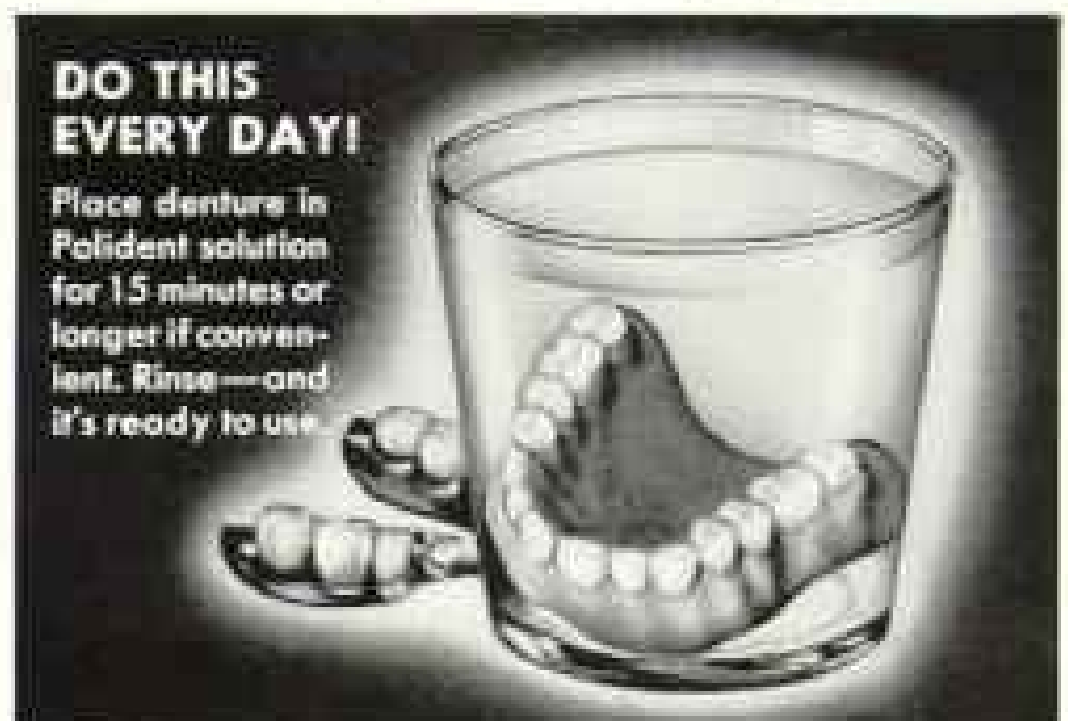
**FALSE TEETH
WEARERS RISK
DOUBLE DANGER
BY BRUSHING
with makeshift
cleaners**



DENTURE BREATH—You may not know you have it, but others *do!* Stains and film that collect on plates and bridges hold unpleasant odors. But —don't try *brushing* them away with toothpastes, toothpowders, soap or other makeshift cleaners. This often scratches plates, causing odorous film and stain to *collect faster and cling tighter.*



LOOSENING OF PLATES Do you wonder why your denture which seemed to fit at first, no longer fits so well? The reason often is that brushing with makeshift cleaners wears away the delicate fitting ridges. Dental plate material is at least *60 times softer than natural teeth*, as proved by recent tests.

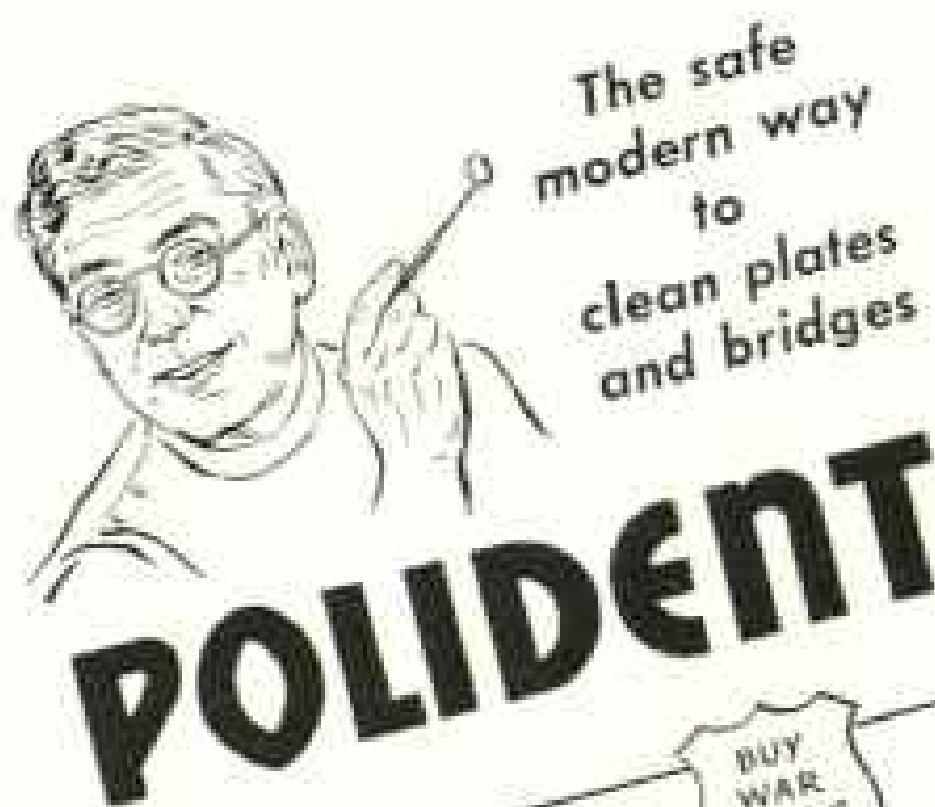


DO THIS EVERY DAY!
Place denture in Polident solution for 15 minutes or longer if convenient. Rinse—and it's ready to use.

PLAY SAFE Soak plates or bridges clean in Polident daily—the method approved by many leading dentists and leading makers of denture materials. No brushing, no danger, yet the daily Polident bath leaves your dentures sparkling clean, odor free. Hard-to-reach crevices and corners thoroughly cleaned.



WHAT A DIFFERENCE No fear of "Denture Breath." No wearing down and loosening the plate. Polident, used daily, maintains the original, natural appearance of dental plates and bridges. *Today—get Polident at any drug, department or variety store. 3 oz. size—30¢; 7 oz. size—60¢.*



LOOK, OFFICER... I'VE BEEN RIDING ON B.F. GOODRICH TIRES MADE WITH SYNTHETIC RUBBER MORE THAN TWO YEARS



"In 1940 they sold thousands of Silvertowns made with more than half their rubber synthetic," said the Grand Union maintenance man to the WAAC. In fact, he's pointing to one of those tires, bought by his company to help get America's synthetic rubber program started. Grand Union reports wonderful results from these tires—in some cases they outwore natural rubber tires on the same vehicle. Two of them ran 7,000 miles more! Thus synthetic rubber passed its first great test.



The Army rides on synthetic rubber. Today, B. F. Goodrich is making tires for combat vehicles with *proven* synthetic. Already we are overcoming Germany's head start in synthetic rubber. But there still isn't enough for you. The Army and Navy need all the rubber they can get.



Delivery guaranteed in 1947. We can't say when your new car will be ready. But we can say that its tires will probably be made wholly, or partly, from synthetic rubber. So look for the best from B. F. Goodrich, the company that pioneered American synthetic rubber.

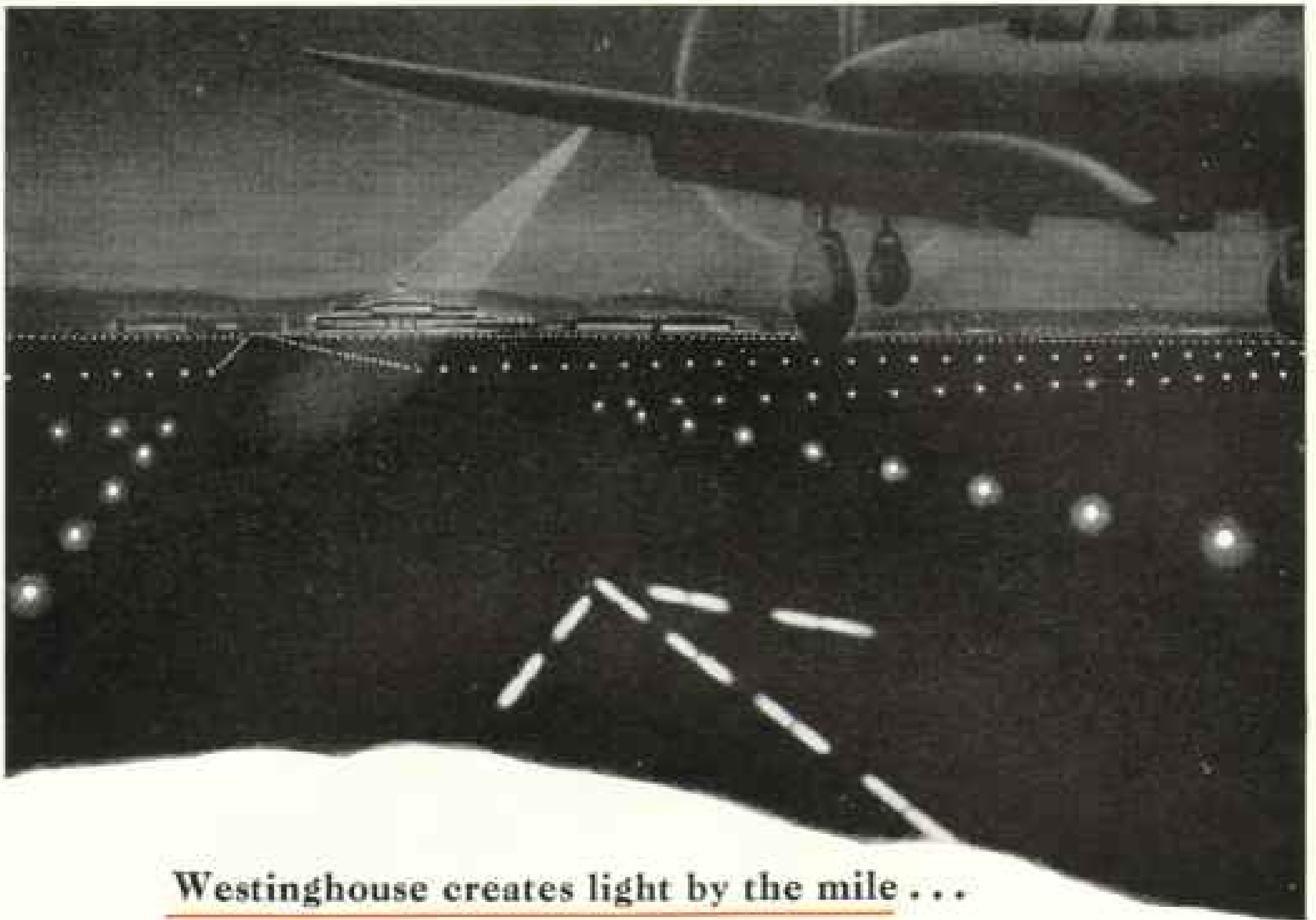


A few of the companies that bought Ameripol tires in 1940 and 1941

Aetna Life Insurance Co. . . . American Airlines, Inc. . . . American Can Co. . . . Baltimore & Ohio Railroad . . . J. I. Case Co. . . . General Outdoor Advertising Co. . . . General Baking Co. . . . Gulf Oil Corporation . . . Geo. A. Hormel & Co. . . . Ingersoll-Rand Co. . . . Kellogg Company . . . New York Central System . . . New York Telephone Co. . . . Pet Milk Sales Corp. . . . Railway Express Agency . . . Sacony-Vacuum Oil Co. . . . Standard Brands, Inc. . . . Swift & Company . . . The Texas Co. . . . U. S. Gypsum Co. . . . Western Union Telegraph Co. . . . and many other important companies in communities from coast to coast.



In war or peace
B.F. Goodrich
FIRST IN RUBBER



Westinghouse creates light by the mile . . .

Light for the airport . . . light for the long factory aisle . . . light on the hands of a woman, knitting in the evening. Out of steam or waterpower, Westinghouse equipment generates electricity to make this light.

Westinghouse skill is in these lightning fingers . . .

setting the filament in place . . . creating the lamp . . . creating light. In the fingers of such Westinghouse people as Nancy Morris, in their skill, lies the secret of a thing that is intangible yet real—Westinghouse quality.



Westinghouse kindles a light in a boy's eye

to this boy, and all his generation, we have made a promise: That good things, and useful things—electrical and electronic appliances and products—will come out of the experience gained in this time of war and destruction. Perhaps this boy will take part in their creation . . . will join us in our common desire—to *do* things better, to *make* things better, for a better and finer world. Westinghouse Electric & Manufacturing Company, Pittsburgh, Pa. Plants in 25 cities . . . offices everywhere.



Who'd have thought Donald had rheumatic fever?

IT WAS SOMETHING of a shock to Donald's parents when the school physician advised them to have the boy examined by their family doctor for a suspected heart ailment.

They took him to the doctor at once, and, sure enough, the examination confirmed a slight impairment. "What *ever* could have caused it?" they wanted to know. Under the doctor's questioning, they learned the answer.

They recalled that, about a year before, Donald had been a little below par for a time. His appetite had been poor and he had failed to gain weight. He had complained of fleeting aches in the joints, and a slight fever. After a while in bed, he began to pick up, so they hadn't bothered the doctor. Little did they suspect that he had suffered from active rheumatic fever, a disease which may affect the heart—especially if there are repeated attacks.

Fortunately, the damage to Donald's heart was slight. Now that he had had no fever in months, there was no reason for treating him differently from other children—except in one important respect: *Donald had shown himself susceptible to rheumatic fever, and everything possible should be done to prevent further attacks.* His general health and resistance should be built up and he should be guarded against sore throats and colds.

What every parent should know

Rheumatic fever causes between 80 and 90 per cent of the heart disease in people under the age of 35. The first attack is most likely to occur between the ages of 5 and 14.

Sometimes, as in Donald's case, early signs of acute rheumatic fever may be so indefinite that the disease is overlooked. Other cases may be accompanied by inflammation of the joints which become swollen, red and painful, and a fever as high as 105 degrees. Additional signs may be severe nose bleeds, and nodules, or lumps, under the skin. Even though the illness appears mild, a child should be kept in bed as long as any of these signs of infection persist.

In most cases, when a child has recovered from rheumatic fever and the disease has been inactive a sufficient time, he can and should engage in normal play and school activities. Parents should continue to be especially watchful to see that he gets sufficient rest, nutritious meals, and cultivates healthful living habits. Furthermore, sick or well, he should be taken to the doctor for periodic checkups.

For additional information about this disease, send for Metropolitan's new free leaflet, 63-N, "About Rheumatic Fever."

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The Australian Sea Horse

ONE OF THE MOST fantastic of all marine creatures is the Australian Sea Horse or Sea Dragon (*Phyllopteryx eques*).

His home is among the waving seaweeds on the coral banks of Indo-Pacific waters. About ten inches long when fully grown, he is small in comparison to many of his enemies. He has no means of defense. And, because of the upright position in which he carries himself, he is a very poor swimmer. He cannot escape by flight.

With these handicaps, the Sea Dragon would long ago have become extinct were it not for his remarkable protective camouflage and the convenient prehensile tail which enables him to make this camouflage effective.

Long, leafy appendages extend from his body. In shape, color, and texture these appendages so closely resemble his seaweed habitat, that it is almost impossible to distinguish the fish from the plant, once he has hooked himself to it by means of his unique tail.

Anchored thus, he is safe from the treacherous currents that might sweep him from his hiding place out into full view of his enemies. In this way he usually manages to escape notice.

Now there is no anchor that can keep a man in

a safe spot where an accident can't overtake him. And, obviously, there is no camouflage that will hide him from trouble, either.

But there is a convenient anchor which will protect him from the financial consequences of an accident once it has happened.

This anchor is insurance; and since the chances are actually one in ten that you will meet with an accident of some kind during the coming year, you can't afford to be without the protection of accident insurance at any time.

If stumbling over something in a blackout, or some other mishap around your house or away from it should land you in the hospital for several weeks, accident insurance will take care of your hospital bills. It will also provide an income for your family while you are kept away from your job.

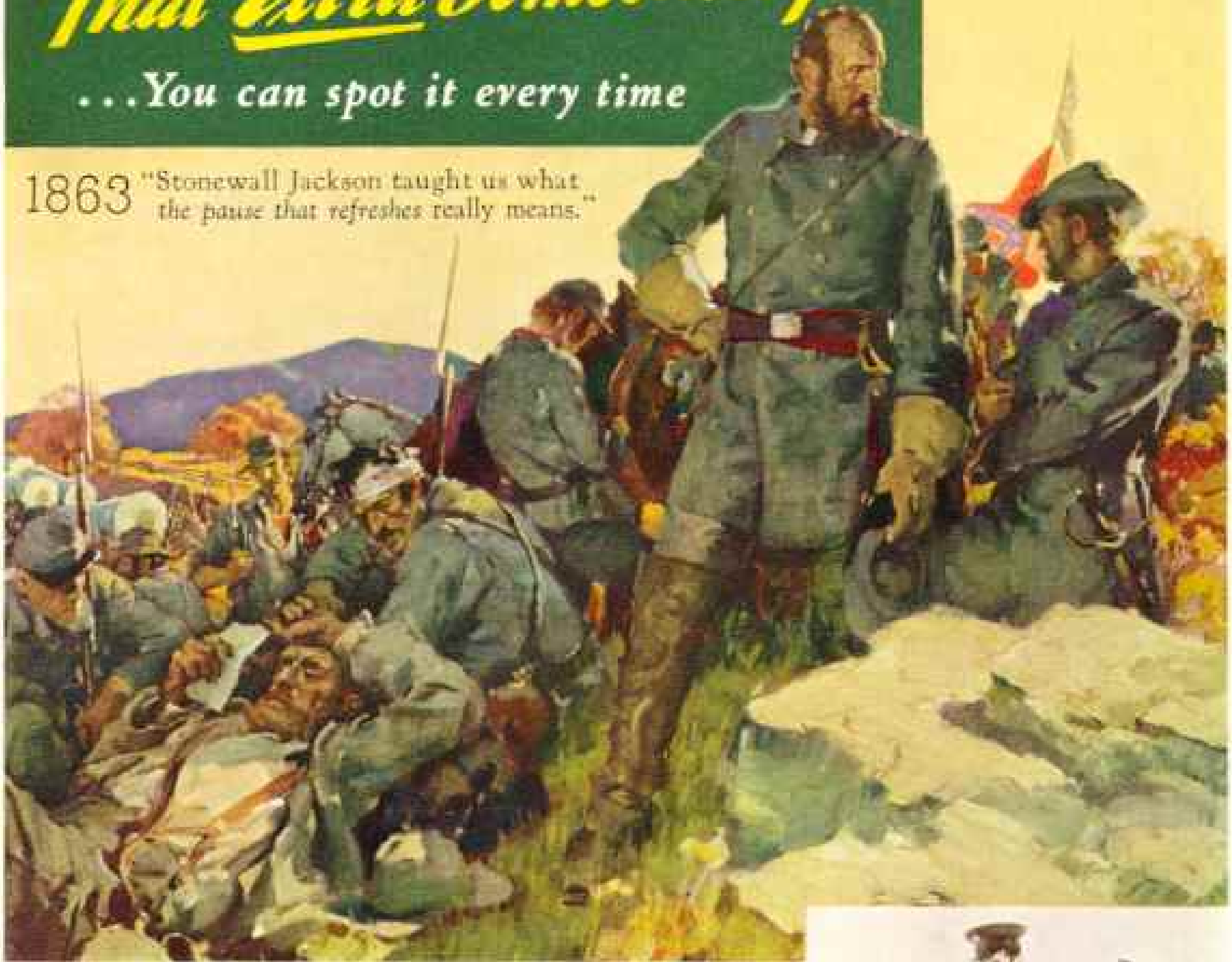
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A short pause helps you in any task. A pause for the energy-giving refreshment of ice-cold Coca-Cola helps you even more.



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1943 The pause that refreshes with ice-cold Coca-Cola is a standby of men in the Army, Navy and Marine Corps—and of war workers. Every time you enjoy a Coke it tells you all over again what it means to morale.

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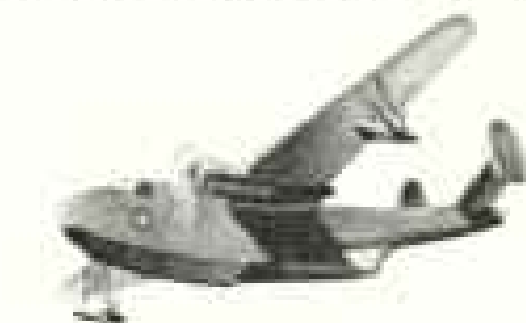
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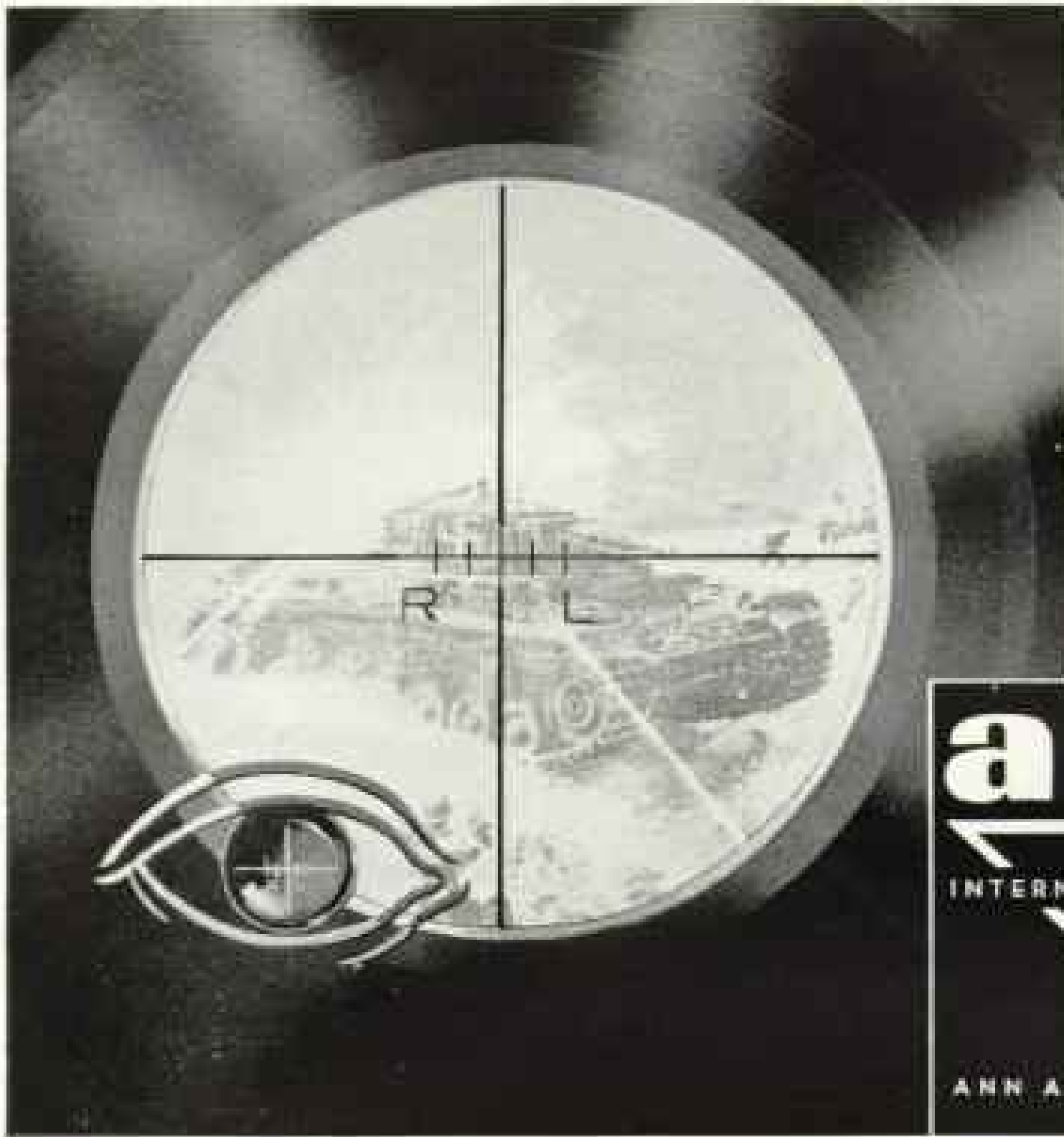
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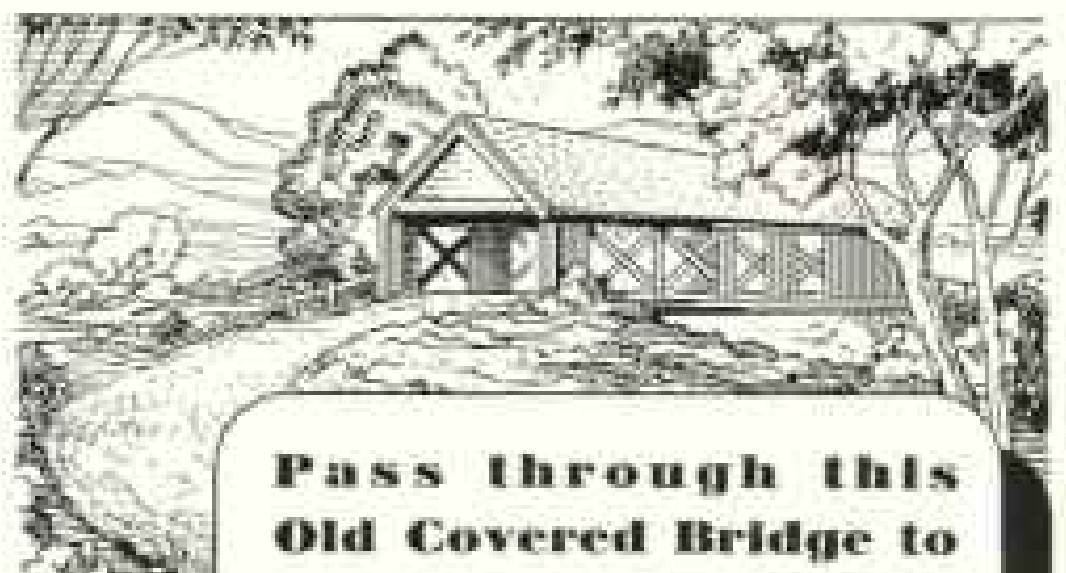
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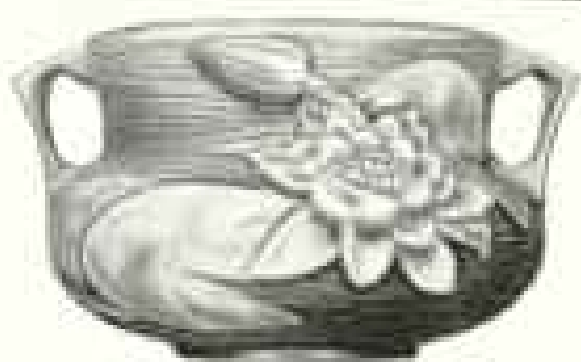
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