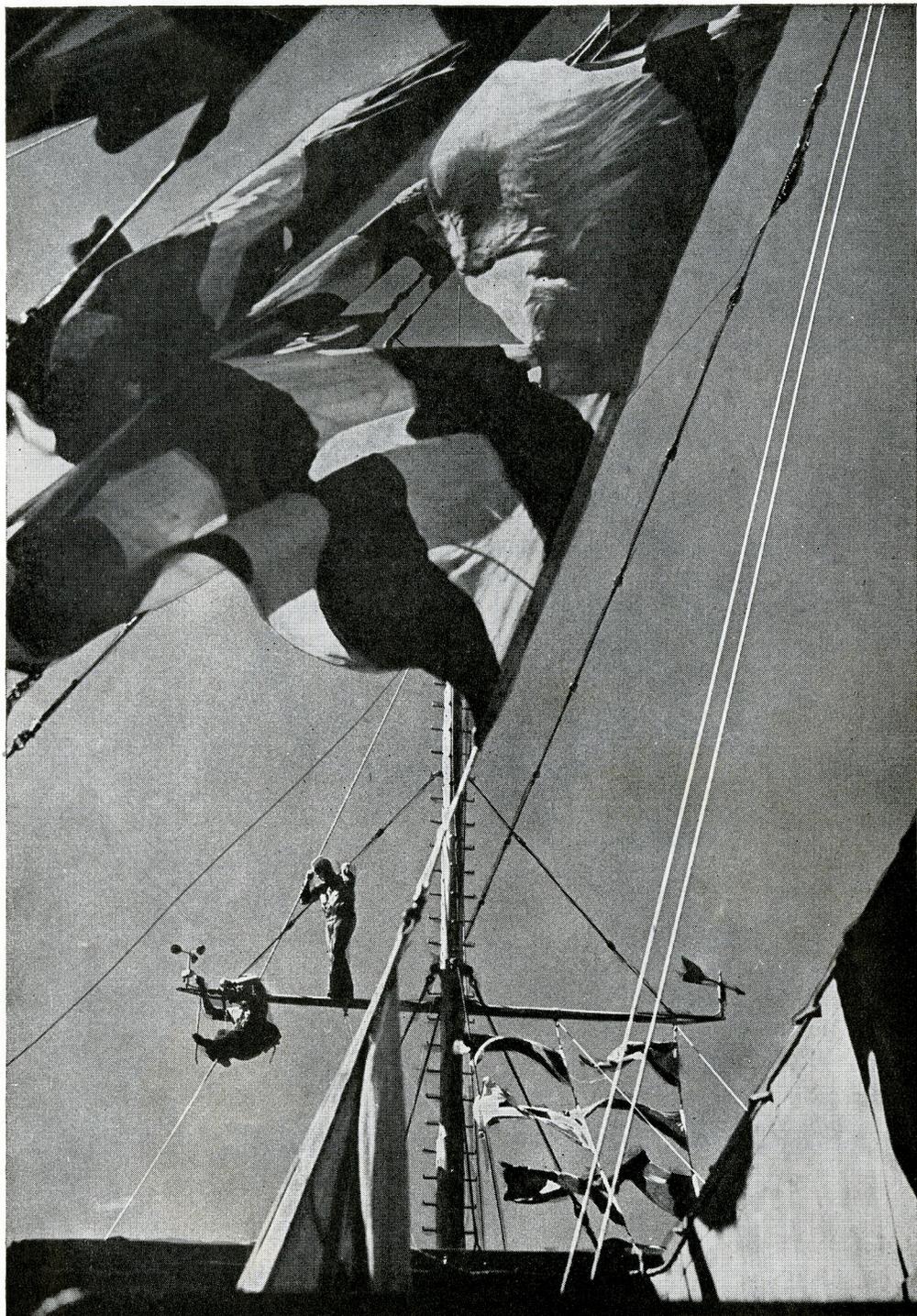


# The Coast Guard Operates Through Communications



*Admiral Joseph F. Farley, USCG*

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*Brisk wind aloft: Seamen aboard a Coast Guard ocean weather ship adjust an anemometer, so that its correct information may be incorporated in the weather reports radioed to shore every three hours.*

*The Smallest of the Nation's Armed Forces Depends on  
Electrical Communications to Direct and Coördinate Its  
Many and Varied Duties and Responsibilities*

# The Coast Guard Operates Through Communications

*Admiral Joseph F. Farley, USCG*

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IN TIMES OF PEACE, the Coast Guard is unique in at least two respects: its functions and its responsibilities are more diversified, and in discharging them it is more dependent upon electrical communications, than probably any other Governmental operating organization. Whether for administration of its many scattered stations, for the handling of routine activities, or for the meeting of the countless emergencies to which it is summoned, the Coast Guard depends upon its widespread communications networks for essential information about any given situation and for the transmission of directions about action to be taken.

In carrying out its varied tasks, the Coast Guard makes use of the most appropriate or effective means of speedy communication. These include principally the telephone, telegraph, teletypewriter, radio telephone, and radio telegraph.

Almost any one of the many emergency situations which the Coast Guard is called on to meet will serve to illustrate the outstandingly important function of the Service's networks of communication facilities. But because it was a recent occurrence and attracted wide attention, let us consider how communication made possible the rescue of the 18 survivors of the Sabena airliner, en route from Ireland to New York, which crashed in the Newfoundland wilds on September 18, 1946.

The plane had been in radio communication with the Gander, Newfoundland, airfield during the night, but had not come in as expected. At about 3:45 on the morning of the 18th (New York time) Gander notified the commander of the Coast Guard base at Argentia, Newfoundland, by telephone, that the plane was overdue; and likewise so notified Ste-

phenville airfield, at the other side of the great island.

Argentia immediately advised the Rescue Coördination Center located in the office of the commander of the Eastern Area headquarters of the Coast Guard. This message went by radio telegraph to the primary radio station at East Moriches, on Long Island, and thence by local teletypewriter circuit into the Area headquarters at 42 Broadway in New York City.

From here the report was also transmitted by direct teletypewriter to headquarters of the Army Communications System at Fort Totten, and to the Civil Aeronautics Administration at La Guardia Field. The Army checked immediately by A.C.S. radio teletypewriter with the landing field at Stephenville and also notified the airfield at Goose Bay, Labrador. The C.A.A. got in touch with Gander Airport through its own radio telegraph circuits.

Note that so far there has been no declared emergency: merely an *alert*. Yet within 20 minutes of the first message, airfields across Newfoundland and in Labrador had been put on notice of the obvious possibilities of *dis-*

*stress*; and three major agencies in this country had been notified, had made contact with their respective forces, and were keeping open the channels for the receipt of further reports.

### *The Search Begins*

WHEN the missing plane's estimated gasoline supply was reckoned to have been exhausted, it was assumed that it had made a forced landing and Coast Guard search planes stood by at Argentia base until they could take off at daylight.

Fog made the quest difficult, and the discovery of several older plane wrecks added uncertainty. By radio telephone the search pilots in their planes asked Argentia to find out the color of the missing plane; Argentia queried New York headquarters by the same circuits already described; an ordinary telephone call to the airline's office in the city brought the desired information; it was routed back to Argentia; and from Argentia to



*Rescue at Gander: A survivor of the airplane crash in the Newfoundland wilds is removed from the scene in a Coast Guard helicopter*

the pilots still aloft—all in a matter of minutes.

A further complication arose from the circulation of unfounded rumors. One of these, that the plane had crashed in the sea near Newfoundland, was so persistent that New York headquarters had to radio Argentina to investigate. A Coast Guard plane was sent on an extensive flight in order to eliminate that possibility.

The wreck of the missing plane was first sighted and the existence of survivors determined about 10 o'clock that morning by a TWA transatlantic plane out of New York and making for Gander airfield. While circling the scene of the crash it summoned by radio telephone the Coast Guard detachments which were searching nearby, and these in turn notified the Gander, Argentina, and Stephenville airfields. By 10:18 a Coast Guard plane reported that it had located the wreckage and was attempting to land on a pond nearby.

This news was immediately flashed to the Coast Guard area headquarters in New York from the Coast Guard base at Argentina, to the C.A.A. at LaGuardia Field from Gander airfield, and to the Army from the Stephenville landing field—all by the communications facilities already described.

The rescue teams which made their toilsome way to the wrecked plane took "handy-talkie" radio telephones with them, and by this means kept in touch with the Coast Guard and Army planes. These in turn passed the information on to the airfields already listed, which transmitted bulletins to New York over the circuits the several Services were keeping open.

### *The Messages Which Brought Rescue to 18*

UPON REACHING the scene on September 20, an Army doctor with the first rescue team decided that many of the survivors would be unable to withstand any overland journey. The Coast Guard's New York Area headquarters immediately undertook to provide a helicopter—the only means for expeditious yet comfortable evacuation, since it could land in a small space close to the wreck and take off again with a patient on a stretcher. The request for a helicopter reached 42 Broadway via the "handy talkie"—plane radio—radio telegraph—teletypewriter route. These three things then happened quickly:

A telephone call over a Coast Guard circuit to the Coast Guard air station at Floyd Bennett Field gave orders to dismantle a helicopter in a hurry and prepare it to be flown to Newfoundland.

An ordinary telephone call to the Army provided a four-engine transport aircraft to get the dismantled helicopter to Newfoundland—an arrangement which emphasizes the cooperation practiced by these Services.

Finally, because the Coast Guard believes in having two strings to its bow, New York area headquarters made a long distance telephone call over Bell System lines to the Coast Guard air station at Elizabeth City, N. C., where a second helicopter was taken apart, and was picked up and transported in another Army C-54.

Within 10 hours after the call for a helicopter was received in New York, the one from Floyd Bennett Field had been taken apart, packed in an Army plane, and flown to

Gander airport. There it was re-assembled and flown to the wrecked plane, and picked up the first survivor and carried her out to a waiting plane on Lake Gander which would take her to the Station hospital.

The helicopter from Elizabeth City arrived two hours later.

The successful removal of all 18 survivors from the scene of the disaster by helicopter and plane is too well known to need retelling here; nor need the point be labored that the use of a variety of communications facilities coördinated the activities of several agencies, kept all informed of actions taken and progress made, left the Coast Guard base commander nearest the scene free to act quickly and effectively, and yet brought help in a hurry when it could be used.

Had the doomed plane come down at sea, much the same basic procedures would have been followed. For the Coast Guard, which for many years has made rescue its business, coördinates all activities of search and rescue—which is, after all, but a modernized version of the Coast Guard's care of all ships at sea and the men who go down to the sea in them.

### *The Coast Guard a Union of Earlier Services*

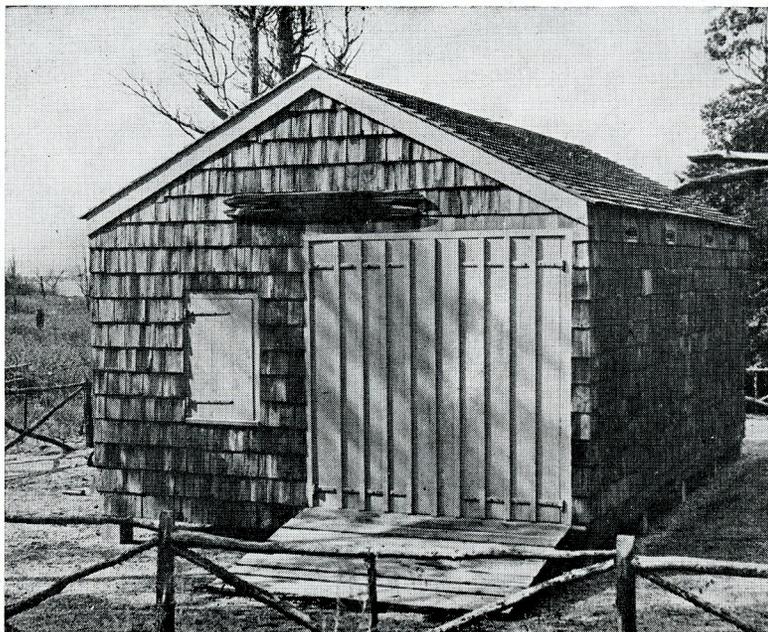
THE WHITE SETTLERS of this land arrived by sea, and since its earliest days the nation has been faced with maritime problems not only of shipwreck and navigation but with such others as smuggling and with questions of the standards of ship construction and operation. Separate agencies were set up to handle indi-

vidual problems, but it was not long before the rapid growth of the country created an overlapping of these services.

Quite naturally then, the Coast Guard today is composed of three of these former agencies: the Revenue Cutter Service, the Life-Saving Service, and the Lighthouse Service. It has also taken over many functions of a fourth, the former Bureau of Marine Inspection and Navigation. This consolidation is quite logical, since all these agencies had jurisdiction over some portion of the government's program for the promotion of safety at sea.

TO ENFORCE the provisions of the Tariff Act of 1789, the Revenue Marine, later called the Revenue Cutter Service, was established the following year, commencing operations with ten wooden cutters. The first commission ever granted to a sea-going officer under the new Constitution went to Hopley Yeaton of New Hampshire in 1791 as "Master of a Cutter in the Service of the United States."

THE LIFE-SAVING SERVICE had its beginnings in the Massachusetts Humane Society, established in 1785 to provide relief for persons in distress on the sea as well as land. The Society built its first lifeboat station at Cohasset in 1807, but hundreds of ships were wrecked and much individual effort was expended inefficiently before Congress in 1871 saw the necessity of coördinating the administration and operation of the various life-saving activities. In that year the Life-Saving Service was set



*The first lifeboat station of the original Life Saving Service—one of the forerunners of the Coast Guard*

up within the Revenue Marine, but was divorced six years later to become a separate bureau under the Treasury Department.

SINCE MARITIME COMMERCE was an essential part of their lives, the Colonies themselves undertook the task of constructing their own lighthouses, buoys and other navigational aids. The first lighthouse in the country was built on Great Brewster Island at Boston in 1716. This and all eleven others erected soon after were taken over by the Federal Government in 1789. After many years under the Treasury Department, the Lighthouse Service was placed under the jurisdiction of the newly created Department of Commerce and Labor in 1903.

THE INCEPTION of the Bureau of Marine Inspection and Navigation

lay in an investigation of several costly marine disasters conducted by the Treasury Department in 1824—although the first significant legislation passed was the Steamboat Act of 1852, which provided for the creation of a board of nine supervising inspectors to administer such marine safety laws as were then in effect. This board evolved into the Steamboat Inspection Service which, like the Lighthouse Service, went under the wing of the Department of Commerce and Labor in 1903.

#### *The Coast Guard's Many Tasks*

THE UNITED STATES COAST GUARD, as such, was born in 1915 with the merger of the Revenue Cutter Service and the Life-Saving Service. In 1939 the Lighthouse Service was added, and early in 1942 the Coast



*Coast Guard to the rescue: R.A.F. fliers being removed from the Greenland ice cap*

Guard assumed a number of the duties of the former Bureau of Marine Inspection and Navigation—a move due undoubtedly to the exigencies of war.

Through these consolidations, the Coast Guard today has many varied tasks to perform for Uncle Sam.

Its scope of activity ranges from the Bering Sea and Alaskan waters to Greenland and the North Atlantic. It includes all navigable territorial waters and seacoasts of the United States, its territories and dependencies (except the Canal Zone) together with its lakes and inland waterways. Its shore units form a coordinated network of protective and marine observation stations along the coasts of the United States, Hawaii, Alaska, Puerto Rico, and the Virgin Islands.

The normal activities of the Coast Guard are myriad. It enforces Fed-

eral laws regarding smuggling, customs, immigration, quarantine, oil pollution, navigation, and wildlife reservations, and patrols marine regattas. It eliminates navigational hazards, fights waterfront fires, provides medical and surgical aid to American deep-sea fishing vessels, carries Government representatives and mail, and it collects statistics on weather and on loss of life and property at sea. Its functions also include the suppression of mutinies aboard merchant vessels, inspection of these vessels and the licensing of their officers, the examination of merchant seamen and issuing of certificates.

Most of the Federal work requiring the use of Government vessels in the Territory of Alaska is performed by the Coast Guard. It renders medical, dental, and general welfare service to the natives there. It patrols the Bering Sea and parts of the

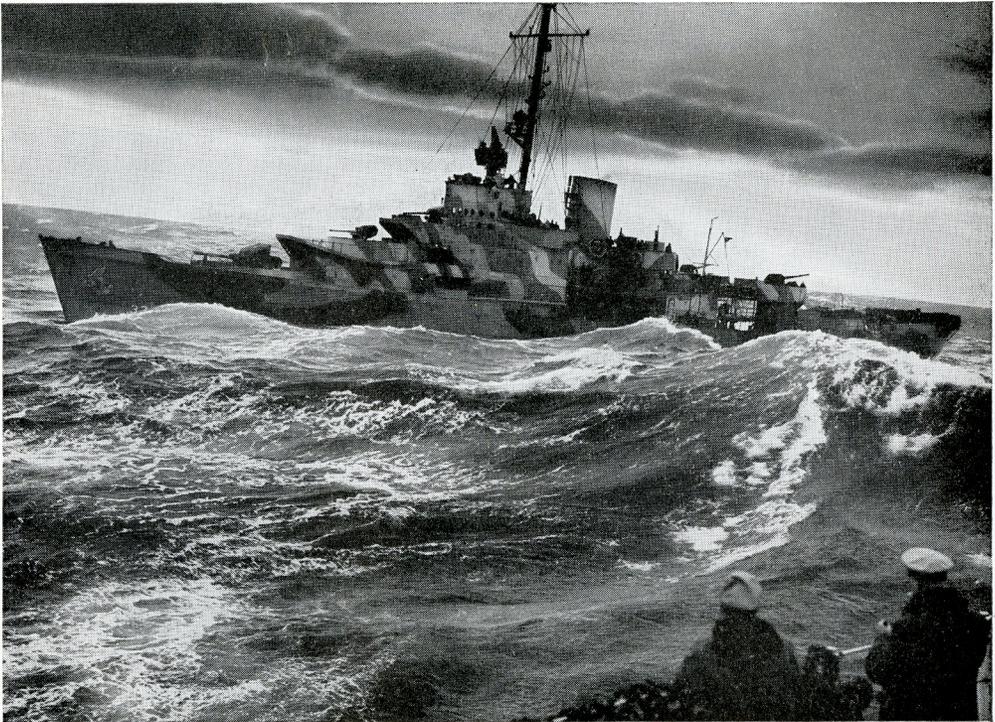
North Pacific Ocean. In our great river valleys, it furnishes relief to the flood-stricken. It conducts ice-breaking operations on the Great Lakes, in the Hudson River, Long Island Sound, various New England harbors and in the upper reaches of the Delaware River and Chesapeake Bay. In the North Atlantic and Pacific it maintains weather observation posts and conducts the North Atlantic International Ice Patrol, keeping the sea lanes open and reporting drifting bergs.

Integrated into the regulatory and enforcement responsibilities of the service are the humanitarian obligations of the nation. Logically, the many jobs the Coast Guard has to do provide the primary reasons for the

establishment of its facilities. In time of need, these can readily be utilized in performing its emergency and assistance missions.

TO ACCOMPLISH all these tasks, enormous "plant" is required. As of 30 June 1946, the Coast Guard maintained a seagoing fleet of 269 cutters and patrol craft of all sizes, including six 327-foot, one 304-foot, seven 255-foot, three 240-foot, four 165-foot, and twelve 125-foot cutters; three ice-breakers; 14 miscellaneous types; 35 lightships; and 93 tenders. In addition, there are 166 motor lifeboats and 1229 motorboats.

On land there are aviation search and rescue facilities composed of 11 air stations and 226 aircraft: the



*Convoy guardian: A Coast Guard cutter on duty in the North Atlantic against the menace of Nazi submarines*

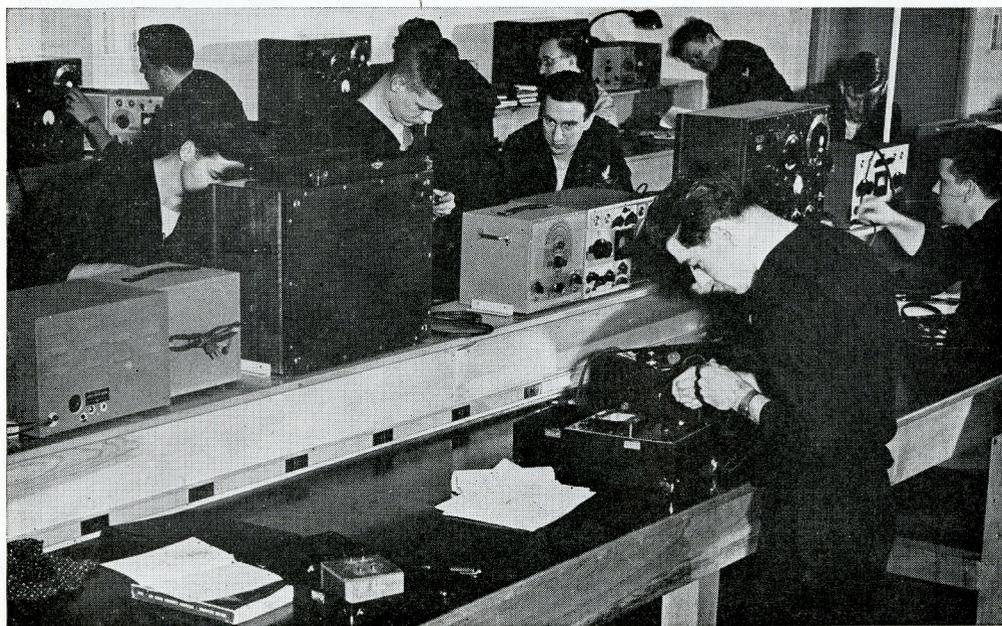
Academy at New London, Conn., for training officers; training stations at Groton, Conn., and Mayport, Fla. for the training of enlisted personnel; about 200 lifeboat stations; a shipyard at Curtis Bay, Md.; 11 repair bases; 47 depots; and two general and five district supply depots. Aids to navigation include over 500 light stations; more than 20,000 buoys; 190 radio beacons; 49 fixed LORAN (long-range navigation) stations, forming eleven chains; and 25 radio direction finder stations.

To knit together this vast, far-flung service, the Coast Guard has a communications network which binds all activities and units of the service into an efficient workable peacetime organization; yet it is so constituted that in time of national emergency it is readily integrated with the communications system of the Navy.

### *The Communications Network*

THE LIFESAVING SERVICE (a major component of the present Coast Guard) made use of the telephone in 1878—the very first year in which telephone service was offered through commercial exchanges. The Army Signal Corps had run telegraph lines along stretches of the Atlantic Coast for its Storm Signal Service, and these had been connected with the lifesaving stations in 1876; and two years later telephones were placed on the telegraph line between Cape Henry and Kitty Hawk, so that the crews and equipment of the 12 lifesaving stations along this stretch of coast might be quickly summoned to meet a need.

This was the first use of the telephone anywhere in the world as an integral feature of a lifesaving sys-



*A wartime class in radio training*

tem, and it proved so effective that it was rapidly extended. Within the next decade the Signal Corps had interconnected 19 lifesaving stations on the New Jersey shore, nearly that many on the coast of North Carolina, all the stations between Cape Henlopen and Cape Charles, and several stations in the Great Lakes region. Then the newly organized Weather Bureau took over the telegraph feature of the storm warning service from the Signal Corps, and the Lifesaving Service absorbed the telephone lines.

While the telephone had thus demonstrated its value in linking the lifesaving stations along isolated stretches of coastline, it got its real start, as a system, with the program completed in 1918. This involved the expenditure of \$1,200,000, which had been recommended by the Interdepartmental Board of Coastal Communications. This Board had been established by Executive Order in 1916 for the purpose of considering coastal communications with a view to improving and extending facilities for saving life and property, for the national defense, and for administration in time of war.

During this period of improvement, which involved much construction and reconstruction, the United States entered World War I, and the Coast Guard operated under the Navy. The original program was therefore considerably enlarged to meet military requirements.

It was at this time that the Coast Guard procured and laid hundreds of miles of submarine telephone cable—some of it to isolated island stations and lighthouses in the Atlantic and Pacific Oceans and the Great Lakes,

which were then for the first time brought into quick communication with the mainland and the Coast Guard network. A cable testing and development laboratory near Washington, D. C., is now an important factor in designing submarine cable to meet the Service's particular requirements.

### *The Present Communications Network*

IN THE happy interval between two wars, the telephone system, as well as other forms of communication, was further extended, until by 1940 the Communications Section was maintaining and operating several thousand miles of land wire telephone circuits and nearly a thousand miles of submarine and underground telephone cable. And there is now, for example, a continuous wire circuit—land line and submarine—extending along the Atlantic shore from the eastern end of Long Island, N. Y., to Morehead City, N. C.—a distance of approximately 700 miles.

During the war which began five years ago, this country's Atlantic and Pacific coasts were potential danger zones, and the Coast Guard's shore patrols were greatly augmented. To provide the ready communications so urgently required, hundreds of miles of rubber-covered telephone cable were purchased and were plowed in along the shore wherever conditions permitted that form of installations. Patrolmen carried telephones which they could plug into "jacks" provided at frequent intervals. Along much of the Pacific shore, the rugged terrain prevented that procedure, and there the installation of Coast Guard circuits became major construction proj-

ects presenting such obstacles as mountain ranges, rock formations, and vast forests.

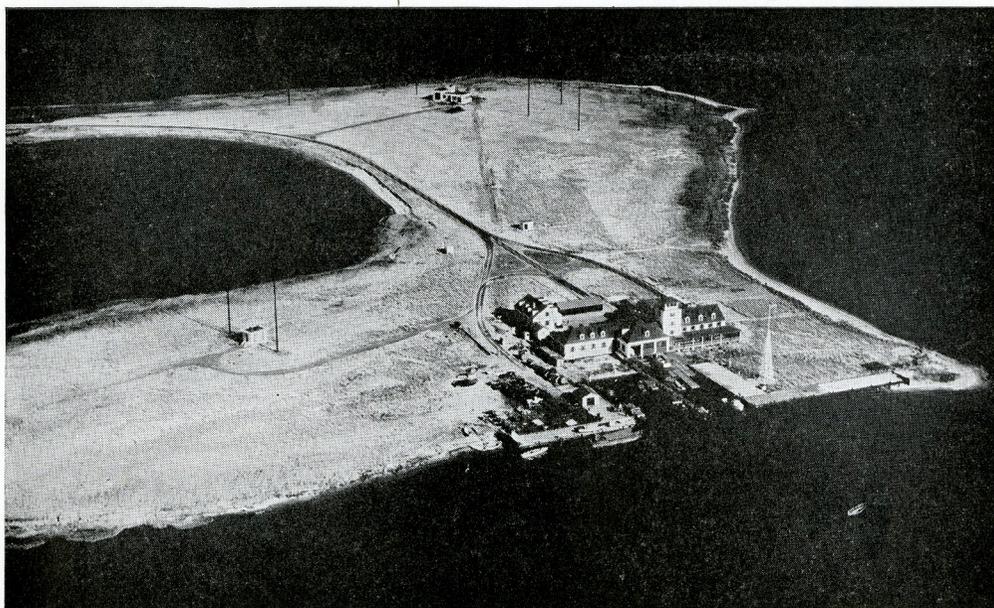
WHILE many of those war-time installations were of a temporary or emergency nature, the Coast Guard still owns, maintains, and operates more than 21,000 circuit miles of telephone lines—including 2,737 miles of pole line, 909 miles of submarine cable, and 218 miles of underground cable.

Note those three words: owns, maintains, operates. They are used here advisedly. They point to a prime example of coöperation and coordination between the Coast Guard and the country's commercial telephone companies—including, obviously, those which comprise the Bell System.

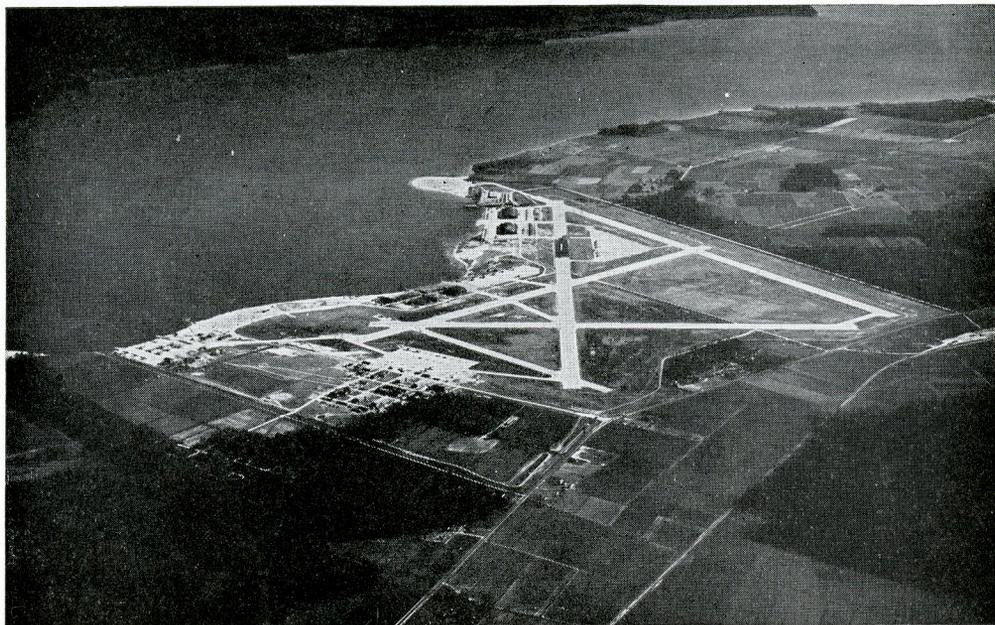
It is really quite simple. Coast Guard circuits must, in the nature of

things, run to many remote and isolated places where commercial telephone companies would have no reason to construct lines. So the Coast Guard builds and maintains and operates such lines—and connects each, at some point, into the Bell System network. At some places—*islands*, for instance, or *fishing resorts*—where the Coast Guard's is the only line available, civilians may make important calls over it into the commercial central office and beyond. Where the commercial lines do run, the Coast Guard uses them—and saves itself a lot of bother.

And the Bell System, for its part, lends a helping hand or an engineering diagram or the benefit of its experience where it is needed—and provides the Coast Guard with Bell System local and long distance telephone service as required. For 30 years the two organizations have played ball



*Coast Guard installations: Foreground, a lifeboat station; background, operations building, transmitter buildings, and antennas of a primary radio station*



*A Coast Guard air station*

together, amiably and successfully, on the basis of a few ground rules and a great deal of mutual confidence and good will.

IT IS worth recalling that for the Coast Guard, as well as for others, the telephone is a two-way path—inward as well as outward. It is the public's fastest way of getting help from an organization which specializes in giving it. Every Coast Guard station is at the end of a telephone line, and no call goes unanswered.

The telephone is a great coördinator, and direct lines run between each of the fourteen Coast Guard district headquarters and various other agencies: the Army, the Navy, the Civil Aeronautics Authority, the Weather Bureau, Bell System Coastal-and-Harbor radio stations; and others which might seek or give information or assistance. At Coast

Guard Headquarters in Washington, this type of direct inter-communication is in itself a complete network.

No one form of communication could meet all the needs of so widely dispersed an organization, and the Coast Guard makes extensive use of the teletypewriter. Its private lines, which it leases from the Bell System, parallel the country's continental shores, and every district headquarters has several and every major coastal unit has at least one of the chattering teletypewriters. The eastern teletypewriter network extends from Maine and Canada along the Atlantic to Key West and along the Gulf to Brownsville, Tex. On the west coast the circuits parallel the Pacific from Seattle to San Diego. Communication between the eastern and western systems is effected through the Bell System's TWX (teletypewriter exchange) service.



*Plowing telephone wires into the beach for the use of Coast Guard beach patrols*

While the use of the teletypewriter in emergencies is fundamental, it serves other purposes as well. It gathers and transmits data regarding the locations of ships at sea; and it transmits weather information to C.A.A. stations and to Coast Guard radio telegraph transmitting stations for the guidance of mariners, for example; and of course it carries a good deal of administrative traffic as well.

Radio telegraphy—"wireless" as it was called in its infant days during the early part of this century—has grown through the years of peace and the years of war to occupy its now preëminent place as the means of maritime communication.

The Coast Guard, then known as the U. S. Revenue Cutter Service, pioneered in the use of radio afloat when in November, 1903, the U.S. R.C. GRANT, operating in the Straits of Juan de Fuca and Puget Sound and engaged principally in the suppression of smuggling, successfully inaugurated the use of wireless telegraph

for handling messages between the shore station at Port Angeles, Wash. and the GRANT. Following urgent and repeated recommendations by the Secretary of the Treasury that wireless telegraph equipment be installed on all "first class cruising cutters," Congress on 4 March, 1907, approved the sum of \$30,000 for installing equipment on not to exceed 12 vessels of the U.S.R.C.S. The ALGONQUIN, in August and September of 1907, was the first of a number of cutters to be so equipped under this program. From that time on, the Coast Guard had kept constantly apace with developments and improvements, realizing clearly the value of having at its disposal the best in equipment and technique.

Two years after the ALGONQUIN installation occurred the incident which gave radio telegraphy the impetus for its universal adoption and rapid growth. Off Nantucket Island the steamships REPUBLIC and FLORIDA collided, and from the mid-

night darkness of the ocean was sent the first C Q D—the first radio call of distress. Four Coast Guard cutters in Atlantic waters intercepted that call, and a small boat from the cutter Gresham rescued the last survivors from the REPUBLIC as the ship went down. Radio had saved hundreds of lives, had introduced a new and potent factor of safety at sea. Today, no commercial vessel—practically speaking—ventures beyond sheltered waters without adequate radio equipment, and an increasing number of pleasure craft carry either radio telegraph or radio telephone installations.

It is scarcely necessary to say that Coast Guard vessels are completely

equipped: the larger ones with every type of apparatus for transmitting, receiving—on many frequencies—monitoring, taking and giving bearings; even its small boats, such as motor lifeboats, have radio telephone equipment.

The other half of the Coast Guard's radio story is told in its shore installations: primary radio stations, secondary radio stations, and air radio stations, for communication principally with ships and aircraft at sea; and high-frequency direction-finder stations, the bearings from two or more of which can give a vessel's or aircraft's navigator a "fix" or position in a matter of seconds in case of actual or imminent distress.\*

### Uses of Communications

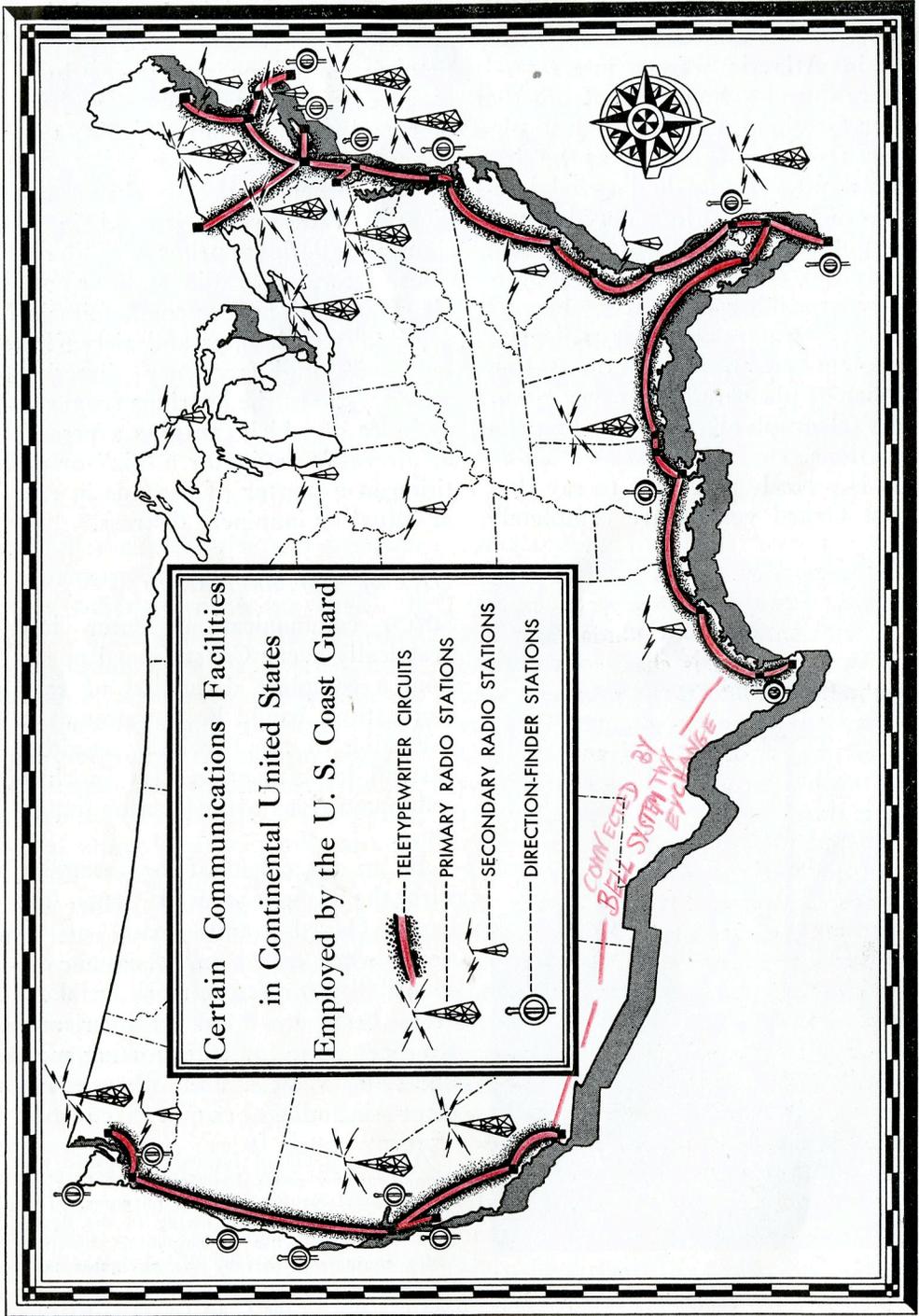
SINCE communications enter into practically every Coast Guard operation, a complete discussion of communications would be tantamount to a catalog of the Service's activities. Instead, let us mention a few in which communications are of major importance.

By an agreement of long standing with the American Red Cross, the Coast Guard stands ready at all times, when called on, to assume responsibility for rescue work in inland areas beset by flood or hurricane. Routines exist for transporting men, lifesaving vessels, and other equipment—including communications

\* The Coast Guard formerly furnished medium frequency radio direction finder bearings to the public for navigational purposes. This service was discontinued owing to the developed widespread use of shipborne direction-finder equipment whereby the navigator takes his own bearings on the numerous radio beacons operated by the Coast Guard at strategic points along the coasts.



*Building coastal telephone circuits in the Pacific Northwest sometimes involved major construction projects*



equipment—to the scene. Each district has at least one specially equipped truck which can be set up as a message center, receiving reports and information by radio directly from Coast Guard airplanes, talking with and directing Coast Guard life-saving boats, making direct contact with the District Headquarters in case of need, and coördinating protective and rescue operations. There is close coöperation between the Coast Guard and the Bell System telephone companies in the area affected, and the record of lives saved and property safeguarded by the Coast Guard far from salt water is a proud one.

The war, and particularly the importance of aircraft, brought about many new developments in search and rescue at sea. In fact, among the duties with which the Commandant of the Coast Guard is charged as head of the Search and Rescue Agency are the coördination of research in and development of search and rescue equipment through joint studies; dissemination of information; and recommendations to appropriate agencies of the War, Navy, and other interested Departments. These responsibilities also include the maintenance of liaison with agencies of other United Nations concerned with these matters.

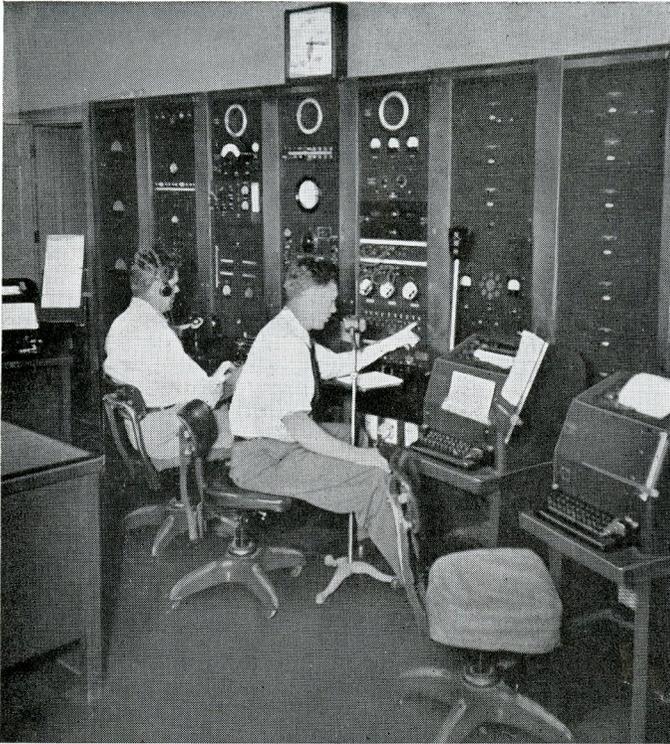
Such items as collapsible lifeboats, special food, clothing, and other survival equipment which may be dropped from planes, are now standard equipment on all search and rescue and on most other Coast Guard aircraft.

THE COAST GUARD communication research laboratory maintained at

“Radio Washington,” near Washington, D. C., has been very active in perfecting radio signaling devices for attracting rescuers. These include, among other projects, modification of the famous “Gibson Girl” emergency automatic transmitter so as to send out signals on two different frequencies, 500 kc and 8280 kc alternately, instead of only on 500 kc. The practicability as well as the greatly increased radius of reliable operation on the higher frequency was conclusively demonstrated by extensive tests under typical conditions which subsequently led to the adoption generally of the higher frequency for use by marine survival craft.

The laboratory has done much work in improving corner reflectors which are used for reflecting radar impulses sent out by searching craft and which might not otherwise detect so small an object as a rubber life raft. At the laboratory the Coast Guard is working on the development of a lightweight airborne emergency radio transmitter which could be turned on when a plane is forced to ditch and would automatically transmit its call letters, dashes, and SOS on 8280 kc to enable the high-frequency direction finder nets to determine the last position of the distressed aircraft. Other current projects include the development of an automatic alarm for use by aircraft which would place at their disposal the same means of summoning aid as now utilized by vessels.

These examples illustrate one phase of the laboratory’s function: development of communications equipment, the need for which is recognized, to the point where commercial manufacturers can produce it to Coast Guard



*Coast Guard communication installations. Left: Equipment at "Radio Washington," key station of the Coast Guard emergency network and in the handling of traffic for the North Atlantic Weather and Ice Patrols. Below: Teletypewriters at Eastern Area Headquarters in New York, showing at left part of the search-and-rescue plotting board*



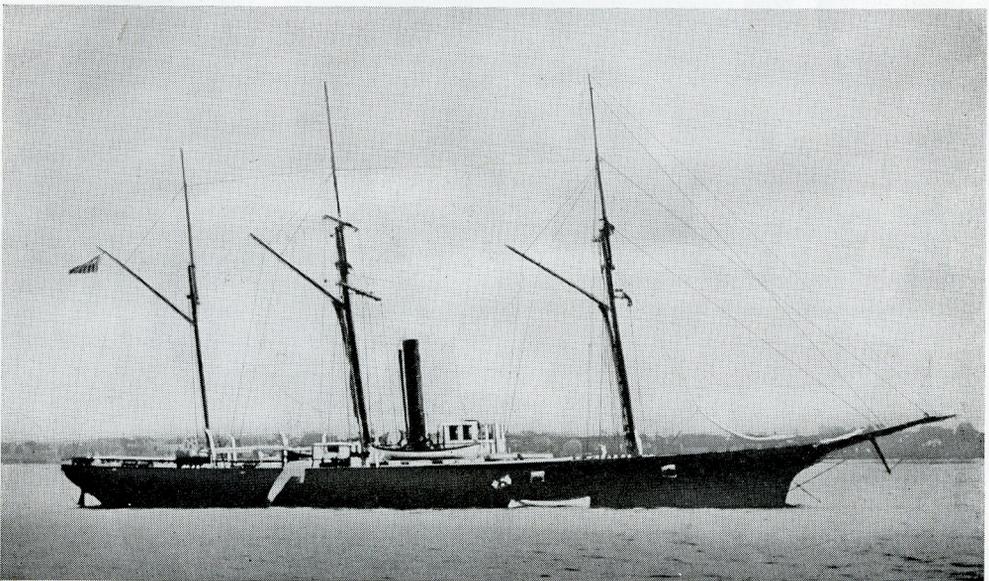
standard specifications. Equally important is its work of testing new equipment submitted to it for approval and of checking up on equipment purchased to see that it is as ordered and required by the specifications.

In addition to the work carried on by Radio Washington, the Coast Guard electronics test station at Fenwick Island, Delaware, contributes greatly to Coast Guard electronics by testing LORAN, RACON (radar beacon—aircraft), and Radio Beacon buoy equipment. This station in some measure made possible the successful use of LORAN equipment when that system was so urgently required by the armed forces during the war. The continuing need for improved electronic aids to navigation for commercial and military use indicates the important part this activity will continue to play in peacetime Coast Guard activities.

### *The Coast Guard Is An Armed Force*

NORMALLY, the Coast Guard operates under the direction of the Treasury. But when war breaks out and the big guns start belching fire and smoke and steel in earnest, the Coast Guard immediately goes on a war-time footing under the Navy Department. The nucleus of our earliest Navy, as a matter of fact, was the Revenue Marine, whose armed ships were the backbone of this nation's defense in 1798 when war with France appeared imminent. Since then, the Coast Guard has fought side by side with the Navy in every one of this country's wars.

The war record of the Coast Guard has been portrayed in words and pictures throughout the world. Suffice it to say that certain of its peace-time activities were curtailed or suspended in World War II, while



*U. S. Revenue Cutter Grant: The first vessel of the Revenue Service to be equipped with "wireless," in 1903*

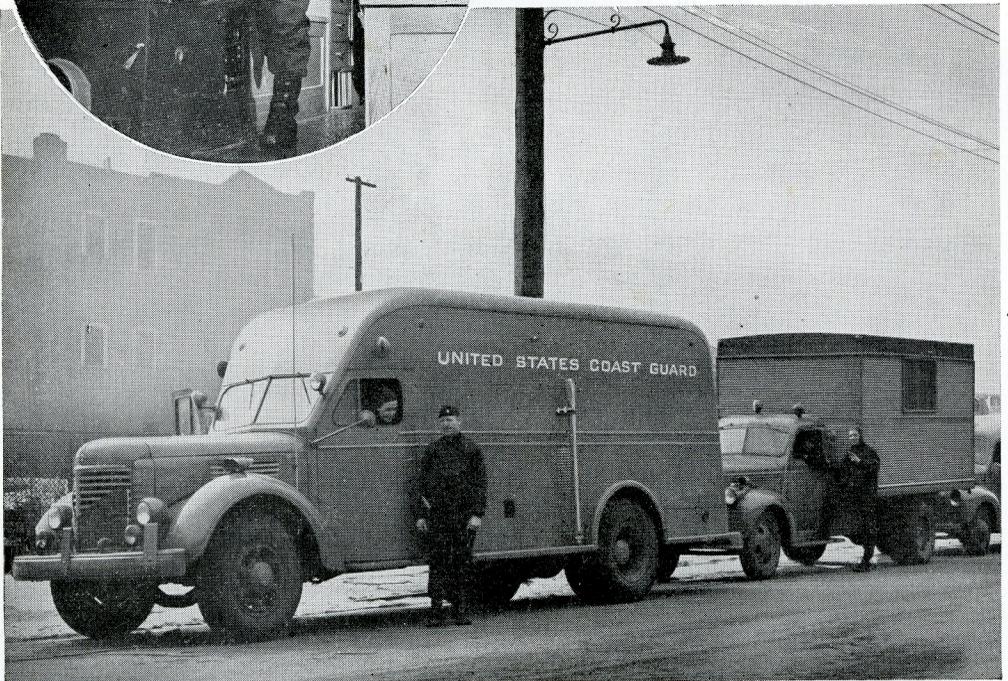
others were greatly expanded to meet the needs of the emergency.

Greatly augmented were the activities of port security, beach patrols, offshore patrols, ice-breaking, weather stations, search and rescue, electronic communications, navigation aids, underwater sound, and marine inspection. All seagoing cutters were assigned to convoy or anti-submarine duties. Coast Guard aircraft operated under Sea Frontier Commanders.



Total manpower rose from 25,000 officers and men at the outbreak of the war to over 170,000 by the end of the war. The establishment of the Women's Reserve, whose SPARS served in numerous communications billets ashore, aided greatly in releasing men for duty afloat, and the service was further augmented by some 65,000 temporary reservists. Many of the latter were former members of the Auxiliary, a volunteer non-military organization created in 1939 to train and instruct civilians using the high seas and navigable waters of the United States.

At the beginning of World War II, operation of the Coast Guard's communication system required some 80 officers and 1,000 enlisted men. At the peak of its wartime activities, operation of the system required over



*Mobile communication equipment. Coast Guard officer (in circle) is conversing over radio telephone equipment of the type installed in the trucks shown below*

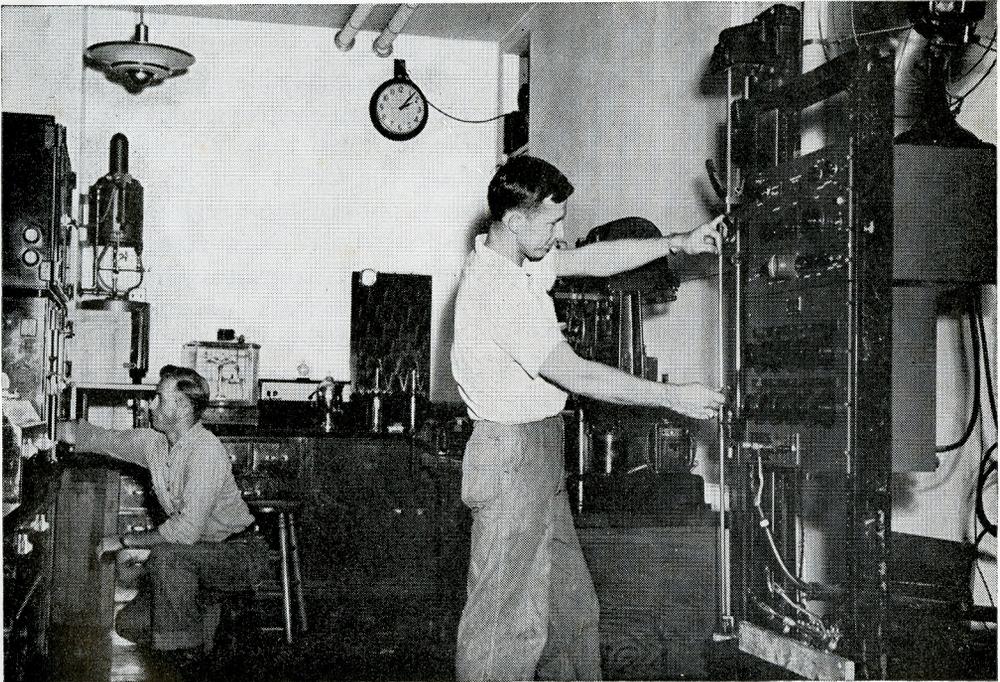
700 officers and 14,000 enlisted personnel.

The Coast Guard's long experience in handling small boats, both at sea and in the breakers along our shores, was recognized as of the greatest value for amphibious operations in both the European and Pacific theaters. Today the Coast Guard is proud to be able to say that its personnel operated landing-craft in every important amphibious assault made by our armed forces during the war.

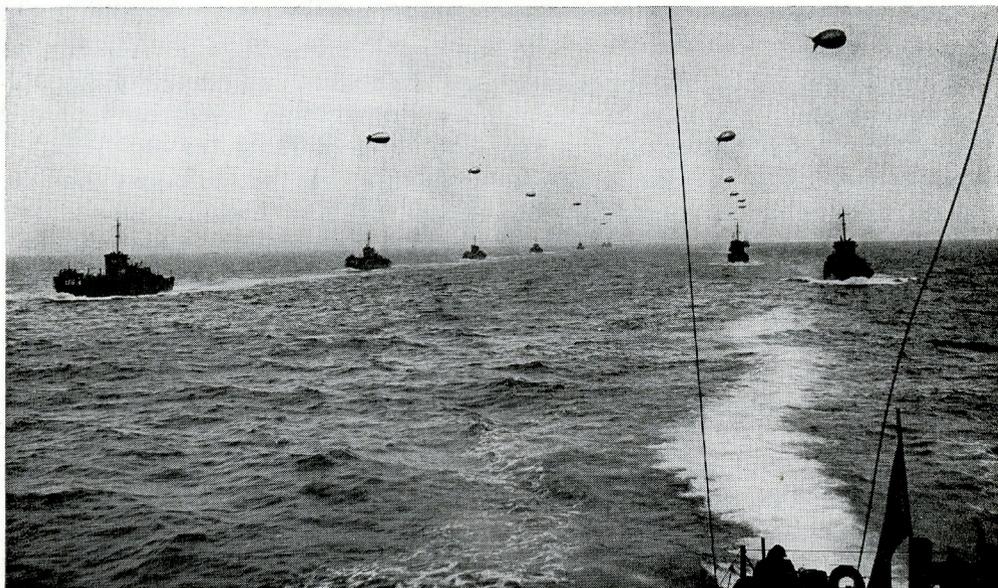
IN ADDITION to the administration of its own communications, the Coast Guard has communications responsibilities at interdepartmental and international levels.

Its Chief Communications Officer represents the Treasury Department on the Interdepartment Radio Ad-

visory Committee; the Radio Technical Commission for Aeronautics and its Executive Committee; the Radio Propagation Executive Council; and he is alternate for the Assistant Secretary of the Treasury on the Board of War Communications and the Telecommunication Coördinating Committee. The Coast Guard is represented on the committees of the Joint and Combined Communication Boards, and on the Provisional International Civil Aviation Organization. The Chief Communications Officer served as Chairman of the U. S. Delegation to the International Meeting for Radio Aids to Marine Navigation at London in May, 1946, and he was the Treasury Department representative on the U. S. Delegation attending the Five-Power Conference convened at Moscow in October, 1946, for the purpose of



*Equipment in the cable testing laboratory at "Radio Washington"*



*Coast Guard manned LCIs crossing the English Channel for the D-Day invasion of the coast of Normandy*

preparing material for the forthcoming International Telecommunication Conference.

### *A Quick Look Ahead*

WHILE THE COAST GUARD is readjusting itself as rapidly as possible to its post-war strength, there will be various developments affecting the scope and emphasis of its program in the post-war period.

A remarkable expansion in transoceanic air traffic is predicted. Despite the many improvements in aircraft construction and operation, this expansion is certain to be accompanied by an increased need for the search-and-rescue activities organized by the Coast Guard. This will require not only more sea and air rescue craft but improved equipment for locating and communicating with vessels and aircraft in distress. Of no

little value will be further extension of the Coast Guard's research and experimental activities relating to the helicopter.

The remarkable advances made in radio and electronic devices during the war will have a profound effect upon the Coast Guard's communications and aids-to-navigation facilities and services. New research and experimental programs will be required.

Improvements of its emergency radio direction finder facilities and the re-activation of stations currently inoperative owing to the lack of personnel are among the problems which currently confront this Service.

The continued expansion of LORAN is being effected for application to peacetime ocean navigation by air and surface craft.

Improvements of facilities at its coastal radio stations and afloat, in keeping with the extended sea fron-

tiers of post-war operational requirements, are receiving their share of attention. Special study has been made to determine the post-war use to be made of RADAR by the Coast Guard, and effort has been made to help the Merchant Marine in obtaining the use of RADAR. The outcome of this study has resulted in the preparation of voluntary minimum specifications for use, if so desired, by

LEGEND	
	DISTRICT COMMANDERS OFFICE (COMMUNICATION CENTER)
	AIR STATION
	RADIO STATION (PRIMARY)
	LIGHTSHIP OR RELIEF LIGHTSHIP WITH RADIO BEACON
	LIFEBOAT STATION. (RADIO EQUIPPED)
	LIFEBOAT STATION
	LIGHT STATION WITH RADIO BEACON
	LIGHT STATION WITH RADIO COMMUNICATION FACILITIES
	LIGHT STATION WITH RADIO BEACON AND RADIO COMMUNICATION FACILITIES
	AIRCRAFT
	COMMUNICATION TRUCK
	DIRECTION FINDER STATION
	NAVY RADIO STATION
	RADIO STATION
	COMMERCIAL RADIO STATION
	COMMERCIAL RADIOTELEPHONE STATION

*Symbols and legends from a Coast Guard communications chart of coastal waters indicate how large a part communications play in the activities of the Service*

maritime interests. These specifications have been favorably received by both operators and manufacturers. By keeping abreast of developments in the field of electronics, as well as by maintaining its traditional high standards throughout its wide-flung organization, the Coast Guard is living up to the slogan of constant preparedness which its banners so proudly bear: SEMPER PARATUS.

BETWEEN MAY 10, 1909, when JOSEPH F. FARLEY was appointed a cadet in the U. S. Coast Guard, and January 1, 1946, when he was appointed Commandant with the rank of Admiral, a lot of water has gone under the keels of the vessels he has served on or commanded. Listen to the musical names of them: *Mohawk, Seminole, Onondaga, Yamacraw, Scally, Seneca, Gresham, Morrill, Mojave, McCall, Wilkes, Pontchartrain, Modoc.* In between were tours of shore duty, including five years as Chief Communications Officer. That was followed by a year and a half during 1942-43 as District Coast Guard Officer of the

Eighth Naval District, at New Orleans, which won him the Legion of Merit for exceptionally meritorious conduct in the performance of outstanding services. On his subsequent return to Coast Guard Headquarters in Washington, he served as Assistant Chief Operations Officer and then as Chief Personnel Officer until his appointment as Commandant. Among the organizations of which he is a member are the U. S. Naval Institute, the Society of Naval Engineers, the Society of Naval Architects and Marine Engineers, and the Newcomen Society. He is an active member of the Propeller Club, Port of Washington D. C.