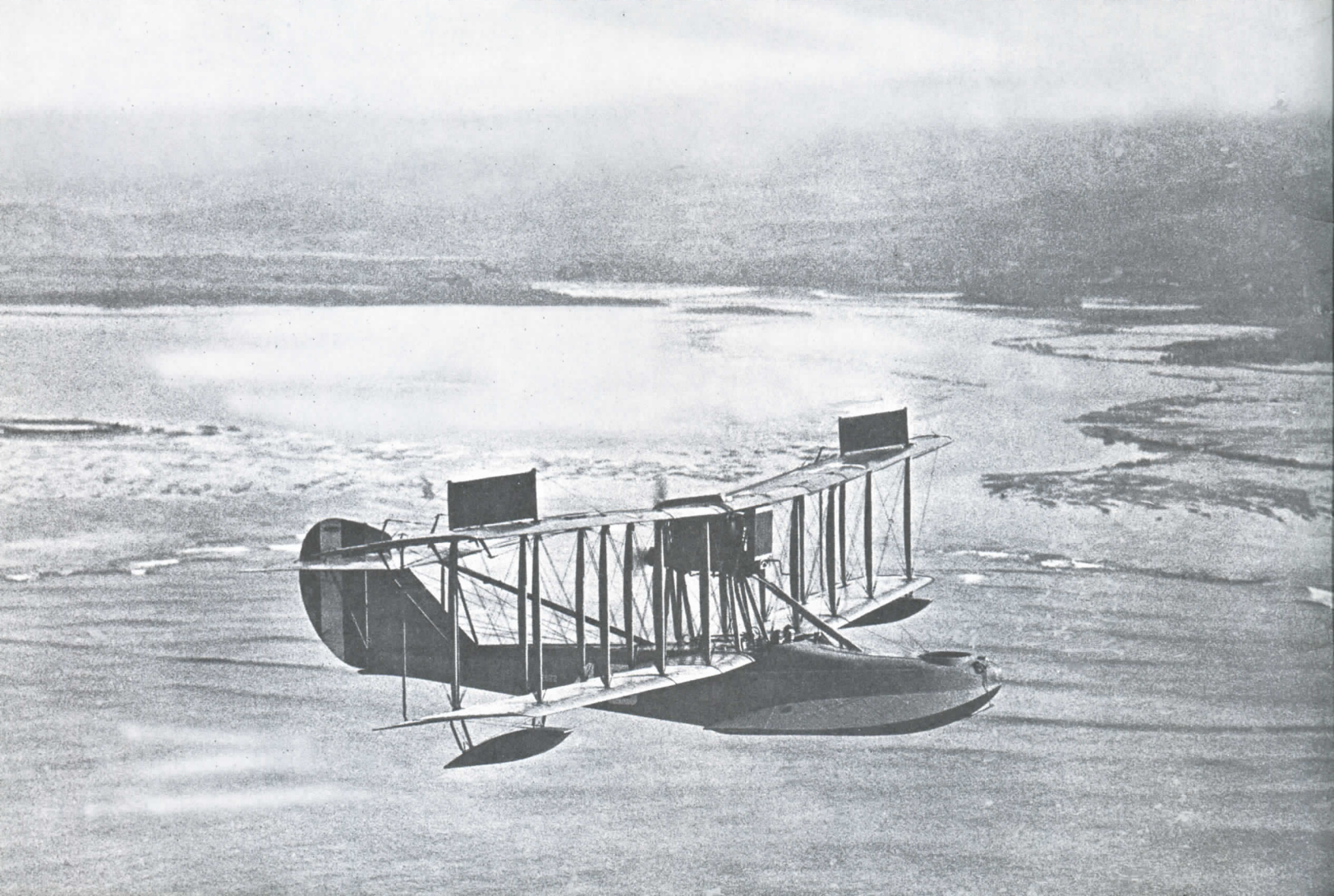




THE STORY OF COAST GUARD AVIATION



THE STORY OF COAST GUARD AVIATION

BY COLONEL ROBERT H. RANKIN, USMC, AND NORMAN N. RUBIN

(As brought up to date by Public Information Division, U.S. Coast Guard)

IT ALL BEGAN back in 1915. Since that time Coast Guard aviation, although never great in numbers of personnel or equipment and constantly battling against odds, has established a proud record of achievement. Never numbering more than 2,000 officers and 440 aircraft at any one time—this during the height of World War II expansion—it has, among other things, been directly responsible for saving more than 8,000 lives at sea.

Although Coast Guard aviation dates officially from an act of Congress dated August 29, 1916, authorizing the Treasury

Department to establish 10 Coast Guard air stations along the coasts of the United States, the story really begins a year earlier. One of the duties engaging the attention of the Coast Guard at that time was that of searching the sea lanes for

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Coast Guard Lieutenant Stone was copilot of the Navy's NC-4 (left) on its history making flight from the United States to Europe via Newfoundland and the Azores in May 1919.

derelict schooners. Reflecting on the difficulties often attendant upon locating these vessels with surface craft, two young officers, 2d Lt. Norman B. Hall and 3d Lt. Elmer F. Stone of cutter *Onondaga*, decided that flying machines might offer a far better means of performing the job. Their idea received the enthusiastic support of their commanding officer, Capt. B. M. Chiswell.

At that time *Onondaga's* base was Hampton Roads, Va. Nearby, at Boat Harbor Point, Newport News, was one of the early flying schools operated by the Curtiss Aeroplane & Motor Co. principally for the purpose of training pilots for the Canadian service. Hall and Stone found an interested supporter in Capt. Thomas A. Baldwin, a pioneer balloonist and pilot, who was manager of the school. He thoroughly supported their views that the airplane could serve a useful purpose in locating derelicts, in beach patrol duties, in rescue work, and in the whole catalog of other responsibilities charged to the Coast Guard. Baldwin arranged for the two officers to be flown on a number of experimental flights in a Curtiss "F" flying boat, one of the first successful flying boats developed. There were no facilities for navigation, and it was not feasible to get out of sight of land in their underpowered craft, yet their range of observation and operation

was so great in the air that the flights conclusively demonstrated the practicability of their ideas.

Captain Chiswell and his two young officers then set about to sell aviation to Coast Guard officials. In the spring of 1916, when the *Onondaga* was at Washington, D.C., Captain Chiswell took the opportunity to entertain on board Glenn H. Curtiss, famous pioneer airplane designer and manufacturer and a longtime Government contractor, and Assistant Secretary of the Treasury, Byron R. Newton. (Newton as a young newspaper reporter had witnessed the first flight of the Wright brothers at Kitty Hawk. It is related that when he filed his first-hand account of that momentous occasion he was immediately fired from his job, his editor maintaining that only a drunkard would dream up a story about a successful flying machine.) The idea developed during the meeting aboard the *Onondaga* is contained in a letter which Chiswell wrote to a Construction Corps officer at Coast Guard Headquarters, as follows:

"If practicable, please mail me as soon as convenient plans, specifications, and blueprints of a type of motor surfboat which you may regard as best adapted to the following:

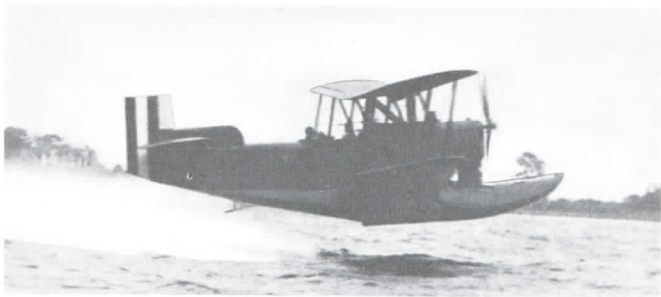
"Mr. Glenn H. Curtiss, at luncheon with Mr. Newton on the *Onondaga* last Sunday, suggested that it might be practicable to convert a surfboat into a flying boat with wings and motor so arranged that they



The Curtiss Flying Boat was one of the earliest aircraft used by the Coast Guard for patrol duty and search and rescue missions.



Flown by a Coast Guard pilot, the Navy's NC-4 made history in May 1919 on its historic flight from the United States to Europe.



This Loening OL-5 amphibian was the first aircraft purchased especially for Coast Guard aviation in 1926.



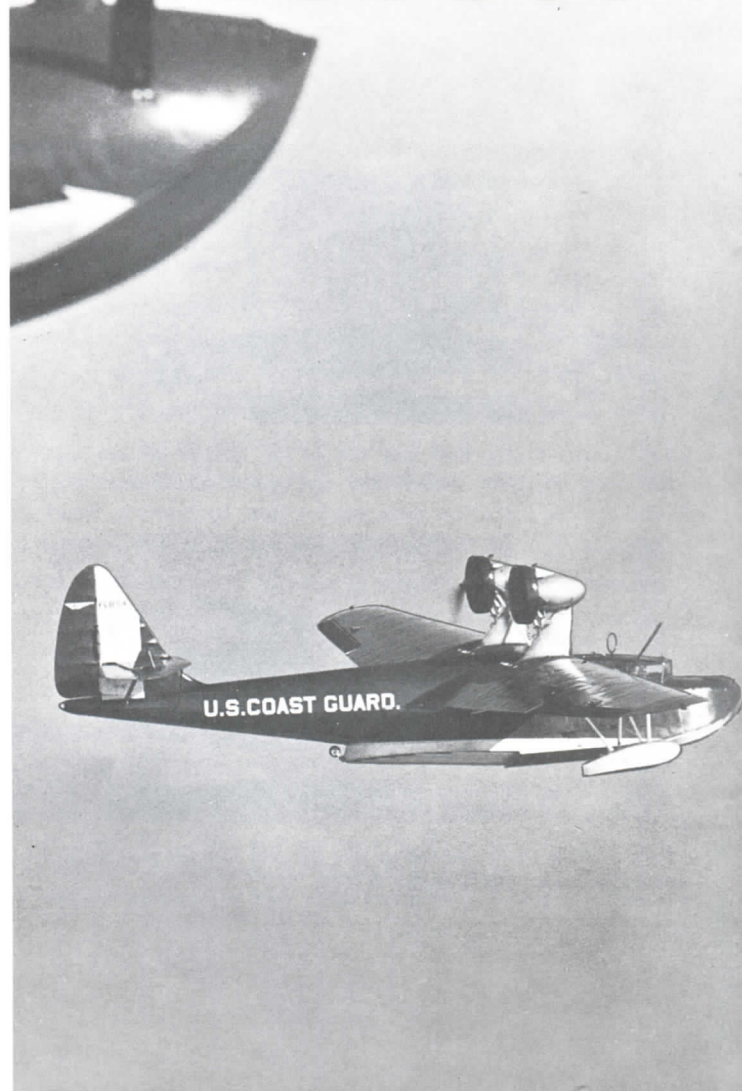
These single-float Vought UO-4 seaplanes proved very useful to the Coast Guard in apprehending rumrunners in the 1920's.



The Douglas monoplane amphibian, later converted to a flying boat, was one of many similar types purchased during the 1930's.



In 1931 the Coast Guard purchased five small Viking flying boats. They were lightweight, two-passenger, biplane types.



could be quickly eliminated when the boat lighted on the water and within a few minutes it would be, instead of a flying boat, an ordinary motor surfboat. If the lifeboat is better adapted, send lifeboat. He promised to think about it and I am going to try to encourage him."

The original idea to fit wings, powerplant, propeller, and control surfaces to a standard Coast Guard surfboat proved impracticable. Thereupon Glenn Curtiss, the inventor and original developer of the flying boat, designed and built his "life boat" plane. This was a triplane flying boat with short, boat-like hull and with the control surfaces mounted high to the rear on tail booms. (This idea of the short, boat-like hull with tail surfaces mounted aft on outriggers would be employed later by Curtiss and Navy aeronautical engineers in the design of the Navy's famous trans-Atlantic flying boats, NC-1, -2, -3, and -4.) Twin four-bladed propellers mounted out in front of the wings were turned by a single engine mounted in the hull. Wings, control surfaces, and propellers could be easily cast off. The hull could then proceed on the surface under its own power. Unfortunately, by the time this craft had been completed, the United States was engaged in World War I and all further experiments were stopped.

This "Arcturus" flying boat was one of five similar craft bought by the Coast Guard between 1933 and 1936.

In the meantime Coast Guard Headquarters took an active official interest in the ideas of Captain Chiswell and Lieutenants Hall and Stone. Capt. Charles A. McAllister, Chief Engineer of the Coast Guard, drafted tentative legislation looking to the creation of an aviation section and the commandant, Capt. E. P. Bertholf, queried the Navy Department concerning the possibility of training Coast Guard officers as pilots. It was agreed that the Navy would accept two Coast Guard officers for training at the newly-established Naval Air Station at Pensacola, Fla., and on April 1, 1916, 2d Lt. Charles E. Sugden and 3d Lt. Stone were ordered to proceed to that station. Second Lieutenant Hall, who with Captain Chiswell and Lieutenant Stone was responsible for the introduction of the aviation idea, by virtue of his education as a professional naval architect, was ordered on October 28, 1916, to the Curtiss Aeroplane & Motor Co.'s factory at Hammondsport, N.Y., to study aircraft engineering and construction.

Concurrently, legislation promoted by the Aero Club of America and sanctioned by the Treasury Department was introduced into the Senate. This proposed legislation provided \$1,500,000 for the establishment of an "Aerial Coast Patrol," this to operate as an auxiliary of the Coast Guard.

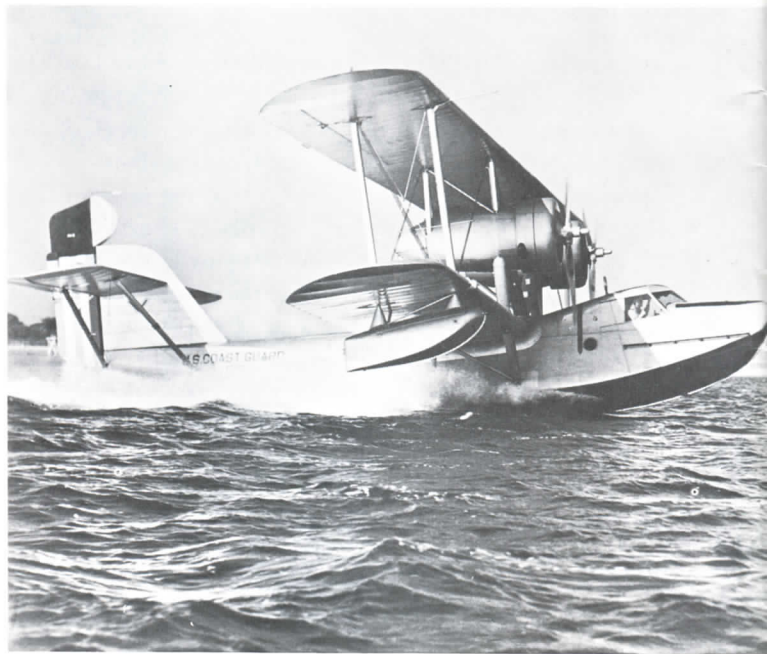
Almost simultaneously the proposed legislation previously worked up by Captain McAllister was revamped. When sub-



This Douglas RD-4 amphibian was 1 of 10 of the new improved type commissioned by the Coast Guard in 1934 and 1935.



An all-metal Northrop Delta was acquired in 1935 and used 5 years as a utility plane and for personnel transport. Its versatility made it valuable for Coast Guard uses.



The PH-3 Hall Boat seaplanes with a range of over 2,000 miles were the "big boats" of the Coast Guard's aerial patrol fleet of the late 1930's.

mitted, it received congressional approval and was signed into law by the President on August 29, 1916. This legislation, a part of the Naval Appropriation Act of that year, provided for a total of 10 Coast Guard air stations to be established along the Atlantic and Pacific coasts, the Great Lakes, and the Gulf of Mexico. Provision was made for the establishment of a Coast Guard aviation school, and an aviation corps was authorized, this to consist of 10 line officers, 5 engineer officers, and 40 enlisted mechanics. Implementing funds were not provided for and, in spite of repeated efforts, Congress refused to grant the money required to make the act operative.

Authorization was obtained in the meantime to train an additional 16 coastguardsmen at the Naval Air Station, Pensacola. Thus, 18 aviation pilots, an aviation engineering officer, and an office at Coast Guard Headquarters, with the legend on the door reading, "Inspector of Aviation," constituted the Coast Guard air section as this country entered World War I.

Coastguardsmen gave a very good account of themselves in World War I, and the members of the aviation section were no exception, these being assigned to the Navy's Aviation Division and ordered to naval air stations in this country and abroad. One Coast Guard air officer became commanding officer of the Naval Air Station, Ille Tudy, France, and was

honored by the French Government with the award of Chevalier of the Legion of Honor. Naval air participation in World War I was, of course, limited by the nature of the conflict and permitted but little opportunity for action over the lines or in actual combat.

With the end of the war, the Coast Guard returned to the jurisdiction of the Treasury Department. In the unsettled times following the war, Coast Guard aviation was all but lost, no provision being made for it in any way. In fact, it seemed doubtful that it had any future at all. The dedicated souls in the Coast Guard who wore the cherished wings of a naval aviator were more convinced than ever before, however, of the contribution which the flying Coast Guard could make to the country in peace time. Then an event occurred which gave them hope. The three Navy flying boats, NC-1, -3, and -4, in May 1919, took off on a flight across the Atlantic to Europe, via the Azores, to demonstrate the reliability and usefulness of big, patrol-type flying boats. Copilot of the NC-4, the only one of the three flying boats successfully to complete the journey and the first airplane ever to fly the Atlantic, was Lt. E. F. Stone of the Coast Guard, the only non-Navy man in any of the crews.

The successful crossing of the Atlantic by the NC-4 had far-reaching effects. Among other things, it demonstrated the

soundness of the big flying boat concept, proved the feasibility of long distance, over-water flying and navigation, and did much to sell both the general public and the Government on the worth of aviation. Nevertheless, at least 2 more years passed before there was any Coast Guard aviation activity, and then it was extremely limited. In the meantime, Stone served at the Naval Aircraft Factory, where he was responsible for the powder catapult which was used until the advent of World War II to launch aircraft from cruisers, battleships, and other vessels.

Fortunately the Coast Guard commandants have always made positive efforts to keep the air concept alive. Typical was the action in 1920 of Rear Adm. William R. Reynolds, commandant at that time, in obtaining six Curtiss HS-2L flying boats on loan from the Navy's Bureau of Aeronautics. These were used in establishing the Coast Guard's first air station at Morehead City, N.C., opened on March 24, 1920. Although no operating funds had been appropriated, the station functioned on an experimental basis aimed at demonstrating the value of aviation in the performance of Coast Guard duties. Although these flights were a complete success, the Government did not take cognizance of them, nor provide positive financial support. So, after some 15 months of operations, the Morehead City station was closed. The

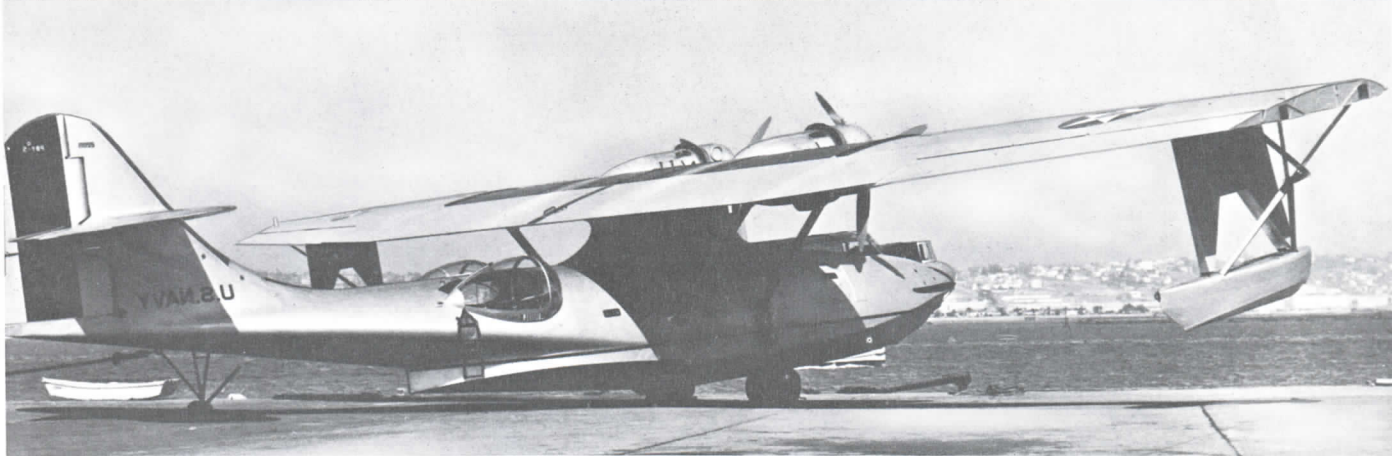
aircraft were returned to the Navy, then declared obsolete and destroyed. In spite of the strong representations made before Congress by Admiral Reynolds, the aviation program was denied Government blessing. It was not until 4 years later that there was again any aviation activity in the Coast Guard.

During the mid-1920's rumrunning became so flagrant that surface craft were unable to cope with it. Again it was decided to demonstrate the usefulness of Coast Guard aviation. This time the demonstration received official notice and action. Early in 1925 Lt. Comdr. C. G. von Paulson secured the assistance of Commandant Rear Adm. Frederick C. Billard in obtaining the loan of a Vought UO-1 seaplane from the Navy for a year. For a time this seaplane was based at the Naval Reserve Air Station at Squantum, Mass. Then it was operated from a small base established on Ten Pound Island in Gloucester Harbor.

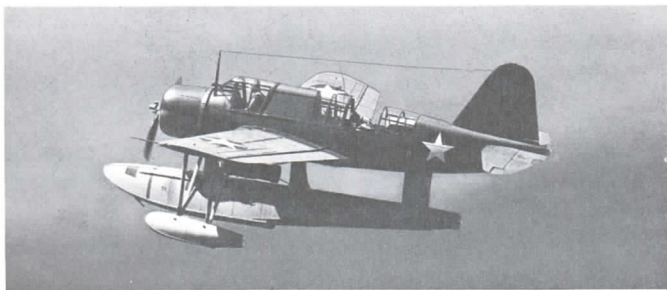
In 1925 a schedule of daily patrol flights substantially curtailed the rumrunning in the area. As a sideline to the patrol flights, the staff at the base gave instruction to Coast

The last big seaplanes operated by the Coast Guard were P5M Martin Marlins, transferred to the Navy in 1961.





*Over 100 of the PBV Catalinas were used for Coast Guard air patrol and air-sea rescue in the 1940's.
This is a seaplane. Most Coast Guard aircraft were amphibian models.*



The Vought OS2U-3 planes carried the burden of antisubmarine warfare early in World War II.



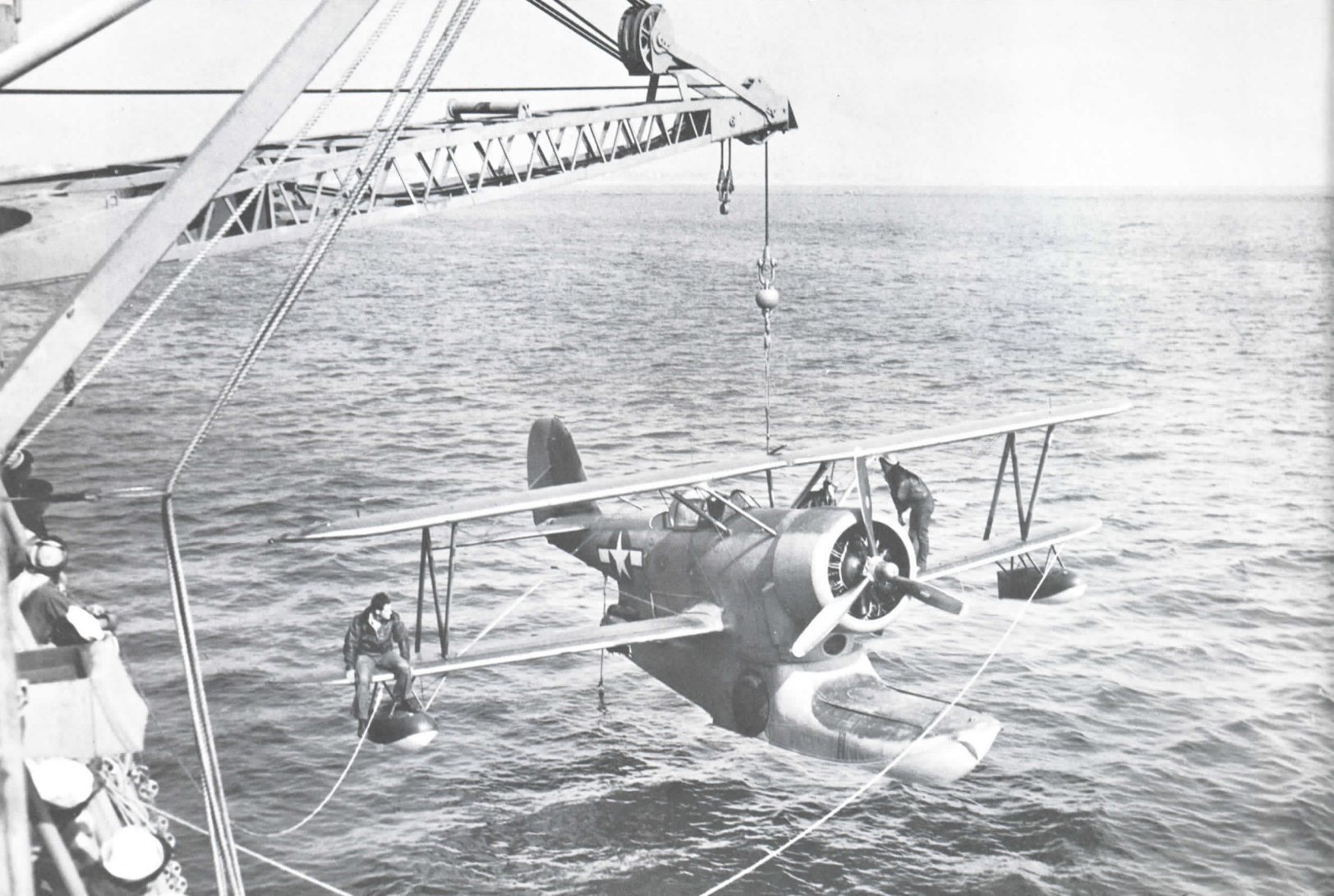
Basically a scout-observation type aircraft, the SO3C, Seagull, could be fitted with float landing gear and used for combatting submarines.



For many years, the Douglas DC-3 (C-47) was the most widely used aerial transport in the world both commercially and by the Armed Forces.

The DC-4 (C-54) was used by the Coast Guard for missions requiring the greater range and speed of the four-engine Douglas.





Guard aviation students and performed a number of experiments in the use of radio communications between aircraft in flight and between aircraft and ship-ground stations. One of the most important achievements in this latter area was the development of the first loop-type radio direction finder.

Impressed by the activity of the air station at Ten Pound Island and plagued by the increasing operations of rum-runners in other areas, Congress finally appropriated \$152,000 for the purchase of five aircraft. These planes were the first the Coast Guard could claim as its own, all previous equipment having been borrowed from the Navy.

In 1926 an air station was opened at Cape May, N.J., the Navy again cooperating by making a portion of its air facility at that place available to the Coast Guard.

Another great stride forward was made in 1930 when Congress appropriated a substantial sum of money for additional aircraft and equipment.

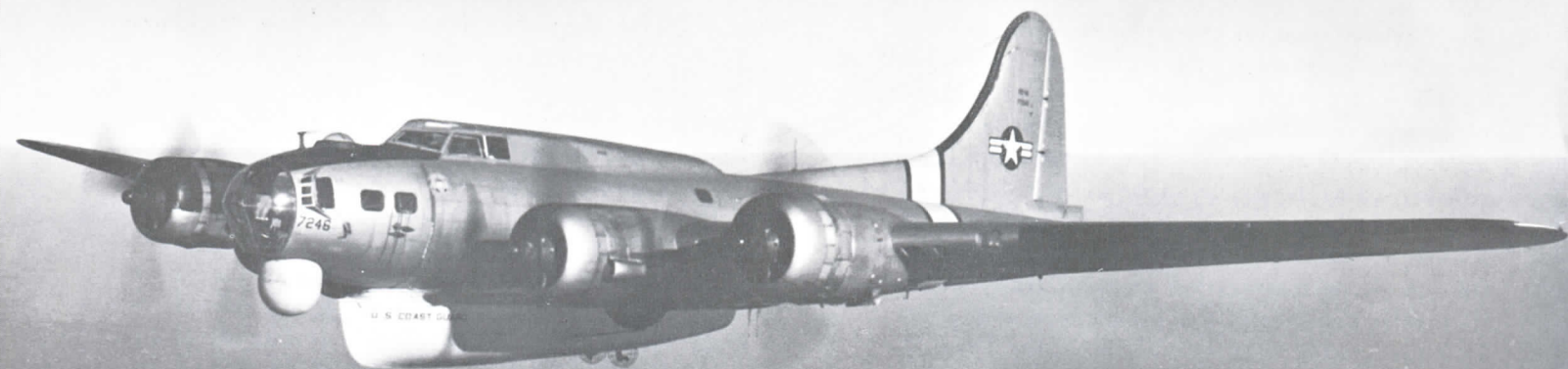
Up until 1932 funds had been so limited that the Coast Guard could not usually afford to establish specifications. Consequently aircraft were most often limited to "off the shelf" types developed for the Army and Navy or for civilian

use. With the funds now made available, it was almost possible to "custom tailor" planes to Coast Guard specifications.

Beginning in the early 1930's Coast Guard aviation progressed steadily. In 1933 an air station was commissioned at Dinner Key (Miami), Fla. The following year all Treasury Department aviation activities were consolidated under the Coast Guard. At this time the Customs Service turned over 15 aircraft to the Coast Guard. These planes had been confiscated for law violations, including smuggling and violation of flying regulations. These were light private planes and commercial aircraft types. Some were flown for a time, but after several crashes all but two were condemned in the interest of safety and standardization. During this same year the Navy turned over six Vought O2U-2, scout-observation, two-place biplanes to the Coast Guard. Although obsolete as Navy aircraft, they were useful for law enforcement and antismuggling operations.

Sufficient flying equipment was not available to activate three new air patrol detachments, at Buffalo, N.Y.; San Antonio, Tex.; and San Diego, Calif. During subsequent years appropriations made possible the purchase of additional aircraft and the opening of new stations. By 1940 the Coast Guard had a total of 50 aircraft, many built especially to

In World War II, the larger Coast Guard cutters carried on deck Grumman J2F-5 Duck amphibians for reconnaissance flights.





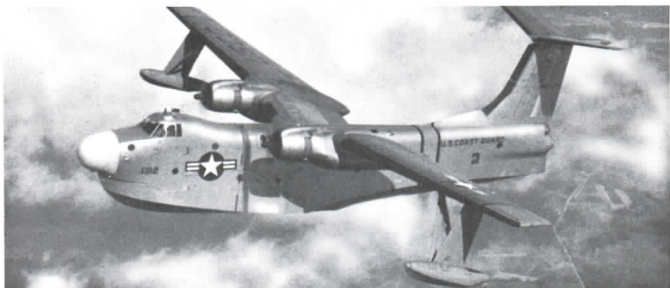
A Piasecki HRP-1 helicopter was one of three such craft which joined the Coast Guard air fleet in 1948. It was the forerunner of a series of "whirlybirds" which contributed substantially towards increasing the Coast Guard's search and rescue capabilities.

Eighteen Boeing PB-1G aircraft (left) acquired during the mid-1940's were B-17H bombers which had been modified to accommodate a lifeboat under the fuselage. Several of these aircraft were based at the Coast Guard Air Station in Brooklyn, N.Y.

meet Coast Guard specifications. These aircraft operated from coastal air stations, at Salem, Mass.; Brooklyn, N.Y.; Elizabeth City, N.C.; Miami, Fla.; St. Petersburg, Fla.; Biloxi, Miss.; New Orleans, La.; Corpus Christi, Tex.; San Diego, Calif.; San Francisco, Calif.; and Port Angeles, Wash. These air stations were located strategically in coastal areas where opportunities for tying in with ships and the lifeboat stations in rescue activities were greatest. Inasmuch as the Coast Guard is a part of the Navy during war, the location of these stations was planned so as to enable them to be a part of the national defense pattern. An Air Patrol Detachment was also located at Traverse City, Mich., with a view to determining an acceptable location for an air station on the Great Lakes. For the most part, the air stations were located on sheltered waters near the coast, where both land and sea planes could operate safely and effectively.

With the advent of the war in Europe in 1939, the U.S. Government organized a neutrality patrol. Coast Guard personnel, vessels, and aircraft participated actively in this work. Then, in April 1941, with the signing of an agreement with Denmark for the protection of Greenland, Coast Guard aviation responsibilities were greatly increased. Cutter-based planes took part in widespread antisubmarine and coastal patrol activities in enforcing neutrality on the high seas.

As the international situation deteriorated, and some weeks



A large, radar-equipped flying boat, the Martin Marlin P5M-2G was used for long range air-sea rescue work.



The 71 HU-16E Grumman Albatross amphibian now in service make up the backbone of the Coast Guard's air fleet.

before Pearl Harbor, the Coast Guard by order of the President was transferred to the Navy. Coast Guard aviation came under the operational direction of the Navy Area commanders who were, in turn, under the commanders of the several Sea Frontiers. With the entry of this country into World War II, routine Coast Guard duties were subordinated or, in some instances, completely discontinued, in the interests of national defense. Rescue activities were greatly accelerated with the increased size and scope of military and naval air programs which entailed increased overwater flying. In addition to this activity Coast Guard aviation was charged with assisting and supporting the Navy in convoy coverage, antisubmarine warfare, and patrol and rescue activities.

From Pearl Harbor until the end of World War II, Coast Guard aircraft delivered 61 bombing attacks on enemy submarines, located some 1,000 survivors of downed aircraft and torpedoed surface craft, and actually took part in the rescue of 95 of these.

During 1943 a Coast Guard patrol bomber squadron was activated for antisubmarine patrol duties in the Canadian Arctic, Iceland, and Newfoundland. At the same time patrols were made in northeast Greenland for ice observation, searches for enemy landings, and weather station activities.

Some months earlier, in December 1942, the Coast Guard participated in the establishment of the first U.S. air-sea rescue unit, which was organized at San Diego when the increasing number of military and naval flights in that area demonstrated a real need for a well-organized agency whose primary function would be that of rescuing flyers forced down at land or sea. It had become apparent that independent rescue activities by the Army, Navy, Marine Corps, and Coast Guard were resulting in confusion and duplication of effort. Upon the suggestion by the Coast Guard that a single agency coordinate all efforts, the Secretary of the Navy in March 1944, established an Air-Sea Rescue Agency, headed by the Commandant of the Coast Guard. Army, Navy, Marine Corps, and Coast Guard representatives were members of this agency, which was charged with coordinating operations; conducting joint studies; recommending methods, procedures, and techniques; and disseminating information.

During World War II the Coast Guard operated Navy aircraft, including Grumman JF, J4F, and JRF amphibians; Consolidated PB2Y flying boats and amphibians; Consolidated PB2Y and Martin PBM flying boats; Douglas R4D *Skytrain* and R5D *Skymaster* transports; Vought OS2U scout-observation planes; and others. At the end of the war most of these were returned to the Navy Bureau of Aeronautics,

but a few were turned over to a variety of organizations and agencies, including Mutual Defense Assistance Program, U.S. Air Force, War Assets Administration, Fish and Wildlife Service, and the National Advisory Committee for Aeronautics. The few retained by the Coast Guard were gradually replaced by more modern aircraft.

During World War II and after, the Coast Guard became active in helicopter development. The advantages of this particular type of aircraft had long been accepted; the problem was to adapt it to Coast Guard requirements. Coast Guard aviation engineers have constantly studied the development of new aircraft, as well as the modification of existing production aircraft, to meet Coast Guard specifications. In 1942 personnel of the Aeronautical Engineering Division proposed a "flying lifeboat," fitted with fore-and-aft rotors, a feature later to be employed on large helicopters. At that time, however, the only successful helicopter in this country was equipped with side-by-side rotors. Other Coast Guard helicopter studies and proposals included those of removing the regular monoplane wings from Douglas RD-4 and Grumman JRF-2 amphibians and substituting stub wings and a helicopter rotor system. Another interesting study proposed a rotary-winged glider, this to be towed behind a search plane and cast off, landing



An HH-19G helicopter from the U.S. Coast Guard Air Station, San Francisco, Calif., demonstrates use of a hydraulic-hoisted basket.

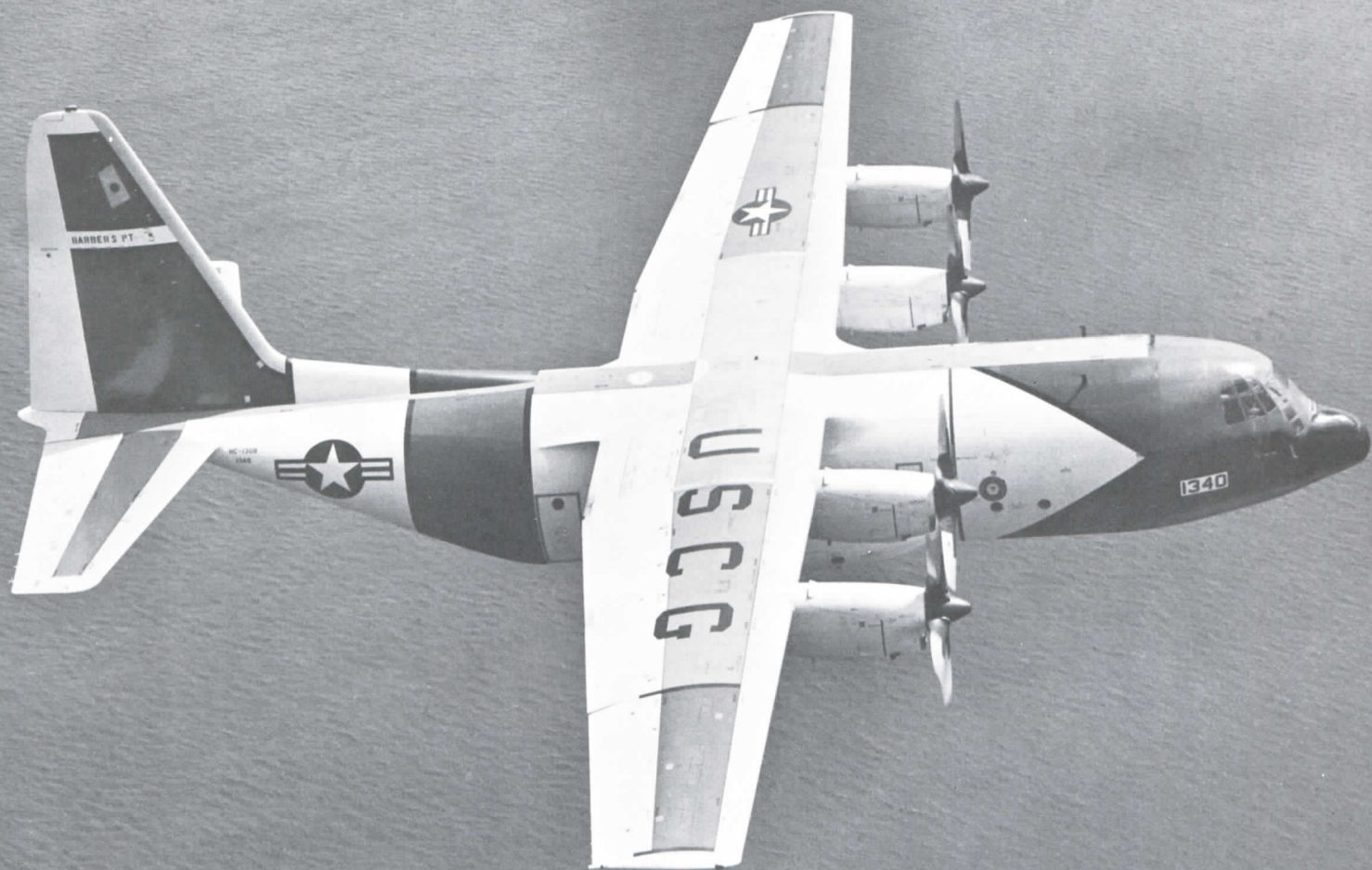


Between 1939 and 1954, the Coast Guard employed JRF's, also known as the "Goose." Its range was 800 miles at 1,500 feet.



An HH-19G helicopter tows the 794-ton buoy tender BIRCH as part of a test to determine the potential use of the helicopter in towing fishing, pleasure, and other types of vessels in air-sea rescue operations.

The first turbine-propelled aircraft to enter Coast Guard aviation, the HC-130B, was accepted early in 1960 as the first step in the Coast Guard's program of modernizing its air fleet. A four-engine, all-weather, high-speed, long-range, land plane, its primary mission is search and rescue. It also transports personnel, equipment, and cargo.



vertically when needed. The rotors were designed to be jettisoned when the craft alighted on the water. It would then proceed along on the surface under its own power. The crew was to be a pilot, copilot, and a doctor. None of these proposals ever progressed beyond engineering drawings.

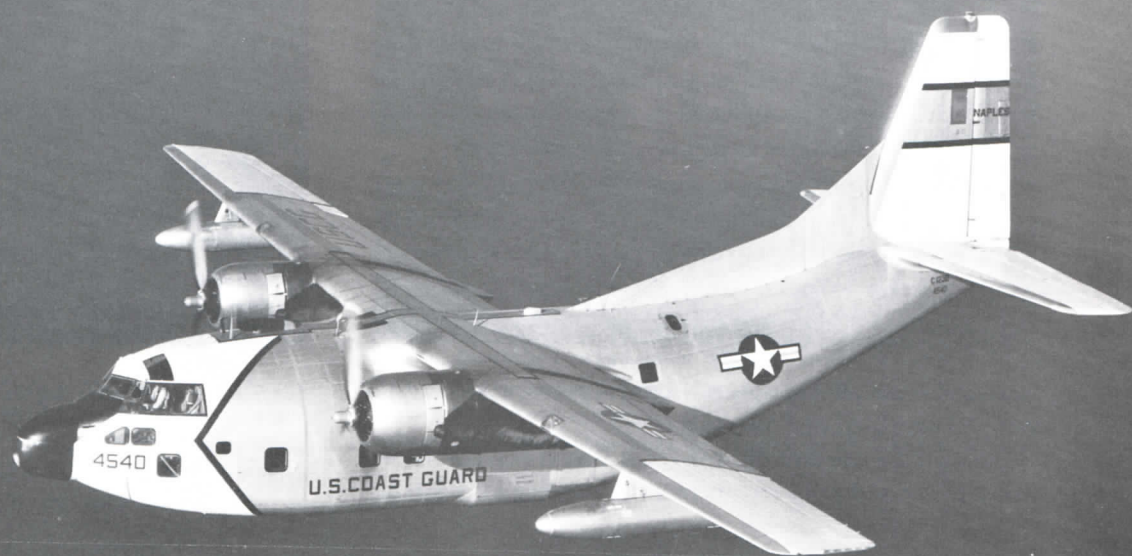
On the helicopter operations side there was considerable activity. When in November 1943, the Coast Guard air station at Floyd Bennett Field, Brooklyn, N.Y., was designated a Coast Guard helicopter training base, three Sikorsky HNS helicopters were loaned by the Navy to get the project under way.

Shortly after this, the British Admiralty asked the Coast Guard to train a number of helicopter pilots and mechanics for the British service. The Admiralty supplied four helicopters for this purpose. More than 100 pilots and 150 mechanics were trained under this program. In addition to purely military uses, such as antisubmarine patrol duties, the Coast Guard demonstrated and continued to experiment with and employ helicopters in rescue and relief missions, which missions it could perform exceptionally well. The versatility and maneuverability of the helicopter makes it ideal for many Coast Guard operations.

Following World War II the Coast Guard was returned to the Treasury Department. At this time the Air-Sea Rescue Service noted above was abandoned. Nonetheless, in view of continued and ever-increasing over-water aviation activities, both commercial and military, the need for such an organization continued. Consequently the Secretaries of Commerce, Treasury, and Defense, and the Chairman of the Civil Aeronautics Board and the Federal Communications Commission in the early summer of 1956 signed an agreement for the creation of a new air-sea rescue organization named the Search and Rescue Agency. To avoid confusion and duplication of effort, the Coast Guard has been assigned Search and Rescue responsibility over water, while the U.S. Air Force has been assigned Search and Rescue responsibility over the land area of the United States.

Presently the Coast Guard has 146 planes operating from air stations at Salem, Mass.; Brooklyn, N.Y.; Miami, Fla.; St. Petersburg, Fla.; Traverse City, Mich.; San Diego and San Francisco, Calif.; Port Angeles, Wash.; and from air detachments at Washington, D.C.; Quonset Point, R.I.;

A Coast Guard C-123B flies over the beautiful bay of Naples, with the Isle of Capri in the background, on a logistic mission.



Biloxi, Miss.; Savannah, Ga.; Houston, Tex.; Los Angeles, Calif.; Corpus Christi, Tex.; New Orleans, La.; Argentina, Newfoundland; Bermuda; San Juan, P.R.; Barbers Point, Hawaii; Kodiak, Alaska; and Annette, Alaska.

Because the cost of aircraft has increased so greatly during the last 20 years, it is no longer feasible for the Coast Guard to underwrite development costs of special aircraft types. The present policy is to adopt existing types, having necessary changes built into them on the production line. Also, whenever and wherever possible, an attempt is made to have Coast Guard requirements incorporated in the design stages of aircraft sponsored by other branches of the government.

Coast Guard commissioned officers qualified to fly aircraft are officially classified as "aviators." These are trained at the Naval Air Station at Pensacola, Fla. Presently there are some 450 officer aviators, and 2,065 enlisted men in Coast Guard aviation. Other than aviators and pilots, personnel in Coast Guard aviation include mechanics, radiomen, radar operators, aerial photographers, flight surgeons, engineer officers, and administrative personnel.

Although the primary duty of Coast Guard aviation is the saving of life and property, there are a number of collateral



An HH-19C helicopter hovers over the city of Miami, Fla. With a cruising speed of 75 knots and a top speed of 100 knots, the helicopter has a range of 325 miles. It is equipped for instrument and night flying and has a hydraulic hoist to pick up personnel and equipment up to 600 pounds in weight. It also may carry a sling for lifting cargo.



The HH-34F represents one of the largest of helicopters used by the Coast Guard for search and rescue work. Secondary missions for which it is suitable include: transport of personnel and cargo, reconnaissance and general utility. It carries a 600-pound rescue hoist.



The HH-19G helicopter has helped to increase the scope and efficiency of Coast Guard air operations. The 44-19 type helicopter is being replaced with the turbine-powered amphibious HH-52A helicopter.

duties which it performs. For instance, it cooperates with the Treasury Department's Alcohol Tax Unit in spotting illicit stills. It assists in the historical Coast Guard duties of enforcing the customs laws and in suppressing smuggling. Under the Coast Guard's Captain-of-the-Port Program it plays an important role in the control and inspection of shipping.

Coast Guard aviation cooperates with other Federal agencies and activities in several ways. In this respect it assists the Immigration Service in preventing the illegal entry of aliens into this country, and renders aid to the Fish and Wildlife Service by making surveys of wildlife and patrol of fishing areas.

Flying coast guardsmen also engage in numerous other activities. These include the interception and escort of trans-ocean and domestic aircraft in distress, dissemination of storm and hurricane warnings to surface craft and to isolated communities, patrolling regattas, and lending assistance in forest fire control and in flood relief work. Also included are participation in the International Ice Patrol in the North Atlantic and the supplying of isolated Government installations in Hawaiian, Alaskan, and North Atlantic areas.

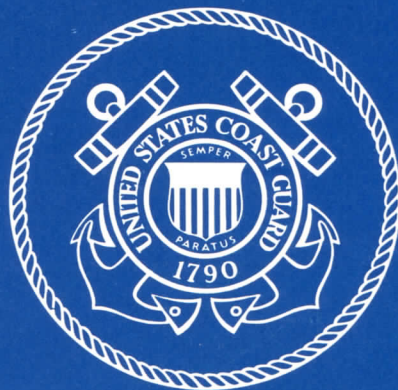


The HH-13, is one of the Coast Guard's smaller aircraft. It operates from Coast Guard cutters, and is also equipped with floats for landing on water, snow, or mud.

All photographs illustrating this article were obtained by the authors from the U.S. Coast Guard and U.S. Navy except for the NC-4 (courtesy National Archives) and the Northrop Delta (courtesy Northrop Aircraft).

In January 1963 the Coast Guard accepted delivery of its first three HH-52A amphibious helicopters shown at right. They come close to realizing the Coast Guard's dream of a flying lifeboat.





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