THE COAST GUARD AT WAR

AVIATION

XXI

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AVIATION

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UNITED STATES COAST GUARD AVIATION

Part I: National Development

The recent establishment of the Air-Sea Rescue Service in the United States marks an important milestone in the progress of Coast Guard Aviation. Although the new program requires a significant expansion in activity, it represents no real departure from traditional Coast Guard experience. For over a century and a half the Coast Guard has served as the nation's chief rescue agency on land and sea and, in modern times, has greatly extended its operations by rescue services from the air. The rapid development of the aviation branch of the Coast Guard is one of the most remarkable contributions of the war effort on the home front. During a brief twenty years of history, it has achieved a recognized position among our armed forces that cannot be easily underestimated. Since the beginning of hostilities Coast Guard aircraft have not only taken an active part in offensive operations against the enemy but have rendered distinguished service in extensive coastal patrols, convoy and escort duty and in all forms of rescue and assistance operations. Nor is this extra-ordinary growth a mere temporary wartime development. If the present success of the Air-Sea Rescue Service is any harbinger of its post-war expansion, Coast Guard aviation will play an even more prominent role in the future than it now occupies.

INCEPTION OF COAST GUARD AVIATION

The idea of using airplanes as an adjunct to the regular Coast Guard service was firmly implanted in the minds of aviation pioneers long before a separate aviation unit was realized. As early as 1915, three imaginative Coast Guard officials at Hampton Roads, Virginia, conceived the plan of an air patrol in search of disabled schooners along the Atlantic seaboard that were constantly in need of Coast Guard assistance. The late Captain B.M. Chiswell, then in command of the CG Cutter, ONONDAGA, stationed at the port of Hampton Roads, enlisting enthusiastic support of two of his junior officers,[1] presented the project to "Captain" Baldwin in charge of Curtis Field. A plane was secured on loan and the experiment began. The results proved so successful that the two younger men requested, and obtained, permission to continue their interest in flying. Stone was sent to the Naval Training School at Pensacola to become a pilot, while Hall was assigned to the Curtis Plane and Motor Company at Hammondsport, New York, where he learned how to build aircraft. Several other personnel of that first Coast Guard class at Pensacola were to distinguish themselves during the First World War. Stone became a Navy pilot on the cruiser HUNTINGTON, Hall was advanced to the office of

1. Lieutenants Norman B. Hall and Elmer F. Stone both became well known in later aviation circles.

COMMODORE NORMAN B. HALL

Inspector of Naval Aircraft at the Curtis Plant, and others of the group detached to various air stations in France or the United States.[1] America's entry into the war in 1917, brought an end to these pioneer ventures. When the Coast Guard again took up its normal peacetime functions the momentum had been lost. The struggle was begun all over again by those men who had served as naval aviators during the war period. However, several years were to elapse before sufficient funds were obtained to set up an independent aviation unit.

EARLY DEVELOPMENT OF COAST GUARD AVIATION

Formally a Coast Guard aviation division was born on the twenty-ninth of August, 1916, when an Act of Congress authorized the Treasury to establish ten Coast Guard air stations along the coasts of the United States. However, with the advent of war a few months later in 1917, the new program was shelved for the period of the duration. It was not until 1921 that an air base was actually organized at Morehead City, North Carolina, although it was shortly doomed to an abortive death. After about a year of successful, if limited, operation, it was discontinued because of insufficient funds. Nevertheless, the effort had not been in vain. With a few obsolete planes which it had borrowed from the Navy, the Carolina station had succeeded in demonstrating the feasibility of aviation in the performance of Coast Guard duties. Meanwhile, interest in aviation was growing apace. The handful of aviators then enrolled in the Coast Guard had manifested a keen enthusiasm in sea plane development. Their active war training convinced them of the value of maintaining an aviation unit in the Coast Guard. The sensational first trans-Atlantic flight by a Navy flying boat in 1920, of which Commander Stone, USCG, was co-pilot, did more than anything else to persuade the government that coastal air patrols were practicable. Yet it took more than mere successful demonstrations to probe Congress to further action. Not until 1926 was an appropriation forthcoming and then only as a result of the national effort to curtail the activities of rum-runners operating off our eastern seaboard. Thus, paradoxically enough, the failure of probition had brought a boon to the development of aviation. The $152,000 appropriated enabled the Coast Guard to buy five new planes and to establish two air stations at Cape May, New Jersey, and at Gloucester, Massachusetts. Since that date, the service has rapidly expanded. In 1934, the Treasury was directed to consolidate all its aviation activity under the Coast Guard. The Customs Service turned over its fifteen planes to the new organization and the Navy added another six. By 1940 the service had over 50 planes operating from nine air stations, and a temporary patrol detachment covering the Great Lakes.[2] During that one year its aviators had made 4,801 flights with a total flight

1. Vide Ut Infra p.52.
2. The Coast Guard had 55 airplanes on 1 July, 1940. This force consisted principally of long range and medium range amphibious and sea planes. In November, 1941, the total included 13 long range twin-engine patrol seaplanes and 25 twin-engine amphibians. The remaining planes were mostly single-engine type, used for scouting, patrol, training and liaison duty.

COMMANDER ELMER F. STONE

time of over 13,000 hours. More than a million and a quarter miles were cruised extending over an area of better than nine million square miles. Still numerically small, the service had gone a long way from its original inception in 1915.

ADMINISTRATION ORGANIZATION

With the establishment of the nine contemporary air stations, the aviation arm of the Coast Guard became basically an integral part of the national organization. The stations were strategically located in coastal areas where opportunities for rescue services were greatest. At the same time, these bases were so distributed as to enable them to fit into the general scheme of national defense. In the event of war, all Coast Guard air stations operate as a part of the larger Naval Air Force. Administratively, the control of each station is put under the jurisdiction of the Commander of the Coast Guard District in which it is located. Immediate authority is vested in the commanding officer of the station, who is always an aviator as well as an administrative official. Most bases are located upon some sheltered body of water near the coast where both land planes and seaplanes can be effectively operated; none is located directly upon the open coast. The areas of operation vary somewhat, but the average is about five hundred miles of seacoast and the navigable waters and territory adjacent thereto. All communications likely to effect operations are routed through the air station in question.

OBJECTIVES AND DUTIES

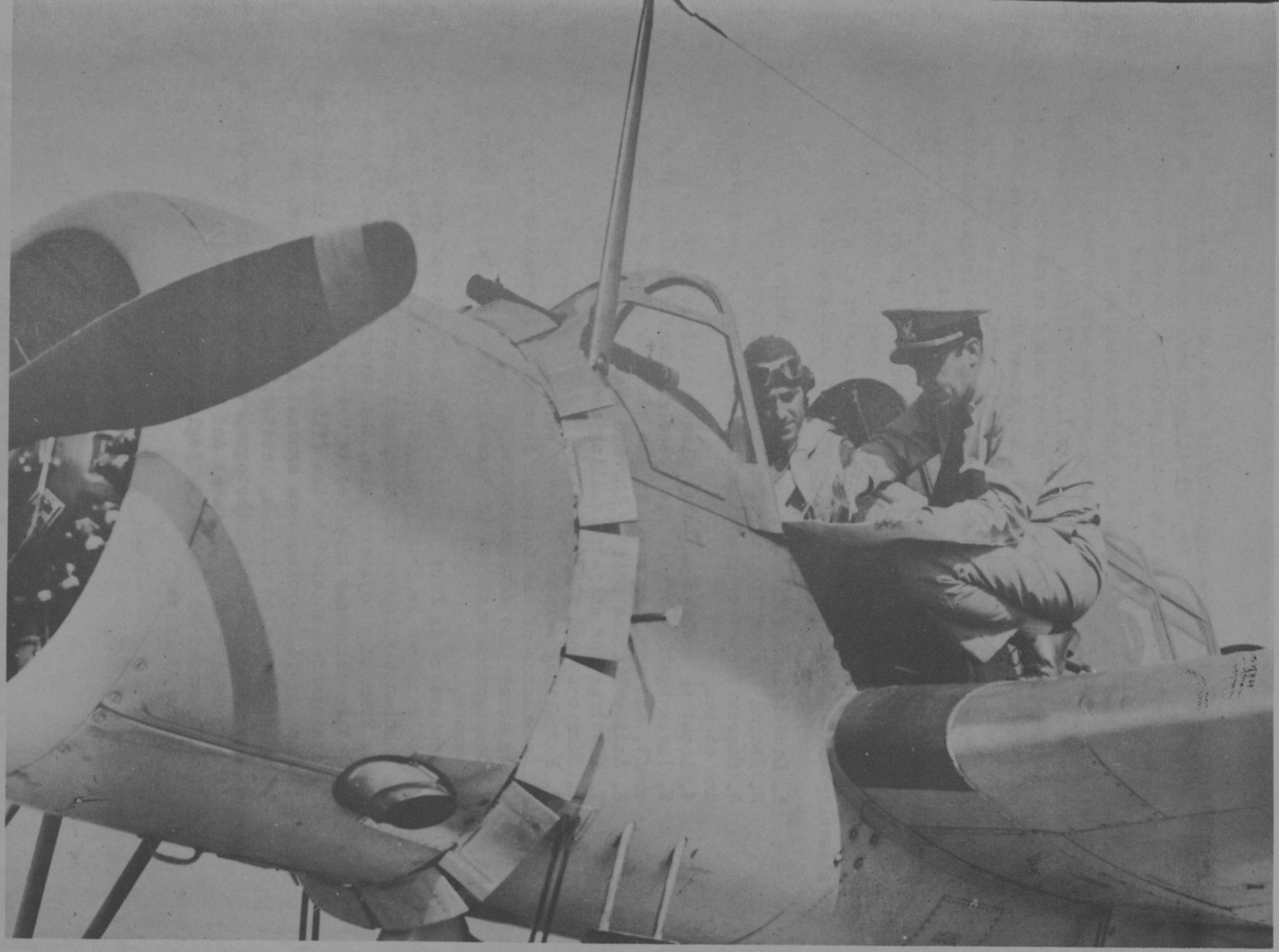
Recent trends in aviation indicated that no ship or Coast Guard shore station was a complete entity within itself. Reconnaissance from the air had become a virtual necessity of every efficient unit of the service. Therefore, the new chain of air stations distributed along the coast served as a vital connecting link for all the coordinated units of the Coast Guard. Thus the aviation branch was primarily designed to carry on the traditional and time-honoured duty of the protection and saving of life and property. Its important wartime role in national defense is only incidental to the original objective. In peacetime, the Coast Guard air forces is charged with a twofold responsibility: general functions, many of which are executed in cooperation with other governmental agencies, and specific duties required by regulation. General responsibilities are chiefly related to life-saving and general rescue work. They conveniently fall under four divisions of activity: (a) law enforcement, (b) cooperation with the Public Health Service in rendering first-aid and in removing the sick or injured from seacraft to mainland, (c) voluntary assistance, such as that furnished the fishing fleets in reporting the location of "schools" discovered, (d) since 1944, the execution of the Air-Sea Rescue program.

FIRST AID IS ONE OF THE FOUR PRINCIPAL ACTIVITIES OF COAST GUARD AVIATION

In its voluntary services the Coast Guard air force, in recent years, has cooperated closely with the United States Coast and Geodetic Survey and the Biological Survey in various lines of endeavour. Fixed duties are numerous, but they are chiefly grouped under three heads: (a) the maintenance of a constant patrol over waters and adjacent territory within the area of station administration, (b) reporting and assisting derelicts, and (c) aid rendered to persons and seacraft in distress.

EXPANSION DURING THE WAR PERIOD

With the outbreak of European hostilities in 1939 the United States organized the Coast neutrality patrol, for which the Coast Guard aviation division was largely responsible. Upon our declaration of war, 8 December, 1941, the activities of all coastal air stations, both Naval and Coast Guard, were greatly accelerated. Some weeks before Pearl Harbor the President had put the Coast Guard under the operational command of the Navy. Immediately, the demands imposed upon the normal peacetime patrols were rapidly augmented. Whenever necessary routine duties were either discontinued, curtailed, or subordinated to the urgency of national defense. Coast Guard planes were soon actively engaged in anti-submarine patrol and in convoy or escort duties. All this was in addition to the regular rescue activities which had suddenly become one of the most important jobs of the coastal air patrols. From the beginning of hostilities in 1941, to 30 June, 1943, Coast Guard aircraft delivered 61 bombing attacks on enemy submarines, located over 1,000 survivors and actually rescued 95 persons. On 5 October, 1943 the patrol Bomber Squadron Six was commissioned for active anti-submarine patrol and convoy coverage in Southwest Greenland, with detachments operating in the Canadian Artic, Iceland and in Newfoundland. Patrols made in Northeast Greenland were for ice observation, evidence of enemy landing and weather station operations. It represents the only naval squadron manned entirely by Coast Guard personnel. The submarine menace having abated by 1944, the attention of the air stations was once more focused primarily upon rescue duties. On the twenty-second of February, 1944, the Air-Sea Rescue Agency was established. While its former security patrols were not entirely discontinued they have since that date become more and more subservient to assistance and emergency flights. The Coast Guard, through its air centers, has successfully functioned as the central coordinating agency for the air-sea rescue program. During the fourteen months of its operation, the organization has striven tirelessly to perfect a highly trained personnel and to develop the most efficient rescue techniques, procedures and equipment. Already there has been a marked decrease in the percentage of lives lost through aircraft crashes.

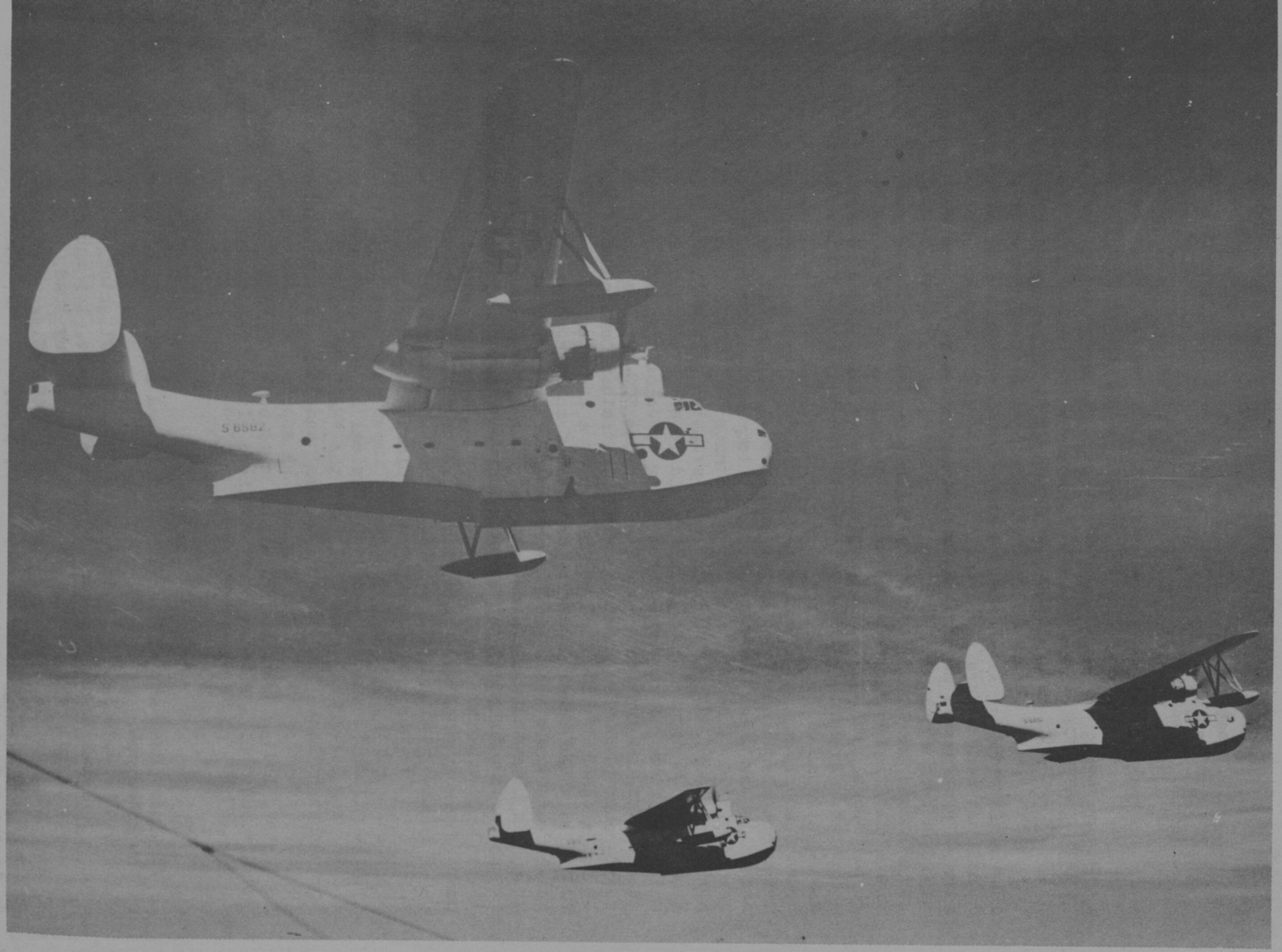


A COAST GUARD PILOT GETS HIS ORDERS BEFORE TAKE-OFF ON ANTI-SUBMARINE PATROL

SPECIFIC DUTIES

Since the beginning of Coast Guard aviation, the number and type of flights have continually expanded. In the early period of development much of its routine work consisted of enforcing the prohibition laws, but gradually the patrolling of coasts and harbors came as the chief function of all station activities. Regular patrols were organized in 1940. During the fiscal year, 1943, over 11,000 flights were made by Coast Guard planes, involving sorties against enemy submarines, aerial coverage of merchant and naval vessels, and numerous reconnaissance patrols over the off shore waters of the continental United States, Greenland, Labrador, Alaska, Canada, Mexico, the West Indies and Cuba. Although differing somewhat in nature, all flights can be generally classified as administrative, test, training, assistance, ambulance, enforcement or patrol flights. Patrols are usually "inshore", "off shore" and "anchorage", or harbor patrols. An overall picture of the various type of services performed during the quarter of a century of its development includes the following specific assignments:

1. Location of stills for the Alcohol Tax Unit.
2. Search for smugglers and illegal operations.
3. Search for vessels and small craft lost, or long overdue at sea.
4. Locating wrecked vessels, planes and derelicts.
5. Investigating suspicious vessels; identifying sea or aircraft, and scouting areas in the vicinity of ship movements.
6. Anti-submarine patrol; ice and weather patrols.
7. Scouting for ships refuelling enemy submarines.
8. Hurricane and storm warnings.
9. Patrolling regattas; convoy work.
10. Assistance of the Customs' Service in preventing smuggling across the Mexican border.
11. Cooperation with the El Paso Air Patrol in border reconnaissance.
12. Assistance in fire fighting and flood control over land.
13. Aid rendered in local blackout planning and patrolling.
14. Ambulance flights; the transportation of critical medical cases from ship to shore; also the carrying of blood plasma and other emergency supplies to vessels at sea.
15. Assistance rendered to the fisheries industry, in checking fishing craft, warning them against impending storms and in locating "schools" of fish, lobster, etc.
16. Assistance in aerial photography and in mapping expeditions, in cooperation with the Coast and Geodetic Survey.
17. Enforcement of neutrality legislation.
18. Rescue missions.



COAST GUARD PBM's ON RECONNAISSANCE PATROL

19. Observation of ice packs and storms in the Great Lakes and northern waters for the protection of ships plying them.
20. Special utility work: towing targets, conducting loran, radar and calibration tests, local surveys and particular reconnaissance observations.

EQUIPMENT: TYPES OF PLANES USED

In 1932 only three Coast Guard air stations were in operation--at Gloucester, Massachusetts, Cape May, New Jersey and Miami, Florida. A total of fifteen planes made up the air fleet with a backbone of five flying lifeboats and three Douglas Amphibians. However, it was not long before the aviation unit began to take on an appearance of progressive modernization. Within three years, the Gloucester base had been supplanted by a modern station at Salem, Mass. and four new stations established.[1] Other bases were under active consideration. All the newer units had modern hangars and barracks buildings, repair shops, radio and communications centers as well as adequate equipment. By January, 1936, 21 planes had been added to the fleet, making a total of 36. Of these ten were Douglas amphibians, fifteen Grumman amphibians, six Vought Corsair land planes, and a Northrup transport plane capable of a maximum speed of 213 miles per hour. Meanwhile the Coast Guard had achieved two amphibian records, a speed record of 174 miles per hour for a distance of 100 kilometers and an altitude record of 17,877 feet.[2] The aviation personnel had increased from 13 to 24 commissioned officers and 16 enlisted men. Before the outbreak of the present war three major types of planes were used: the twin-engine amphibian, the PH-2 and the SOC-4. The first was a short-range plane for special service in training and administration. It had a speed of 150 miles per hour with a cruising range of about 700 miles. The chief type for purposes of scouting, law enforcement and life-saving was the SOC-4 seaplane, with a maximum speed of 195 miles per hour and a cruising range of over 1,000 miles. Although it was particularly adaptable for use on cutters, it could be converted to land operations. The flying boat, upon the other hand, was mostly used for long range off shore patrol. This PH-2 had a broad cruising range of 2,072 miles, with a speed of 160 miles per hour.[3] Since our entry into the war, many new types of planes have been perfected. Older outmoded types, which had played important roles in Coast Guard aviation history, were eliminated. Typical of such obsolete planes were the "Flying Life Boat" (the PJ-1) and the "Hall Boat" (PH-2). The Grumman amphibians (the J4F or "Widgeon" and JRF), observation scouts (SOC-4), and the Navy VOS type gradually supplanted older models. In September, 1944, fewer than 70 planes were owned outright by the Coast Guard.[4] Most of its total craft consists of Navy planes assigned for

1. The individual air stations are considered separately at the end of the monograph.
2. Colonel H.S. Reisinger "Coast Guard Ambulance Flights", reprinted from U.S. Naval Institute Proceedings, vol. 62, No. 1 (January, 1936). The altitude record was based on a 500 kilogram pay load.
3. Rear Admiral R.R. Waesche, Commandant, USCG, "Wings of Mercy", National Aeronautics (September, 1939), p.38.
4. At the end of the year, 1944, the Coast Guard was operating 151 planes.

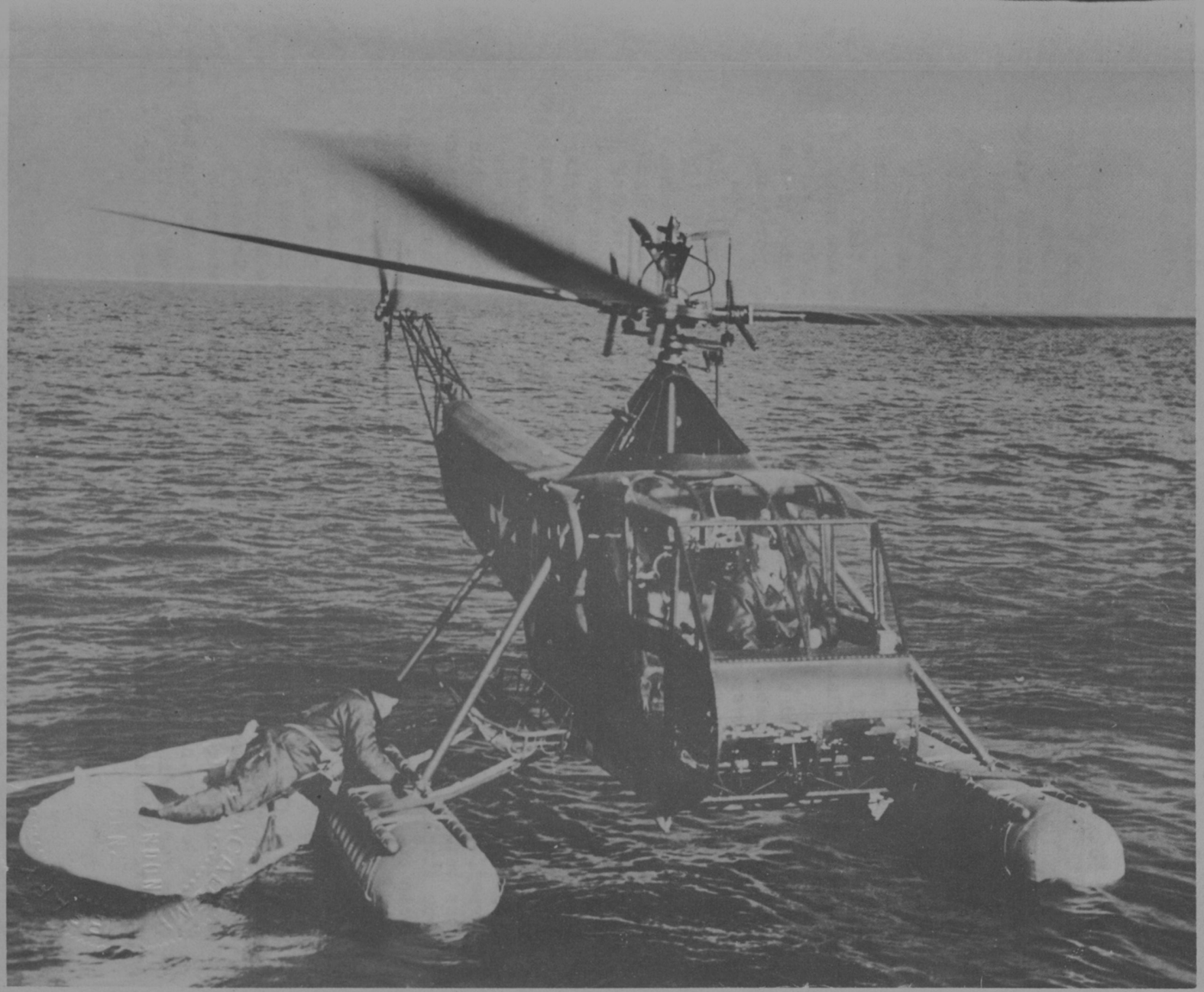
THE "HARE" AND THE "TORTOISE". COAST GUARD PLANE OVER A FISHERMAN.

operational purposes to the Coast Guard. Of these the JRF, and PBM and PBY types are the most adaptable for Coast Guard activities. The JRF is an excellent, all-around plane which will be very practical after the war: likewise the PBM-3's are good, long range rescue planes. One of the most popular rescue planes employed at the present time is the stripped-down PBY-5A, which is equipped with droppable life-rafts, "Gibson-Girl" transmitters, ship-wreck kits, markers, smoke and light buoys, as well as other emergency equipment. Blimps and helicopters complete the normal standard air-sea station aircraft complement.

HELICOPTERS

One of the most significant developments in the history of Coast Guard aviation has been the more recent experimentation with rotary aircraft. While the concept of sustaining aircraft by means of rotating wings has been known for some centuries, practical success was not achieved until quite recently. Actually, the rotoplane of Juan de la Cierva, 1895-1936, represents the first successful employment of the rotary wing principles. The fundamental advantages of a rotary wing aircraft over planes of a purely translational or fixed-wing type have been long recognized. The problem has rather been one of practical adaptation. Among the several forms of rotary aircraft, the helicopter, designed by Ivor I. Sikorsky, is, theoretically, the most efficient. It not only has greater propulsion efficiency but also it can be operated from smaller area than any other type of aircraft.[1] Helicopter development has come into considerable prominence since about 1930, with particular advancements made in Germany and the United States. So confident were American aeroplane manufactures of the future of the Sikorsky plane, that by 1943 more than a hundred different companies were engaged in helicopter production or experimentation in the United States. Some seventy-five to eighty designs are being tried, of which several are now in successful operation. Aside from its future contributions to civil aviation, the helicopter has shown great possibilities in the field of military service. In 1942, the Army demonstrated its practicability in the China-Burma-India theatre, when a Sikorsky R-4 rescued four American fliers some 150 miles behind the Japanese lines. Other tests have proved its special fitness for anti-submarine patrol, flying liaison missions behind enemy lines, spotting artillery fire and sundry night missions. Having no propeller, with a muffled exhaust, it can operate in almost complete silence. The Sikorsky plane, modeled along the lines of the gyroplane, has a mechanical drive to the rotary wings; the forward component of the rotar lift furnishes the propulsion force. Capable of almost precise movement, it can take off or land from a small platform, and, when equipped with pontoons, can be operated from either land or sea. However, its greatest potentialities seem to lie in

1. The theory and principles of rotary-wing aircraft are set forth at some length in a series of technical articles by J.A.J. Bennett. Bennett, "Rotary-Wing Aircraft" in Aircraft Engineering, January-August, 1940.



HELICOPTER TRANSFERS MAN FROM RAFT

the fields of patrol and rescue service, being ideal for certain types of rescue operations. Recognizing its potential value, the Coast Guard has joined the Army and Navy in furthering helicopter development.

COAST GUARD EXPERIMENTATION WITH HELICOPTERS

After the submarine menace had somewhat subsided and its aircraft were no longer of such vital importance to the Navy, the Coast Guard began to reassume its traditional role as a national relief and rescue agency. One of its first steps was to undertake an extensive experimentation in helicopter development. On 19 November, 1943, the Coast Guard Air Station at Floyd Bennett Field, Brooklyn, New York, was designated as a helicopter training base. Three Sikorsky HNS helicopters were assigned by the Navy to initiate the new program. By the first of June, 1944, the training unit was sufficiently completed to enable the station to begin the training of formal classes. The request of the British Admiralty that the Coast Guard train a limited number of mechanics and pilots for them was granted and four British helicopters were added to the base for this purpose. By the end of the first year of operation, 150 mechanics and over a hundred pilots have been trained at the school. The HNS trainers have been so successfully used as targets for radar calibrations and loran testing that they were officially adopted by the Navy for this special duty. Thus far that work has become the chief operational function of the helicopter, although it has repeatedly proved its value in rescue and relief missions. Rescue hoists and special pick-up harness have been designed for these planes, which enables them to pick up from the air, stretcher cases from vessels where there is no room for landing. In October, 1944, official tests proved its worth as the coming air-sea rescue plane. A helicopter, in a public demonstration off Manasquan, New Jersey, was able to transfer four men from rafts to a vessel within less than ten minutes. Other tests indicate that rescues of persons from either land or sea can be made by use of the hoists in about a tenth of the normal time heretofore required by hand. For the present these experiments are still in the preliminary stages of development and the helicopters have not been assigned to regular Coast Guard duty. However, several spectacular rescues have already been made. A Coast Guard helicopter, flown by Lieutenant (jg) W.C. Bolton, rescued a boy from a sand bar off Jamaica Bay, New York in one of the field's trainers. The official service debut of the helicopter came on the third of January, 1944, when Commander F.A. Erickson, commanding officer of the Floyd Bennett Field, made an emergency flight to take blood plasma to a hospital at Sandy Hook.[1] The limited space for landing at the hospital required the services of a helicopter. This emergency flight of Erickson's, in which two cases of

1. See also appendix E "An Unprecedented Helicopter Rescue."

COAST GUARD HELICOPTER RESCUES 11 CANADIAN AIRMEN FROM LABRADOR WILDERNESS

plasma were delivered within ten minutes, was instrumental in saving several lives.

DESCRIPTION OF THE SIKORSKY HELICOPTER

The helicopters that have been used in the extensive experiments at the Brooklyn Air Station include several Sikorsky models. The HN trainigg planes, with a single three-bladed rotor and an auxiliary tail rotor, are also used for short range observations, the HO observation helicopters are 1943 and 1944 models, chiefly of the X 1 + 0 S-1, HO S-1 and the HO 2S-1 types. The trainer plane is a two-seater helicopter with a fuselage made from welded Chrome-Molybdenum tubing mounted on an under-carriage of tubular outriggers. The two main wheels are extended in order to give a wide wheel space and are equipped with mechanical drum-type brakes: the tail wheel is so mounted on an extension about two-thirds yards aft as to provide adequate clearance of the tail rotor. It is described in the official Coast Guard manual for helicopter training as "a single rotor helicopter, with tail rotor for torque balance, powered by a seven cylinder Warner Scarab 190 horse power engine which drives both the main and tail rotors. The main rotor consists of three fabric covered blades spaced 120° apart and mounted to the rotor head. These blades not only provide lift for the aircraft but also can be controlled to make the aircraft move in any direction of flight. The rotor head is mounted on the vertical drive shaft which passes downward into the main gear box. This gear box is connected to the engine via a universal drive shaft and clutch, which is mounted on the engine crankshaft. The engine is situated immediately aft of the pilot between the forward fireproof bulkhead and rear bulkhead, and is so mounted that the crankshaft points to the rear. Throttle control of the engine is obtained by a twist grip mounted on the pitchlever. On the outrigger at the stern of the aircraft are mounted the tail rotor and tail rotor gear box. This rotor is driven by means of the tail rotor driven shaft running the whole length of the fusalage from a drive on the main gear box."[1] This type plane has an extraordinary maneuverability. It can fly sideward and backwards as well as forward and is capable of precision turning at zero speed. It is, furthermore, capable of sustained zero air speed or of vertical take-offs or landings. With a top speed of 92 miles per hour, the R4 can fly backwards up to about 25 miles per hour.[2] When fitted with the 45 pound pontoon alighting gear, it can be easily landed in choppy water, in mud or on marshy ground. In the event of engine trouble, autorotation can be used to effect a safe descent.

HELICOPTER CHARACTERISTICS AND LIMITATIONS

There are four main novelties in helicopter flying.[3] First there is an exaggerated cushion effect created when the plane is hovering. This brings about an additional lift which is caused by a greater air density beneath the outer part of the main rotor. Second, the fact that the ship is flexibly suspended

1. (USCG) Provisional Manual for Flight Training (June 1944), pp. 1ff.
2. Actually it has been dived to 117 miles per hour true airspeed.
3. Ibid, p.15

SIKORSKY HELICOPTER RISES FROM DECK OF A COAST GUARD CUTTER

below the point of lift gives it certain pendulous movements not found in fixed-wing aircraft. Third, translational speed is obtained through the rotor. And finally the control reactions are quite delicate. Since the rotor blades rotate only 600 to 700 times a minute, the plane does not instantly respond to a change in altitude. Normally, when stick movements are made, there is a noticeable lag in control reaction. Altogether, the helicopter is hard to operate, much of the skill in its manipulation being due to the necessity of the pilot mastering five coordinated controls. Even if flown by an expertly trained pilot, the helicopter still has decided limitations. It does not as yet have either the speed, durability or carrying capacity of other types of aircraft. Nevertheless, the major weaknesses are gradually being removed as better models are perfected. The present experiments definitely have proved the helicopter to be both a successful and practical machine for commercial as well as military purposes.

FUTURE OF COAST GUARD HELICOPTERS

This size and maneuverability of the helicopter combine to make it an ideal plane for specialized Coast Guard operations. It will undoubtedly serve as a future supplement to, rather than a replacement of, the conventional type airplane. It can fly at any speed from zero up to its maximum speed with considerably more stability than the average small plane. Due to its ability to land and take off in confined area, to operate in rough air or poor visibility, the helicopter has almost unlimited possibilities. It is peculiarly adaptable to law enforcement work, observational patrols, the transportation of personnel and supplies from ship to shore and in general distress and rescue duties. A top speed of over 120 miles per hour will soon be realized and the planes carrying capacity will appreciably increase with further improvements. Experts now predict that helicopters, capable of carrying ten to twelve persons, will soon be common. The Coast Guard aviation program for 1945 calls for a considerable increase in helicopter allotment. Headquarters reports that about 186 will be ready for active Coast Guard service by the summer of 1945. Present trends indicate that within a few years no Coast Guard cutter or lifeboat station will be complete without its complement of regular helicopter planes.[1]

AVIATION ACTIVITY

With the establishment in 1934 of the Air Station at St. Petersburg, Florida, the Coast Guard by the close of 1941, was well equipped to carry on the wartime aviation program soon to be assigned to it. Nine air bases had then

1. The development of the helicopter program at the Coast Guard Brooklyn Air Station is presented in a later section. see p. 70 ff.

HELICOPTER DESCENDS VERTICALLY TO THE GROUNDS OF A DISPENSARY

been effectively equipped for rescue and patrol duty along the Atlantic and Pacific seaboard and on the Gulf. During the previous year 1940, Coast Guard aviators had flown 13,231 hours during 4,801 flights. They had cruised a total of 1,258,344 miles, covering an area of 9,307,066 square miles. They had assisted 223 persons, warned 259 vessels and 1,466 individuals against impending danger, located 76 disabled ships, and transported 12 persons from them to safety. Over 100 emergency medical cases were transported, 9 obstructions to navigation reported, and 192 instances of assistance given to other government departments. Altogether nine smuggling vessels and 725 distillaries were located. The latter activity represented one of the major contributions of the Coast Guard to law enforcement. During 1937, 1938 and 1939, three smuggling planes, 71 smuggling vessels and 2,008 illicit distilleries were discovered. This work alone would have justified the existence of the patrols, if justification were necessary. Of course, the saving of life and property was a major responsibility of all the air stations. In 1942, 812 persons were assisted by patrol planes, 2755 warned of impending danger and 2,201 others transported by Coast Guard planes. Governmental departments were aided in 715 cases and 188 cases of law enforcement recorded. During the fiscal year $375,000 worth of property was saved. In addition to the aircraft assigned to the Greenland Coast Guard boat patrol, an air detachment was commissioned at Traverse City, Michigan, during the beginning of the year.[1] This air patrol of the Great Lakes region has rendered a valuable service in assisting ice cutter operations. Its observations over extensive areas have been of signal service to the vital war shipping interests of that region. As in all day to day activity, most of the work was hard, routinized and free from excitement. Regular harbor, inshore and off shore patrols---often as far as five to six hundred miles out at sea, were not very spectacular; much of the pleasure of flying was lost in the constant vigil that must be kept. Pilots were on the continual lookout for obstructions, derelicts, or seacraft that must be identified. Nevertheless, every pilot had his thrilling moments. At any time a routine patrol might be interrupted by a radio and message sending the plane out on an emergency mission: a ship was lost, a boat wrecked, a vessel sinking and its crew in dire need of assistance. Special ambulance flights were not uncommon in a day's routine. These "mercy fliers" gained an enviable reputation which they have justly maintained. Through daylight and darkness, in fair weather and in storm they carry on their mission of public service. Nor should the dangers of all this work be minimized. They are aptly summarized in the oft-quoted remark of air station administrators: "They have to

1. The Traverse City Detachment was established on 15 April, 1942.

A PBY COMES TO A FULL STALL LANDING

go out, but they don't have to come back!"

TRANSITION TO AIR-SEA RESCUE

From the spring of 1942 until the threat of enemy raids along the coast was diminished, the air stations were primarily engaged in anti-submarine patrols and auxiliary missions. Coast Guard aviation, under the direction of the Navy Area Commanders, operated along the entire coast of the United States and in the Greenland-Labrador region in general area patrols and in necessary convoy coverage. During the fiscal years of 1943 and 1944, they spent 131,277.5 hours in the air, covering an area of 86,327,152 square miles. Operations reports for the two years indicate that 1,295 assistance flights were made, in which 659 persons were either given aid or rescued from peril.[1] However, as the enemy menace receded, more attention could be directed to assistance and rescue operations. Emergency flights began to take precedence over anti-submarine operations as regular patrols were gradually eliminated. As the months passed this assistance work greatly increased, until the air stations were virtually operating as a rescue unit. This change had developed as a gradual adaptation to the exigencies of war needs. As naval air force and merchant marine operations daily increased, the number of planes and vessels requiring assistance was constantly augmented. To facilitate the saving of the lives of countless aviators and seamen, air-sea rescue was born. In the transition, the function of the Coast Guard air stations was changed from a defense unit to an air-sea rescue task force. Each air station became the headquarters for air sea rescue operations in its coastal sector. Thus the cycle from routine peacetime activities to wartime operations, and finally back to traditional rescue duties was completed. Armed scouting planes were superceded by long-distance amphibian PBY-5A planes, fully provided with the latest rescue equipment. Again the Coast Guard was ready to accept the challenge of a new opportunity for service.

ESTABLISHMENT OF AIR-SEA RESCUE

The first American air-sea rescue unit was initiated at San Diego in December, 1943.[2] Numerous over-water flights in this area, clearly indicated the need for a well organized agency whose primary function would be that of rescuing

1. The following tables show in detail the aviation activities of the individual air stations and aviation units for the fiscal years 1943 and 1944. Appendix A.
2. Since that date, where rescue has been possible about 98% of the military personnel involved in aircraft crashes in the southern sector of the Western Sea Frontier have been saved. The San Diego Air Station has set a high record of efficiency for the other air-sea rescue units to emulate.

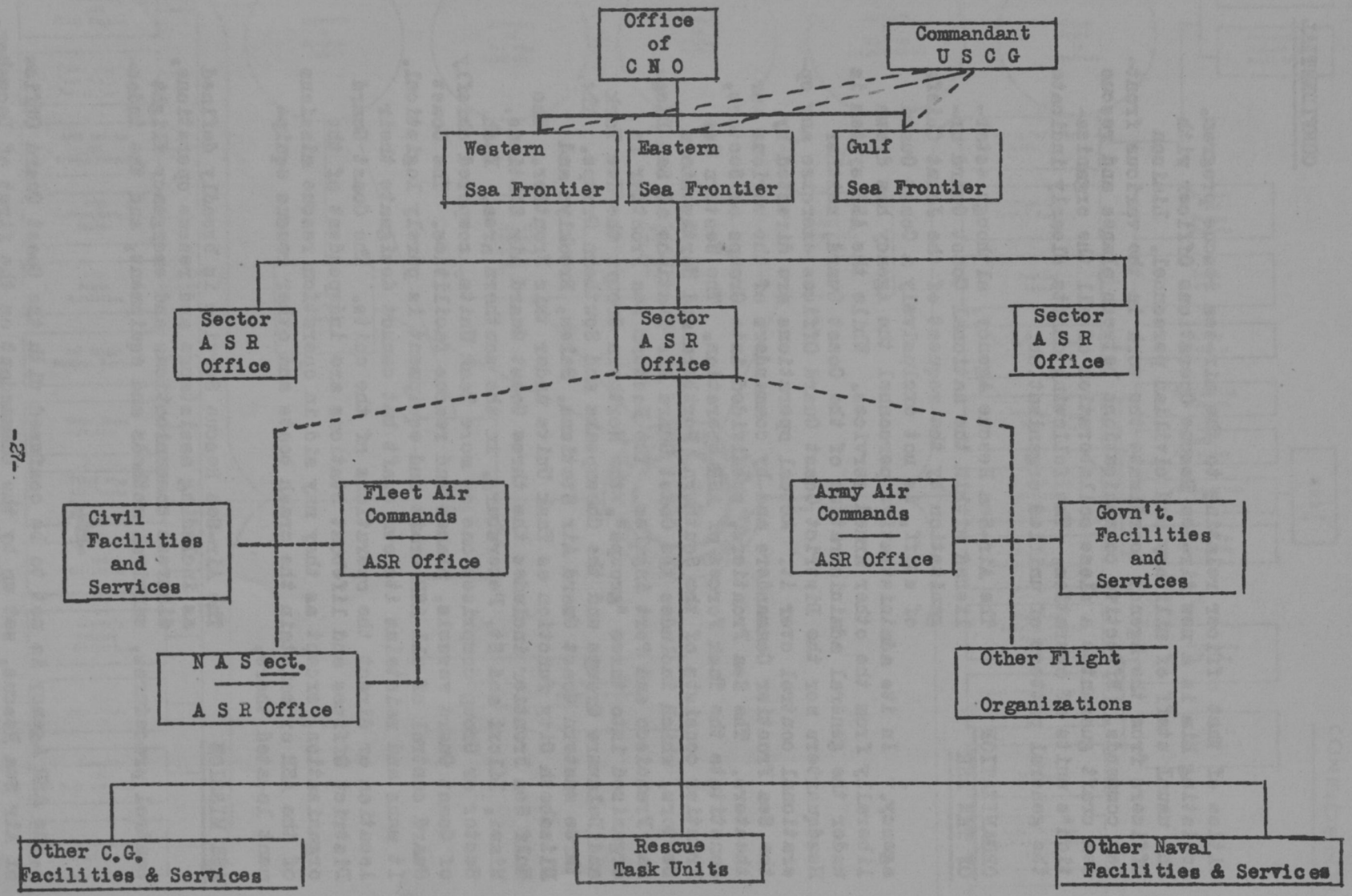
COAST GUARD AIR-SEA RESCUE PLANE SIGHTS FIVE DOWNED FLIERS ON RAFT

flyers forced down on land or at sea. Through the initial efforts of Commanders Max Black, U.S.N., retired, and Watson A. Burton, USCG, such a unit was organized at the San Diego Coast Guard Air Station. It anticipated by several months the actual foundation of a national rescue agency. The national Air-Sea Rescue Agency was officially established at Washington, D.D., by the secretary of the Navy in March, 1944. In view of its past record in all types of rescue work, it was logical that the administration of the new organization should be given to the Coast Guard. Actually the Coast Guard had been organizing toward this end for some time. An efficient communications system was already established as a part of the Coast Guard Beach Patrol Organization. Likewise, air activities had been progressively expanded to take over air-sea rescue units and training activities from the Navy. Under the new program, Coast Guard aviation is simply building a new organization similar to the long-established life-saving system begun by the Revenue Cutter Service in 1790. The Coast Guard Districts became the coastal operational units, under the immediate direction of their own air stations. Maximum coordination of all rescue efforts of the Army, Navy and Coast Guard was the major responsibility of each regional Air-Sea Rescue Task Unit, headed by the commanding officer of the Coast Guard Air Station. The central organization consists of an Air-Sea Rescue Administration, headed by the Coast Guard Commandant, and an advisory board made up of representatives from the Army Service, the Army Air Forces, the Marine Corps, the Navy and the Coast Guard.[1] This board is primarily engaged in studying and testing the various devices, processes and techniques of air-sea rescue. It compiles and disseminates all such information to the appropriate services and offers recommendations on procedure. An Assistant Coordinator aids the Commandant in the capacity of Chief of the Air-Sea Rescue Office .[2] This officer is responsible for the administration, planning and execution of all operations of the agency.[3] The Assistant Chief Operations Officer of the Coast Guard supervises the general acti-

1. The leading personnel in the organization at Headquarters included men of wide and varied experience as aviators and surface craft officers. Commander Burton, USCG, became the New Air-Sea Rescue Operations Officer. He was ably assisted by Coast Guard officers Commander A.E. Harned, Lt. Comdr., J.D. Mc Cubbin, Commander G.W. Nelson, Lieutenant G.A. Gyland, Lieutenant W.G. Davis and many others from the Army, Navy, Marine Corps and Coast Guard, whose liberal background training could be utilized in setting up the Air-Sea Rescue program. The Board selected to assist Commandant Waesche likewise contained men of outstanding military achievements: Colonel C.W. Whitney, Colonel J.W. Burgard of the Army Air Forces, Lieutenant Colonel W.J. Renn, Army Service Forees, Captain J.W. Harris, U.S.N. and Commander Paul Foley, Jr., U.S.N.
2. Captain L.B. Olson was appointed the first Assistant Coordinator. He was succeeded by Rear Admiral Robert Donohme.
3. The administrative activities of this officer are classified under three main divisions: Planning and Coordination, Aviation and Shore and Vessel Rescue.

Organization of the Air Sea Rescue Service

(From "Plan for Air-Sea Rescue" of the Office of Naval Operations, Navy Department. Restricted.)



vities of that officer relating to the air-sea rescue program. Assisting him is a new Air-Sea Rescue Operations Officer with the usual staff of military and civilian personnel. Liaison Officers from the Agency coordinate the work in the various frontier commands. Effective communications between planes and rescue sea craft guarantee a close collaboration of all the organization's units of operation. The following charts clearly indicate the general pattern of unified organization.

ORGANIZATION OF THE ASR

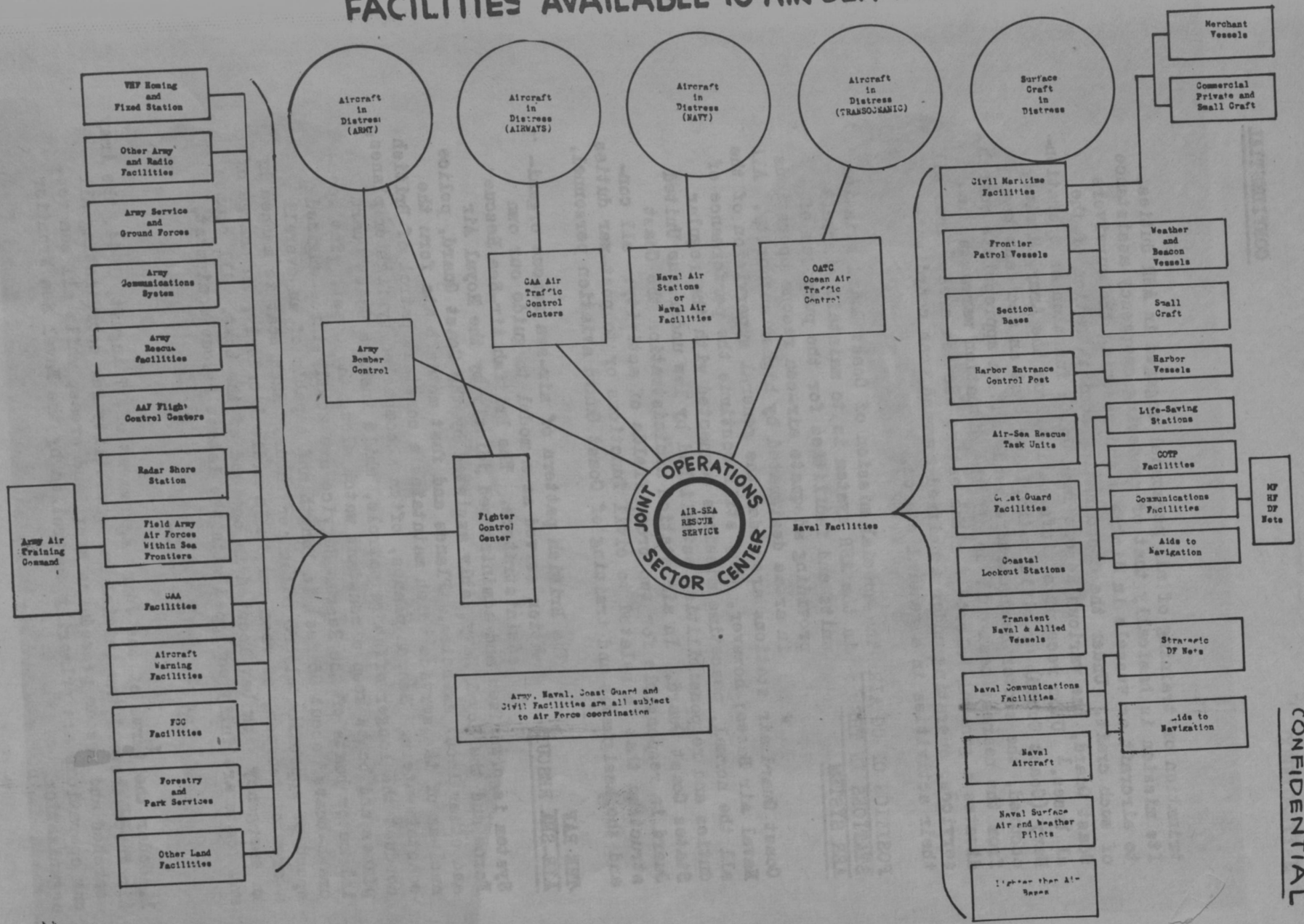
The Air-Sea Rescue Agency, although established within the national Coast Guard organization by the request of the Joint Chiefs of staff, is not exclusively a Coast Guard agency.[1] In its administrative personnel the Agency has drawn liberally from the other armed services. While the ASR system is under the general administration of the Coast Guard, neither Headquarters nor the District Coast Guard Offices exercise any operational control over it. Actual operations are directed by the Sea Frontier Commanders and by commanders of the various war theaters. The Sea Frontiers, subdivided into Groups or Sectors, constitute the Task Forces of ASR operation. The Western Sea Frontier consists of the Southern, Northern and Northwestern Sectors, which includes the Coast Guard Air Stations at San Diego, San Francisco and Port Angeles. The Eastern Sea Frontier is organized into three "groups", the Northern Group, the New York and Delaware Groups and the Chesapeake and Southern Groups. The three eastern Coast Guard Air Stations, Salem, Brooklyn and Elizabeth City function as Task Units under this Frontier. The Gulf Sea Frontier includes the three Coast Guard Air Stations, Miami, Biloxi and St. Petersburg, in the southern area. Each Sector or Group comprises one or more Task Units, composed chiefly of Coast Guard vessels, planes and rescue facilities. The Coast Guard control of all ASR craft and equipment is purely logistical. It mans and maintains its own craft but cannot designate their location or direct the operations of the units. The Coast Guard District Offices and lifeboat stations are independent of the organization, except as they may aid in operation rescue missions of the ASR or maintain the crash boats and other rescue equipment located there.

ASR MISSION

The Air-Sea Rescue Service is broadly defined as including assistance and rescue operations, distress communications and emergency flight control procedures, survival methods and equipment, and the indoc-

1. The ASR Agency is not to be confused with the Coast Guard Office of Air Sea Rescue, set up by the Commandant on the first of December, 1944. The latter office is a "component part of CG Headquarters established to deal with HQ aspects of air-sea rescue operations of Coast Guard vessels, aircraft and shore stations". Unlike the ASR Agency, it is staffed entirely by Coast Guard personnel.

FACILITIES AVAILABLE TO AIR-SEA RESCUE SERVICE



CONFIDENTIAL

trination or training of all personnel engaged in ASR duties. Its mission is basically that of rendering emergency assistance to aircraft or vessels in distress and rescuing the survivors of such craft. Under the coordinating administration of the Coast Guard, the various Rescue Task Units function as operational bases.[1] Upon receipt of information from the Army, Marine, Navy (Coast Guard) or civil authorities that an accident has occured, the sector headquarters sends out an appropriate search from the nearest task unit or, if the situation warrants, indicates a general "alert" for the entire section area. Thus all services, operating under a unified command, can coordinate their activities in a general search.

POSITION OF CG AIR STATIONS IN THE ASR SYSTEM

The special mission of Coast Guard aviation in the ASR system is to maintain aircraft units and facilities for the purposes of providing adequate air-sea rescue operations in areas designated by higher authority. All Coast Guard air stations are under the general supervision of the Naval Air Bases; however, they still continue the performance of all the normal, peacetime missions connected with the regular duties and responsibilities established by law under the United States Coast Guard. In air station administration the Coast Guard is responsible for two broad fields of activity: all construction that is related to civil functions or to post-war duties and the assignment and training of Coast Guard aviation personnel.

THE RAF AIR-SEA RESCUE

The British pattern of air-sea rescue organization served as a model to guide our own administrators. The British Air-Sea Rescue System is organized and administered jointly by the Royal Air Force and the Royal Navy, ably assisted by the Coast Guard, police and other local agencies. Planes and fast motor boats form the nucleus of the service which maintains a constant patrol of British coastal waters. Search planes, often accompanied by fighter planes, conduct the longer offshore patrols, while inshore Coast Guard planes and boats keep a constant watch along the coast. The special motor boats of the Rescue Service are mostly three-engined crash-boats, about 65 feet in length and capable of an overall speed of approximately 50 miles per hour. Each boat is manned by a crew of ten men, of whom one is a medical orderly, in charge of an emergency sick bay located in one end of the boat. All planes and boats are fully equipped with the latest rescue equipment.

1. Under the terms of the Joint Agreement of 17 August, 1944, the Army Air Force assumed the initial responsibility for coordinating all searches and rescue procedures over land areas, while all sea rescue operations are primarily controlled by the Naval Sea Frontier organization.

REAR ADMIRAL ROBERT DONOHUE
ASSISTANT COORDINATOR AND CHIEF OF THE OFFICE OF AIR-SEA RESCUE

Special rescue aircraft squadrons have been formed and at least one plane with a rescue crew, always stands in readiness at all Coastal Command Stations and at some of the Bomber Command bases. As part of the regular equipment of the service, hundreds of special buoys and floats are maintained at strategic points along the coast. Many of the larger buoys, situated outside harbors and estuaries, are equipped with ladders and supply cages attached to the buoys by means of ropes. The cages contain rations, drinking water, signal flags, distress signals, torches and whistles. The larger, more numerous floats are rather elaborately equipped. The float is an oblong "boat-shaped hull", about thirty feet in length, fitted with grids, bars, and ladders to enable survivors to hold on to the side or climb aboard. Holding at least six men, it is furnished with a "cabin", where complete emergency provisions are provided. Not only do survivors find food, water, liquor, clothes, washing gear and regular emergency equipment awaiting them, but these buoys are also supplied with such items as stoves, cigarettes, matches, books, magazines, playing games, and so on to comfort the men during the long hours they must await the rescue party. Some of the items in the standard British rescue equipment have been adopted by our own organization. Notable among them are the Lindholme dinghy. However, rescue buoys and floats, the most singular feature of the British equipment, have not been used by the United States' rescue organization.

ASR AIRCRAFT

An efficient rescue service encompasses a four-fold objective: the wrecked vessel or plane must first be found, the survivors must be given a means of remaining on the surface of the water until help arrives, they must be provided with food and water to keep themselves alive and, finally, they must be brought safely ashore. On the basis of these fundamental needs the rescue task units are organized. With properly equipped rescue boats and planes, manned and indoctrinated to work as an efficient team, they respond immediately to all offshore crashes. All rescue agencies operate as a basic unit once the accident is located. Normally a unit aircraft, arriving upon the scene of action, will take over the direction of the other operational units. If actual rescue is performed by surface craft alone, the rescue crash boat commander will have charge of activities. The principal rescue planes are stripped-down PBY-5A's, flown by well trained pilots who are throughly indoctrinated in rough water operations and instrument flying. These planes are equipped with droppable life rafts, droppable "Gibson Girl", radios and transmitters, ship-wreck kits, dye markers, smoke and light buoys, "provision bombs" and other emergency equipment. The emergency equipment includes dinghy gear, life rings and jackets with buoyant lines, message blocks or cans and "exposure suits", which afford complete protection against water and weather, for anyone stranded at sea. All this is in addition to the plane's regular equipment. The approximate weight of all

SERIOUSLY INJURED NAVY ENSIGN BEING FLOWN 850 MILES IN COAST GUARD PLANE

plane equipment varies from 1149 pounds to 1189 pounds depending upon the type of craft used. The prescribed equipment for Coast Guard planes engaged in ASR missions is similar to that used by the Navy, excepting the dinghy gear. The Lindholme dinghy gear is used only by the Coast Guard, the Navy having its own equivalent types of rescue assembly. Many improvements have been made in rescue equipment since the beginning of the present war. Three types of rescue kits are used, the ration kit, the larger shipwreck kit, which contains not only food and water but also survival equipment, and the signaling kit with its flares, flashlight, hand signal, mirror and dye markers. Life rafts, varying in size from 55 to 112 pounds, are carried on all rescue missions.

RESCUE PROCEDURE OF ASR PLANES

When on a rescue search ASR planes operate under definite instructions. All observation posts are manned by lookouts who report to the pilot in charge as soon as survivors are sighted. A drift signal is dropped immediately and position of the survivors noted. On this first pass over the survivors, a dye marker may also be dropped to mark the position for other rescuers. If the victims are without a liferaft, one is dropped; if rescue cannot be promptly effected, a ration kit or more complete shipwreck kit is furnished. Only in cases where the plane is forced to leave the scene of action are other emergency articles dropped to the survivors--such as floating lantern, carbide water light, signaling devices and "Gibson Girl" equipment. Unless it is necessary to land and attempt the rescue alone, the plane will communicate with the ASR stations and stand by to direct the crash boats to the rescue. The newer helicopter planes are fitted with special pick-up equipment which enable them to effect a rescue without landing.[1]

ASR RESCUE BOATS

Aircraft rescue boats, usually referred to as "crash boats", are on continuous twenty-four hour duty at all major bases. The ASR boats vary in size from the small craft, under 48 feet to the larger 104 foot boats. All are provided with as much emergency equipment as the boat can conveniently carry. The typical crash boat is the sixty-three footer, motored by two Hall Scott Defender engines of c 600 horsepower each, capable of a speed of fifty knots. They carry full radio equipment,[2] rescue gear six stokes

1. Infra, p. 74; supra, p. 20 ff.
2. A new and approved type of radio equipment has been recently added which will permit communications between plane, boat and shore.

SURVIVOR PICKED OUT OF THE SEA AFTER GRASPING NEW U-TYPE HARNESS

litters, twelve blankets, rubber life-saving suits, asbestos fire-fighting suits, line-throwing gear and line, lights, markers, cargo nets, float lights, blood plasma kits and medicinal supplies. All the larger boats, the 63 footers and above, carry diving gear and oxygen tanks. Duty on these crash boats is considered "preferred duty". Only those who have been thoroughly trained in seamanship are considered, preferably men who have completed the tour of duty outside the continental limits of the United States. Each 63 foot boat is manned by a crew of ten. The allocation of personnel is one ensign, one chief boatswain's mate, one boatswain's mate 1/c, one motor machinist's mate 1/c, two motor machinist's mates 2/c, one radioman 2/c, one pharmacist's mate 2/c, one seaman 1/c, and one seaman 2/c. The 104 footers have a larger crew of fourteen, commanded by a lieutenant. Normally, when the crash boats are assigned to duty at a lifeboat or air station the officer's position is not filled. As a war precaution, they are usually armed with .50 caliber machine guns in turrets. These rescue surface craft are distributed at outlying fields and bases in all Frontier Sectors. It is mandatory that they be used for rescue purposes only.

PROVISION BOMBS

The development of adequate equipment for the ASR Service has been one of the most interesting and far-reaching phases of scientific war research. The most elaborate rescue equipment is now available. The "Mae West" inflatable dinghies, the Kidde pack raft, paddle units, compact radio transmitters, repair kits, the "magic quilt" of the Army, miniature searchlights, floating lights, signalling devices, "survival manuals" and special chemicals for extracting drinking water from the sea are all a normal part of the ingenious devices in practical use today.[1] The chief contribution of the Coast Guard to this new equipment is the novel "provision bomb", or "food bomb" developed at the Elizabeth City Air Station in North Carolina. Rescue crews discovered that the delivery of sufficient supplies from planes to survivors was a most baffling problem. The emergency ration containers that were used were ineffective since they usually sank as soon as they hit the water. As a practical improvement the provision bomb was devised,[2] which soon was adopted as a regular part of rescue equipment. The bomb, an adaptation of the practice water bomb, was a water-tight container filled with about twenty pounds of provisions. Weighing about twenty-two pounds,

1. One of the most significant developments has been the practical methods employed in rendering salt water drinkable. Several accepted methods are now in current use including distillation by burning still, "solar stills" and the application of chemicals. The latter method has proved to be the most practicable. The new chemical, in the form of small briquets about the size of a candy bar, will convert 14 pints of sea water into drinking water in approximately 20 minutes, or about two weeks supply for one person.
2. The bomb was invented by Frederick H. Denio, metalsmith first class and Harold J. Booth, aviation machinist first class, of the Elizabeth City Air Station.

SIXTY THREE FOOT AIR-SEA RESCUE BOAT

it contains rations, seven cans of water, medicine, one pint of rye whiskey, can opener, adhesive tape, salves for burns, cigarettes and matches. Each rescue plane carries two provision bombs in its bomb rack, which are dropped from a height of about a hundred feet. The bomb was first used in an emergency rescue on 4 July, 1942.

COAST GUARD AVIATION PERSONNEL AND TRAINING

The air-sea rescue assignment of aircraft to the Sea Frontiers in the spring of 1945, totaled 398 planes, classified as ASR, utility and training Aircraft.[1] Eighty-four additional fixed-wing aircraft were requested for Coast Guard use in order "to properly carry out air-sea rescue missions and Coast Guard duties". This proposed increase would raise the approved personnel ceiling from 587 to 691 commissioned aviators to man the additional planes.[2] Furthermore, it is estimated that a number of additional pilots will be required to operate the 210 rotary-wing airplanes alloted. Of these, 150 are operational models, 24 are trainers and 36 have been designated for Coast Guard use. The complement is further augmented by radiomen, radar operators, flight surgeons, boat and ground crews, and administrative personnel. While incidental to the main ASR objectives, not the least of the Coast Guard's responsibility is the training of this increasing body of aviation personnel. As a general policy ranks, or ratings, at the various stations are determined on the bases of the current complements. Commissioned flyers are officially classified as "aviators", enlisted men designated as "pilots"; about twenty-five per cent of the total number of flyers may be aviation pilots. The training program consists of an academic refresher course, preflight and flight training for all pilots and a six-weeks course for aviation mechanics. After assignment to their respective bases, all crews are given further training as an operational unit. Both officers and enlisted personnel are trained at the Naval Air Station at Pensacola, Florida. Selected candidates are given preliminary training at the Coast Guard air stations, where the more undesirable are weeded out before being sent to Pensacola. The intermediate naval training is opened to all Coast Guard personnel, reserve or regular, who can meet the age limit and high physical requirements for entrance.[3] At Pensacola these men undergo a vigorous and intensive course of training,

1. USCG Aircraft Deployment, ASR Assignment (by Frontier Sectors), 19 March, 1945. The allotment is as follows: San Diego 37, San Francisco 33, Port Angeles 29, Salem 37, Brooklyn 33, Elizabeth City 55, Miami 34, St. Petersburg 24, Biloxi 18, Bomber Squadron Six 28, Alaska 14, Headquarters 12, 9th Naval District DCGO 2, CG Vessels 10, CG Instrument School at Houston, Texas 12, Loran and Radar Testing 8, CG ARS School 12, 10th Naval District DCGO 4 and Photographic Aircraft 6.
2. CG Aviation Program (Supplemental), 19 March, 1945. A personnel ceiling of 715 aviators was approved by the Navy.
3. The requirements are, American citizenship, graduation from an accredited high school and an imposed age limit. Enlisted personnel must be between 18 and 27 years of age, unmarried, pass all physical examinations and flight aptitude tests and extend their enlistment period to meet obligated service requirements. The mortality rate at Pensacola is quite high, being about 35%.

PLANE CREW READY FOR ACTION

including some 26 weeks of regular college work, 16 weeks primary and 20 weeks of intermediate flight training. For the fiscal year, 1945, the Navy has allotted a quota of 200 enlisted Coastguardsmen to be entered for training as Naval Aviation Cadets. Graduates normally receive their commissions upon the successful completion of the course, but in recent months only the higher brackets of each class have been made officers. Formerly, a minimum of three years sea duty was required for all Pensacola trainees. However, owing to the great scarcity of available pilots, this requirement has been generally waived. Since the early part of 1943, aviators and pilots have also received advanced instrument training at the CAA Standardization Center, Houston, Texas. The Standardization Center has perfected the training of some of the best Coast Guard aviation personnel in the service. Although both commissioned flyers and aviation pilots are eligible, only the exceptional are selected for this advanced training. Five men are sent each month for an intensive course of six weeks duration. Since the inception of this program, approximately 135 men have completed the course of instruction. Upon assignment to a particular air station, pilots are given an additional flight training of about ten weeks. Approximately 175 ensigns from the Navy Aviation Cadet ranks that received Coast Guard commissions were sent to Corpus Christi to check out in PBY-5A's used as landplanes, prior to reporting to their permanent stations. These station courses, which emphasize night flying and instrument training, also accommodate the large number of regular Coast Guard aviators who have had insufficient flying experience since their graduation from Pensacola. In addition to regular flight and patrol drills, instruction is given in first aid, the care of air crew casualties and in the use of rescue equipment. One phase of this training is devoted entirely to rescue procedures and practice in rescue operations. This intensified training program has imposed an added strain upon the Coast Guard air stations which are already overburdened with the recent ASR duties.

PRACTICAL OPERATION OF AIR-SEA RESCUE UNITS

Under the coordinated program of the Air-Sea Rescue Agency, the air forces and floating units operate as a well-organized team. In any rescue undertaking planes or blimps are accompanied by small rescue craft designed especially for that purpose. Efficient rescue work embodies two major prerequisites, alertness and skill on the part of the crews and the speed with which reliable information can be disseminated. The first is accomplished by long weeks of vigorous drills and training, the second by means of a reliable communications system. As soon as a crash or wreck is reported to an air station immediate action is initiated. Planes, patrolling in the neighborhood of the crash, are radioed and crash boats dispatched to the spot. If a search is required to locate the survivors, the planned procedure is both thorough and complete. Using the last known position of the plane or vessel, the most probable area of location is encircled on the map and the minute

LAST MINUTE INSTRUCTIONS

search begins. Planes and one or more Coast Guard cutters or crash boats speed to the rescue. Upon reaching the general area, a "grid search" is instituted. This consists of planes and boats plying back and forth over the area from the center outward. Planes fly at right angles to the boats, thus forming the crisscross pattern of the grid. Constant communication is maintained between boats and planes by radio. This detailed combing of an area has been perfected to a high degree by the Coast Guard. By means of the "grid system", survivors have been discovered as far as fifty miles from the original "target-position" reported.

SPECIAL SAFETY MEASURES

Every effort has been made to safeguard planes and crews from unnecessary risks in this hazardous work. To protect aviators who are tempted to try to effect a landing in treacherous waters or on dangerous terrain, pilots are ordered to attempt landings only under favorable conditions, or in exceptional circumstances, where the chances of saving a life outweigh the risks involved. Medical assistance cases are limited to those expressly authorized by a Public Health Service doctor or accredited practicing physician, and then only under circumstances where landing can be made in protected waters or on favorable ground. This official policy "leaves open to initiative the action of a commanding officer or Coast Guard pilot--in the case of a grave disaster at sea, in which so much is to be gained by landing at sea as fully to justify risking his plane and crew".[1] To eliminate the risk of life by hazardous or almost impossible landings, the Ketchikan District has organized a new parachute unit for rescue duty. Operative since the beginning of 1944, the squad consists of nine men and one officer who have been trained at the Forest Service Parachute Jumpers School at Missoula, Montana. These men are all highly trained woodsmen, intimately familiar with the local conditions in which they operate. They use a steerable type chute which can be landed in trees, from which they let themselves down to the ground. Cargoes and snowshoes, previously dropped from the planes are retrieved and the squad is ready to begin its mountain search.[2] The District proposes to incorporate the parachute unit in the newly established ASR organization of the all Coast Guard manned rescue unit in the Sitka Sector. It is a harbinger of future development. Already the new helicopter has aptly demonstrated its servicibility in transferring persons from ships or rafts to the plane hovering overhead. If the Ketchikan parachute squad can prove the justification of its special training, other ASR units may find similar squads desirable.[3]

1. (CG Headquarters) Aviation Circular letter No. 12-40, 15 August, 1940.
2. Report on "Parachute Rescue Squad" from the 17th Naval District, 6 December, 1944. It is anticipated that Coast Guard PBY-5A planes will be used extensively for Racon flight testing and similar work in the Alaskan area, beginning in 1945.
3. Practice tests indicate that the parachute squad has developed remarkable efficiency and skill. The crew, which includes a pharmacist's mate jumper, is ready to jump one or more men to a wreck at any time. They can carry equipment for as much as a month's prolonged search.

EXPERT COAST GUARD PARACHUTE JUMPER BAILS OUT OVER ALASKA

SUCCESS OF THE ASR PROGRAM

The outstanding work of Coast Guard aviation remains little known to the general public. Only when some dramatic incident is publicized, is it given any general acclaim. Today the air-sea rescue units are trained and equipped to pick up anyone, anywhere, and at any time, even under the most difficult circumstances. The monthly reports of the air stations show a gradual increase in activity since the beginning of the ASR program. During the first three months of 1945, aircraft of the nine stations made a total of 8,066 flights, covering an area of 3,130,519 square miles. They spent an aggregate of over 14,132 hours in the air, during which time 1,525,246 miles were cruised.[1] Nor were all of these flights mere routine. Altogether 47 vessels, 20 planes and 163 persons had been assisted, 41 medical cases and 762 other persons transported and property estimated at $1,410,000 in value, had been saved. While complete statistics are not yet available, the percentage of successful rescues since the establishment of ASR has steadily mounted. A summary of all water crashes in the northern California sector of the Western Sea Frontier indicates that only 5 lives were lost where rescue was at all possible. Of the aggregate 38 crashes involving 37 planes and 98 persons, 42 were saved, 51 beyond help and 5 lost.[2]

LIGHTER-THAN-AIR CRAFT FOR ASR

Just as the Coast Guard has proved the practical value of the helicopter for air-sea rescue operations, so has the Navy demonstrated the practicability of employing non-rigid airships for the same purpose. Experimental work at the Naval Air Station at Santa Ana, California, has indicated the great possibilities in the future use of ASR blimps. Blimps have been used most successfully in emergency assistance as well as in actual rescues. When equipped and manned for special rescue missions, the Navy blimp can proceed 500 miles out to sea at an air speed of 50 knots, pick up survivors and return to its base without refueling. On such a mission, some 30 people can be accommodated, of which 10 can be taken care of in bunks or litters. Although the Coast Guard has declined to consider the official adoption of lighter-than-air craft for future use-- due primarily to the expense involved and to the fact that the helicopter is proving adequate for all Coast Guard purposes,--it has, nevertheless, consented to undertake the training of pilots and crews of blimps assigned to ASR units. The training school is conducted at the regular Navy LTA training base at Lakehurst, where Coast Guard personnel are provided for ground maintenance of the blimps. Upon completion of training, pilots and crews will operate under the Navy but remain a part of the Coast Guard Aeronautics Organization.[3] The use of blimps, however, will tend to supplement rather than replace the helicopter in future air-sea rescue operations. In its size, range and greater carrying capacity, the blimp can render

1. These totals are not complete inasmuch as one monthly report for the period under consideration was not returned by two of the stations.
2. For the period from the inception of the ASR to 20 April, 1945.
3. Air Mailgram, 29 January, 1945.

COAST GUARD SEAPLANE AND NAVY BLIMP IN JOINT AIR-SEA RESCUE OPERATION

special services in which the helicopter is not yet practicable. Both are likely to become necessary adjuncts in the future of aviation development.

OUTSTANDING RESCUE ACHIEVEMENTS

Outstanding incidents of spectacular rescues are too numerous to record.[1] Several Coast Guard personnel have received official recognition for their heroic services. Lieutenant Carl B. Olsen was the first Coast Guard officer to receive the Distinguished Flying Cross in an ambulance rescue of Major Walter Gullion, USA, from the REPUBLIC, lying off the Miami coast, Florida. Since then, many notable rescues have distinguished both Coast Guard aviators and crews. Perhaps the most daring of them all was the spectacular feat of the late Lieutenant John A. Pritchard, who lost his life in an attempt to rescue survivors from an American Flying Fortress stranded on the ice-bound Greenland shore about forty miles from Comanche Bay. In November, 1942, in a Grumman amphibian, Pritchard helped save three Royal Canadian flyers stranded just off the coast. A few days later he and his radioman, effected a daring landing on the treacherous ice caps to rescue two men from a "ditched" American fortress. On the return trip to save a third survivor, Pritchard again made a successful landing, despite the heavy storm that was closing in upon them. The remaining member of the Army plane was taken aboard and the return flight to the NORTHLAND begun. Somewhere in the raging storm the plane was lost. Both Pritchard and the radioman, Bottoms, were killed in a forced landing. The Distinguished Flying Cross was later awarded posthumously.

CONCLUSIONS

The annals of air stations "Crash Reports" are filled with similar, if less remarkable, rescue flights. The speed with which many of these rescues have been made is a tribute to the growing efficiency of the service. Recently, Ensign Lowell E. Buys, (Navy) accomplished the first sea-to-air rescue in aviation history. Flying a K-59 he first dropped a smoke bomb to indicate wind direction and followed it with an emergency kit to the man on the raft below. Then parachute harness was lowered and the aviator, Marine Pilot Harvey Metcalf, was safely drawn up into the blimp. Within twenty minutes after the crash, Metcalf had been delivered to the hospital.[2] It is hard to realize that such progress could have been made since the prolonged days of Rickenbacker's dramatic three-weeks survival in a liferaft but a comparatively short while ago. Perfection being the aim, the record of performance will continue to grow. The fine spirit of service is truly exemplified in the off-quoted saying of Coast Guard aviators: "The difficult can be done immediately; the impossible takes a little longer". The high standard of efficiency maintained by the pilots, plane crews and ground personnel will remain a constant tribute in the brief record of the brief quarter century of Coast Guard aviation achievement.

1. Particular cases of unique success attained in rescue missions are mentioned in the accounts of the individual aviation units. Vide, p.48.
2. F. Tinsley, "How the First Sea-Air Rescue Was Made", Popular Science (October, 1944), pp.114-115.

LIEUT. JOHN A. PRITCHARD JUST BEFORE HIS FATAL FLIGHT

Part 2: USCG Air Stations

Brief History of Station Units

The aviation arm of the United States Coast Guard consists of nine air stations and Patrol Bombing Squadron Six, attached to the Naval Greenland Fleet Air Group. In addition to these main units, a small detachment was commissioned at Traverse City in April, 1942, for the patrol of the Great Lakes; likewise, the Ketchikan District maintains a small parachute unit operating in the southeastern Alaskan area. A small unit is also maintained at Headquarters, while individual planes are from time to time assigned to Coast Guard vessels or for special duty in the various districts. For the most part, however, the real history of Coast Guard aviation begins in the 1930's with the development of the air stations in Florida and Mississippi. The original attempts to establish independent Coast Guard air units are shrouded in oral legend and obscurity. Only a brief resume of those initial experiments can be accurately recorded.

The three earlier stations at Morehead City, North Carolina, Gloucester, Massachusetts, and Cape May, New Jersey, are no longer in existence. The period of their operation, 1926-1932, constitutes the first phase of Coast Guard aviation history. The second phase in its development began with the establishment of the Miami Station in June, 1932; before the dramatic Pearl Harbor attack the eight remaining stations had been established. The last and present phase of operations came with the creation of the Air-Sea Rescue organization, which is now in the process of development. Before the outbreak of war, Coast Guard aviation was chiefly concerned with safety at sea and law enforcement. However, soon after the fatal Sunday of 7 December, 1941, all Coast Guard air units were speedily organized for home defense duties. During the hectic years of 1942 and 1943 they assisted the Navy by every means possible in convoy coverage, rescue and anti-submarine patrols. A Naval Intelligence Officer has been attached to every Coast Guard Air Station to interview pilots and crews returned from flights and compile the reports and send them to the proper Naval Intelligence office. All stations have cooperated thoroughly in the war effort.

The following section makes no attempt at a detailed history of any one station.[1] Rather it aims only at presenting the main steps in the

1/ There is a considerable paucity of historical materials available at most of the air stations. Permanent records, if ever kept at all during the earlier periods in the evolution of Coast Guard aviation, have either been lost or destroyed. Such early "flight records" as are existent are illuminating but they do not tell the whole story. Data dealing with administration and operational details are meager. Station historical reports, submitted in 1944, consequently, vary appreciably in length, thoroughness and in the type of material presented. Most of them stress the more modern developments and achievements simply because only recent records are extant. The lack of uniformity apparent in the brief presentations of this section is necessarily determined by the nature of the evidence at hand.

COAST GUARD PLANE LOADS A DEPTH BOMB

units' development, with such particular data as may indicate its particular deviation from the general pattern already described or illustrate special station achievements. If the accounts of the Elizabeth City and New York stations are given a somewhat longer treatment it is not because they are considered more important but only to emphasize their more distinctive characteristics.

WINGS OF COAST GUARD PLANES PACK POWERFUL DEPTH CHARGES

Early Aviation Developments

Morehead City, Gloucester, and Cape May

COAST GUARD ACTIVITIES DURING FIRST WORLD WAR

As already observed the Navy Deficiency Act of 29 August, 1916, which authorized the establishment of ten Coast Guard Air Stations, was not implemented until after the first World War. However, concurrent with this Act a selected group of Coast Guard officers and enlisted men were assigned to aviation training at the Naval Air Station, Pensacola, Florida. The nine men composing the first Coast Guard class at Pensacola received their appointments as Naval Aviators on 22 March, 1917. Of these, six were commissioned officers and three enlisted personnel. Other enlisted men were trained at the Army aviation school at Mineola, New York, which brought the total of the small Coast Guard aviation group up to eighteen at the time of our entry into the war in 1917. This handful of men played a rather significant role in the struggle that followed. The six commissioned officers served with Naval Aviation; four commanded naval air stations, one acted as executive officer at an air station, one served as test pilot on the NC-4 on her transatlantic flight, and one served as inspector of Engineering (Aviation Material) at New York. Several received the Victory Medal for distinguished services. Of the enlisted aviation personnel, ten served as warrant officers either in the capacity of pilots or as members of the ground force in the aviation division. It seemed an insignificant beginning, but the impressive record of these men was an added boon to the peacetime organization that soon developed.

BRIEF HISTORY OF THE CLASS OF 1917

In view of their fine record during the first World War and their later significant achievements, it is interesting to glance at the careers of that first aviation class at Pensacola. Two of the group are now deceased, Commander E.F. Stone and Lieutenant L.M. Melka; several hold prominent positions in the service today; and all have taken a prominent part in the development of modern Coast Guard aviation. Stone, then Third Lieutenant, was one of those early aviation pioneers who started the first Coast Guard air patrol project at Hampton Roads in 1915.[1] After completing his flight training, he served aboard the USS HUNTINGTON during 1917 and 1918 and later in the Bureau of Construction and Repair of the Navy Department at Washington. In 1919 he was a pilot on the NC-4 during the first transatlantic flight. Shortly thereafter, he became the first Coast Guard Aviator, receiving his appointment on 30 March, 1920. After that date, his duties were varied and numerous, including work in the Bureau of Aeronautics, test piloting, and commanding naval air stations. Besides the transatlantic flight, Stone made at least two significant contributions to aviation progress. He was instrumental in furthering the development of the catapult and deck arresting gear for aircraft and carriers and, in 1934, established a new world record for

1. Vide ut supra, p. 4.

Left to right:

C. T. Thrun, Mas. At Arms
J. F. Powers, Oiler 1st Cl.
Geo. Ott, Ship's Writer
C. Griffin, Mas. At Arms
John Wicks, Surfman
Robert Donohue, 3rd Lt.
C. E. Sugden, 2nd Lt. (Eng.)
E. A. Coffin, 2nd Lt.
S. V. Parker, 1st Lt.
P. B. Eaton, 2nd Lt. (Eng)
E. F. Stone, 3rd Lt.
Ora Young, Surfman No. 1.
W. R. Malew, Coxswain
J. Myers, Surfman
J. Medusky, Asst. Mas. At Arms
R. F. Gillis, Signal Q. M.
W. S. Anderson, Surfman
L. M. Melka, Signal Q. y

amphibian planes. Before his death in 1936, he had received citations and awards, not only from his own country, but also from Great Britain and Portugal. Four others of his classmates, Rear Admiral P.B. Eaton, Captain E.A. Coffin, Rear Admiral S.V. Parker, and Rear Admiral Robert Donohue were also awarded the Victory Medal for meritorious war services. These men, who so significantly gave their best efforts to the progress of Coast Guard aviation, have brought to the service during the present war the ripe fruits of their rich experience and training--Eaton is Assistant Engineer in Chief of the Coast Guard, Coffin DCGO and Captain of the Port of the Fourth Naval District, Parker DCGO of the Third Naval District and Coordinator of COTP activities along the Atlantic and Gulf coasts, and Donohue Chief of the recent Air-Sea Rescue organization. While not members of the class of 1917, two other outstanding names should be mentioned in this passing review. Captains W.P. Wishaar and C.C. Von Paulsen both qualified as Naval Aviators in 1920. Captain Wishaar is now retired, but Von Paulsen is still in active service, adding new laurels to an already long and colourful career. Graduating in the class of 1913 at the Coast Guard Academy, he went through flight training at Pensacola to receive his aviator's commission in 1920. Completing a refresher course at Kelly Field, San Antonio, Texas, the following year, he was one of the first to be designated as Coast Guard aviator. He lent his efforts in the attempt to keep the Morehead City Air Station and later did succeed in establishing the first permanent Coast Guard Air Station at Gloucester. From there he went to Cape May and, later, as commanding officer at Miami when that air station was commissioned in 1932. While at Miami he received the Congressional Gold Life-Saving medal for an outstanding sea rescue. Serving for awhile as Chief of Aviation at Headquarters, Von Paulsen returned to Miami for a period of duty before going to sea. He was wisely chosen to command the expedition in Greenland, which eventually captured the German radio weather station there. At the present time, Captain Von Paulsen is in command of the transport GENERAL GEORGE M. RANDALL.

THE MOREHEAD CITY PROJECT

In 1919, when the Coast Guard reverted to its regular status under the Treasury, a modest attempt at a revival of Coast Guard aviation was made at Morehead City, North Carolina. This station was opened on 24 March, 1920, when the Coast Guard assumed custody of the Naval Air station buildings there. Six planes were procured from the Bureau of Aeronautics as a temporary loan. All of them were of the flying boat type, four designated by the Navy as HS-2L and two of the byplane type, with Curtiss OXX engines. They were retained until the station was decommissioned, but being surplus wartime aircraft they were then destroyed as unsuitable for further duty. Although no funds had ever been appropriated for its maintenance, the station prospered during the brief fifteen months of its history. Finally, Headquarters was forced to put it on an inactive status on 1 July, 1921, due to lack of financial support. Since this was the first real attempt at the use of air patrols

REAR ADMIRAL P. B. EATON

for Coast Guard duties, the Commandant, then W.E. Reynolds, set forth the particular functions of the aviation program. Seven distinct duties were enumerated, which, in addition to the regular Coast Guard duties for all units, included experimental flights for locating schools of fish, reconnaissance of land and water areas in surveying, mapping or determining routes for lines of communication, assistance in flood control and relief work for the western rivers' region, and emergency transportation services for governmental officials to remote or inaccessable locations. Actually, the station, under the circumstances, was forced to operate on a modern scale. Chiefly, its activities were in the enforcement of federal maritime laws, patrol duty, and general humanitarian work along the coast. The Annual Report for 1920 indicates, however, that during the course of the year's work, the planes performed valuable services of miscellaneous nature. Many vessels and wrecked planes were assisted, fishermen were aided in various ways, several reconnaissance surveying and mapping flights were made, and numerous individuals afforded air transportation. On two different occasions, planes were dispatched a distance of over sixty miles to carry a physician to isolated spots to attend to persons in need of special attention. A beginning had been made. Regardless of the restricted operations of the station, it had proved that aircraft had a definite place in all future Coast Guard expansion.

THE GLOUCESTER AIR STATION

The first period in the history of Coast Guard aviation actually began with the air unit established at Gloucester, Massachusetts, in 1925. Since that date there has been a steady and continuous development of Coast Guard aviation progress. In May of that year, Lieutenant Commander Von Paulsen, then commander of Coast Guard Base 7 at Gloucester, secured the loan of a Vought seaplane from the Navy Department. Lieutenant L.M. Melka acted as pilot and mechanic for the plane. It was fortunate indeed that this pioneer station had the services of two of the Coast Guard's ablest aviators to direct its early ventures. For several months the plane was housed with the Naval Reserve Air Station at Squantum, but eventually a small base was procured from the Bureau of Fisheries on Ten Pound Island, in the Gloucester Harbor. During the late twenties the problem of law enforcement was an all important one along the eastern seaboard. The smuggling of all sorts of contrabands was rife. In checking this growing illicit traffic the services of the Gloucester seaplane were indispensable. Von Paulsen and Melka alternated in regular patrols, making one to three patrol flights every day during 1925 and 1926. In addition, it was the policy of the station to make three or more scouting cruises each week. Instructional flights were offered and many hours spent in the air for experimental purposes in the development of radio, aerial spotting in target practices and in the use of line-carrying devices. One of the most interesting highlights of the station's contribution was a series of experiments in the use of radio communication between aircraft in flight, and between aircraft, ship and ground stations. The original inception of the idea was

CAPT. C. C. VON PAULSEN

envisioned by Radio Electrician, A.G. Descoteaux, USCG. Descoteaux constructed the particular type of radio equipment which was installed in the Gloucester seaplane during 1925. It consisted of batteries, head telephones, telegraph key, microphone, and accessories, with a two-way continuous wave telegraph and a high quality voice communication.[1] Designed for battery operation, entirely independent of the planes' regular electrical system, it soon became the basis of the later standard Coast Guard aircraft equipment. The peculiar nature of the duties of Coast Guard aircraft were such that the regular naval and commercial wireless equipment then available were impracticable. Like the patrol cutters, Coast Guard planes required a two-way telegraphic and telephonic communication. Efficiency of patrol and rescue operations demanded constant contact with other aircraft, vessels and land stations. Furthermore, long distance communication necessitated the use of highly sensitive receiving equipment, which independent of the plane's mechanism, could assure ready reporting while on water or in the event of a forced landing. All this involved the shielding and banding of all the equipment and associated circuits throughout the aircraft, and eventually the metallization of all non-metallic members. The work of Descoteaux and C.T. Solt, of the Communications Section at Coast Guard Headquarters, resulted in the use of the first loop type, radio direction finder. This equipment was adapted to the service and used successfully in Coast Guard planes.

THE FIRST AIRCRAFT COMMERCIAL BROADCAST

The efficiency of this new radio equipment was demonstrated on 13 June, 1929, at Old Orchard Beach, Maine. In a Loening amphibian plane covering the scene of operations, Descoteaux broadcasted the take-off and departure of the "Yellow-Bird", on its historic transatlantic flight. The description of the event by Descoteaux was relayed by ground equipment to an extensive national hook-up. It was clearly received by American radio stations and by several foreign countries. This was apparently the first time in the history of radio that a broadcast of this kind was successfully conducted.

AUTHORIZATION OF NEW CG AIRPLANE CONSTRUCTION

In 1926 the Coast Guard procured five airplanes of its own. Lieutenant Commanders Stone and S.S. Yeandle, of the Coast Guard, supervised their construction.[2] Three of these were of the Loening OL 5 amphibian type and two of the UO 4 Vought biplane, seaplane type. Two of the three amphibians and one of the biplanes were assigned to the Gloucester

1. The total weight of all this equipment was slightly over ninety pounds.
2. This new construction was an outgrowth of the congressional appropriation of $152,000 for the use of the Coast Guard in enforcing the laws of the United States to which duty it was specifically charged.

CAPTAIN E. A. COFFIN

Station, which in April, 1926 returned the original UO-1 to the Navy. The other two planes were stationed at the Cape May air base which had been commissioned during 1926. Both stations were active in rescue operations and anti-smuggling patrols during the period 1926 to 1928. During the latter year, the five planes cruised 56,395 miles covering an area of 945,275 square miles. No less than 5,113 vessels were identified or aided at sea. In 1930, five flying boats of the monoplane type were procured from the Fokker Aircraft Corporation and the following year a Viking flying boat purchased on contract. By 1933, the Coast Guard had 13 planes and 14 aviators in active service; by 1936 the number of planes had increased to 45, with 27 aviators on active assignment. The future of Coast Guard aviation was now definitely assured.

THE CAPE MAY AIR STATION: PROGRESSIVE DEVELOPMENT

Meanwhile, other air stations were being commissioned under the provisions of the 1916 Act. In 1926, the second main air station was commissioned at Cape May, New Jersey, utilizing the existing facilities of the former naval air station there, which subsequently was made a section base for patrol boats. Increased smuggling of aliens and liquor along the Florida coast in 1928 led to the temporary assignment of two planes at Fort Lauderdale, Florida, as an adjunct to the Coast Guard section base there. Up until 1932, the Gloucester and Cape May Stations were the only permanent air bases for the steadily growing fleet of planes. In 1933, however, an air station was commissioned at Dinner Key, Florida. The Annual Report indicates that the site was leased in 1932 and, after a hangar had been completed, the station was commissioned during the following year. This equipment apparently became part of the Miami Air Station, since no further mention of the Dinner Key Station is made in the later Reports. On 9 March, 1934, the Treasury authorized the consolidation of all its aviation activities. Accordingly, fifteen miscellaneous planes of the Customs Service were turned over to the Coast Guard. At the same time three new air patrol detachments were established at Buffalo, New York, San Antonio, Texas, and San Diego, California. Six land planes were transferred from the Navy to these bases to aid in combatting smuggling activities across the Canadian and Mexican borders. For training purposes an aviation school for enlisted personnel was founded at Cape May. In 1935, when the Salem Air Station was commissioned the Gloucester base was put on the inactive list. Cape May, however, was continued until 1938. During the year 1935, special air patrol detachments were established at Charleston, South Carolina, and, from time to time, at strategic points along the coasts. The Charleston detachment was commissioned as a permanent air station in 1937, and continued in active operation until 1942.

COASTAL CHECKING SYSTEM ESTABLISHED, IN 1929

The initial step in the formation of a chain of station hook-ups for the purpose of checking and assisting coastal aircraft was taken in 1929. On 1 May, a Coast Guard coastal checking system was inaugurated along the Atlantic coast. Its primary

PREPARATIONS FOR A ROUTINE PATROL FLIGHT

aim was to keep track, by means of regular radio reports, of all aircraft using the coastal routes. By means of scheduled checks on all departures and arrivals, or the time of passing by a station, planes on long distance flights could be kept under continual observation. At all points along the coast, from New York to Miami, air flights were kept under constance surveillance. Without additional cost to the government, adequate protection of air-borne traffic was thus guaranteed. When an accident occurred, the nearest Coast Guard station was ready with immediate assistance. During the first two months of operation, 329 planes were checked along their coastal flights. In 1932, statistics show that some 14,000 reports of passing planes were made by the stations scattered up and down the Atlantic coast. As the later air stations were established, the system gradually extended to the Gulf coast and the Pacific seaboard. It became a regular part of the efficient communications system developed by the Coast Guard.

LIBERATOR BOMBER FLYING OVER COAST GUARD MANNED TRANSPORT

Coast Guard Air Station, Salem, Massachusetts

ORIGIN OF SALEM AIR STATION

The Salem Air Station was commissioned in February, 1935, with a complement of 35 men and two airplanes. Actually, however, the station was indirectly an outgrowth of the original air base that developed in Gloucester some ten years earlier. In 1926, Commander C.C. Von Paulsen had organized an aviation unit at the Ten Pound Island Station, in Gloucester Harbor.[1] The two Loening amphibians acquired at Gloucester were the first Coast Guard planes to be used in the First District. After a chequered but colourful history the Gloucester station was abandoned for lack of funds, after about a year's operation. When in 1935, plans for a permanent Coast Guard air station in the New England area were authorized by the government, the present site on Winter Island in the Salem Harbor was selected as the most desirable location.[2] The new station was officially opened on 15 February, under the command of Lieutenant William L. Foley.

PHASES OF DEVELOPMENT

Since its foundation the Salem station has undergone three distinct phases of development, each with its accompanying changes in function. Until November, 1941, when the station assumed its wartime role, it had operated as an agency for rescue patrol, law enforcement and assistance duties. During that period it was under the Boston District of the Coast Guard, but in November there came a change of command. The station was transferred to the Commander, Inshore Patrol Force, First Naval District for all operational activities, remaining under the supervision of the District Coast Guard Officer only in matters pertaining to administration of personnel and supplies. With the outbreak of war on December 7, 1941, there came a gradual change in significant functions: anti-submarine warfare with its corresponding patrol and escort duties became the order of the day. In June the echelon of command was changed, the Salem Coast Guard air unit being put under the Northern Air Patrol of the Eastern Sea Frontier. It continued to function as an integral part of the coastal defense system until 21 October, 1944, when it was officially designated as an Air-Sea Rescue Task Unit under the Commander of the Northern Group, Eastern Sea Frontier. Since then, in order to cover the coast adequately, the station has established small, temporary detachments at Brunswick, Maine, and Quonset Point, Rhode Island, in cooperation with the Naval Air Stations at those points. The Air-Sea Rescue Task Unit at Salem covers the entire New England coastline, from the Canadian boundary to Long Island Sound where its jurisdiction ends.

1. Vide ut supra, p.56.
2. In 1942 the station was granted permission to use the Beverly Airport. This arrangement, which has been continued, enables all operations to be maintained during the winter months when the Salem Harbor is ice bound.

SALEM AIR STATION

EARLY PROGRESS

In the spring of 1935 four RD-4, (Douglas Dolphins) two-engined amphibians arrived at Salem. These strong, practical planes were to remain the basic all-purpose rescue plane replacing the earlier Fokker "Flying Life Boats". The PJ-1 planes were larger than the RD-4's, with a greater cruising range and sufficient room for accommodating stretcher cases. In 1938, the first "Hallboat", a forerunner of the PBY, was procured; other additions were forthcoming, although as newer aircraft were secured older planes were transferred or dismantled. When the station entered upon its wartime assignment in 1941, the complement consisted of three twin-engined amphibians, all unarmed and unfitted for armament, five commissioned officers, two warrant officers and approximately eight enlisted personnel. Ten pilots were included in that number. The station was also operating a training program for new recruits, a Cooks' and Bakers' School and two or three motor boats in addition to the main aviation unit. Meanwhile, the present barracks, mess hall, garage, radio room, ramp and calibration circle had been added to the original equipment. A new ramp and other buildings were constructed later.

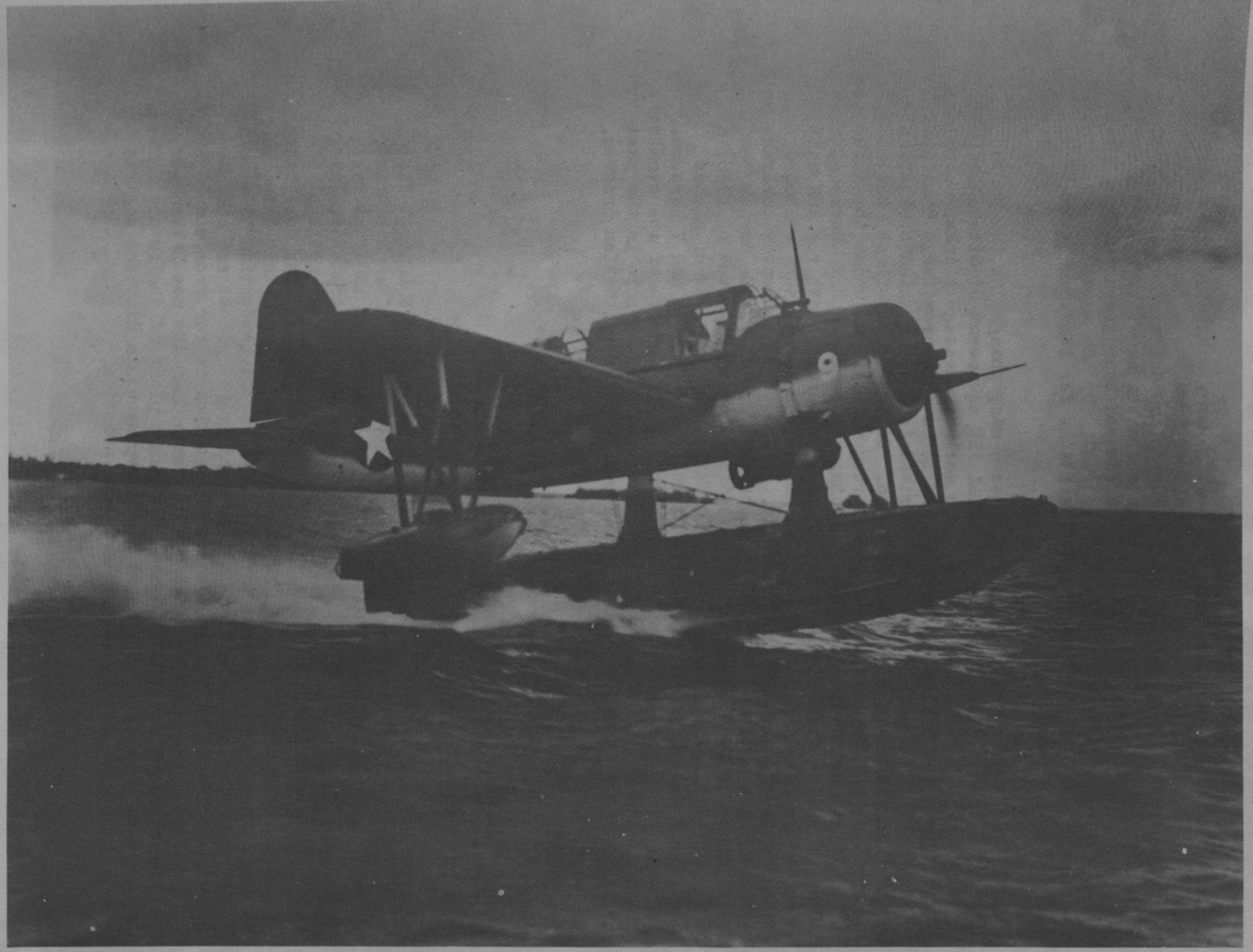
RESCUES: 1935-1941

Few outstanding events marked the period from 1935 to 1941. For the most part the station's work was traditional and routinized: rescue missions at sea, searches for overdue vessels or lost fishing boats, spotting wreckage, patrolling local regattas and occasional ambulance or assistance flights. In preparation for a "state of readiness", Coast Guard planes began regular patrols in 1940. As soon as war actually became a reality the security program was strengthened; the station complement was armed, watches doubled, guard patrols instituted and fox holes dug on the reservation. "Blackout"and close-order infantry drills were regularly conducted. The station was operating on a general war footing by 1942. Air patrols were extended as far north as Maine and southward to Nantucket Island. Many of these scouting missions covered an area far out to sea.

WAR ACTIVITIES

Although rescue duties and assistance flights continued, most of the station's efforts were directed to anti-submarine patrols during 1942, 1943, and 1944. New planes and additional equipment were received. By the summer of 1942 the unit had five OS2U-3 seaplanes and three J2F-5 amphibians, all armed with .30 caliber machine guns and 325 pound depth charges. The remaining four planes, JRF's and a J4F, were unarmed. Four motor vehicles, one tractor and a crash boat completed the equipment.[1] Daily inshore patrols protected Boston Harbor and the approaches to the sea. Offshore patrols covered areas north of Boston, off the coast of Maine from advance bases maintained at Bangor, Portland, Rockland, and Lewiston, and to the southward around Cape Cod,

1. By the close of the year the station had received three more OS2U's. Since some of the J2F's were transferred, the total number remained at eight. Five bomb trailers and another motor vehicle had been added.



TAKING OFF FOR ANTI-SUBMARINE PATROL

Buzzards Bay, Nantucket and Vineyard Sound. Many submarines were contacted, some were attacked, others driven from the area, but no sinkings were reported. During the period one plane and two men were lost in the line of duty. Of course, rescue and assistance flights continued, despite the increased war activity. As the monthsprogressed during 1944, air-sea rescue missions became more frequent. By the autumn of that year the station was already beginning preparations for its transition to air-sea rescue operations.

SALEM AIR STATION AS AN AIR-SEA RESCUE TASK UNIT

The year 1944 witnessed many changes in the Salem Air Station. Special ASR equipment of Gibson Girl radios, flares, dye markers, message blocks, emergency kits, life rafts and so on were provided. The first ASR crash boats arrived in October. Indoctrination and training in the new procedures began. On the twenty-first, the station took up its new air-sea rescue responsibilities under the direction of Deputy Air Sea Rescue Commander Lieutenant Commander H.M. Davison, USCGR. With its fifteen planes and ancilliary crash boats the ASR unit, which totals 37 planes, is one of the largest on the eastern seaboard, being surpassed only by Elizabeth City. In addition to convoy coverage and anti-submarine patrols, the station conducted 3,476 flights during the fiscal years of 1943 and 1944. For the first quarter period of 1945, a total of 707 flights included 267 cases of vessels and 189 of planes identified; assistance was given to 12 vessels, 4 planes and 7 persons. Prospects of future development are encouraging. Because of its strategic location, the station can look forward to an important role in the post-war plan of the Coast Guard in the Eastern Frontier's aviation program.

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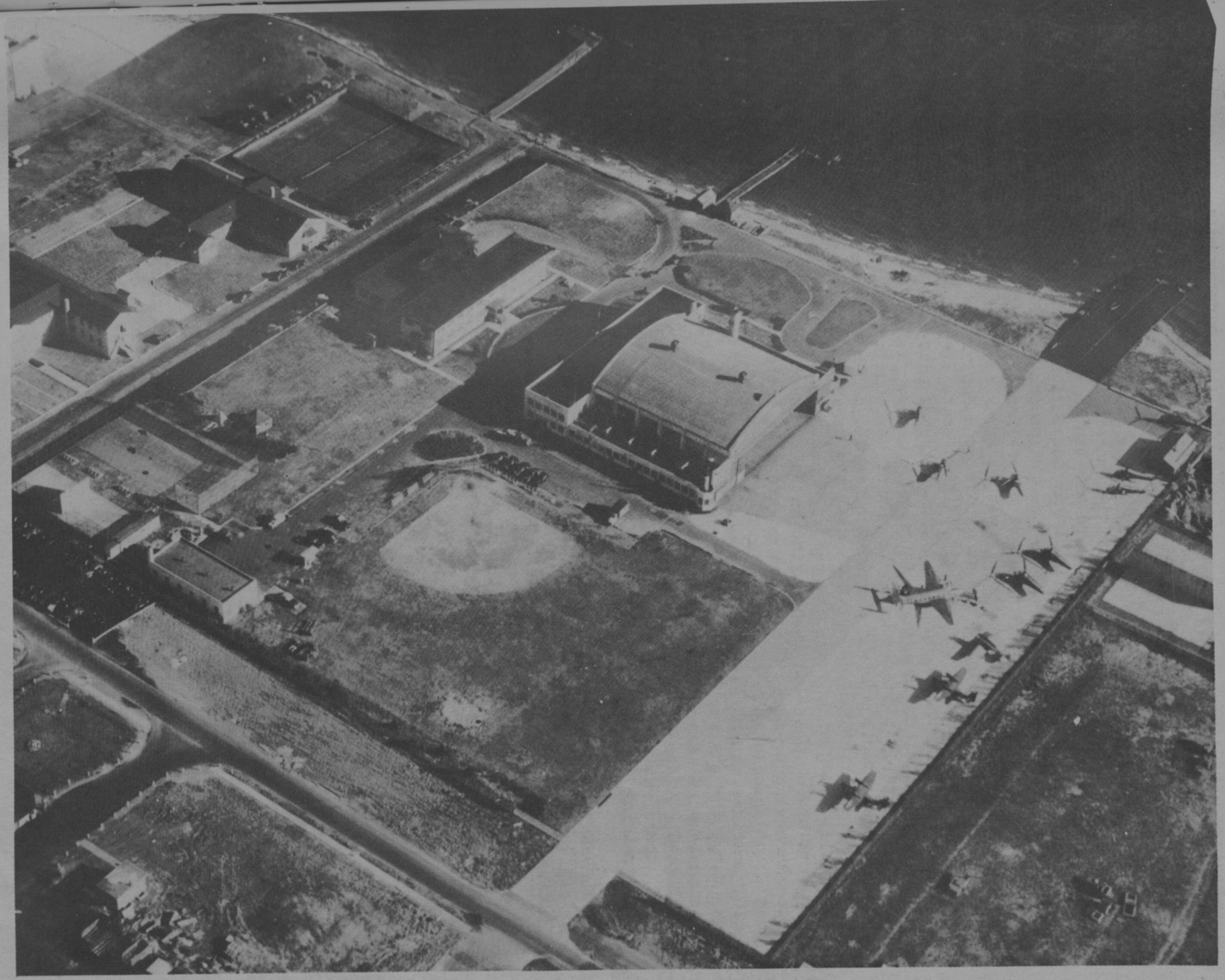
COAST GUARD AIR STATION, BROOKLYN, NEW YORK

INTRODUCTION

The Coast Guard Air Station at Floyd Bennett Field, New York, has had an interesting, if rather brief, development. Established in April, 1938, it has recently become one of the most important training and experimental air stations in the United States. The spotlight of public curiosity was first turned on the station when it was designated as a helicopter training base, 19 November, 1943. Since that date, it has directed its main efforts toward one goal--the perfection of a helicopter plane for rescue duties and the training of pilots and crew in helicopter flying. Although the experimentation is far from complete, sufficient progress has been made to indicate that the new helicopter will undoubtedly be the most practical rescue plane of the future. The pioneer work accomplished at this field represents a distinct contribution toward the advancement of American aviation.



BROOKLYN AIR STATION

EARLY STATION ACTIVITY

The early history of the station was not very colorful. Its activities were similar to those of the other Coast Guard air stations, with perhaps a greater emphasis upon harbor inspection and supervision. One of the station's major responsibilities was the maintainance of daily harbor patrols, which were largely routinised and uneventful. Observation from the air was of great assistance to the Coast Guard harbor craft policing the area. Twice a day planes checked the New York waterfront, reporting unidentified boats, improper moorings, accidents, or unusual incidents. It was an easy matter to signal a Coast Guard patrol boat to investigate any questionable vessel or suspicious activity. Prior to the actual outbreak of war, the activities of the station consisted mostly of assistance, ambulance or rescue missions. When the submarine menace became acute, the Coast Guard planes were eventually armed with depth charges to assist in the protection of the New York area. These anti-submarine patrols, however, served little more than harassing agents. The actual effect upon the enemy must remain a matter of speculation, since no positive accomplishments or proved sinkings of submarines can be recorded. As more aircraft was made available to the Navy, the station relinquished most of its purely military duties. Reconnaissance patrols, as well as escort and convoy duties, however, continued. After the helicopter program was instituted in the autumn of 1943, there was a general concentration of effort toward the development of a training program.

DEVELOPMENT OF HELICOPTER TRAINING UNIT

The new program was initiated in November. Soon the station was destined to attract national attention with its remarkably successful experiments. The program got underway immediately with three Sikorsky HNS helicopters and three British helicopters assigned to the station for training purposes. The British Admiralty had requested that the Coast Guard train a limited number of their personnel as helicopter pilots and mechanics. It was finally agreed that 18 officers and 44 enlisted men could be accommodated and that eight British helicopters would be furnished. The Royal Navy Helicopter Training Unit was finally organized under the command of Lieutenant E.A.H. Peat, RNVR. A self-contained unit, it maintains all its personnel and planes, excepting one HNS (the FT-839) which is pooled for joint American and British use. The other aircraft, which by August, 1944, had increased in number to 16 United States and 10 Royal Navy planes, were used jointly as the operational needs of the two groups required. By the first of October, 1944, the station had a flourishing school going, with 13 helicopters and 48 certified Coast Guard helicopter pilots.

NORMAL AIR ACTIVITIES

Meanwhile, the Brooklyn air base was carrying on its regular aviation activities. In 1943, over 2000 flights were made which covered a total area of 3,092,709 square miles. In 42 assistance flights 20 vessels and planes and 41 persons were given assistance, 8 derelicts reported, 5 departments aided and 4 medical cases, as well as 49 other persons, were

DR. IGOR SIKORSKY VISITS HIS SON AT BROOKLYN AIR STATION

transported. During 1944, 444 anti-submarine and convoy patrols were conducted, while 34 assistance and 3,677 other types of flights covered an area of 1,131,698 square miles. Over 5,000 vessels and planes were identified, 7 reported overdue, 3 assisted, 1 person was rescued and 25 others were given transportation. During the first quarter of 1945, 1,216 flights were made, representing 1,308.2 flying hours; 47 vessels and 35 planes were identified in patrol flights, while the 30 assistance flights transported 9 people, assisted 3 planes and aided one person and one government department. Special helicopter activity included 147 assistance flights during the period, in which a total of 1,123 miles were cruised. In fact, the accelerated station activities, combined with the training program necessitated further expansion. In January, 1944, the nearby Rockaway Airport, Averne, New York, was leased for Coast Guard use and an auxiliary helicopter training field was established. The total ASR complement in March, 1945, numbered 19 rescue squadron, 7 utility and 7 training planes.

HELICOPTER TRAINING PROGRAM

The helicopter training and development program represents the station's most signal accomplishment to date. From the very beginning the training program was quite popular. Although the fundamental theory of rotary wing flight is by no means new, it does, nevertheless, require a definite type of skill to learn to successfully operate the new craft. Not all pilots are qualified for the job. In view of the peculiar problems involved, only volunteer qualified aviators are selected for helicopter training, and then only those who indicate a genuine desire to enter this new aviation field. The results have been most satisfactory. By February, 1945, when the sixth pilots' class completed its course, the school had trained altogether 102 helicopter pilots. This number included 72 Coast Guard, 6 Navy, 5 AAF, 12 British, 4 CAAF, 1 NACA, 1 PU Corporation and 1 Mc Donald Aircraft aviators. The course, as defined by the station, is designed "to train aviators to fly rotary wing aircraft, with the possible thought that they will be able to progress to larger and more powerful helicopters when such planes become available". Since the aerodynamics of helicopters are much more complex than that of the ordinary fixed wing planes, a much longer period of ground training is required of all trainees. However, pilots are trained in both types of flying and required to fly fixed wing planes as well as helicopters. Seventy to eighty hours of helicopter training are given as compared to the 28 to 30 hours necessary to qualify regular pilots. The nine week pilots' course consists of lectures, demonstrations and some 63 hours of flight training.[1] The HNS-1 helicopter trainer is used. Fitted with both wheels and floats, it can be used for either land or sea operations. A practical deck-type landing platform has been installed on the field to create the illusion of ship-

1. Upon completing the ground school course, trainees are assigned a month or so for duty in the hangars to acquaint them with routine checks and maintenance procedures. A mechanics' helicopter maintenance course of four weeks is also given. This course includes about 85 hours of class instruction.

HELICOPTER HOVERS OVER STATUE OF LIBERTY

board conditions. As nearly as possible it represents a typical rolling deck and can be made to present the actual difficulties of landing on a ship during a storm. For more realistic operations, the cutter, COBB, has been assigned to the station in a training capacity.

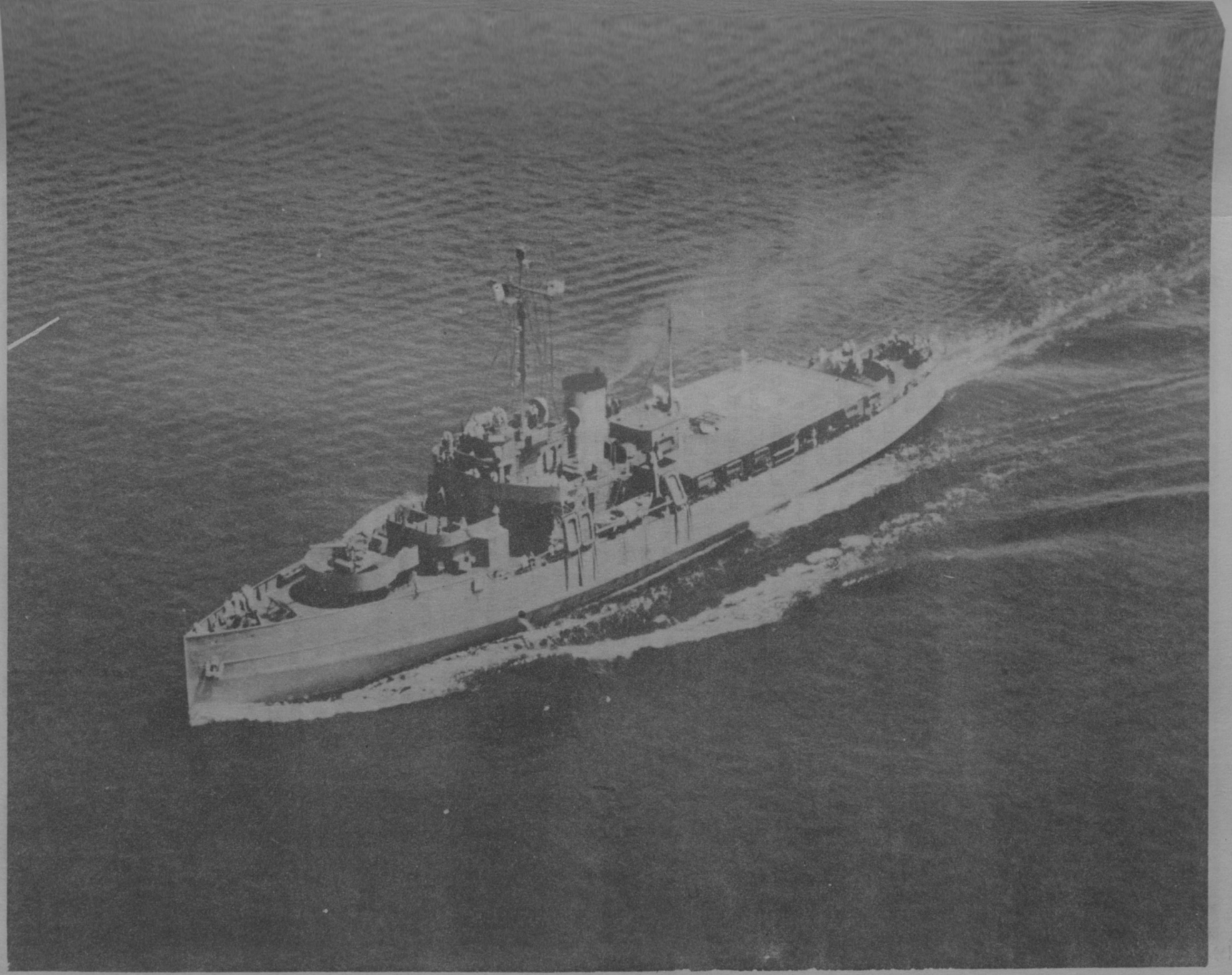
PROGRESS IN HELICOPTER DEVELOPMENT

The Brooklyn unit has made remarkable progress, not only in the training program but also in the technical improvement of the helicopter. Successful experimentation with the Hayes anti-submarine under-water sound detection equipment and the Sperry Gyro Scope company's automatic pilot are still in progress; likewise, a long series of tests to determine the effectiveness of using helicopters for radar calibration and for spraying insecticide have proved conclusively that the helicopter is well adapted to this type of work. In the field of Loran, extended tests have been conducted at the airfield, in which Coast Guard PH-3 seaplanes and JRF-5 amphibians have tried out the Loran type SCR-722 receiver-indicator.[1] The report on performance in these tests indicates that the program was satisfactory in all respects.[2] Furthermore, in actual rescue missions the helicopter has definitely proved its worth. The new hydraulic hoist and rescue harness have functioned perfectly in all trails. As yet the hoist is quite heavy for the present type helicopter, weighing about 77 pounds, but it is believed that the weight can be cut to approximately 50 pounds. Pick-up harness, now in the process of development, can be dropped over the patient's body and automatically tightened so as to enable the patient or survivor to be lifted into the plane without the assistance of a crew member being lowered to adjust the harness to the body. The hoist itself is practicable for either helicopters or boats, Equipped with a twelve-foot fending-off pole, the hoist can be attached to the forecastle of a boat so as to pick up from either side, eight or ten feet away from the boat. Special life jackets, which will float patients face up, and floatable litters have also been used successfully with the hoist unit. This newer equipment has materially improved the operating efficiency of ASR units.

THE FUTURE OF HELICOPTERS

Besides these special kinds of work, the helicopter is admirably adapted for conventional Coast Guard duty. Numerous tests in observation flights, photograph and mapping missions and in flood or storm surveys have convinced authorities that helicopter planes are practical for many types of routine activity. Its complicated machinery is daily being simplified, so that many of the peculiar difficulties of helicopter flying will in time be removed. However, the program at the Bennett Field is only in its infancy. Far greater progress in future post-war developments is expected at this station.

1. Coast Guard planes are now being furnished with Loran equipment. Patrol Squadron Six has already been so equipped.
2. Report on the performance in tests of Loran, for the period 30 December, 1943 to 20 January, 1944. "All the pilots who observed the equipment in operation were impressed with the Loran system and praised the service very highly".



COAST GUARD CUTTER COBB ASSIGNED FOR HELICOPTER TRAINING

COAST GUARD AIR STATION, ELIZABETH CITY, NORTH CAROLINA

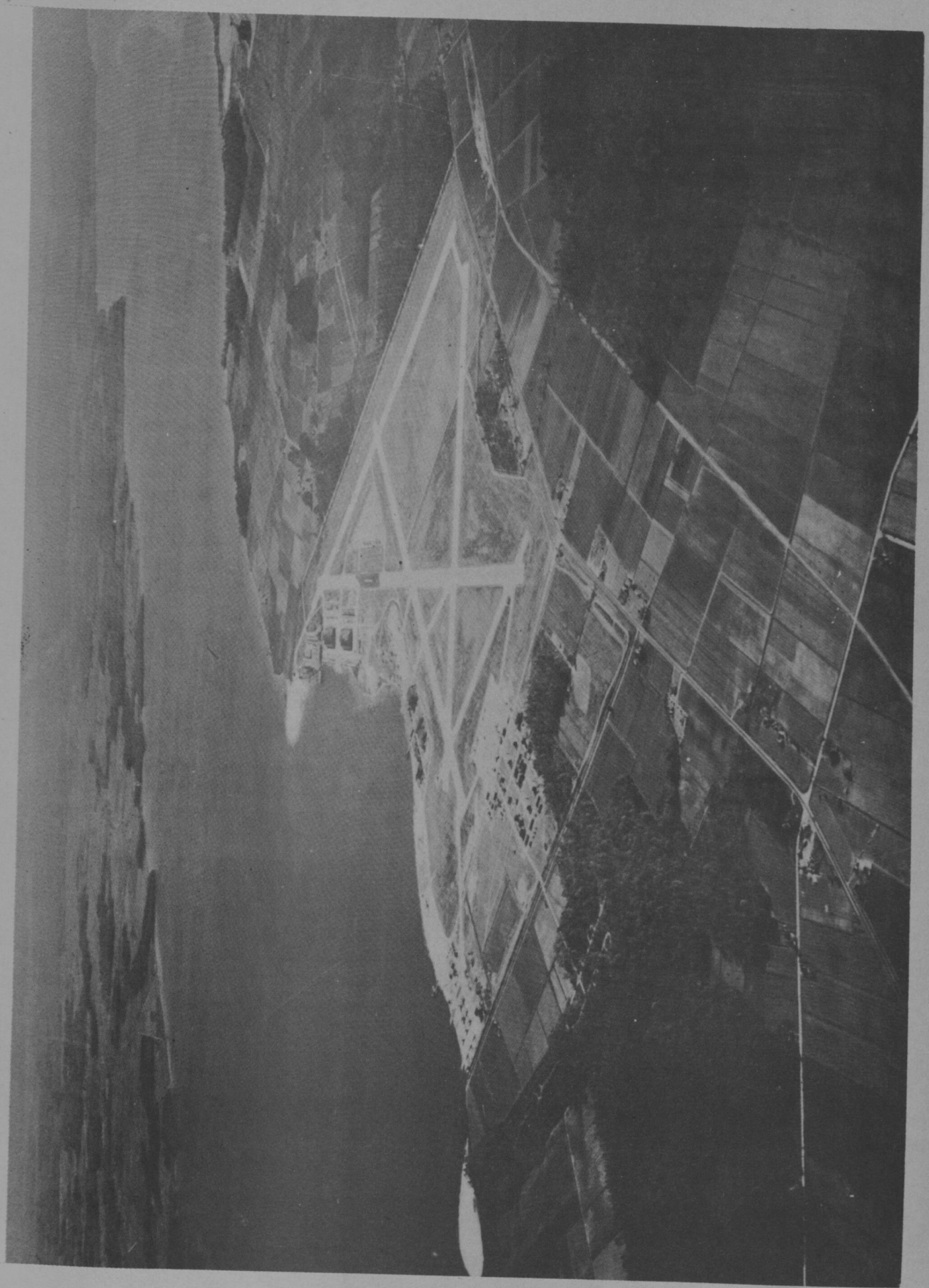
The air station at Elizabeth City is neither the youngest nor the oldest of the Coast Guard aviation units, but in size, recent expansion and accomplishments it has come to represent Coast Guard aviation at its best. However, its early struggles, day to day activities and steady development have been quite similar to all the other air units. In many respects, therefore, the history of this station is typical of the outstanding advancement made during the past two decades by the youngest branch of the historic Coast Guard services.

ESTABLISHMENT AND INITIAL OPERATIONS

The Elizabeth City station was authorized in 1938 but actual construction was not begun until the following year. Three hundred acres of land had been purchased about four miles east of Elizabeth City on the North Carolina coast. While the station was primarily intended as a major overhaul base for the eastern seaboard, the location of the base nevertheless was selected with a view of its strategic importance in regard to possible enemy action in time of war. The new site was ideal, the most advantageous location between New York and Miami. In a sheltered area, north of Albemarle Sound and some fifty or sixty miles from Cape Hatteras, the station was built on the sloping banks of the Pasquotank River. Grading of the field area was no problem since the variation in elevation was only about nine feet. Furthermore, the river was free of ice during the winter, permitting planes to operate by land and water the entire year round. All these factors combined to make the station an important unit in peacetime activities and a strategic base for ensuing war operations. Officially opened on 15 August, 1940, under the temporary command of Lieutenant W.B. Scheibel, the station began operations with a complement of three commissioned officers, two chiefs, fifty enlisted men and three planes. The next day a fourth plane arrived. On the same date the distinguished aviator, Lieutenant R.L. Burke, arrived to take command of the field. Undoubtedly much of the early success of the station was due to the rich experience, ability and untiring efforts of its first commander. Without complications or delay, the first of the long series of operational flights was begun on August the eighteenth. It is indicative of the efficiency of officers and crews that the first 12,308 flights were made without a single fatal accident.

EARLY ACTIVITIES OF THE STATION

The first patrol flight of the station was an observational survey of the flood area of the Roanoke River. Until 1 November, 1941, when the Coast Guard was transferred from the Treasury to the Navy, the station was under the direction of the DCGO at Norfolk, Virginia. During this period, prior to the institution of anti-submarine patrols, most of the assignments were for law enforcement. As the air arm of the Treasury Department, Coast Guard planes were daily engaged in searching for illicit distilleries and in aiding Revenue officials to apprehend violators of the prohibition law. Frequently, such assignments took pilots and planes to all parts of the country, which necessitated their absence from the station



ELIZABETH CITY AIR STATION

for as much as six weeks at a time. Other patrol missions, however, were not infrequent. Ambulance flights, administration flights and rescue duties occupied a great deal of time. In addition, there were considerable miscellaneous duties, such as map-making or aerial photography for the Coast and Geodetic Survey or assistance operations for the State Conservation Department. As the station grew in size and importance, various types of training schools were initiated at the field. From October, 1941, to January, 1942, Coast Guard students assigned for flight training at the naval air school at Pensacola took their pre-flight course at Elizabeth City. Temporary schools for training aviation machinist mates and for cooks and bakers were conducted in 1941 and 1942 but had to be discontinued because of increased station activity in patrol operations. Neutrality enforcement patrols became more exacting as the European war progressed. These continued until 8 December, 1941, when the station began its anti-submarine patrol duties.

WAR ASSIGNMENTS AND DUTIES

The first station order from the Navy after our declaration of war, was for an air patrol of "steamer lanes and off shore approaches to Chesapeake Capes; on alert for enemy submarines." This patrol, extending fifty miles out to sea and as far south as Cape Lookout, was maintained every day that weather conditions permitted. At the time, thirteen pilots and ten planes were available for the anti-submarine patrols, but any positive achievements in repelling enemy operations off the coast were largely negated because the Coast Guard planes were unarmed. Daily, merchant vessels were being sunk, while pilots stood by helplessly, unable to do more than turn in an outraged report. Despite repeated requests for modern planes, adequately armed for combatting submarines, it was not until 22 January, 1942, that armed planes were assigned to the station. However, only two J2F5's, equipped with machine guns and bomb racks, were received at that time; primarily they were designed for observation and scouting and poorly adapted for submarine warfare. It was not until December, 1943, that adequate fighting planes were procured. By that time the submarine danger was almost over. This history of the station's participation in defense patrols might have been different had proper equipment arrived some two years earlier.

EXPANDING OPERATIONS 1942-1944

The admirable location and the sizeableness of its field made the Coast Guard Air Station at Elizabeth City a nucleus for war expansion in the Carolina area. In May, 1942, an air squadron of the 34th Coast Artillery Brigade was assigned to the station and the Navy used the Coast Guard field for blimp operations in the district. Eventually the Navy completed its own station about 1,000 yards from the Coast Guard site, but before that it used the Coast Guard facilities and air station as a base of operation for squadrons flying between Bermuda and the United States. Since all tatical administration was under the authority of the Eastern Sea Frontier, the coordination of

AERIAL GUNNER ALERT FOR ENEMY SUBMARINES

of all services at this field was possible. As station field operations increased, physical expansion was rapid. At the end of 1941, the physical plant consisted of one hangar, a barracks, a seaplane ramp, a crash boat wharf and four runways. By the end of 1944, the station had built a new supply shed, a second large barracks building and mess hall, administration offices, chapel and indoor swimming pool.[1] Just as the anti-submarine and convoy duties were being curtailed in the summer of 1944, combat Coast Guard air crews were assigned to the station to be trained for the Greenland Patrol. This VP-6 training program continued for four months in 1944, under the able direction of Commander E.J. Suydam, who had replaced Commander Burke in May of that year.[2] Already preparations for the anticipated air-sea rescue program were under way. In May, 1944, three PBY rescue planes were received and training in air-sea rescue operations was begun. Although anti-submarine patrols continued throughout August they were cut in half during September, reducing the flying time to about 300 hours per month. The last anti-submarine patrol was flown on the 17th of October, 1944.

FLIGHT OPERATIONS 1943-1944

An analysis of flight operations during this period reveals a wide variety of station duties. In 1943 over 8,300 hours were flown in various types of flights, representing 782,235 air miles. Over 24,900 planes and vessels were identified, 29 others assisted. Altogether, 69 assistance flights were made, in which 12 government departments and 76 persons were given assistance, and, in addition, 16 medical cases and 96 persons were given special transportation. During 1944 there was a considerable increase in aviation activity, despite the fact that anti-submarine patrols were discontinued before the close of the year. An area of 10,038,389 square miles was covered in 3,228 different flights, which included 56 assistance and 1,692 anti-submarine patrol or convoy coverage flights. Nine vessels or planes were assisted and 21 rescues accomplished during the year. Pilots and crews were fully experienced in all kinds of rescue missions long before air-sea rescue was established.

RESCUE OPERATIONS PRIOR TO AIR-SEA RESCUE ESTABLISHMENT

Actually the air unit performed a greater service in rescuing or aiding survivors during the "Battle of the Atlantic" than in scaring off enemy submarines. Day after day, pilots went out to give what assistance they could to the victims of torpedoed vessels. Without the proper planes and equipment they frequently could do little more than radio for aid or drop emergency first-aid kits and supplies. The seaplanes could land and pick up the victims, as they did, but the others could only pause in their patrol to stand by until

1. Portable Quonset huts, earlier used for storage and supplies, are still available for overflow equipment.
2. The VP-6 training squadron was at the station during the period 15 March to 15 July, 1944. The Patrol Bombing Squadron Six was commissioned 5 October, 1943. See p. 122 ff.

PILOTS TOLD WHERE TO LOOK FOR APPROACHING CONVOY

other rescue craft came. Moreover, many supplies were wasted because the means of dropping the containers were not effective. It was to remedy this deficiency that the novel provision bomb was invented by two of the station's ground crew.[1] It greatly facilitated the rescue work of the station, which became more efficient as the months passed. From time to time pilots would chance the dangers of crashing and effect successful landings in order to give succor to the dying or helpless. The first of such landings was made by an unarmed PH-No. 183 on 1 May, 1942, when thirteen survivors were saved after drifting at sea for six days. Two men, one seriously injured, were flown to Norfolk, while the remaining eleven were picked up by a Coast Guard cutter. Next day, another off-shore landing saved the lives of two men adrift in a raft. These were really "air-sea" rescues, effected long before the later Air-Sea Rescue Agency was initiated. The most spectacular rescue was made in July, 1942, when Lieutenant Burke and his co-pilot, Lieutenant R.W. Blouin picked up seven German survivors from the submarine DERGIN, which had been sunk by an Army plane. Burke was awarded his second Distinguished Flying Cross for this exploit. These rescues represent but three of the assistance flights made during the period from 7 December, 1941, to 1 July, 1944. In that period a total of 22,951.1 hours had been flown, including 4,875 convoy and anti-submarine patrol flights and 2,550 training, test and administration flights. As the station turned its concerted efforts toward the development of the new air-sea rescue unit, it could look with pride upon its past achievements. Already, 186 persons had been assisted or rescued from peril.

AIR-SEA RESCUE ORGANIZATION

In November, 1944, Commander S.C. Linholm was appointed commanding officer of the station and the Air-Sea Rescue program was begun. Since its establishment the safeguard of life and property at sea has been the primary function of this station, which serves the whole middle Atlantic seaboard. In the ASR organization of the Eastern Sea Frontier, this air base is a central unit of the Sector. In close cooperation with other Army, Marine and Navy units, it covers a large coastal area. In addition to its permanent detachment, station planes are temporarily assigned to ASR bases at Cape May, Cherry Point, Charleston and Wilmington. As of March, 1945, ASR plane assignment at Elizabeth City totaled 55 aircraft, the largest aviation unit in the whole ASR organization. Of these planes 17 were utility and 7 training; the remaining 41 were organized as a special rescue squadron, coordinating its activities with the surface craft assigned to the unit. For the first three months of operation in 1945, the station's planes had made 1,086 flights. Although the majority of these were training and administrative flights, 128 assistance flights gave aid to 11 vessels, 5 planes and 28 persons. Seven individuals were saved or rescued during the period.

1. Vide ut supra, p.36. It was first used on 4 July, 1942, by a CG PH-3.

COMMANDER RICHARD L. BURKE, U.S.C.G. RECEIVES DECORATION

COAST GUARD PLANE COMPLEMENT

According to the official assignment of February, 1945, the Coast Guard had 27 planes on duty at the station, of which seven were on temporary assignment. Seven of these are the newer type PBY-5A rescue planes. It is anticipated that as soon as they are available, the PBY's will replace the JRF's and J4F's now being used. Some of the planes are already equipped with Loran.[1] Recently a training model helicopter and several qualified helicopter pilots were assigned to the station in an experimental capacity. At present the chief energies of the entire personnel complement are centered in the intensive ASR training program, which is in process of development.

EFFICIENCY OF RESCUE MISSIONS

The acid test of any training program for air-sea rescue is in the increased degree of efficiency achieved by the coordinated task force. All rescue planes and surface craft must be prepared to undertake a rescue mission or assistance trip upon immediate notification. One example will clearly illustrate the extent to which both speed and efficiency have been attained. On the 17th of November, 1944, the first major air-sea rescue was accomplished. It set a worthy precedent for the new organization to follow. While on an administrative flight Coast Guard pilot, H.W. Wolley, was notified of a plane collision over the Meuse River. Within seven minutes after the crash, the uninjured Marine pilot had been picked up by Wolley who had landed on the river and taken the man from a fishing boat that had already found him. Upon delivering the survivor to Cherry Point, Wolley returned to the scene of the collision and marked it with a smoke bomb in order that a systematic search might be made for the other body. Immediately flying back to the Marine Base at Cherry Point, he transported a Boat Officer to New Bern where directions for salvage operations were dropped by means of a message block to a salvage vessel there. After flying the officer back to his base at Cherry Point, Wolley's mission was completed. He had accomplished the entire assignment, including the rescue, in less than an hour and a half. Such efficiency, speed and coordination of purpose and effort have not been the results of accidental circumstances. They represent the summation of years of hard work on the part of the entire station administration. As a unit of the ASR organization, the station can look forward to a continuation of its fine record of Coast Guard service.

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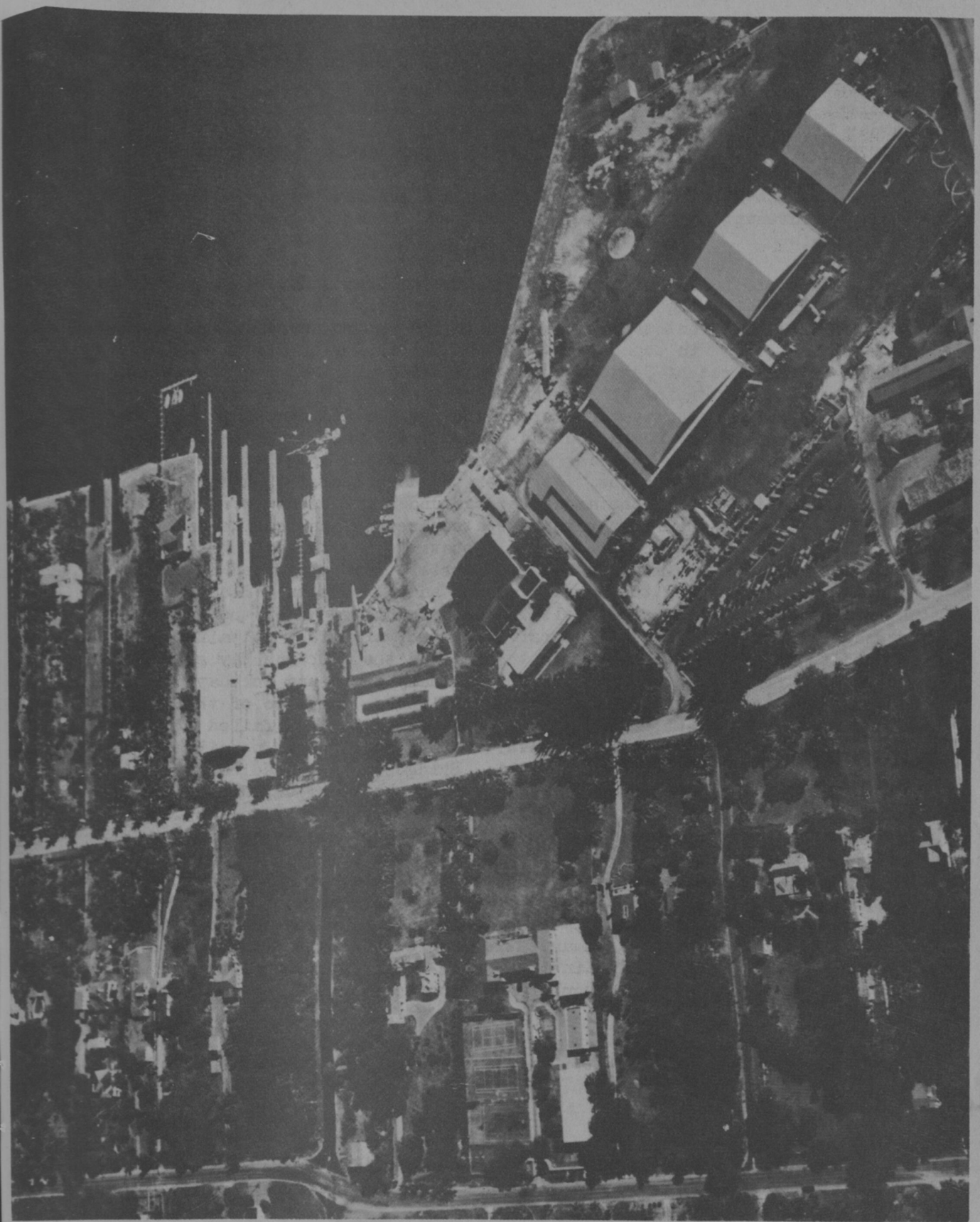
COAST GUARD AIR STATION, MIAMI, FLORIDA

EARLY HISTORY

The Miami Coast Guard Air Station was the first of the nine contemporary Coast Guard aviation units to be established. It was commissioned in June, 1932, with a few planes, one hangar, and a minimum of equipment. Soon, however, due to the rapid expansion of the station's activities the original facilities proved to be inadequate. New con-

1. It is expected that all ASR planes will be furnished with Loran equipment in the near future.



MIAMI AIR STATION

struction programs in 1936, 1938, 1942 and 1944 added barracks, storerooms, sick bay, offices and work shops. Lieutenant Commander Carl C. Von Paulsen was the station's first commanding officer, being relieved by Commander Lloyd T. Chalker in April, 1935. Von Paulsen was again in charge from 1936 to 1939, after the short interval of command by Lieutenant Carl B. Olsen, who received the Distinguished Flying Cross for heroic services performed at that station.[1] Since 1939 the station has had four commanding officers, Lieutenant Commander James N. Schrader being in command at the present time.

THE 1935 HURRICANE

It was during the regime of Lieutenant Olsen as commanding officer that the air station was able to render outstanding service to the entire surrounding territory in connection with the Labour Day hurricane of 1935. Beginning on the first of September and continuing with varying degrees of intensity until the morning of the fourth, the storm swept over the southern portion of the State and across the Florida Straits. By the evening of the third the hurricane had passed the Straits and was heading northwest. Strong winds, reaching more than a sixty-mile gale force, were accompanied by heavy rains. For over two days the station's planes, as well as all aircraft in the area, were grounded by adverse weather conditions. As soon as the first warning weather report was received at the station, a plane was sent out to warn all boats to the south of Miami. During that first day as many vessels as possible were contacted by means of message blocks bearing the warning and an added message: "Please pass this information on to other vessels in your vicinity." When the supply of message blocks was exhausted, paraffin coated, air-tight containers were used to relay the storm reports to boats in the Biscayne Bay and as far offshore as surface craft could be sighted. Many crews and holiday parties that day owed their lives to Coast Guard vigilance. Only two of the numerous members of a Labour Day picnic party on Indian Key failed to heed the warning. Both men were lost. Nevertheless, despite all possible precautions, the storm took a large toll. Bridges were washed out, streams swollen, districts flooded, and whole regions swept to utter desolation. The Keys area was particularly hard hit. From all quarters appeals for help began to flow in. The station communications truck was promptly dispatched to Snake Creek, where immediate help was urgent. From this point food, water, and medical supplies were distributed. A dinghy, with an outboard motor, was taken along to be used in ferrying services. Guard details were posted at various places to maintain order and control traffic. From 4 to 7 September, radio communications were maintained between the truck and the air station. The indispensable dinghy was the first to transport doctors and medical supplies to those stranded in the stricken

1. Vide ut supra, p. 46. Lieutenant Commander Carl C. Von Paulsen and crew received Gold Life-Saving medals for the rescue of a youth in the Gulf stream on 31 December, 1932.

LIEUT. (NOW CAPTAIN) CARL B. OLSEN

area. Meanwhile, help arrived from the Jacksonville and New Orleans Divisions. The Red Cross, state organizations, and local agencies joined in the rescue work. For a few days the station planes were busy in assistance missions and survey flights over the entire district affected by the storm. Later, several administrative flights were made in cooperation with federal and state authorities. During the period of disaster no fewer than thirty-seven survivors were brought in by Coast Guard planes. The station's handling of the whole emergency was a splendid example of timely action, efficient administration, and well planned cooperation.[1]

OPERATIONAL FUNCTIONS

In December, 1941, the station automatically became a part of the operational command of the Navy. Up to that time the chief function of Coast Guard aviation throughout the United States had been that of executing the traditional duties entrusted to it by the Treasury Department. To protect life and property along the coast and on the high seas was the prime objective, but the air detachments always had many other associated duties. The station's planes were, from time to time, engaged in special search missions, assistance flights, and observation duties, as well as in conducting routinized security patrols. During prohibition days, the location of illicit distilleries for the Alcohol Tax Unit was not the least among their many contributions to law enforcement. With the coming of the European war in 1939, they were actively engaged in the enforcement of neutrality legislation. Likewise the services of Coast Guard planes were frequently called upon for administration flights. In short, the air unit at Miami was a public service agency for any government department that needed its help. As the supporting arm of the District's older Coast Guard units, it assisted them in organized rescue searches, in storm warnings and in normal day to day activities.

WAR DUTIES OF THE STATION

As in the case of all other air force detachments special war assignments brought a gradual transformation to the station. Activities were expanded, its strength increased. Nine armed observation planes were assigned to the unit and put into immediate operation. Newly trained pilots joined the old crews in the grueling work of carrying on a wartime job. As early as 11 December, 1941, regular daily observation and security patrols were inaugurated. Later, in April, 1942, the station was put under the operational control of the Sea Gulf Frontier, in order that the coastal defenses of the region might be efficiently unified. Flight logs for the period show an exceptional increase in the amount of flying done. While most patrols were localized, long distance flights of eight hours or more in duration were not uncommon. Oftentimes the pilots averaged as much as nine flying hours per day. Security, convoy and anti-submarine patrols soon became a part of the normal day's routine. Since the Miami coast area was right in the heart of the German submarine menace, the casualties of sunk or damaged vessels mounted

1. Appendix D. gives further details of the hurricane and the role played by the air station during the critical period.

RESTING BETWEEN ANTI-SUBMARINE PATROLS

alarmingly during 1942 and 1943. For several months the Coast Guard planes and boats were the only rescue agents available for that region. For this reason alone their services were indispensable. The approximate average number of monthly flights increased from 48 in 1941 to 349 in 1943. Although no submarines were actually sunk, some were sighted and driven away. Undoubtedly the constant vigil from land, sea and air prevented the enemy threat from developing into a definite attack upon our shores.

TYPE OF PLANES USED

A variety of types of planes have been used at one period or another during the station's history. The original planes first assigned to the station were scouting and rescue craft. The SOC-4 scouting plane was very efficient in the work for which it was designed but not very practicable for assistance or administration flights. Similarly, the Navy OS2 U3's were primarily scout observation planes. They were only used in assistance flights whenever an emergency arose. The most adaptable type for general rescue operations was the memorable Hall flying boats--twin engined planes that were generally used by all Coast Guard air stations. However, they have recently been supplanted by newer models. The JRF became the principal utility ship; the PBY-5A amphibian, a special air-sea rescue plane, promised to be the hope of the future as the all-purpose utility type. At the time the station was being groomed for its war duties it had eight planes in active service: Three SOC-4's, two JRF's, two OH2's and one RD4. But with the passing of the submarine menace, the armed scouting planes were withdrawn. Today the station has two PBM-3S's, three PBY-5A's, three JRF-5's, two J4F-1's and a JRF-2.[1]

TRANSITION TO AIR-SEA RESCUE

On the seventh of October, 1944, the Miami Air Station discontinued its routine patrols to take up regular rescue operations under the new Air-Sea Rescue program. The transition was made smoothly and with few equipment or personnel additions. In reality it's present task is but an extension of normal peacetime functions, although rescues have become far more numerous than in the past. There are a great number of military air training units in the Miami area which results in a rather high percentage of crash landings. Both the air and crash boat units of the station are just as indispensable in the present rescue organization as they were formerly in the coastal defense program.

1. Assignment of Coast Guard aircraft, as of 1 February, 1945. The aircraft deployment for the Miami ASR Task Unit, as of March, 1945, totaled 34 planes: 24 ASR, 9 utility and 1 training, of which, in May, 1945, 10 were assigned as Coast Guard planes.

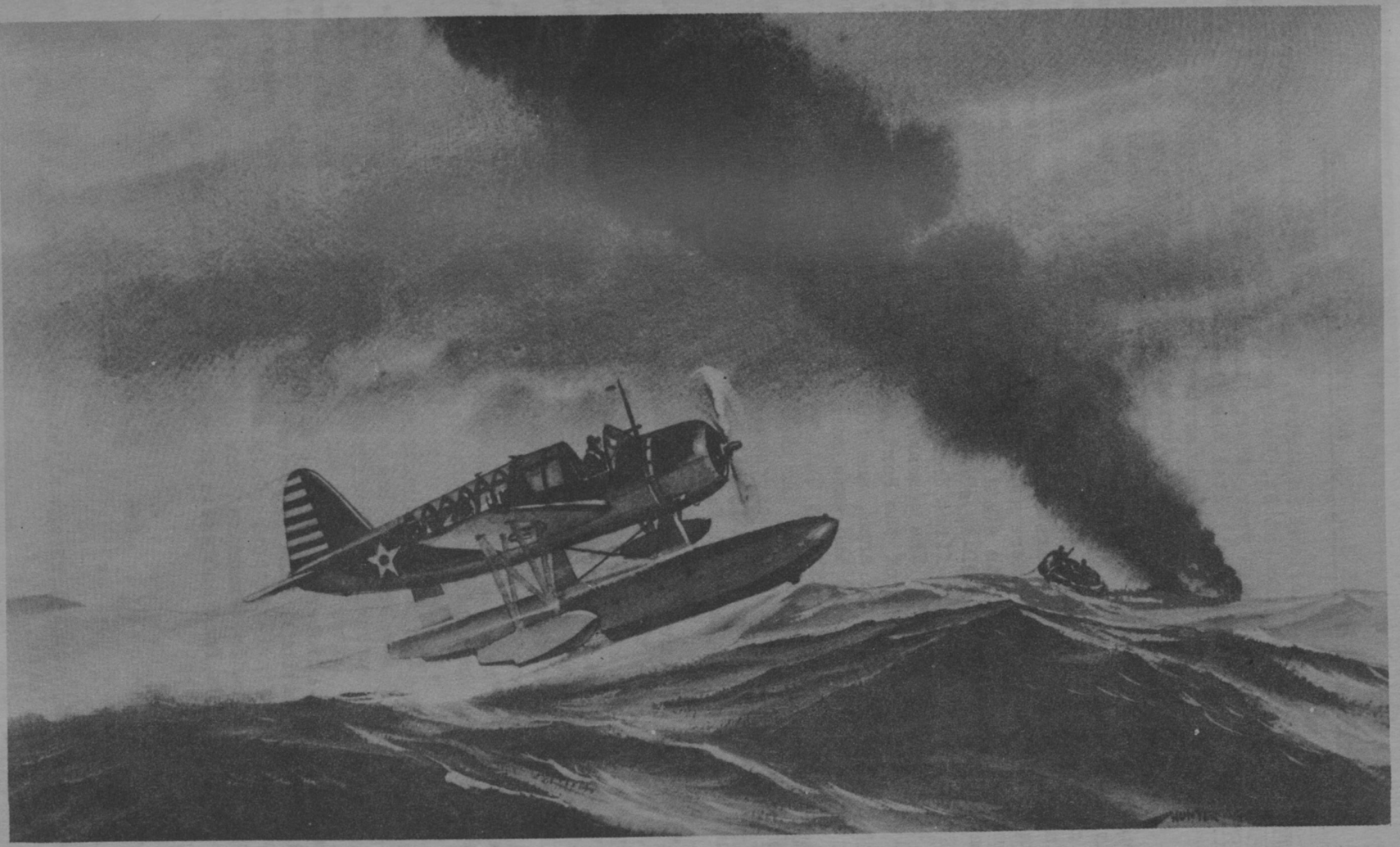
COAST GUARD MARTIN MARINER PREPARES TO TAKE OFF AT MIAMI AIR STATION

SIGNIFICANT ACHIEVEMENTS

Perhaps the most truly representative of Coast Guard aviation have been the station's innumerable mercy flights, to which several people owe their lives. Some of these cases were quite dramatic but mostly they were normal routine work, in which assistance was rendered wherever and whenever a plane was in demand. A typical entry from the flight records tells the full story of such a transportation flight in which pilots responded to the call for help with dispatch and spirit. "Received a call from Yacht Elamo...that the captain of that vessel, Guy F. Santini, had a high fever and was in need of immediate medical attention. Made flight to Marathon, Florida. Removed patient from yacht and returned to Miami." That is all; it represented just another day's job completed. Back of these terse reports lie the data that might have been filled in: long night trips were often required under severe storms and the most unfavorable flying conditions, difficult landing risked, extreme hazards encountered. The test of the pilot was to pit his skill in speed and timing against the elements in the timely execution of a mission that often involved life and death. None of these incidents ever made the front page, although many were not lacking in drama. Two striking examples of efficiency and heroism will illustrate the kind of service performed. On 3 April, 1943, Lieutenant J.N. Schrader, while patrolling in an OS2U3, was radioed to begin search for survivors of the torpedoed tanker, GULFSTATE. Upon sighting the remains of the wreck he was able to spot three groups of survivors. Dropping his depth charges, he landed and picked up the three men in the first group. He taxied to the second group, gave them a rubber raft for support and went on to the assistance of the third group, one of whose number was badly burned. Taking this man aboard his already overloaded plane, Schrader stood by to protect the drifting survivors from sharks until other planes and help arrived. The other courageous rescue occurred a few months later, in September of the same year. Ensign W.M. Braswell, still in a weakened condition from recent hospitalization, landed near a Pan American plane that had crashed in Biscayne Bay. Risking his own life he swam to the plane, brought the strapped pilot from the submerged plane and, with the aid of his radioman, rescued two other survivors. Artificial respiration brought all three unconscious men to life before they were turned over to the Coast Guard crash boat for medical treatment. Rescues of this character indicate more than a mere strict responsibility to duty. The true spirit of service was the touchstone that made aviation success possible.

SUMMARY OF ACTIVITIES

Air-Sea rescue at Miami was built upon a solid foundation. During the fiscal years of 1944 and 1945, 4,550 training, test, patrol and administrative flights were made. In the 1,277,829 miles cruised, 37,145 vessels and planes were identified and 8 assisted; 133 persons were assisted or rescued from peril, 25 medical cases and 2,186 other people transported and aid given to 22 government departments. Flight reports for the first quarter of 1945 show the activity to be gradually increasing. Vessels and planes identified totaled 1,241 and 1,666 respectively, while 574 people had been transported by station aircraft. During the month of January alone, 324 aids to navigation were checked. The station has assumed a vital role in present collaboration with other ASR units operating in the Gulf Frontier.



COAST GUARD PLANE LANDS AT SEA TO AID SURVIVORS FROM A TORPEDOED SHIP

COAST GUARD AIR STATION, ST. PETERSBURG, FLORIDA

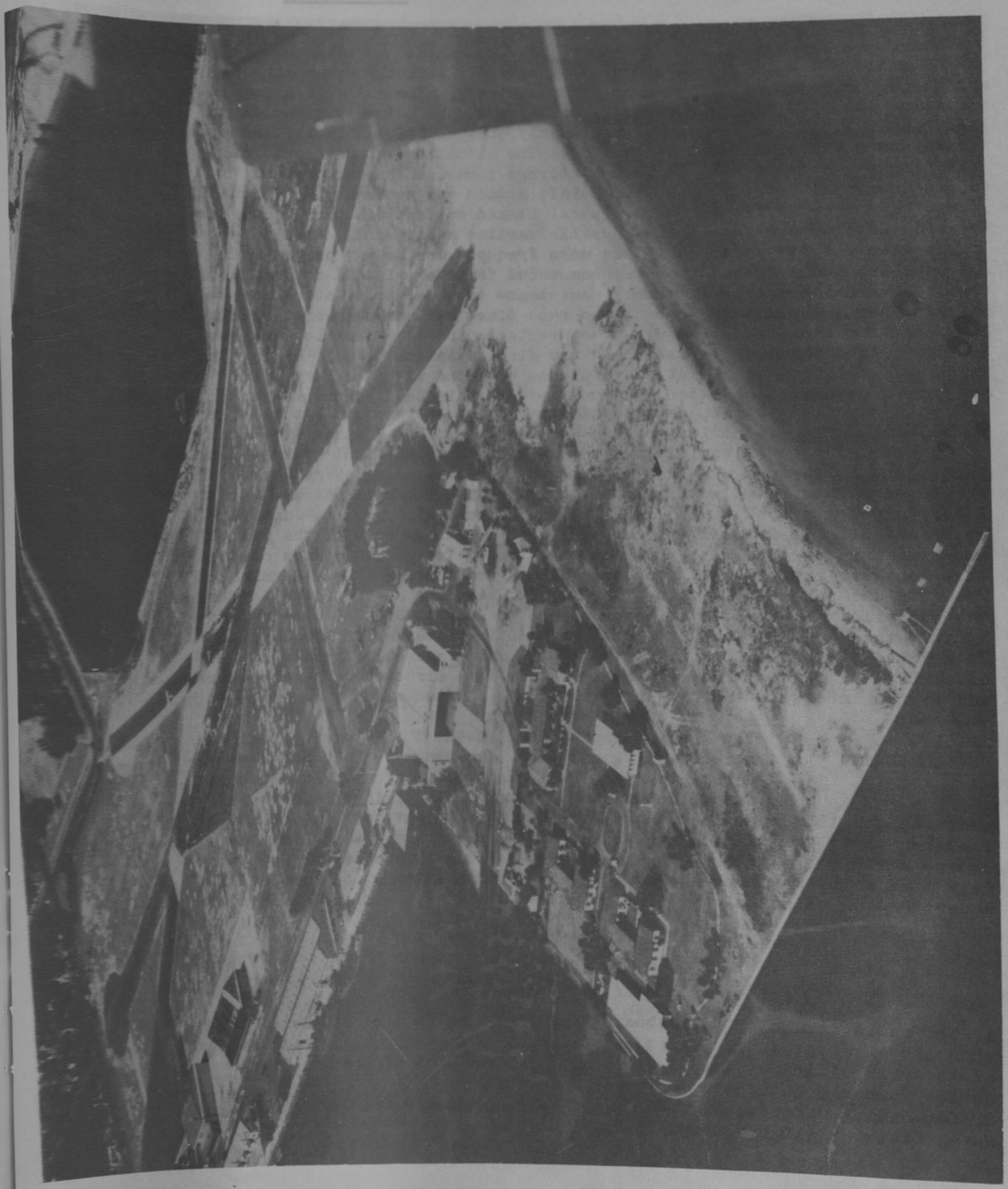
HISTORICAL EVOLUTION OF ST. PETERSBURG AIR STATION

Authorized in August, 1933, the Coast Guard Air Station at St. Petersburg was opened for operations about a year later. Lieutenant W.A. Burton and ten men constituted the first complement. By the time the first plane arrived in February, 1935, the complement had increased to three officers and 21 men. This original O2U-2 land plane was primarily for locating stills, law enforcement and local observational duties. However, one plane was highly inadequate for all the aviation duties with which the station was soon charged. The law enforcement work for the Alcohol Tax Unit was growing rapidly; likewise coastal patrols in search of smugglers, assistance or administrative flights were not uncommon; also rescue duties shortly became a regular part of the station's activity. During 1935, two JF-2 Grumman amphibians, a new RD-4, another O2U-2 and an ambulance type plane were procured. During the first decade of its existence a great variety of duties were performed. The commanding officer of the air station also functioned as the Captain of the Port, responsible for port security, for shore line defenses of the area, and for the Key West and St. Petersburg patrols. This station did the same work that other air stations were doing at the time and the flight time was comparable to other stations with the same number of planes. Among the flights were regular patrols of areas; assistance flights; searches for overdue small craft (Gulf Area is a favorite for pleasure and fishing craft); cooperation with the National Park Service, Alcohol Tax Unit, Immigration, Customs, etc.; patrol of yacht races; chart checking with the Coast and Geodetic Survey; storm warnings and hurricane warnings for small craft and sponge fleet; and many more. When the United States entered the war in 1941, the station had 9 planes in operation, of which two were doing neutrality patrol with the Navy in Key West. Six OS's were assigned to security patrol duty out of Key West, while the remaining plane was retained for station duty. Other PBM's were shortly acquired for anti-submarine and convoy patrols. In the 1945 assignment of Coast Guard aircraft, St. Petersburg was alloted thirteen planes. Within a brief twelve years the station had become an important unit in the rapidly developing aviation program.[1]

STATION ACTIVITIES

The primary function of the station, whether by air, sea or land, has always been to safeguard life and property. Until it was relieved of non-aviation activity after the outbreak of war, it was chiefly occupied with that function. In October, 1942, all duties related to aids to navigation, coastal lookout stations, land and water patrols and so on were removed from the station's jurisdiction. Only a few miscellaneous activities remained, such as radio communications for the Captain of the Port, stowage for the Navy Section Base and assistance work to various governmental

1. The March, 1945, total aircraft allotment for the ASR unit at St. Petersburg is 24 planes.



ST. PETERSBURG AIR STATION

organizations.[1] Henceforth the station operated strictly as an air unit, retaining only closely related aviation activity. The authorized complement was then 132, although a total of 161 men were actually attached to the base. Expansion was coming so rapidly that additional facilities and immediate constructions were required. The situation was most critical. The hangar was too small, barracks, storage rooms, shops, armory and offices were all overcrowded. Immediate action was necessary.[2] Gradually these impending difficulties were straightened out satisfactorily and the station settled down to its responsible wartime assignment. Ambulance and assistance flights became more and more frequent as the war progressed. On 24 October, 1942, the station was commended for its splendid cooperation with the Army Air Force in timely assistance extended to aviators who were saved after a crash land. About the same time the Commander of the Gulf Sea Frontier expressed his fullest appreciation of the valuable services rendered by both the St. Petersburg and Miami aviation units. During the entire period that the Coast Guard planes operated with the Navy, first under the Inshore Patrol and later as a part of the Gulf Sea Frontier Command, they not only executed patrol, convoy and observation assignments but also gave excellent service in administrative and utility work. Whether it was in ferrying officer couriers, delivering mail or carrying light freight, the pilots were always eager and prompt in the response to every request. Three seaplanes maintained a regular anti-submarine and security patrol over the St. Petersburg area during 1942, 1943, and a part of 1944. In June, 1943, the "Port St. Joe Detail", which covered the northern part of the patrol area was incorporated into the regular patrol. Two OS2U-3 planes continued this northern patrol until February, 1944, when the patrol was terminated. The duty was hard and exacting, lasting for six days at a stretch, after which the two pilots, two radiomen and mechanic on duty at St. Joe were relieved by a fresh crew. In July, the station was designated as an Air-Sea Rescue Task Unit. By early October the regular morning and evening patrols were discontinued. Since then all attention has been directed to rescue operations and to the intensive training program of the unified air-sea rescue agency.

SPECIAL DEVELOPMENTS

The special innovations of the St. Petersburg unit merit passing comment. In January, 1943, plans were formulated for the training of Mexican pilots in anti-submarine warfare. Three N3N training planes were procured for this purpose and the first group of eight Mexican officers finished their training course in April. A second group was given the same course a few weeks later. The experiment was highly successful. It was felt that both Americans and Mexicans received a stimulation and better understanding of mutual war problems as a result of the class associations

1. The radio station NOF had been moved from Rio Vista to St. Petersburg when the air station was first established. The newly authorized Captain of the Port Office at Tampa, Florida, took over most of the ancillary duties formerly entrusted to the air station.
2. Commanding Officer, C.F. Edge, to District Coast Guard Officer, Seventh Naval District (12 November, 1942).

COAST GUARD AIRMEN WARM UP READY TO TAKE OFF ON THEIR SEARCH FOR ENEMY SUBMARINES

involved during the period of the visiting airmen. Another noteworthy service developed by the organization was the hurricane warning system used to warn small craft in the neighboring area. Lieutenant Burton as first Commanding Officer arranged for Coast Guard planes to drop hurricane warning blocks to all offshore vessels not equipped with radio. The service was particularly valuable to local fishermen, yacht owners, and all vessels engaged in the sponge fishing industry. As a result of timely warnings, many vessels were able to reach shelter that might otherwise have been caught in dangerous storms. Isolated villages, to which medical aid and supplies were flown after the hurricane had subsided, were also warned. The third innovation was the experimentation conducted by the station in eradicating mosquitoes in certain infested areas. The Department of Agriculture expressed considerable interest in the possibility of using helicopter planes for spraying lands that are infested with these disease carriers. Since the beginning of 1945, a helicopter has been on assignment at the station to test the practical success of the idea. As yet no definitive conclusions have been arrived at. If the experiments prove successful, another new field of public service will have been opened up for Coast Guard aviation.

RESCUE OPERATIONS

At the present time two PBY-5A planes, manned by Coast Guard crews, are stationed at Daytona Beach Naval Air Station and the Mayport Naval Auxiliary Air Station. Another PBY-5A, two JRF's and a PBM are operating out of their home base. All these planes are engaged exclusively in air-sea rescue duties. Other types of craft--principally J4F's and SNJ's, are used for observation, administrative and training purposes. While many successful mercy and ambulance flights have been effected, few outstanding rescues have occurred. One such incident developed, however, in December, 1944, when Ensign F.T. Merritt accomplished a dramatic rescue of a Navy pilot at Daytona Beach. Returning from a routine administrative flight to Cuba, Merritt and his crew were instructed to search for survivors of an Army Liberator. While thus engaged they spotted an SOS dye marker about twenty miles off Daytona Beach. Investigating the signal, an injured fighter pilot was discovered in a liferaft. He apparently had collided with the tow plane during a practice gunnery exercise and was forced to bail out. Merritt effected a safe landing, picked up the injured pilot and delivered him safely to the hospital at his Daytona base. In all search or rescue operations[1] the air units were ably assisted by the station's crash boats. Sometimes these speedy boats were able to do the job single handed. A case in point occurred on the twenty-fifth of May, 1943, when one of the Air Station's crash boats observed a plane dive into the water about two miles from their own

1. In the 3,042 flights made during the fiscal years, 1943-1944, 15,571,536 square miles were covered. Thirty-seven different planes and vessels were assisted and 96 persons aided or rescued from peril. During the first three months of 1945, special assistance has been given to 38 persons.

ENSIGN F. T. MERRITT AND CREW FROM ST. PETERSBURG AIR STATION
RESCUE NAVY FLIER

location in Tampa Bay. Speeding to the spot, the boats' crew was able to rescue the entire plane crew of five men. All were alive, although three of them were injured, one being in a rather critical condition. Within thirty-five minutes the survivors were delivered to the St. Petersburg station for medical treatment. Every man was saved. As long as such efficiency can be maintained, the future of air-sea rescue is assured.

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COAST GUARD AIR STATION, BILOXI, MISSISSIPPI

The Biloxi Air Station was commissioned on 8 December, 1934. It is the only Coast Guard air station situated directly on the Gulf of Mexico and serves the Gulf area for the seventh and eighth Naval Districts.

FUNCTIONS OF BILOXI STATION

The station was originally established to assist the other Coast Guard units in the saving of life and property. Plane patrols had become almost a necessary addition to the regular life-saving system. They were indispensible in spotting wrecks or survivors, in reporting obstructions or derelicts and in transporting emergency medical cases or supplies where other forms of transportation were too slow. When in 1939 the Coast Guard was assigned the supervision of aids to navigation, the air station aided in the new field of operation. As wartime responsibilities began to overshadow the traditional duties of the Coast Guard, the station adapted itself to the changing pattern of activity. For a time, law enforcement was its major function; it assisted in local blackout planning and patrolling and in supervising the neutrality rules just as earlier it had enforced the prohibition act. After the attack on Pearl Harbour, the Biloxi Unit was reorganized as a defense air force. Planes were speedily armed and regular security and anti-submarine patrols established. Air coverage for innumerable convoys and sea trains was one of the station's major contributions to the war effort. However, rescue activities were never entirely discontinued.[1] The station kept a close surveillance by air and by boat, of the shore line and adjacent waters, maintaining a constant vigilance for enemy craft or suspicious activity. During the period of beach patrol operation the station served as a lookout post with a continuous watch twenty-four hours a day. Planes and boats stood by in constant readiness at all times to aid survivors from torpedoed vessels or rescue aviators who were forced into crash landings.

1. In 1944, the station's planes made 1,159 anti-submarine and convoy coverage flights, as well as 2,216 training, testing and administrative flights. Four medical cases and 17 other persons were transported during the fiscal year and seven people rescued. During the previous year 39 persons had either been given assistance or rescued.

BILOXI AIR STATION

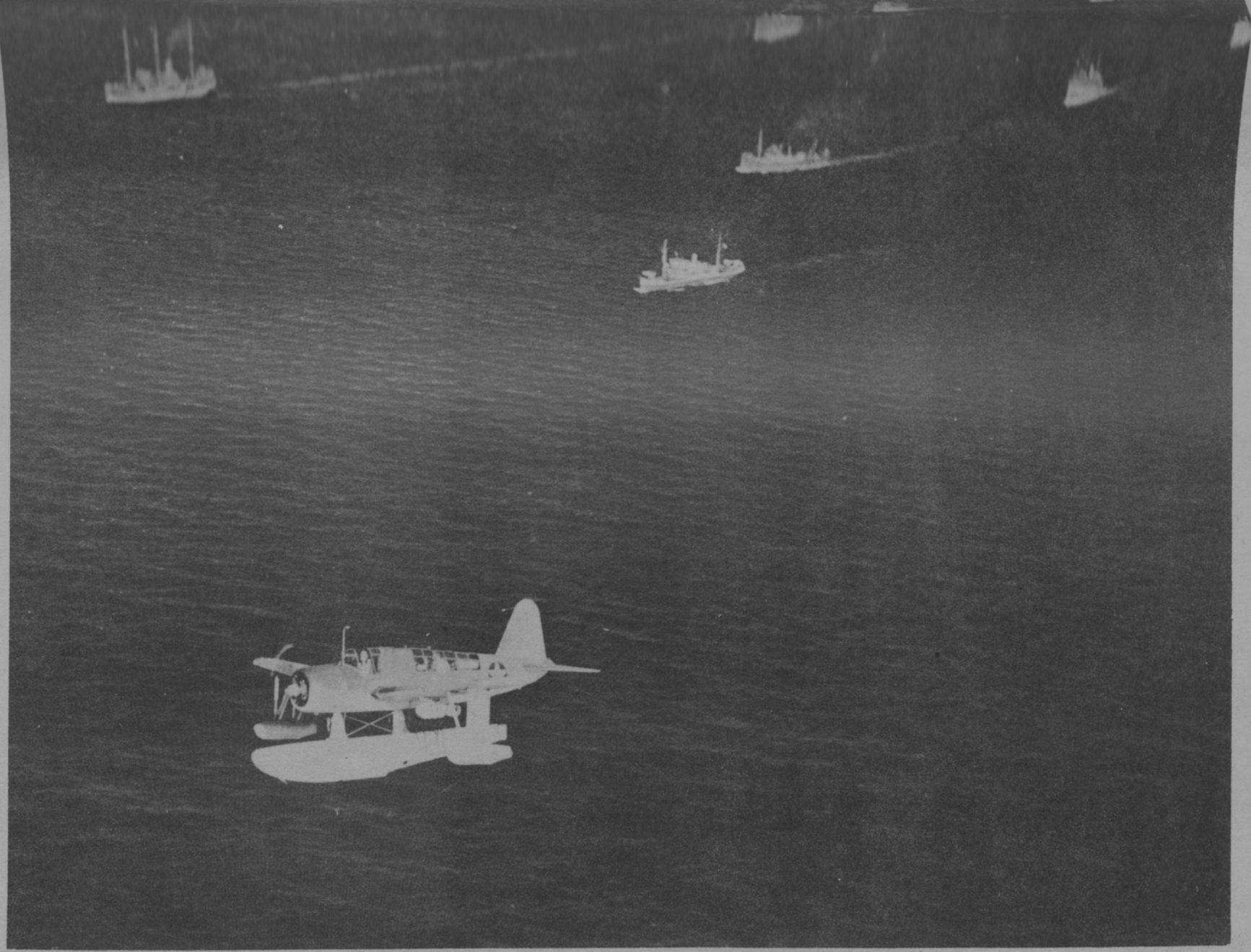
EXPANSION DURING WAR PERIOD

During the period from the end of 1941 to the autumn of 1944, the station was busily engaged in the execution of multiple war assignments. Expansion progressed rapidly. In January, 1943, the station was operating 16 planes: two Hall boats, two JRF-2's, five JRF-1's, six J4F-1's and one R30-1. By May, six SO3-C's had arrived making a total of 23. During the winter of 1944, there were 25 planes attached to the base, which represented the maximum of expansion. Meanwhile, the personnel complement had increased from approximately 30 to over 230 officers and men.[1] The physical plant enlarged in proportion to developing needs. The original six acre site had been expanded to include about 18 acres, with a new administration hall, barracks, sick bay and other necessary buildings. On 24 December, 1941, the station was made a Task Group unit in the new defense scheme, operating under the Southern Naval Coastal Frontier Joint Operation Plan. In July, 1942, an air detachment from Biloxi was established at a temporary advance base in Houma, Louisiana, in order that the anti-submarine patrols of the Gulf region could be carried on more effectively. These daily patrols were continued until the summer of 1944, when the danger of enemy attack in the Gulf had subsided sufficiently to enable the station to resume its normal rescue activities.

SUMMARY OF STATION WAR ACTIVITIES

The station cooperated with Army and Navy units in all anti-submarine patrols until the crisis was past. The joint operations plan provided for the Biloxi air patrols to cover the Mississippi delta, the shipping lanes south and southeast of the station and certain parts of the Gulf not under the jurisdiction of Pensacola and Corpus Christi. Many distress calls from torpedoed vessels were answered and a number of lives were saved as a by-product of these patrols. Submarines were often sighted but it is doubtful if any of them were actually sunk by Coast Guard planes. However, in several instances submarines were definitely damaged or disabled. Action reports record numerous attacks, which at least drove the submarines from the coastal area. During the busy months of 1943, the aviation operations in the Gulf region reached their peak. Operation reports show the Biloxi station to have had more flight hours during the year than any other Coast Guard air station in the eastern or Gulf areas; in addition 39 persons were rescued or given assistance, 6 medical cases were transported, 8 disabled vessels were located and 5 other governmental departments were aided in the execution of special missions. In September, one of the busiest months, the station conducted 109 anti-submarine patrols, of which 43 were made by the Houma Detachment. A total of 22 aerial convoy coverage flights were made by the two air forces, providing protection for 144 vessels. During the ensuing fiscal year, ending in July, 1944, 18 assistance flights were made, 10 overdue vessels or planes were located, 9 aided, 4 medical cases transported and 7 people rescued. These records

1. This complement in December, 1943, included 6 Spar officers and 23 enlisted women.



COAST GUARD PLANE ESCORTS HEAVILY LADEN CONVOY

speak for themselves. Pilots and crews had earned their right to assume a first place among the units composing the new air-sea rescue organization established in November of 1944.[1] Since that date, 39 rescues and assistance missions have been flown. Station planes and crash boats have worked together in several successful rescues.

RESCUE INCIDENTS

The first rescue effected under air-sea rescue operations came late in November, 1944. Planes from the Gulfport Key and Keesler Fields and the Biloxi Air Station cooperated with rescue boats in searching for the crew of a crashed B-29. A Coast Guard crash boat, commanded by James B. Wallace, CBM, succeeded in picking up two of the men. It illustrates the maximum of coordinated effort that is achieved in rescue operations. Men are trained to act as a unit, boats and planes working together.[2] Speed, as well as efficiency, is a vital factor in saving the lives of survivors. One example of timely action suggests the high standard of attainment. In July, 1942, Lieutenant D.O. Reed, Ensign V.C. Tulley and a crew of four answered a distress call from a torpedoed tanker about seventy miles out in the Gulf. Forty minutes later they had rescued 21 men from the tanker; within an hour and a half the rescued survivors were delivered safely in New Orleans.

AIR-SEA RESCUE DEVELOPMENT

Since November, the station has operated as an air-sea rescue unit, serving as the chief base for the Gulf area. According to the latest quarterly report, four of the station's twelve planes are on detached duty for ASR at Houma, Louisiana and Galveston, Texas. Only two crash boats remained at Biloxi; three others are assigned to ASR units at Galveston and Burwood and Morgan City.[3] During the quarter period, from November, 1944, to March, 1945, there were 1,236 miles flown by the station's Coast Guard planes. The flights were divided as follows: 280 training flights, 95 administrative, 36 search, 49 assistance and 23 test flights. Ten crashes were reported for the period, in which the Army, Navy and Coast Guard rescue units all cooperated. In March the station had a personnel complement of thirty officers, of which fifteen were aviators, and approximately two hundred men. The station is at present well prepared for the execution of its newly assigned responsibilities.

1. Statistics submitted in Station Report (undated), covering the period to approximately the close of 1944.
2. At the beginning of 1945 the station had eight planes in the permanent complement with four others on temporary duty. Five 63-foot crash boats are attached to the station. Other facilities for the air-sea rescue organization in the Gulf area, include Army and Navy planes, offshore patrol boats and Army Air Force crash boat units. The total ASR plane complement is 18.
3. Quarterly historical report of the Biloxi Air Station (15 March, 1945).

COAST GUARD PLANE LANDS ON THE WATER TO RESCUE A SURVIVOR FROM A TORPEDOED VESSEL

COAST GUARD AIR STATION, SAN DIEGO, CALIFORNIA

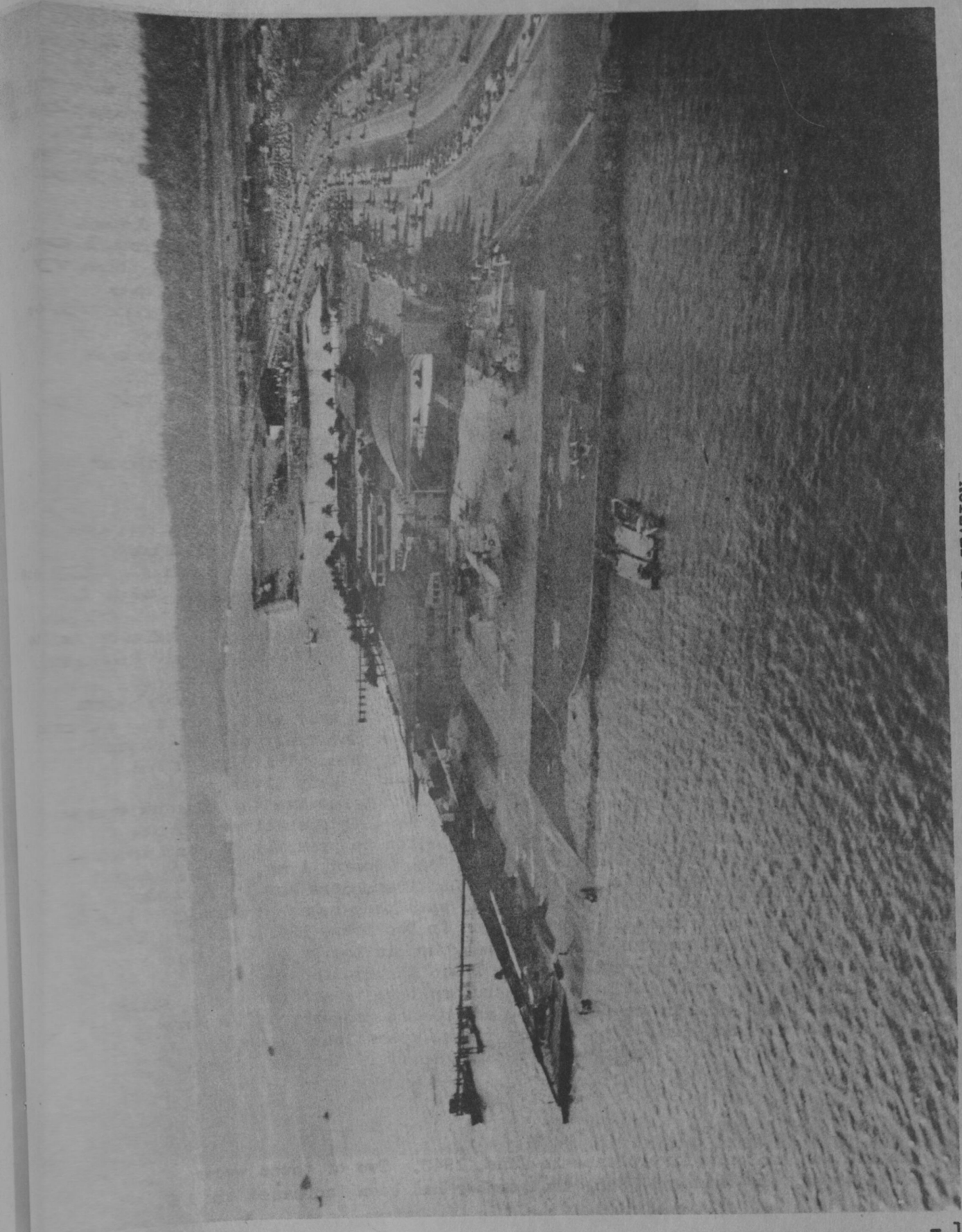
ORIGIN OF THE COAST GUARD AIR STATION

Although the San Diego Station had no definite break in the continuity of its development, there was a decided change in status in 1937. On the first of April of that year the station was commissioned and the personnel and equipment of the older aviation unit transferred to the new location. The original air field, located but a short distance from the present site, had been the base of operation for a Coast Guard Air Patrol Detachment since 1934. The history of the station, therefore, really began with the acquisition of an office and hangar space at the Lindberg Field on 1 July, 1934. With one plane and a handful of men, Lieutenant Luke Christopher commenced operations. However, the early activities of the patrol belied the modest character of its beginning. The first recorded summary of operations, for February, 1935, indicated that the plane made some 37 different flights with a total of 9,150 miles patrolled during the month.

OBJECTIVES OF THE AIR PATROL DETACHMENT

The function of the original Air Patrol Detachment in San Diego was in no way directly concerned with the general responsibilities of the Coast Guard. During the early months of its operation the detachment could hardly be called an ancillary unit; in fact it was not at all engaged in rescue activities or in the protection of life and property at sea. The primary purpose of the patrol was to prevent smuggling across the Mexican border. The commanding officer of the detachment was directed to "maintain close contact and cooperation with the field forces of the Customs Service and with those of the Narcotic and Immigration Service."[1] It was anticipated that the planes would gather reconnaissance date which on their regular patrols that would be instrumental in apprehending smugglers operating along the border. However, it was not long until the Coast Guard planes were cooperating with the patrol boats in the safeguarding of life and property. Gradually they began to engage in mercy missions, ambulance flights or aid in the search for missing or overdue vessels. Occasionally they were assisting land units in fire fighting and flood control work. Unofficially, the Detachment was diverted from its primary mission. By the time the new station was commissioned, these special missions had become more important than the original anti-smuggling patrols. The three planes attached to the unit when it was transferred to the new location were operating over a wide area. While the chief field of activity was in the vicinity of San Diego, frequent flights were made westward into Arizona and as far as 500 miles southward along the coast of Mexico.

1. Directions governing the operation of Coast Guard Aircraft at San Diego (By letter, dated 7 August, 1934).



SAN DIEGO AIR STATION

PREPARATION FOR WAR 1937-1943

At the time the San Diego Air Station began operations in 1937, it was the only Coast Guard aviation unit in California. It was not until April, 1938, when a station plane was assigned to patrol the area around San Francisco and Oakland, that air operations were more than local. The coming of limited national emergency and later war, brought few changes to the station. There was little expansion and no change in function. Except for a slight increase in personnel and a replacement of antiquated planes by newer JF-2's, the station remained essentially unaltered during the first two years of war, continuing its normal peacetime, civil functions. It had the same number of planes in 1943 as in 1938.[1] Coast Guard and Navy officials agreed that some unit must necessarily carry on such peacetime services. Since the Coast Guard pilots were already trained in these duties it seemed illogical to divert them to military operations and train new aviators to take up Coast Guard activities. Most of the station's planes were unarmed and improperly equipped for submarine patrol until early in 1944. Despite the fact that Coast Guard planes operated as an auxiliary to the Navy, they never were put on anti-submarine patrol. Military assignments, for the most part, consisted of reconnaissance patrols, scouting missions or occasional escort duty to provide armed coverage for convoys.

URGENT NEED FOR AIR-SEA RESCUE

The air-sea rescue organization in southern California was born in the autumn of 1943 as a result of an increasing number of airplane crashes in that region. Close investigation of the records of lives lost showed that there were three fundamental causes for the failure of the rescues attempted. First the rescue equipment available was not adequate to meet the growing demands. Since the beginning of the war there had been a tremendous increase in aviation activity along the southern Pacific coast. No special agency had been formed to cope with the special problem of rescue operations. Secondly, the agencies that were available for rescue work were uncentralized. All branches of the service had their own rescue units, but there was little or no coordination among them. Thirdly, the system of disseminating information was not efficient. Many lives were lost simply because the rescue planes or boats did not receive the distress calls in time. A single rescue agency, with a full time operative force of sea craft and planes and a unified administration to promptly distribute information and coordinate the efforts of all Coast Guard, Army, Navy, and Marine units was urgently needed. This was what Commanders Max I. Black, U.S.N. and W.A. Burton, U.S.C.G., had in mind when they began planning the Air-Sea rescue agency. Operations were begun in December, 1943, under the general direction of Commander Burton who was then in charge of the Coast Guard Air Station. Thus organized the San Diego Air Station has the distinction of being the first air-sea rescue unit to be activated in the United States. All surface craft, blimps and planes, together with any other rescue equipment, that were used in rescue operations by Army, Navy or Marine agencies, automatically became a part of the new rescue

1. The station had only five planes in June, 1943. Two of these were obsolete types. By January, 1945, that number had been increased to 16.

COMDR. (NOW CAPTAIN) W. A. BURTON

organization. All information regarding accidents or emergency crashes were reported to the central rescue unit through the Naval Air Control Center. By the beginning of 1944, 16 planes and three crash boats had been assigned to the station. In February, three PBM-3's and three more crash boats were received. Daily rescue patrols were established. As of 28 February, 1944, the personnel complement of the station was 42 officers, 341 enlisted men and 73 students.

AIR-SEA RESCUE ACHIEVEMENTS

The concrete results of the air-sea rescue agency eloquently testify to the remarkable efficiency of the organization. During the first month of operation in 1944, there were 124 aircraft accidents in the San Diego area. Of the 201 persons involved 137 were saved, or 68.15%.[1] Considering that 59 men were killed outright and that no trace could be found of two others, the record is almost perfect. The loss of the three lives actually reflects no discredit upon the organization, because these survivors were perhaps inadequately equipped or the crash was not reported in time. In all cases, the cooperation of ground and air crews has been remarkable. Most of the rescues were executed within less than an hour's time, the quickest being six minutes after the time of the crash. The average time required for the communication of the report was less than three minutes after the crash occurred. Intensive drills in speed and timing have been equally satisfactory. Rescue planes can get under way to the scene of the accident in between five and six minutes; crash boats have reduced their getaway time to less than four minutes. Although the success of air-sea rescue is due to the efficient cooperation of all units concerned rather than to the efforts of any one agency, the Coast Guard Air Station may well feel proud of its own individual contribution.[2]

RECENT STATION ACTIVITY

The San Diego station has been one of the most active units of Coast Guard aviation. During 1943, her planes identified 2,349 vessels and planes, assisted 10 persons, transported 8 medical cases and 108 other people and aided 26 governmental departments. In 1944, the totals had increased to 5,218 vessels and planes identified, 8 assisted, 105 persons rescued, 34 medical cases and 331 other persons transported and 23 government departments aided. For the first two months of the present year the station's activities included 886 assistance, patrol, training, test and administrative flights for a total of 1,934.2 hours in the air. Altogether 210,844 miles were cruised, in which 262,520 square miles of area were searched. Four vessels and 21

1. Of this number 25% were rescued by Coast Guard planes or boats. The surface craft of the Navy rescued 27 airmen; fishing boats 37.
2. During the first eleven months of operation, where rescue was at all possible, approximately 98% of military personnel involved in aircraft crashes have been saved in the San Diego sector of the Western Sea Frontier. In a typical case of efficient cooperation, survivors in a crash landing were sighted by a patrol plane within 17 minutes of the crash. A crash boat previously notified, was under way nine minutes after the accident. The survivors had been picked up by the plane and were being flown to the home field within 23 minutes of the crash, or just six minutes after they had been sighted from the air.

STRICKEN SAILOR IS RUSHED TO SAN DIEGO HOSPITAL VIA COAST GUARD AIR-SEA RESCUE SEAPLANE

people had been given assistance, while 11 persons had been rescued from peril. It was estimated that station planes had been instrumental in safeguarding property evaluated at a half million dollars. The total plane complement for the unit ASR task force, which now encompasses the Southern Sector of the Western Sea Frontier, is 37. This deployment comprises an ASR squadron of 23 planes, plus seven utility and seven training planes.

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COAST GUARD AIR STATION, SAN FRANCISCO, CALIFORNIA

NEED FOR A NEW WEST COAST AIR STATION

The station at San Francisco was the last of the Coast Guard Air Stations to be established. Coast Guard aviation had won for itself a recognized position long before the need was felt for another air unit along the Pacific coast. Consequently, the unit at San Francisco had a somewhat easier development than many of its older sister stations. For example, it never had to fight for planes or equipment. At the time the station was commissioned, there was a real need for its services. The limited national emergency of 1939 had already been recognized. Inshore and offshore security patrols, convoy escorts and anti-submarine patrols were badly needed in the San Francisco Bay region, where the volume of marine and air commerce was daily increasing. There were two Coast Guard air stations on the west coast at the time, but San Francisco was 443 statute miles removed from the nearest at San Diego and an air line distance of 749 miles from the Port Angeles Station on the north. It was essential that a new air station be established somewhere in the neighborhood of the Golden Gate to serve the central west coast region. The San Francisco unit was born as a result of that need.

GENERAL DEVELOPMENT

The station was commissioned on 15 November, 1940. After a careful study of the area, Mills Field in South San Francisco was selected as the most probable site. Within a year it was operating as an integral part of the Navy, conducting daily patrols, providing coverage for convoys and performing all kinds of miscellaneous duties assigned to it. Rescue activities were by no means incidental but of less importance than the military or defense missions. From the day of its commissioning, security patrols gradually gained

SAN FRANCISCO AIR STATION

ascendency over the ostensible function of all Coast Guard air units, that is, the protection of life and property at sea. Immediately after Pearl Harbour, anti-submarine patrols were begun. In April, 1942, the station came under the command of the Western Sea Frontier, as a unit of the Northern California Sector. It operated in that capacity until April, 1944, when the Air Sea Rescue service was initiated in northern California. It then became the headquarters for the air-sea rescue organization in that area. Since then, the station has expanded rapidly, assuming leadership in the development of the new program.

RESCUE ACHIEVEMENTS

While earlier rescues were not unusual, the station has naturally developed more efficient rescue techniques since its organization as a Rescue Task Unit. A greater unity, more effective equipment and an increased number of newer rescue planes and crash boats have all contributed liberally toward that end. A few months after the air-sea rescue forces were organized a typical rescue was successfully completed by the coordinated efforts of the Coast Guard and Navy ASR units. On 22 November, 1944, the Coast Guard aircraft, Frisco George, located a raft and five survivors of the crew of a Navy plane which had crashed offshore. It landed and picked up the men and carried them safely ashore. Another body and one survivor were rescued and the body of the remaining member of the crew of eight was found by a crash boat from the Naval Air Station at Alameda.

STATION ACTIVITY

The transition to the air-sea rescue mission has been accomplished with little reorganization or confusion. Already the station had been actively engaged in assistance flights, along with its routine patrol operations. In 1943, 98 such flights gave aid to four persons and 27 vessels and planes. In 3,688 other flights, 3,159 vessels or planes were identified, 169 persons and 7 medical cases were transported and 57 other government departments assisted. During the following year, 99 assistance and 1,582 routine flights were made as well as 675 anti-submarine patrol and convoy coverage flights. In a total of 118,001 miles cruised, 121 vessels or planes were identified, 14 assisted and 12 located. The latest available statistics for 1945, indicate that the 14 Coast Guard operated planes are bearing their full share of the new ASR burden.[1] In January and February, 559 flights totalled 1,253.4 hours in the air, representing a cruised area of 757,432 square miles. Most of these flights were regular patrols, in which 1,607 vessels and 1,414 planes were identified and 13 disabled planes located; however, assistance was rendered to three vessels, two planes and thirteen persons during the period. In the execution of its traditional role of protecting property, it was estimated that about $905,000 in property value was safeguarded. In view of the central location of the station in the heart of the west coast military aircraft and airline activity, it is probable that post war conditions will bring about an even greater development of Coast Guard aviation operations in the California area.

1. The total aircraft complement for the San Francisco ASR unit is 33 planes. which includes the ASR squadron of 21 craft.

WATCHING PACIFIC COASTAL SHIPPING LANES

PORT ANGELES AIR STATION, WASHINGTON

ESTABLISHMENT AND EARLY GROWTH

The Coast Guard Air Station at Port Angeles was commissioned in August, 1935. It is the oldest of the three Coast Guard air bases now situated on the Pacific coast and occupies a strategic position in the coastal defenses of the northwest. The site is on Ediz Hook, a low, level sand spit owned by the federal government, extending northeastward into the Straits of Juan de Fuca. The buildings are located on the eastern side of the spit, about a mile and a half from the mainland and some five miles north of the town and harbour of Port Angeles. A private club house, a coaling wharf and the old Ediz Hook Lighthouse stood on the original site; these were taken over and a new hangar was built. The station started operations with three 75 foot patrol boats, four picket boats and a Douglas amphibian plane. Before the close of the year, five more planes, three additional picket boats and another patrol boat had been acquired; a garage, barracks and radio building had been erected and the station grounds landscaped. Other improvements were made the following year. Within a few months after its establishment the station had become a very necessary adjunct to the Coast Guard activities in the Washington area.[1]

THE NAVY SECTION BASE ESTABLISHED, 1941

For the first three years the station had no landing field, being forced to operate only as a seaplane base. However, in the autumn of 1938 a hard surface runway was constructed on the Naval Reservation and leased to the Coast Guard for an indefinite period. This was an important step in the development of the station, in view of the regular neutrality patrol that was instituted in October, 1939. Later, as anti-submarine and observation patrols got underway, portable flood lights were borrowed from the Navy to facilitate night landings. A few months before the Japanese aggression of 7 December, 1941, the Navy constructed a Section Base on the reservation for the servicing of naval surface craft patrolling in that vicinity. Among the new constructions by the Navy was a servicable thousand-foot pier to which the Coast Guard helped build by contributing $10,000.00 to the building fund. Although the Section Base was administered by a separate naval command, both units were put under a unified supervision after the outbreak of war. One of the new naval barracks was transferred to the Coast Guard Air Station to become a permanent part of its operational unit. By the beginning of 1942, the fields had been fully armed, continuous twenty-four hour watches established and picket patrols across the Straits initiated. Inshore plane patrols were inaugurated. As soon as the offshore patrols were under way the station felt in full readiness for any war emergency it might be called upon to face.

WAR DEVELOPMENTS

The long, busy months of 1942 and 1943 represented a significant period for the Port Angeles Station. Expansion came rapidly. Early in 1942 an anti-aircraft gunnery range was constructed, where 85 to 100 students

1. The lighthouse on the spit remained in active operation.

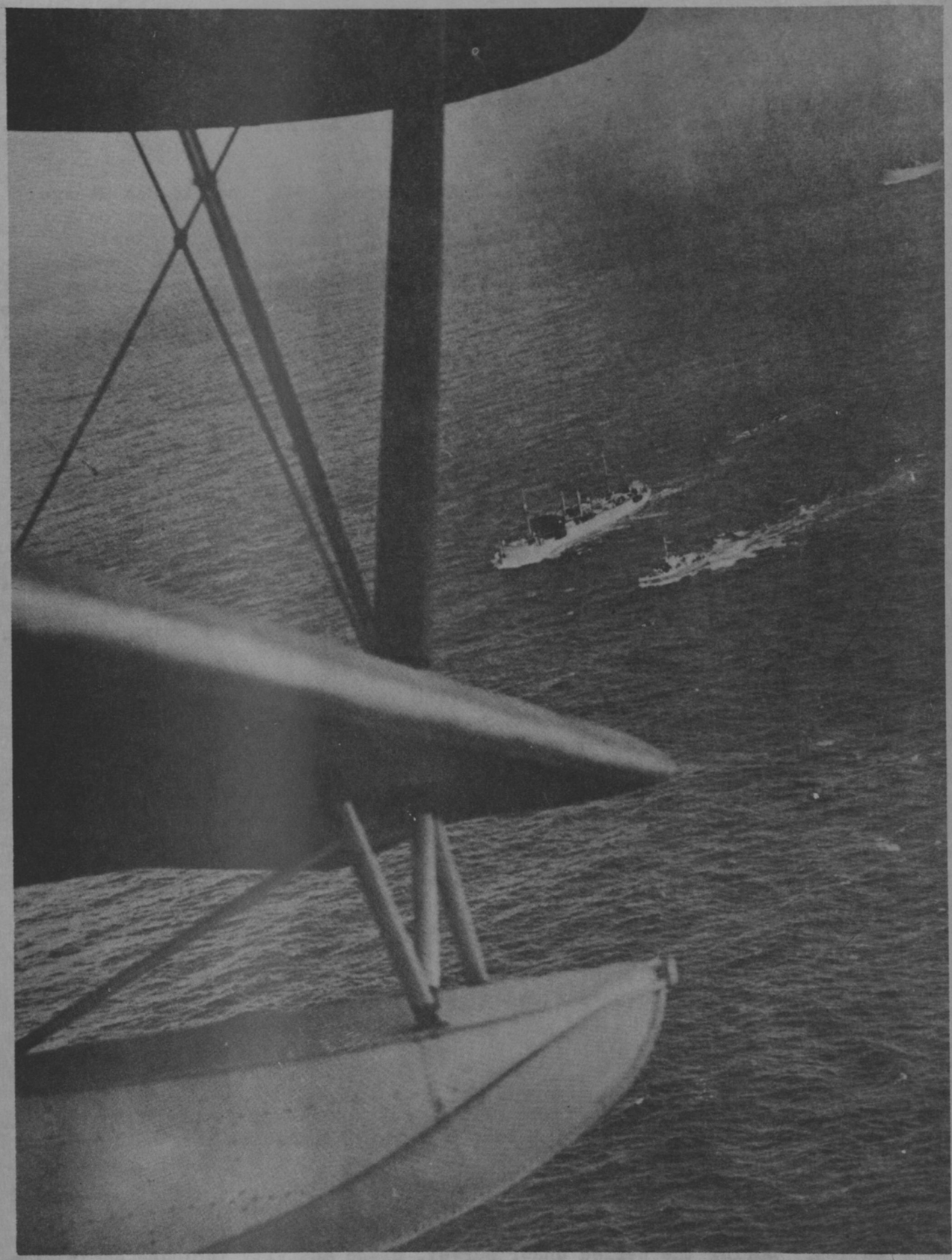
PORT ANGELES AIR STATION

were trained each week.[1] Fire fighting equipment and a crash fire-truck were acquired; a floodlighting system was installed at the pier; the station was properly camouflaged, while new planes, as well as old, were fully armed. In February, 1943, a radar beacon was installed. In December of that year, the commanding officer of the Air Station, Commander W.E. Sinton, was also put in charge of the Naval Section Base, which became an ancillary base for the Coast Guard. Other valuable additions were either acquired or built. By the spring of 1944, the station was operating five sub-units: the Coast Guard Base, the Coast Guard Commissary Warehouse, Coast Guard Pilot Station, the Ediz Hook Light Station, the Dungeness Light Station and Radio Calibration Station.[2] In addition it served as headquarters for the Straits Patrol and for an independent Naval Intelligence Unit temporarily attached to the station. The entire organization was, for purposes of all logistics and operations, centrally directed by the Commander of the Northwest Sea Frontier. The air station was thus responsible to the DCGO for regular Coast Guard duties and assignments but answerable to the Sea Frontier command for the execution of all military missions.

STATION AIRCRAFT COMPLEMENT

The activity of the station during the first years of the war differed but little from that of the other Coast Guard aviation branches of the service. As a part of the fighting forces, it performed whatever duties were assigned to it: anti-submarine attacks, patrols, escort of convoys, assistance flights and special assignments. Mercy flights and rescues were sandwiched in between regular, pre-scheduled operations. The type of planes used varied according to time and circumstance. Coast Guard aviation at Port Angeles, as in other sections of the United States, was not considered of major significance in most quarters. It had to make the best of its limited opportunities, with inadequate equipment, insufficient funds and indifferent support by other branches of the services. The Port Angeles Station began operations with the Douglas seaplane, followed by the twin-engine flying boat, the biplane PH2. Although the PH-2 was superior to the Douglas, it was not well adapted for special Coast Guard duties. When the station was preparing for war, it was found that this plane was not strong enough to carry the bomb racks so necessary for patrol assignments. The single-engined JF-2 was next tried. As a utility plane, it was servicable but of little value as an ambulance carrier or for off-shore pick-ups. However, being the only type available at the time, it was used until the newer Grumman amphibian made its appearance. Manufactured for civilian use, this airplane was the most suitable for Coast Guard duties of any yet tried. It could be used for rescue missions and fully armed and fitted with bomb racks and depth charges, it served as an excellent anti-submarine patrol plane. With the advent of war, the smaller type of the famous JRF amphibian, the JRF-4, was accepted by Coast Guard Headquarters as a general purpose plane. These, augmented by PBM3S's and PBY-5A's in 1944, have served the station down to the present time. Thus far, with the possible exception of the new helicopter which is still in the experimental stage, the Coast Guard has not found the ideal plane for its

1. The anti-aircraft training center was withdrawn from the base in October, 1943.
2. During that year 724 anti-submarine or patrol coverage flights and 2,299 routine flights were made, representing 587,703 miles cruised and a searched area of 1,548,199 square miles.



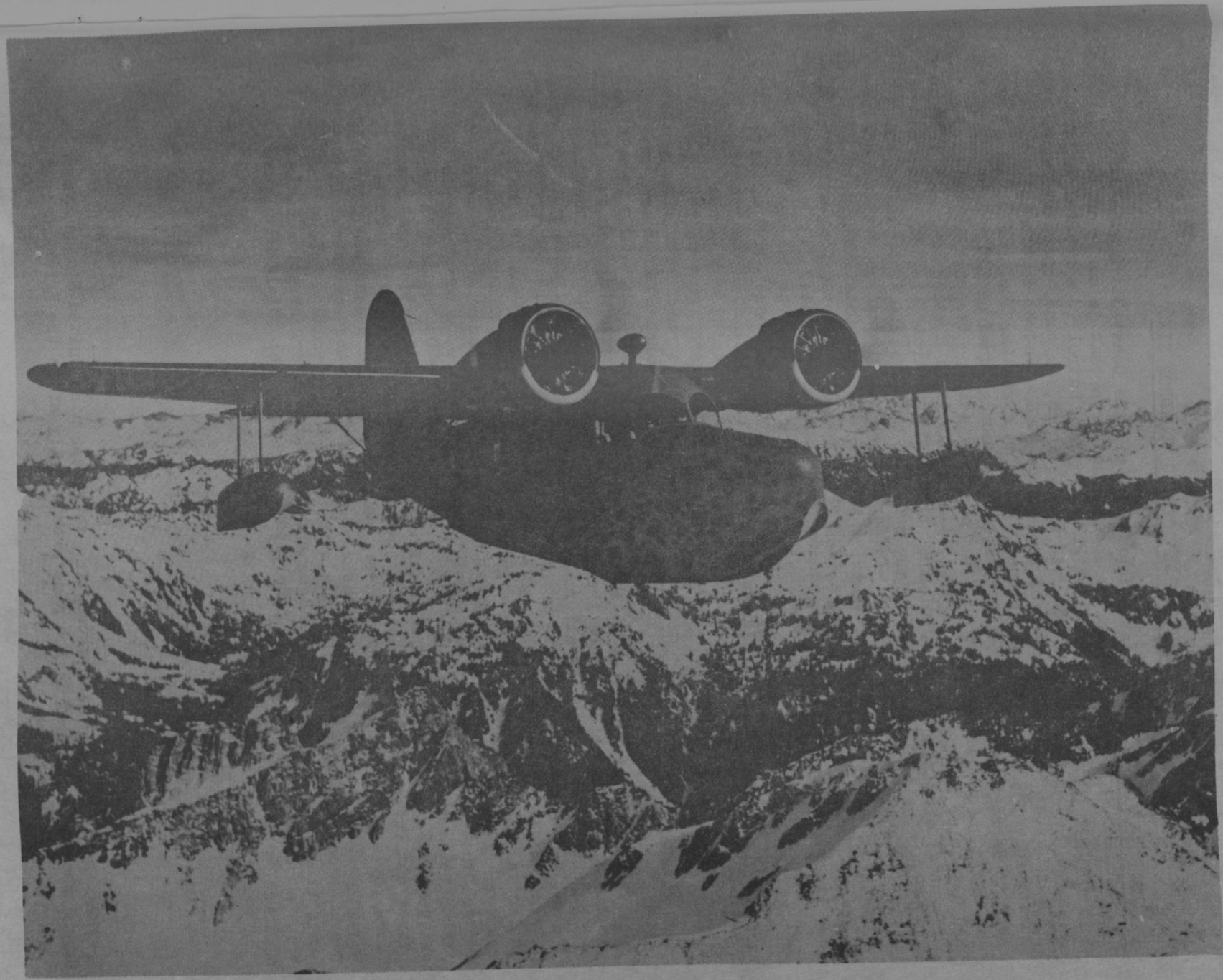
A COAST GUARD PLANE CIRCLES OVER MERCHANT SHIPS AT SEA,
ALERT FOR SUBMARINES

own particular use. The PBY-5A type has generally proved the most satisfactory. The station's allotment of aircraft for 1945 includes five of this type in a total plane complement of 14. Three PBY-5A's were received in November, 1944, one of which was assigned to duty at Quillayute, Washington.

AIR SEA RESCUE PROGRESS AT PORT ANGELES

On the fifteenth of March, 1944, the Air-Sea Rescue system was organized for the Northwest Sea Frontier area. The commanding officer of the Port Angeles Air Station was designated to head the new organization. In October, Commander David Q. Reed relieved Commander W.E. Sinton as director of the ASR set up, which now includes the Navy Outlying Field. Operations had begun in April with two PBY-5A aircraft loaned by the Navy. In the following September, 1944, the station became known officially as the "Coast Guard Group, Port Angeles," which together with its neighboring sub-units,[1] operates as an air-sea Task Unit for the Northwestern Sector of the Sea Frontier region. Six rescue crash boats arrived during the summer and the station began its extensive training program in coordinated rescue operations. Rescue activity had increased appreciably during recent months. Considerable progress has been made in coordinating the work of the many agencies interested in rescue operations. The Army, Navy, Coast Guard and Forest Service have worked together for a common cause with the closest possible cooperation. A unique feature of the training program is an air-land rescue ski squad, which has been trained and assisted by the Port Angeles chapter of the National Ski Patrol. It is believed thatthis special unit will be of great service in rescue operations among the snow-covered mountain areas. Through November, 1944, to March, 1945, a great many emergency calls have been answered by the station. Although a great number of them were false alarms, several were completely successful. Fifteen mercy missions were accomplished during this period.[2] Plane and boat crews cooperated in most of these missions. Typical of the harmonious coordination of all types of ASR units was the rescue of six members of the crew of a Navy patrol plane which crashed in the fog about 130 miles northeast of Seattle. The rescue necessitated a six-day search, 14 to 20 January, 1945, over the rugged cascade mountains under the most trying weather conditions. Amid snow and rain, without shelter or rest, Army, Navy, Coast Guard and Forest Service crews searched. By the 17th, four men had been found. The Army and Navy secured search operations after that but the Coast Guard and Forest Service continued the attempt until the two other members were rescued. The lives of five of the six men were saved. Achievements of this character have already assured the success of the new organization.[3]

1. Vide ut supra, p. 6. During 1944 a control tower and a new seaplane ramp have been completed. The total aircraft complement for the ASR unit numbers 29 planes.
2. Historical report of the Port Angeles Air Station, for the period November, 1944, through February, 1945, (6 March, 1945)
3. The Air-Sea Rescue organization had not neglected its regular station duties. During the period under survey, plane activity included administrative, assistance and survey flights. In addition, there were a number of convoy coverages, which in one instance required nine hours in the air.



A COAST GUARD PLANE OVER THE ROCKIES

COAST GUARD PATROL BOMBING SQUADRON SIX

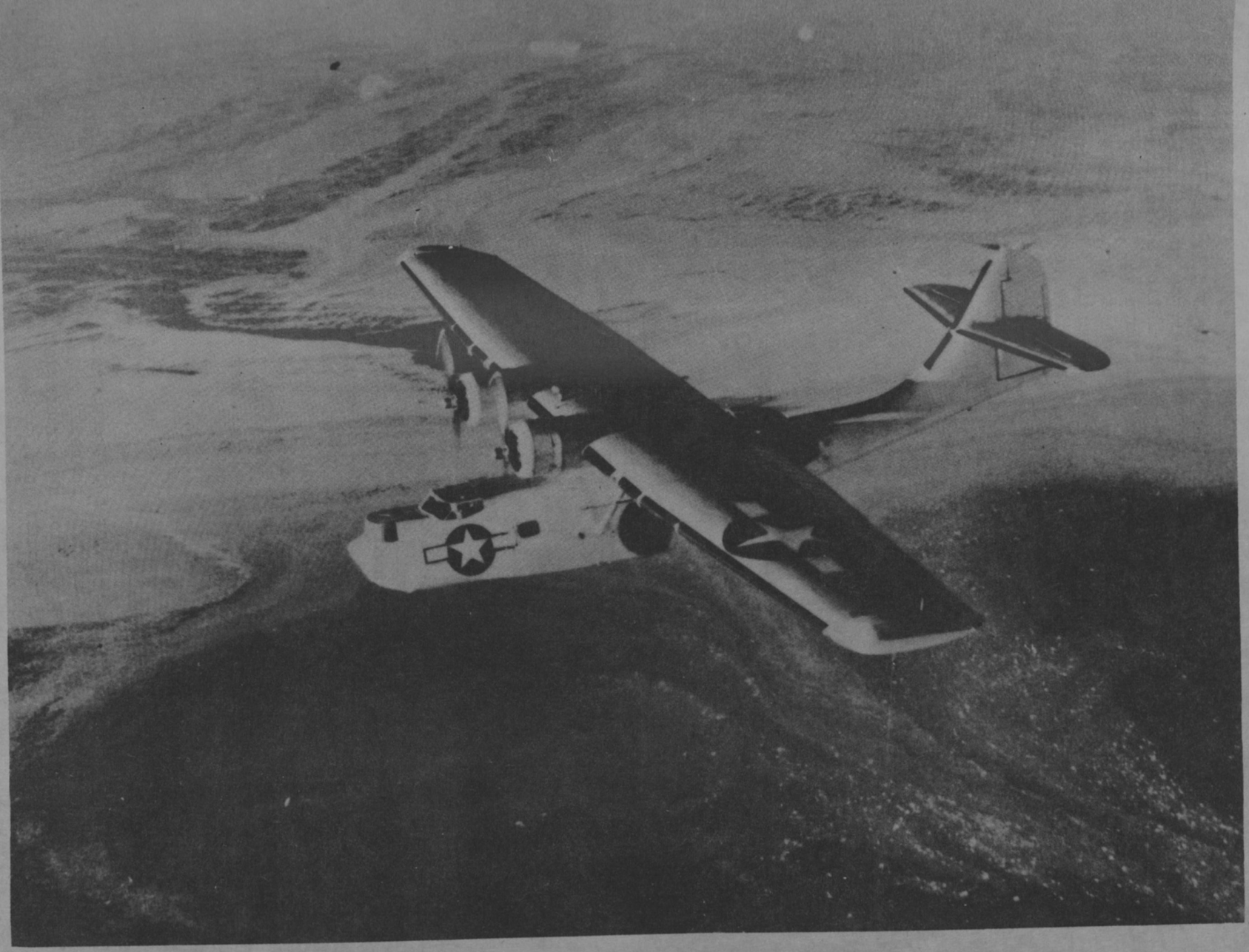
UNIQUE POSITION OF BOMBING SQUADRON SIX

The most colourful of all the Coast Guard aviation units is the special squadron that is assigned to the Greenland Patrol. This patrol is a special unit of the Atlantic Fleet, which, in turn, operates under the commander of Task Force 24.8. Patrol Bombing Six was commissioned on the fifth of October, 1943, at Argentia, Newfoundland. It was sent to Narsarssuak, Greenland, to relieve Bombing Squadron 126. Squadron Six has had a unique development in Coast Guard aviation. Its work is colourful and dramatic, its position singular, its organization distinctive. It is the only naval squadron operating in the north Atlantic Arctic region, and, although all the squadron's planes are owned by the Navy, it is operated entirely by Coast Guard personnel. In April, 1944, the Squadron was composed of twelve operational air-craft, the famous PBY-5A type Catalina planes based at Narsarssuak. There were five officers, 24 aviators, four aviation pilots, and a crew of 152 enlisted men, including the pilots.

CUTTER-BASED PLANES IN GREENLAND

Many months before Pearl Harbour, Coast Guard cutter-based planes had operated in Greenland. Their anti-submarine and coastal patrols covered wide areas, but the reputation of these Coast Guard aviators rest primarily upon the heroic rescues which from time to time they have accomplished. The memorable rescues of Lieutenant Prichard, who for the nine months preceding his untimely death had been operating from the Northland, have already been related. The days of search that followed in the unsuccessful attempt to locate the missing plane were filled with the dangers and hardships so typical of all rescue expeditions in that frozen glacier area. A Coast Guard party braved the hazards at the impenetrable ice caps for some five months before they finally gave up the search.[1] However, this much publicized incident was no more significant than many other less dramatic rescues. It was not uncommon for ship or land based planes to fly over several thousands of square miles of Greenland ice caps, under the most trying weather conditions, in a single rescue search. On routine patrols, ostensibly engaged in observation surveys or in the delivery of mail, bomber planes not infrequently sighted stranded vessels or crews, adrift sometimes for weeks in the stormy northern seas. Radioed messages would send Coast Guard cutters speeding to the rescue. Actually the equivalent of coordinated air-sea rescue missions were already in operation before the ASR service was instituted. Changes effected were in organization rather than in mission. The 1945 ASR complement for the patrol totals 28 planes of which 12 are PBY-5A's.

1. This expedition was also attempting to rescue nine United States Army flyers who were stranded in the same area shortly after the Prichard incident.



COAST GUARD PLANE SOARS THROUGH FRIGID GREENLAND SKIES

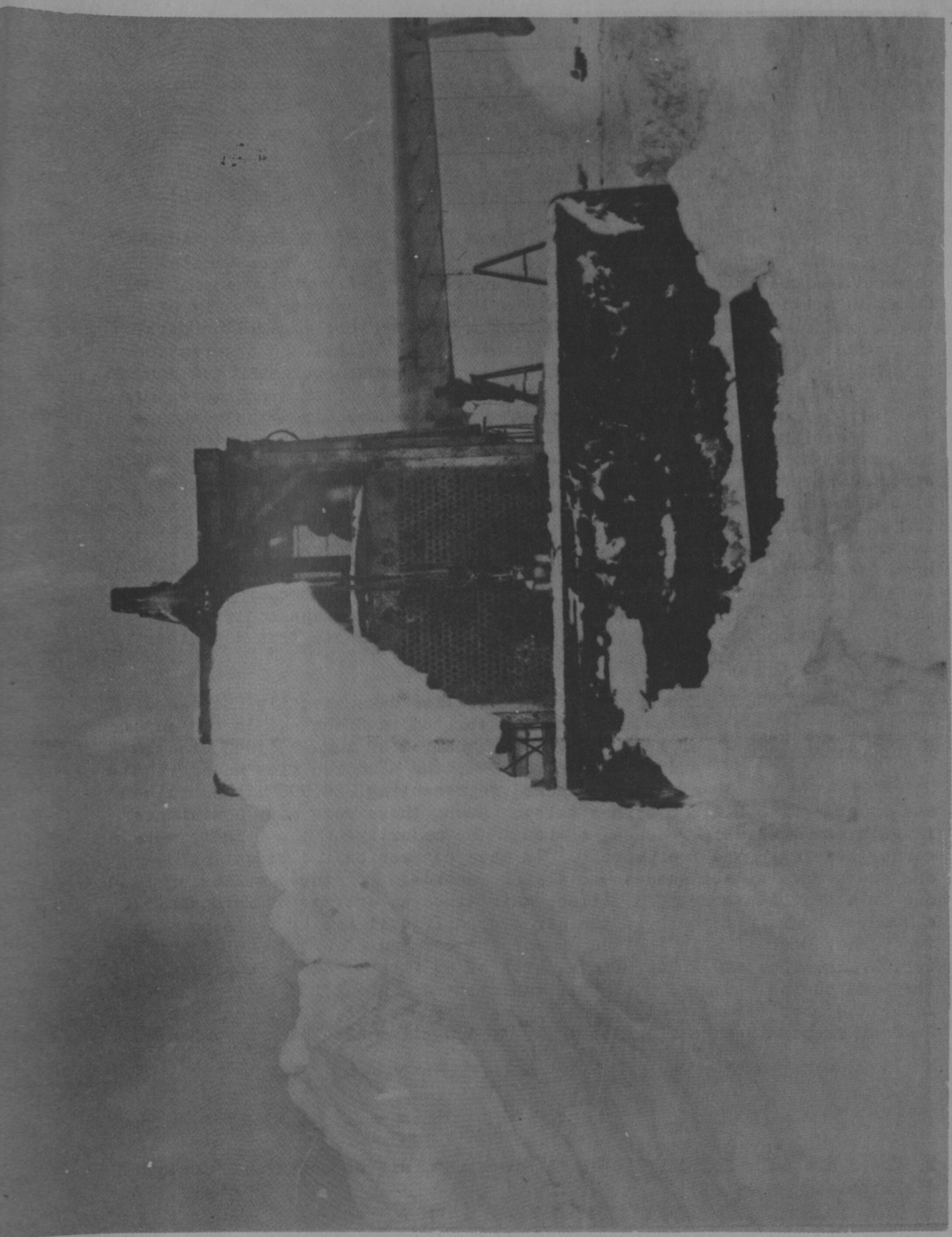
ORGANIZATION AND FUNCTION

The Greenland Patrol was inaugurated by Rear Admiral Edward H. Smith in October, 1941, to operate as a part of Task Force 24.8 of the United States Atlantic Fleet. It consists of Coast Guard and Navy craft, manned by Coast Guard personnel, whose primary function was to convey men and supplies to new bases and to combat the German submarine menace. In the summer of 1943 the commander-in-chief of the Fleet directed the Coast Guard to organize a patrol squadron for duty in Greenland, to be attached to the Greenland Patrol. Its particular functions were fivefold: air coverage for convoys, anti-submarine patrol, mail delivery, rescue duties and observational surveys of ice conditions in the area. The administrative control is vested in the Commander of the Fleet Air Wing Nine, with the exception of personnel matters which are under the immediate direction of Coast Guard Headquarters. Although the squadron's main base is at Narsarssuak, Greenland, it has detachments operating from Argentia, Newfoundland, Reykjavik, Iceland and in the Canadian Arctic. The Patrol began operations with six PBY-5A planes, fifteen aviators, three aviation maintenance officers, a radio electrician, an aerologist and 131 enlisted personnel, of whom seven were aviation pilots.

SQUADRON OPERATIONS

The difficulties of weather and terrain somewhat limits aviation activities in Greenland. The island has a mountain range of some 15,000 feet elevation extending around the entire coast, with fjords and harbours closed during the winter months by pack ice. About 85% of the interior is covered by a great ice cap, varying in the thickness from two to four miles. Planes are forced to operate under most unfavourable weather conditions, with variations of temperature in some areas as great as 50 degrees.[1] The durable PBY-5A's have been landed on Greenland's icy slopes in spite of raging crosswinds of 25 to 40 knots per hour. Despite these difficulties, however, there are several air bases there. Since the outbreak of war Greenland has become an important district for the thousands of ships and aircraft crossing the north Atlantic area. Daily weather reports and observations of ice conditions are indispensable for the trans-Atlantic war operations. The squadron's main base is at Narsarssuak with a single concrete runway down a sheltered fjord. The three inch incline to the east enables landing uphill and takeoffs downhill, regardless of the wind. The squadron area is just north of the runway about half a mile where the maintenance shops and barracks are located. Seven Quonset huts house all the squadron's facilities. Freezing temperatures makes it desirable to park all planes outdoors even though heated hangars could be provided. For this purpose a large matting is laid on the field to accommodate the home-based planes.[2] The widespread field of operations necessitates a mobility of squadron organization. Aircraft and crews are rotated at the home base. Because of the

1. Because of difficulties of weather and treacherous icy terrain, regular patrols are flown only during daylight hours.
2. The Army Control and Beacon Station at Narsarssuak has one hangar which the squadron uses for difficult repair jobs.



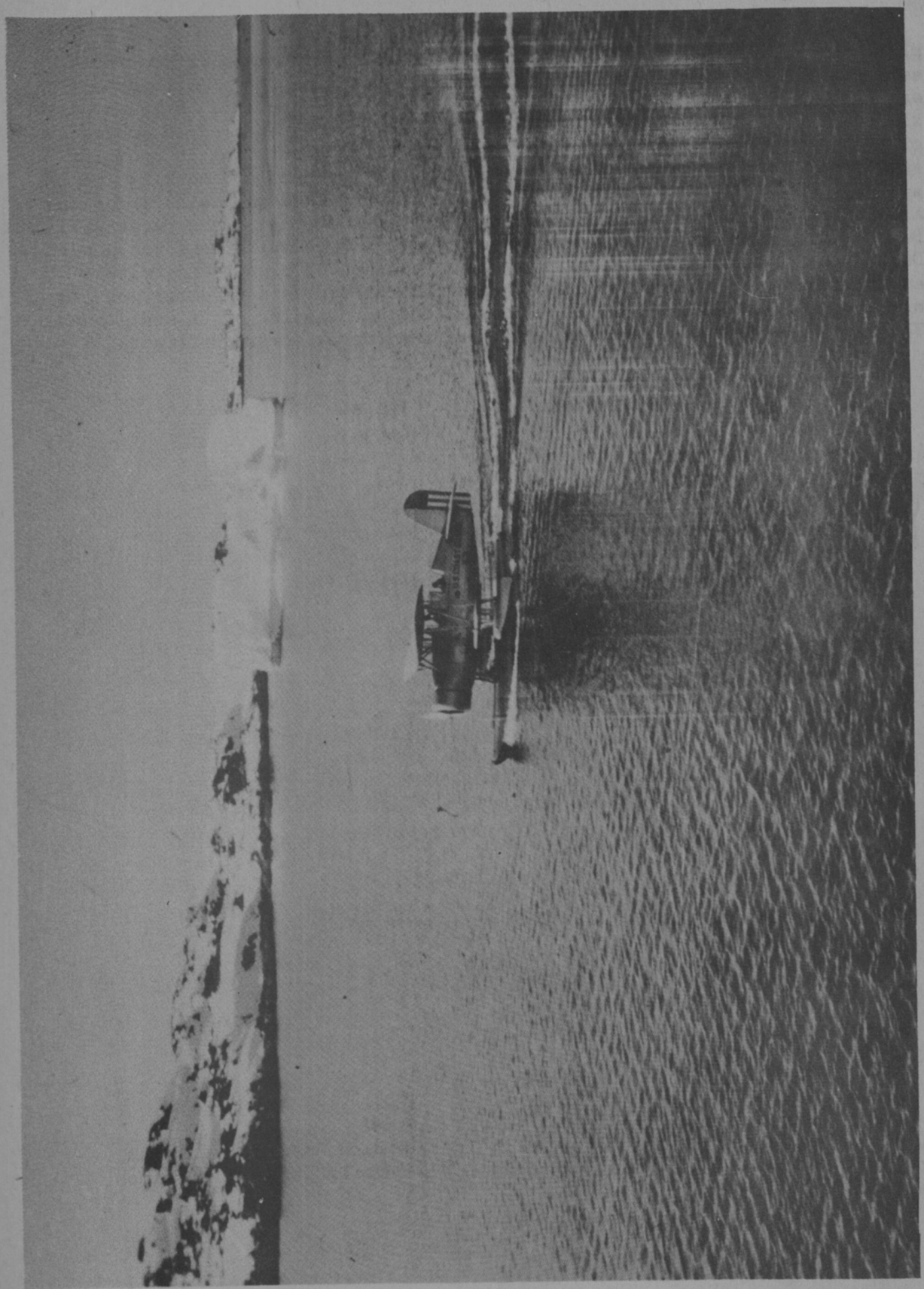
CLEARING A RUNWAY IN GREENLAND

severe weather and the vigorous nature of the work; the complement is replaced annually. After a fortnight's indoctrination in the States, replacement crews are gradually absorbed over a quarter period. Detachments of the squadron are regularly assigned to other bases in the north Atlantic area. Normally, two aircraft are attached to the Argentia Naval Air Station in Newfoundland, where living conditions are more ideal. There the weather is more moderate and ample station comforts and entertainment are available. Assignments to Argentia are rotated so that each combat plane and crew spend about six weeks there every year. Another detachment of two planes periodically has served with the Royal Air Force Coastal Command in Iceland. Likewise, two planes are regularly stationed in the Canadian Arctic during the summer and autumn. They operate chiefly over the Labrador, Cumberland Island and Baffin Land region, engaged primarily in rescue, reconnaissance and coverage missions. Patrol and observation flights carry these planes as far north as the Ugaba, Frobisher and Hudson Bays. The Catalina planes each have a crew of two officers and seven men. They are berthed outdoors for the most part, which requires the constant use of gasoline preheaters. Almost all flights made by the squadron are hazardous and many are extremely dangerous. Weather conditions are consistently treacherous; the ruggedness of the mountain regions requires high altitude flying, while extensive ice caps make landing in approximately 90% of the island impractical if not impossible. Under conditions such as these experienced, well trained pilots and crews are necessary. Flying at high danger point, in wind velocities as great as 120 to 185 miles per hour far afield from any landing base,[1] requires not only high courage but expert skill. The men selected for this duty have perhaps contributed more to the glory and renown of Coast Guard achievements than any other unit of the aviation division.

FLIGHT OPERATIONS AND RESCUE ACTIVITIES

The operational activities have steadily increased since the squadron arrived in Greenland in the autumn of 1943. During the period of August, 1943, to the end of November, 1944, the squadron flew an aggregate of 6,235.6 hours, representing 638,998 miles cruised and an area of 3,213,605 square miles. Among these were many assistance flights and memorable rescues, although the majority of the flights were convoy coverages and ice patrols. In this connection individual pilots and crews have established sound flying records. For three months of 1944, one aviator, Lieutenant C.H. Allen, maintained an average of more than a hundred hours per month in the air over difficult Arctic terrain. The two planes operating in Iceland, under the command of Lieutenant Commander G.R. Evans, flew 410.2 hours in a total of 60 flights during approximately the same period. Some 20% of this was night and about 15% instrument flying under the most trying weather conditions of snow, ice, sleet and rain. Several reconnaissance flights of 300 to 400 miles were made in unheated

1. There are only four airfields in Greenland, all of which are widely distributed.



COAST GUARD SEAPLANE TAKES OFF FROM A BAY ON THE GREENLAND COAST

planes, in a temperature of 30° centigrade. Such unspectacular routine assignments have established the squadron's reputation for efficiency and endurance. However, several dramatic incidents have occurred to illuminate the past record of achievement. Often the assistance rendered to grounded crews or pilots is incidental to a regular patrol, consisting in spotting survivors, dropping emergency kits and supplies to them, and marking the spot for later rescue. The Army Air Force in Greenland maintains a special Arctic Search and Rescue Squad which assumes most of the rescue responsibilities.[1] But occasionally actual rescues are accomplished by bombing squadron planes. During the fiscal year of 1944, the squadron aided 43 planes and vessels and rescued or assisted 47 persons. One medical case and 87 other persons were transported during the year's operations, consisting of 71 assistance, 736 routine and 346 anti-submarine patrol and convoy coverage flights.

1. This Army Air Force rescue squad is locally nicknamed "The Find'em and Feed'em Boys". A special "Sled Patrol", chiefly Danes and Eskimos, has been in operation since 1941.

Appendix A

Summary Record of Early Coast Guard Aviation

C.G. Aviation Statistics for the Period, 1927-1934

	1927	1928	1929	1930	1931	1932	1933	1934
Number of Air Stations	2	2	2	2	2	2	3	3
Number of planes	5	5	5	3	3	6	13	18
Number of aviators	4	3	4	4	7	10	14	14
Number of flights	258	529	360	490	384	670	700	1,200
Miles cruised	28,325	76,184	56,395	67,655	46,270	93,750	150,040	219,572
Area covered, thousand sq. mi.	442	1,359	945	1,180	805	1,344	3,000	3,850
Number cases of assistance rendered	12	123	18	18	11	6	22	44
Hours flown	366	726	675	990	661	1,250	1,800	2,752
Number of vessels and planes identified	2,970	7,179	5,113	3,100	1,100	2,397	2,600	5,494
Illicit stills discovered								14

APPENDIX A Aircraft Operations Report Fiscal Year 1943

Station or Unit	Hours in Flight	Training Test Patrol Admin. Flights	Assistance Flights	Miles Cruised	Area Searched	Vessels and Planes Identified
Biloxi	10,693	3,360	30	993,339	9,393,013	26,816
Brooklyn	5,524	1,970	42	458,579	3,092.709	24,021
Elizabeth City	8,301	2,684	69	782,235	7,740,885	24,907
Miami	9,936	3,185	42	882,963	7,534,026	31,527
Port Angeles	3,355	2,021	85	394,949	1,256,982	1,582
Salem	6,026	2,752	32	583,550	4,026,344	13,356
San Diego	1,574	602	21	142,511	836,572	2,349
San Francisco	3,688	1,323	98	351,286	812,924	3,159
St Petersburg	8,325	2,747	66	734,901	7,507,915	15,786
Headquarters	609	198	-	101,144	-	-
Houston, Texas	1,399	1,163	-	157,088	-	-
Northland	153	65	1	15,760	67,850	29
North Star	51	21	-	5,265	42,650	5
Storis	20	12	-	2,065	2,150	-
Travers City Detachment	136	41	4	14,018	142,090	455
TOTALS	59,790	22,144	490	5,619,653	42,456,110	143,992

APPENDIX A Aircraft Operations Report Fiscal Year 1943

Station or Unit	Vessels and Planes Assisted	Disabled or Overdue Planes and Vessels Assisted	Obstacles and Derilicts Reported	Persons Assisted	Medical Cases Transported	Other Persons Transported	Other Govn't Departments Assisted
Biloxi	1	8	21	39	6	37	5
Brooklyn	1	19	8	41	4	49	5
Elizabeth City	4	15	15	76	16	96	12
Miami	1	10	1	82	4	680	19
Port Angeles	1	11	3	51	25	25	21
Salem	1	18	5	3	1	109	4
San Diego	-	1	1	10	8	108	26
San Francisco	1	26	1	4	7	169	57
St. Petersburg	4	10	4	82	1	136	20
Headquarters	-	-	-	-	-	-	-
Houston, Texas	-	-	-	-	-	-	-
Northland	-	-	-	-	-	16	1
North Star	-	-	-	-	-	6	-
Storis	-	-	-	-	-	2	1
Travers City Detachment	-	-	-	-	-	-	-
TOTAL	34	118	59	388	82	1,433	171

APPENDIX A Aircraft Operations Report Fiscal Year 1944

Station or Unit	Anti-Submarine Patrol and Convoy Coverage Flights	Training Test. Admin. Flights	Assistance Flights	Total Hours in Flight	Miles Cruised	Area Searched	Other Govn't. Depts. Assisted
Biloxi	1,159	2,216	18	7,814.1	721,927	4,209,847	3
Brooklyn	444	3,677	34	5,284.1	193,368	1,131,698	19
Elizabeth City	1,692	1,480	56	9,639.0	944,407	10,038,389	8
Miami	2,016	1,365	41	10,524.6	1,049,952	7,304,955	3
Port Angeles	724	2,299	79	3,889.1	394,866	1,548,199	38
Salem	1,736	724	48	5,585.9	539,489	4,209,942	3
San Francisco	675	1,582	99	6,318.6	677,206	4,144,126	13
St. Petersburg	1,307	295	68	7,412.9	700,870	8,063,621	5
San Diego	645	2,033	289	6,241.9	587,703	1,563,300	23
Headquarters	6	517	1	804.3	118,001	-	-
Houston Detachment, Texas	-	2,999	1	3,159.8	320,779	-	-
Northland	13	13	0	54.1	5,830	47,050	2
Great Lakes Detachment	33	30	0	208.2	22,060	164,400	-
11th Naval District	75	63	0	507.5	56,696	109,610	12
14th Naval District	0	17	0	121.4	13,800	-	-
17th Naval District	17	92	0	222.1	23,520	36,960	4
Patrol Bomber Squad, Six	346	736	71	3,699.9	374,945	14,789,455	1
TOTALS	10,876	20,138	805	71,487.5	6,745,419	43,371,042	134

APPENDIX A Aircraft Operations Report Fiscal Year 1944

Station or Unit	Vessels and Planes Assisted	Vessels and Planes Identified	Disabled or Overdue Planes and Vessels Located	Obstacles and Derelicts Reported	Persons Assisted or Rescued From Peril	Medical Cases Transported	Other Persons Transported
Biloxi	9	8,626	10	2	7	4	17
Brooklyn	3	5,265	7	0	1	0	25
Elizabeth City	9	10,502	17	4	21	2	20
Miami	7	5,046	13	0	51	11	1,506
Port Angeles	7	5,618	4	1	17	27	132
Salem	8	11,262	8	1	3	2	34
San Francisco	14	8,650	12	2	5	3	46
St. Petersburg	2	5,218	11	5	14	5	86
San Diego	8	1,587	5	4	105	34	331
Headquarters	-	121	-	-	-	2	179
Houston Detachment, Texas	-	9	-	-	-	-	2
Northland	-	58	-	-	-	-	7
Great Lakes Detachment	50	752	-	-	-	-	-
11th Naval District	-	251	-	-	-	2	476
14th Naval District	-	32	-	-	-	-	29
17th Naval District	-	68	-	-	-	-	12
Patrol Bomber Squad, Six	43	465	2	-	47	1	87
TOTAL	160	63,530	89	19	271	93	2,989

Appendix B

Coast Guard Aviation Group[1]

(As of 22 March, 1917)

E.F. Stone, 3rd Lieutenant
P.B. Eaton, 2nd Lieutenant (Engineering)
S.V. Parker, 1st Lieutenant
Robert Donohue, 3rd Lieutenant
E.A. Coffin, 2nd Lieutenant
E.E. Sugden, 2nd Lieutenant (Engineering)
L.M. Melka, Signal Quarter Master
C.T. Thrun, Master at Arms
W.S. Anderson, Surfman
J.F. Powers, Oiler First Class
George Ott, Ship's Writer
C. Griffin, Master at Arms
John Wicks, Surfman
Ora Young, Surfman No. 1
W.R. Malew, Coxswain
J. Myers, Surfman
J. Medusky, Asst. Master at Arms
R.F. Gillis, Signal Quarter Master

1. The first nine of this group were qualified as Naval Aviators on 22 March, 1917.

Appendix C

Biographical Notes on Early Coast Guard Aviation Personnel

(1) Commander Elmer Fowler Stone, USCG (Deceased)

Born in Livingstone, New York, 22 January, 1887, Commander Stone qualified for the United States Revenue Cutter Service in 1910, at the age of twenty-three. He received his commission as Third Lieutenant in 1913, which rank he carried with him into the Coast Guard in 1915, when the Revenue Cutter Service and the Life-Saving Service were merged into the officially designated United States Coast Guard. During the first World War he was advanced temporarily to the grade of Lieutenant Commander, but was returned to permanent status as Lieutenant (jg) in 1921. However, he was again commissioned Lieutenant Commander in February, 1926, and finally advanced to Commander in 1935, just a short time before his death.

For over a quarter of a century, Commander Stone gave fully of his services to the Coast Guard, upholding its finest traditions of cooperation and service. The roster of his assignments includes pioneer work in the development of early Coast Guard aviation, extensive sea duty, as well as its complementary war missions, and various administrative posts of responsibility. During the World War, he served on the USS HUNTINGTON, employed in convoy duty, from July, 1917, until September, 1918, when he was transferred to the Bureau of Construction and Repair, in the Navy Department at Washington, D.C. Being one of the first two Coast Guard officers to complete the flight training course at the Naval Air Station, Pensacola, Florida, Commander Stone was appointed the first Coast Guard Aviator in March, 1920. Meanwhile, as Naval Aviator, he made the original trans-Atlantic flight in May, 1919, as co-pilot of the famous Navy flying boat, the NC-4. In 1921, he was attached to the aviation division of the Bureau of Aeronautics, where he served until the autumn of 1926. Upon his return to Coast Guard service in September of that year, he spent several years in duty at sea.

In Coast Guard aviation circles, Commander Stone became a well-known figure. From May, 1932, until April, 1934, he was Commanding Officer of the Naval Air Station at Cape May, New Jersey. After a tour of inspection of naval aircraft at the Douglas Aircraft Company of Santa Monica, California, he was placed in command of the Air Patrol Detachment at the Naval Air Station, San Diego, California, in May, 1935. He was still serving in that capacity when he died, 20 May, 1936.

During his long and chequered career, Commander Stone performed several exploits which have added to the renown of the Coast Guard. Besides the sensational trans-Atlantic flight in 1919, for which he received the Navy Cross and a citation by the President, he later established a new world record for amphibian planes. Over a three kilometer test course at Buckroe Beach, Virginia, in 1934, he averaged 191 miles per hour. For services during the World War, he was awarded the Air Force Cross by England, the Decoration of Military Order of the Tower and Sword by Portugal, and the Victory Medal, Patrol Clasp, by his own country.

(2) Rear Admiral Philip Bentley Eaton, USCG

Rear Admiral Philip Bentley Eaton was born in Elkins, New Hampshire, on 24 January, 1887. He received his education in Connecticut and New York, attending grade and high school at Collinsville, Connecticut and studying engineering at Cooper Union Institute and Webb Academy in New York City. Upon graduating from the Academy in 1908, he was appointed a cadet engineer in the Revenue Cutter Service, receiving a commission as ensign in the Engineering branch of the Service in November of that year. In March, 1917, he was appointed student aviator and assigned for training at the Naval Aviation Training Station at Pensacola, Florida. Qualifying as Naval Aviator, he became Executive Officer at the Naval Air Station, Montauk, Long Island, in the summer of 1917. Later, he was made Commanding Officer of the Naval Air Station at Chatham, Massachusetts, where he remained until transferred to Boston in July, 1919. For services during the first World War, he was awarded the Victory Medal with the aviation clasp.

During the eight year period, from 1919-1927, Eaton served aboard seven Coast Guard cutters. In the autumn of 1919 he began his sea duty aboard the ACUSHNET. During the following year short periods of duty on the OSSIPEE, ANDROSCOGGIN and SENECA, preceeded the length assignment as engineering officer of the TALLAPOOSA, from October, 1921 to April, 1923, after which he was assigned to the historic cutter, BEAR, of the Bering Sea Patrol. In April, 1926, he began a long tour of duty with the destroyer, WAINWRIGHT, which was terminated by an assignment at the Boston Navy Yard in Massachusetts. First, as Supervisory Engineer Officer of Division 3 of the Destroyer Force and after March, 1929, as Assistant to the Commander of the Force, he continued in that capacity until February, 1931. Duty afloat during those years following the war included a South Seas cruise to the Line Islands and Samoa and five Arctic cruises with the BEAR.

In July, 1929, Eaton had been promoted to rank of Commander. Some two years later, in February, 1931, he was designated as Chief Inspector to supervise the construction of the first 165-foot patrol craft being built at Bath, Missouri, and Camden, New Jersey. Resuming sea duty in February, 1933, he served for over two years aboard the CGC ITASCA as Engineering Officer. He was attached to Coast Guard Headquarters in August, 1935, as head of Marine Engineering. Three years later he was made Engineer-in-Chief of that division. He obtained his captaincy in 1939 and was promoted to his present rank of Rear Admiral in November, 1943.

Rear Admiral Eaton was married to Anita Mac Wynee Hodges of Rome, Italy, in February, 1917. Their present home is at "Comynholn" in Rock Creek Park, Washington, D.C.

(3) Rear Admiral Stanley Vincent Parker, USCG

Born in Cincinnati, Ohio, on 26 October, 1885, Rear Admiral Stanley Vincent Parker received his early education and technical training in Ohio. After graduating from the Technical School of Cincinnati in 1904, he entered the Revenue Cutter Service as a cadet in May of that year, receiving a

commission as ensign at the close of 1906. Shortly thereafter he was assigned to active sea duty aboard the revenue cutter GRESHAM. During the first decade of his service career he served on the cutters GRESHAM, ITASCA, WINDOM, THETIS, GOLDEN GATE, and APACHE, operating at intervals in the Pacific, Gulf of Mexico, Hawaiian, and Alaskan waters.

When the United States entered the first World War, Rear Admiral Parker, then lieutenant, was attached to the CGC APACHE. In 1917, he was one of the few Coastguardsmen selected for Naval aviation training at Pensacola, Florida, where he graduated on March 22nd. While at the Pensacola Naval Air Station, he acted as Senior Coast Guard Officer for his class. Being detached from the station in December, 1917, he served for a few months as Commander of the Naval Air Station at Key West. Transferred to the Naval Air Station at Rockaway Beach, Long Island, he acted as Commanding Officer there from August, 1918, until July, 1919, when he was reassigned to the Pensacola station as procurement officer and flying instructor.

During the crowded years that followed, Parker had many and varied assignments including two periods at Coast Guard Headquarters, as Aide for Navigation in 1919 and again in 1934-1936 as Chief Intelligence Officer. While serving in the latter capacity, he represented the Coast Guard on the Marine Casualty Investigation Board. In 1921, he was Executive Officer of the BEAR, then on Bering Sea Patrol and in 1932 to 1934 commanded the NORTHLAND of the same patrol. He also served as Commanding Officer of the YAMACRAW, the McDOUGAL, the OSSIPEE, the CHAMPLAIN, the TAMPA and the MOJAVE. It was with the MOJAVE, in 1931, that he made the International Ice Patrol in the North Atlantic. Since September, 1936, his activities have been largely confined to the Pacific coast area. On that date, he was attached to the Twelfth District as Coordinator of the Treasury Department Law Enforcement, California Division, and, as Coast Guard Representative on the Marine Casualty Investigation Board. In connection with his law enforcement duties, he was instrumental in coordinating the campaign against narcotic smuggling in the Hawaiian Islands. By 1937 he had advanced to the rank of captain and in 1942 was promoted to Rear Admiral. While on the west coast he also served as Captain of the Port at San Francisco, Commander of the San Francisco Division, and Senior Coast Guard Officer of the Twelfth District. In June, 1942, he was transferred to the Third Naval District to become District Coast Guard Officer and Coordinator of the Captain of the Port activities on the Atlantic and Gulf coasts.

Rear Admiral Parker has achieved distinction in more than one field. He holds the Victory Medal for outstanding service during the first World War and two commendations from the Commandant of the Coast Guard for work performed in Alaska as a United States Commissioner and for hydrographic and topographic investigation while on the Bering Sea Patrol in 1933. As a student of law he has activated the development of legal studies at the Coast Guard Academy and interested many of his service colleagues in legal pursuits. He is a member of the California Bar and author of the legal treatise, Powers and Duties of Coast Guard Officers as U.S. Commissioners in Alaska. Rear Admiral and Mrs. Parker are now living in Essex House, East 41st Street, New York City. One of their two sons, Stanley Devereaux Parker, is serving his country as a lieutenant in the United States Navy.

(4) Rear Admiral Robert Donohue, USCG

Rear Admiral Donohue has had a long and uninterrupted period of service in the United States Coast Guard. A native of New York City, he attended high school and college at the College of the City of New York. Years later he was to return to the city of his birth to help establish the now famous Coast Guard Air Station at the Floyd Bennett Field.

After leaving college he was appointed a cadet in the United States Revenue Cutter Service on 29 April, 1910. By June, 1913, he had been commissioned as ensign and received his first assignment at sea duty aboard the cutter ANDROSCOGGIN. Serving on this cutter until November, 1916, save for one summer with the cutter SEMINOLE in 1915, he was assigned to the Naval Training Station at Pensacola, Florida, for instruction in aviation. As a member of the first Coast Guard class of nine at Pensacola, he graduated with his class in 1917, qualifying as Naval Aviator on March 22nd. After a brief period of duty on the USS HUNTINGTON in the summer of 1917, he began a series of assignments in naval aviation, which won for him a prominent position among the leading Coast Guard aviation figures. For the duration of the first World War, he served at air stations in Montauk, Long Island, Miami, Florida, North Sidney, Nova Scotia, Akron, Ohio, and Cape May, New Jersey. For services during the war he received the Victory Medal with the aviation clasp.

Returning to the Coast Guard after the war Donohue, as Lieutenant (jg) started the first Coast Guard air station at Morehead City, North Carolina. He remained at this station until June, 1921, when he was delegated to post graduate training in aeronautical engineering at the United States Naval Academy, Annapolis, Maryland. After a year of post graduate study, he was assigned to the cutter MANNING and, later, to the ALEXANDER HAMILTON. During the three year period, 1923 to 1926, he was Instructor at the Coast Guard Academy at New London, Connecticut, but left the Academy in May, 1926, to become Executive Officer of the cutter TAMPA. During the next few years he also commanded the BURROWS and the SNOHOMISH. In the autumn of 1933, he went to the New Orleans Division as Chief of Staff, being transferred the following year to the Southern Area to assume duties as Chief of Staff and Aide to aviation. By this time his reputation in the field of aviation had been well established. After a nine months refresher course in aviation at the Naval Air Station, Pensacola, he was transferred in September, 1935, to Coast Guard Headquarters for duty on the Permanent Board and the Permanent Examining Board for aviation. In 1937, he was sent to New York City to take command of the new Coast Guard Air Station there. The following year he became Superintendent of the Maritime Service Training Station at New London, Connecticut. In addition to that position, he likewise commanded the New London Base and acted as Captain of the Port. At the close of 1944 he was recalled to Headquarters as Chief Personnel Officer.

Meanwhile, his promotions had been rapid: lieutenant, January 12, 1923; lieutenant commander, 2 April, 1924; commander, 1 October, 1934; captain, 1 December, 1941; and rear admiral, 30 June, 1942. His ability and experience in aviation fitted him admirably for leadership in the new role that the

Coast Guard was assuming in the rapidly developing air-sea rescue program. When the national Air-Sea Rescue Agency was launched in 1944, he was chosen to head the organization as Chief Air-Sea Rescue Officer.

Rear Admiral Donohue has continued to direct the activities of that organization, which has its headquarters in Washington. Married in 1917, he and his family reside at 3311 Rittenhouse Street, N.W., Washington, D.C. Of his three children, one son, Robert E. Donohue, is captain in the USAAF.

(5) Captain Eugene A. Coffin, USCG

Captain Eugene Augusta Coffin spent the earlier years of his life in the orient. Born on 10 March, 1888, in Foochow, China, he received his elementary education in that country, attending no fewer than a dozen different provincial schools. After his parents' return to the States, he attended high school at Newtonville, Massachusetts and at Bayonne, New Jersey. Within a year after his graduation in 1906, he entered the Revenue Cutter service as a cadet. He was commissioned as ensign in January, 1910.

His first specialization in the service was in the field of wireless telegraphy. After a long period of duty on the cutters, GRESHAM, and PAMLICO, 1910 to 1915, he completed the operator's course in the Maryland School of Wireless Telegraphy at Baltimore in 1915. Now qualified as a first grade wireless operator, he was assigned to the MOHAWK as watch and radio officer. During the spring of 1916 he served on the TUSCAPORA in the same capacity. However, his chief interest was in flying rather than in telegraphy. When, in 1916, an opportunity was presented to take the aviation course at Pensacola, Florida, Coffin eagerly grasped at it. As 2nd lieutenant, he completed the course in 1917 and became Naval Aviator No. 59. During the first World War he served at Naval Air Stations at Montauk and Rockaway, Long Island, his duties including that of pilot and, in 1918, Executive Officer.

Detached from duty with the Navy after the war, he began a long period of duty at sea, serving with seven different Coast Guard vessels. Between 1919 and 1924, he was with the UNALGA and the ALGONQUIN in Bering Sea Patrol and Alaskan duties. In March, 1924, he assumed his first command aboard the YOCONA. During the years that followed he commanded the MOJAVE, the ROGER B. TANEY and the destroyers, TERRY and WELBORN C. WOOD. While with the two latter vessels, he was commanding officer of Section Base Seven and Destroyer Division One. In November, 1940, he was appointed commander of the Philadelphia District and since that time has remained in administrative activity. At present, he is Captain of the Port of Philadelphia and District Coast Guard Officer for the Fourth Naval District.

In 1922, Captain Coffin was awarded the Victory Medal for aviation services during the first World War. He received his present rank in May, 1941. One of his sons has followed in his father's footsteps by choosing a career in the Coast Guard and is now a lieutenant commander. Captain and Mrs. Coffin live in Manoa, Pennsylvania.

Appendix D

Excerpts from the "Narrative of Miami Air Station Activities, Before, During, and Following the September 2, Hurricane, 1935".

The first hurricane information, in the form of a "Delayed Weather Forecast," was received at 10:00 a.m. on the 1st. Believing the warning sufficient to warrant immediate action, the station sent out a plane to notify all vessels of the approaching storm. As the hurricane approached, immediate attention was turned to securing the station. The report continues in part as follows:

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All seaplanes, and the station crash boat, which had been hauled out of the water, were placed in the station Hangar and the Hangar door secured in place. The Radio Station's doors and windows were boarded. Men with families were sent to secure their homes, and then extra watches were stationed at the Hangar and at the Coast Guard Hangar at the Municipal Airport. As a further precautionary measure, the Radio Station being on the Bay, two way Radio Stations were installed at the Coast Guard Hangar at the Municipal Airport, and at the home of the Commanding Officer in Coral Gables, Florida, to handle distress traffic in case the Radio Station should be put out of commission by high waters. A continuous watch was then set at the Radio Station.

Winds, accompanied by heavy rain, increased to Gale force. The Hangar Anemometer registered gusts up to 70 knots. Water pushed into the Bay by the winds rose higher and higher until it reached the top of the ramp. Boats which had been left at the city mooring dock, adjacent to the Air Station were badly shattered, and four boats sunk at the dock. At 7:00 p.m., second of September, the city power supply failed, and our Kohler system was used to supply light and radio power for the station. At 8:00 p.m., telephone communications failed. Weather information received on the third of September indicated that the Hurricane had passed Florida Straits and was heading Northwestward. Winds of Gale force accompanied by heavy rain continued. Received information that the S.S. Dixie was aground off Carysfort Reef with 275 passengers aboard, but were unable to take any action, due to adverse weather conditions, the wind being of such intensity, that it was impossible to open the Hangar door and to get the planes out.

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While the planes were grounded in the Hangar, complete checks were given each plane to insure their readiness. It was believed that the Gale would moderate during the night, so the planes were prepared for flight at daylight.

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On September fourth, at 3:30 a.m., the gale having abated to approximately 30 miles per hour, the Hangar door was opened, the ramp cleared of all debris, sounded and found to be secure.

At daylight the amphibian C.G. 133 with Lt. Olsen, Pilot, left for the first survey and relief flight over the stricken area. Mr. S.D. Macready, District Sanitary Engineer of the State Board of Health, representing the FERA and the Red Cross, and Mr. Lyons, Universal News man, were observers on this flight.

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In the first flight over the Keys the Amphibian C.G. 133 discovered that the storm swept area, a distance of approximately 35 miles, between Tavernier and Grassy Key, was a scene of utter desolation, not more than three houses remaining upright in this area, the rest having been completely demolished. All vegetation had been completely destroyed except for a few battered Mangrove trees. The Veterans' camps were a tragic sight, Camps #1 and #5 were discernible only by a few pieces of lumber hanging in the Mangrove trees. Camp #3 had a few more pieces of lumber and several up-turned battered buildings to indicate where an active camp had recently existed. The railroad tracks were completely wrecked. North of Lower Matecumbe the tracks had been blown and carried to the westward of the railroad bed and below Long Key on the concrete viaduct the tracks had been completely washed away.

The relief train at Islamorada on Upper Matecumbe, which had been sent from Miami to remove the Veterans from the Keys, looked like a battered child's toy. The engine was the only part left on the tracks. The cars being badly broken up and scattered as far as 30 ft. from tracks. While at Islamorada the Railroad Station, Post Office, and Veterans warehouse were completely destroyed. A few scattered goods were all that remained of the contents of the warehouse. On going ashore at Islamorada we discovered that there were approximately 75 survivors on Upper Matecumbe and unnumbered dead. A few of the bodies had been recovered. At this time the majority of the bodies were entangled in the bushes and wreckage. Doctors and relief workers carried over by the Air Station dinghy were engaged in giving first aid to the injured.

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In the meantime, Seaplane C.G. 255, covered the mainland and adjacent Keys from Card Sound to Northwest Cape. It had been reported that a party of people had been at Deer Key before the Hurricane, but no signs of life were found in this vicinity, although there was much wreckage. At Buttonwood Key, which was under about a foot of water, a landing was made and a group of men were found on a stranded boat. These men reported that they had sufficient food and water for their immediate needs, but were extremely worried about a party at Cape Sable. On proceeding to Cape Sable, found the Cape to have been completely swept bare of all buildings. In the vicinity of Flamingo there were numerous wrecked and grounded boats, and about three miles east of Flamingo a group of survivors had collected on a wrecked

house boat. At Flamingo on a partly submerged house boat, three survivors were discovered in a very precarious situation. A hazardous landing was made among the wreckage and the three survivors removed and transported to Snake Creek, where they were given first aid, and the Red Cross representative was put ashore with them. The Seaplane C.G. 255 then took off and flew to Upper Matecumbe, where a landing was made on a mud bottom in about 18" of water. The Pilot and Mechanic waded ashore and found desolate conditions; injured men, women, and children endeavoring to carry on among bodies and wreckage. The badly injured were being cared for by volunteer workers and a few doctors and part of the Coast Guard Detail under Chief Boatswain's Mate Karcher. There the relief workers reported that they were encountering great difficulty in removing survivors to the first aid station at Snake Creek. The Pilot then deemed it imperative to overload the plane with sixteen (16) women, children, and injured men, one of whom died after arrival at Miami. A difficult take off was then made sliding on the mud bottom, and they were safely transported to Miami, where they were taken care of by hospitals and relief agencies. Due to strong winds still blowing, Lt. Clemmer was unable to bring the plane up the ramp and it was necessary to anchor off the beach and to bring the survivors in on the station crash boat.

At 12:15 p.m., the fourth of September, Lt. Olsen in Amphibian, C.G. 133 took off for a flight over Lower Matecumbe with S.B. Macready, District Sanitary Engineer of the State Board of Health, aboard. In the morning flight Mr. Macready had been very eager to return to Miami as soon as possible so that the results of the aerial survey could be in the hands of FERA and Red Cross officials and hasten relief. The plane landed at Lower Matecumbe at Veterans Camp #3, to ascertain the exact conditions there. About fifty (50) bodies had been removed and were lying at the head of the dock. The injured among the approximately 65 survivors were being given medical aid by the doctors. The 12 or 14 Veterans, who were alive after the storm, from Camp #5 had joined the survivors at Camp #3, as soon as the weather had permitted. At Camp #5 the bodies of the veterans were not only hanging from the Mangrove trees, but were floating and lying in the water surrounding the Keys. Fifteen bodies were later recovered from a single hole at this camp.

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The Amphibian C.G. 133, Lt. Olsen, departed at 9:20 a.m., on the fifth of September, with Mr. Conrad van Hyning, State FERA Administrator and party to make a survey of the storm damage. By this time the stench from rapidly decomposing bodies was becoming apparent even in flying over the Keys, and was very offensive when the plane landed at Lower Matecumbe. After plane landed a 75 foot Coast Guard Patrol Boat was leaving for Snake Creek with fifteen (15) Veterans aboard, the last of the survivors to be removed from the Keys. The only work now left for felief workers was the gruesome task of recovering the bodies from the tangled underbrush and the water surrounding the Keys. At this time the bodies were beginning to come to the surface and could be seen among the wreckage, both on the bay and the ocean side of the Keys. When Mr. van Hyning had completed his survey, the 133 returned to Miami.

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On September seventh at 7:30 a.m., the C.G. 133, Lt. Erickson, Pilot, departed with Mr. C.A. Sanquist, WPA construction supervisor, and Mr. J.D. Peterson, his assistant, for Snake Creek. The passengers were put ashore at Snake Creek and the plane proceeded to cooperate with the WPA in searching for bodies in the storm sections. Twelve (12) bodies were located in Florida Bay and their positions reported to Mr. Sanquist, who stated that the bodies would be picked up and cremated. At 4:40 p.m., the plane returned to Miami.

Appendix E

AN UNPRECEDENTED HELICOPTER RESCUE

The future of the helicopter in air-sea rescue activity is clearly presaged in the dramatic Artic[illegible]scue at Goose Bay in April, 1945. On the nineteenth of the month a Royal Canadian Air Force plane crashed on the inland snow-clad wastes of Labrador. Radio communication having failed, the nine stranded survivors had to patiently await the location of the wreck by scout planes before any rescue could be expected. After a day and night search the party was finally located, but landing could not be effected in that difficult northern wasteland. Supplies and emergency rations were dropped to the men and two ski planes were dispatched to the scene from RCAF Air-Sea Rescue Headquarters. One plane, commanded by Flight Lieutenant Dave Avent was successful in landing, but the other plane crashed at a nearby lake. Two casualties were flown out by Lieutenant Avent, who returned only to find himself stranded in the thawing snow, unable to effect a take-off. In addition to the original flyers, two more pilots were now marooned in an almost inacessible region. In desperation the Eastern Air Command appealed to the Atlantic Division Headquarters at Manchester, New Hampshire. Perhaps a helicopter could reach the stricken men. There seemed no other possible chance of rescue. Immediate action was taken by the air-sea rescue authorities. At the Coast Guard Floyd Bennett Field in New York a Sikorsky training helicopter was dismantled. Tirelessly during the entire night, the engineer crews worked so that the dismantled plane might be ready for loading the next morning. It was transported to Goose Bay by a C-54 and hurridly reassembled. From Goose Bay Lieutenant August Kleisch flew the helicopter 150 miles to the nearest rescue post in Labrador, and on to the scene of the crash about thirty-five miles beyond. The first rescue was completed before nightfall of the same day. However, the following morning found the helicopter's engine frozen from the sudden rising temperature of the night. A defroster had to be flown in from Goose Bay before the rescue mission could be resumed. By shuttle trips, all the survivors were flown out during the next two days. Amid difficult weather, at an altitude of some 2,000 feet, Lieutenant Kleisch, in jump take-offs, averaged an hour and a half for each round trip. It was a magnificant performance in skill and efficiency--a standard of international cooperation in air-sea rescue. The praise of the RCAF was unstinted. Without the use of the helicopter the stranded flyers might have been forced to endure for months the cold and hardships they had been rescued from in a fortnight. Lieutenant Avent expressed the admiration of all his countrymen when he said, "We certainly owe a lot to the American Coast Guard and the ATC."