



TED WILBUR

THE FIRST FLIGHT ACROSS THE ATLANTIC

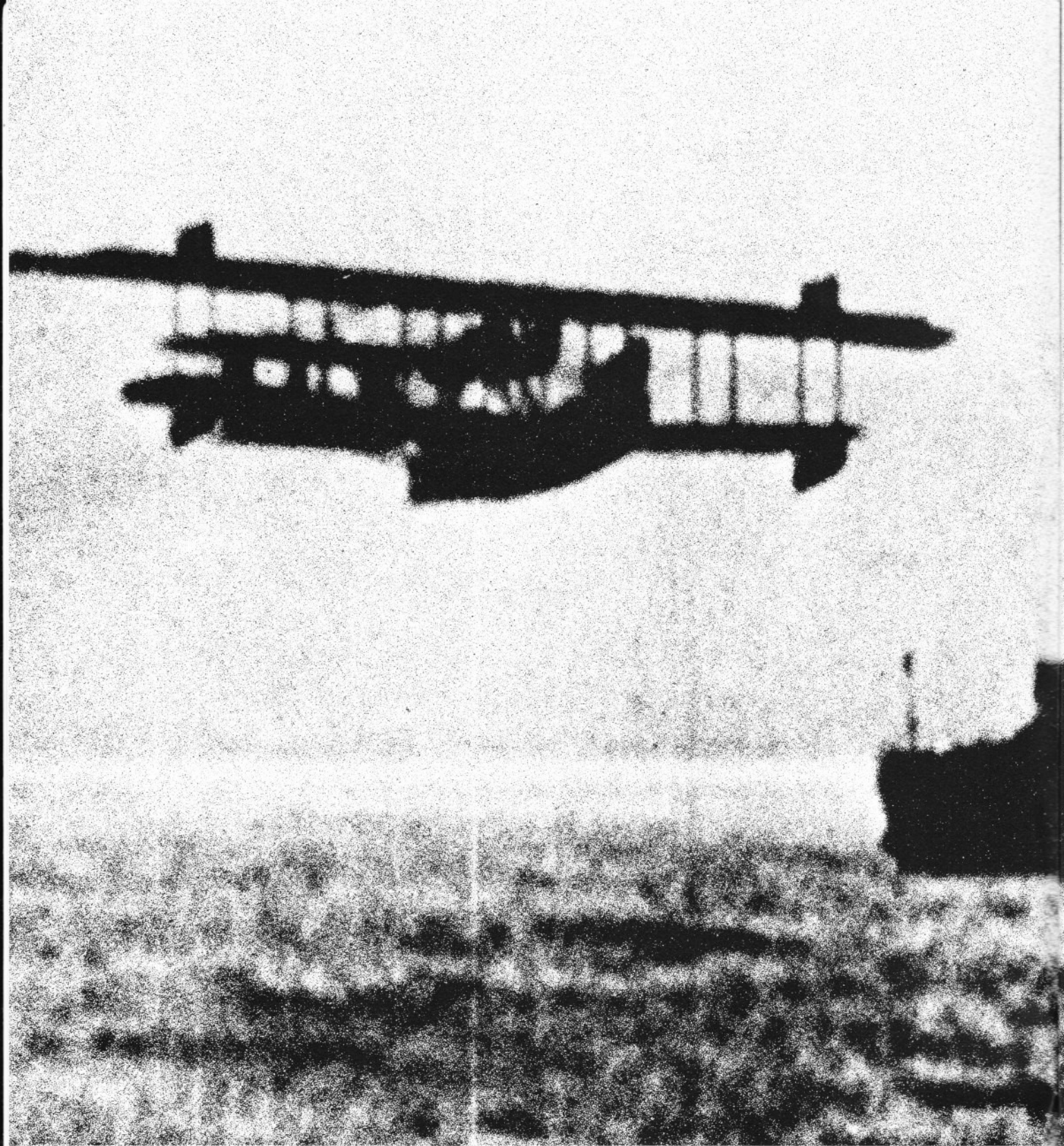
THE FIRST FLIGHT ACROSS THE ATLANTIC MAY, 1919

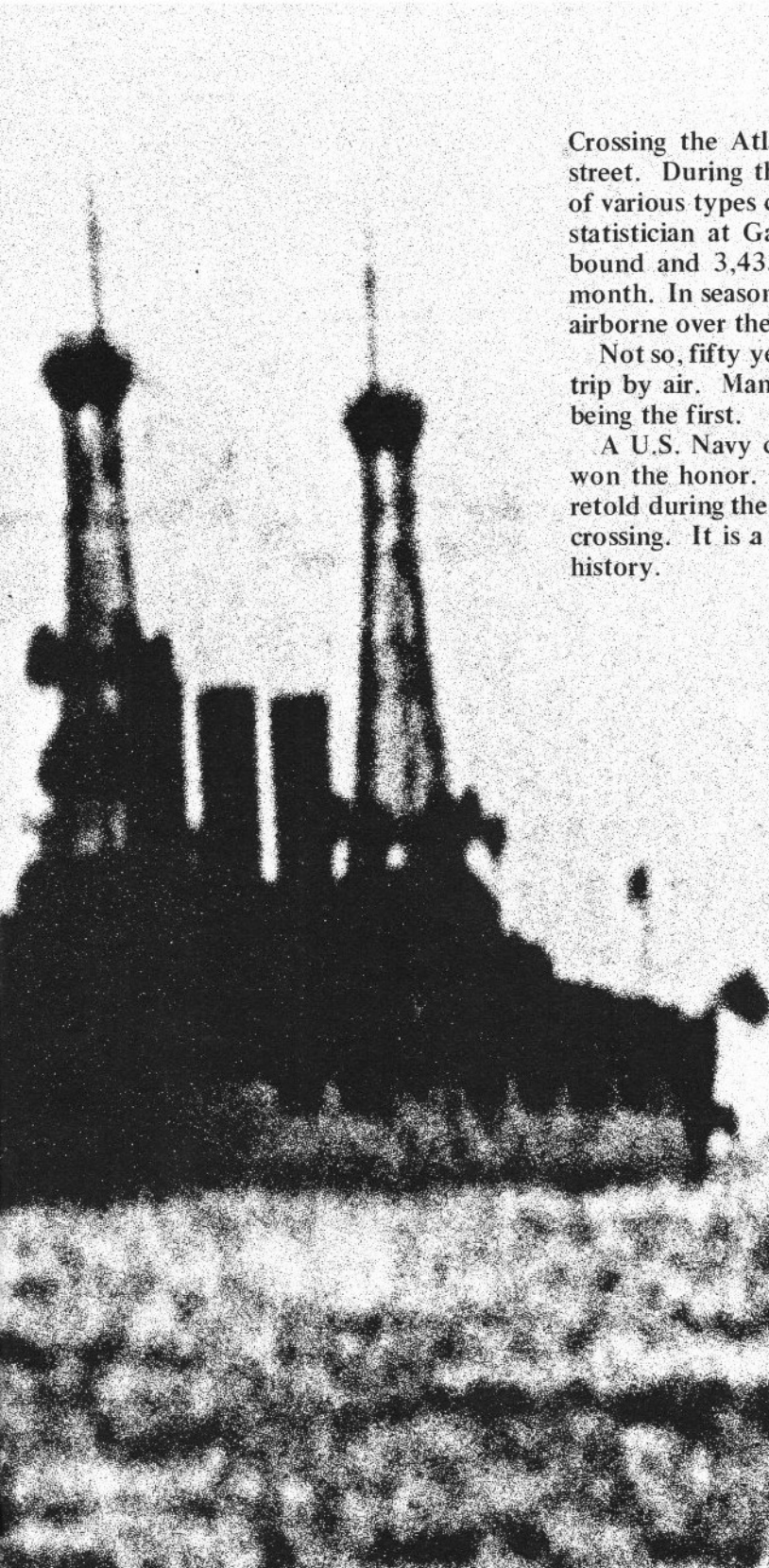


WRITTEN AND DESIGNED BY
COMMANDER TED WILBUR
WITH THE COOPERATION OF



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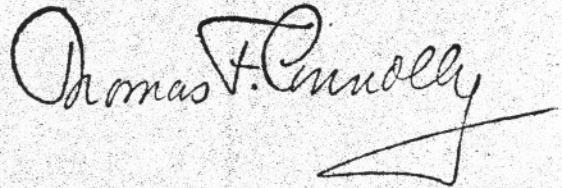




Crossing the Atlantic has become as routine as crossing the street. During the month of May 1968, nearly 7,000 aircraft of various types crossed the 50 degrees west longitude line. A statistician at Gander AFB, Newfoundland, said 3,494 eastbound and 3,433 westbound flights were logged during the month. In season, an average of 308 persons are continuously airborne over the Atlantic.

Not so, fifty years ago. In May 1919, no man had made the trip by air. Many were getting ready to try for the honor of being the first.

A U.S. Navy crew and aircraft, backed by the entire Navy, won the honor. The story of the NC-4's flight deserves to be retold during the year celebrating the 50th anniversary of that crossing. It is a proud part of Naval Aviation and American history.



Thomas F. Connolly
Vice Admiral, USN
Deputy Chief of Naval Operations (Air)

TRANS-ATLANTIC FLIGHT ONE:
NEW YORK TO LISBON IN 20 DAYS



ON THE RAMP AT ROCKAWAY: THE CREW OF THE NC-4

IN THE PAINTING above are (left to right in foreground) Chief Machinist's Mate (Aviation) Eugene S. Rhoads, Lt. James L. Breese, engineer; Lieutenant Commander Albert C. Read, commanding officer; Ltjg. Walter Hinton, pilot; on aircraft: Ens. Herbert C. Rodd, radio operator; Coast Guard Lt. Elmer F. Stone, pilot. Other figures are members of beaching crew.



Early in 1919, a young Naval Aviator predicted that trans-oceanic flight was ‘a perfectly safe and sane commercial proposition, not a gigantic gamble.’*

The U.S.Navy NC-4 proved how right he was with

THE FIRST FLIGHT ACROSS THE ATLANTIC

BY COMMANDER TED WILBUR



MA Y 17, 1919, started off as a bleak day on the Islands of the Vultures. With classical whaling, Nantucket-style, one of their chief industries, the inhabitants of the Portuguese Azores were long accustomed to watching the sea. To this day, upon the lush green slopes and mountainsides are watchers' huts, shelters for the anxious eyes that seek a wispy spout. Poised below, among the rocks of black sand bights, whalers wait, boats and harpoons at the ready, eager for the signal that monsters are at hand. Now radio is used, but back then, once the telltale plume was spotted, fires were ignited in line with where the prey was seen to "blow."

But on that morning 50 years ago, there were no guiding lights; the mid-Atlantic pinnacles were misty with the shrouds of fog. Along rocky promontories, drizzle pierced low-lying clouds. A murky, thickening overcast had settled on the archipelago and, for a whale watcher, prospects of sighting blue-gray beasts were dim indeed.

Before noon, visibility on the island of Fayal was reduced to one or two miles. A west wind swept foggy blankets onto the southern shores, while turbulent air, spilling down from the mountains, created a sporadic breeze along the coast. There, on the Bay of Praia, shortly after 11:00 A.M., a strange sighting was made.

*Ensign Juan Terry Trippe, later the founder of Pan American World Airways.

Observers on the beach said it started with a sound, a growling hum, a growling noise from seaward. As they peered toward Joao Diaz Point, suddenly from out of the gloom, slicing across the waters, came a huge gray shape: a whale-like body seemingly attached to burnished appendages that flickered dully in the half-light. Wallowing in an arcing turn, the "monster" barked, sputtered, then emitted a tremendous roar and, as quickly as it had appeared, faded away in a sound of thunder.

As startled farmers and fishermen hastened from the scene, never again to experience so fantastic a sight, 20,000 pounds of wood, metal, fabric and fuel were plunging into the damp air and making round the next peninsula. Just beyond, in the harbor of Fayal's capital city, Horta, lay the warship, USS Columbia. At 11:23 an entry was made in the ship's log:

SIGHTED NC-4 ABREAST ESPALAMACA POINT

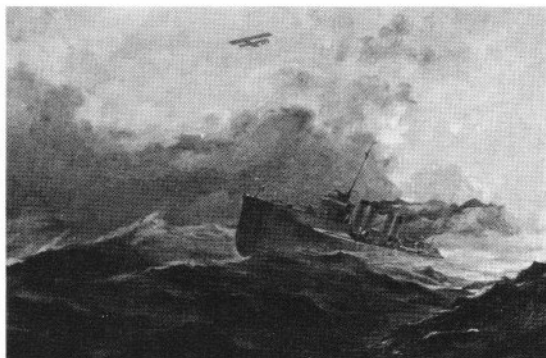
A quivering wake spread across the Bay of Praia, mute testimony that for the first time an aircraft had flown from the American continent to a European shore.

History books say little. Airplanes take off, they land, successfully or otherwise. What makes a dramatic tale is conflict, difficulties, accidents and, perhaps, even failure. Of these, the saga of the NC-4 and Seaplane Division One delivers up full measure. Overshadowed by reason of its proximity to the end of World War I and subsequent milestone flights, the flight is a bare statistic in the record books. In spite of the fact that the trans-Atlantic race was an epic involving thousands of men and scores of ships and that it was one of the most thoroughly photographed and documented events of its time, there are now few to be found aware of its heartbreaks, setbacks, tragedies and eventual significance.

Some years later, in speaking of his famous solo flight to Paris, Charles Lindbergh said "I had a better chance of reaching Europe in the Spirit of St. Louis than the NC boats had of reaching the Azores. I had a more reliable type of engine, improved instruments and a continent instead of an island for a target. It was skill, determination and a hard-working crew that carried the NC-4 to the completion of the first trans-Atlantic flight."

Many of the men who were directly involved with the project continued to pursue adventurous and successful careers. Some are still with us today. But perhaps most remarkable is the fact that now, on the fiftieth anniversary of the historic flight, the original NC-4 aircraft is on view to the public. The 126-foot giant, recently restored to mint condition by the National Air and Space Museum, Smithsonian Institution, is once again on display in Washington, D.C. — a tribute to an American achievement and to the men who built and flew her.





Lt. C. E. Ruttan

IN 1917, fully engaged in “the war to end all wars,” the United States was concerned about antisubmarine warfare. Transport of suitable bomber planes from America to Europe was a risky business. Ironically, ships carrying aircraft capable of combatting U-boats were being sunk by submarines. One officer regarded the transaction as a “masterpiece of insanity.” Besides, although production of patrol seaplanes was on the upswing, deck space and shipping holds were at a premium; human cargo and essential equipment had priority.

As a solution, the Navy decided to build its flying boats large enough to cross the Atlantic under their own power. Operating from European bases, they would then obviously have sufficient range to reach the center of German submarine activity.

However, at this time the longest nonstop flight accomplished was about 1,350 miles, flown under ideal conditions and in the vicinity of a landing field. (In 1914, the German aviator Boehm had remained aloft 24 hours on what was actually an endurance flight.) The suggested route across the Atlantic was over 1,900 miles, over an area not well known for ideal flying weather: Newfoundland to Ireland.

The idea, even in 1917, really wasn't farfetched. Nor was it new. The challenge had existed for years and, as early as 1910, attempts were made to cross the Atlantic by air. First, there were balloons, nonrigid airships, successful only in provoking interest. Then, prompted by foresight (and good business sense), England's Lord Northcliffe threw down his gauntlet.

With a vast string of publications, Northcliffe was the British William

THE DREAM: *An anti-sub aircraft capable of flying the Atlantic*

Randolph Hearst. Possessing a taste for aeronautical events and a keen understanding of the portents of the aeroplane, the perceptive lord pronounced a prize of 10,000 pounds for the first successful trans-Atlantic flight. He published his decree and the conditions for the \$50,000 competition in his London *Daily Mail* on April 1, 1913.

The award would go to the first aviator to cross the Atlantic by plane, either way, between the North American continent and any point in Great Britain or Ireland, within 72 consecutive hours. The aeronaut was required to complete the trip in the same craft in which he started. Intermediate stoppages would be permitted only upon water and, if the pilot had to go aboard ship during repairs, he would resume his flight from approximately the same point he went on board.

Following the *Daily Mail's* sensational announcement, French and Italian aviators were quick to enter the lists while, in America, Rodman Wanamaker, heir to the Philadelphia mercantile fortune, revealed a contract with Glenn Curtiss to build a large flying boat.

Glenn Hammond Curtiss, who had been the first man to successfully fly an airplane from water, had harbored a consuming desire to fly the Atlantic before anyone else. To assist him in his

long-awaited project, the Navy sent an advisor to the Curtiss plant at Hammondsport, N.Y. The young officer, Lt. John H. Towers, Naval Aviator #3, had been taught to fly by Curtiss. They were close friends.

The craft was to be named *America* and, for a while, it was presumed the pilots would be Curtiss and Towers. However, under pressure from his wife, Curtiss had greatly restricted his personal flying activities. He suggested that a Navy man be placed in charge and that Towers should be plane commander.

The Navy Department flatly refused. Trouble on the Mexican border might require the use of aeroplanes. Towers was put on recall alert. He would be permitted to continue in an advisory capacity, but trans-Atlantic flight was out of the question.

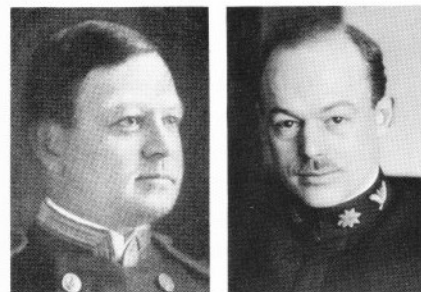
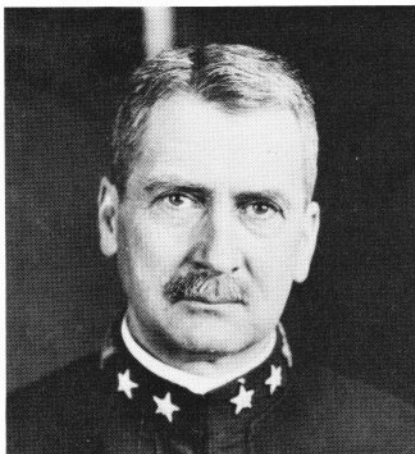
Work on Curtiss' dream progressed. The \$500 entry fee was posted. Towers' place was taken by one of the finest pilots in England, John Cyril Porte, lately of the Royal Navy. Porte had been invalidated out of submarine service when he contracted tuberculosis. On expectation of a short life, he had taken up flying and did very well at it. By late July 1914, Towers had gone off to Tampico, the *America* had completed her trials, and Cyril Porte was ready to go. August 15th would be the date.

On August 3, Germany declared war on France, the next day on Great Britain. World War I was on: the *America* was sold to England as a prototype for 50 patrol seaplanes; Cyril Porte devoted his attention to the Royal Naval Air Service; the trans-Atlantic flight was off; the London *Daily Mail's* prize was postponed.

THE FIRST FLIGHT ACROSS THE ATLANTIC

*RAdm. Taylor cut corners
with a centralized project
and a joint team.*

*Mission: Build and fly
Navy-Curtiss No. One*



RADM. TAYLOR, left, sent Cdr. Westervelt (above, left) to Curtiss' Buffalo plant while Cdr. J. C. Hunsaker, aviation head, Bureau of Construction and Repair, managed the program from Washington, D.C.

IN SEPTEMBER of 1917, the chief of the Navy's Construction Corps, Admiral David W. Taylor, called in his key men, Commanders G. C. Westervelt, Holden C. Richardson and Jerome C. Hunsaker. These Naval Constructors were ordered, in effect, to create what the combined efforts of England, France and Italy had been unable to achieve in three years of war: long-range flying boats capable of carrying adequate loads of bombs and depth charges as well as defensive armament sufficient to counteract the operations of enemy submarines. After the meeting, Glenn Curtiss was summoned.

Within three days of his Washington meeting, Curtiss and his engineers submitted general plans based on two different proposals: one was a three-motored machine, the other a behemoth with five engines. Both were similar in appearance, but they opposed conventional flying boats of the period in that the hulls were much shorter, vaguely resembling a Dutch wooden shoe. The tail assembly, for which there were several alternates, was to be supported by hollow wooden booms rooted in the wings and hull. This tail, twice the size of an ordinary single-seat fighter aeroplane, would be braced by steel cables and was situated high enough to remain clear of breaking seas during surface operations. It also permitted machine gun fire directly aft from the stern compartment without the usual danger of blasting the controls to pieces.

This interesting concept had been embodied in a previous Curtiss design for a "flying lifeboat." The keys to success lay in two factors: a seaworthy hull which had good "planing" characteristics and reliable engines which provided sufficient power for their weight. The entire machine, of course, had to be relatively light, yet strong enough to withstand the severe treatment frequently encountered at sea.

It was not practical to build larger and larger airplanes and keep adding more engines to keep the whole affair in the sky unless the load-carrying potential also increased. This "useful load" included crew, fuel, equipment, accessories and armaments — things not part of the basic aeroplane. Thus, the plan for the smaller, three-engined aeroboat was decided upon, and the light *Liberty* engine solved the power problem.

Pressure was on. The German undersea-boat situation was reaching ominous proportions. The United States was producing patrol planes as fast as possible, but the matter of shipment was an endless frustration. Even when good fortune allocated the use of a large cargo ship, its entire cargo consisting of crated flying boats and their accessories, the total manifest would be only 25 machines! The Royal Navy was grinding out planes under the supervision of Commander Porte, but his relatively small flying boats, operating from coastal stations, had a fuel and depth charge capacity limiting them to only a few hours on

station. If the convoy were much more than 100 miles at sea, their use became impractical.

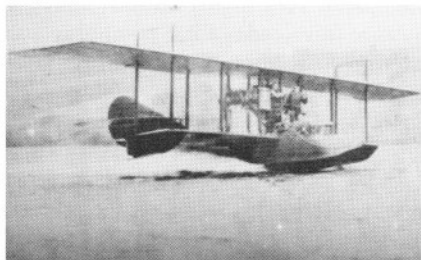
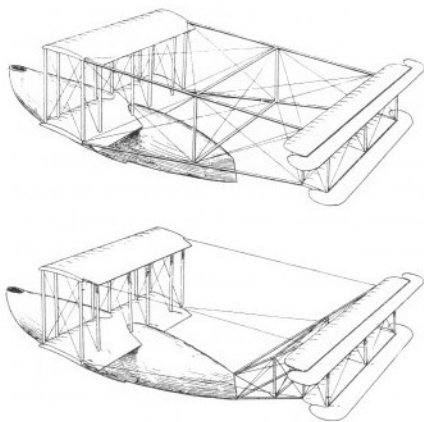
In view of the immediacy of the problem, Chief Constructor Taylor knew he had to cut corners. Under normal circumstances, development of a flying war machine, the engines, hull, wings, fittings and armaments; would require study and sanction by respective divisions within the Navy, a time-consuming process. Admiral Taylor centralized the project. A design contract was let with the Curtiss Company, and Commanders Westervelt and Richardson were sent to the Buffalo plant. Without red tape, the Navy engineers would work closely with the Curtiss people at full speed.

One of the first problems readily resolved was the plane's name. At first, Westervelt applied the initials of his boss: DWT. A little reflection brought realization that Taylor might take a dim view of that, so Westervelt changed it to "Navy-Curtiss Number One," or simply, "NC-1."

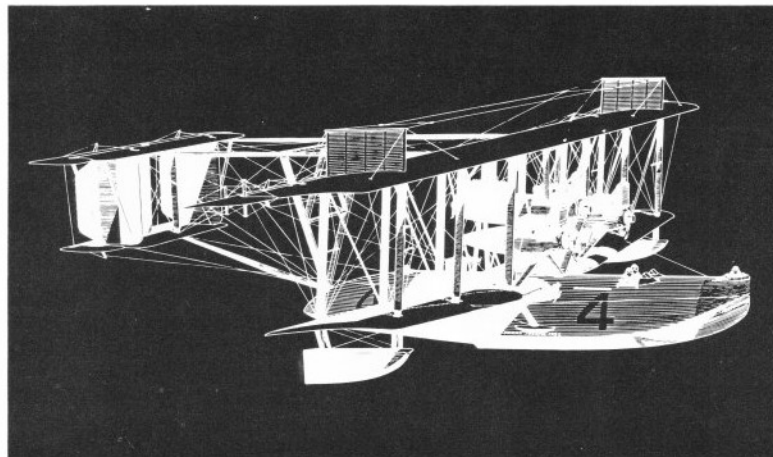
Even by 1917 there was a wealth of aerodynamic data available from both wind tunnel testing and practical application. The Navy-Curtiss team drew heavily on the experience of others, especially the British. Nevertheless, the construction of a boat with wings, large enough to cross the Atlantic, presented unique problems of its own. Foremost was the hull. The "wooden shoe" was Commander Richardson's baby. In time to come, it would seem the albatross around his neck.



CDR. H. C. Richardson helped plan and build the four NC's. Its hull design was unique; the entire machine (upper right), unorthodox. Various configurations (below) were considered; new design concepts and construction techniques were adapted.



THE AMERICA was built by Curtiss in 1914 to be flown across Atlantic by Cdr. Towers and Cyril Porte. WW I disrupted that plan.



HOLDEN C. RICHARDSON loved things that went through the air or on water. As a boy he tested his own parachute from the roof of the family barn. By 1895, his design experience with home-built canoes was laying a foundation for future designs of seaplanes. Graduating from the Naval Academy as an officer of the line, he transferred to the Construction Corps in order to pursue what fascinated him. Both he and Jerry Hunsaker were sent to M.I.T. for the special course in aeronautics. Hunsaker was later to make a study of aviation progress in Europe while Dick Richardson decided to learn how to fly. Reasoning that he could build better aeroplanes if he had a pilot's viewpoint, he trained and qualified as a Naval Aviator in 1913. By testing his ideas for boat hulls and pontoons in the model towing tank at the Washington Navy Yard, and later in the air as test pilot, Richardson soon earned a reputation as the hydro-aeroplane expert of the Navy.

By the time he arrived at the Curtiss Buffalo plant in the fall of 1917, preliminary design of the NC-1 was half complete. One look at the drawings for a three-engined, 140-foot biplane convinced Richardson that the craft was under-powered. Armed with new scientific data fresh from Great Britain, Jerry Hunsaker backed him up. Such a machine, with the *Liberty* engines then available, would not have the range sufficient to fly over the

1,900 miles from Newfoundland to Ireland unless provision were made for mid-ocean refueling from a ship, a dubious proposition in view of the notorious North Atlantic seas. Richardson was right. A decision was made to plan something smaller and use the Azores route to Europe.

Hydroplane hulls were another matter. Unless properly fashioned, a high speed surface established a suction effect with water; some early seaplanes had been known to leave the bottoms of their hulls upon the sea as the remainder took to the sky. Richardson, working with the Curtiss engineers and using his own experience along with the ideas of Commander Porte, had a small scale model built. When it was tested in the towing tank, results were so poor he discarded the plan and drew up a new design.

Light weight was a basic requirement, yet enormous strength was necessary to support the wings, engines and tail structure, while at the same time enclosing gas tanks, the crew and all their equipment. When Richardson's new design was tried out in the towing tank, it performed very well. But when construction of the full-size hull was observed by Commander Porte during a visit to the States, the British seaplane authority would only comment that it was "very interesting." Soon afterward, word filtered back from England that the project was not to be taken seriously; the hull was considered heretical! Richardson remained undaunted.

THE FIRST FLIGHT ACROSS THE ATLANTIC



SEPARATE components were delivered to Garden City, N.Y., for assembly. Richardson (above) prepares for test flight. Below, the NC-1 goes down the Rockaway ramp, taxis and flies off for the first time.

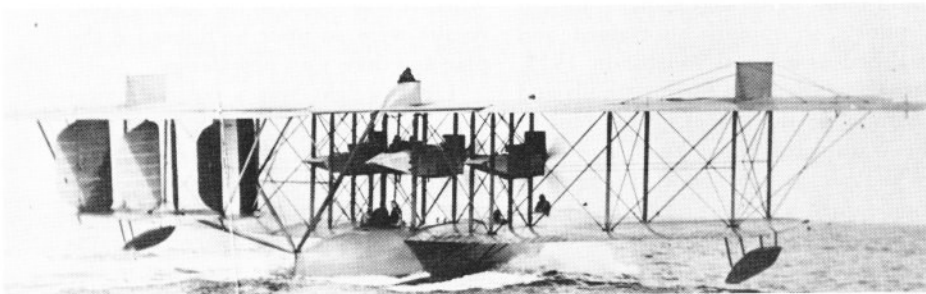
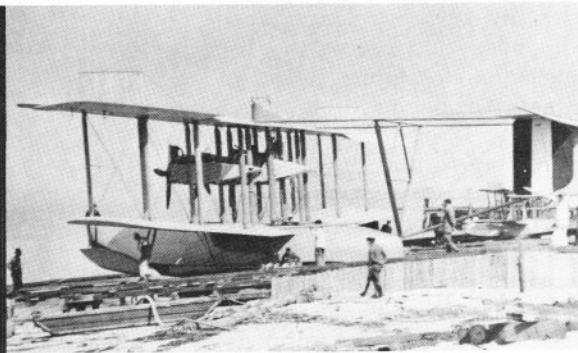
BY DECEMBER 1917, design work by the Navy-Curtiss team had progressed to the satisfaction of Washington. Secretary of the Navy Josephus Daniels put his approval on a contract calling for four flying boats of the NC type. Manufacturers were engaged to produce various components — the hulls, wings, tanks and engines — all of which would be shipped to the Curtiss plant at Garden City, Long Island, for assembly. At the nearby Naval Air Station, Rockaway Beach, a huge hangar was built to house two of the NC's and a special marine railway was constructed to facilitate movement and beaching.

Among the subcontractors was the Locke Body Company of New York City which had agreed to produce the wing and tail frameworks. Since there were to be 68 fragile panels, some of them 12 feet wide by 40 feet long, safe transportation from the Locke Company in the heart of Manhattan, over 23 miles of well-travelled streets to the Garden City assembly building, presented quite a task. Cdr. Westervelt assigned a young officer to it.

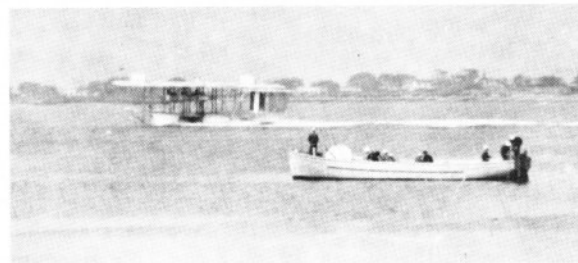
Lt. Wetherill applied himself with vigor — and a vow to plunge himself into the East River should he fail. He decided to move the delicate, hand-made sections, with their hundreds of ribs and intricate composition, at night when traffic would be at a minimum. Having no trucks large enough to accommodate the size of the panels, he used theatrical scenery-moving, horse-drawn wagons.

During the months to come, for those people living along the transfer route who had an inclination to stay up late, the vigil was rewarding: Out of the dead of night would come a strange cavalcade. First to appear was a motorcar, mounted by Wetherill's assistant, Ens. Hutchins, waving a red lantern. Then came an eerie wagon, fringed with more lanterns, its rickety-looking cargo creaking, the varnished frames reflecting a sanguine glitter. Just behind was another vehicle from which Wetherill himself was swinging his red lantern. All 68 panels arrived safely in Garden City.

*In just
one year
from the
time they
started...*



Success!



In July 1918, construction of the NC-1 was far enough along to warrant scrutiny by the head of the British Aviation Commission. In the report, it was stated, "The hull of this machine was examined. The machine is impossible and is not likely to be of any use whatever."

Near the end of August, just as Westervelt was preparing to sail to England on an inspection trip of his own, Richardson paid him a visit. Things had been going well: the NC-1 was almost finished, enough flying boats had been delivered to European patrol stations to ease the submarine menace, and the Allies were winning the war. All in all, Westervelt thought it was a pretty nice day. But Dick Richardson was depressed — he had been reviewing the data from the towing tank tests and now calculated that the NC-1 would be unable to get off the water with the fuel load required to reach the Azores. America's foremost authority on pontoons and hulls had lost faith in his own design. Westervelt went to Europe.

DURING SEPTEMBER, the NC-1 was delivered to Rockaway and on the 4th of October was "ready." The test pilot in charge of the flight was Commander Richardson.

Before a huge crowd of spectators, the crew of five clambered aboard the gigantic flying boat. Nestled in its cradle at the top of the ramp, its varnished wings flashing in the sunlight, the gray and yellow biplane looked impressive.

Climbing through a hole in the bottom of the center engine nacelle, the pilots took their places. The cockpit was situated between the wings, behind the middle engine. Thus the two pilots were surrounded — on the bottom by the hull wherein crew members and the main fuel tanks resided, on the sides by the outboard engines, and on top by the upper wing with its open station for the lookout watch or machine gunner.

Engines were started, and 36 cylinders roared to life. When Richardson

waved his arm, the carriage was eased down the inclined railway and into the water until the NC-1 floated free. Back and forth it taxied as Richardson felt out the controls. The crowd waited silently. Then he swung into the wind and, within moments, a rising cheer accompanied the world's largest flying boat into the air.

In just one year from the time they started, the Navy-Curtiss team had met with success: the *Nancy* flew. Richardson's fears were allayed; he'd had a mild case of buck fever. His design was vindicated, more than he had hoped for. Soon the NC-1 would establish a record by carrying 51 men aloft, including the first deliberate stowaway in aviation history. But on the 11th of November, World War I ended, and with it the need for a long-range, antisubmarine flying boat to do battle with the Hun.

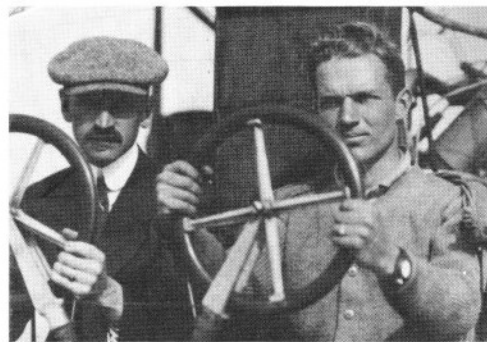
Not long afterward, the \$50,000 London *Daily Mail* enticement was revived.

Within the Navy, there had been growing interest in the trans-Atlantic flight. On the 9th of July 1918, Lt. Richard E. Byrd, a Naval Aviator engaged in the study of crashes at Pensacola, had written to Washington, "It is requested that I be detailed to make a trans-Atlantic flight in an NC-1 type of flying boat when this boat is completed."

His request had been forwarded, with approving endorsement, by Byrd's commanding officer. Two weeks later he was in Washington where, with mixed emotions, he accepted orders sending him to Nova Scotia as Commander of U.S. Naval Air Forces in Canada. His disappointment at not being assigned to the trans-Atlantic flight was tempered by instructions to seek out, on the coast of Newfoundland, a rest and refueling station suitable for the handling and maintenance of *large seaplanes!* With the help of a close friend, Ltjg. Walter Hinton, Byrd spent every spare minute on navigational problems associated with a flight across the Atlantic. He thought there might yet be a chance to join the team.

But someone else was ahead of him.

JOHAN HENRY TOWERS was the third officer to be designated a Naval Aviator. Going into flying at a time when airplanes were regarded as toys dangerous to both life and a Navy career, Towers was a pioneer. As a passenger in 1913, while ticking around at 1,500 feet in a primitive contraption of bamboo, cloth and wire, he encountered a violent gust which threw the machine out of control and hurled its pilot to his death. As the frail little seaplane plummeted earthward, Towers was caught in the wires. He clutched the wooden frame, hanging on for dear life. Somehow, just before striking the waters of the bay, the wings levelled, and the fledgling aviator found himself emerging from the wreck, wet but unhurt. His suggestion that safety belts be used in aeroplanes was noted and approved.

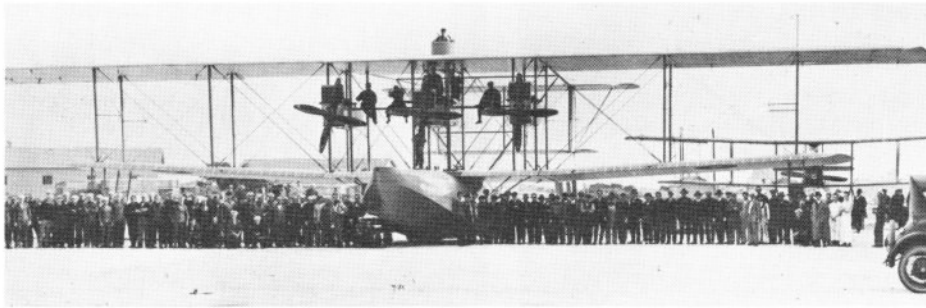


THE FATHER of aquatic aviation, Glenn H. Curtiss (L), taught Naval Aviator #3, John Towers, to fly in 1911 at Hammondsport.

Towers' career covered the early period of aviation development in the Navy. As a close associate of Glenn Curtiss, he had been a natural choice for participation in the abortive 1914 plans for the trans-Atlantic flight of the *America*. In 1916, after diplomatic duty in London, Towers was ordered to Washington where he had little time to think about flying the Atlantic, that is, until the design for the NC boat came to his attention.

At first, he didn't care for its unconventional appearance. The short hull looked a little queer and he disliked it. But the fire was rekindled; Commander Towers requested assignment to the project as officer-in-charge.

THE FIRST FLIGHT ACROSS THE ATLANTIC



ON NOVEMBER 27, 1918, the NC-1, above, established a world record by carrying 51 men (including a stowaway) into the air. As work progressed at Rockaway, Read, Byrd and Hinton (right) tried out new equipment on F5L seaplanes. The drift indicator, used later on the epochal flight of the NC's, was developed from an Italian design for use on their airships.



IN DECEMBER 1918, Westervelt returned from Europe and found that test flights of the NC-1 indicated a need for major modifications. Urgency of the antisubmarine mission was no longer in effect, so changes were being made in the NC-1 at a leisurely pace. The NC-2 would be based on knowledge gained from the first boat. Until problems were solved, construction of the NC-3 and NC-4 would be held up.

This was a frustrating development. In Europe, Westervelt had learned that several organizations were making preparations for a trans-Atlantic flight. He knew that Great Britain had long been anxious and now had aeroplanes large enough to do the job. France and Italy were considering the venture, and there were at least four independent private interests active in the States.

Upon his return to Washington, Westervelt found that a Trans-Atlantic Flight Planning Committee had been set up within the Navy. He lost no time in submitting a detailed recommendation. His 5,000-word report expressed the need for government backing and said, "The first accomplishment of this feat will give to the organization of the government achieving it a considerable amount of deserved prestige." He outlined the most logical route and the best time of year. His proposal included "stake boats" at 100-mile intervals along the path to serve as navigational aids, weather stations and points of replenishment or rescue in case something went wrong. He explored the possibility of using oil

from a destroyer to smooth the waters of a possible emergency landing area. His plan was complete down to the thermos bottles of refreshments and sleeping bags for the crews.

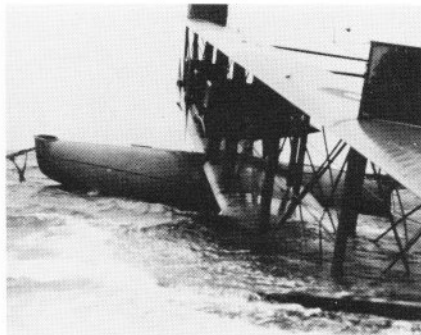
Two weeks later, Westervelt's report was given to Navy Secretary Daniels. The planning committee had amplified it: "As it seems probable that Great Britain will make every effort to attain the same relative standing in aerial strength as she has in naval strength, the prestige that she would attain by successfully carrying out the first trans-Atlantic flight would be of great assistance to her. . . . In view of the fact that the first successful airplane was produced in this country and that the United States developed the first seaplane, it would seem most fitting that the first trans-Atlantic flight should be carried out upon the initiative of the United States Navy."

The committee also concluded that, since the flight involved the use of St. John's, Newfoundland, a British colonial port, and that Great Britain was also contemplating a similar expedition at about the same time of year, from the same place, an awkward situation might develop unless there were to be mutual cooperation in the utilization of patrols, ships and facilities. Furthermore, the governments of France and Italy should also be invited to participate. "It is believed that the prestige obtained by the United States Navy in thus initiating and making possible a great international flight of this nature will equal or exceed that obtained by attempting the flight

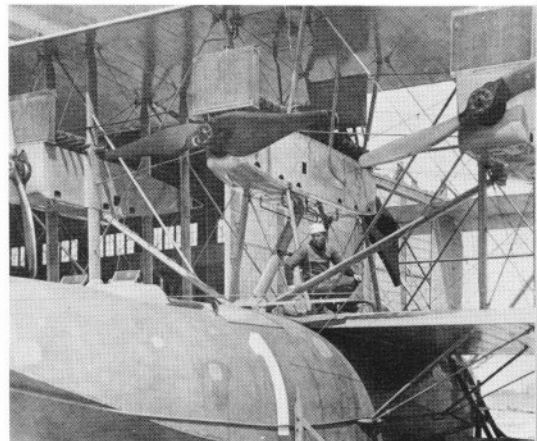
alone and all chance of international jealousies will be avoided."

Secretary Daniels approved the basic plan. However, all correspondence relating to the project was to be classified *Secret*. Curiously, when orders were written for Commander Towers, somehow the injunction to secrecy was overlooked. The reasons are obscure. Perhaps it was just an administrative error. In accordance with peacetime practice, newspapers were allowed to publish summaries of officers' orders. Towers' assignment to "duty in connection with preparation for trans-Atlantic flight" was handed

While organizing the bases in Canada, Lt. Byrd worked with Lt. Hinton on the transoceanic problem. Hours were spent charting courses and plotting requirements until all that was needed was the big NC-1 itself. But Washington's silence on the subject during the fall of 1918 was nearly as ominous as the increasing frequency of the coastal storms. With the Armistice, Byrd's dream came crashing down. The Allies' victory had wrecked his hopes. Closing his stations and sending his men back to the States, he headed for Washington. Then, during his trip south, he heard the trans-Atlantic flight was still on, after all. Upon arrival in the Capital, his spirits were further buoyed when he heard that his friend, Commander Towers, was to be in charge of the operation. The Great



CAUGHT by storm, the NC-1 was battered (above) for three days. Later repaired, it was configured in a 4-engine arrangement similar to the other seaplanes, NC-3 and -4.



to the press and swarms of reporters pounced on the Secretary. As a former newspaperman himself, Josephus Daniels appreciated the situation. He held a press conference, and the story hit the front pages of the world. The race was on!

THE WORK on Long Island progressed at a feverish pace. Since the NC boat cruised at about 75 miles per hour, the 1,300-mile hop from Newfoundland to the Azores would have to be at night in order to arrive during

Hop was going forward; surely there would be a place for him. Then he received the next report:

"No officer or man who has had foreign duty will be permitted to be a member of the trans-Atlantic flight expedition. This includes those who have been on Canadian detail."

The final blow came when he heard that the Navy's Director of Aviation, Captain N. E. Irwin, was sending him back to Pensacola. This was too much! He went to see the Director.

There is no record of the ensuing conversation between Lt. Byrd and Captain Irwin, but the young officer must have presented his case well, for, in February 1919, Byrd joined the "Trans-Atlantic Flight Section in Washington" — and Walter Hinton was at Rockaway.

daytime. A target date in May was set, when the ice would be broken up and the period of darkness not too long. There would also be a full moon.

Trials on the NC-1 had resulted in many changes. A four-engine configuration had worked so well on the NC-2 that the concept was adapted for the other planes. The cockpit was moved from the center engine nacelle to the hull. The NC-3 and NC-4 were far from complete, so the Navy-Curtiss team began to work past midnight every day of the week.

In Washington, the so-called TA (trans-Atlantic) section kept busy, too. Although the cat was out of the bag, information on progress was restricted. To Towers fell the task of keeping newsmen "satisfied and happy, but not telling them anything." Of this chore he was later to say, "It was a most interesting work and very educational."

Invitations to the Allies to participate were handled through the State Department. The same channels secured permits for the use of the Canadian, Portuguese and British ports. All personnel had to be selected not only for the seaplanes but also for the handling crews on base ships. Voluminous lists of necessary materials were drawn up, some for equipment not yet in existence. The largest problem was that of the ships.

According to Towers, "Base ships had to be selected that could meet requirements, be fitted with gasoline tanks and special equipment. The destroyers had to have special radio

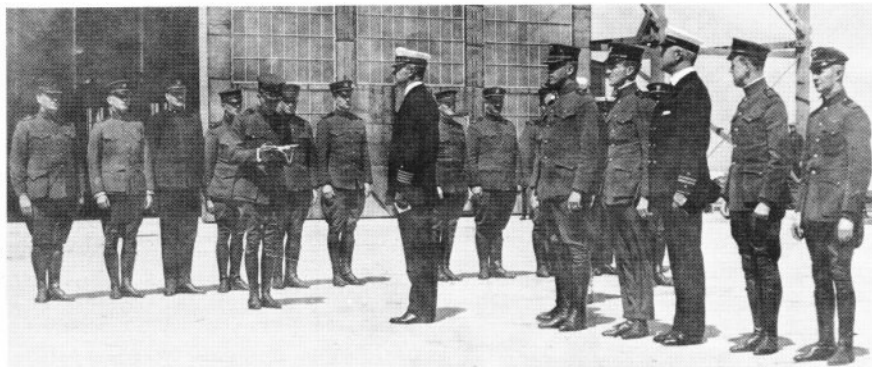
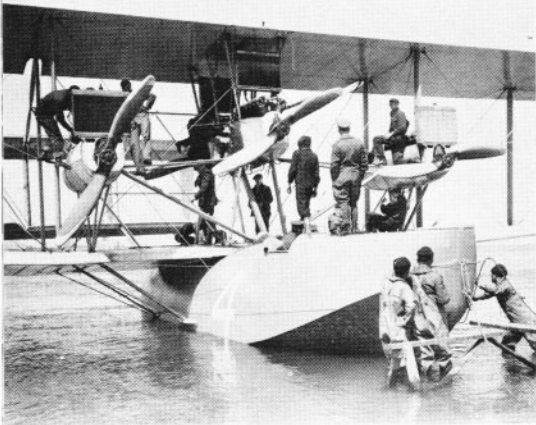
installations, star shells and meteorological apparatus. The number of dreadnaughts was astonishing. Our final plan called for a ship every 50 miles, and there were approximately 4,000 miles to be covered."

By March, while no pilots as yet had actual orders to go on the flight itself, it was assumed that most of the officers of the TA section would be included. Knowing he would remain in charge if progress was satisfactory, Towers submitted his choice of members for the crews. It would not be until mid-April that final selections were made, and by then certain changes would be made to Towers' original list.

Late in March, a violent storm caught the NC-1 at anchor. Dragged from her moorings, she was battered against the beach for three days. Her hull was damaged and her lower left wing shattered, and so were the hopes of a four-boat flight. It was decided to use the NC-2 for experiments until the latest possible date, then shift one of her wings to the NC-1, which would meanwhile be repaired and converted to a configuration similar to the NC-3 and NC-4.

The near-wrecking of the NC-1 served a good purpose. Inspection of the damage revealed that the pilots' dual control column had torn loose, and the critical wing and tail surfaces were flapping freely. Installation had been faulty. The record flight on which the NC-1 carried 51 men into the air could easily have been the world's first great air catastrophe.

THE FIRST FLIGHT ACROSS THE ATLANTIC



COMMISSIONING of Seaplane Division One took place May 3, 1919, the first ceremony of its kind. It gave Towers a status equivalent to that of a commander of a division of ships.

ON THE 21ST of April, Towers and the TA group moved to Rockaway. Three days later, at a conference with the captains of the ocean station ships, he gave the starting date as the 5th of May. During the last days of April the ships were observed leaving New York harbor, and the press knew something was up. While the significance of the forthcoming full moon had escaped them, they could see by the preparations at Rockaway that the *Nancy's* were nearly ready. Furthermore, there were now two British teams at Newfoundland and a third was on the way.

All told, there had been nine British entries posted for the *Daily Mail's* prize, but the two already at St. John's seemed a good bet. Harry Hawker and Royal Navy LCDr. Mackenzie Grieve had a Sopwith; Captains Raynham and Morgan a Martinsyde. Both aircraft were single-engined biplanes. They announced their intentions to fly directly to Ireland. The only thing delaying them was poor weather.

Foreign skepticism greeted the Navy's insistence that its interest was solely of a scientific nature. To the Europeans it was obvious that America wanted to be first, in spite of the diplomatic overtures about sharing ships and what-not. The Navy's statement that the NC program was simply a "development of a wartime project" was derided by the press.

Actually, when Lord Northcliffe re-established the prize after the war, the rules had changed a bit. No longer

were "ocean stoppages" permitted and "machines of enemy origin" were barred. Thus the NC's and the giant German bombers, respectively, were neatly eliminated. Furthermore, the United States had made no attempt to file an entry fee, and the American crews were forbidden to accept any possible prize money, even if offered — or earned. It was to be just a well-organized, all-Navy endeavor.

Credence was lent to this announced policy when, in an unprecedented ceremony on the third of May, the three flying boats were placed in regular Navy commission, just as if they were ships of the line. John Towers formally assumed command of NC Seaplane Division One. His orders, signed by Franklin Delano Roosevelt, acting Secretary of the Navy, gave Towers a status roughly equivalent to that of a destroyer flotilla's commander. Towers chose the NC-3 as his "flagship" and then made the crew assignments for which so many had waited so long. Richardson was to be chief pilot of the NC-3. Naval Aviation pioneers Patrick N. L. Bellinger and Albert C. Read were detailed to the NC-1 and NC-4 respectively. Walter Hinton was to be one of the pilots of the NC-4. A lieutenant commander named Marc Mitscher, who had originally been slated to command the NC-2, was to be a pilot of the NC-1. LCDr. Richard E. Byrd was ordered to go aboard the NC-3 with Towers, but to proceed only as far as Newfoundland.

Meticulous as the planning had been, the Navy was taking no chances.

There was an extra card up its sleeve — a long-range airship. The C-5, a non-rigid gas bag with an open-cockpit, power/control car slung beneath, may have been ungainly in appearance, but it was capable of travelling long distances through the air. Recent experience had indicated it could easily reach the Azores and, likely enough, the continent of Europe. The C-5 was ordered to proceed to St. John's where her commander would be joined by LCDr. Byrd who would navigate her across the Atlantic.

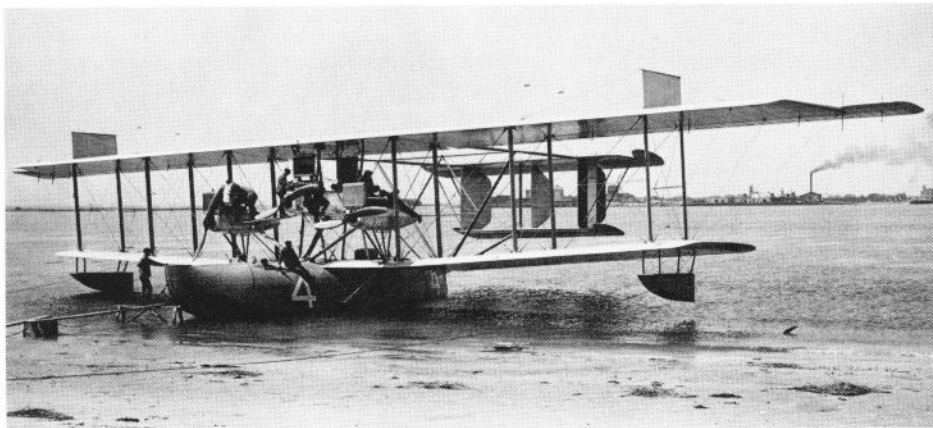
IN SPITE OF the commissioning festivities at Rockaway, and all the ships at sea, the *Nancy's* weren't ready. The NC-4 hadn't been completed until April 30th and, upon her entry into the bay, had taken on 800 pounds of water through leaks. Then she slipped on her beaching carriage and sustained damage to her hull and wing support struts. While taxiing in from her first flight, the control cables to the tail were carried away, a predicament had it happened in the air.

The NC-3 was in good shape, but there was still much work to be done on the NC-1 and NC-4. Navy and Curtiss personnel worked round the clock. Poor weather conditions enabled Towers to predict to the press that a start would probably be made on the 6th of May.

Late the night of the 4th, work was finished. With the NC-1 and NC-4 in the hangar, weary Curtiss men went home, and Navy crews began the



LCDR. BELLINGER puts the ensign aboard ill-fated NC-1. The NC-4 (right) is beached.



fueling operation. This was a lengthy process, each aircraft having nine 200-gallon tanks. It was also a dangerous task, involving electric pumps.

At 2:15 the morning of the 5th, Towers was awakened by shouts outside his barracks room. Lunging to a window facing the big NC hangar a short distance away, he saw the disastrous red glow. Varnished fabric, paint, wood, gasoline and oil were going up in flames!

It was probably a spark from one of the pumps. When the fire broke out, the 20 frantic men within the hangar raced for fire-fighting equipment. Concentrating on sections not yet blazing, they expended hundreds of gallons of chemicals and finally succeeded in dousing the flames. When it was over, portions of the tail of the NC-4 and one whole wing of the NC-1 were gone. Things looked hopeless.

After a survey of the disaster, Towers thought of the dismembered NC-2 which had been cannibalized to refit the NC-1. The NC-2's good wing and tail sections had been carefully stored. Telephones were busy that night, and the Curtiss employees were back on the job before dawn. By midnight of the 5th, the NC-1 and NC-4 were repaired. Monumental effort had put them in flying condition.

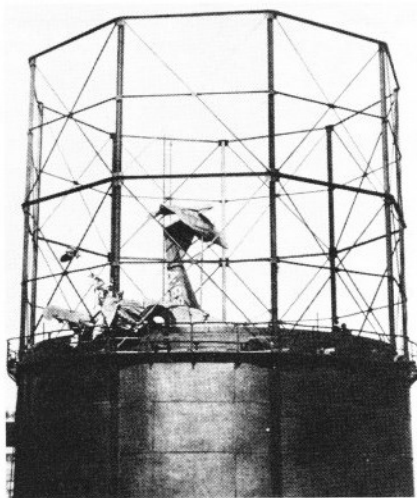
In spite of Towers' prediction, the weather did not improve. The dark gray skies provided suitable atmosphere for the indignant black headlines of the next two days. Flying conditions were not acceptable for the leg to Newfoundland, but normal opera-

tions were being carried on from the air station. During this period, as a number of reporters and spectators looked on, anxious to observe the start of the First Flight across the Atlantic, a single-engine seaplane suddenly spun out of the sky into a large storage tank. The startled eyes of the crowd riveted on the blasting crash that instantly killed both pilots.

This tragic diversion from the trans-Atlantic flight was brief. On May 7th Chief Mechanician Howard, a flight engineer of the NC-4, accidentally thrust his arm into the arc of one of its engine's turning propellers, thereby losing a hand. In a daze, Howard walked to the dispensary for first aid treatment, then returned to the site with a hastily bandaged stump and implored Towers to let him go on with the flight. Howard had been with the NC's from the start, working tirelessly on the engine installations. His whole heart and soul were in the project. Regretfully, the commander could not approve the request of a one-handed mechanic. With deep sympathy he watched Howard being driven away to a hospital.

That night Towers told the press that the flight was indefinitely postponed. Prime attention turned to the British preparations at St. John's.

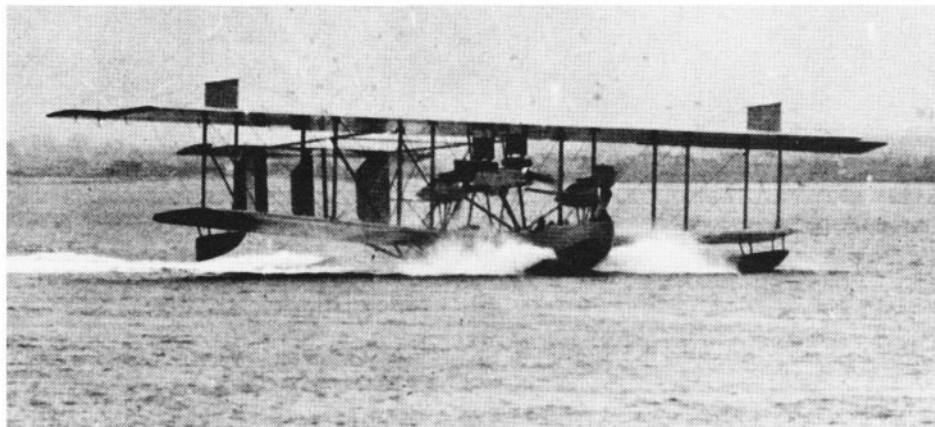
And thus it was that there weren't many reporters around the next morning, the 8th of May, when the "conditions favorable" weather report came through. By 10:00 A.M., with a minimum of fanfare, the NC flying boats were off.



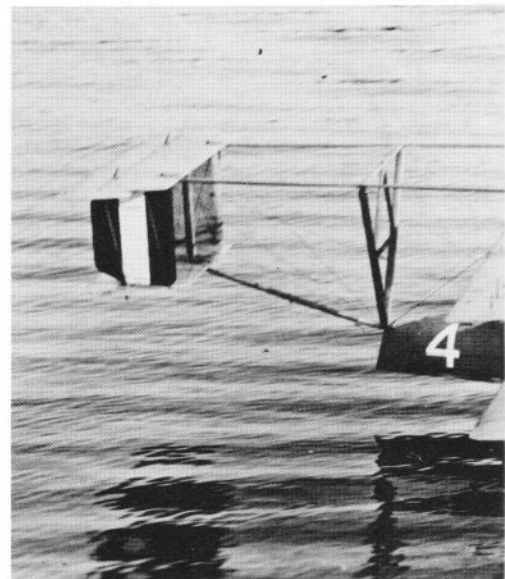
PREFLIGHT tragedies nurtured a gloomy mood. HS-1 crash (above) into an empty hydrogen tank killed both fliers. Mech Howard (below) lost his hand in NC-4 pusher prop, walked to first aid station, then returned, anxious to resume his duties.



THE FIRST FLIGHT ACROSS THE ATLANTIC



A ONE-HOUR test flight (above) on May 1, 1919, was sole operation of the NC-4 prior to the trans-Atlantic attempt. Lack of suitable gasket material led to contamination of fuel and oil lines, a typical problem with which the crew engineers had subsequently to struggle.



THE NC-4 had flown only once prior to the departure from Rockaway. Small but possibly important defects were to be expected, and the lack of time to train the crew in teamwork was a nagging worry to her captain, Read. He was hoping the trip to Newfoundland would prove sufficient for the “shakedown” period.

A native of New Hampshire, LCdr. Albert Cushing Read was an observant man, small of stature, conservative in his ways and economical with words. Friends called him “Putty,” an unlikely nickname of obscure origin. One story has it that the monicker was earned when he came back from a summer vacation sporting a pallid complexion instead of a suntan. At any rate, the five-foot-four, 120-pound New Englander certainly knew how to express himself with effect; in January 1918, he had married Bessie Burdine, a young lady whose family owned Miami’s largest department store. While quiet to the point of reticence, he could be articulate when necessary.

Graduated from the Naval Academy with honors, he soon became one of the Navy’s best officers. As Naval Aviator #24, he was known as a brilliant pilot and navigator. The Navy was his life, the NC-4 a pivot point.

The trio of giant flying boats had departed Rockaway in a “V” forma-

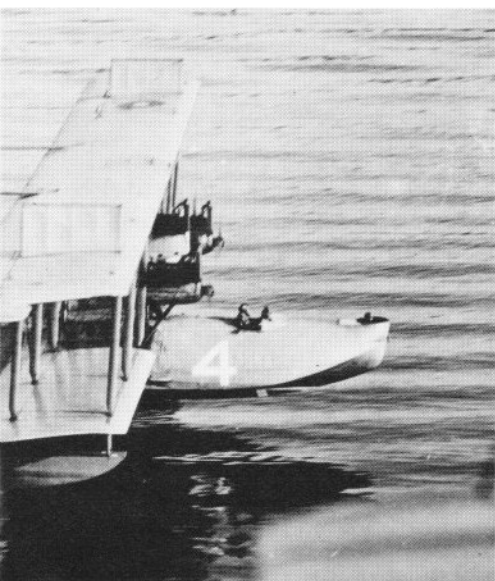
tion beneath leaden clouds: the “flag-plane” NC-3 was flanked on the right by the NC-1 and on the left by the NC-4. As the group made a sweeping turn around the air station and took up heading for Montauk Point, in the flight suit pocket of each crewman was a somewhat withered gift, a four-leaf clover — farewell gestures from Aviation Director Irwin. The gruff old Captain had brought them to the station on the 3rd of May. Now he stood below, sternly watching a year and a half’s work drone slowly out along the coast, headed for the jump-off point in Canada. Soon they were lost to view.

Arrangements on the NC boats seem strange to us today. The plane commander, who served as navigator, was stationed in the bow. There he had a small table, a cushioned box for a seat, his instruments, charts and log books. Equipped with the new “bubble” sextant designed by Byrd and a drift indicator adapted from an Italian airship gadget, he would plot the course, give directions and dutifully record all progress. Manipulation of the paraphernalia and, in fact, the need to see something, required the navigator to arise through the circular pit at the extreme front end of the boat. (It had originally been designed as a machine gunner’s position.) There, standing in the wind, he would “shoot” the sun and stars or, by

leaning over the edge, make observations through the eye-piece of the drift calculator. If he leaned far enough, he could make adjustments on the two spring-loaded flares. These pyrotechnic-tipped metal stems would jut straight forward from the hull when actuated, their burning brilliance illuminating the sea for possible emergency landings at night.

The flares were set off by punching a button on the pilot’s dashboard. It was a less than satisfactory arrangement, the button being located in such a prominent position that an ignorant man might easily be tempted to push it just to see what would happen. This occurred twice, once while the NC-4 was taking on gasoline. The fueling hose was less than two feet above the flares when they were ignited by a curious sailor in the cockpit. Quick work with fire extinguishers prevented a calamity.

Behind the navigator’s bow position, the hull was roomy, and there was space within, just forward of the pilots’ feet, to stretch out or even lie down. The hull was divided into segments, each compartment having bulkheads with outboard access doors through which a man could crawl fore and aft. The pilots sat on a bench, facing into the wind. Nine gas tanks of welded aluminum — a lightweight innovation — were amidships. Toward the stern was the aft cockpit for the



engineers and, below that, the crowded quarters for the radio equipment and its operator.

Members of the crew communicated either by a metal speaking tube (ineffectual in flight owing to engine noise) or a headset telephone rig. Special connections also enabled the navigator to switch into the radio circuit and talk with other planes or stations within a radius of about 20 miles.

Although the crew's flight clothing was lined with fleeces, there was no provision for electric heating or other source of outside warmth. So beneath his leather coverall, each man wore a regular winter uniform and, according to his taste, light or heavy underwear, in some cases several sets.

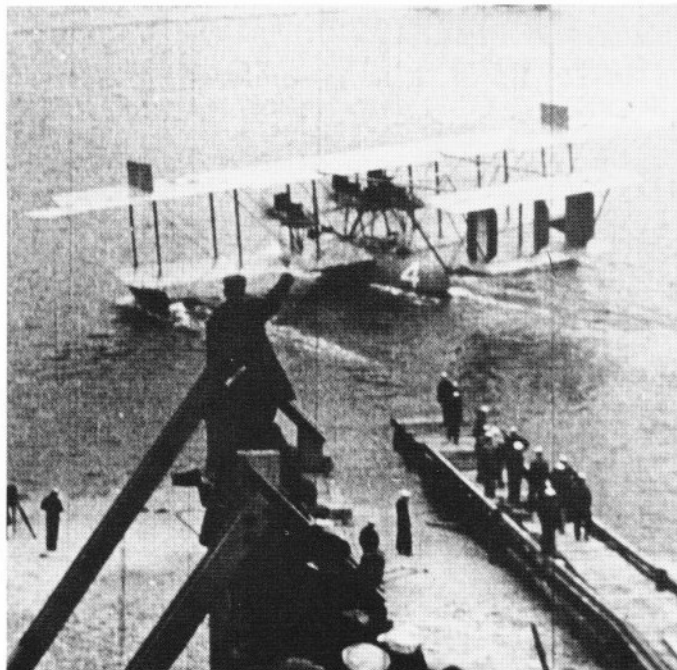
Equipment was complete. The navigator and pilots had the latest instruments, some of them designed by Byrd especially for the trip. The radio units were designed for all contingencies: In addition to the short-range set, there was a "telegraph" good for transmission and reception over several hundred miles. And most important, aboard each plane was a radio direction-finding compass.

As there were no parachutes, planners thoughtfully provided the engineers with linemen's belts, a security measure to prevent their being swept away while climbing about the engines during flight.

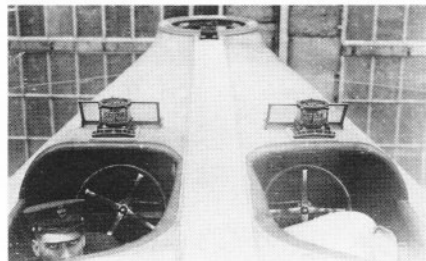


PIONEER PILOT READ WAS NAVAL AVIATOR NUMBER 24

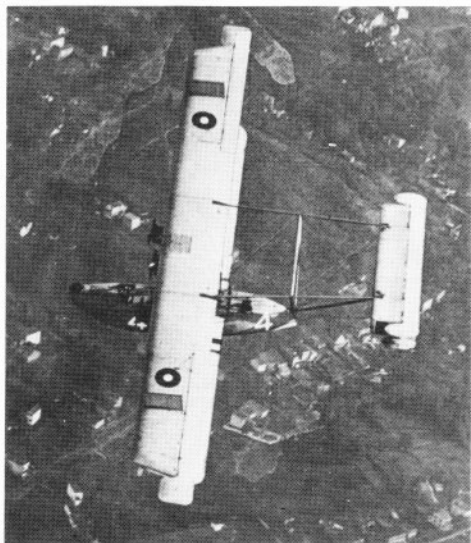
MAY 8 DEPARTURE FOLLOWED TOWERS' QUICK DECISION



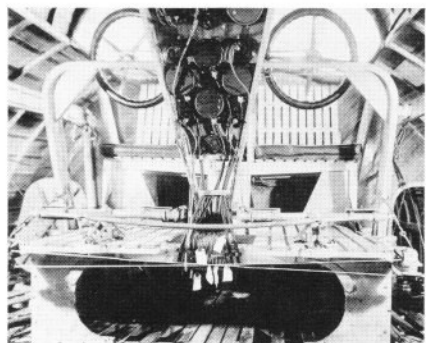
THE FIRST FLIGHT ACROSS THE ATLANTIC



VIEW of pilots' and navigator's cockpits.



HIGH aspect ratio was an NC characteristic.



INTERIOR was functional, had ample room.

AS THE FORMATION moved eastward, the navigators busied themselves with Byrd's inventions and made computations. At noon Read made a note in his log: "Passing Montauk Point. Sun came out." He was feeling pretty good. From his position in the bow, he could see Towers in the lead plane and, several hundred yards beyond, Pat Bellingier in the NC-1. Both seaplanes stood out clearly, yellow wings shining brightly against the blue waters of the ocean below. Looking aft along the hull, he could see the helmeted heads of his pilots, Stone and Hinton.

Lt. Elmer Stone was the pioneer aviator of the Coast Guard. During the war he had been a test pilot, his performance earning him a place on the trans-Atlantic list. Ltjg. Walter Hinton was formerly an enlisted man. His skill in handling flying boats qualified him for the NC-4.

Normally the two pilots would take turns at the controls, each spelling the other at half-hour intervals. But when rough air was encountered, it would take the strength of both men to keep the massive plane on course. Hinton had made the takeoff from Rockaway, and it was agreed to swap positions for each leg of the trip. The first landing was to be at Halifax. From there they'd go to Trepassey Bay, near St. John's, the jumping-off spot for the big effort.

They had turned a little northward after Montauk Point, heading toward Cape Cod. At 12:30 Chatham Naval Air Station out on the Cape radioed a message:

DELIGHTED WITH SUCCESSFUL
START. GOOD LUCK ALL THE
WAY. ROOSEVELT.

Assistant Secretary of the Navy Roosevelt had long considered the NC's his pets. He had encouraged the project every step of the way and had given all possible support. In April, while Josephus Daniels was in Europe, accompanying President Woodrow Wil-

son at the disarmament talks, Roosevelt had made a quick trip to Rockaway, eagerly seeking a ride in one of the big boats. The weather was not the best that day, the men were nearly worn out from constant work, but Richardson took him up in the NC-2. It was a rough, bumpy flight, with FDR crouching just behind the pilot. When he got back on land, he was slightly green but full of enthusiasm. And now, on the NC-4, one of his school classmates and boyhood friends was the engineer, Jim Breese.

Lt. James Breese had also been a test pilot during the war. But it was his experience as a power plants expert, especially on the *Liberty* engine, that put him on the team. His assistant was Chief Machinist's Mate Eugene Rhoads. "Smokey" Rhoads, who had replaced the unfortunate Chief Howard, was reputed to be one of the best engine men in the Navy.

Filling out the crew was Ens. Herbert Rodd, an experienced radio operator who had helped in the development of the direction-finding compass. The ensign was a good man with a radio; he was now getting remarkable results with the long-range transmitter. But he was having trouble talking with the man 30 feet away.

Read's intercom was out. Standing in the bow, he was waving futilely at his pilots who seemed not to understand what it was he wanted. The NC-4 was falling far behind the other two planes, and he'd been motioning for more speed. They had passed Cape Cod and were now over open sea on the way to Nova Scotia. Read lowered himself into the hull to go back to the pilots when Jim Breese arrived to tell him they'd had to kill the center pusher engine owing to dropping oil pressure.

The plane could fly well on the three remaining engines, so they decided to continue, informing Towers of the situation. At 2:05 P.M., they passed through hazy air over the first of the "station" destroyers, the *McDermut*. Right on course, Read could

barely make out the other NC's miles ahead. He had a slightly uneasy feeling as he headed for the next ship, 50 miles further on. Halfway there, a geyser of water and steam suddenly erupted from the forward center engine, and Read watched a connecting rod sail out of the crankcase and off into space. Now they'd have to go down. Crawling to the pilots, Read yelled to turn into the wind and land. Rodd was busy with his radio.

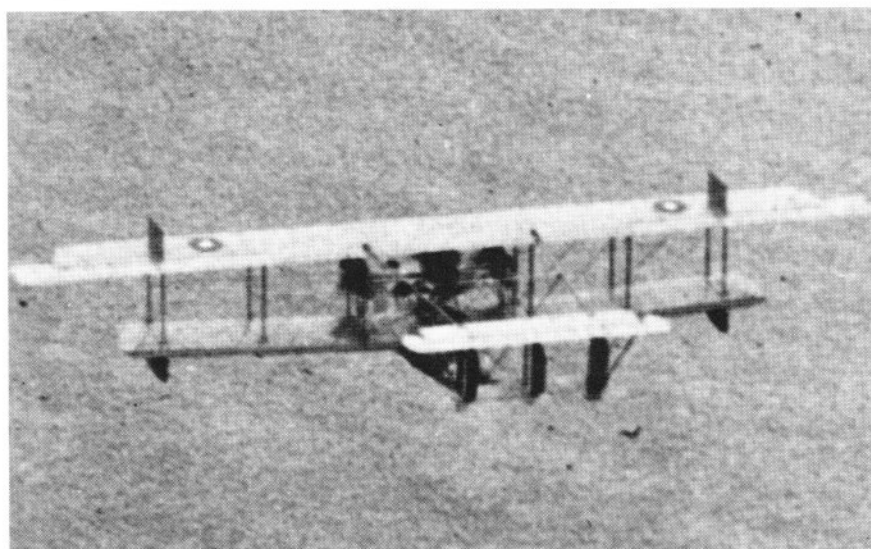
The distress call got through. Towers and two destroyers heard it. Although the other planes continued on, they had seen the flash of wings as Hinton made the turn and assumed Read was going back to Chatham. They had not seen the NC-4 descend.

The water surface was calm enough for a safe landing but, once down, Rodd couldn't get through to anyone; the destroyers were too busy talking to each other. He couldn't be heard on the long-range radio, and the short-range transmitter was on a frequency different from the ships' receivers. In the haze, a searching destroyer passed within ten miles of the floating seaplane without spotting her. A little discouraged, Read soon found himself in the middle of an empty sea, about 80 miles from the nearest land, with night coming on. There was nothing else to do but start taxiing with the two good engines left. He hoped they would hold out.

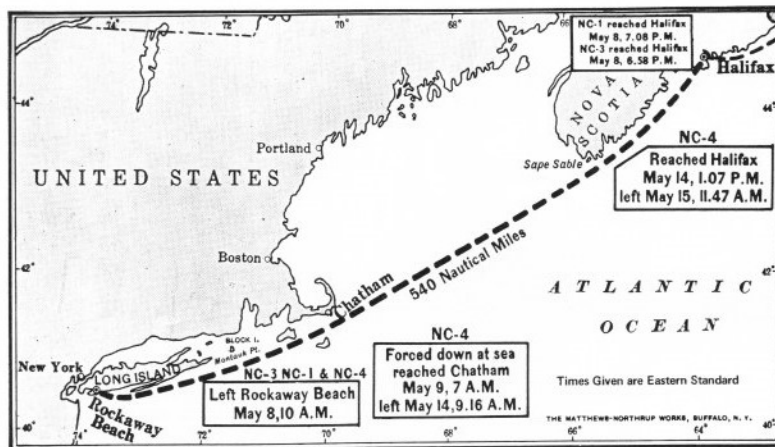
After dark the moon came up and they had a fairly pleasant ride. The engineers and pilots took turns at the controls and Read even got a little sleep. Towards dawn they tried to chase a passing steamer but only succeeded in losing another engine. For 20 minutes Breese and Rhoads worked on it while the NC-4 made circles in the ocean. Finally finding the right combination of cuss words to unlock the secrets of a recalcitrant *Liberty*, they were underway again. At dawn they were just off Chatham as two seaplanes took off from the air station to join in the search. They didn't have far to look.



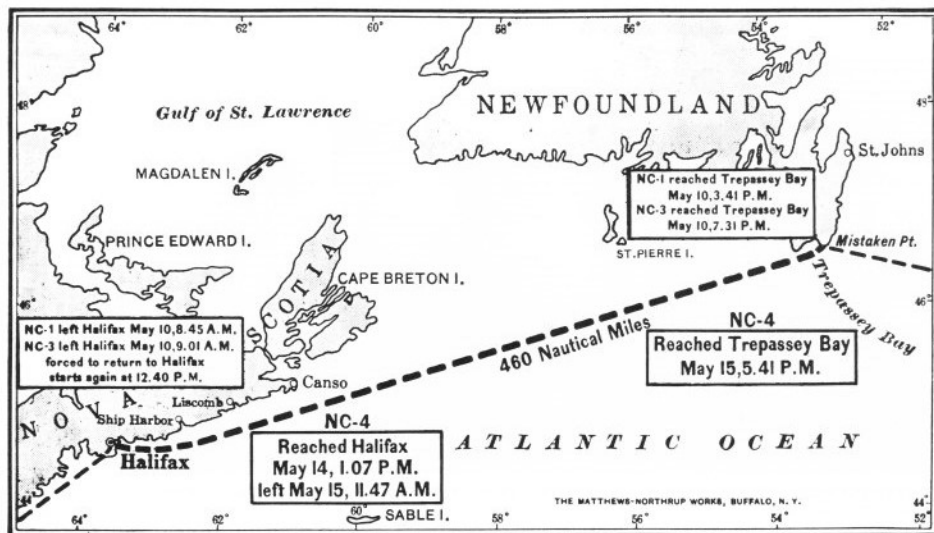
ENTHUSIAST ROOSEVELT BEFORE HIS ROUGH FLIGHT IN 1919



NC-4 FLIES TOWARD CAPE COD ON THE FIRST LEG OF FLIGHT



THE FIRST FLIGHT ACROSS THE ATLANTIC



READ's "shakedown" had turned into a breakdown. Headlines announced the incident which, when added to the NC-4's past misfortune, gave rise to her new name: the "Lame Duck."

Within two days one bad engine was replaced, the other repaired. But once again the elements were against them; a gale set in and a 40-knot northeaster held them in the Chatham hangar till the 13th. Public indignation was aroused. A lot of taxpayers'

money was supporting a vast fleet of station ships waiting idly at sea. Read was frustrated, but during this period he received some encouragement from the northern weather dispatches. Conditions on the Newfoundland-Azores route were so bad that the NC-1 and NC-3 weren't going anywhere, either.

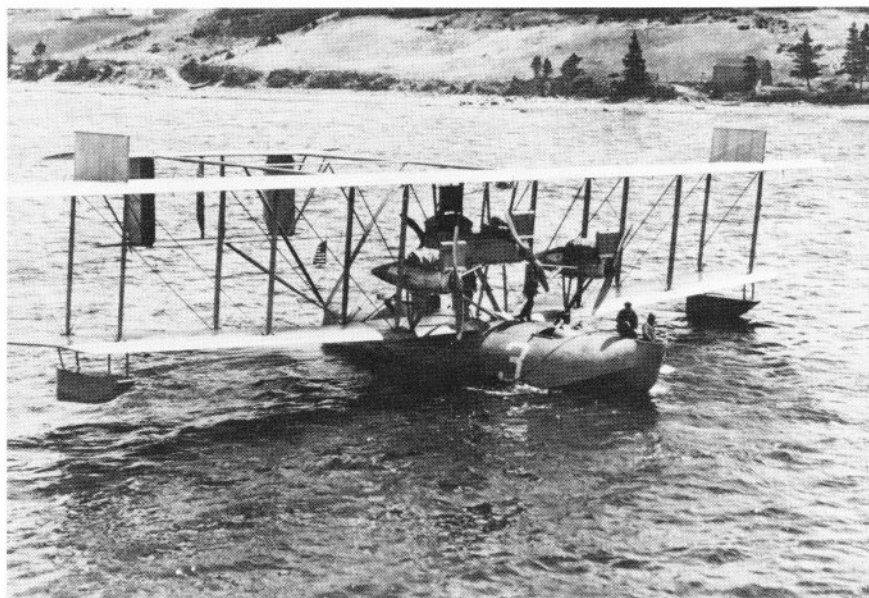
When the NC-4 had been lost to sight and its distress call intercepted, Towers assumed it would either land by the *McDermut* for repairs or return to Chatham, so he kept on. During the afternoon, he and Byrd kept busy in

the NC-3's cramped forward compartment, trying out the sextant, dropping smoke bombs and making calculations with the drift indicator.

During the trip north, both planes were in and out of squalls. Hot and cold air rushing over headlands toward the sea combined to form a vicious mixture. The strain of handling the big boats was taking its toll on the pilots, especially Dick Richardson who was over 40 years of age. Buffeted by gusty winds, the *Nancy's* pitched and yawed, and it took the constant efforts of the pilots to remain on course.

The final three hours were the most severe but, upon arrival over Halifax, they were rewarded with a wondrous view. A beautiful rainbow extended from a hilltop to the clouds 6,000 feet above. Beyond the brilliant band, a rich red sunset tinted the fading colors of the rolling landscape with a crimson glow. Cheering crowds and factory whistles added to the glamor as the NC's taxied to their moorings.

Upon arriving in the Canadian port, Towers was disturbed to hear of the apparent loss of the NC-4, but he knew the sea conditions had been good and had no fear for the safety of Read and his crew. Hence the news of their "rescue" the next morning came



NAVY CREWS waited in Newfoundland for suitable weather as newsmen gather (below) to report their activities. Some reporters lived in remodeled railroad car (right). Had conditions improved sooner, either at the Azores or over the north Atlantic route to Ireland, U.S. or British teams would have been on their way and the delayed "Lame Duck," NC-4, might have lost its chance to be first across Atlantic.



as no surprise, and he set about repairing minor damage to his own plane. Cracked propellers were a problem, but with the help of wartime friends of Byrd, exchanges were achieved. On the 10th of May they were off again.

Still the air was rough and now quite cold. To his annoyance, Richardson aboard the NC-3 found his arms muscle-bound from the exertions of two days before, and he was slow in his reaction on controls. His copilot, McCulloch, assumed the load until he had the kinks worked out.

Following the line of station ships, the NC-3 passed Placentia Bay and the men sighted their first icebergs. From 3,000 feet, Richardson noted they had the appearance of majestic steamships, but that their intense whiteness gave betrayal. "Around each berg," he later wrote, "the water was illuminated by reflected light from submerged portions, presenting a particularly arresting appearance — like that of the sun shining through the back of high breakers running in on the beach." Dick Richardson always enjoyed things like that.

As they approached Trepassey Bay, a gradual descent was made. The air was gusty and the shocks were more violent as they neared the surface and

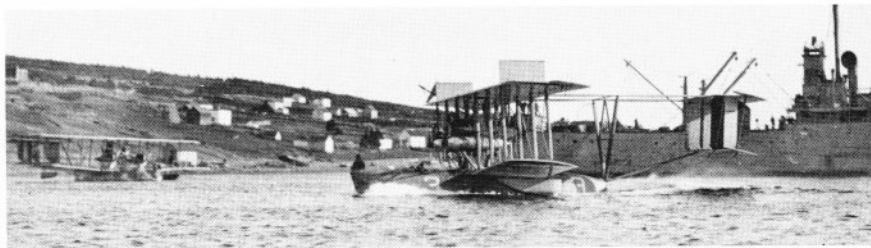
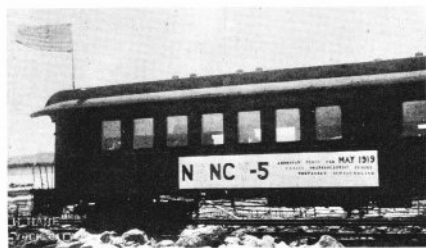
came closer to the barren land. Strong swells were rolling as they touched water near Powell's Point. To get within the bay, Richardson kept the NC-3 skimming at high planing speed — careening, bouncing, slipping through "an avalanche of wind which rushed across the harbor from the bluffs." With goggles fogged by salty spatter, he couldn't see the water clearly and consequently mistook the spraying wake of a speeding boat, which raced beyond in welcome, for an iceberg. He had visions of floes all around him and "would not have been surprised had one come crashing through the hull at any moment." Bellinger experienced the same conditions. By evening both NC's were safely tied up near the base ship, USS *Aroostook*. It had been an interesting day.

DREARY, windswept Trepassey Bay hadn't seen so much activity since the times when sinister ships made use of the harbor's haven. To the British teams, 60 miles across the hills, over at St. John's, it might well have seemed that pirates were again abroad in those waters — with Lord Northcliffe's prize

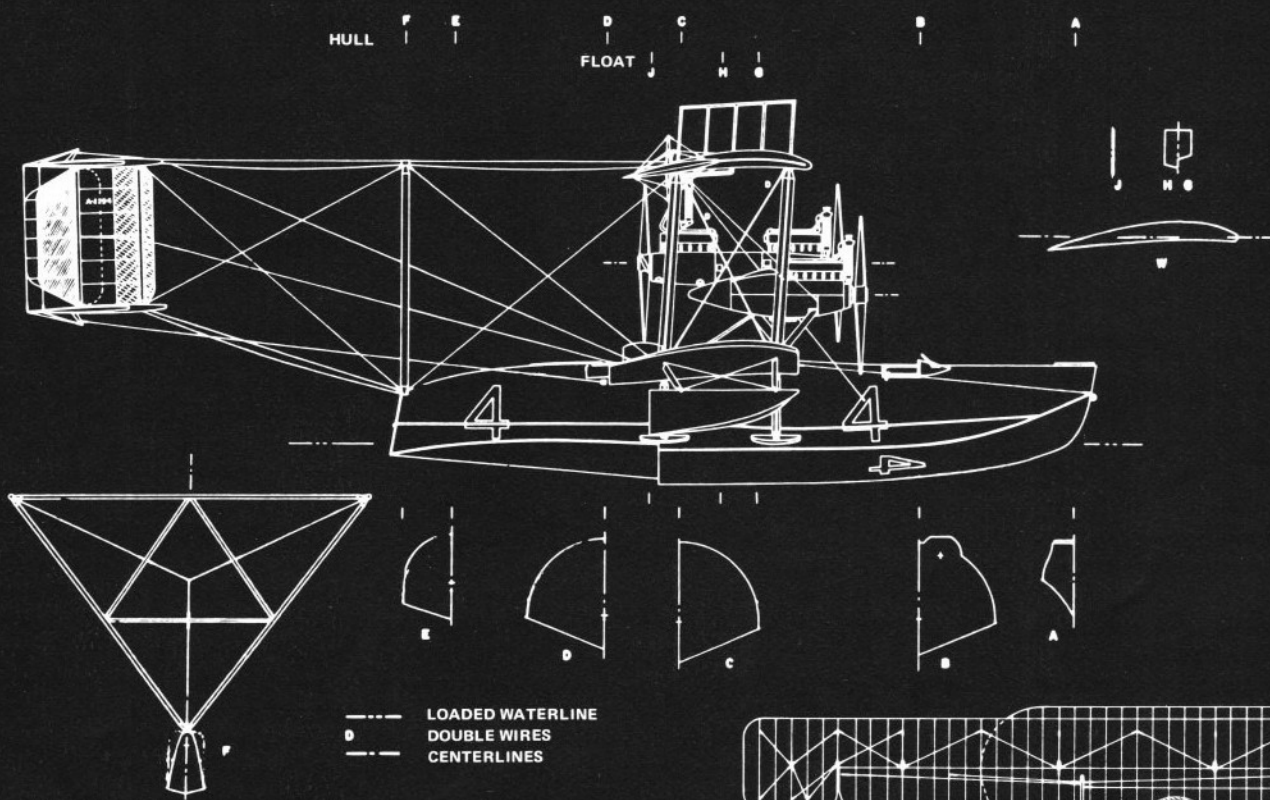
at stake. The members of the press enjoyed the situation. North Atlantic weather was still delaying an English start so, once the reporters realized the Americans meant business, they forsook their favorites, Hawker and Grieve, and moved their camp from the comfortable surroundings of the Cochrane Hotel in St. John's to the windy, forlorn wastes of Trepassey.

Not that it was all that bad. They acquired a railroad dining car, outfitting it with a stove, table, cots and a cook. This they had hauled down to Trepassey as living quarters. On its side they painted the name, *NANCY-5*.

The *Aroostook* was the mother ship of Seaplane Division One. Since each NC crew member was limited to five pounds of personal luggage, the *Aroostook*, carrying all their clothes and extra articles, would follow them to Plymouth. Towers and Richardson, being the senior officers, were assigned the ship's pilot house as sleeping quarters. It had even been fitted out with two brass beds. Towers noted that since the room was mostly glass-sided, they had the privacy of the proverbial goldfish bowl. Nevertheless, while waiting for the Atlantic weather to clear up, they had a comfortable time of it.



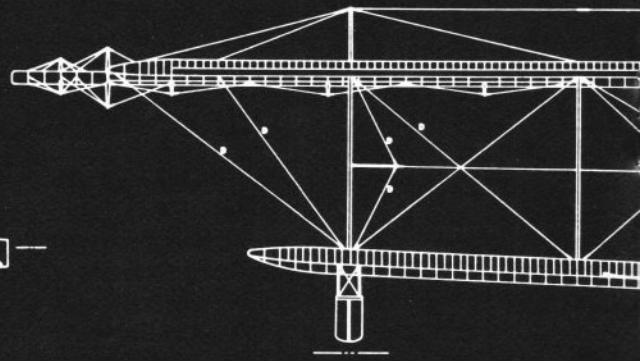
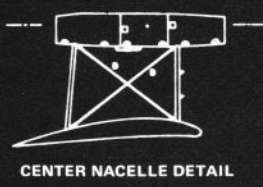
HEAVILY loaded NC-3 taxis around base ship at Trepassey. The *Aroostook* provided quarters and servicing for NC's, later joined the crews at Plymouth. At left, McCulloch, Bellinger, Towers and Richardson are shown making the various, necessary checks on the weather, so essential to the ocean flight.



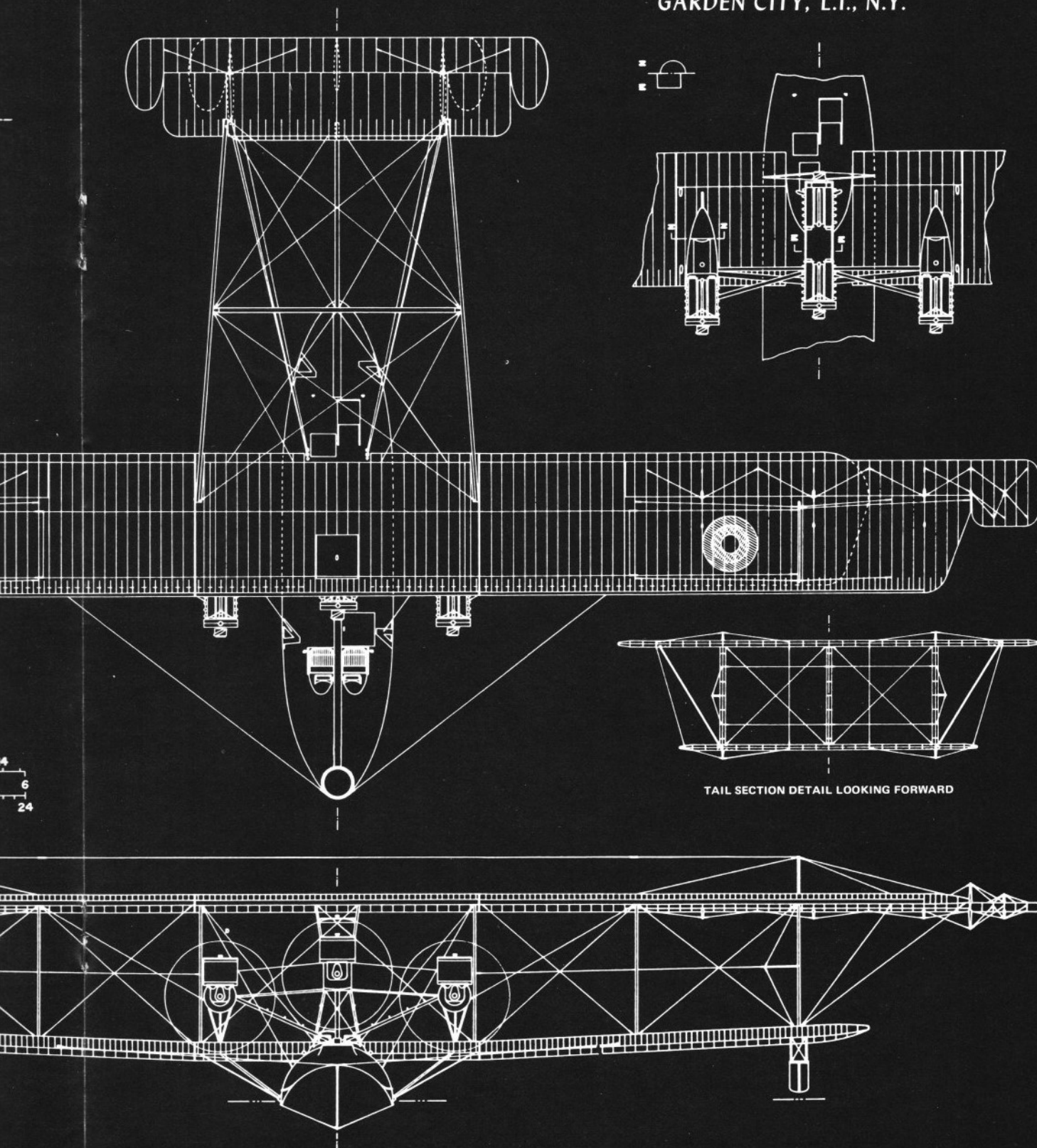
COLOR SCHEME
 HARBOR GRAY ENAMEL (MEDIUM GRAY WITH SLIGHT BLuish TINT) – USED ON HULL, FLOATS, TAIL BOOMS, STRUTS, & PLYWOOD-COVERED LOWER CENTER SECTION
 NATURAL ALUMINUM ENGINE NACELLES (UNPAINTED), ENGINE BLOCKS, & NACELLE FACEPLATES
 BRASS RADIATORS
 BROWNISH YELLOW ALL UNPAINTED FABRIC-COVERED SURFACES (BROWNISH YELLOW CAST CAUSED BY AGING OF NATURAL VARNISH WHICH CONTAINED AN ORGANIC HANSA YELLOW PIGMENT)
 BLACK TAIL NUMBERS, CYLINDER BANKS, LEATHER PADDING AROUND COCKPITS
 VARNISHED WOOD PROPS (WITH BRASS LEADING EDGES) & COCKPIT SEAT SLATS
 COPPER TUBING & WATERLINES
 WHITE WALKWAYS AND NO. 4 ON HULL SIDES & BOTTOM
 RED, WHITE, & BLUE WING ROUNDELS & TAIL STRIPES
 ROUNDELS – RED OUTSIDE RING, BLUE MIDDLE RING, & WHITE CENTER VERTICAL STABILIZER TAIL STRIPES (OUTSIDE SURFACES ONLY) – RED, WHITE, & BLUE FROM FRONT TO BACK IN 3 EQUAL SPACES. RUDDER WAS ALL BLUE

SPECS
 WING SPAN UPPER = 126' 0" LOWER = 96' 0"
 WING DIHEDRAL UPPER – NONE LOWER = 3" OUTBOARD OF CENTER SECTION
 WING CHORD 12' 0" ON BOTH WINGS (RAF 6 AIRFOIL)
 WING INCIDENCE 3" ON BOTH
 TAIL SPAN UPPER = 37' 11" LOWER = 26' 0"
 TAIL CHORD 8' 10"
 TAIL INCIDENCE 2" ON BOTH
 OVER-ALL LENGTH 68' 1-7/8"
 HULL LENGTH 44' 8-3/4"
 HULL WIDTH 10' 0"
 TOTAL HEIGHT 24' 5-1/4"
 ENGINES LIBERTY, 400 HP AT 1650 RPM
 PROPS 10' DIA. WOODEN, PARAGON

NC-4



THE CURTISS AEROPLANE & MOTOR CORP.
GARDEN CITY, L.I., N.Y.



TAIL SECTION DETAIL LOOKING FORWARD



THE FIRST FLIGHT ACROSS THE ATLANTIC

MITSCHER AND BARIN

MEANWHILE, back at Chatham, the NC-4 was being readied for another try. On the 13th the forecast indicated an early departure the following morning. Then a starter on one of the engines broke. Since there were no spares on Cape Cod, a call was placed to Rockaway and, within an hour, a New York seaplane was dispatched to Montauk with the parts. The plan was to send a plane from Chatham to make the pickup at Montauk, but before this seaplane could get into the air, it ran afoul of a sand bar. So a Chatham blimp was sent. Not long after the big airship had departed, Chatham received a call that the Rockaway plane had arrived at Montauk and was prepared to continue on to the Cape. Although it was already dark, Read told them to proceed. Under a midnight moon, the seaplane arrived and in went the starter. At daybreak, the NC-4 was ready, and at about the same time Read saw the poor old Chatham blimp come back from its all-night, wild goose chase.

They made the run to Halifax but still had trouble. The newly installed center engine vibrated badly and the two outboard ones were running rough, with dirt in their carburetors. Read was afraid that if they took the time to change an engine again, the other planes might get away from Newfoundland without him. Breese and Rhoads did what they could and, on the morning of the 15th, the NC-4 left Halifax.

Within a few minutes, 18 miles out, they were back on the surface, where a piece of rubber was found in the fuel line. Blockage had starved the motors. The engineers cleaned out the carburetors, replaced a spark plug and, just after noon, off they went again.

Fortunately, the flight to Trepassey

was swift. As a favoring tail wind hurried the NC-4 along, the temperature dropped steadily and ice began to form on the struts. Whenever Read stood up and leaned forward to make a sighting through his drift indicator, a frigid blast tore at his face and hands. He was wearing two suits of heavy underwear, a flannel shirt, a jersey and his winter uniform, all beneath the heavy, fleece-lined leather flying suit. Still he was cold, even when crouching in the hull, out of the wind, and the other men were chilled through.

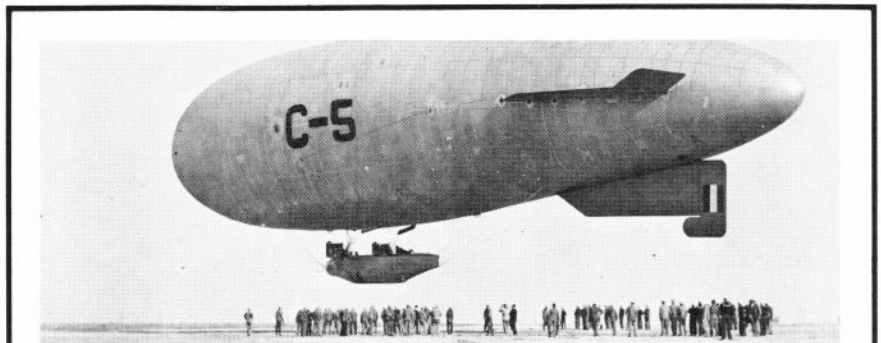
Two hours out of Trepassey, Read spotted something moving just above the icebergs. When he looked down at it through his binoculars, he was amazed to find it was an airship, blowing out to sea, apparently out of control. It was certainly a curious

thing to see in that part of the world, and he wondered where it came from.

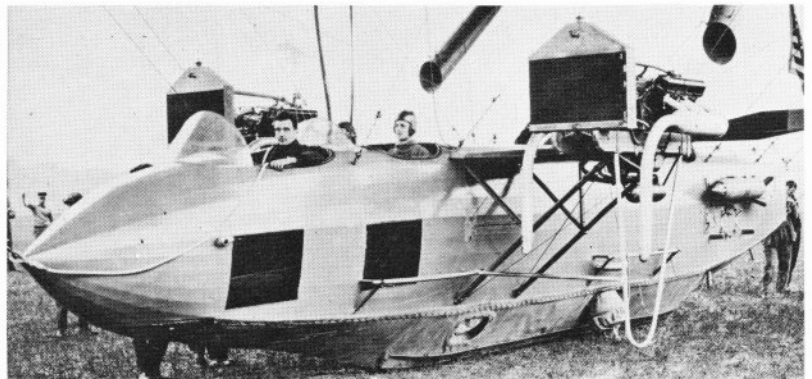
That morning, the C-5 had arrived in St. John's. The press had first learned of the scheme to fly the Navy airship across the Atlantic when the USS *Chicago* had steamed into St. John's harbor to act as base ship. A mooring site had been prepared on the shores of Quidi Vidi Lake, and the cylinders of hydrogen stacked nearby had been a dead giveaway.

The C-5 had flown, in secret, all the way from Montauk, a good indication of her ability to cover long distances. As her tired crew relaxed aboard the *Chicago*, mechanics set to work on her engines. It was then that the perverse Canadian weather served up a sudden afternoon storm and high winds struck the field where the C-5 was tied. Lines began to snap and, before the blimp could be deflated, she was torn loose, men leaping from the power car. Unmanned, she bobbed out towards the sea, never to be found.

Read had another surprise coming. At dusk, as the NC-4 rounded Powell's Point, his blood ran even colder. For



Ace in the hole - a long-range airship!



THE FOUR-MAN C-5 was a 192-foot non-rigid airship with a 40-foot control car slung beneath her. With two 125-hp engines, she had the range to fly the Atlantic.

there within the bay the NC-1 and NC-3 were maneuvering for takeoff. Read perched in the bow, waving his arms, shrieking in the wind for them to wait for him.

As it turned out, his fears of being left behind were short-lived. True, Towers *was* attempting a start for the Azores without the NC-4, and, in fact, had been trying all afternoon, but for some reason neither the NC-3 nor the NC-1 could get off the water in the crosswind. Read knew why and chuckled as Jim Breese explained something they'd kept to themselves. The gauges on the fuel tanks were inaccurate and, unless a man knew how to interpret the readings on the glass, it was likely that too much fuel would be taken on board. The extra weight prevented lift.

And so the group was reunited. The reporters had been having fun filing amusing stories about the Americans bashing about the harbor to and fro, crews drenched in ice water as the wallowing big boats made futile efforts to rise into the sky. But now the NC-4 was here, no longer the Lame Duck.

The crew from the *Aroostook* labored mightily and installed a brand new *Liberty* engine. Fuel and oil lines were carefully cleaned and three new propellers were put on. By dawn all was ready, and things were looking up for the great hop to the Azores — up for all except Dick Byrd, whose dream was wobbling out across the ocean with the C-5.

It was during this time that Lt. Louis Barin, Mitscher's copilot on the NC-1, slipped on his *Nancy's* icy hull and in falling, plunged his arm through her thin plywood skin. No bones were broken but it was a painful injury.

Read would have appreciated an extra day to test out the new engine but the weather forecast for the trip was too encouraging. Fog and rain showers at the destination were expected to clear up and, if they waited longer, the British teams might get their chance at Ireland. Thus, in the late afternoon, the three NC's taxied in the harbor, warming up engines.

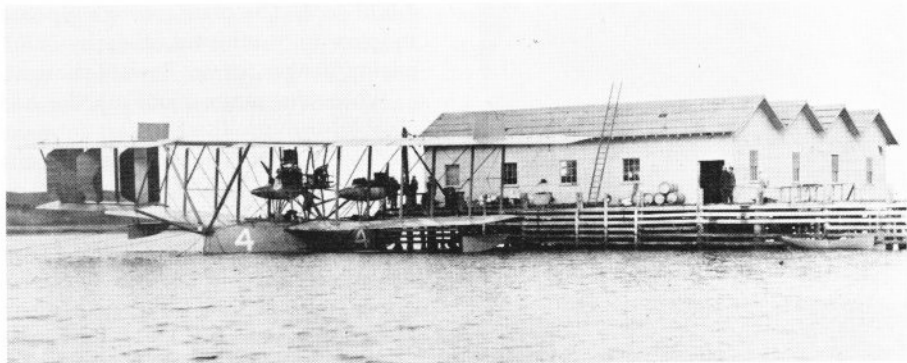
As the NC-3 began to surge ahead, the NC-4 put on full power, and they headed down the bay. By the time

Read noticed that Towers was slowing down, the NC-4 was already airborne. At least he had a good excuse to check out all the systems so he kept on climbing. The others had aborted.

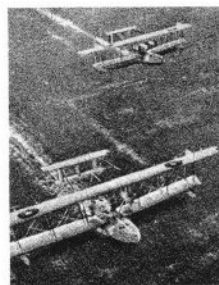
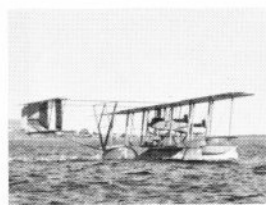
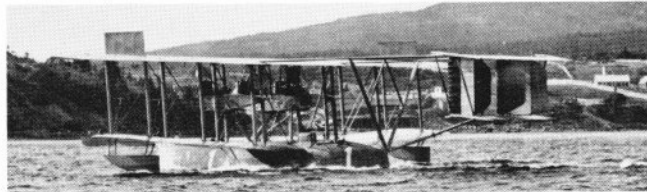
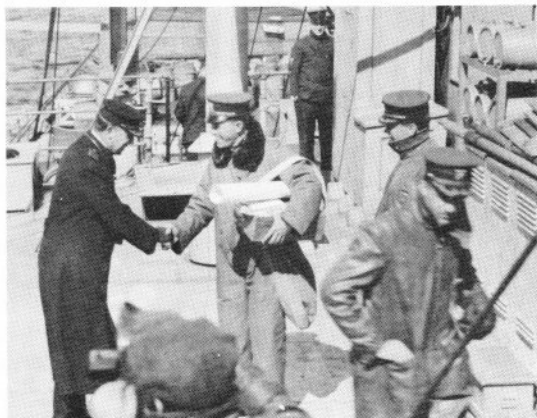
As he watched the NC-4 circle overhead, Towers was exasperated. Again he tried to get the NC-3 off and failed because of overweight. Something had to go. Signalling to the *Aroostook's* boat to come alongside, he offloaded the 26-pound CG-1104 emergency transmitter, a box of tools, a small wooden chair — and his chief flight engineer.

Read landed again and taxied over to the sister ships. All three took up position far back in the harbor, near the Trepassey wharf. At 6:00 P.M. they started once again. Thundering down the inner harbor, the pilots fought a severe crosswind but managed to be planing by the time they hit the swells beyond Powell's Point. Bouncing across the crests they took to the air, the NC-4 most easily of all.

On the 16th of May, the sun was red in the western sky as American hopes flew eastward into the darkness.

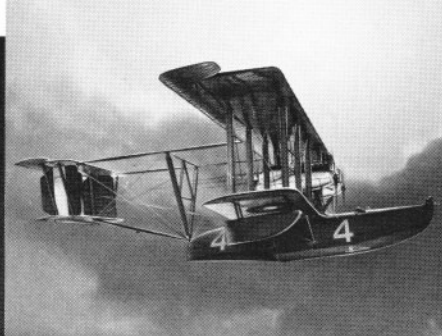


AT TREPASSEY, new engine and propellers were installed on the NC-4. At lower left, Capt. Tombs, *Aroostook* CO, wishes luck to Bellinger, Richardson and Towers. Abortive takeoff attempts delayed them, but all NC's finally succeeded the evening of May 16.



Cdr. Ted Wilbur

THE FIRST FLIGHT ACROSS THE ATLANTIC



Cdr. Ted Willbur



READ'S PLANE was faster than the others. He had noted this feature after the departure from Rockaway; it was very difficult to keep from getting ahead of Towers in the flagship. But if he slowed down too much to keep in proper position, the big NC-4 became harder to handle. Soon he was far ahead and forced to compensate for his speed by making a complete circle, coming up behind the formation. Looking down, through the fading light, he could see the whitecapped ocean, dotted with icebergs. As it grew darker, it was difficult to make out the other two planes. The NC-4 turned on its running lights; Ens. Rodd sent a

message requesting the others to do the same. Nothing happened. The NC-1 and NC-3 remained obscure in the dimness of the twilight sky.

The sun set quickly behind heavy cloud banks. By the time it was completely dark, maintaining formation was out of the question. The NC-1 had long been lost to view and, as the outlines of the NC-3 grew less distinct, it was evident each plane was on its own. When Read's computations indicated they were south of course, he ordered a slight left turn and the NC-3 disappeared entirely. They had 1,200 miles to go.

John Towers later said, "Those who think that having destroyers 50 miles apart made navigation as easy as 'walk-

ing down Broadway' should have been with us that evening. It was not until darkness came on and they began to fire star shells at five-minute intervals that I could think of anything but finding the next destroyer. They could not be expected to be exactly on position, and if we didn't find them just where we expected them, there was always the question, are they wrong or are we?" Sometimes both were.

Each ship was required to report by radio the passing of the planes. At each report, the next ship in line was to commence firing the star shells. Then, as the planes approached, a searchlight would be swung repeatedly, from horizontal to straight up, in the direction of the prevailing surface wind. Electric lights would spell out the station number in eight-foot numerals and be situated so as to be viewed from the stern. Each ship would steam slowly along the course of the flight when planes were nearby.

The destroyers had been instructed to fire their guns to the northwest, at an angle of 75° with fuses set for 4,000 feet. The planes were supposed to pass to southward, thereby minimizing danger, or so Towers thought.

When the moon came up, he had climbed through the overcast to make use of the light. The electrical circuits of the NC-3 had been soaked on takeoff, and the plane had neither wing nor cockpit lights. So cruising at 4,500 feet above the cloud layer provided welcome relief for Richardson who'd had some difficulty flying the machine at lower altitudes where he had nothing to see. And it was pleasant up there. Looking down, the pilots could watch the shadow of the plane racing madly over the hills and hollows of the cloud beneath, curiously surrounded by a strange phenomenon — a faint rainbow forming a complete circle, its luminous ring just touching the tips of the shadow of the wings.

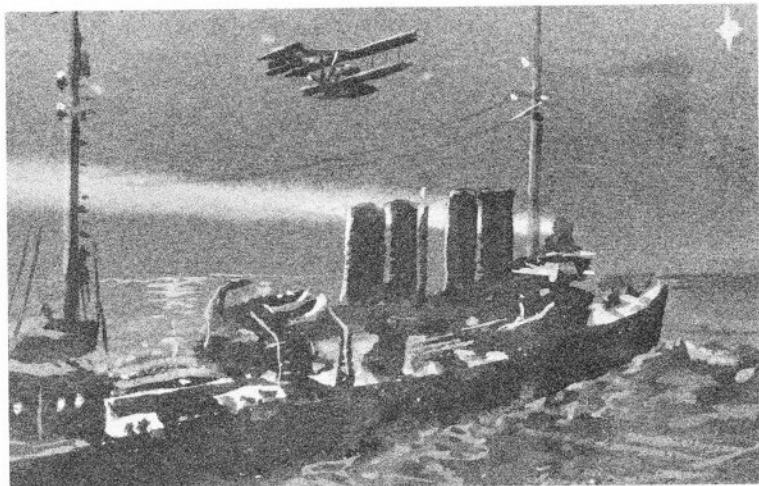
"I had set a course," said Towers, "which was taking us by the destroyers, just south of them, like clockwork, when finally as we approached one, it was apparent we would pass to north of it. I thought it was out of

position and was reluctant to change my heading. Besides, I could see through the thin clouds and thought they could see us, too, so I kept right on. Having timed their shooting, I knew they were due to fire just about as we were in line. Either the destroyer didn't see us or they didn't believe in deviating one iota from their instructions for, right on the second, I saw the flash from the gun. The star shell exploded just under us. I glanced back and in the moonlight both Richardson and McCulloch looked as though they would like to take the navigation out of my hands."

There was another close call. Cruising above the clouds made it easier for the pilots to fly the airplane but harder for Towers to use the drift indicator. Peering down, waiting for a ship to appear through a hole in the overcast so he could make a reading, he suddenly realized he was staring at an aeroplane beneath him. It was the NC-4, and Read had made out the shape of the NC-3, too, against the moonlit sky. Preoccupied, Towers almost missed seeing the NC-1 which was slowly grazing his path, crossing 50 feet above. Pat Bellinger didn't even realize the unlighted NC-3 was there. For a few moments, there was a crowded piece of sky over the mid-Atlantic Ocean.

Otherwise, the night flight proved largely uneventful. Wireless operators were constantly on the job tapping out a steady flow of messages to the various stations. They were able to transmit over long distances and listen in on the progress of each other. Although the performance of the direction-finding compass was disappointing (the antenna was surrounded by wire cables in the hull and also subjected to static interference from the spark plugs), by dawn all three separate aircraft found themselves near station ship #14.

With the coming light, the weather worsened. Clouds grew thicker and soon the sky was completely overcast. Dropping down between the billowing layers, Towers spied a ship through a thin spot in the haze. It was well to the south and assuming it to be #15,



STATION SHIPS EVERY 50 MILES MARKED THE NC'S COURSE

he changed his course accordingly. He was wrong, and it was the last ship seen.

Running into fog and heavy rain squalls, the NC-3 tried different altitudes, all to no avail. Rising above the fog they would find themselves in clouds so thick they couldn't see their wingtips. Visibility reduced to yards, the pilots were in trouble. Turbulent air would shake the wallowing, plunging plane and, with the primitive instruments of the time, it was difficult to tell which end was up. Rain, driving in the pilots' faces, induced drowsiness. After more than 12 cold hours seated in one position, Richardson almost passed out from the prolonged strain. He hadn't had any sleep in over a day. It took two doses of strychnine

from Towers' medical kit to bring him around.

Aboard the NC-1, Mitscher and Barin were in a worse predicament. The wing which had been transferred from the NC-2 at Rockaway created an unbalanced condition. It required the efforts of both men to keep the seaplane level, an agonizing process. Marc Mitscher was a small man, and Barin's injured wrist reduced his normal efficiency. Neither man could take the time to rest. In the bow Pat Bellinger tried to navigate in pea-soup fog and keep track of their position. He strained his eyes searching the wet mist, his concern mounting by the moment, for he feared that there was a real danger that they might run down another of the planes.



CLOUD-SHROUDED MT. PICO WAS A POSSIBLE HAZARD IN THE AZORES

THE FIRST FLIGHT ACROSS THE ATLANTIC



FIVE BATTLESHIPS served as weather stations for the NC flying boats. In sea conditions such as those shown at left, the NC-1 and NC-3 made landings. In painting at right, hazardous rescue of the NC-1 crew is conducted by the Greek ship, Ionia.

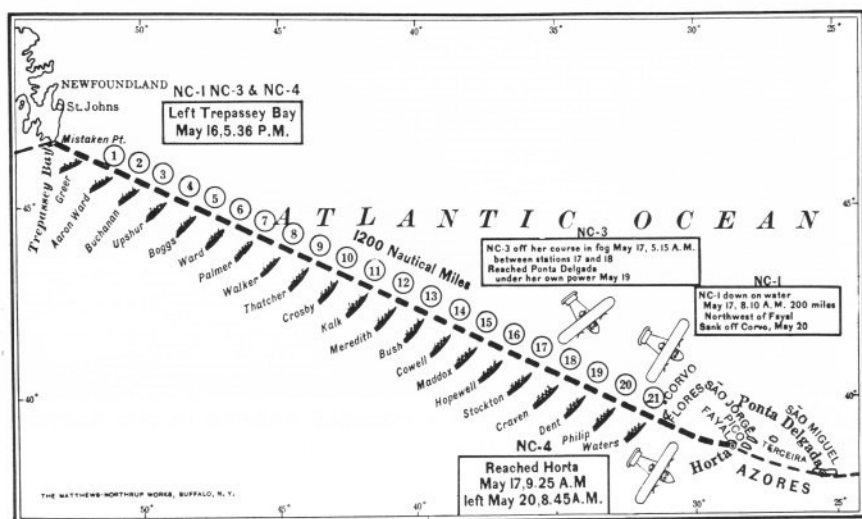
THE NC-4, however, was well in the lead. During the night, Read and his crew enjoyed the flight. His navigation was working out well and the sight of green-white star shells arcing through the sky was most impressive. Some were observed from 50 miles away. The engines never missed a beat and, as they drove along beneath the heavens, the lines of purplish exhaust flame tracing through the bracing wires made a reassuring sight. While Stone and Hinton took turns at the controls, Read made tours of the compartments. Although others had a chance to catnap, Rodd stuck to his radios. Read, as commanding officer and navigator, had much to do and little inclination to lie down for a rest. With dawn his confidence grew.

Happily munching a sandwich, nibbling chocolate and drinking steaming coffee from the thermos bottle, he savored the idea of having his first trans-Atlantic air meal. At 6:30 (Azores time), after passing through a foggy area, he picked up destroyer #16 in the clear. Then the weather deteriorated. Visibility grew less and he couldn't quite make out #17. At 7:45 they discovered how bad fog could really be.

The sun disappeared completely and Read motioned for a climb. The fog was so thick he could hardly see the pilot when suddenly he sensed something was wrong. His head began to swim, direction became confused and he felt the wind against his face increase. The boat compass in his cockpit was spinning wildly, and a brief glimpse of the sun above revealed

they were in a steep, banking turn. A victim of vertigo, Stone was about to lose control and all Read could do was wave his arms helplessly in the bow. But then the sun reappeared against a patch of blue and the NC-4 was straightened, shooting up towards clearer air. They had almost spoiled their day.

Towers and Bellinger had been less fortunate. By 11:00 A.M., Towers figured he must be in the vicinity of the islands, but he knew by now that he was off course. The NC-3 had been in solid fog since station ship #13 and now they had only two hours fuel left. Fearful of running into a mountain, he decided they might do better to set the boat down on the water and wait for things to clear up. Descending to 500 feet, they could make out the surface of the ocean. From that height it didn't look too bad so he signalled Richardson to make a landing. The power was cut and down they went. Just as they neared the surface, Towers finally saw the huge swells, but now the settling plane was committed; he couldn't call for power for fear of meeting a wave with throttles wide open. Richardson hit the first crest fairly hard, dropped into a deep hollow and zoomed up the far side. They had expected to stick to the surface but instead shot back into the air, smashing full onto the peak of the

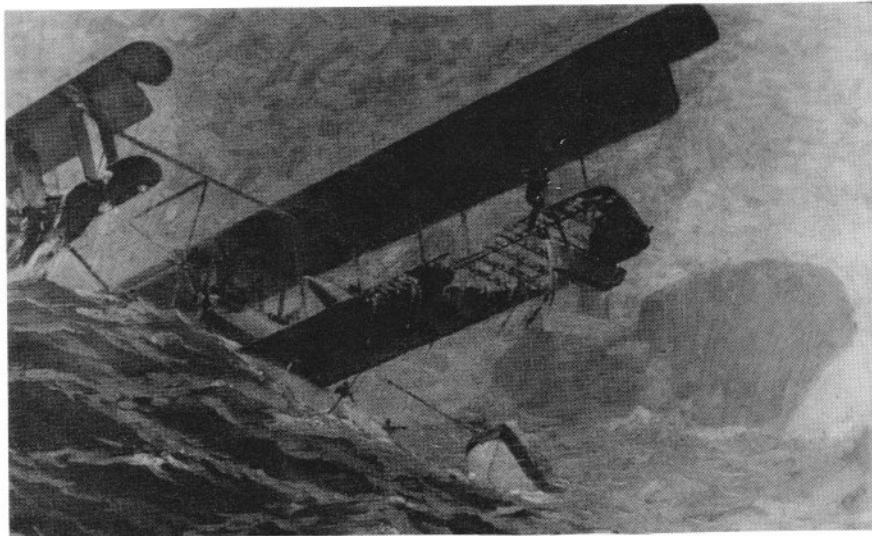


third wave. Struts on the forward center engine buckled, control wires went slack and hull frames split. Fortunately, no one was seriously injured, but it was apparent that flight could not be resumed.

Bellinger had made the same decision as Towers. For some time, the NC-1 had been flying at an altitude of 75 feet. Navigation was impossible and, down that low, the crew couldn't reach anyone with the radio. Mitscher was ordered to put her down. The seas were 12 feet high, aggravated by 25 knots of wind and a ground swell. The NC-1 hit a large wave square on, then lurched into a yawning trough where the lower section of her tail was carried away.

Two crews were derelict on the Atlantic, their lives dependent of the integrity of Richardson's hull design. Unaware of their positions (Bellinger was north and Towers south), destroyers started searching elsewhere.

Read wasn't having the easiest time of it, either. Flying along at 3,000 feet between cloud layers, he couldn't see the ships. Relying on his own navigation, he set a course slightly to the south; he knew the Azores were high and he didn't want to chance a confrontation with Pico, which was 7,000 feet. Then, at 9:27, as the NC-4 was passing over an opening in the cloud deck, Read saw what he thought was a riptide — a sign that land was near. Examining the two shades of color, he suddenly realized the darker mass was land; he was staring at the southern tip of Flores, one of the western Azores.

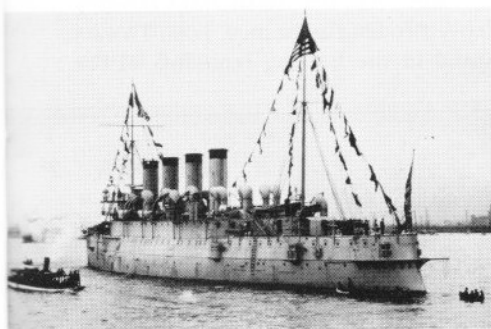


Spiralling down to 200 feet, the NC-4 skirted the island's shoreline. Read and his men viewed the peaceful panorama of farms and cultivated fields with sincere appreciation. Eventually they passed destroyer #22 which was only 250 miles from their destination, Ponta Delgada. But abeam the island of Fayal, they again ran into bad weather and Read decided to put into Horta where he knew the base ship, *Columbia*, had taken station.

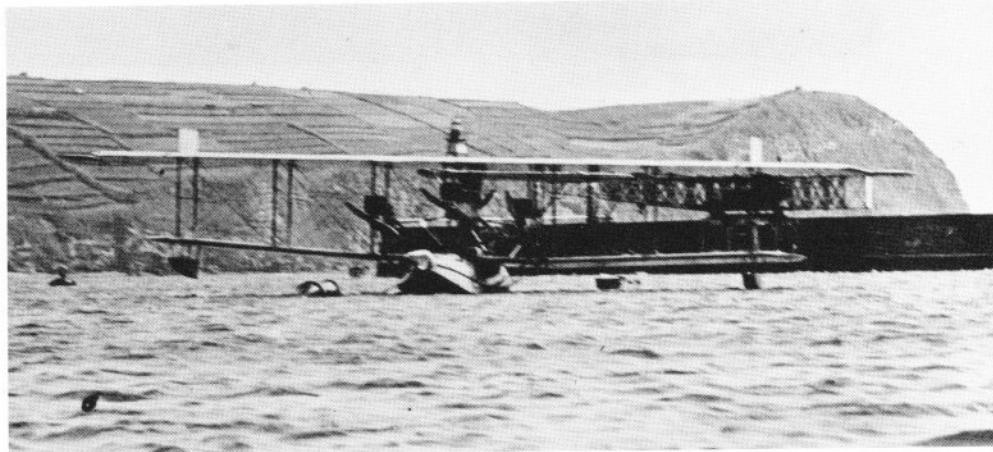
Having no accurate charts of Fayal, Read and his crew weren't sure just where Horta lay but they did know it was on the island's southeast end. Groping through the mist, they rounded a point and landed. A few minutes spent taxiing around the small bay convinced them of their mistake, so off they went again, just in time to spot the *Columbia* before the

fog swept in. Seconds later they were safe within the harbor, 15 hours and 18 minutes out of Trepassey.

Meanwhile, out at sea, a raging storm blew up. One hundred miles northwest of Flores, Bellinger's crew hacked wreckage off the hulk as a frantic SOS was keyed. For five grueling hours, the seasick men bailed water from the rolling hull as the NC-1 pitched and twisted on mountainous waves. Mitscher and Barin worked the engines, which were needed to drive the radio generator and help maintain some kind of heading in the wind. Their ordeal ended when the Greek ship, *Ionia*, appeared out of the fog. Attempts were made to take the battered plane in tow, but the violent winds precluded salvage and the original *Nancy* sank beneath the waves. The crew was taken to the *Columbia*.

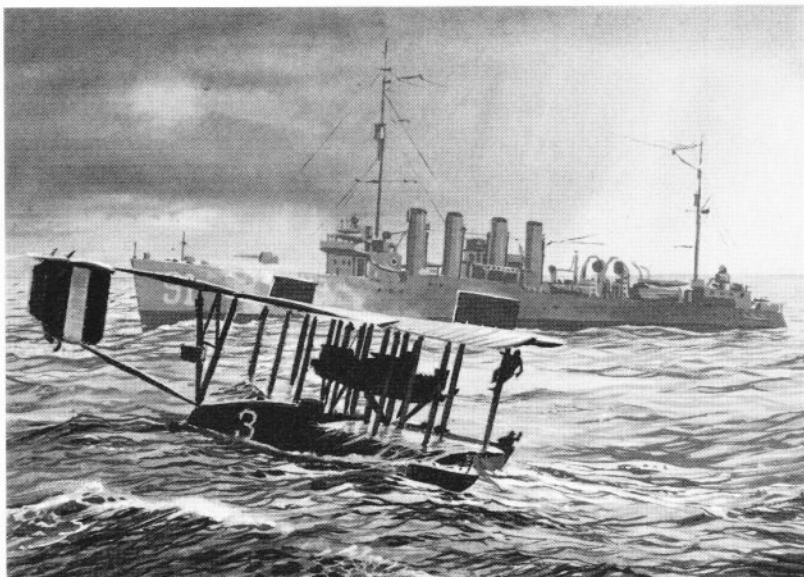


LCDR. READ relaxes (left) in harbor of Horta where he had landed near the USS *Columbia* (above). Just beyond Espamalaca Point (in photo at right), the NC-4 had made its first landing in the Bay of Praia.

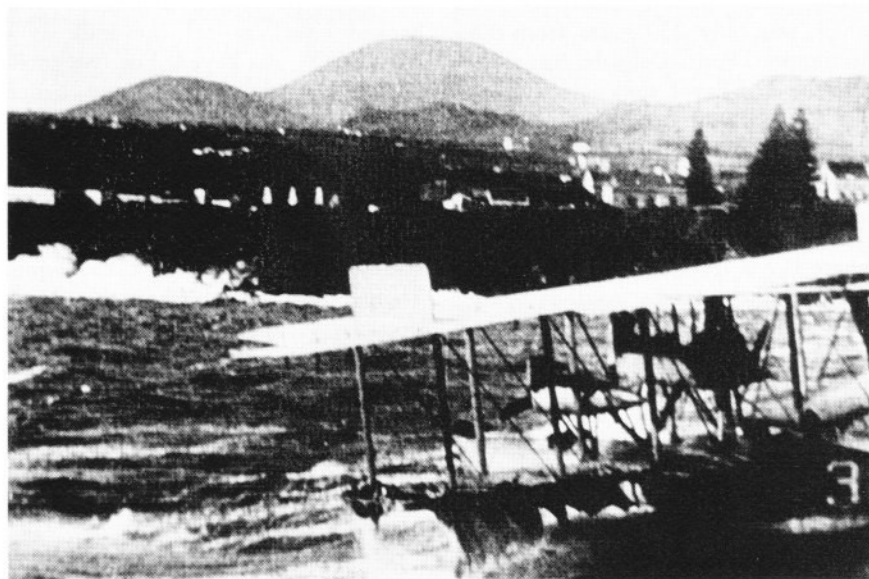


THE FIRST FLIGHT ACROSS THE ATLANTIC

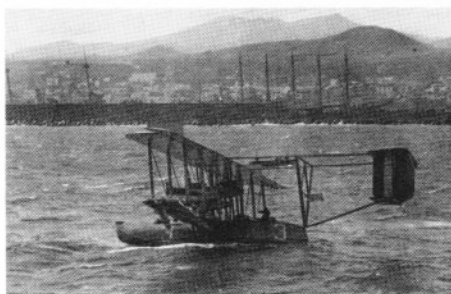
Cdr. Ted Wilbur



STAND OFF! *We're going in under our own power!"* shouts Towers to the USS Harding off Ponta Delgada. Commander Towers had been, since 1914, the driving force and guiding genius of the plan to cross the Atlantic in an American airplane.



NC-3 entered harbor of Ponta Delgada in the Azores on May 19, 1919, after Towers and his crew had sailed 205 miles through varying sea conditions.

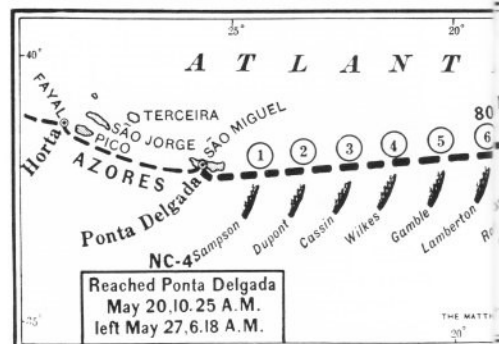


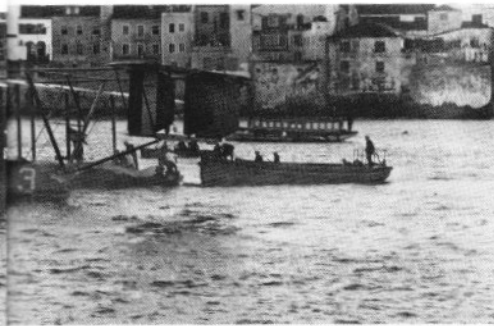
ON THE 18TH, weather was still so bad that Read and his men were forced to stay in Horta. In spite of gala celebrations and congratulatory messages from around the world, Read was concerned. There had been no word of Towers. On top of that, disturbing news came through from Canada. The British had made their move.

Stamped by Read's successful flight to the Azores, Hawker and Grieve set out to head off the Americans. During the afternoon, they had taken off from St. John's, jettisoning their Sopwith's landing gear to gain speed for the run to Ireland. An hour later, Raynham and Morgan tried to follow but their Martinsyde couldn't make it off the field. They crashed and Morgan was seriously injured.

By the next day, Hawker and Grieve had vanished over the North Atlantic. In view of the gallant effort, all England mourned and Lord Northcliffe donated the \$50,000 as a consolation prize to the flyers' widows.

On the 19th of May, a U.S. Marine battery stationed in the hills west of Ponta Delgada sighted something out to sea. As the destroyer *Harding* moved to lend assistance, John Towers stood in the heaving remnants of the





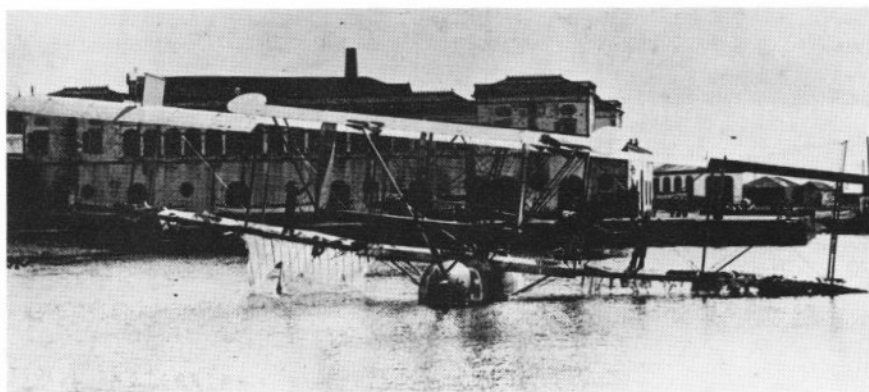
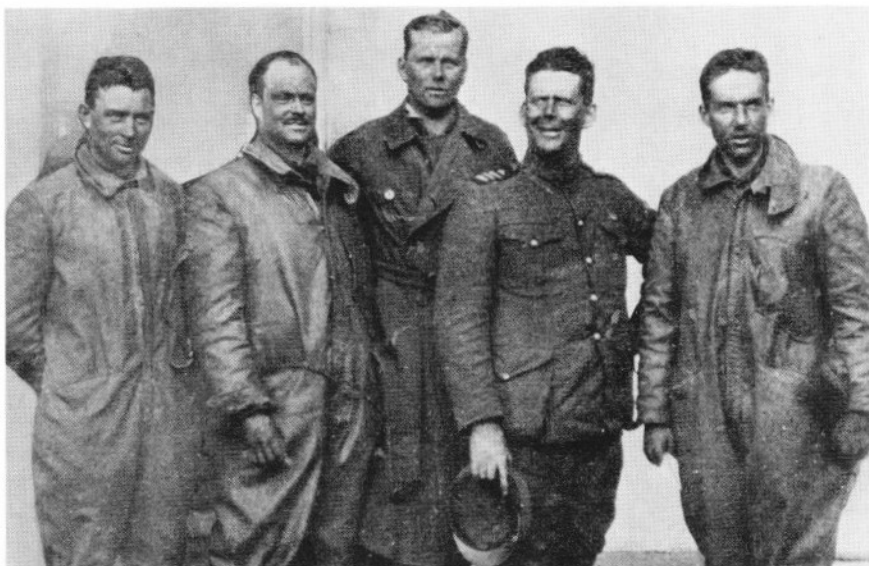
COMMANDER TOWERS and his men show weariness in photo below, taken upon their arrival in the Azores. From left to right are CMM L. R. Moore, LCdr. R. A. Lavender, Lt. D. H. McCulloch, Cdr. H. C. Richardson and Cdr. Towers. The NC-3 was disassembled and shipped to the Naval Aircraft Factory, Philadelphia to be restored to operational condition.

NC-3 and shouted, "Stand off! We're going in under our own power!" He and his crew had sailed the cracked and broken boat 205 miles, backwards, through violent seas to their destination. He didn't need help now.

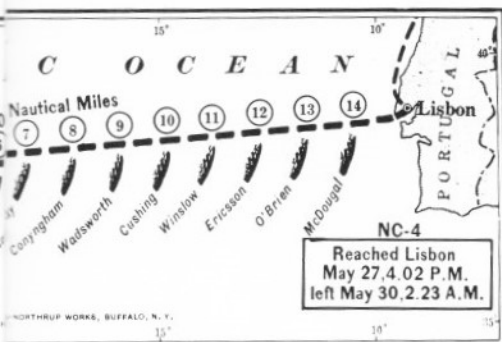
In spite of Towers' fantastic achievement, LCdr. Read was the popular hero. And so it came to be that when the NC-4 continued on to Lisbon and thence to England, Towers was not on board.

Now, when a fleet commander has his ship shot out from under him, he transfers his flag to another. The circumstance was parallel in Towers' case. Roosevelt thought so. But Josephus Daniels did not agree. Even when the question was raised on the floor of Congress, Secretary Daniels stood fast in his conviction that since Read had made it to the Azores in the NC-4, he should continue as her sole commander. Towers was forbidden even to ride along as a passenger; he was ordered to proceed to Plymouth aboard a destroyer.

It was a bitter pill for the man who was Commander of U.S. Seaplane Division One, a chief planner and organizing genius of the expedition, and it was a keen disappointment to the other members of the group, including Albert Read.

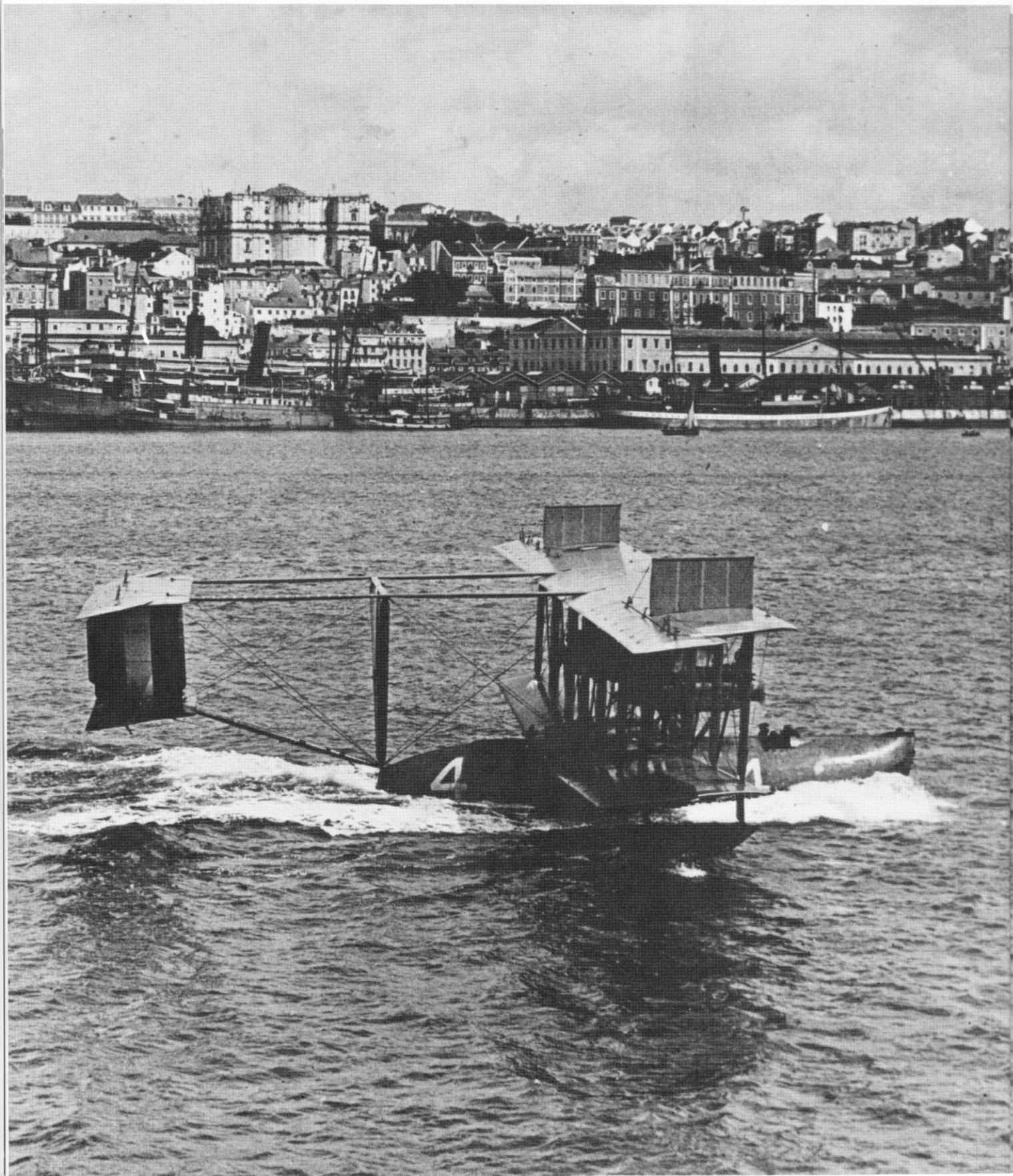


NC-4 lands at Ponta Delgada on May 20, 1919.



THE FIRST FLIGHT
ACROSS THE ATLANTIC

'We are safely across



the pond.

The job is finished!'

— LCdr. Albert C. Read



ARRIVAL of NC-4 in Lisbon (left) and apparent loss of Hawker and Grieve over the North Atlantic shattered British hopes of being the first to fly Atlantic. The Americans received worldwide acclaim and were feted in one gala celebration after the other.

THE REST is history. Read arrived in Lisbon harbor at twilight on May 27, 1919, the first man to cross the Atlantic by air. He “finished the job” four days later as the NC-4 landed at Plymouth. The last leg had been planned for “sentimental” reasons. Later, in London, he was pleased to grip the hand of Harry Hawker. The two British flyers had been forced down in the mid-Atlantic but managed to ditch near a passing ship. Lack of a wireless had postponed news of the rescue for several days.

The excitement over the flight of the NC-4 soon faded. Within two weeks the British team of Alcock and Brown accomplished what Hawker had set out to do. A month later, the dirigible R-34 flew from Scotland to New York — and then returned to England. More flights followed, including Dick Byrd’s, his dream of flying the Atlantic finally come true.

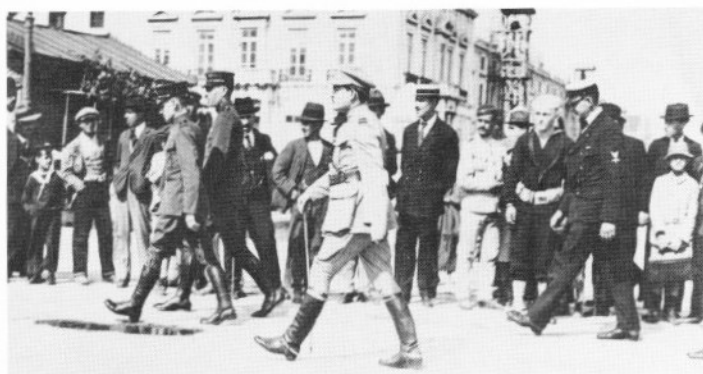


And for the men involved with the NC project, the future held divergent paths.

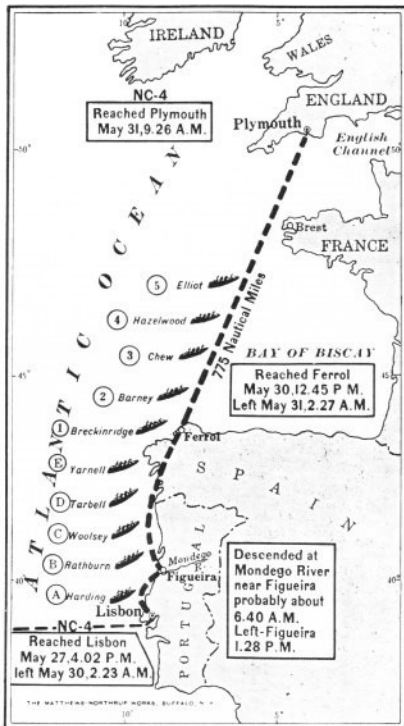
Glenn Curtiss, who had done so much for the development of aircraft in America, wearied of his courtroom battles with attorneys of the all-encompassing Wright aero patents. He moved to Florida where his investments in such holdings as Hialeah and Opa-locka paid handsome dividends: in five years, more than he had ever made in building airplanes.

Jim Breese, too, became a successful businessman, and Walter Hinton left the service to find adventure on the Amazon.

Most of the others stayed with the Navy, completing lengthy and, in some cases, illustrious careers. Bellinger, Byrd, Mitscher, Read and Towers all achieved flag rank. During World War II, Mitscher’s work with Task Force 58 earned him the title of “Admiral of the Marianas.” Later, Towers became Commander of the Pacific Fleet.



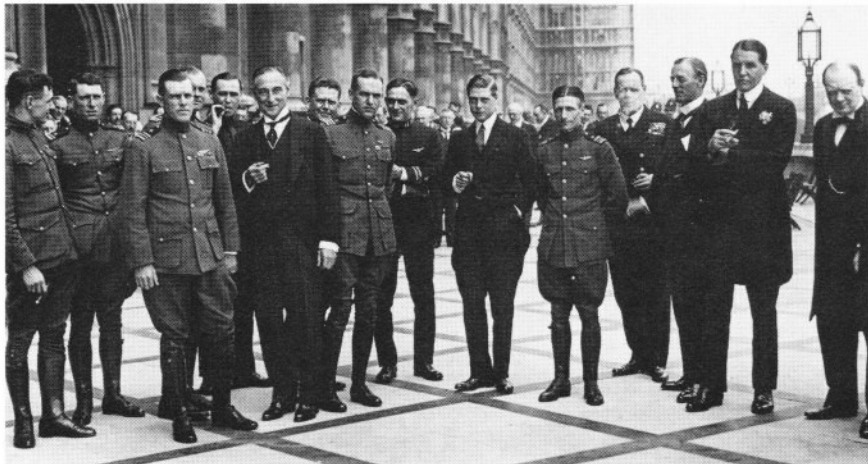
THE FIRST FLIGHT ACROSS THE ATLANTIC



TUMULTUOUS RECEPTIONS greeted LCdr. Read and crew in Plymouth. Flight from Portugal involved two stops en route.



LORD MAYOR of Plymouth (above) greets the crew. Later in London (right), the Americans receive heroes' welcome from Prince of Wales, Winston Churchill and officials.



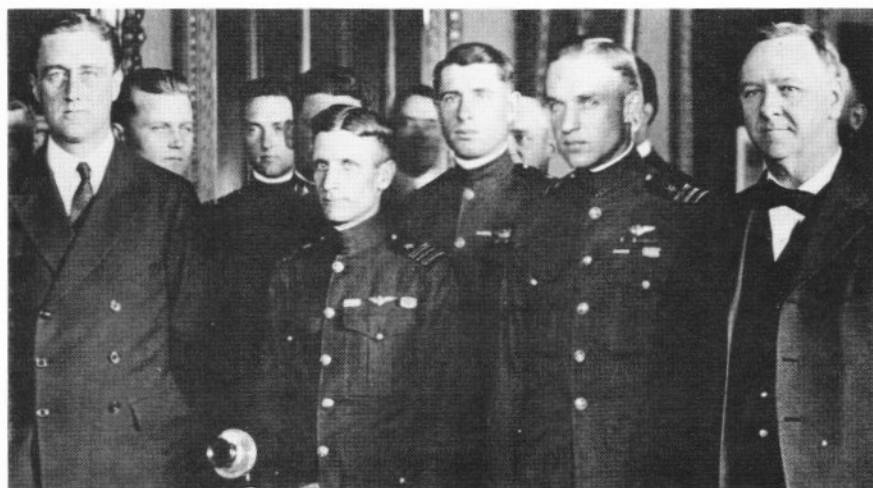


WIVES of the returning NC flyers await ship in Hoboken, N.J. (above left). Crews pose for photograph in Washington (left). The medallion (above) was presented to all hands by Glenn Curtiss at congratulatory banquet held in their honor in July 1919.

Norfolk Museum



... and a triumphant return!



NAVY 'WELL DONE' is expressed at a ceremony held in the Secretary's office. Left to right are Roosevelt, McCulloch, Byrd, Read, Hinton, Towers and Secretary of Navy Josephus Daniels. Meanwhile, the NC-4 was being overhauled and prepared

for an extensive Navy recruiting tour. The crew was honored by foreign decorations, but it was not until ten years later, in 1929, that a special medal (below) was struck by an Act of Congress. (Note misspelling of Chief Rhoads' name.)



VISION

EARLY IN 1919, a young Naval Aviator wrote an article which was published in the *Yale Graphic* regarding the preparations of the NC boats. He predicted that the expedition would "demonstrate that a flight across the Atlantic Ocean is a perfectly safe and sane commercial proposition and not a gigantic gamble." The visionary author was Juan Terry Trippe, destined to be founder, president and then chairman of the board, Pan American World Airways.

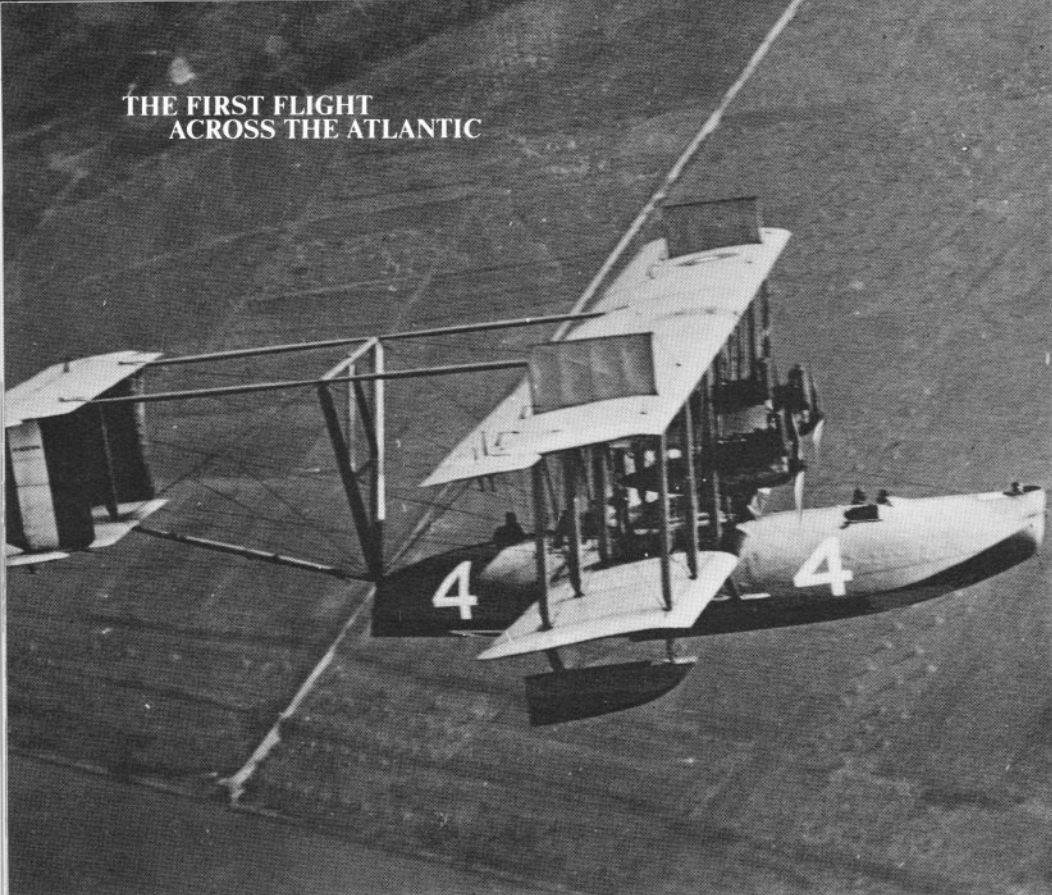
On May 20, 1939, 20 years to the day that the NC-4 flew from Horta to Ponta Delgada, Trippe was standing on a pier at Port Washington, New York, just on the other side of Long Island from Rockaway. He was watching the takeoff of his *Yankee Clipper* which was inaugurating the first regular trans-Atlantic air mail service.

The *Yankee Clipper* was a Boeing 314 flying boat, three times the weight of the NC-4. Just one of her Wright Cyclone engines had almost as much power as the NC-4's four *Liberty's*. Two days later, after a stop in Horta, the *Yankee Clipper* was in Lisbon. A month later, the *Dixie Clipper*, a sister ship, made the first flight of scheduled passenger service across the Atlantic.

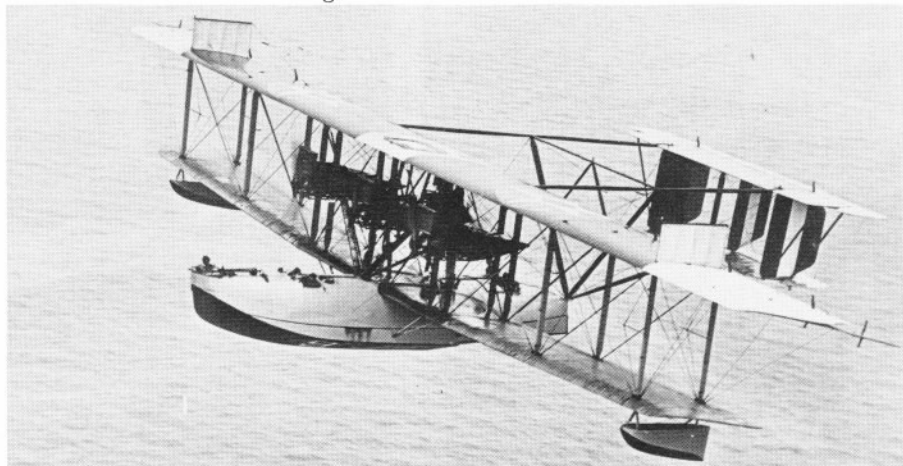
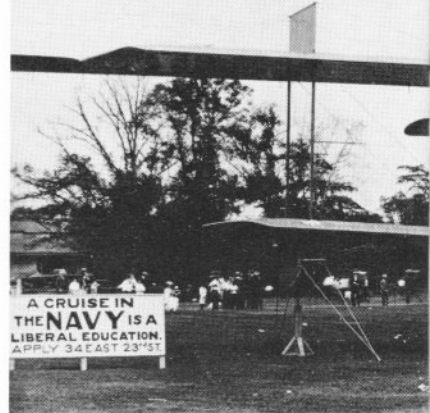
It was 20 years between the historic, pathfinding flight of the NC-4 and regular mail and passenger service. One can wonder who was the greater visionary in 1919: Juan Trippe, who predicted such a flight would be "safe and sane," or LCdr. Albert C. Read who wrote, "Anyone in the present age of new and startling inventions who says positively that we will never attain an altitude of 60,000 feet, will never fly at 500 miles an hour, or will never be able to cross to Europe in the forenoon and return in the afternoon, is a most courageous person, with a courage similar to that of those doubters in the olden days who proclaimed that iron or steel ships would never be successful."

Trippe and Read were both right.

THE FIRST FLIGHT ACROSS THE ATLANTIC

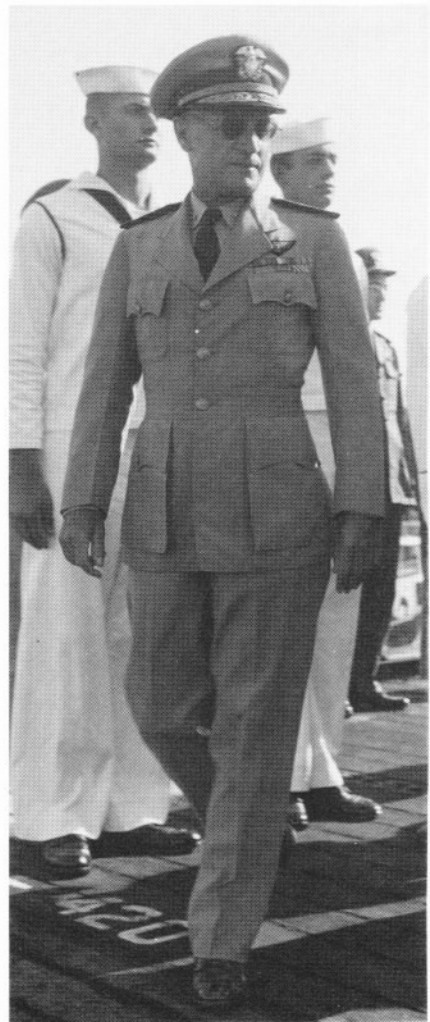


Overhauled NC-4 on recruiting tour in November 1919.



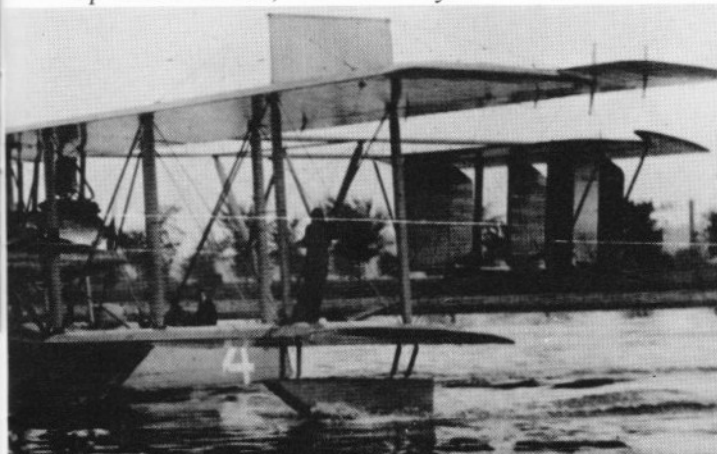
NC-9 made final operational flight in November 1922.

THE FIRST MAN to fly the Atlantic, Albert C. Read, took the NC-4 on a recruiting tour of 39 cities after his famous flight. During WW II, Rear Admiral Read served as Commander, Fleet Air Norfolk. In the photo at right, he conducts an inspection aboard USS Guadalcanal in 1944. . . . A total of ten NC-4 flying boats were built. The NC-5 through -10 were constructed in a three-engine configuration. Three of the planes were lost owing to difficulties associated with open sea landings and subsequent attempts to have them towed by ship.





Up in Central Park, New York City.

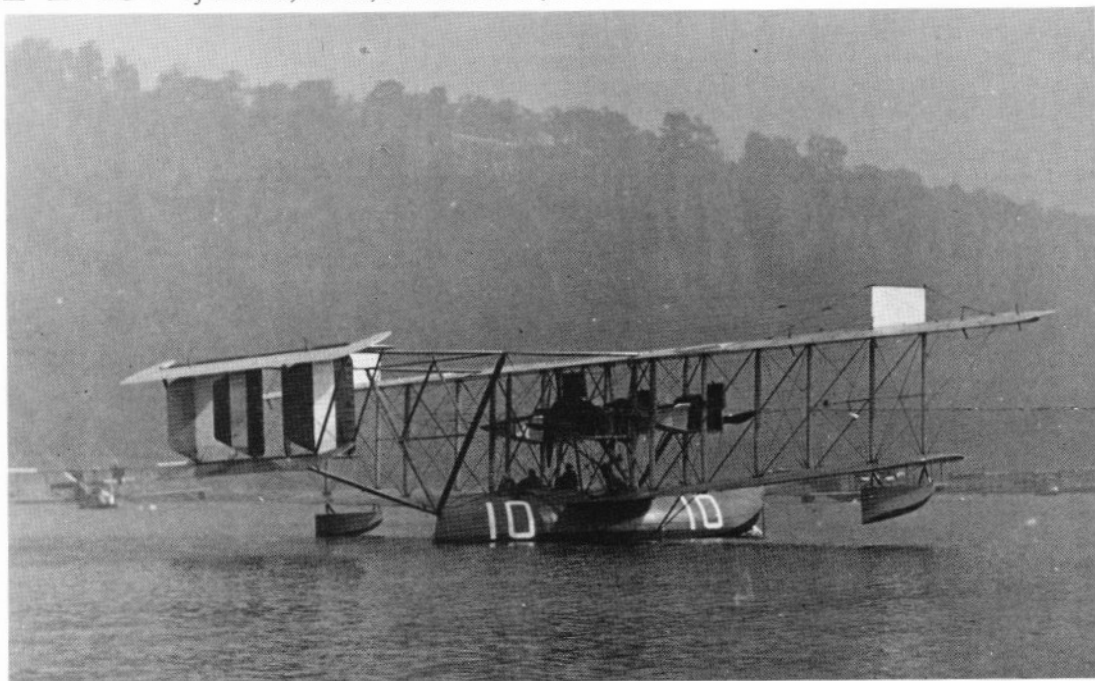


On Anacostia River, Washington, D. C.



NC-5, damaged under tow, was sunk by gunfire in 1921.

THE LAST *of a breed, NC-10, on North River, New York.*



and Fifty Years Later--restor

By Chief Journalist
James Johnston

The NC-4 was, in the beginning, for pioneer glider pilot Paul Garber a matter of professional interest, but in the years ahead it became an obsession.

Garber, recently retired assistant director of the National Air and Space Museum, first saw the flying boat at Rockaway Naval Air Station during the time of its preparation for the trans-Atlantic flight. He was a young man, then, with the air postal service. The next time he saw the NC-4, it had returned from Europe and had been put on display in New York's Central Park.

"I saw it twice in Washington, once at Anacostia, once on exhibit at the Washington Monument, and one other time in Philadelphia," he recalls.

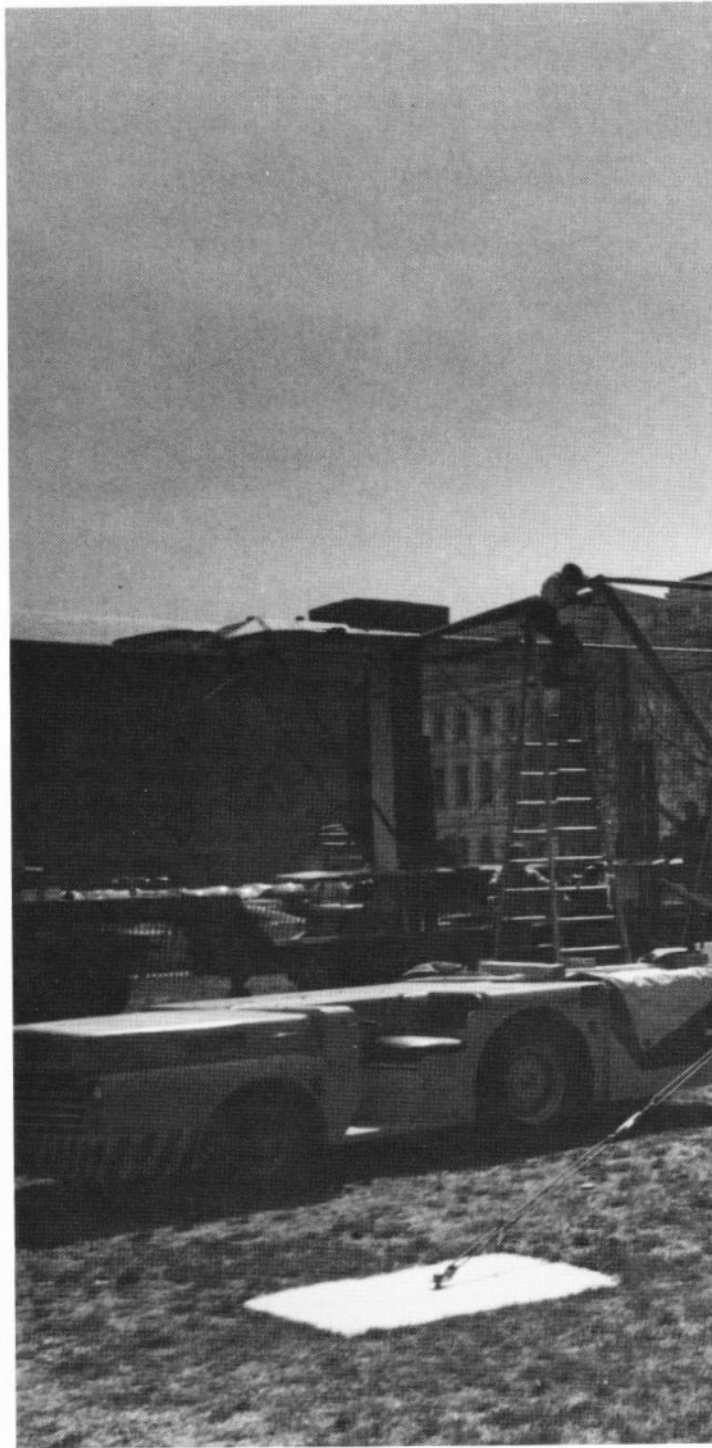
Throughout his years at the Smithsonian Institution, where he first went to work in 1920, Garber retained his enthusiasm for aircraft. When World War II broke out, Garber was commissioned in the Navy. By this time, he had begun efforts to have the NC-4 brought to the National Air Museum for preservation and display. He was unable to maintain close contact with the Smithsonian Institution during the war, but he did try to keep track of the NC-4 which he believed was stored at the Naval Gun Factory. He learned, however, that it was in Norfolk and, on a trip there, he visited the naval base to inquire about it.

"I found the airplane in a storage area in Norfolk," he said, "and a chief petty officer told me the buildings were being emptied and the contents would be moved elsewhere."

Garber, by this time desperate to salvage the famous flying boat, asked for an appointment with the base commander. By great good fortune, the Norfolk commander at the time was Rear Admiral Patrick N. L. Bellinger, who had been the pilot of the NC-1.

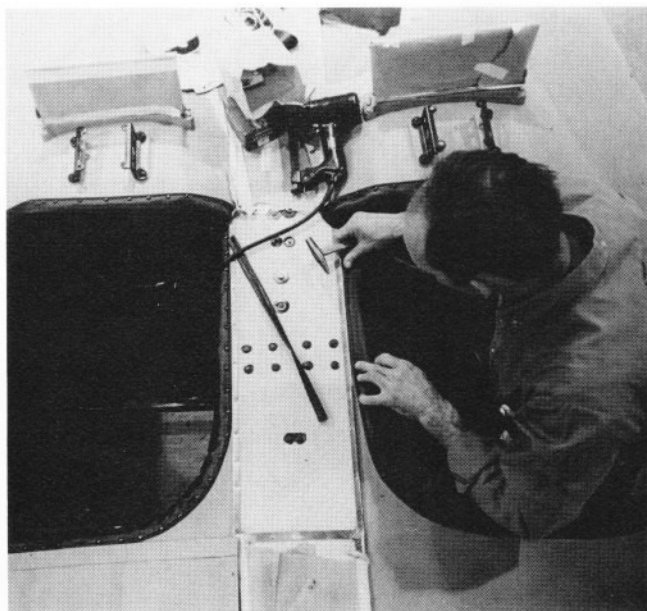
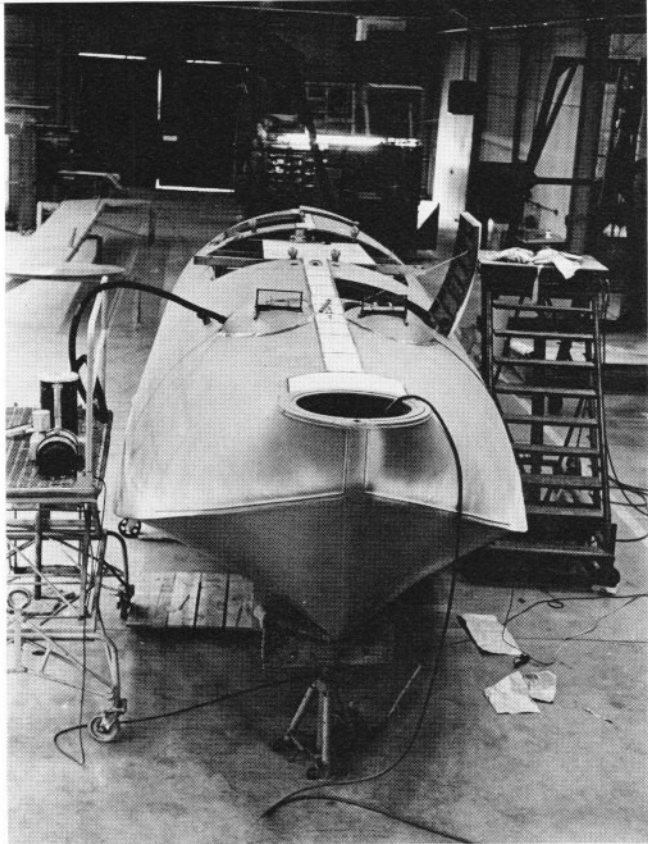
The admiral, of course, agreed with Garber that the NC-4 should be preserved and ordered the parts stored in a new location at Cheatham, Va. The seaplane remained in Cheatham until Garber, after World War II, arranged to have it moved to Washington and subsequently to the Air and Space Museum's preservation and restoration branch in Silver Hill, Md. The flying boat's hull was displayed in the museum in 1920, but its size and the lack of facilities precluded display in its entirety.

None the less, the restoration branch five years ago began restoring the airplane for eventual display in a new Air and Space Museum still being planned. Priority projects eventually pushed the NC-4 restoration into the background until two years ago when, with the 50th anniversary of the flight approaching, the Navy and the Smithsonian decided to refurbish the plane for display this summer.



ation





The NC-4 parts were scattered throughout two hangars at Silver Hill during the restoration. The hull (left) was strengthened inside with wooden braces and protected with three coats of gray paint. Walter Roderick added the final touches, cockpit upholstery (above). Meanwhile, still another group worked on the tail assembly.

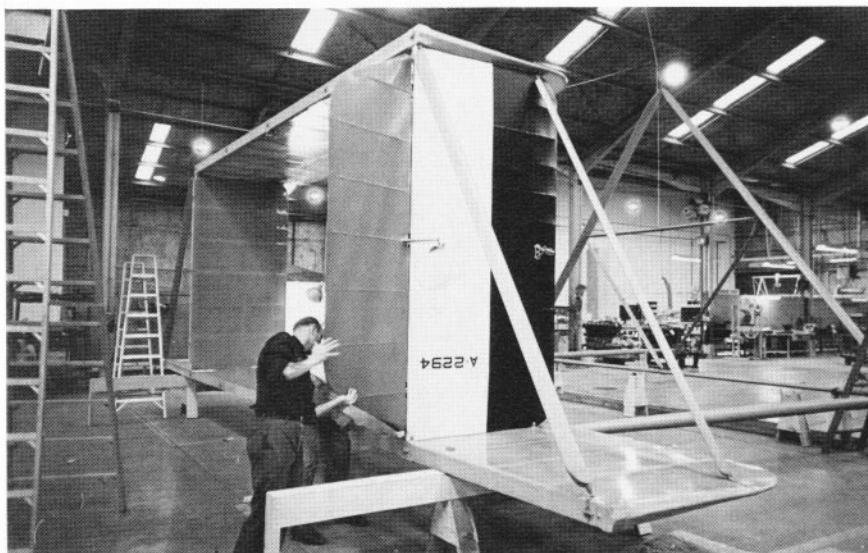
The NC-4 again took precedence in the restoration division, with the full crew devoting its entire time to the flying boat — no small task.

Chief of the restoration and preservation branch at Silver Hill, Donald K. Merchant, says, “The NC-4 is the largest project we have undertaken to date, and quite probably it is the largest we will ever attempt.”

Working over a two-year period on the engines alone, two men at Silver Hill have restored the four *Liberty* V-12's to mint condition. To do this, they disassembled the engines and rebuilt them.

At the same time, two other men were working on the wing sections. The NC-4 surfaces cover an area of more than 4,785 square feet. Each section was stripped down and re-covered with imported Irish linen, which is almost identical to the original material. Then three coats of dope were applied and, finally, six coats of color pigmentation were sprayed on.

The doping was, perhaps, the most frustrating aspect of the restoration. Humidity and temperature ranges for proper tautness and drying are critical — humidity of 40 to 50 percent in room temperatures, preferably 72 de-



grees. Therefore, the doping process frequently was delayed while the technicians awaited proper conditions. Additionally, each wing section has an average of 1,000 knots of rib stitching, all handsewn.

Simultaneously, but in another section of the Silver Hill hangars, another group of technicians worked on the hull. The 40-foot boat was reinforced from the inside with doublers and given three coats of gray paint. From

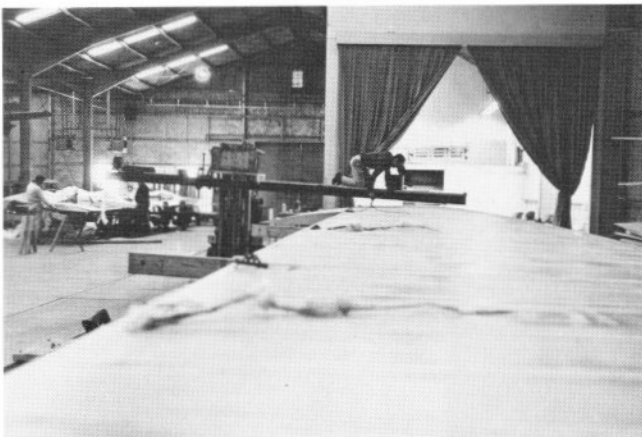
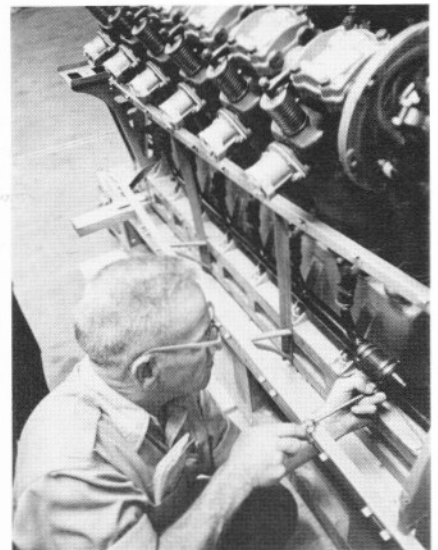
the waterline up, it was re-covered with fabric over the wood. About 70 feet of new rubber walkway were installed on the hull and on the angled engine struts.

Most of the cockpit had to be reconstructed, from the instrument panels to the upholstery on the seats and around the cockpits.

The work was progressing, but the anniversary date — May 8 — was



It takes most of the Silver Hill crew (left) to turn a wing panel over for painting. Walter Roderick (below, left) uses a platform to paint a wing panel while other technicians work on a panel in the background. Albert Griffith (below), who recently retired after 30 years at the Smithsonian Institution, works on one of the four Liberty V-12 engines. Griffith did most of the engine restoration work. In another building, the refurbished engines were placed on the center wing.

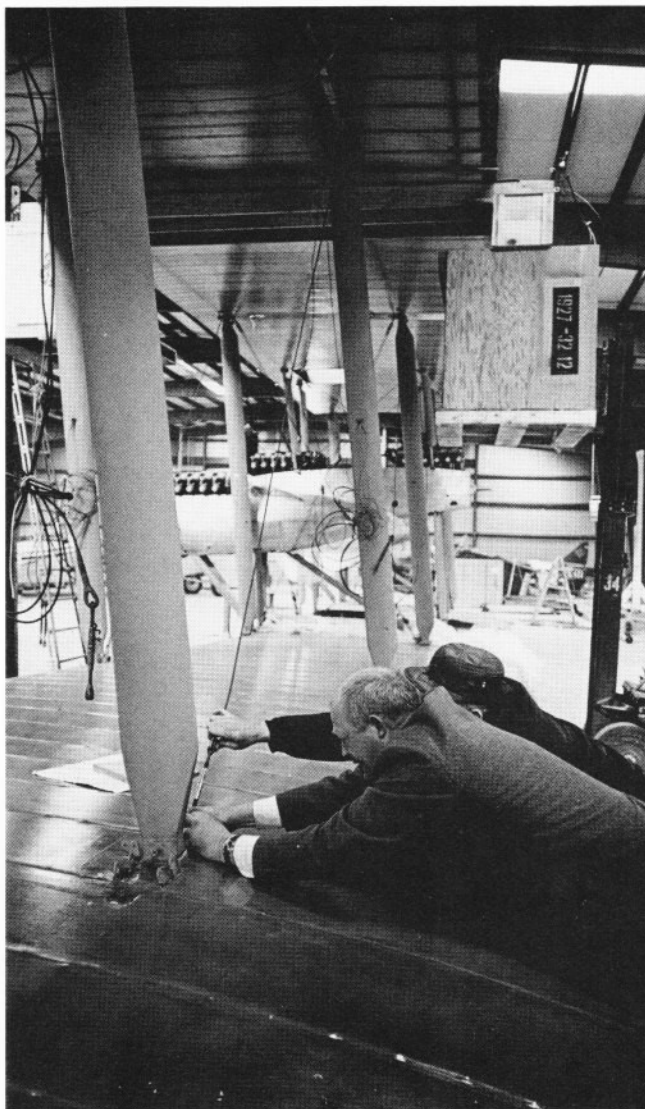
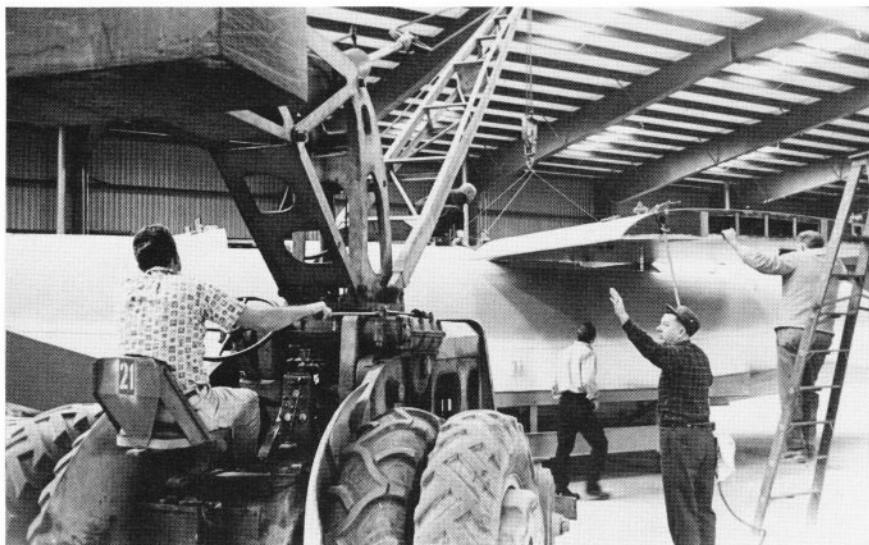


rapidly approaching, and there was still much work to be done on the flying boat. The Navy and Smithsonian Committee, with Commander C. A. E. Johnson, the Navy project coordinator, requested that three Navy enlisted men from NAF Washington be assigned to the NC project to help manufacture small parts and put the airplane together. The three men began working at Silver Hill in a temporary additional duty status the first of this year. Merchant says their work has proved invaluable. By March the restoration was nearing completion. The hull was finished for all practical purposes, with the "4" painted on the hull in six places.

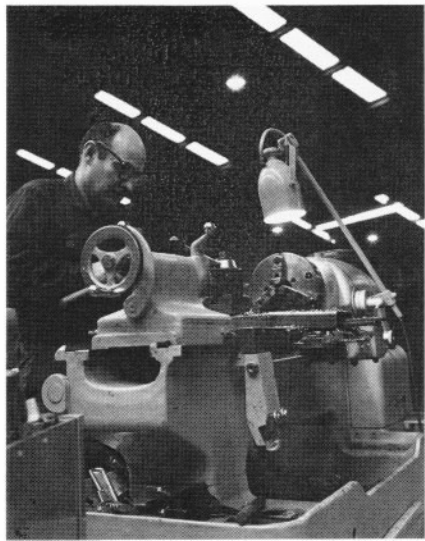
The technicians first fitted the lower center wing section to the hull to insure proper seating. Then the wind assembly was carried out in another hanger since none of the buildings at Silver Hill was large enough to accommodate the entire built-up flying boat. Starting with the center section, the four *Liberty* engines were slung. Then the outer panels, struts, cables and wires were fitted. Assembly took the crew the better part of a week.

The sections were disassembled for transportation downtown — about a ten-mile drive — for final reconstruction on the Mall near the Air and Space Museum.

That the success of the NC-4 flying boat marked a monumental milestone in the progress of world aviation is undeniable. Yet it was this plane of which it was said a little more than 50 years ago: "The machine . . . is impossible and is not likely to be of any use whatever."

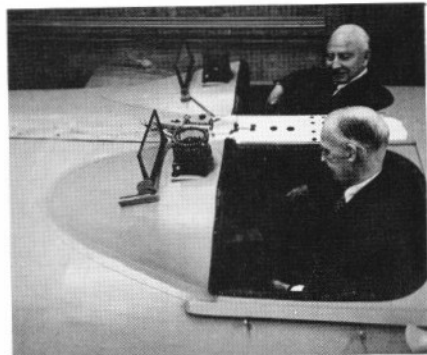


E. J. Thomas assistant chief of restoration, directs crane in fitting the center wing section. Donald K. Merchant (left), chief of restoration, and Thomas fit wires and cables on the wing section. Harvey Napier, machinist, makes small parts for the flying boat. Many of the original parts were lost or broken and had to be made for the NC-4.

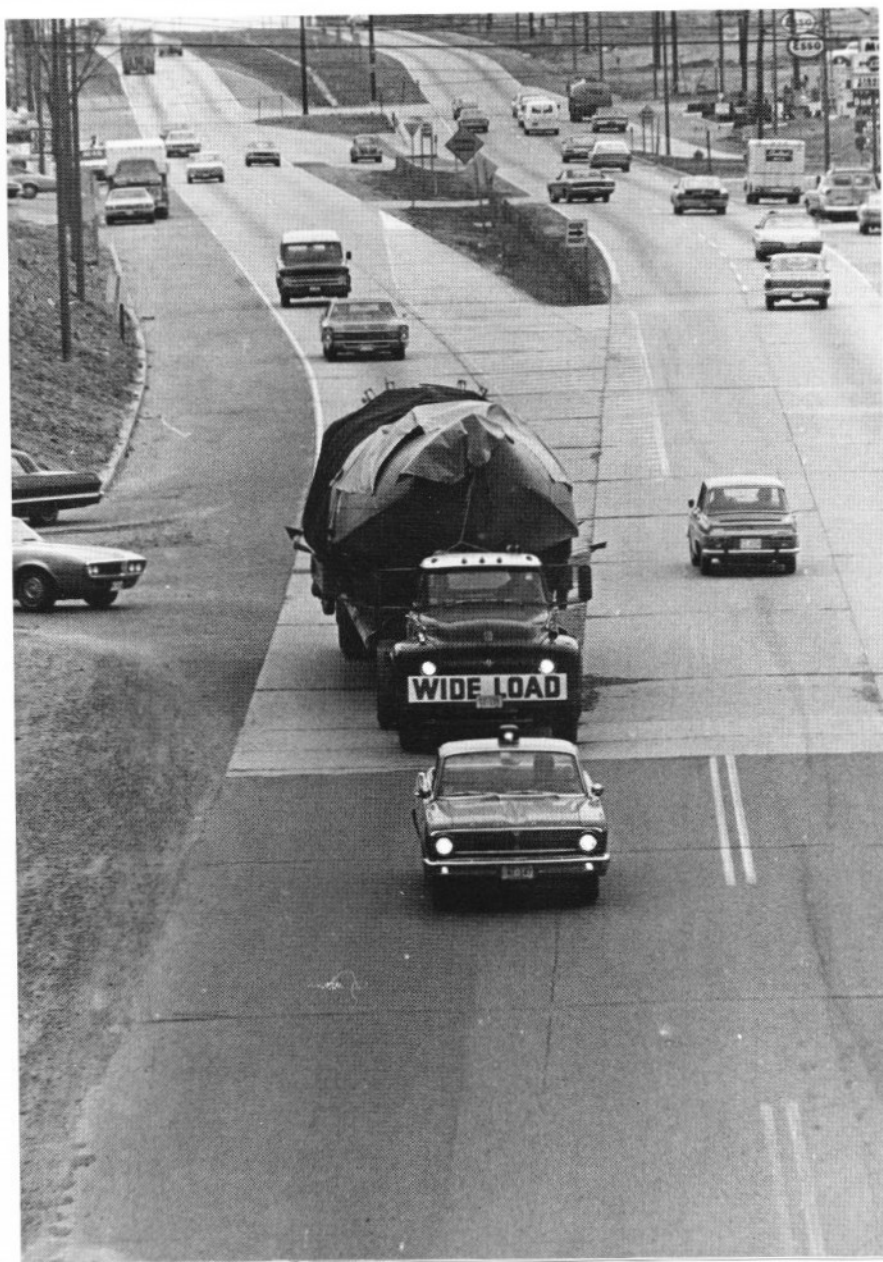


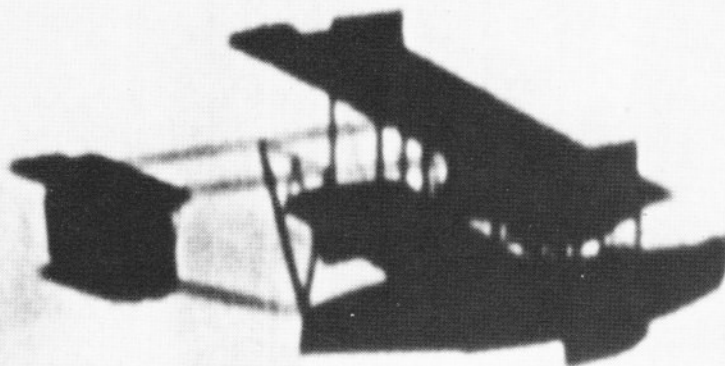


The three Navy men assigned to the NC-4 project from NAF Washington pose in front of the center wing section: (left to right) AMS2 Earl D. Campbell, ADR1 Edward Turner and AMSAN John W. Sargent. Below, VAdm. Thomas F. Connolly, DCNO (Air), and C. J. McCarthy, an early NC designer, in the NC-4 cockpit at the Silver Hill, Md., shop.



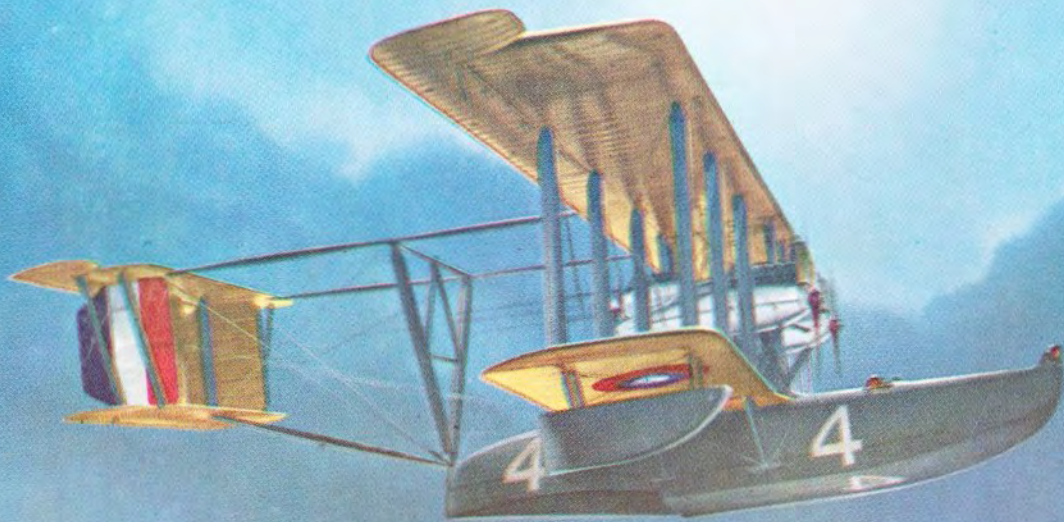
Commander C. A. E. Johnson, the Navy NC-4 project officer, poses in front of the hull. At right, Silver Hill technicians begin moving the huge seaplane from Silver Hill to the Mall for reconstruction and exhibit.





The author gratefully acknowledges the professional assistance of the following aviation historians: Mr. Adrian O. Van Wyen, Office of the Deputy Chief of Naval Operations (Air); Mr. Lee M. Pearson, Naval Air Systems Command; and Mr. Richard K. Smith, National Air and Space Museum, Smithsonian Institution. The technical assistance of Mr. Harold Andrews, Naval Air Systems Command, is also appreciated.

THE FIRST FLIGHT ACROSS THE ATLANTIC



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