

Test of Strength

1917–1919

A small group of pioneer Navy and Marine Corps aviators nurtured the early growth of naval aviation, but the program emerged from these early trials too poorly equipped to wage war. When the call came on 6 April 1917, the U.S. Fleet counted only one operating air station, 48 available aviators and students, and 54 aircraft on hand. Naval aviation expanded remarkably during the 19 months between the U.S. declaration of war with Germany and the Armistice. Air stations sprang up on both sides of the Atlantic. Officers established training programs at new air stations, on university campuses, and with private industry. The Naval Reserve Flying Corps produced thousands of aviators, ground officers, mechanics, and technical specialists. Aircraft of many types entered production, and Liberty aircraft engines advanced from concept to mass production and operation.

Naval aviation achieved a good wartime record despite the chaos generated by the speed and breadth of its expansion. One detachment became the first from the United States to reach France. Naval aircraft flew more than three million nautical miles and attacked and damaged 12 German submarines. By war's end Navy and Marine Corps squadrons had organized the Northern Bombing Group, which prepared a round-the-clock air campaign that was to have led toward the first strictly American air offensive of the war. When the fighting ended, Navy and Marine Corps aviators were flying from 27 stations in Europe, two in Canada, one in the Panama Canal Zone, one in the Azores islands, and 12 in the United States.

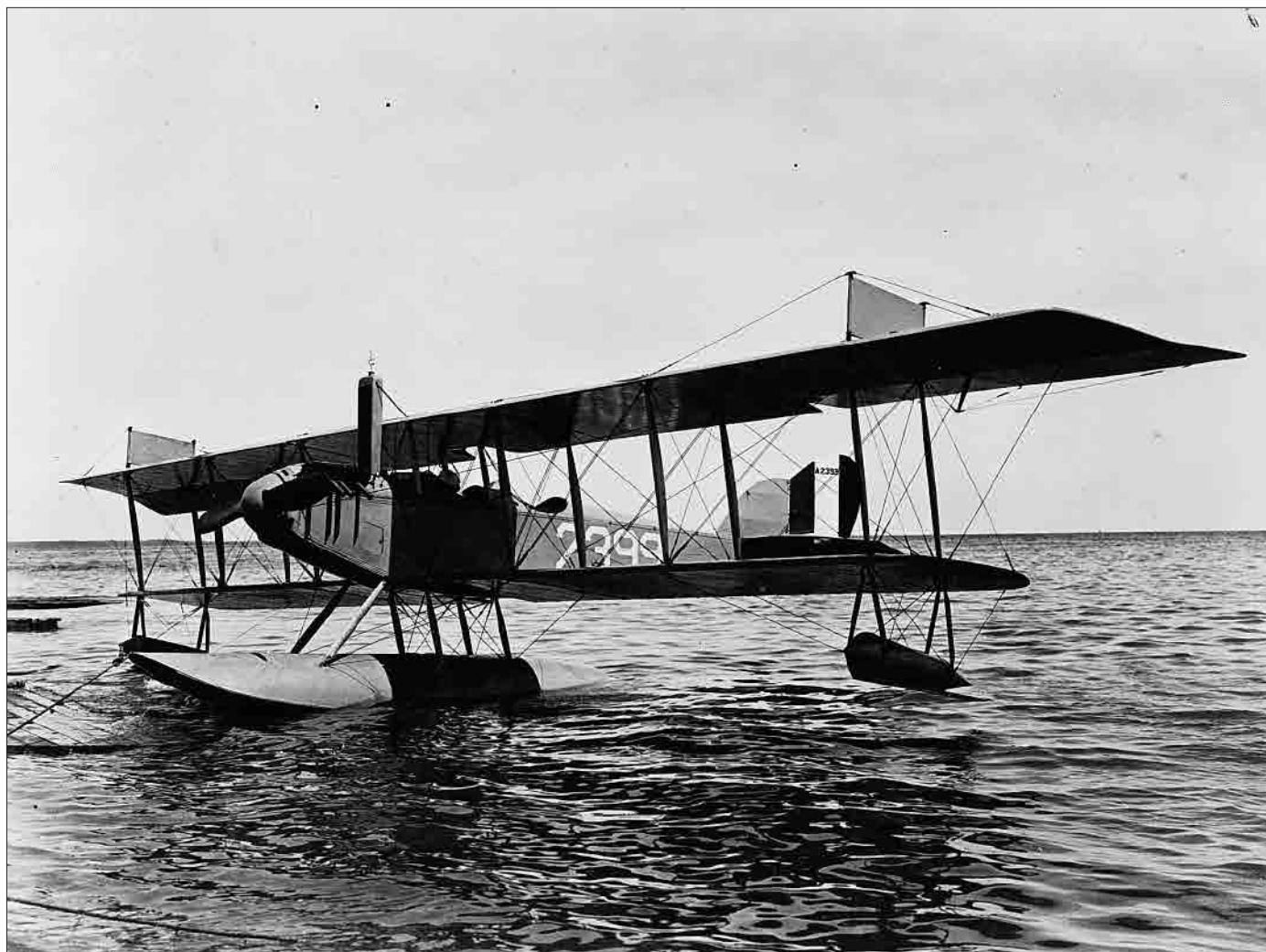
Naval aviation's outstanding technical product of the war arguably became long-distance flying boats. Although the designs progressed through HS-1s and H-16s to British Felixstowe F-5s, which the Americans converted into F-5Ls by installing superb Liberty engines, all of these aircraft types traced their ancestry to the earlier work of the designer and pilot Glenn H. Curtiss. The Curtiss NC-type

flying boats secured a place in aviation history in 1919 as the first aircraft to fly across the Atlantic. Flying boats evolved into impressive weapons, and many naval aviators urged the Navy to adopt them as the major means of taking airpower to sea. Other pilots held the opinion that aircraft should fly from warships of the fleet, and enthusiasts of lighter-than-air craft pointed to airship successes in the war and urged development of their specialty. Planners could not ignore the logic of these claims and the usefulness of these aeronautic types, and the 1920s witnessed development in lighter-than-air, flying boat, and shipboard design and operations. The sentiment in favor of aircraft carriers also gained currency, and in 1919 the Navy decided to convert a collier to a carrier. This decision represented a modest beginning for a program that occupied the attention of a host of shipbuilders, aircraft designers, and naval tacticians for years following World War I.

1917

6 JANUARY • A committee of Army and Navy officers recommended to Secretary of the Navy Josephus Daniels and Secretary of War Newton D. Baker the design and construction of an airship of the Zeppelin type under the direction of the Chief Constructor of the Navy, with funds provided equally by the Army and Navy. The committee also recommended the creation of a board of three Army and three Navy officers to ensure effective interservice cooperation in prosecution of the work. The secretaries approved the recommendation, which led to the appointment of the Joint Army and Navy Airship Board.

8 JANUARY • A Benet-Mercie machine gun installed in a flexible mount in the AH-10 hydroaeroplane performed satisfactorily during firing tests at altitudes of 100 and 200 feet above Pensacola, Fla.



A Burgess-built Curtiss N-9H seaplane with a Hispano-Suiza engine used for training.

10 JANUARY • The Navy initiated its first production order for aerial photographic equipment when the Naval Observatory issued requisitions for 20 aero cameras and accessories for manufacture by the Eastman Kodak Co.

15 JANUARY • *Seattle* (Armored Cruiser No. 11) arrived at Culebra, Puerto Rico, with an aviation detachment and aircraft on board for fleet exercises at the Southern Drill Grounds. Her air detachment operated from ship and temporary shore bases, and performed scouting and other missions in conjunction with fleet operations until 23 March.

4 FEBRUARY • Secretary of the Navy Josephus Daniels directed the procurement of 16 B-class nonrigid airships. Two days later the Navy issued specifications to five companies—Connecticut Aircraft Co., Curtiss Aeroplane and Motor Corp.,

Goodyear Tire & Rubber Co., B. F. Goodrich Co., and U.S. Rubber Co. This quantity proved beyond the capabilities of any one company, and only Connecticut Aircraft had any experience in building airships. On 19 March the Navy awarded contracts for two airships to Connecticut, three to Curtiss, two to Goodrich, and nine to Goodyear. The U.S. Rubber Co. was confined to providing fabric to Connecticut Aircraft.

5 FEBRUARY • Chief of Naval Operations Adm. William S. Benson recommended that eight aeronautic coastal patrol stations be established. The admiral did not mention specific sites but noted that planners were to consider locations “in the vicinity of” Massachusetts Bay; Newport, R.I.; New York City; Cape May, N.J.; Hampton Roads, Va.; Key West, Fla.; Galveston, Texas; and the Panama Canal Zone. Seven days later officers began suitability studies in these areas.

10 FEBRUARY • The National Advisory Committee for Aeronautics established a patent subcommittee with Lt. John H. Towers as a member. The necessity for this subcommittee arose from the threat of infringement suits brought by the holders of basic aeronautic patents that caused prohibitive prices for aircraft and general demoralization of the entire industry.

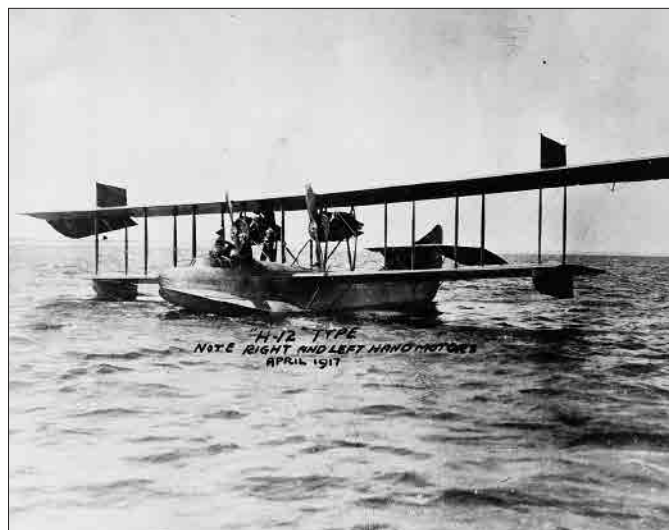
13 FEBRUARY • Capt. Francis T. Evans, USMC, performed the first loop with a seaplane in an N-9 at 3,000 feet over Pensacola, Fla. Evans then forced the craft into a spin and recovered, consequently receiving the Distinguished Flying Cross for this contribution to aviation.

12 MARCH • A committee of Army and Navy officers submitted the first interservice agreement regarding the development of aeronautic resources and aircraft operations. The Secretaries of War and Navy subsequently approved the agreement, which recognized a general division of aeronautical functions along lines traditional to the services but stressed the importance of joint development, organization, and operation.

13 MARCH • The Bureau of Construction and Repair directed that all seaplanes be finished in an opaque yellow color overall.

22 MARCH • A Bureau of Ordnance letter to Chief of Naval Operations Adm. William S. Benson listed machine guns under consideration for naval aviation: Colt, Marlin, and Vickers types for synchronized fire through propellers, and Benet-Mercie, Berther, Colt, Lewis, Marlin, and Vickers for all-round fire for observers.

24 MARCH • The First Yale Unit of 29 men enlisted in the Naval Reserve Flying Force and departed four days later to train at West Palm Beach, Fla. These volunteers became the first of several college groups to join as a unit for war service. Four of the Yale men subsequently attained distinguished positions: F. Trubee Davison became Assistant Secretary for War; Artemus L. Gates, Under Secretary of the Navy and Assistant Secretary of the Navy for Air; David S. Ingalls, Assistant Secretary of the Navy for Air; and Robert A. Lovett, Secretary of Defense. Commander, Naval Forces Operating in European Waters Rear Adm. William S. Sims later paid them tribute, stating, “Whenever the French and English



An H-12 twin-engine flying boat, April 1917.

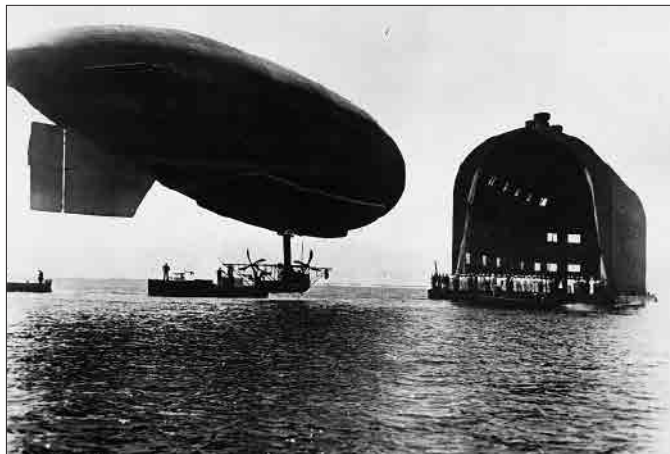
asked us to send a couple of our crack men to reinforce a squadron, I would say, ‘Let’s get some of the Yale gang.’”

6 APRIL • The United States declared that a state of war existed with the German Empire. The strength of naval aviation (Navy and Marine Corps combined) totaled 54 airplanes, 1 airship, 3 balloons, 1 air station, 48 officers, and 239 enlisted men.

6 APRIL • Following the approval of the recommendation of the Board on Flying Equipment, Secretary of the Navy Josephus Daniels established standard flight clothing for the Naval Flying Service and authorized its issuance as Title B equipage. The clothing consisted of a tan sheepskin long coat, short coat and trousers, moleskin hood, goggles, black leather gloves, soft leather boots, waders, brogans, and life belts.

7 APRIL • President Woodrow Wilson’s Executive Order 2587 directed the transfer of the Coast Guard from the Treasury Department to operate as part of the Navy until further orders.

14 APRIL • The Navy’s first guided missile effort began when the Naval Consulting Board recommended to the Secretary of the Navy the apportionment of \$50,000 to carry on experimental work on aerial torpedoes in the form of automatically controlled aeroplanes or aerial machines carrying high explosives.



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The Navy's first airship *DN-1* approaches its floating hangar during flight tests at Pensacola, Fla., April 1917.

20 APRIL • The Navy's first airship *DN-1* made its initial flight at Pensacola, Fla. The airship's performance proved unsatisfactory on several counts, and following two more flights this month the service grounded it and *DN-1* did not return to the air.

26 APRIL • The first dead-load tests on a catapult installed on board *Huntington* (Armored Cruiser No. 5) were performed at Mare Island Navy Yard, Calif. *Huntington* thus prepared for her employment as the Navy's third ship equipped to carry and operate aircraft.

27 APRIL • The Marine Aeronautic Company, Advance Base Force, under Capt. Alfred A. Cunningham, USMC, was established at Marine Barracks, Philadelphia Navy Yard, Pa., with the transfer of men from the Marine Aviation Section at Pensacola, Fla., other Marine Corps commands, and the Marine Corps Reserve Flying Corps to the new organization.

1 MAY • The Bureau of Navigation issued an aviation circular concerning expansion of the training program, calling for assignment of new classes every three months and the establishment of an 18-month-long course to qualify officers as pilots of either seaplanes or airships. The program also provided for training enlisted men as aviation mechanics, and selecting a few men for pilot training and qualification as quartermaster.

4 MAY • The Commandant of the First Naval District received direction to assume control of the Naval Militia station at Squantum, Mass., for use in air training. Also on

this day the Navy completed arrangements to take over the Naval Militia station at Bay Shore, N.Y. These were two of several actions taken immediately following the declaration of war to expand the flight training program during the construction of stations of a more permanent nature.

5 MAY • Secretary of War Newton D. Baker agreed to a proposal from the Secretary of the Navy concerning the establishment of a joint board for the purpose of standardizing the design and specifications of aircraft. The board subsequently established was initially called the "Joint Technical Board on Aircraft, Except Zeppelins."

5 MAY • Naval Aeronautic Station Pensacola, Fla., reported on a test firing of a Berthier machine gun made by Hopkins and Allen Arms Co., synchronized to fire through the propeller arc from an R-3 floatplane as it taxied on water and stood on the beach. Draftsman W. M. Fellers designed the synchronizing gear to keep projectiles from striking the propeller.

15 MAY • Secretary of the Navy Josephus Daniels established an order of precedence for work involved in the preparation for war, which placed "aircraft and their equipment" ninth on a list of 20 major fields of material procurement.

16 MAY • A resolution of the Council of National Defense established the Aircraft Production Board as a subsidiary agency to act in an advisory capacity on questions of aircraft production and procurement. Membership included a representative from each service, with Chief Constructor Rear Adm. David W. Taylor representing the Navy.

17 MAY • Secretary of the Navy Josephus Daniels requested the purchase of 50 aircraft machine guns synchronized to fire through the propeller arcs and 50 for all-around fire. The secretary noted that tests had determined that the belt-fed Vickers gun manufactured by the Colt Co. for the Army proved the most suitable for synchronized firing, and the 47-round magazine-fed Lewis gun manufactured by the Savage Arms Co. was best for all-around fire.

17 MAY • Capt. Noble E. Irwin received orders to the Material Branch to relieve Lt. John H. Towers as Officer in Charge of Aviation at the Office of the Chief of Naval Operations. Towers continued to assist Irwin but received

additional duty orders to the Bureau of Navigation as Supervisor, Naval Reserve Flying Corps.

17 MAY • To continue experimental work in aerial torpedoes the Navy presented plans to Sperry Co. to furnish six sets of automatic control gear, install five of them in Navy furnished N-9 seaplanes, and provide suitable testing grounds.

17 MAY • The Navy awarded a contract to the Curtiss Exhibition Co. to train 20 men of the Naval Reserve Flying Force as aviators at the company field at Newport News, Va.

18 MAY • Representatives from the Bureau of Standards demonstrated to Army and Navy officers experimental self-sealing fuel tanks consisting of double-walled galvanized iron containing layers of felt, gum rubber, and an Ivory soap-whiting paste.

19 MAY • General Order No. 299 described a distinguishing insignia for all U.S. government aircraft and directed its placement on all naval aircraft. The insignia called for a red disc within a white star on a blue circular field to be displayed on the wings and for red, white, and blue vertical bands on the rudder, with the blue forward.

19 MAY • The Secretary of the Navy directed the placement of the building (bureau) number of each aircraft in figures three inches high at the top of the white vertical band on each side of the rudder. As a result of this order, the practice of assigning numbers to aircraft using the AH prefix was discontinued and the building (bureau) or serial number became the sole means of identifying a particular aircraft.

19 MAY • The Chief of Naval Operations requested that two small seaplanes and one pilot be detailed for duty in connection with radio experimentation at Pensacola, Fla.

19 MAY • The Harvard unit, comprising seven student aviators, with Lt. Henry B. Cecil in charge, reported for flight instruction to the Curtiss Field at Newport News, Va.

23 MAY • The Joint Technical Board on Aircraft, Except Zeppelins, recommended that the initial production program to equip the Navy with the aircraft necessary for war consist of 300 school machines, 200 service seaplanes, 100 speed scouts, and 100 large seaplanes. The board recommended

N-9s and R-6s as the most satisfactory for school and service seaplanes, but determined that the scouts and large seaplanes were not sufficiently developed to permit a selection.

28 MAY • *Huntington* (Armored Cruiser No. 5) arrived from Mare Island, Calif., at Pensacola, Fla., where she participated in various aeronautic experiments involving the operation of seaplanes and kite balloons from her deck through 1 August.

29 MAY • The Navy awarded a contract to Goodyear Tire & Rubber Co. of Akron, Ohio, to train 20 men as lighter-than-air pilots.

30 MAY • Airship *B-1* completed an overnight test flight from Chicago, Ill., landing in a meadow ten miles from Akron, Ohio. Goodyear had manufactured *B-1* at Akron and assembled it in Chicago. Goodyear pilot Ralph H. Upson flew the airship on this flight. A crew of three consisting of a pilot, assistant pilot, and engineer manned subsequent B-class airships.

4 JUNE • The Aircraft Production Board and the Joint Technical Board on Aircraft, Except Zeppelins authorized construction of five prototype models of 8- and 12-cylinder Liberty motors. J. G. Vincent of the Packard Motor Car Co. and E. J. Hall of the Hall-Scott Motor Car Co. worked out the design of these engines—based on conservative engineering practices specially adapted to mass production techniques—in a hotel room in Washington, D.C.

5 JUNE • The First Aeronautic Detachment, Lt. Kenneth Whiting commanding, arrived on board the collier *Jupiter* (Fuel Ship No. 3) at Pauillac, France. This marked the deployment of the initial U.S. military command to that country during WWI. When the ship reached a position about 60 miles off the estuary of the Gironde River, lookouts spotted an apparent torpedo pass ahead of the ship and a second wake pass astern, indicating an attack by a German submarine. The detachment comprised 7 officers and 122 enlisted men and included an element on board the collier *Neptune* (Fuel Ship No. 8) that arrived at St. Nazaire three days later. The entire detachment completed offloading by 10 June. The men from *Jupiter* originally billeted on board a French receiving ship at Bordeaux, while those from *Neptune* housed at a French naval air station at Camaret. The French had requested the early deployment of the men to bolster allied morale.

11 JUNE • *Seattle* (Armored Cruiser No. 11) transferred all of her aviation sailors and planes ashore in preparation for convoy duty at the Brooklyn Navy Yard, N.Y. The men left the raised catapult on board but lowered and secured the apparatus to the deck so it would not interfere with normal operations at sea.

13 JUNE • NAS Dunkirk, France, was established as the first U.S. naval air station developed on foreign soil during WWI. The station was disestablished on 1 January 1919.

14 JUNE • The Navy let the first contract for construction of new patrol stations along the Atlantic coast, starting with sites located at Bay Shore, Montauk, and Rockaway on Long Island, N.Y.

17 JUNE • A joint Army-Navy team, called the Bolling Commission after its senior member Maj. Raynal C. Bolling, USA, sailed for Europe to study air developments among the allies and to recommend a policy and program for the American air services. The Navy members were Cmdr. George C. Westervelt and Lt. Warren G. Child. The commission met key allied leaders across England, France, and Italy including Commander-in-Chief, American Expeditionary Forces Gen. John J. Pershing, USA.

20 JUNE • The first R-5 twin-float seaplanes assigned to naval service were received at NAS Pensacola, Fla. R-type aircraft briefly served on cruisers, in flight training, and in a number of early experiments with torpedoes.

22 JUNE • Enlisted men of the First Aeronautic Detachment began preliminary flight training in Caudron landplanes under French instructors at the *Ecole d'Aviation Militaire* (Military Aviation School) at Tours, France. About the same time, 50 men of the detachment began training as mechanics at St. Raphael, France.

22 JUNE • Change No. 11 in uniform regulations became the first to make special provision for aviators. The change provided for a summer service flying uniform of Marine Corps khaki in the same pattern and design as service whites, to be worn when on immediate active duty with aircraft. The order also provided for a working dress uniform made as a coverall from canvas, khaki, or moleskin of the same color as the flying uniform.

28 JUNE • Landsman Thomas W. Barrett of the First Aeronautic Detachment was killed in an airplane crash during training at Tours, France. Barrett thus became the first member of naval aviation to die in that country during WWI.

4 JULY • The first eight-cylinder Liberty motor arrived for testing by the Bureau of Standards in Washington, D.C. The Packard Motor Car Co. had assembled the engine from parts made by manufacturers in various plants from Philadelphia, Pa., to Berkeley, Calif. The design, manufacture, and assembly of the motor required less than six weeks.

7 JULY • Commander First Aeronautic Detachment Lt. Kenneth Whiting cabled Secretary of the Navy Josephus Daniels the results of his negotiations with the French regarding training and establishment of air stations, and requested departmental approval. The French agreed to train the detachment at existing French Army aviation schools (pilots at Tours and mechanics at St. Raphael, both in France). They also agreed to start construction of three patrol stations—Dunkirk, which was established on 13 June; Le Croisic, on an island at the mouth of the Loire River; and St. Trojan, at the mouth of the Gironde River—and a training station at Moutchic near Lake Lancau, each for U.S. use.

9 JULY • A group of 24 potential naval aviators, Ens. Frederick S. Allen officer in charge, reported to the University of Toronto in Canada for the start of flight training under the British Royal Flying Corps (RFC). The U.S. Army and the RFC arranged for the instruction to include 25 men from the U.S. Navy in a contingent of 100 Americans for which the Canadians agreed to provide flight training.

10 JULY • A plan for training student officers of the Naval Reserve Flying Corps, which circulated for comment within the Navy, proposed a three-part program: a Ground School for indoctrination into the Navy and study of subjects related to aircraft and flight; a Preliminary Flight school for flight training through five to ten hours of solo flights; and a Completing Flight school for advanced flight training and qualification as a naval aviator and a commission as ensign, USNRF. The Navy implemented the plan without a formal directive, establishing the Ground School in late July and later dividing flight training into elementary and advanced courses.



HS flying boats moored at NAS Moutchic, France.

23 JULY • Ground instruction for prospective pilots and for aviation ground officers began at the Massachusetts Institute of Technology, with a class of 43 students comprising the Naval Air Detachment, Lt. Edward H. McKitterick commanding. In this and similar programs later established at the University of Washington, in Seattle and the Dunwoody Institute in Minneapolis, Minn., officers received indoctrination and introduction to the fundamentals of aviation. The Navy subsequently divided this training into elementary and advanced.

26 JULY • The Army and Navy Airship Board endorsed a proposal by the Bureau of Mines for the experimental production of helium and recommended the allotment of \$100,000 to construct a small plant for that purpose. Both departments subsequently approved the action, which initiated helium production in the United States.

27 JULY • Public Law 31 of the 65th Congress authorized President Woodrow Wilson to take possession of North Island, San Diego, Calif., for use by the Army and Navy in establishing permanent aviation stations and aviation schools. Lt. Earl W. Spencer arrived on 8 November under orders to establish and command a station for the purpose of training pilots and mechanics and conducting coastal patrols, marking the beginning of what became NAS North Island. Spencer trained these men at Balboa Park on the mainland until they began to move into permanent quarters on the island on 8 June 1918.

27 JULY • Construction of the Naval Aircraft Factory at the Philadelphia Navy Yard, Pa., was authorized for the purposes of constructing aircraft, undertaking aeronautical developments, and providing aircraft construction cost data. Ground was broken for the facility on 10 August.



NH 2493

Women at work at the Naval Aircraft Factory, Philadelphia, Pa.

8 AUGUST • Secretary of the Navy Josephus Daniels approved plans to establish one training and three coastal patrol stations in France. The decision marked the first of several such plans dealing with an overseas base construction program. The plan underwent successive expansion and ultimately provided 27 locations in France, England, Ireland, and Italy, from which naval aviation operated by the close of WWI.

14 AUGUST • An experiment initiated through the efforts of Rear Adm. Bradley A. Fiske and conducted by Lt. Edward O. McDonnell launched a dummy torpedo from beneath a wing of an F-5L flying boat at Huntington Bay, Long Island, N.Y. The weapon struck the water at an unfavorable angle, ricocheted, and nearly struck the plane. The experiment marked the beginning of serious Navy interest in launching torpedoes from aircraft.

15 AUGUST • The Bureau of Construction and Repair authorized the Curtiss Co. to paint the wings of naval aircraft with “English–Khaki–Gray–Enamel,” and all aircraft manufacturers to use either opaque yellow or clear varnish on floats and hulls. These variations to the color scheme that had been established the preceding March were followed by so many other exceptions that no standard existed during the next six months. The trend developed to use an opaque yellow finish for school machines and a khaki finish similar to that used on British aircraft for service machines.

16 AUGUST • The initial students of the First Aeronautic Detachment to complete the flight course at Tours, France,

transferred to Lake Hourtin, France, for training in Franco–British Aviation flying boats. These students completed training by November when 13 men received orders to Moutchic, France. Some of the other graduates went to St. Raphael, France, 12 of whom also received orders to the Army’s training school at Issoudun, France, for instruction in *Chasse* (chase or scout) planes and from there to Scotland for further hours in British machines.

25 AUGUST • Chief Constructor David W. Taylor initiated NC flying boat development in a memo to Naval Constructor Jerome C. Hunsaker that outlined certain general requirements of an airplane needed in war and directed his staff to investigate the subject further. Taylor stated, “The ‘United States Liberty Motor’ gives good promise of being a success, and if we can push ahead on the airplane end, it seems to me the submarine menace could be abated, even if not destroyed, from the air. The ideal solution would be big flying boats or the equivalent, which would be able to fly across the Atlantic to avoid difficulties of delivery, etc.”

25 AUGUST • The 12-cylinder Liberty motor passed a 50-hour test, with a power output of 301 to 320 hp, preliminary to entering mass production.

31 AUGUST • NAS Moutchic, France, was established as a flight and ground training station, Lt. John L. Callan commanding. Meanwhile, NAS Montauk, N.Y., was also established earlier in the month, Lt. Marc A. Mitscher (Naval Aviator No. 33) commanding. The Navy operated Montauk initially as a seaplane patrol station but later expanded the facilities to include lighter-than-air operations. NAS Moutchic was disestablished on 1 January 1919.

4 SEPTEMBER • The technical members of the Bolling Commission submitted a report to the Secretaries of War and Navy following the commission’s return from studying air developments in Europe. Their recommendations included assigning air measures precedence over all other air measures against submarines, establishing and operating as many coastal patrol stations in Europe as possible, and obtaining European aircraft for use at those stations until more satisfactory types manufactured in the United States became available.



HS-1L flying boats at NAS Tréguier, France, used to patrol the English Channel for German submarines.

7 SEPTEMBER • An R-6 flying from NAS Pensacola, Fla., sent radio signals to operators at Naval Radio Station New Orleans, La., approximately 140 miles distant. The successful test led to additional orders for 300 Simon radio transmitters.

7 SEPTEMBER • Secretary of the Navy Josephus Daniels approved a change in the uniform regulations which authorized a forestry green winter service flying uniform, of the same design as the summer uniform, for all officers assigned to aviation duty.

7 SEPTEMBER • Secretary of the Navy Josephus Daniels approved a change in the uniform regulations designating a winged fowl anchor with the letters "U.S." as the official device to be worn on the left breast by all qualified Navy and Marine Corps aviators. An additional change, approved on 12 October, directed the deletion of the letters "U.S." from the design, establishing the basic form of the device, which is still in use today.

8 SEPTEMBER • NAS Hampton Roads, Va., was established as an air training station and patrol base to conduct experimental work in seaplane operations at Naval

Operating Base Hampton Roads, Va. Detachments under training at the Curtiss School at Newport News, Va., and at Squantum, Mass., were transferred to the naval air station the following month.

17 SEPTEMBER • *Huntington* (Armored Cruiser No. 5) passed through European waters during the morning and hoisted observer Lt. j.g. Henry W. Hoyt aloft in a kite balloon. When Hoyt reached about 400 feet, the temperature suddenly dropped, causing the balloon to descend almost 200 feet. As sailors worked to haul the balloon down, a sudden squall slammed the balloon into the water. Hoyt was knocked from the basket and the balloon's rigging entangled him underwater. Shipfitter First Class Patrick McGunigal noted his plight and jumped overboard, clearing the tangle and putting a bowline around Hoyt. Men hauled the observer on deck, and McGunigal subsequently received the Medal of Honor.

17 SEPTEMBER • Secretary of the Navy Josephus Daniels approved the establishment of 15 overseas naval air stations equipped for seaplane missions to be operational by 1 July 1918. Five of these stations were also to support airship and kite balloon operations.

18 SEPTEMBER • The Joint Technical Board on Aircraft, Except Zeppelins, established a production program of 1,700 operational aircraft of the following Curtiss types under consideration: 235 H-16 and 825 HS-1 flying boats and 640 R-6 seaplanes.

26 SEPTEMBER • The Naval Air Detachment at Akron, Ohio, Lt. Louis H. Maxfield commanding, reported the qualification of 11 students, including Maxfield, as lighter-than-air pilots and requested their designation as Naval Aviator (Dirigible). These men became the first to accomplish training specifically as dirigible pilots and subsequently received naval aviator numbers ranging from 94 to 104.

27 SEPTEMBER • Ens. Robert A. Lovett, USNRF, made the first flight in a Franco–British Aviation flying boat, BuNo A-295, at NAS Moutchic, France. Lovett had also directed the assembly of the aircraft and subsequently became the fourth Secretary of Defense.

6 OCTOBER • Secretary of War Newton D. Baker authorized the Navy to use a part of the Army landing field at Anacostia, D.C., to erect and maintain a seaplane hangar. The terms of use were laid out in a revocable license beginning on 1 November and ending within six months of the war's conclusion, and with the understanding that the Army was to have use of the Navy area at any time.

6 OCTOBER • NAS Cape May, N.J., was established as a seaplane and lighter-than-air patrol station. The First Marine Aeronautic Company trained here from 14 October until its departure for the Azores on 9 January 1918.

11 OCTOBER • *North Carolina* (Armored Cruiser No. 12) completed the removal of her catapult, aircraft, and all aeronautics gear at the Brooklyn Navy Yard, N.Y.

13 OCTOBER • *Huntington* (Armored Cruiser No. 5) transferred her aeronautic equipment ashore at New York City, N.Y., marking the end of the operational test of aircraft on board three warships, which had started with *North Carolina* (Armored Cruiser No. 12) in 1916.

14 OCTOBER • The Marine Aeronautic Company at Philadelphia, Pa., was divided into the First Aviation

Squadron composed of 24 officers and 237 men, and the First Marine Aeronautic Company composed of 10 officers and 93 men. On the same day the First Marine Aeronautic Company transferred for training in seaplanes and flying boats to NAS Cape May, N.J., and three days later the First Aviation Squadron transferred for training in landplanes to the Army field at Mineola on Long Island, N.Y.

21 OCTOBER • An HS-1 made the first successful Navy flight test of a 12-cylinder Liberty engine at Buffalo, N.Y. The flying boat climbed 4,000 feet in ten minutes and attained a speed of 95 mph at 1,680 rpm using the No. 3 experimental engine. This flight and other successful demonstrations led to the adoption of both the engine and the airplane as standard service types. The engine subsequently received the designation L-12.

22 OCTOBER • The Ground School program at the Massachusetts Institute of Technology expanded to include special courses to train men as inspectors, with 14 students enrolled. The program was eventually established as an inspector school and met the expanding need for qualified inspectors of aeronautical material by producing 58 motor and 114 airplane inspectors before the end of the war.

24 OCTOBER • U.S. Naval Aviation Forces, Foreign Service, which had evolved from the First Aeronautic Detachment, became operational when Capt. Hutch I. Cone relieved Lt. Cmdr. Kenneth Whiting of command over all naval aviation forces abroad.

24 OCTOBER • Routine instruction in flight and ground courses began at NAS Moutchic, France.

2 NOVEMBER • Twelve men organized as the Second Yale Unit who undertook flight training at their own expense at Buffalo, N.Y., received commissions as ensigns, USNRF. The pilots soon thereafter received their designations as naval aviators.

5 NOVEMBER • To coordinate the aviation program Officer in Charge of Aviation Capt. Noble E. Irwin requested that representatives of bureaus having cognizance over some phase of the program meet each week to discuss and expedite all matters pertaining to aviation.

9 NOVEMBER • The Argentinean government granted permission to use as instructors in the ground school at Pensacola, Fla., three Argentine naval officers who had recently qualified as U.S. naval aviators—Lt. Ricardo Fitzsimmon Jr., Lt. Carlos F. Pichon Jr., and Lt. Marco A. Zar.

10 NOVEMBER • A Navy “flying bomb” manufactured by the Curtiss Co. arrived for testing at the Sperry Flying Field at Copiague on Long Island, N.Y. Designers intended the flying bomb (also called an aerial torpedo) for automatic operation carrying 1,000 pounds of explosive, with a range of 50 miles and a top speed of 90 mph. In addition to this specially designed aircraft, N-9s received conversions for automatic operations as flying bombs that closely resembled subsequent guided missiles.

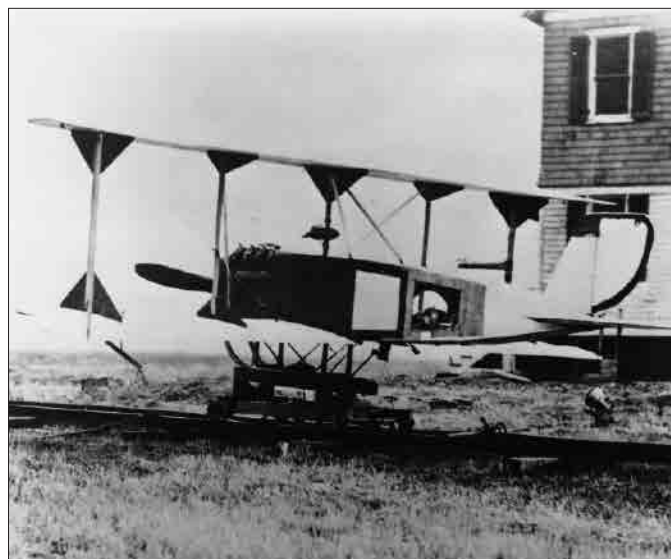
14 NOVEMBER • Secretary of War Newton D. Baker approved a recommendation “that priority be given by the War Department to naval needs for aviation material necessary to equip and arm seaplane bases.” This was a major step toward the expansion of the Navy’s aircraft production.

15 NOVEMBER • The National Advisory Committee for Aeronautics’ Subcommittee on Standardization and Investigation of Material established a committee to intensify efforts to develop light metal alloys for aeronautical use. The members included Naval Constructor Jerome C. Hunsaker.

18 NOVEMBER • Naval aviation began aerial coastal patrols in European waters from Le Croisic, France. Lt. j.g. Reginald C. Coombe and Ens. Henry H. Landon of the First Yale Unit piloted a pair of Tellier flying boats on a two hour familiarization flight. The aircraft were unarmed because they had not received ordnance. A consignment of bombs reached Le Croisic two days later, enabling the station’s planes to stand ready to fly combat patrols.

21 NOVEMBER • Chief Signal Officer Maj. Gen. George O. Squier, USA, witnessed a demonstration of the N-9 flying bomb at Amityville, Long Island, N.Y. The Army subsequently established a parallel aerial torpedo project.

22 NOVEMBER • Pilot Ens. Kenneth R. Smith, USNRF (Naval Aviator No. 87), and crewmembers Electrician Homer M. Wilkinson and Machinist’s Mate Second Class T. J. Brady flew Seaplane No. 87, a Tellier flying boat, from Le

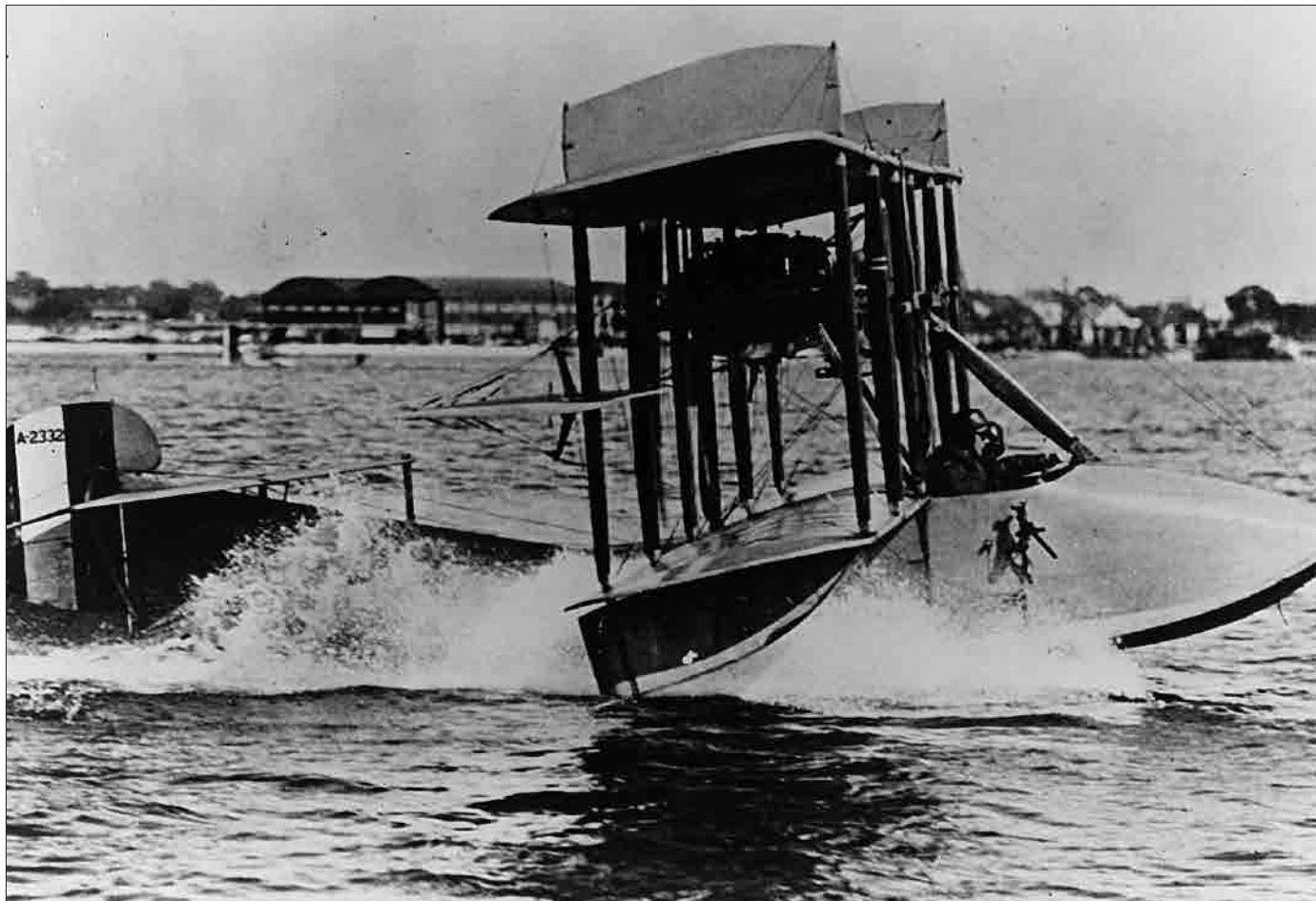


The Curtiss “flying bomb” is the predecessor of today’s guided missiles.

Croisic, France, to investigate reports of up to four German submarines that had been spotted south of Belle-Île. This was the first armed patrol by a U.S. naval aviator in European waters. The aircraft’s motor died, forcing Smith to make a “tail to wind” landing in rough water. Two days later, a French destroyer rescued the survivors minutes before the damaged plane sank about 25 miles southeast of Rochebonne.

22 NOVEMBER • Commander, U.S. Naval Aviation Forces, Foreign Service Capt. Hutch I. Cone reported to Commander, U.S. Naval Forces Operating in European Waters Vice Adm. William S. Sims that they had allotted for 16 seaplanes, 20 officers, and 183 men at each of 15 planned stations ashore. Six of these stations were under consideration for development in the United Kingdom and nine in France. Lighter-than-air allotments included four airships and a complement of 15 officers and 198 men each at three stations in France, and 6 kite balloons, 13 officers, and 60 men each at three stations in the United Kingdom (Ireland). The school at NAS Moutchic required 9 officers, 150 men, and a repair and assembly base. The program also needed a further store depot and receiving barracks to be established at NAS Pauillac, France, and 75 officers and men in Paris and at the headquarters in London for a total of 870 officers and 8,454 men.

24 NOVEMBER • Chief of Naval Operations Adm. William S. Benson issued a report regarding the development of aircraft torpedoes and torpedo planes, in which he pointed



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The two-seat Curtiss Model F, at Pensacola, Fla., in 1918, was the standard Navy flying boat trainer.

out that available aircraft could carry no more than a 600-pound ordnance load, and were thus incapable of delivering a torpedo with an explosive charge large enough to seriously damage large, modern warships. These concerns hindered torpedo plane development in WWI and beyond.

27 NOVEMBER • NAS Le Croisic, France, was established, Lt. William M. Corry commanding. It was disestablished on 28 January 1919.

1 DECEMBER • NAS Pauillac, France, was established as an assembly and repair station supporting naval air stations in France. It was disestablished on 15 February 1919.

5 DECEMBER • The secretaries of the War and Navy departments established a policy regarding helicopter development on the basis of recommendations made by the Joint Technical Board on Aircraft, Except Zeppelins.

The members recognized the need for improvements in power plants and propellers in order to successfully obtain a helicopter, but limited support of development efforts to moral encouragement of potential vendors until they demonstrated a helicopter of military value.

7 DECEMBER • The Navy initiated fighter aircraft development with the Secretary of the Navy's authorization for the Curtiss HA type, subsequently known as the "Dunkirk Fighter." Planners intended the aircraft to function in the escort and air superiority role over the French coast from Calais to Dunkirk. Dual synchronized machine guns forward and dual flexible machine guns in the rear cockpit equipped the two-man, single-pontoon seaplane.

7 DECEMBER • Naval Aeronautic Station Pensacola, Fla., was redesignated Naval Air Station (NAS) Pensacola.

15 DECEMBER • The Marine Aeronautic Detachment, Capt. Roy S. Geiger, USMC, commanding, activated at Marine Barracks, Philadelphia Navy Yard, Pa.

18 DECEMBER • NAS Key West, Fla., was established chiefly as an elementary flight training station and as a base for limited patrol operations.

22 DECEMBER • The start of classes with a single student enrolled marked the addition of an Aerography School in the training program at the Massachusetts Institute of Technology. The school carried out a major portion of the new instruction program at the Blue Hill Observatory at Harvard University, Mass., but held some classes at the Aerographic Laboratory on the MIT campus. Fifty-four men qualified as aerologists by the end of the war.

31 DECEMBER • The First Aviation Squadron of the Marine Corps, Capt. William M. McIlvain, USMC (Naval Aviator No. 12), commanding, transferred from Mineola, N.Y., to Gerstner Field, Lake Charles, La., for advanced training in landplanes.

1918

JANUARY • NAS Chatham, Mass., Lt. Edward H. McKitterick commanding, was established.

JANUARY • During the New Year a detachment of about 12 American volunteer chase pilots from Escadrille (squadron) N124 of the French Aéronautique Militaire (Army Air Service), popularly known as the Escadrille Lafayette, offered their services to naval aviation. Several of the men had seen action over the lines and officers recognized the value of their experience for pursuit operations at Dunkirk. Following their release from French service the men enrolled as ensigns and traveled to NAS Moutchic, France, for training in seaplanes.

1 JANUARY • The Experimental and Test Department at Pensacola, Fla., transferred to NAS Hampton Roads, Va., to overcome difficulties arising from the Florida location's remoteness from the principal manufacturing and industrial areas.

18 JANUARY • During a nighttime raid the Germans bombed the French air station adjacent to NAS Dunkirk, France. Four bombs destroyed seven French HD-2 seaplane fighters and a large wooden hangar. Another four bombs landed between NAS Dunkirk and Chantier de France, the nearest of which knocked out windows and cut several holes in the storehouse and pay office. About 50 men from NAS Dunkirk helped the French fight fires, and the Americans subsequently loaned their allies four HD-2s for temporary use. The Germans struck again on the night of 21 January and a small bomb tore out the end of the mess hall. At about 0100 the Germans fired a 15-inch gun, and during the battle several ships steaming offshore opened fire. At least six large caliber and several smaller rounds impacted within the perimeter of the station but failed to inflict casualties. Enemy aircraft returned three nights later, and a bomb shattered the windows of the commanding officer's office. The Germans frequently bombed the area during the succeeding days but did not inflict significant damage. This was the first instance of enemy aerial bombardment of naval aviation facilities on record.

19 JANUARY • NAS Anacostia, D.C., was established to provide a base for short test flights, as well as housing and repair services for seaplanes on test flights from NAS Hampton Roads, Va., and the Army station at Langley Field, Va., and to display new seaplanes for study.

22 JANUARY • The 12 officers and 133 enlisted men of the First Marine Aeronautic Company, Capt. Francis T. Evans, USMC, commanding, disembarked from the transport *Hancock* escorted by *Beale* (Destroyer No. 40) and *Terry* (Destroyer No. 25) at Naval Base 13 at Ponta Delgada in the Azores. Commander Azores Detachment Rear Adm. Herbert O. Dunn also arrived on board the ship and six days later hoisted his flag aloft. This marked the arrival of the first trained and equipped American aviation command to be deployed overseas during WWI. The Marines subsequently flew antisubmarine patrols over convoy lanes in the Azores area with two N-9s and ten R-6s, later reinforced by six HS-2Ls.

25 JANUARY • Supervisor, Naval Reserve Flying Corps requested that the director of Harvard University's Blue Hill Observatory, Dr. Alexander G. McAdie, be enrolled as a lieutenant commander in the Naval Reserve, and that he be

assigned to the Chief of Naval Operations Aviation Office to create a Naval Aerological Organization.

3 FEBRUARY • Aerial gunnery training for prospective naval aviators and enlisted men began under British Royal Flying Corps instructors at the Army's field at Camp Taliaferro near Fort Worth, Texas.

3 FEBRUARY • Work began on a lighter-than-air station for airships at Gujan southwest of Bordeaux, France. The station never became operational because of frequent delays resulting from material transportation difficulties and the necessity of using the men there for other work. The Navy returned the facility to the French on 15 January 1919.

4 FEBRUARY • NAS Fromentine, France, was established. Aircraft began to fly seaplane patrols from the facility the following July. It was disestablished on 28 January 1919.

8 FEBRUARY • General Order No. 364 promulgated a change in national aircraft insignia, which replaced the white star on the outer sections of the wings, above and below, with concentric circles of red and blue around white, and reversed the order of the red, white, and blue vertical bands on the rudder, placing the red nearest the rudder post.

10 FEBRUARY • The Marine Aeronautic Detachment, Capt. Roy S. Geiger, USMC, commanding, transferred to operate water-based aircraft from Marine Barracks, Philadelphia Navy Yard, Pa., to NAS Miami, Fla. The detachment consequently moved to nearby Marine Flying Field, Miami.

13 FEBRUARY • Lt. Grattan C. Dichman took command of the U.S. air station at Brest, France, which served as a base for seaplane and kite balloon operations, and as an assembly plant for aircraft shipped overseas. This began what became NAS Brest, which was disestablished on 15 February 1919.

15 FEBRUARY • Two H-12s—one with pilot Ens. Albert D. Sturtevant, copilot British Flight Lt. C. C. Purdy, and crewmembers S. J. Holeridge and A. H. Stevenson, and the other with a South African pilot named Faux and copilot British Flight Lt. C. W. Bailey—departed the British station at Felixstowe, England, to escort a convoy to Dutch waters. At least five German W.29 fighter floatplanes, Oberleutnant

Friedrich Christiansen commanding, attacked the two aircraft. Faux managed to escape, but the Germans shot down Sturtevant. British and German eyewitnesses reported that the Americans continued to fire as they fell. Sturtevant posthumously received the Navy Cross for this action and for previous patrols over the North Sea, and became the first U.S. naval aviator to fall in battle with enemy forces.

16 FEBRUARY • A German submarine appeared off L'Aber-Brach, France, in view of men ashore but departed without incident. French islanders told the Americans that prior to the arrival of the naval aviation detachment, German submarines often shelled sailing craft or power boats at sea just off the coast.

21 FEBRUARY • The Italian and United States flags rose simultaneously over the establishment of NAS Bolsena, Italy, Ens. William B. Atwater commanding. The first of two air stations opened in that country during WWI, Bolsena operated primarily as a flying school. U.S. naval aviation operations in Italy consisted of training American pilots on Italian machines, conducting bombing raids on Austro-Hungarian targets including the naval fortress at Pola, and flying as chase pilots with Italian planes that contended the Habsburg advance in autumn 1918. Plans for the establishment of several additional stations in Italy were cancelled following the Armistice, and NAS Bolsena was disestablished on 2 January 1919.

22 FEBRUARY • Officer in Charge of Aviation Capt. Noble E. Irwin asked the Director of Naval Communications to provide wireless transmitting and receiving equipment to permit pilots on patrol to communicate with the naval air stations at Cape May, N.J.; Chatham, Mass.; Montauk and Rockaway, N.Y.; Key West, Fla.; San Diego, Calif.; and Coco Solo, Panama Canal Zone. The following May officers expanded this request to cover all naval air stations.

22 FEBRUARY • NAS Queenstown, Ireland, was established, Lt. Cmdr. Paul J. Peyton commanding. The facility served as the assembly and repair station for all naval air stations in Ireland. Aircraft began to fly patrols from Queenstown on 30 September. NAS Queenstown was disestablished on 10 April 1919.

26 FEBRUARY • Recognizing the importance of data on weather phenomena in the upper atmosphere to flight operations, and acting largely on the recommendations of Lt. Cmdr. Alexander G. McAdie, formerly of Harvard University's Blue Hill Observatory, Mass., the Chief of Naval Operations established an allowance list of aerographic equipment for air stations abroad.

28 FEBRUARY • President Woodrow Wilson issued Proclamation No. 1432, effective in 30 days but published in General Order No. 407 of 8 July. This order prohibited private flying over the United States, as well as its territorial waters and possessions, without a special license issued by the Joint Army and Navy Board on Aeronautic Cognizance.

1 MARCH • NAS Paimboeuf, France, was established as the Americans assumed control of the airship station there, Lt. Cmdr. Louis H. Maxfield commanding. Several U.S. naval aviators had served with the French at Paimboeuf since November 1917. Prior to the Armistice the U.S. Navy obtained 12 airships from the French, but the station at Paimboeuf was the only airship facility that became operational before war's end. NAS Paimboeuf was disestablished on 26 January 1919.

6 MARCH • The Bureau of Navigation established instrument allowances for naval aircraft, allotting a compass, two altimeters, and a clock for service in seaplanes and flying boats; a compass, altimeter, clock, and statoscope for airships and free balloons; and an altimeter and clock for kite balloons and training planes.

6 MARCH • A falling-weight type catapult launched an unmanned flying-bomb type plane that flew 1,000 yards at the Sperry Flying Field at Copiague on Long Island, N.Y.

7 MARCH • Wartime expansion drove the establishment of the Office of the Director of Naval Aviation in the Office of the Chief of Naval Operations and the expansion of the Aviation Section into a division.

9 MARCH • The Navy initiated a revised training program for naval aviators (seaplanes), which provided that following a period of general training, all student aviators were to specialize in one of three general types of seaplanes—fighting scouts, light fast bombing, and patrol. In addition,

the change divided the program into elementary, advanced, and advanced specialization courses and designated the stations at which the respective courses were to be given.

11 MARCH • Work began on an airship station at Guipavas near Brest, France, Lt. J. F. Maloney commanding. Planners originally scheduled the station for establishment on 15 November and it consequently failed to open prior to the Armistice. The Americans returned the facility to the French on 13 January 1919.

14 MARCH • NAS Ile Tudy, France, was established, 1st Lt. Charles E. Sugden, USCG, commanding. NAS Ile Tudy was disestablished on 25 January 1919.

15 MARCH • The Bureau of Construction and Repair directed that all new naval aircraft be painted in low-visibility naval gray enamel.

17 MARCH • Twenty-two kite balloon pilots arrived at Liverpool, England, and received orders to British Royal Naval Air Station Roehampton to commence instruction. Upon graduation the men detached to kite balloon stations in Britain and France. Ten additional kite balloon pilots arrived in May 1918 for duty in France.

19 MARCH • As combat operations underlined the need for aviation intelligence officers Commander, U.S. Naval Aviation Forces, Foreign Service Capt. Hutch I. Cone distributed a circular letter to his subordinate commands defining the duties and functions performed by such officers at British Royal Navy air stations, with the suggestion that provisions for similar services be made at naval air stations "as may seem expedient." Supplementary letters clarified the duties and functions, and on 31 October it was specifically stated that aviation intelligence officers be specially trained for this work.

19 MARCH • A formation of flying boats flew a long-range reconnaissance mission over the Heligoland Bight off the German coast. German seaplanes attacked the planes, and pilot Ens. Stephan Potter, USNRF (Naval Aviator No. 130), shot down one of the attackers to receive credit as the first U.S. naval aviator to shoot down an enemy seaplane, an exploit for which he also received the Navy Cross. Potter had trained with the Second Yale Unit at the Curtiss plant at Buffalo, N.Y.



The first H-16 flying boat built at the Naval Aircraft Factory, Philadelphia, Pa., leaves the assembly building.

21 MARCH • Thousands of German guns opened fire on the allied lines to begin Operation Michael, the first of a series of German offensives along the Western Front in France, and allied leaders feared an enemy drive on Paris. The French began to move some government offices and industrial facilities from the vicinity of the capital to other areas of the country, including arrangements for sections of the headquarters of U.S. naval aviation in France to relocate to NAS Pauillac.

21 MARCH • Curtiss test pilot Roland Rohlfs and observer Capt. Bernard L. Smith, USMC, made the first flight of the prototype HA seaplane, or “Dunkirk Fighter,” BuNo A-2278, at Port Washington on Long Island, N.Y. During the fighter’s second flight on 15 April the aircraft capsized and was heavily damaged. A fire destroyed the plane on 7 August.

25 MARCH • Ens. John F. McNamara made the first attack on an enemy submarine by a U.S. naval aviator during a flight from British Royal Naval Air Station Portland, England. Commander, U.S. Naval Forces Operating in European Waters Vice Adm. William S. Sims reported the attack as “apparently successful,” and Secretary of the Navy Josephus Daniels commended McNamara for his “valiant and earnest efforts.” McNamara received the Navy Cross for his services during the war, though the citation did not specifically mention this battle.

27 MARCH • The first aircraft built at the Naval Aircraft Factory at Philadelphia, Pa., an H-16, BuNo A-1049, made its first flight. Navy H-16s, equipped with two 230-pound bombs and five Lewis machine guns, conducted antisubmarine patrols from U.S. and European stations during WWI.

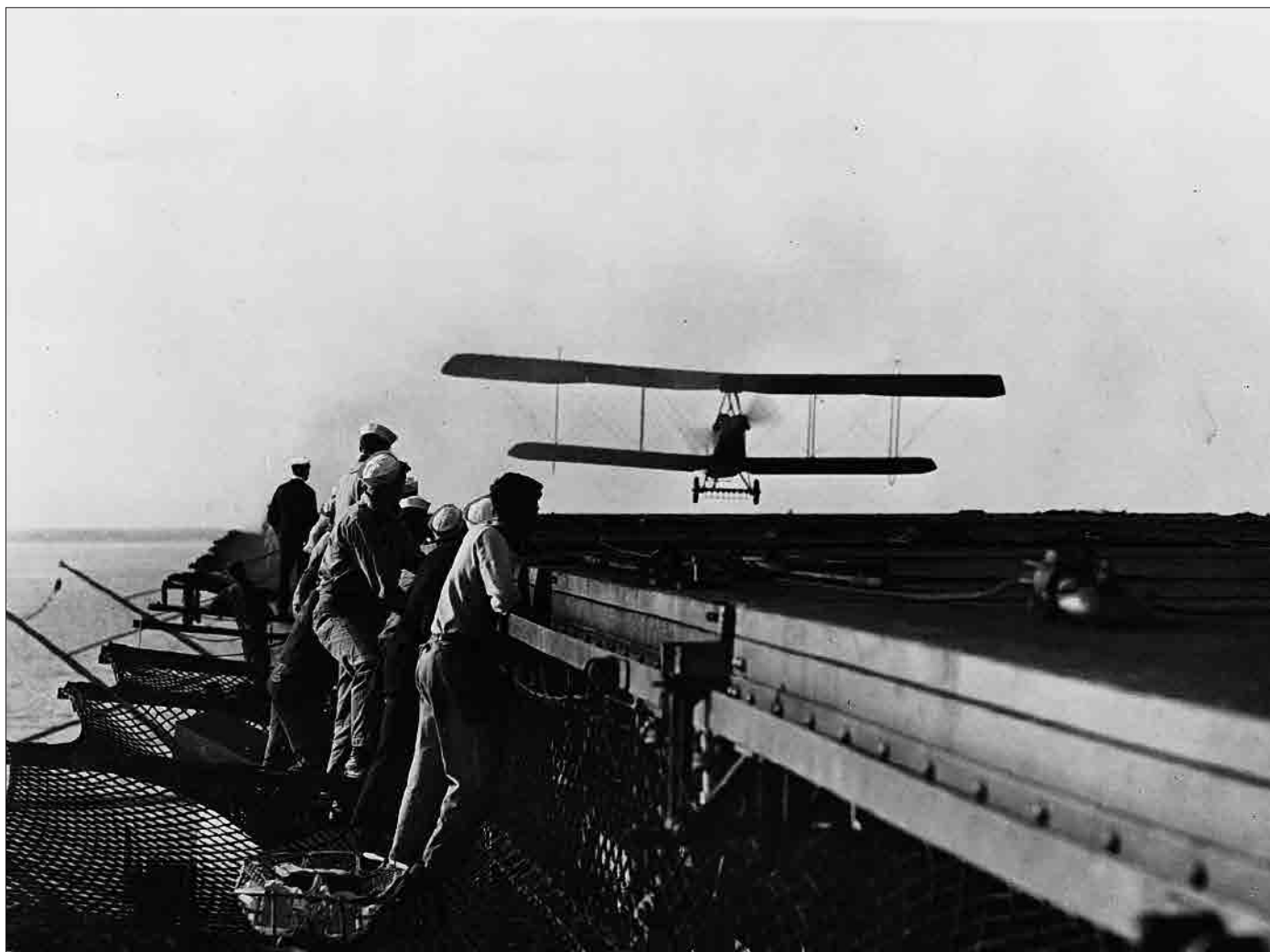
30 MARCH • Commander, U.S. Naval Forces Operating in European Waters Vice Adm. William S. Sims sent a message to Navy forces in France to prepare to reinforce the allies to “the utmost of our capacity” to contain the German breakthrough on the Western Front. Commander, U.S. Naval Aviation Forces, Foreign Service Capt. Hutch I. Cone cabled air stations in France to determine the availability of men for “transport and other auxiliary work,” not including those qualified or in training. Cone directed a temporary halt to construction on these stations, which provided an estimated 2,070 men and several hundred machine guns. After the Germans overextended their supply lines and allied reinforcements stabilized the front, on 3 April the French declined the offer of the men and rescinded their orders, but directed the retention of these reinforcements to stand ready for deployment within a “fortnight.”

30 MARCH • The Navy ordered an 18-T (Kirkham) triplane fighter from Curtiss Engineering Corp. The principal armament of this single-engine, two-seater landplane consisted of two synchronized and two flexible machine guns.

31 MARCH • The First Aviation Squadron transferred from Gerstner Field at Lake Charles, La., to Marine Flying Field, Miami, Fla.

APRIL • NAS La Trinité, France, which had been in operation since November 1917, was established, Ens. Charles M. Johnson commanding. Located in the fishing village of La Trinité-sur-Mer about four miles from Carnac on the Bay of Morbihan, the facility had been selected with a view to relay kite balloons for convoys between Brest and La Pallice while ships entered Quiberon Bay. Due to later modifications in the convoy system, however, the base never achieved this function. NAS La Trinité was disestablished on 5 February 1919.

10 APRIL • A training school for female apprentices began at the Naval Aircraft Factory at Philadelphia, Pa.



The first Curtiss-built 18T Kirkham fighter, shown in its 1919 18T-2 guise with extended wings, set records for both speed and altitude.

15 APRIL • The First Marine Aviation Force, Capt. Alfred A. Cunningham, USMC, commanding, was formed with men of the First Aviation Squadron and the Aeronautic Detachment, USMC, at Marine Flying Field, Miami, Fla. The latter two commands had disbanded the day before. A headquarters company and four squadrons, designated A, B, C, and D, were organized within this force on 16 June. These squadrons later deployed to France and operated as the Day Wing of the Northern Bombing Group, where they subsequently received the designations of 7 through 10. These squadrons normally comprised an authorized strength of 18 planes each.

16 APRIL • The first detachment of trained aerologists consisting of 9 officers and 15 enlisted men, Lt. Cmdr. Alexander G. McAdie commanding, departed to naval air stations in Europe.

17 APRIL • Lt. William F. Reed Jr. reported for “aerographical” duty at NAS Pensacola, Fla., marking the first such assignment made to a U.S. naval air station.

17 APRIL • NAS Berehaven, United Kingdom (Ireland) was established. The station was disestablished on 12 February 1919.

22 APRIL • Pilot QM1 R. H. Harrell with observer QM2 H. W. Studer and pilot Ens. Kenneth R. Smith with observer O. E. Williams flew two planes on a patrol from NAS Ile Tudy, France. Both aircraft bombed and damaged a U-boat stalking a convoy of about 20 ships escorted by the Americans off the coast of France. The second plane dropped two bombs and then flew to *Stewart* (Destroyer No. 13) and directed her to attack. The French



Naval planes, including two Curtiss F-boats (foreground), on the beach at Pensacola, Fla., May 1918.

antisubmarine gunboat *Ardente* joined the battle. *Ardente* attempted to ram the boat, but her action compelled *Stewart* to turn away from her depth charge run at the last moment. The destroyer dropped three depth charges, and wreckage, bits of sea growth, and oil floated to the surface. Smith received the Navy Cross for this exploit. The French credited Smith and Williams for probably sinking the boat and awarded Smith their *Croix de Guerre* and also bestowed upon the pilot the Legion of Honor, rank of *Chevalier*.

23 APRIL • The first shipment of Liberty engines to naval aviation commands in France arrived at the assembly and repair station at NAS Pauillac.

25 APRIL • Ens. Stephan Potter, USNRF, and Capt. N. A. Magor, Royal Air Force, flew an Felixstowe F.2A—an improved British variant of an H-12—Side No. 8677, as one

of two flying boats on a patrol from Felixstowe, England. German Oberleutnant Friedrich Christiansen led a flight of five single-seat planes and a pair of two-seaters that attacked the patrol about six miles west-southwest of North Hinder Light. Christiansen shot the F.2A's stern gunner, and his gunner fired a burst that ignited a fire on board the flying boat. Potter attempted to climb, but he was too low to turn into the wind and crashed. Potter, Magor, and two crewmen died in Christiansen's fifth (claimed) victory.

25 APRIL • The airship *Capitaine Caussin* suffered an accident during a patrol from NAS Paimboeuf, France. A gas valve, which had failed to close after valving, caused the airship to lose pressure and dive into the sea from several hundred feet. The impact threw two crewmembers into the water; Lt. Cmdr. Louis H. Maxfield and Lt. Frederick P. Culbert jumped from the airship and aided them until

rescuers recovered all the swimmers. Ens. Merrill P. Delano and French Commandant Leroy guided *Capitaine Caussin* while it drifted to the beach where the crew then dismantled the airship. Maxfield received a gold life saving medal, and he and Culbert each received French life saving medals.

27 APRIL • The airship *AT-1*, Lt. Frederick P. Culbert commanding, and manned by a crew comprising Ens. Arthur D. Brewer, Ens. Merrill P. Delano, and Ens. Thomas E. McCracken, completed a 25-hour, 43-minute flight from NAS Paimboeuf, France. During the patrol the airship escorted three convoys through a mined zone. This was the longest flight on record for an airship of this type.

29 APRIL • The British transferred the Royal Air Force kite balloon station at Berehaven in the United Kingdom (Ireland) to the Americans, who immediately established NAS Berehaven, Ens. Carl E. Shumway commanding.

30 APRIL • Secretary of the Navy Josephus Daniels approved a plan recommended by the General Board and developed by Naval Forces in Europe for the Northern Bombing Group to undertake air operations in the Dunkirk–Bruges–Ostend–Zeebrugge region against German submarines and their support facilities, and directed that the bureaus and offices expedite the assembly of the necessary men and equipment.

2 MAY • NAS Wexford in the United Kingdom (Ireland) was established. The station was disestablished on 15 February 1919.

6 MAY • NAS Coco Solo, Panama Canal Zone, was established, Lt. Ralph G. Pennoyer commanding, to maintain patrols over the seaward approaches to the Panama Canal.

15 MAY • The Bureau of Steam Engineering reported that a Marconi SE 1100 radio transmitter designed for use on H-16s had demonstrated dependability in voice communications at distances of up to 50 nautical miles, and in code communications at up to 120 nautical miles. This became one of the first radio sets used in, and the first tube set developed for, naval aircraft.

18 MAY • The Chief of Naval Operations set training goals to provide pilots for foreign service and directed that eight

elementary training squadrons be operated—two at Bay Shore, N.Y., two at Key West, Fla., and four at Miami, Fla. He also directed that elementary training at Pensacola, Fla., be discontinued as soon as the students on board had graduated, and that six advanced training squadrons be organized there to begin training patrol plane and night bomber pilots as soon as practicable.

20 MAY • Work began on a naval air station at La Pallice, France, Lt. j.g. John H. Dashiell commanding. The station never formally established, and the Americans returned the facility to the French on 5 January 1919.

24 MAY • The first consignment of American-built HS-1 flying boats, consisting of six planes (BuNos A-808 through A-813) on board the transport *Houston* and two planes (BuNos A-1575 and A-1583) on board the cargo ship *Lake Placid* arrived at NAS Pauillac, France.

4 JUNE • NAS L'Aber Vrach, France, was established, Lt. Cmdr. Henry B. Cecil commanding. NAS L'Aber Vrach was disestablished on 22 January 1919.

8 JUNE • NAS Arcachon, located southwest of Bordeaux, France, was established, Ens. Joseph N. Brown, USNRF, acting commanding officer until relieved by Lt. Zeno W. Wicks on 15 June. NAS Arcachon was disestablished on 7 January 1919.

13 JUNE • Pilot Lt. Charles P. Mason and passengers Cmdr. James B. Patton and Lt. William B. Jameson, USNRF, made the first flight of the initial American-built aircraft to be assembled in France, an HS-1, at NAS Pauillac.

19 JUNE • Sailors at NAS Pensacola, Fla., began taking upper atmospheric weather soundings to provide information on wind velocity and direction required for navigational training flights. The station's Meteorological Officer, Lt. William F. Reed Jr., developed a technique to carry recording instruments aloft in a kite balloon, gradually refining his method to take six soundings a day at an altitude of 1,000 feet.

29 JUNE • Two Levy-Le Pen HB-2s became the first aircraft to operate from St. Trojan, France, when they arrived from NAS Le Croisic.



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The last of the six rotary-engine Thomas-Morse S-5s purchased by the Navy.

30 JUNE • The first Navy pilots of the Night Wing, Northern Bombing Group, to take special training with the British marked the completion of their course by participating as observers in a night bombing raid by No. 214 Squadron of the British Royal Air Force.

1 JULY • An act of Congress repealed all laws relating to the National Naval Volunteers and authorized President Woodrow Wilson to transfer as a class all of its members in their confirmed ranks and ratings to the Naval Reserve, Naval Reserve Flying Corps, or Marine Corps Reserve.

1 JULY • NAS Lough Foyle, United Kingdom (Ireland), was established, Cmdr. Henry D. Cooke commanding. NAS Lough Foyle was disestablished on 22 February 1919.

4 JULY • NAS Whiddy Island was established as a small seaplane station on the western end of the Irish island located in Bantry Bay in the United Kingdom. This was to be the westernmost air station established in Europe during the war. Patrol planes from the island met Atlantic convoys as they approached the British Isles. NAS Whiddy Island was disestablished on 29 January 1919.

4 JULY • A detachment of 12 kite balloons and 42 men arrived at NAS Berehaven in the United Kingdom (Ireland). The detachment initially operated from the adjoining French kite balloon station at Lannion, which marked the beginning of extensive lighter-than-air operations in Europe.

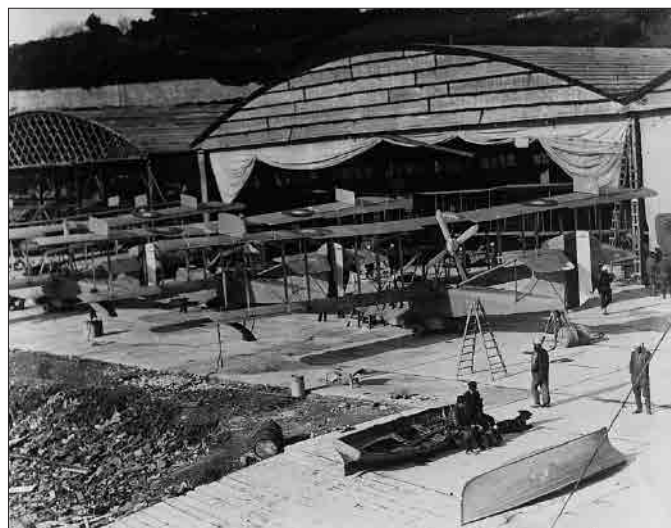
7 JULY • The Naval Aircraft Factory, Philadelphia, Pa., completed its first order for 50 H-16s.

14 JULY • NAS St. Trojan, France, was established, Lt. Virgil C. Griffin commanding. NAS St. Trojan was disestablished on 19 January 1919.

19 JULY • During a patrol in an H-12 from Killingholme, England, pilot Ens. John J. Schieffelin and crewmembers Lt. j.g. Roger W. Cutler, USNRF, E3 Taggart, and LMM Bernstein sighted a surfaced U-boat east of Whitby. The plane dropped a bomb that burst 20 feet to port of the submarine's waist, thrusting the boat's bow downward and lifting her stern until the screws almost broke the surface. The plane had encountered turbulence en route, forcing it to jettison a bomb. After signaling the U-boat's position to a trawler, the plane departed the area. British ships including destroyer *Garry*, subsequently depth charged *UB-110* about 15 miles from that position and forced her to surface, and *Garry* rammed and sank the boat. Interviews with the survivors revealed they failed to submerge because of damage sustained during a previous attack, but Schieffelin surmised that *UB-110* was a different boat than the one he had bombed because of the distance between the two positions. For this battle and an action on 9 July Schieffelin later received the Navy Cross.

19 JULY • The German submarine *U-156* sank *San Diego* (Armored Cruiser No. 6) off Fire Island, Long Island. Two planes on patrol from NAS Montauk, N.Y., sighted the stricken cruiser and sent the first reports of her sinking. Two days later *U-156* slipped through fog and attacked the tug *Perth Amboy* of the Lehigh Valley Railroad as she towed the barges *Lansford* and *Nos. 403, 740, and 766* three miles off Nauset Beach, Cape Cod, Mass. German shooting started fires on board the tug that burned her to the waterline, sank three of the barges, and wounded three men. At 1050 on 21 July two planes took off from NAS Chatham, Mass., to intercept the submarine—an HS-2L, A-1695, with pilot Ens. Eric A. A. Lingard and crewmembers Ens. Edward M. Shields and MMC Edward H. Howard; and R-6, A-991, with pilot 1st Lt. Philip B. Eaton, USCG (Coast Guard Aviator No. 6). They bombed but missed the submarine. German gunfire drove the aircraft to higher altitudes, and then *U-156* submerged and escaped. Eyewitnesses dubbed the action “The Battle of Chatham.”

20 JULY • NAS Killingholme, England, Lt. Cmdr. Kenneth Whiting commanding, was established when the British



HS flying boats at NAS Brest, France.

turned their Royal Air Force station over to the Americans. U.S. Navy aircraft had patrolled from the station since February 1918. NAS Killingholme was disestablished on 6 January 1919.

23 JULY • NAS Eastleigh, England, was established at the British Royal Air Force facility at that location on the English Channel, Lt. Cmdr. Godfrey deC. Chevalier commanding. The facility served as a supply, assembly, and repair station to support the Northern Bombing Group. NAS Eastleigh was disestablished on 10 April 1919.

24 JULY • NAS Porto Corsini, Italy, was placed in operating status, Lt. Wallis B. Haviland commanding. The Austro-Hungarians learned of the event and bombed the station that night but failed to inflict serious damage. NAS Porto Corsini was disestablished on 31 December 1918.

25 JULY • Secretary of War Newton D. Baker approved a recommendation by the Joint Army and Navy Airship Board assigning responsibility for the development of rigid airships to the Navy.

27 JULY • N-1, the first experimental aircraft designed and built at the Naval Aircraft Factory, Philadelphia, Pa., made its fourth successful flight and first test of the Davis gun for which it was designed. Lt. Victor Vernon piloted N-1, and Lt. Sheppard operated the gun, which performed satisfactorily against a target moored in the Delaware River near the factory.

30 JULY • One hundred seven officers and 654 enlisted men of Headquarters Company and Squadrons A, B, and C of the First Marine Aviation Force arrived on board transport *DeKalb* at Brest, France. They proceeded to aerodromes between Calais and Dunkirk for operations as the Day Wing, Northern Bombing Group. Part of their equipment, including some planes, arrived separately at NAS Pauillac. The squadrons were subsequently redesignated Squadron Nos. 7, 8, and 9, respectively.

2 AUGUST • The first Marines of the Northern Bombing Group arrived at the front. The Marines requested permission from the British to operate with the Royal Air Force (RAF) to maintain proficiency, and the British accepted their service and assigned them to missions. The Marines subsequently flew with Nos. 217 and 218 (bombing) Squadrons of the RAF, and with French *Aéronautique Militaire* (Army Air Service) bombing and observation squadrons.

3 AUGUST • Pilot QM1 C. J. Boylan and observer QM2 L. W. Wintch flew a Donnet-Denhaut flying boat from NAS Ile Tudy, France, in response to a U-boat sighting. At 1640 the plane spotted an apparent periscope almost immediately disappear and then a large spot of oil. The aircraft detected converging wakes approaching the surface and dropped two bombs, which caused more oil, bubbles, and debris to appear. French trawlers also fired at the (possible) submarine and sighted a long trail of oil. Meanwhile, two seaplanes, one piloted by Ens. Morris H. Bailey, USNRF, with observer E2 G. Wolff, and the other by Boatswain L. T. O'Loughlin, USNRF, with observer MM1 R. Haizlett, arrived several minutes later and each dropped two bombs that caused more oil and bubbles to rise. The planes circled the position, spotted additional wreckage, and departed.

5 AUGUST • Pilot Ens. Ashton W. Hawkins and second pilot Lt. j.g. George F. Lawrence took off in a flying boat from NAS Killingholme, England, in rain and poor visibility at 2230 to patrol a course intercepting a reported German Zeppelin raid. The plane patrolled in good weather above the clouds without sighting the Germans but dropped through heavy weather at South Shields at 0530, having almost consumed its fuel to complete the first U.S. night combat patrol from Killingholme.

10 AUGUST • NAS Pauillac, France, received 300 pigeons from the French. During WWI naval aviation used homing pigeons as an additional means of sending and receiving messages. Observers on board aircraft and airships "liberated" the birds by throwing them upward and clear of the craft, in some cases from altitudes of 1,500 to 2,000 feet. French trainers experienced in handling the birds cared for the creatures until 21 August when trainers from the American Racing Pigeon Union, National Aeronautic Association, and International Federation of American Homing Pigeon Fanciers arrived from the United States. At least one French trainer each then remained at the headquarters in Paris and at Pauillac to facilitate operations. The French officially transferred the pigeons to the U.S. handlers beginning on 12 October 1918.

11 AUGUST • Pilot Ens. James B. Taylor made the initial flight of the M-2 Kitten landplane at Mineola on Long Island, N.Y. This aircraft had originally been intended for use on board ship and did not prove successful, but is of special interest because it was the first monoplane developed under Navy contract. It was also one of the smallest manned aircraft built for the Navy, with an empty weight of less than 300 pounds. Although equipped with a British ABC engine, the aircraft was designed for use with a two-cylinder Lawrance 30 hp air-cooled engine that became the predecessor of the large American air-cooled radial engines.

13 AUGUST • During a patrol from NAS Dunkirk, France, pilot Ens. Julian F. Carson sighted a surfaced U-boat. The Germans challenged the plane and opened fire with their deck gun, hitting the aircraft in several places with fragments. Carson returned fire and bombed the submarine as it attempted to submerge, which drove the boat back to the surface at a sharp angle. The U-boat stayed there briefly and then slid stern first underwater. The French credited Carson with sinking the craft and awarded him the *Croix de Guerre*.

13 AUGUST • Ens. Frank E. Wade received the designation of Naval Aviator No. 1,000 at NAS Pensacola, Fla. Because of fractional numbers assigned to men who had preceded him, however, he was not the actual 1,000th naval aviator.

15 AUGUST • The independent offensive operations of the Northern Bombing Group began as pilot Ens. Leslie R. Taber, second pilot Ens. Charles Fahy, and rear gunner D. C.

Hale of Squadron 1 participated in a night raid in a Ca-44 on the German submarine repair docks at Ostend, Belgium.

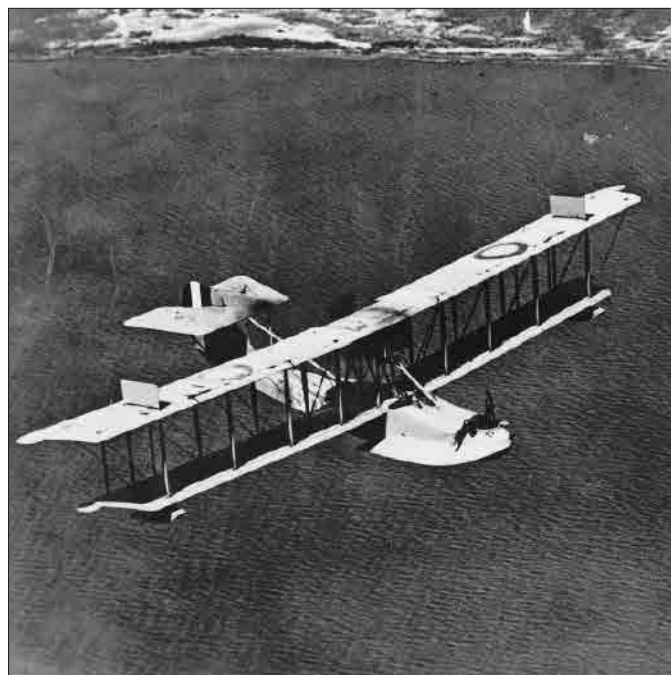
17 AUGUST • The blimp *AT-1* made a brief flight from NAS Paimboeuf, France, carrying Assistant Secretary of the Navy Franklin D. Roosevelt as a passenger during his tour of overseas facilities.

19 AUGUST • NAS Halifax, Nova Scotia, was placed in operating status, Lt. Richard E. Byrd Jr. commanding. The facility was the first of two air stations established in Canada, and located near Eastern Passage at Dartmouth, Nova Scotia, to dispatch patrols over the northern approaches to the Atlantic coast.

19 AUGUST • The 18-T Kirkham experimental triplane fighter achieved speeds of 161, 162, and 158 mph in trial runs over a measured course. Naval Constructors Holden C. Richardson, CC, and Charles N. Liqueu observed the trials.

20 AUGUST • While preparing to depart NAS St. Trojan, France, for a patrol, Ens. Edmund B. Barry, USNRF (Naval Aviator No. 421), died when his seaplane exploded on the slipway because of defective bomb-carrying gear. The blast also killed seven other men—QM2 Miles H. Holley and E3 Earl J. Vath died immediately, and CMM Ellsworth W. Stoker, MM1 Jesse C. Richardson, and QM2s Leonard L. Kneeland, John J. McVeigh, and Lewis F. Tucker died during the succeeding days. Sixteen other men received injuries. This was the station's only fatal accident during WWI.

21 AUGUST • At 1120 a flight of five Macchi M-5 single-seat fighters and two M-8 two-seat bombers from NAS Porto Corsini, Italy, dropped leaflets on the Austro-Hungarian fortress of Pola on the Adriatic Sea. Enemy guns fired at the incoming aircraft, and five fighters and two seaplanes rose to intercept the Americans, shooting down pilot Ens. George H. Ludlow (Naval Aviator No. 342) in an M-5 three miles from the harbor entrance and damaging a fighter flown by Ens. Charles H. Hammann, USNRF (Naval Aviator No. 1494). Hammann evaded his pursuers, landed alongside the downed pilot, took him on board, and returned to Porto Corsini. Hammann later received the Medal of Honor. The Navy subsequently named two ships in his honor.



An HS-2L flying boat powered by a Liberty engine.

27 AUGUST • Following almost a year's operation, NAS Hampton Roads, Va., was established, Lt. Cmdr. Patrick N. L. Bellinger commanding.

31 AUGUST • NAS North Sydney was established as a seaplane station on Cape Breton Island, Nova Scotia, 1st Lt. Robert Donahue, USCG, commanding.

1 SEPTEMBER • Commander, U.S. Naval Aviation Forces, Foreign Service Capt. Hutch I. Cone detached to head the aviation section of the staff of Commander, U.S. Naval Forces Operating in European Waters Adm. William S. Sims in London, England. Cone had supervised the construction and operation of air stations in France. All naval forces deployed in France, with the exception of the Northern Bombing Group, Capt. David C. Hanrahan commanding, were placed under the command of Rear Adm. Henry B. Wilson. Capt. Thomas T. Craven of the admiral's staff relieved Cone. Unit commands were set up for France, England, Ireland, Italy, and the Northern Bombing Group to control and direct the operations of stations in these areas.

3 SEPTEMBER • Aircraft began the first naval air operations from NAS Lough Foyle in the United Kingdom (Ireland) with patrols over the North Channel entrance to the Irish Sea.



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The Davis recoilless antisubmarine gun mounted on a flying boat.

7 SEPTEMBER • The first U.S. day-bombing plane arrived at the front in France—a DH-4 designated D-1, BuNo A-3295.

23 SEPTEMBER • The flywheel catapult, a forerunner of those subsequently installed on board *Lexington* (CV 2) and *Saratoga* (CV 3), launched a flying bomb from Copiague on Long Island, N.Y. The Sperry Co. developed this catapult in connection with the Bureau of Ordnance's flying bomb project.

23 SEPTEMBER • The Aircraft Radio School at Pensacola, Fla., began a course of instruction for aircraft radio electricians that included code work, semaphore and blinker study, gunnery, and laboratory work. In November the school transferred to Harvard University, Mass.

24 SEPTEMBER • While on a test flight in a Sopwith Camel, Lt. j.g. David S. Ingalls, USNR (Naval Aviator No. 85), sighted a German two-seat Rumpler over Nieuport, Belgium. In company with another Camel, Ingalls attacked and scored his fifth aerial victory in six weeks to become the Navy's first ace. Ingalls also shot down at least one enemy observation balloon while serving with No. 213 Squadron of the British Royal Air Force. For these and other meritorious acts the British awarded Ingalls the Distinguished Flying Cross, and the United States conferred upon him the Distinguished Service Medal. "He is one of the finest men," the British evaluated his service, "No. 213 Squadron ever had."

25 SEPTEMBER • Pilots Ens. John A. Jova and ACMM Francis E. Ormsbee Jr., during a flight in two planes observed

a two-seat plane go into a tailspin and crash about three-quarters of a mile away in Pensacola Bay, Fla. Ormsbee landed his plane nearby, dove overboard, and swam for the wreck as the stricken aircraft sank. He pulled out the gunner and held his head above water until other men arrived in a speedboat, then made repeated dives into the tangled wreckage in an unsuccessful attempt to rescue the pilot. Ormsbee later received the Medal of Honor.

25 SEPTEMBER • NAS Whiddy Island in the United Kingdom (Ireland) became operational.

27 SEPTEMBER • Pilot Ens. Edwin S. Pou, USNRF, with observer QM2 H. F. Duffy, and pilot QM2 P. H. Tuttle with observer QM1 Otis Wherley flew two seaplanes during a patrol over a northbound convoy from NAS Ile Tudy, France. Pou and Duffy spotted three trawlers firing on a suspected mine about four miles south of Point de Penmarc'h. As the trawlers departed, the aviators sighted a "dark spot" four miles distant and dropped two bombs and a smoke bomb on the suspected U-boat. Their attack generated a "violent explosion" that brought oil to the surface, the force of which shook the aircraft. The seaplanes dropped a message buoy to the leading trawler and departed.

28 SEPTEMBER • Pilot Lt. Everett R. Brewer, USMC, and observer Sgt. Harry Wershiner, USMC, flying a plane with No. 218 Squadron of the British Royal Air Force, shot down a German Fokker aircraft to score the first Marine Corps victory in aerial combat.

30 SEPTEMBER • The Goodyear twin-engine airship *C-1*, BuNo A-4118, accomplished its maiden flight. The war ended before the Navy introduced all of the C-class lighter-than-air craft originally planned, and only 10 of the 30 airships ordered were built.

1 OCTOBER • NAS La Trinité in France became operational.

1 OCTOBER • The airship *AT-13* (also designated P-4) flew from NAS Paimboeuf, France, and rendezvoused with a convoy sailing from La Pallice to Quiberon. As *AT-13* circled the convoy, the airship approached a suspicious object, which it discovered to be a surfaced U-boat, about ten miles south of the lighthouse of Le Four, France. The Germans opened fire and 13 shrapnel shots rapidly burst near the craft.

The airship could not return fire because the firing spring had broken on its solitary 47 mm gun during a second practice shot en route. *AT-13* alerted escort ships to the submarine's presence, came about, and resumed coverage of the convoy.

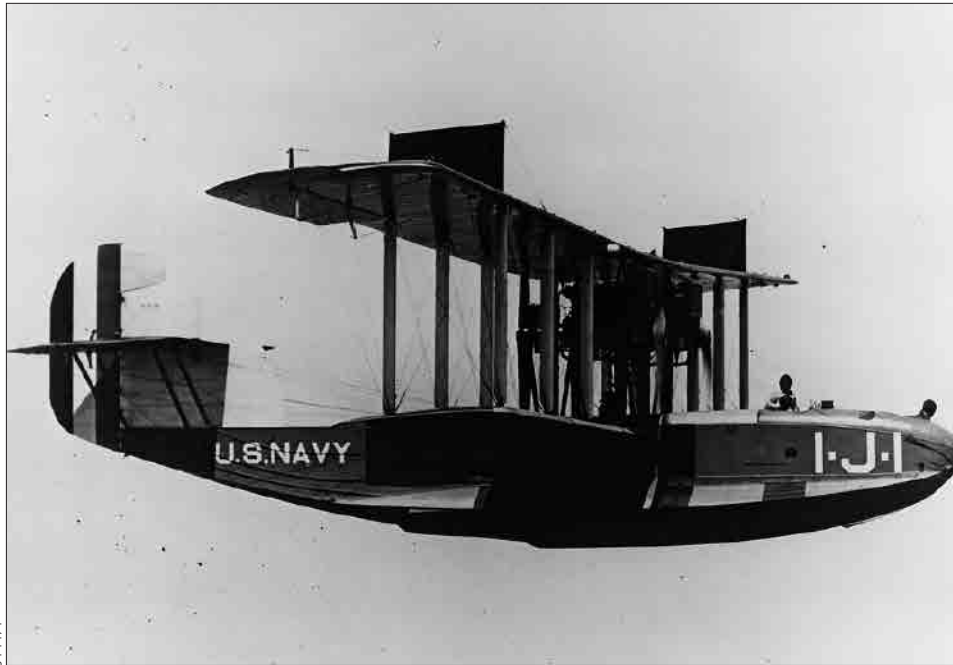
1 OCTOBER • The French disestablished a naval air station located at Lake Cazaux on the Gironde River about five miles southeast of NAS Arcachon. The Americans at NAS Arcachon agreed to accommodate up to several aircraft from the French station at Bayonne. Two Donnet-Denhaut flying boats arrived that afternoon and later made the first flight operations from NAS Arcachon.

2 OCTOBER • Pilot Capt. Francis P. Mulcahy, USMC, second pilot Capt. Robert S. Lytle, USMC, and crewmembers 2d Lt. Frank Nelms Jr., USMC, Sgt. Archie Paschal, USMC, Sgt. Amil Wiman, USMC, and Cpl. Henry L. Tallman, USMC, flew a plane during the earliest recorded U.S. aerial food-dropping mission. On this day and the next the aircraft made five low-level runs in the face of enemy artillery, machine gun, and rifle fire and delivered 2,600 pounds of food and badly needed supplies to a French regiment surrounded by German troops near Stadenburg, Belgium. Paschal, Wiman, and Tallman threw the food packages overboard. The pilots consequently received the award of the Distinguished Service Medal and the gunners received the Navy Cross. (The precedence of these medals was reversed in 1942.)

4 OCTOBER • Cmdr. Holden C. Richardson, CC, and Lt. David H. McCulloch made the initial flight of the first NC flying boat, NC-1, BuNo A-2291, at NAS Rockaway, N.Y.

5 OCTOBER • Squadron D of the First Marine Aviation Force, comprising 42 officers and 188 enlisted men, arrived at an aerodrome at Le Fresne, France, completing the Day Wing, Northern Bombing Group. Additional planes reinforced the group during the month.

8 OCTOBER • Pilot 2d Lt. Ralph Talbot, USMC, and observer GySgt. Robert G. Robinson, USMC, of Squadron C flew D-1, the first Marine DH-4 received in France, during a raid against German-occupied Westend, Belgium. Nine German scout planes attacked the Marines, but D-1 shot down one of the attackers.



The F-5L was a Naval Aircraft Factory version of the British Felixstowe F.5, which itself was an improved American Curtiss H.12.

10 OCTOBER • German submarine *UB-123* sank the British steamer *Leinster* in the Celtic Sea while the ship sailed from Dublin, Ireland, to Holyhead, Wales. Capt. Hutch I. Cone traveled on board while en route to head the aviation section of the staff of Commander, U.S. Naval Forces Operating in European Waters Adm. William S. Sims in London. Cone was among the casualties but recovered despite his wounds.

14 OCTOBER • Eight DH-4s and DH-9As of Marine Day Squadron 9 made the first day raid-in-force by the Northern Bombing Group, flying against the German-held rail junction at Thielt Rivy, Belgium. Despite mist that obscured their targets the aircraft dropped 17 bombs. At least 11 German aircraft counterattacked. 2d Lt. Ralph Talbot, USMC, with observer GySgt. Robert G. Robinson, USMC, in a DH-4 designated D-1 shot down a German plane, but two other German aircraft attacked and wounded Robinson. Talbot came about and downed a German plane, and landed at a Belgian aerodrome at Hondshoort. For this battle and an earlier raid in which they had engaged enemy aircraft, Talbot and Robinson later received the Medal of Honor.

15 OCTOBER • The Bureau of Steam Engineering reported the construction of five Hart and Eustiss reversible

pitch propeller hubs for use on twin-engine airships. The Navy consequently ordered two of these for F-5Ls.

17 OCTOBER • A pilotless N-9 training plane converted to an automatic flying machine launched from Copiague on Long Island, N.Y. The plane flew a prescribed course but failed to land at the preset range of 14,500 yards. Observers last saw the plane over the air station at Bay Shore, flying eastward at an altitude of 4,000 feet.

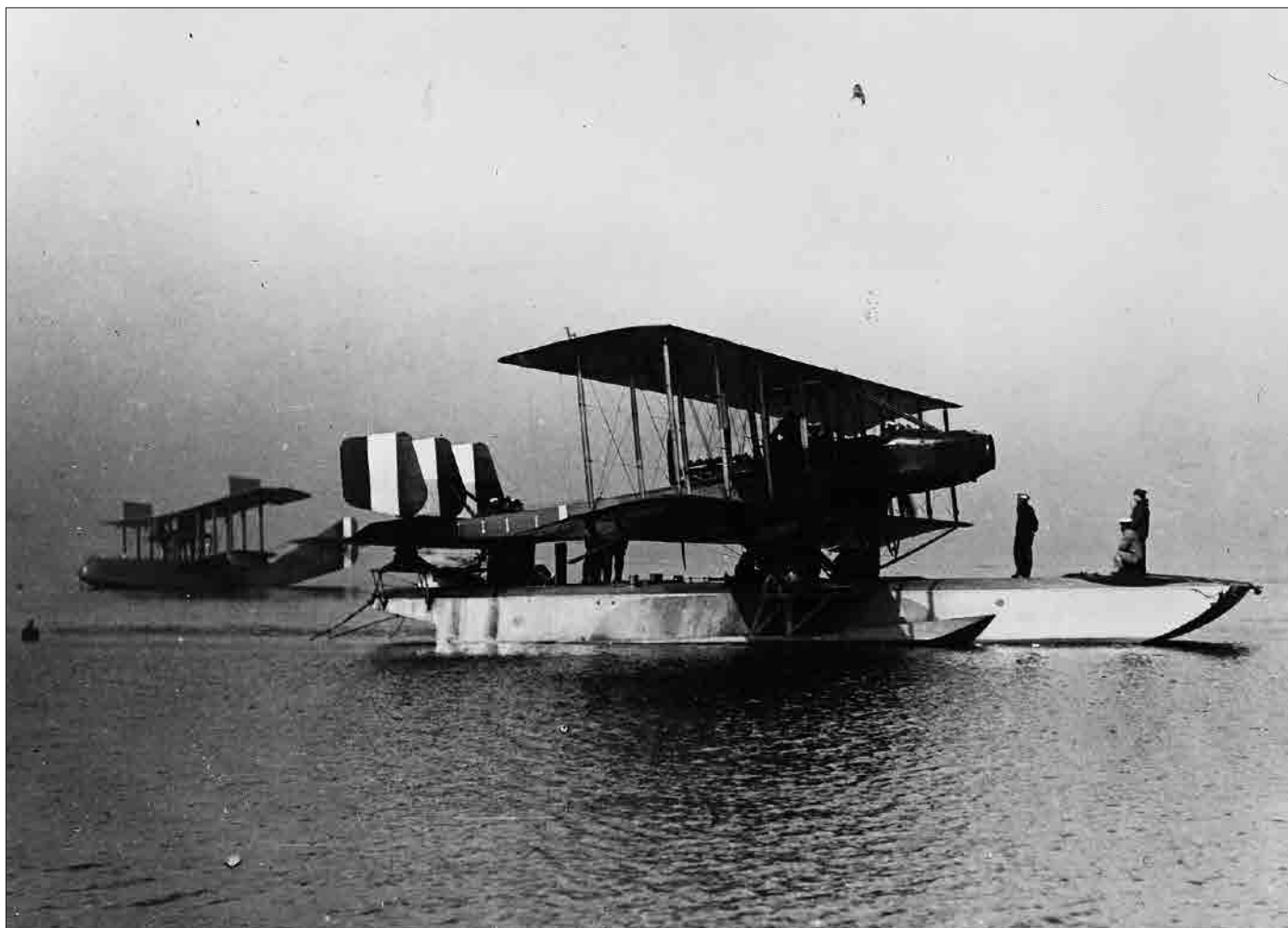
19 OCTOBER • While flying as part of a convoy escort in the Lough Foyle sector off northern Ireland, Ens. George S. Montgomery Jr.

(Naval Aviator No. 300) sighted and bombed a U-boat stalking the convoy. The explosions brought heavy turbulence and oil to the surface. Montgomery received a commendation for “probably damaging” the submarine and preventing the Germans from attacking the convoy.

22 OCTOBER • Maj. Bernard L. Smith, USMC, and crewmembers Lt. Ralph A. D. Preston, USNRF, Lt. j.g. Donald T. Hood, USNRF, Ens. Warner L. Hamlen, USNRF, Ens. Marcus H. Estorly, USNRF, and civilian mechanics M. Roulette and James Royal delivered the airship *C-1* from Akron, Ohio, via Washington, D.C., to NAS Rockaway, N.Y. Smith and Hamlen later received the Aero Club of America’s Medal of Merit for this flight.

22 OCTOBER • Pilot Ens. Edwin S. Pou, USNRF, with observer QM2 H. F. Duffy, flew an HS-1 from NAS Ile Tudy, France, to investigate an area in which the Germans had made an attack earlier in the day. The men sighted and exploded a mine by bombing. The French patrol boat *Leger* detected what she believed to be a submarine on listening devices, but the sounds faded following the attack, which led the French to surmise that Pou and Duffy drove off a U-boat.

25 OCTOBER • Pilot 2d Lt. Ralph Talbot, USMC, with observer 2d Lt. Colgate W. Darden Jr., USMC, flew a DH-4



A sea sled used to transport and launch planes, with a Caproni Ca-44 heavy bomber on board, November 1918.

designated D-1 that struck a bank of earth on the edge of an ammunition dump in a field near Le Fresne in France. The aircraft rebounded, crashed into a newly arrived pile of 1,500 bombs, and caught fire. The impact threw Darden clear, but Talbot was trapped in the front cockpit and died. Marines pulled the bombs from the pile and rolled them in the mud until the fire was extinguished. The destroyer *Ralph Talbot* (DD 390) was commissioned in the pilot's honor on 14 October 1937.

26 OCTOBER • Pilot Ens. William C. Sprague, with observer H. A. Ropke, flew a plane on a patrol and sighted an oil wake indicating a possible U-boat about four miles southwest of Point de Penmarc'h, France. Sprague and Ropke dropped two bombs. Four minutes later pilot Ens. Elbert J. Dent and observer Ens. Morris H. Bailey, USNRF, arrived in a second plane and dropped two more bombs on

the same position. Pilot Ens. Harold J. Rowen with Bailey again on board as observer, who had returned with Dent and accompanied Rowen, reached the scene in a third aircraft and bombed the same spot. The determined attacks proved ineffective.

1 NOVEMBER • The night flight training program was discontinued at NAS Pensacola, Fla.

1 NOVEMBER • NAS Tréguier, France, was established, Lt. Augustus M. Baldwin commanding. The rise and fall of the tide on the river and the steep incline of the shipway at the former French station necessitated an unusual method of launching flying boats. To prevent planes from immersing nose-first, men put the machines onto a cradle on tracks and then eased the aircraft into the water by a line. NAS Tréguier was disestablished on 19 January 1919.

11 NOVEMBER • The Allied Countries and Central Powers signed an armistice to end WWI. During the 19 months of U.S. participation the total strength of naval aviation comprised 2,107 aircraft, 15 airships, and 215 kite and free balloons on hand, together with 6,716 officers and 30,693 men for the Navy, and 282 officers and 2,180 men for the Marine Corps. About 570 aircraft and 18,000 officers and men had shipped abroad. Naval aircraft had dropped a total of 155,998 pounds of ordnance on the enemy and flown more than three million nautical miles of war patrols. Naval aircraft made at least 39 attacks against U-boats and partially succeeded in driving off submarines during at least ten of these battles. The Marines participated in 43 missions with the British and French, and the Day Wing of the Northern Bombing Group flew 14 independent raids behind the German lines. The naval air arm suffered 208 casualties, including 74 officers. Following the Armistice the Navy cancelled contracts for 1,728 planes. When representatives from the Commission for the Relief of Belgium reported their inability to continue their work without support, sailors and Marines transferred trucks, ambulances, and motorcycles to the charity during early examples of naval aviation humanitarian relief efforts.

12 NOVEMBER • Naval aviation headquarters in France sent a dispatch to all air stations: "Suspend patrol flights. Only flights now authorized are those necessary to look for dangerous mines and harbor flights reduced to strict minimum to test planes and train personnel. Deflate all kite balloons except those judged necessary for mine sweeping. Limit ascensions and trips to mine searching, test of material and training of personnel."

17 NOVEMBER • NAS Hampton Roads, Va., reported that an H-16 equipped with a radio direction finder using the British six-stage amplifier had received signals from a radio station at a distance of 150 miles at Arlington, Va.

22 NOVEMBER • Pilot Lt. Victor Vernon and observer S. T. Williams dropped a 400-pound dummy torpedo from an F-5L from a height of 40 feet during the initial test of a torpedo launching gear at the Naval Aircraft Factory at Philadelphia, Pa. The weapon's development had begun the preceding July.

23 NOVEMBER • Secretary of the Navy Josephus Daniels authorized the use of the titles Aerographic Officer and Navigation Officer in naval air station organization to identify officers trained to perform the special duties involved.

27 NOVEMBER • Flying boat NC-1, BuNo A-2291, established a new world record for people carried in flight by embarking 51 persons during a flight from NAS Rockaway Beach, N.Y.

2 DECEMBER • The Chief of Naval Operations renewed efforts to develop planes to operate from ships by requesting that the Bureau of Construction and Repair provide aircraft of the simplest form, lightly loaded, and with the slowest flying speed possible.

6 DECEMBER • The Marines of the Day Wing of the Northern Bombing Group, minus Squadron 10, embarked on board transport *Mercury* at St. Nazaire, France, for their return to Newport News, Va. Squadron 10 remained behind and sailed separately on 28 December.

8 DECEMBER • Commander, Naval Forces Operating in European Waters Adm. William S. Sims ordered the preparation of two airships with photographers on board to rendezvous with the convoy of ships carrying President Woodrow Wilson and the U.S. delegates to the peace conference at Versailles, France. Planners subsequently added a flight of seaplanes from NAS Brest, France. At dawn on 13 December airships *AT-13* and *Capitaine Caussin* lifted off from Guipavas, France, but severe wind and rain squalls compelled them to steer almost entirely by compass. The airships separately sighted and then escorted the convoy ships despite intermittent fog that afternoon. Sailors began to deflate *Capitaine Caussin* the next day, and it was shipped to the United States in January. On 13 December one H-16, two HS-1s, and four HS-2Ls took off from Brest, but 25 mph winds and a rough sea disrupted their attempts at formation flying. Six of the planes reached and escorted the ships at different times.

12 DECEMBER • Airship Officer Lt. George Crompton Jr. at NAS Rockaway, N.Y., conducted a test to determine the feasibility of carrying fighter aircraft on lighter-than-air craft. Crompton piloted airship *C-1* and lifted 1st Lt. A. W. Redfield, USA, commanding officer of the 52d Aero Squadron at Mineola, in an Army JN-4 Jenny in a wide spiral climb to

2,500 feet over Fort Tilden, N.Y. Crompton then released Redfield from that height, and the Jenny made a free flight back to earth.

24 DECEMBER • Pilot Ens. Thomas E. Maytham completed a flight in a B-class airship from NAS Key West to Tampa, Cape Sable, and Palm Beach, Fla., and back, covering approximately 690 miles. This accomplishment bettered Maytham's endurance mark of 32 hours on 23 November with a continuous flight of 40 hours 26 minutes, ending on 26 December. Although recognized only as a U.S. record, this flight surpassed by more than 25 hours the existing world record.

30 DECEMBER • Pilot Lt. Thomas C. Rodman, USNRF, flew an H-16 to score the Navy's first win in the Curtiss Marine Trophy Race at NAS Pensacola, Fla. Aircraft designer and pilot Glenn H. Curtiss had set up the annual competition in 1915 to encourage seaplane development. The contest standard evaluated the basis of the miles traveled in ten hours of flight, with extra mileage credit for the passenger load. Rodman carried 11 passengers 670 statute miles and received credit for a total of 970 miles.

1919

1 JANUARY • During this period the worldwide influenza epidemic caused more than 50 million deaths. Navy medical facilities treated 121,225 Navy and Marine victims including 4,158 fatalities during 1918. "The morgues were packed almost to the ceiling with bodies stacked one on top of another," Navy Nurse Josie Brown of Naval Hospital, Great Lakes, Ill., recalled. Naval aviation in Europe dispersed following the Armistice, however, and despite proximity to the outbreak and the adverse weather of the northern climate, few men succumbed. Exceptions included an outbreak in September 1918 at NAS St. Trojan, France, that killed one officer and five men and incapacitated 210 men, rendering the station inoperative at times. During the first two months of 1919 a recurrence of the epidemic affected NAS Brest, France, when Marines and sailors of the Northern Bombing Group experienced respiratory exposure during transportation in cold and crowded rail cars en route to that station. Similar outbreaks of lesser concern occurred

at other stations. Medical inspectors noted that naval aviation staff predominantly confronted these issues with "skill and good judgment."

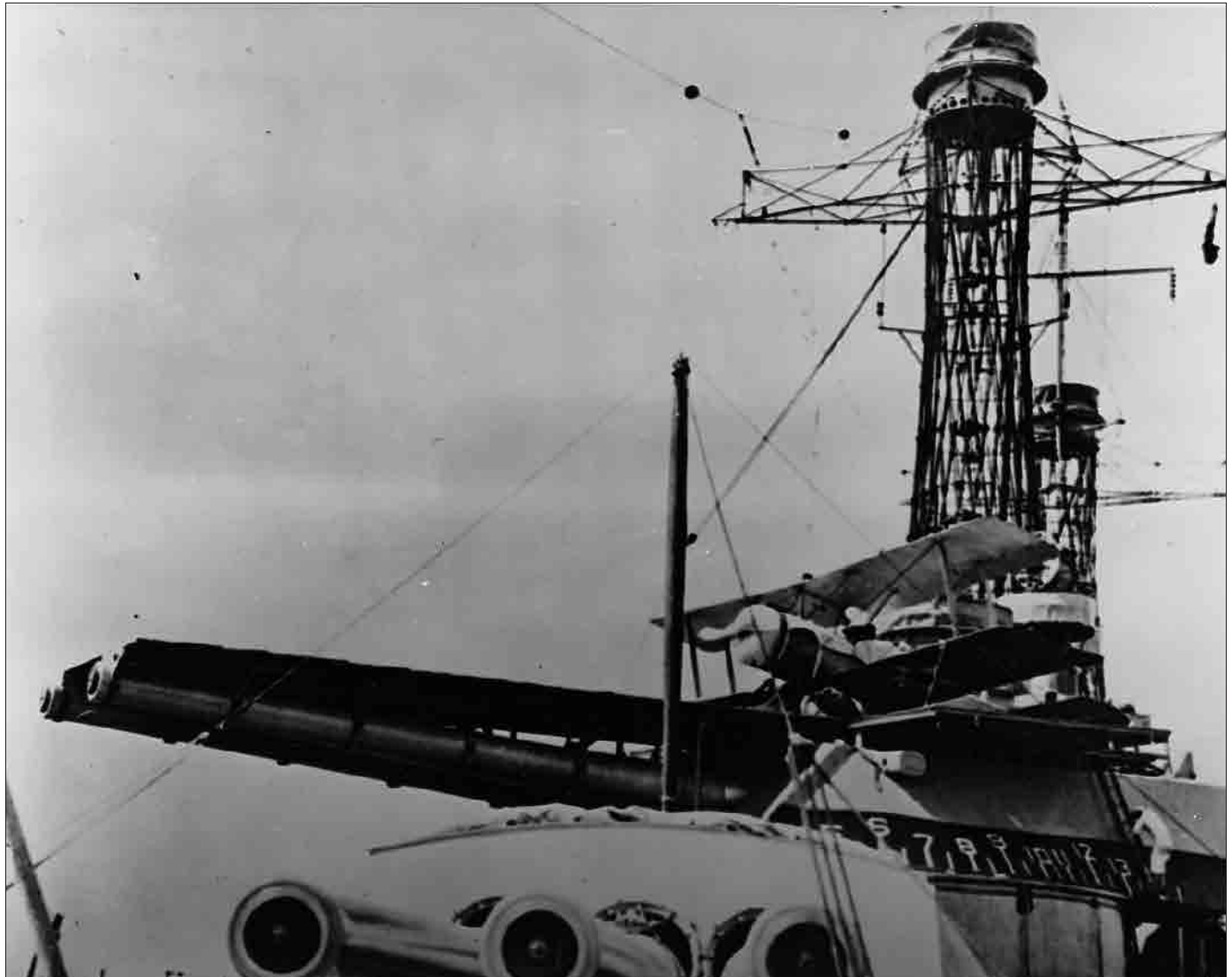
24 JANUARY • The Marines at Ponta Delgada, Azores, received orders to abandon their station and return to the United States. On 17 March the men arrived at Marine Flying Field, Miami, Fla.

3 FEBRUARY • Capt. George W. Steele Jr. assumed command of Fleet Air Detachment, Atlantic Fleet, on board *Shawmut* (Minelayer No. 4) at Boston Navy Yard, Mass. The detachment's establishment enabled testing of the capabilities of aviation to operate with fleet forces and marked the beginning of a permanent provision for aviation in fleet organization. All elements of the detachment did not immediately assemble but consisted of *Shawmut* as flagship and aircraft tender (commonly referred to by pilots as the "mother ship"); a squadron of six H-16s, Lt. Cmdr. Bruce G. Leighton commanding; a division of three single-seat scout planes, Lt. Cmdr. Edward O. McDonnell commanding, on board *Texas* (Battleship No. 35); and a division of six kite balloons, Lt. j.g. John G. Paul commanding, assigned to various ships including *Shawmut*.

9 FEBRUARY • The submission of aerological data obtained at various naval air stations to the Weather Bureau for use in coordinated study of weather conditions commenced with a report submitted by NAS Pensacola, Fla.

15 FEBRUARY • The Fleet Air Detachment, Atlantic Fleet, completed assembling at Guantánamo Bay, Cuba. Two days later the detachment began operations by participating in long-range spotting practice. The men gave a practical demonstration of the capabilities of aircraft and the advantages to be gained from their coordinated employment with ships. Secretary of the Navy Josephus Daniels reported the exercise to be a "considerable success."

7 MARCH • Pilot Lt. j.g. Frank M. Johnson launched in an N-9 from a sea sled and attained a speed of approximately 50 knots during a test at NAS Hampton Roads, Va. Cmdr. Henry C. Mustin had recommended that a powerful motor boat be converted into a sea sled to launch a plane at a point within range of a target as a means of attacking German submarine pens. The firm of Murray and Tregurtha of



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A Sopwith 1 1/2-Strutter sits on a flying-off platform atop a 14-inch gun turret of most likely *Oklahoma* (BB 37) during operations off Guantanamo Bay, Cuba, c.1920.

South Boston, Mass., manufactured the sled, and civilian industrialist Albert Hickman designed and patented the essential features of the device.

9 MARCH • Lt. Cmdr. Edward O. McDonnell made the first flight of a Sopwith Camel from a turret platform on board a U.S. Navy battleship when he successfully took off from the No. 2 14-inch gun turret of *Texas* (Battleship No. 35) as she lay at anchor at NS Guantánamo Bay, Cuba.

12 MARCH • Lt. j.g. Harry Sadenwater, USNRF, demonstrated the feasibility of using voice radio and telephone relay for air to ground communications when he

carried on a conversation from an airborne flying boat with Secretary of the Navy Josephus Daniels, who was seated at his desk in the Navy Department 65 miles away.

13 MARCH • The Chief of Naval Operations issued a preliminary program for postwar naval airplane development. The specialized types desired comprised fighters, torpedo carriers, and bombers for fleet use; single-engine, twin-engine, and long distance patrol and bomber planes for station use; and a combination landplane and seaplane for Marine Corps operations.

21 MARCH • A gyrocompass developed by Sperry Gyroscope Co. for the Navy was tested in an aircraft. The evaluations failed to find this particular instrument acceptable but marked the first recorded tests of this device, which subsequently proved an invaluable navigational instrument for long-range flight.

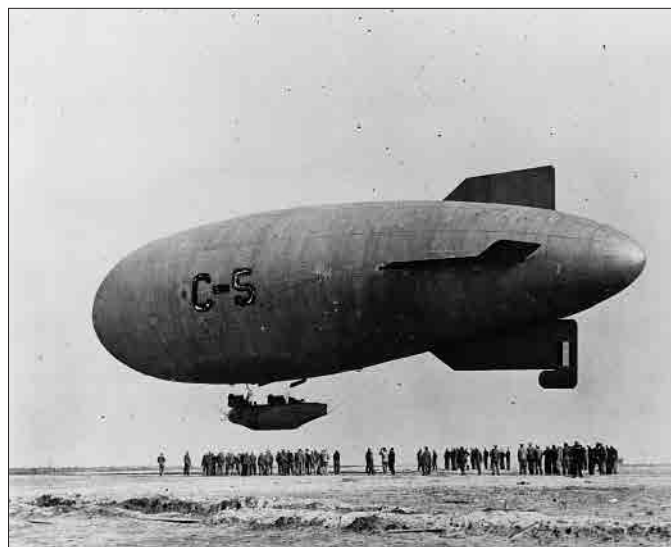
7 APRIL • The Seaplane Squadron and *Shawmut* (Minelayer No. 4) of Fleet Air Detachment sailed from NS Guantánamo Bay, Cuba, for the United States following almost seven weeks of participation in fleet exercises. The squadron operated entirely afloat and without support from ashore during this period.

8 APRIL • Capt. Thomas T. Craven detached from the Bureau of Navigation for duty in the Office of the Chief of Naval Operations. The following month Craven relieved Capt. Noble E. Irwin as Director of Naval Aviation.

10 APRIL • The roll-up of naval air stations in Europe that began on 31 December 1918 with the disestablishment of NAS Porto Corsini, Italy, completed with the disestablishment of NAS Eastleigh, England.

26 APRIL • Flying an F-5L (BuNo A-3589) equipped with two 400 hp Liberty engines, pilot Lt. Harold B. Grow and crewmembers Ens. Rutledge Irvine, Ens. Hugh S. Souther, and Ens. Delos Thomas completed a record flight of 20 hours 19 minutes covering 1,250 nautical miles from Hampton Roads, Va. Although the record was unofficial because the crew made the flight without National Aeronautic Association supervision and prior to the date on which seaplanes received recognition as a separate class for record purposes, their achievement stood as the longest seaplane flight until 1 May 1925.

28 APRIL • In the process of developing and testing navigational equipment for the forthcoming NC flying boats' transatlantic flight, Lt. Cmdr. Richard E. Byrd Jr. requested from the Naval Observatory a supply of bubble levels, which he adapted for attachment to navigational sextants, thereby providing an artificial horizon that made it possible for men to use these instruments for astronomical observations from aircraft.



Airship C-5 makes a record flight but fails to cross the Atlantic.

8 MAY • At 0959 flagship NC-3, the first of three NC flying boats of Seaplane Division One, Cmdr. John H. Towers commanding, took off from NAS Rockaway, N.Y., for Halifax, Nova Scotia, on the first leg of a projected transatlantic flight. Towers commanded NC-3, BuNo A-2293; Lt. Cmdr. Patrick N. L. Bellinger commanded NC-1, A-2291; and Lt. Cmdr. Albert C. Read commanded NC-4, A-2294, along with crewmembers Lt. James L. Breese, Lt. Elmer F. Stone, USCG, Lt. j.g. Walter K. Hinton, Ens. Herbert C. Rodd, and MMC Eugene S. Rhoads. Each plane completed the flight's second leg, from Halifax to Trepassey Bay, Newfoundland, over the next three days.

14 MAY • Lt. Cmdr. Emory W. Coil commanded the airship C-5 during a record flight for nonrigid airships from Montauk Point, Long Island, N.Y., to Pleasantville, St. Johns, Newfoundland, covering 1,050 nautical miles in 25 hours 50 minutes. Coil and his crew of six made the nonstop voyage to determine whether they were able to cross the Atlantic, and determined that such a flight would be feasible. However, shortly following C-5's arrival a heavy gale sprang up, and despite efforts to deflate the bag, the gale tore the airship from the moorings and swept her to sea. The two sailors on board jumped clear and survived.

16 MAY • A few minutes after 1800 three NC flying boats of Seaplane Division One (NC-1, NC-3, and NC-4) took off from Trepassey Bay, Newfoundland, for the voyage to the Azores with NC-3 in the van. At one point Radioman Ens.



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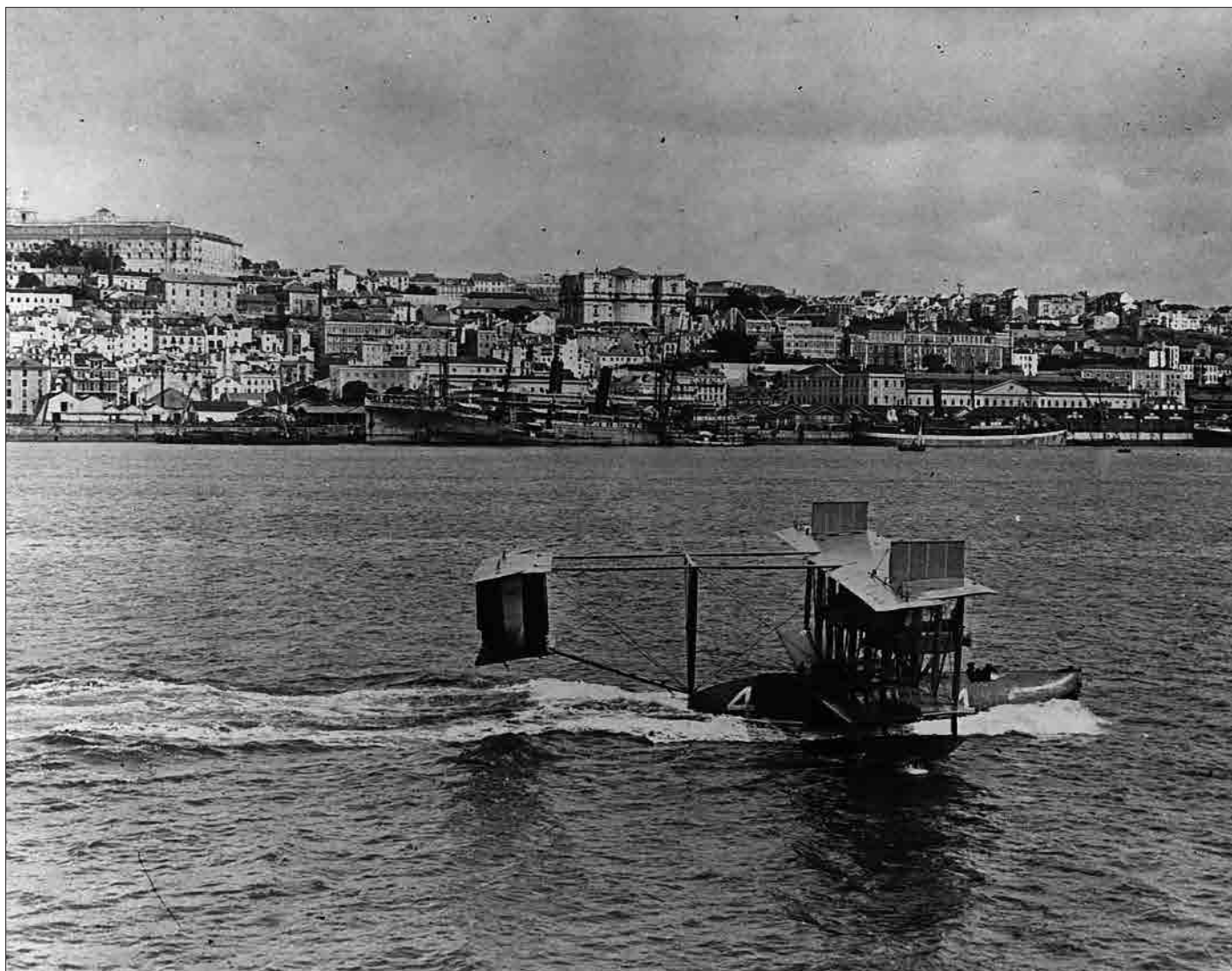
The crew of NC-4 with Commander Azores Detachment Capt. Richard H. Jackson, left to right: 1st Lt. Elmer F. Stone, USCG, CMM Eugene S. Rhoads, Lt. j.g. Walter K. Hinton, Ens. Herbert C. Rodd, Lt. James L. Breese, Lt. Cmdr. Albert C. Read, and Capt. Jackson.

Herbert C. Rodd of NC-4 intercepted a radio message from steamship *George Washington* 1,325 miles distant. Also on this date a radio station at Bar Harbor, Maine, intercepted a message from one of the planes from about 1,400 miles away.

17 MAY • At 1323 NC-4 descended to Horta in the Azores. NC-4 became the only one of the three NC flying boats that left Trepassey Bay, Newfoundland, the previous day to reach the Azores by air. The other NC boats lost their bearings in the fog, landed at sea to determine their positions, and sustained damage that rendered them unable to resume the flight. Lt. Cmdr. Patrick N. L. Bellinger of NC-1 descended to the water 45 miles on the other side of Flores, but heavy seas disabled the plane. After five hours on the water, Greek

steamer *Ionia* took NC-1 in tow but the lines parted. *Gridley* (Destroyer No. 92) attempted to tow NC-1, but NC-1 broke up and sank. The crew clambered on board *Ionia* and arrived at Horta at 1230 the following day. Cmdr. John H. Towers landed NC-3 about 35 miles from the island of Fayal. The plane encountered rough seas, drifted backward toward the Azores, and arrived at Ponta Delgada at 1650 on 19 May.

27 MAY • At 2001, Lt. Cmdr. Albert C. Read of NC-4 completed the first Atlantic Ocean crossing by air when he landed at Lisbon, Portugal after departing from the Azores early on the morning of 26 May. On 31 May, Read lifted off again and arrived at Plymouth, England at 1326.



Lt. Cmdr. Albert C. Read runs flying boat NC-4 into Lisbon, Portugal, following the completion of the first flight across the Atlantic, 27 May 1919.

31 MAY • By this point 669 officers and 7,100 enlisted men remained in naval aviation, and their numbers continued to drop because of the rapid postwar demobilization.

12 JUNE • A contract was issued to construct a revolving platform for use in the experimental development of techniques and equipment for landing aircraft onto ships at Hampton Roads, Va.

14 JUNE • Medal of Honor recipient Ens. Charles H. Hammann, USNRF, died when the flying boat he was piloting during a flying circus at Langley Field, Va., fell into a tailspin and crashed.

21 JUNE • The Bureau of Construction and Repair reported a modification to the aircraft color scheme whereby stretched fabric surfaces were to be finished with aluminum enamel. Thus, wing and tail and in some instances fuselage surfaces were to be aluminum-colored, while the specified color for other exterior surfaces continued as naval gray enamel.

23 JUNE • The General Board submitted the last of a series of reports to Secretary of the Navy Josephus Daniels concerning a policy for developing a naval air service. The board stated that “aircraft have become an essential arm of the fleet,” and urged the adoption of a broad program for peacetime development to establish a naval air service “capable of accompanying and operating with the fleet in all



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Secretary of the Navy Josephus Daniels with the NC transatlantic fliers, 2 July 1919, left to right: first row, Lt. Cmdr. Albert C. Read, Secretary Daniels, Cmdr. John H. Towers, Assistant Secretary of the Navy Franklin D. Roosevelt, Lt. Cmdr. Patrick N. L. Bellinger; second row, Ens. Herbert C. Rodd, Lt. Harry Sadenwater, USNRF, Lt. Louis T. Barin, USNRF, Cmdr. Holden C. Richardson, CC, Lt. David H. McCulloch, USNRF; third row, Lt. James L. Breese, Lt. Robert A. Lavender; fourth row, CMM Eugene S. Rhoads, MM Rasmus Christensen, Lt. Elmer F. Stone, USCG, and Lt. j.g. Walter K. Hinton.

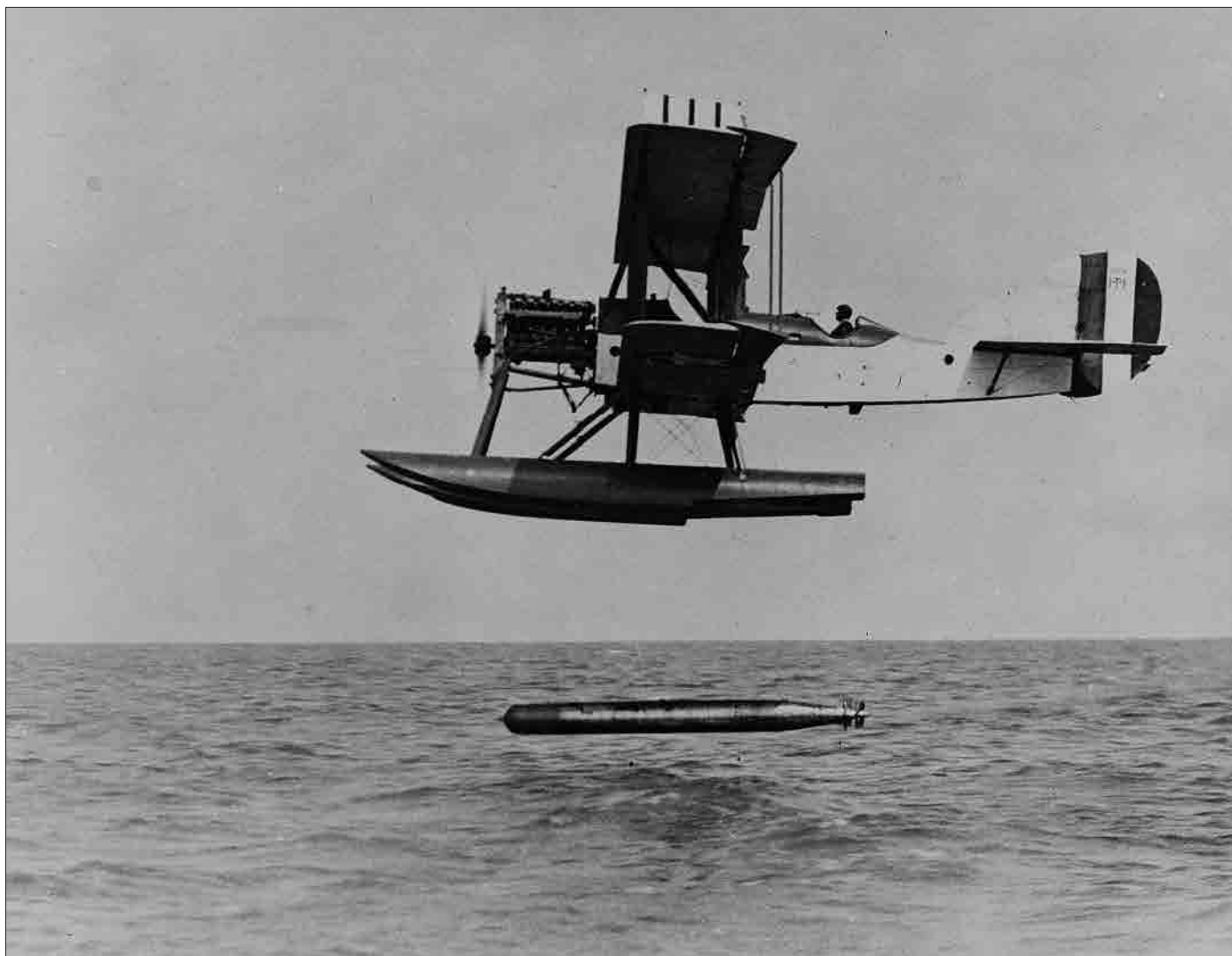
waters of the globe.” On 24 July the secretary approved (with some modification) the report, and this program provided the direction for a number of actions taken during the following months.

25 JUNE • NAS Anacostia, D.C., reported experiments in which planes carried aloft instruments to measure the temperature and humidity of the upper atmosphere.

1 JULY • The Secretary of the Navy authorized installation of launching platforms on two main turrets in each of eight battleships. During WWI *Texas* (Battleship No. 35) received

a platform to launch aircraft from one of her 14-inch gun turrets at Newcastle, England. Experience with *Texas* and the battleships subsequently converted disclosed that these platforms interfered with operating the turrets and planes and reduced visibility from the bridge, which eventually led to discarding these plans and increasing the emphasis on catapults. At times a mix of Hanriot HD-2s, Nieuport 28s, Sopwith Camels, and Sopwith 1 ½-Strutters operated from the battleships.

1 JULY • British Maj. George H. Scott commanded the rigid airship *R-34* during a flight across the Atlantic to Mineola,



An uncowled R-6 drops a torpedo.

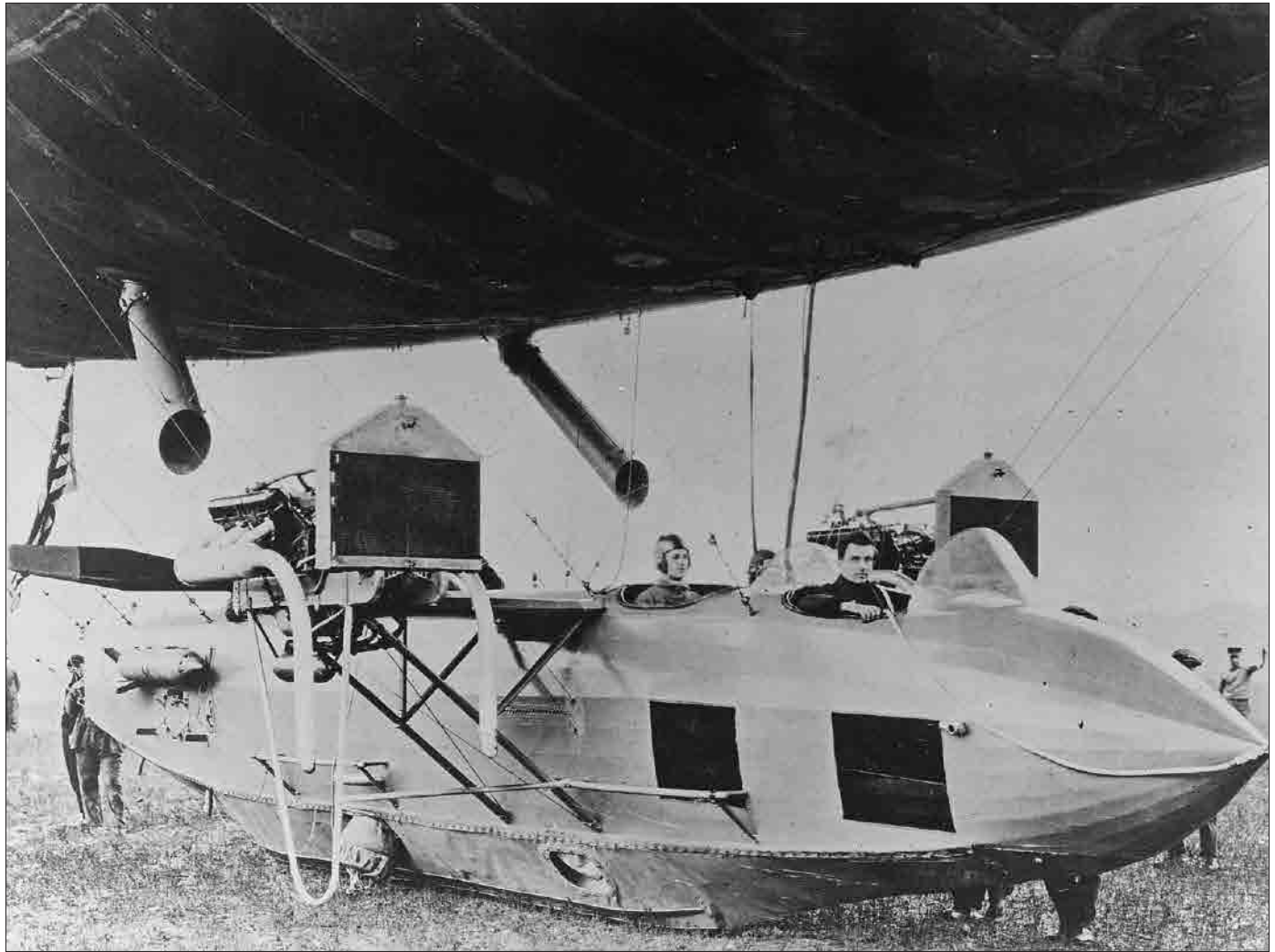
N.Y. Scott arrived on 6 July and remained until midnight three days later when he lifted off for the United Kingdom. Lt. Cmdr. Zachary Lansdowne (Naval Aviator No. 105) and Lt. j.g. Ralph Kiely had become the first two U.S. naval aviators to report for European duty in airships during WWI, and Lansdowne accompanied *R-34* by Scott's invitation on the return flight. The British achievement spurred American interest in the development of lighter-than-air craft.

2 JULY • The officer in charge of the Navy Detachment under instruction in landplanes at the Army Air Service School at Langley Field, Va., reported that 27 naval aviators had completed their preliminary flight phase in JN-4s, and were approaching the end of the formation flight syllabus in

DH aircraft. This training was to prepare the men to operate landplanes from battleship turrets.

2 JULY • Secretary of the Navy Josephus Daniels and Assistant Secretary of the Navy Franklin D. Roosevelt received some of the NC flying boat crewmembers and presented them to the American public from the steps of the Navy Department Building in Washington, D.C. The Navy subsequently dispatched NC-4 on a recruiting tour across the United States that began in Boston, Mass., on 1 October and finished in Charleston, S.C., on 1 January 1920. Upon completion the plane was returned to NAS Rockaway, N.Y.

11 JULY • The Naval Appropriations Act for fiscal year 1920 made several important provisions for the future of



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The crew and gondola of a C-class airship with a bomb on its starboard rack.

naval aviation, including conversion of the collier *Jupiter* (Fuel Ship No. 3) into an aircraft carrier, subsequently named *Langley* (CV 1); conversion of two merchant ships into seaplane tenders, only one of which, later named *Wright* (AZ 1), actually was commissioned as such; construction of a rigid airship, later designated ZR-1 and named *Shenandoah*; and purchase of a rigid airship from abroad, later designated ZR-2 (R-38). The act also limited to six the heavier-than-air stations along the coasts of the United States.

1 AUGUST • To merge aviation with other naval activities the Aviation Division of the Office of the Chief of Naval Operations was abolished, and its functions were reassigned to other divisions and to the Bureau of Navigation. The Director of Naval Aviation retained his title as head of the Aviation Section of the Planning Division. The decision

included the transfer of the Aircraft Test Board to the Board of Inspection and Survey.

19 AUGUST • The Secretary of the Navy ordered the use of the prewar white star national insignia on all naval aircraft in place of the concentric circle design adopted during WWI. By this order the red, white, and blue vertical bands on the rudder reverted to their prewar position with the blue forward.

23 AUGUST • General Order No. 499 directed that airships were to carry enough parachutes during flights for each person on board. General Order No. 509 of 5 November 1919 amplified this directive to apply also to flights in kite balloons, and added that life preservers were to be carried in all lighter-than-air craft during flights over water.

28 AUGUST • President Woodrow Wilson issued Executive Order 3160 that returned the Coast Guard from the wartime command of the Navy to the Treasury Department.

22 OCTOBER • Secretary of War Newton D. Baker approved the Navy's request for 18 naval aviators and 10 mechanics to attend landplane training at the Air Service Training School at Carlstrom Field, Arcadia, Fla. Two days later Secretary Baker approved a similar program at March Field, Riverside, Calif. Secretary of the Navy Josephus Daniels requested this training as an extension of the program already conducted under the Army at Langley Field, Va., as necessary to the successful operation of scouting planes from battleship turrets.

1 NOVEMBER • The Aerological School opened with a class of one Marine and four Navy officers at NAS Pensacola, Fla.

18 NOVEMBER • Secretary of the Navy Josephus Daniels informed Secretary of War Newton D. Baker that in response to his request arrangements had been made for six Army soldiers to attend the enlisted men's course in meteorology at NAS Pensacola, Fla. Secretary Josephus Daniels suggested their arrival for about 1 December to coordinate with the start of classes.

21 NOVEMBER • Engineering plans for the conversion of the collier *Jupiter* (Fuel Ship No. 3) to an aircraft carrier were modified and the Bureau of Construction and Repair issued a summary specification. In addition to an unobstructed "flying-on and flying-off deck," stowage space for aircraft, and facilities for repair of aircraft, the new plans provided for catapults to be fitted on both forward and aft ends of the flying-off deck. The schedule had originally earmarked her completion for 5 July 1920.

5 DECEMBER • Secretary of the Navy Josephus Daniels approved the basic agreement covering the procurement of the rigid airship *R-38* (ZR-2) from the British Air Ministry.