

The Roaring Twenties

1920–1929

The 1920s stand out in the history of naval aviation as a decade of growth. The air arm steadily increased in size and strength while improving its administrative and operational position within the Navy.

The period began under the leadership of a director without authority to direct but ended with a flourishing Bureau of Aeronautics. In the early 1920s small air detachments in each fleet proved effective during operations at sea. At the end of the decade three carriers sailed in full operation, patrol squadrons performed scouting functions, and commanders regularly assigned planes to battleships and cruisers. Together these elements played important roles in the annual fleet war games.

Impressive technical progress also characterized the decade. Despite slim funds, radial air-cooled engines developed into efficient and reliable sources of propulsion. Better instruments came into use, and an accurate bombsight was developed. Aircraft equipped with oleo struts and folding wings enhanced the operating capabilities of carriers. Each year planes flew faster, higher, and longer, and naval aviation contributed to world records.

Sailors and Marines developed innovative tactics and learned techniques of dive bombing, torpedo attack, scouting, spotting for gunfire, and operating from advanced bases. Naval pilots used their skills to turn airplanes to new uses in polar exploration and photographic surveying, and solved the basic and unique problems of taking aviation to sea.

Controversy also riddled these years, however, as journalists reported angry statements by the proponents of airpower and virulent retorts from its opponents. Critics directed charges of duplication, inefficiency, prejudice, and jealousy toward aviation advocates. Debates over the role of airpower and such issues as the role of the services in coastal defense included questions on the further need

for a Navy. Many naval aviators grew frustrated with their career limitations and lack of command responsibilities. People within the aircraft industry became discontented with small peacetime orders, government procurement policies, and federal competition. Most of this controversy was typical of new technology developing at a rapid pace, but some of these questions would persist for decades.

1920

8 JANUARY • The policy of the Army and Navy relating to aircraft was published, defining the functions of Army, Navy, and Marine Corps aircraft as a guide to procurement, training, and expansion of operating facilities. It also set forth the conditions under which commanders coordinated air operations in coast defense, enunciated the means by which to avoid duplication of efforts, and provided for the free exchange of technical information.

19 JANUARY • The commandant at NAS Pensacola, Fla., reported that in the future no students were to be designated naval aviators or given certificates of qualification as Navy Air Pilots unless they could send and receive 20 words per minute on radio telegraph.

20 JANUARY • An allocation of \$100,000 to the Bureau of Steam Engineering initiated the development and purchase of 200-hp radial air-cooled engines from the Lawrance Aero Engine Company.

22 JANUARY • CQM Harold H. Karr became the first enlisted man to receive the designation Naval Aviation Pilot under a program enabling enlisted sailors to undergo flight training.



An MBT bomber drops a torpedo in the Potomac River, 12 May 1920.

17 MARCH • The approval of a change in the flight training program to overcome an acute shortage of pilots separated the heavier-than-air (seaplane) and lighter-than-air (dirigible) courses, and reduced the overall training period from nine to six months for the duration of the shortage.

24 MARCH • The first Coast Guard air station opened in Morehead City, N.C. The station began operations with six HS-2L flying boats borrowed from the Navy, but a lack of funds compelled the closure of the facility following 15 months of operation.

27 MARCH • Testers completed examination of a Sperry gyro-stabilized automatic pilot system in an F-5L flying boat at NAS Hampton Roads, Va.

2 APRIL • NAS Hampton Roads, Va., reported the success of night weather soundings since January, using candle-lighted free balloons to measure the force and direction of the wind.

1 MAY • A report from the Bureau of Construction and Repair disclosed developmental and experimental work in metal construction for aircraft. Twelve German Fokker D.VIIs, which used welded steel extensively, were to be obtained from the Army, and two sets of metal wings for an HS-3 flying boat procured from contractor Charles Ward Hall.

12 MAY • An MBT bomber dropped a torpedo in the Potomac River off Hains Point, D.C. The event marked renewed Navy interest in aerial torpedoes.

18 JUNE • A reversible pitch propeller designed by Seth Hart and manufactured by the Engineering Division of the Army Air Service was installed onto the airship *C-10* at NAS Rockaway Beach, N.Y. The Navy ordered Hart's reversible pitch propellers for VE-7 biplanes in June.

22 JUNE • The Bureau of Navigation revealed plans to select four officers for a two-year postgraduate course in aeronautical engineering at the Naval Academy and at the Massachusetts Institute of Technology, and asked for volunteers for the fall semester. Part of the requirement was that appointees take flight instruction and qualify as naval aviators after completing their studies.

28 JUNE • Six F-5L flying boats of the Atlantic Fleet Airboat Squadron, Lt. Cmdr. Bruce G. Leighton commanding, returned to Philadelphia, Pa., following a seven-month cruise through the West Indies during which the squadron logged 12,731 nautical miles, including 4,000 flown on maneuvers with the fleet.

6 JULY • In a test of the radio compass as an aid to navigation, an F-5L flying boat flew from NAS Hampton Roads, Va., to *Ohio* (Battleship No. 12) while she sailed in a maneuvering area unknown to the pilot 94 miles at sea. The pilot located the ship and, without landing, made the return trip to Hampton Roads, this time navigating by signals from Norfolk, Va.

12 JULY • A General Order provided for the organization of forces afloat into the Atlantic, Pacific, and Asiatic fleets, and for the formation of seven type forces: Battleship, Cruiser, Destroyer, Submarine, Mine, Air, and Train. Under this order the air detachments in each fleet became air forces.

17 JULY • The Navy prescribed standard nomenclature for types and classes of naval vessels and aircraft, using "Z" for lighter-than-air craft and "V" for heavier-than-air craft. Class letters assigned within the Z type consisted of K, N, and R for kite balloons, nonrigid dirigibles, and rigid dirigibles, respectively. Within the V type, the class letters F, G, O, P, S, and T identified fighter, fleet, observation, patrol, scouting, and torpedo and bombing planes, respectively.

AUGUST • The Navy directed that all Marine Corps aircraft were to carry an insignia that comprised a circle pierced by an anchor and surmounted by a North American bald eagle.

The circle's outer ring would be red, the middle circle blue, and the center white.

17 SEPTEMBER • The site of the naval aviation activities on Ford Island, Territory of Hawaii, was designated NAS Pearl Harbor.

2 OCTOBER • Pilot Lt. Arthur C. Wagner and passenger Lt. Cmdr. William M. Corry crashed in a JN-4 near Hartford, Conn. The impact threw Corry clear, and despite the intense flames rising from the stricken Jenny, he valiantly but unsuccessfully attempted to pull Wagner clear of the wreckage. Corry died from his burns four days later and posthumously received the Medal of Honor.

13 OCTOBER • F-5L and H-16 flying boats carried out a series of tests at Tangier Sound in the Chesapeake Bay under controlled conditions to determine the accuracy with which aircraft could drop bombs on stationary targets and the damage caused by near-misses and direct hits. Planes bombed target ship *Indiana* (Battleship No. 1) twice between 13 and 16 October, and completed a third evaluation on 4 November.

1921

20 JANUARY • Secretary of the Navy Josephus Daniels approved a recommendation that the Bureau of Ordnance and the Bureau of Engineering develop radio-controlled aircraft.

20 JANUARY • The Bureau of Construction and Repair approved a Naval Aircraft Factory design of a turntable catapult powered by compressed air for fabrication at the Philadelphia Navy Yard, Pa.

7 MARCH • Capt. William A. Moffett relieved Capt. Thomas T. Craven as Director of Naval Aviation. Moffett would later become instrumental in the development of the naval air arm.

12 MARCH • A Marine air detachment designated Flight L arrived at Guam to reinforce the island's aerial defenses. The detachment was subsequently redesignated VP-3M and in 1933 returned to San Diego, Calif.



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William A. Moffett, who later becomes the first chief of the Bureau of Aeronautics.

15 MARCH • The Metallurgical Laboratory at the Naval Aircraft Factory, Philadelphia, Pa., reported that a high-strength, chromium-vanadium steel alloy proved satisfactory in laboratory tests and in the manufacture of aircraft fittings. These findings marked an advance in the development of metal as a high-strength aircraft structural material.

16 JUNE • The Navy ordered two CR-1 racers, the first of the series with which Navy and Army fliers captured many world speed records.



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A bomb explodes near the German battleship *Ostfriesland* off the Virginia Capes, July 1921.

21 JUNE • The services began a series of controversial bombing tests off the Virginia Capes, designed to provide detailed technical and tactical data on the effectiveness of aerial bombing against ships, and of the value of compartmentation in enabling vessels to survive such damage. The Army participated subject to the Navy's requirement that the bombing be accomplished as a series of controlled tests, and that inspectors board the target vessels following each attack to assess the results. In the first test, three naval F-5L flying boats dropped 12 bombs from 1,100 feet on the German submarine *U-117*, which sank in 12 minutes after the first hit. On 29 June Navy planes located the radio-controlled *Iowa* (Coast Battleship No. 4) 1 hour 57 minutes after being alerted to her approach somewhere within a 25,000-square-mile area, and attacked the ship with dummy bombs. The Navy opposed an Army proposal to attack *Iowa*, because the ship provided an unfair advantage by maneuvering under radio control. The rudimentary aerial navigation equipment available hindered testing, however, and many of the participants could not have found the ship without aids. Army bombers sank the German destroyer *G-102* on 13 July. Five days later the German light cruiser *Frankfurt* sank beneath 74 bombs dropped from Army and Navy aircraft. Bombing runs against the German battleship *Ostfriesland* began on 20 July when Army, Navy, and Marine planes dropped 52 bombs, ending the next day when Army NBS-1 bombers sank the battlegewagon with a total of eleven 1,000- and 2,000-pound

bombs. The incident escalated the controversy on the effectiveness of aerial bombing against ships when the Army refused to allow investigators to board *Ostfriesland*, and their planes continued their runs until they sank the ship. Additional tests sank (decommissioned) *Alabama* (BB 8) on 27 September 1921, and *New Jersey* (BB 16) and *Virginia* (BB 13) on 5 September 1923. Brig. Gen. William Mitchell, USA, proclaimed the obsolescence of warships and increased his lobbying for an independent air force. Naval officers upheld the effectiveness of ships by noting that the target vessels had not been able to maneuver or defend themselves, but many observers noted the capability of unopposed planes to sink capital ships.

1 JULY • The Aviation Machinist's Mate, Aviation Metalsmith, Aviation Carpenter's Mate, Aviation Rigger, and Photographer basic aviation ratings were established. These five ratings were the first concerned specifically with the air arm and based solely on aviation requirements. Prior to this time the Navy had identified certain general service ratings parenthetically as pertaining to aviation, and their qualifications required meeting the standards of the general rating in addition to those required for the aviation specialty.

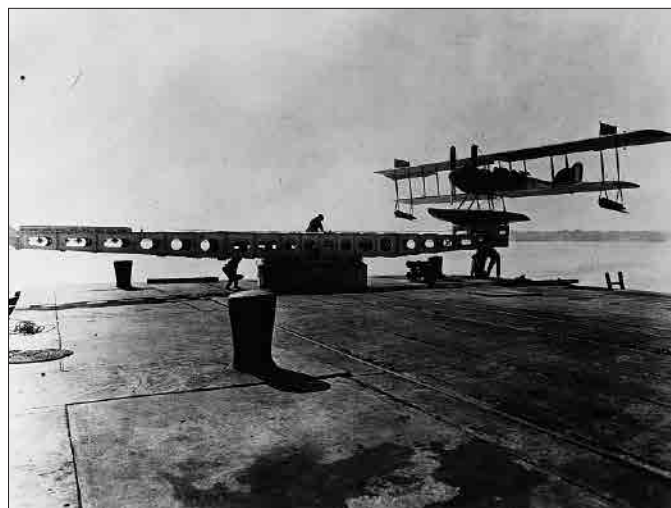
12 JULY • An act of Congress created the Bureau of Aeronautics and charged it with matters pertaining to naval aeronautics as prescribed by the Secretary of the Navy.

1 AUGUST • Torpedo Squadron, Atlantic Fleet, tested a WWI high-altitude bombsight mounted on a gyroscopically stabilized base at Yorktown, Va. The occasion marked the successful completion of the first phase of designer Carl L. Norden's development of an effective high-altitude bombsight for the Bureau of Ordnance.

9 AUGUST • Rear Adm. Bradley A. Fiske (Ret.) proposed "a nice soft cushion" as a landing surface for aircraft carriers, so mounted "that it was to take up the forward motion of the airplane and not check its forward velocity at once."

10 AUGUST • A general order established the Bureau of Aeronautics and defined its duties under the Secretary of the Navy as comprising "all that relates to designing, building, fitting out, and repairing Naval and Marine Corps aircraft." The order granted BUAER the authority to make recommendations to the Bureau of Navigation and the Commandant of the Marine Corps on all matters pertaining to aeronautic training and the assignment of men to aviation; described the scope of its relationships with other bureaus having cognizance of aeronautical materials and equipment; and directed that BUAER make special provision in its organization to furnish information "covering all aeronautic planning, operations and administration that may be called for by the Chief of Naval Operations."

11 AUGUST • The practical development of carrier arresting gear began when pilot Lt. Alfred M. Pride taxied an Aeromarine plane onto a dummy deck and engaged arresting wires at NAS Hampton Roads, Va. These tests resulted in the development of arresting gear for *Langley* (CV 1) that



An N-9 seaplane prepares to launch from a ship-type turntable catapult on a pier at the Naval Aircraft Factory, Philadelphia, Pa.

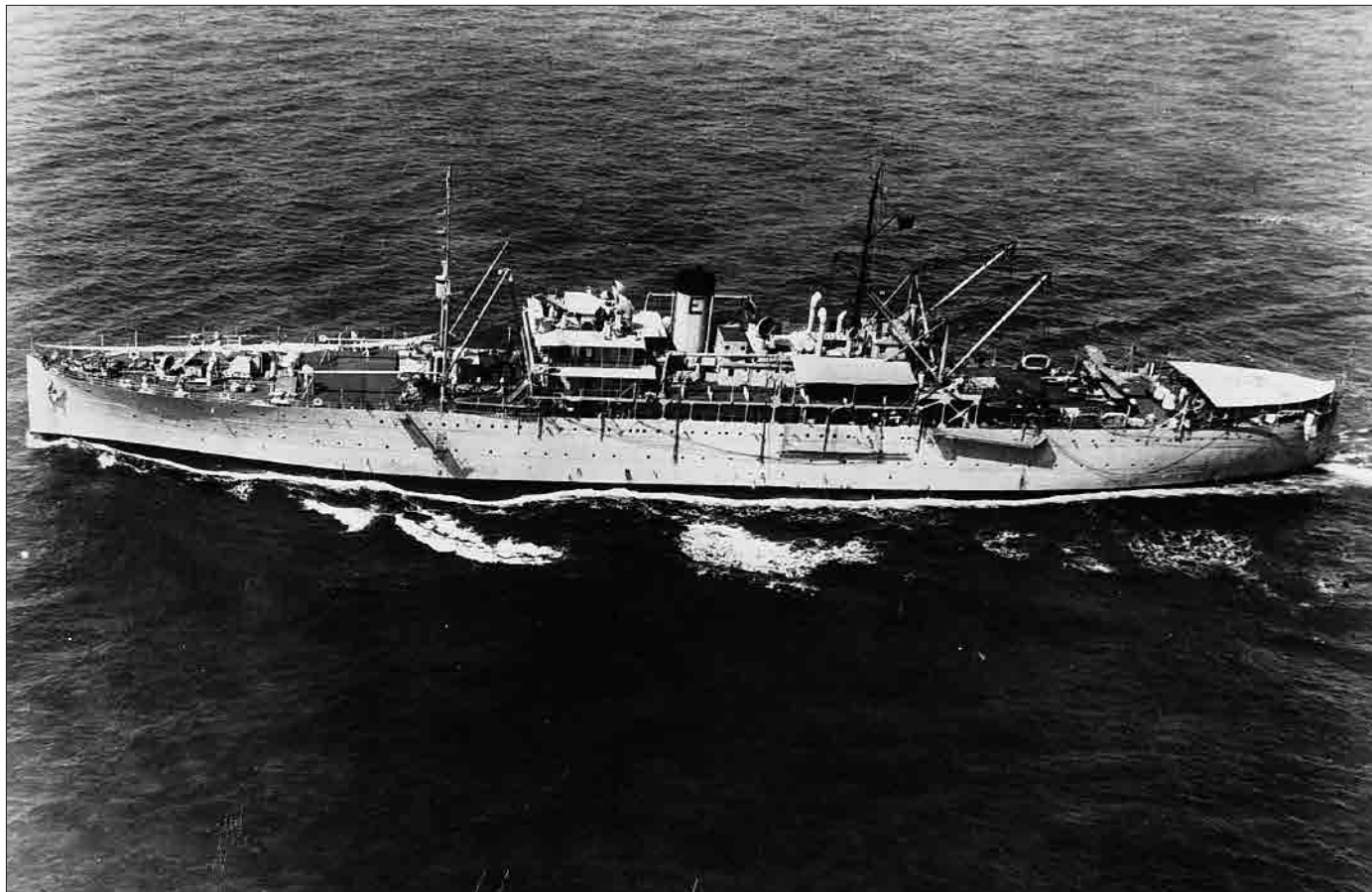
consisted essentially of athwartship wires attached to weights along with fore and aft wires.

23 AUGUST • The rigid airship *R-38* (ZR 2), which the Navy had purchased from the British Royal Air Force, lifted off on her fourth trial flight at 0710 from Howden Aerodrome in England. At 1737 on 24 August, an explosion in the forward section broke the airship into two parts, and both of the sections together with men and debris fell into the Humber River near Hull. The crash killed 16 Americans, including prospective skipper Cmdr. Louis H. Maxfield, Lt. Cmdr. Emory W. Coil, and Lt. Henry W. Hoyt, and 28 Britons, including Air Commodore E. M. Maitland, RAF.

1 SEPTEMBER • The Bureau of Aeronautics began functioning as an organizational unit of the Navy Department under Rear Adm. William A. Moffett.

26 OCTOBER • A compressed air, turntable catapult launched an N-9 seaplane piloted by Naval Constructor Cmdr. Holden C. Richardson, CC, during the first successful test of the device from a pier at the Philadelphia Navy Yard, Pa.

3 NOVEMBER • Civilian pilot Bert Acosta in a CR-1 racer, BuNo A-6080, powered by a 400-hp Curtiss engine and on loan to the builder, won the Pulitzer Race with a world record speed of 176.7 mph in Omaha, Neb.



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The Navy's first vessel especially fitted as a seaplane tender, *Wright* (AZ 1).

1 DECEMBER • Lt. Cmdr. Ralph F. Wood piloted the *C-7* during the first flight of an airship inflated with helium gas at Norfolk, Va.

16 DECEMBER • The seaplane tender *Wright* (AZ 1), uniquely designed as a heavier-and lighter-than-air tender, was commissioned at New York, N.Y., Capt. Alfred W. Johnson commanding.

20 DECEMBER • To meet requirements of several Pacific Fleet commands, the commanding officer of NAS San Diego, Calif., received authorization to establish a school to train naval aviators in the use of landplanes.

1922

16 JANUARY • The Bureau of Aeronautics directed the shipment of Army-type seat pack parachutes for heavier-than-air use to Marines in Haiti, the Dominican Republic, Guam, and Quantico, Va.

6 FEBRUARY • At a meeting in Washington, D.C., British, French, Italian, Japanese, and U.S. representatives signed the Washington Treaty limiting naval armament. The treaty established a respective tonnage ratio of 5–5–3 for British, American, and Japanese capital ships, and lesser figures for the French and Italians. The same ratio for aircraft carrier tonnage set the overall limits at 135,000–135,000–81,000 tons. The treaty also limited new carriers to 27,000 tons with a provision that, as long as the nations did not exceed total carrier tonnage by doing so, they could build two carriers of not more than 33,000 tons each or obtain them by converting existing or partially constructed ships that the treaty would otherwise require to be scrapped. The



Fighters and torpedo planes pack the deck of the first U.S. aircraft carrier, *Langley* (CV 1).

Americans, British, and Japanese scrapped 66 existing or partially constructed capital ships totaling more than 1.8 million tons.

7 FEBRUARY • The completion of a 50-hour test run of the 200-hp Lawrence J-1 radial air-cooled engine by the Aeronautical Engine Laboratory at the Washington Navy Yard, D.C., foreshadowed the successful use of radial engines in naval aircraft.

11 FEBRUARY • The first cradle of the rigid airship designated ZR-1, subsequently named *Shenandoah*, was completed at NAS Lakehurst, N.J., marking the initial step in the assembly of the Navy's first rigid airship. The Secretary of the Navy had authorized her construction on 9 August 1919. The first materials for ZR-1 arrived at the Naval Aircraft Factory, Philadelphia, Pa., where construction began in 1920. NAS Lakehurst later completed the assembly. During this period, the Navy constructed at Lakehurst the largest hangar

built to date in the United States to accommodate the craft, measuring 804-feet-long by 318-feet-wide by 200-feet-high.

2 MARCH • The Navy initiated experimental investigation and development of catapults using gunpowder, which eventually produced a new type of catapult for use in launching aircraft from capital ships.

20 MARCH • The first U.S. aircraft carrier *Langley* (CV 1) was commissioned at Norfolk, Va., under the command of Executive Officer Cmdr. Kenneth Whiting. The Norfolk Navy Yard had converted *Langley* from the collier *Jupiter* (AC 3), replacing her coal-handling derricks with a wooden flight deck and converting holds to hangars and fuel tanks. *Langley* was named in honor of aviation pioneer Samuel P. Langley.

25 MARCH • The Secretary of the Navy established an Experimental and Research Laboratory as provided for in a public law passed in August 1916. Following the

construction of buildings at Bellevue, D.C., the Aircraft Radio Laboratory at NAS Anacostia, D.C., the Naval Radio Research Laboratory from the Bureau of Standards, and the Sound Research Section of the Engineering Experiment Station were consolidated at the new organization in Bellevue prior to its establishment in July 1923. People generally called this facility the Naval Research Laboratory, and with the Naval Appropriations Act of 1926 this name became official.

27 MARCH • To comply with a provision of the law establishing the Bureau of Aeronautics that emphasized that its chief and at least 70 percent of the bureau's officers were to consist of either pilots or observers, the bureau defined the functions and qualifications of Naval Aviation Observers and recommended a course of study for their training. Upon approval of the course and its qualifications by the Bureau of Navigation, Rear Adm. William A. Moffett reported for training, qualifying as the first Naval Aviation Observer on 17 June 1922.

29 MARCH • The Navy promulgated a change in the aircraft designation system: adding the identity of the manufacturer to model designations. Symbols consisted of a combination of letters and numbers in which the first letter identified the manufacturer and the second, the class (or mission) of the aircraft. Numbers that appeared between letters indicated the series of designs within classes built by the same manufacturer (the 1 being omitted), and numbers following a dash after the class letter indicated modifications of the basic model. For example, MO would indicate a Martin observation plane; the second modification of MOs were MO-2s; and the second-design observation planes built by Martin were M2Os.

1 APRIL • The Bureau of Aeronautics sent descriptive specifications of arresting gear of the type later installed in *Lexington* (CV 2) and *Saratoga* (CV 3) to various design engineers, including Carl L. Norden and Warren Noble. "The arresting gear will consist of two or more transverse wires stretched across the fore and aft wires . . . [and which] lead around sheaves placed outboard to hydraulic brakes. The plane after engaging the transverse wire is guided down the deck by the fore and aft wires and is brought to rest by the action of the transverse wire working with the hydraulic brakes."

22 APRIL • Secretary of the Navy Edwin Denby approved a recommendation from the General Board to assign a spotting plane to each fleet battleship and cruiser, and test the feasibility of operating more aircraft from these ships.

24 APRIL • Seeking to increase the service life of aircraft engines beyond the 50 hours then required, the Bureau of Aeronautics issued a contract to the Packard Motor Car Co. for a 300-hour test of a Packard 1A-1551 dirigible engine. Such endurance testing—whereby runs to destruction identified the weaker components of an engine, which were then redesigned for longer life—came to be an important step in both increasing the operating life of engines and in the development of new high performance engines.

25 APRIL • Pilot Eddie Stinson made the initial flight of an ST-1 twin-engine torpedo plane built by Stout Engineering Laboratory as the first all-metal airplane designed for the Navy. The aircraft possessed inadequate longitudinal stability, but its completion marked a step forward in the development of all-metal aircraft.

24 MAY • Routine operation of shipboard catapults commenced when pilot Lt. Andrew C. McFall and passenger Lt. DeWitt C. Ramsey launched in a VE-7 biplane via a compressed air catapult from the battleship *Maryland* (BB 46) off Yorktown, Va. The Navy subsequently installed catapults on battleships and then on cruisers, thereby achieving the ability to operate aircraft from existing capital ships. From these platforms, enterprising aviators developed techniques for supporting conventional surface forces by scouting and spotting for ships' guns.

31 MAY • Two free balloons represented the Navy in the National Elimination Balloon Race at Milwaukee, Wis. The first, manned by Lt. Cmdr. Joseph P. Norfleet and Chief Rigger James F. Shade, operated with helium in the first recorded use of the gas in a U.S. free balloon. The second balloon, with Lt. William F. Reed Jr. and Chief Rigger K. Mullenix, finished third in the race with a distance of 441 miles and became the only Navy qualifier for the International Balloon Race held later in the year in Geneva, Switzerland.

17 JUNE • The practice of numbering aircraft squadrons to conform to the number of the ship squadron they served was changed to a system of numbering squadrons serially by

class in the order of their initial authorization. The Navy also adopted the use of letter abbreviations to indicate missions.

17 JUNE • In anticipation of a reorganization that was to merge the Atlantic and Pacific fleets into a U.S. Fleet (and further divide it into the Battle Fleet and the Scouting Fleet) on 6 December, the fleet aviation commands whose titles had previously been changed from Air Forces to Air Squadrons were retitled Aircraft Squadrons of the Scouting and Battle fleets.

26 JUNE • The Navy ordered a rigid airship from the Zeppelin Airship Co., Friedrichshafen, Germany. The United States obtained the zeppelin, designated *LZ-126* by the builder, as a nonmilitary aircraft as part of WWI reparations under the terms approved by the Conference of Ambassadors on 16 December 1921. The Navy subsequently christened the ship *Los Angeles* (ZR 3).

1 JULY • The training of nucleus crews for two rigid airships, subsequently named *Los Angeles* (ZR 3) and *Shenandoah* (ZR 1), began at NAS Hampton Roads, Va.

1 JULY • The first eight medical officers to report for flight training began instruction at NAS Pensacola, Fla. Four of these officers had previously completed the flight surgeon course at the Army Technical School of Aviation Medicine.

1 JULY • Congress authorized the conversion of the unfinished battle cruisers *Lexington* (CC 1) and *Saratoga* (CC 3) to carriers as permitted under the terms of the Washington Treaty.

1 JULY • Sailors began training in the care and packing of parachutes as ten chief petty officers arrived for two months of instruction at the Army's Chanute Field at Rantoul, Ill.

3 JULY • Class XVI, the first class of student naval aviators to receive training in landplanes, commenced training at NAS Pensacola, Fla.

17 JULY • The Chief of Naval Operations forwarded a list of bureau and division representatives to the Bureau of Navigation, and requested that they be ordered to meet as a board in order to draw up tactical doctrine governing the employment of spotting aircraft in fleet fire control.



Lt. Adolphus W. Gorton wins the Curtiss Marine Trophy Race for seaplanes in a TR-1, 8 October 1922.

27 SEPTEMBER • Eighteen PT seaplanes of Torpedo and Bombing Plane Squadron One conducted the first mass torpedo practice against a live target when they attacked the battleship *Arkansas* (BB 33) while she sailed in a formation of three battleships maneuvering at full speed off the Virginia Capes. During the 25-minute attack the bombers approached the ships from port and starboard and released 17 Mk VII Model 1 A torpedoes at distances of 500 to 1,000 yards and scored eight "hits" on *Arkansas*. Despite artificialities that prevented the practice from demonstrating the true combat capabilities of either the surface or air servicemembers, the bombing run demonstrated that planes could launch torpedoes, which were capable of running straight.

27 SEPTEMBER • The commanding officer at NAS Anacostia, D.C., proposed the use of radios to detect the passage of ships at night or during heavy fog. The reported "best method of detection" resulted from the unexpected nature of a radio signal observed by Cmdr. A. Hoyt Taylor and civilian L. C. Young of the Aircraft Radio Laboratory at that station, when a passing river steamer interrupted experimental high-frequency radio transmissions between Anacostia and a receiver across the river at Hains Point. The observation and analysis of the phenomenon marks the first step in the chain of events that led to the Navy's introduction of radar.

8 OCTOBER • Lt. Adolphus W. Gorton won the Curtiss Marine Trophy Race for seaplanes, held during the National Air Races at Detroit, Mich. Gorton averaged 112.6 mph in a TR-1, BuNo A-6303, powered by a Lawrence J-1 engine over the 160-mile course. Second place went to Lt. Harold A. Elliott in a VE-7H.



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The 1922 Pulitzer Trophy Air Race third-place finisher Lt. Harold J. Brow poses with his CR-2 racer.

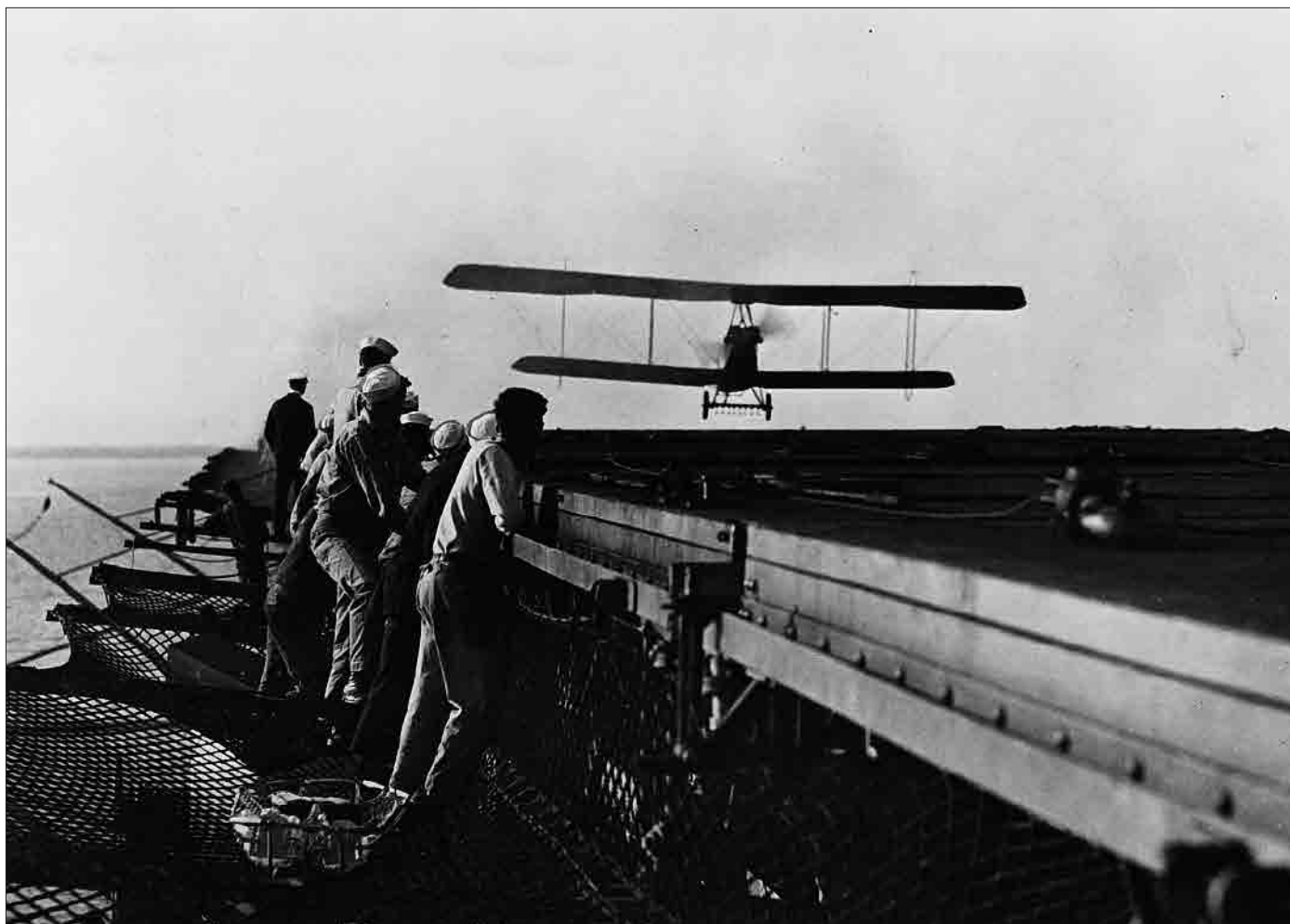


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A VE-7 biplane similar to the first plane to take off from Langley (CV 1).

14 OCTOBER • Lt. Harold J. Brow and Lt. Alford J. Williams flew CR-2 and CR-1 racers with D-12 engines to finish third and fourth, respectively, in the Pulitzer Trophy Race at Detroit, Mich. The planes attained speeds of 193 and 187 mph.

14 OCTOBER • Pilots Lt. Ben H. Wyatt and Lt. George T. Owen flew two DH-4B-1 biplanes during a round trip transcontinental flight. Wyatt flew BuNo A-6377. The pilots made the trip in short hops along a southern route on the outward leg from San Diego, Calif., through Tucson, Ariz., New Orleans, La., and Pensacola, Fla., and on the homeward leg from Washington, D.C., through Dayton, Ohio, Omaha, Neb., Salt Lake City, Utah, and San Francisco, Calif. They completed the 7,000-mile trip in about 90 hours of flight and returned to San Diego on 29 November. Layovers caused by mechanical difficulties, poor-quality gasoline, inclement



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An Aeromarine similar to the one that first landed on board *Langley* (CV 1) practices landings on the ship.

weather, and lack of navigating equipment accounted for most of their elapsed time.

17 OCTOBER • Lt. Virgil C. Griffin (Naval Aviator No. 41) completed the Navy's first carrier takeoff, flying a VE-7SF biplane, BuNo A-5932, from *Langley* (CV 1) at anchor at Berth No. 58 in the York River, Va.

26 OCTOBER • Lt. Cmdr. Godfrey deC. Chevalier (Naval Aviator No. 7), flying an Aeromarine 39-B, made the first landing on board the carrier *Langley* (CV 1) while she steamed off Cape Henry, Va.

12 NOVEMBER • Lt. Cmdr. Godfrey deC. Chevalier (Naval Aviator No. 7) crashed in a VE-7 at Lochaven near Norfolk, Va. He died from his injuries two days later while in the Naval Hospital, Portsmouth, Va.



1063779

An aerial camera fitted to the gun mount of a DH-4 biplane.

18 NOVEMBER • Cmdr. Kenneth Whiting, flying a PT seaplane, made the first catapult launch from *Langley* (CV 1) at anchor in the York River, Va.

1923

6 FEBRUARY • Secretary of the Navy Edwin Denby authorized the transfer of the Aeronautical Engine Laboratory from the Washington Navy Yard, D.C., to the Naval Aircraft Factory, Philadelphia, Pa., thereby clearly establishing the factory as the center of the Navy's aeronautical development and experimental work.

12 FEBRUARY • The Bureau of Navigation informed Commandant Eighth Naval District Rear Adm. Thomas P. Magruder at Pensacola, Fla., that two years' service in an operating unit subsequent to graduation from flight training was no longer required for designation as naval aviator.

18 FEBRUARY • In annual fleet problems, the Navy conducted maneuvers on the largest scale and under the most realistic conditions attainable. Fleet Problem I included a test of the defenses of the Panama Canal against aerial attacks. The "Blue" fleet and Army coast artillery and aircraft defended the canal assisted by 18 patrol planes of Scouting Plane Squadron I operating from the tenders *Wright* (AZ 1), *Sandpiper* (AM 51), and *Teal* (AM 23). Planners compensated for the lack of carriers and aircraft for the attacking "Black" fleet by designating two battleships as simulated carriers. On 21 February the battleship *Oklahoma* (BB 37) approached the area and launched a seaplane by catapult to scout ahead of the Black Fleet. Early the following morning a single plane representing an air group took off from Naranyas Cays in the Panama Canal Zone, flew undetected and without encountering aerial opposition or antiaircraft fire, and theoretically destroyed Gatun Spillway with ten miniature bombs. The lessons learned included the need for more planes and antiaircraft guns to defend the canal, to rush completion of carriers, and to fit all battleships with catapults.

21 FEBRUARY • *Langley* (CV 1) tested aircraft handling with Aeromarine planes operating in groups of three. The tests revealed that it took two minutes to prepare the deck following each landing.

21 FEBRUARY • Recognizing that newer aircraft engines offered advantages of longer life and lower cost, the Bureau of Aeronautics issued guidelines that severely restricted the repair and reuse of engines more than two years old. The Navy promptly expended its residual stocks of WWI engines, equipped most new aircraft with newer engines, and freed itself of stocks of obsolescent engines, thereby enabling the service to aggressively sponsor the development of improved aircraft engines to meet requirements.

10 MARCH • The Navy modified its aircraft model designation system by reversing the order of letters, placing the class letter first and manufacturer's letter last. The designation FB thus indicated fighters built by Boeing. This system, which applied only to new aircraft and did not change designations already assigned, remained in use until 18 September 1962.

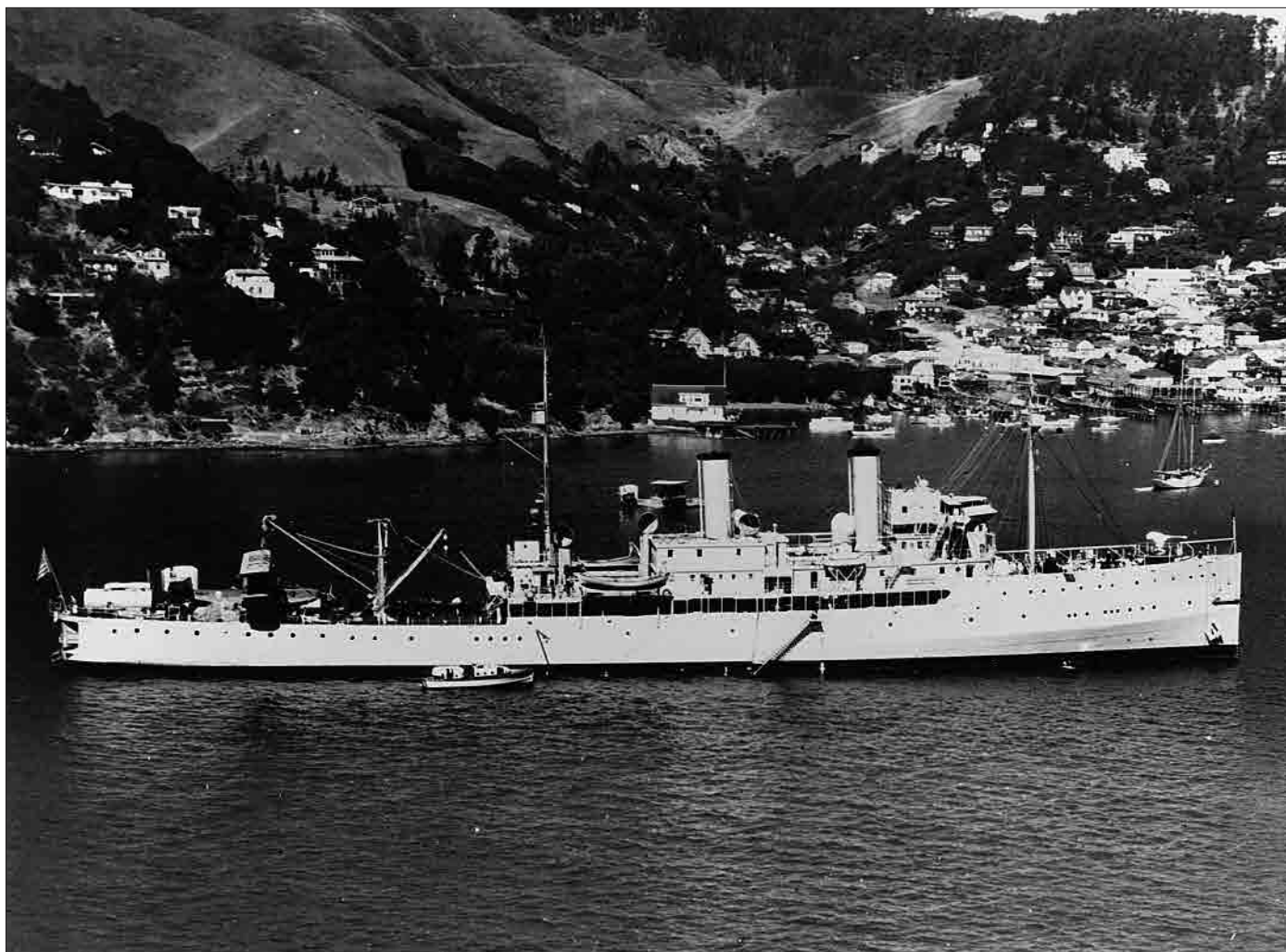
15 MARCH • Ground school work began during the training of nucleus crews for two rigid airships, subsequently named *Los Angeles* (ZR 3) and *Shenandoah* (ZR 1), at NAS Lakehurst, N.J., under lighter-than-air expert Capt. Anton Heinan, formerly of the Imperial German Navy.

19 MARCH • Fighting Plane Squadron Two was established under Commanding Officer Lt. Cmdr. Robert P. Molten Jr. and Executive Officer Lt. Homer C. Wick. The squadron served with Aircraft Squadrons, Battle Fleet, attached to the tenders *Aroostook* (CM 3) and *Gannet* (AM 41) at NAS San Diego on North Island, Calif.

15 APRIL • The Naval Research Laboratory reported that an evaluation of equipment for radio control of aircraft in an F-5L flying boat proved satisfactory up to a range of ten miles, and announced the feasibility of radio control of airplanes during landings and takeoffs.

17 APRIL • Pilot Lt. Rutledge Irvine established a world altitude record for Class C airplanes, with a useful load of 1,000 kilograms, reaching 11,609 feet in a DT torpedo bomber equipped with a Liberty engine over McCook Field near Dayton, Ohio.

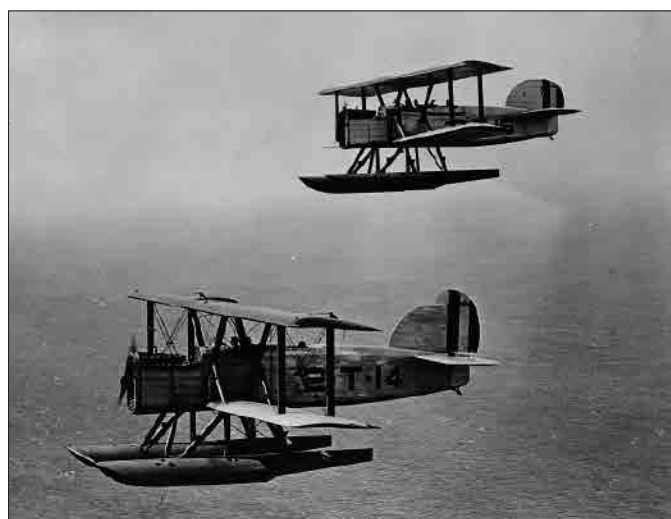
26 APRIL • The General Board completed a study on naval strategy in the Pacific that anticipated Japan as the most likely future enemy. The board recommended that the U.S. develop and fortify bases in the Hawaiian Islands, in the



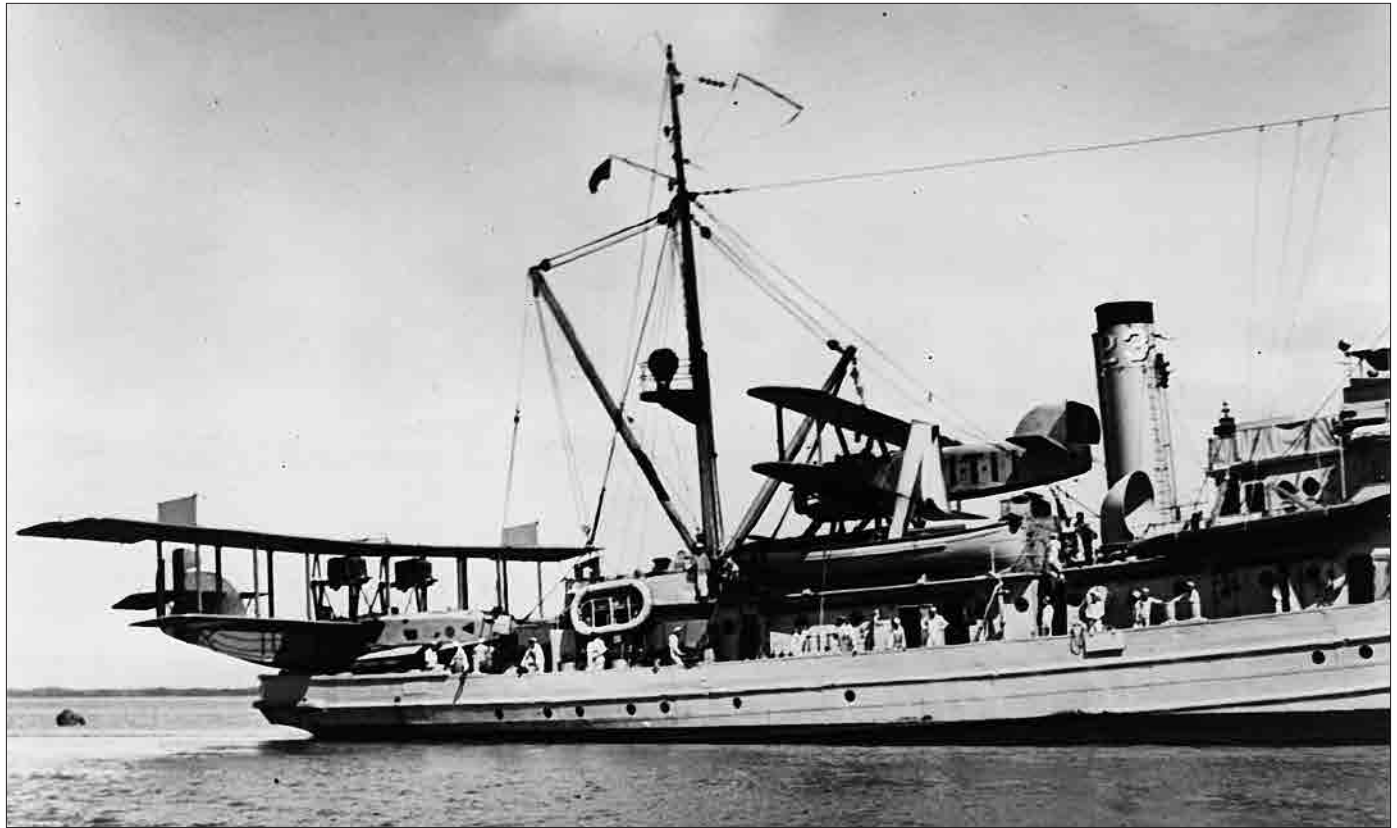
Minelayer *Aroostook* (CM 3) serves as an aircraft tender, 1919–1931.

Philippines, and at locations along the supply lines to these points, including Guam, and advocated the creation and maintenance of a fleet capable of sustained operations in the western Pacific.

26 MAY • The chief of the Bureau of Aeronautics agreed with the chief of the Air Service on the advantages to the aviation industry and the military services of working under identical aeronautic specifications whenever possible and further stated the desirability of Army and Navy working together toward that end. In December Lt. Ralph S. Barnaby received orders to McCook Field, Dayton, Ohio, as the bureau's representative at an interservice conference on standardization during a series of annual meetings that continued until 1937, when the Aeronautical Board assigned a full-time staff to carry on the work.



Two versions of the Douglas-designed DT—the first planes designed and built for the Navy as torpedo bombers.



An F-5L flying boat, left, and a DT torpedo bomber, right, on board aircraft tender *Teal* (AM 23).

6 JUNE • Planes and pilots of Aircraft Squadrons, Battle Fleet established seven world records for Class C seaplanes at San Diego, Calif.:

- Lt. j.g. Mainrad A. Schur set the speed record for 500 km in a DT-2 torpedo bomber at 72 mph.
- Lt. Henry T. Stanley set distance and duration records, with a 250-kg payload, in an F-5L patrol plane at 574.75 miles, and 10 hours 29 minutes 58 seconds.
- Lt. Herman E. Halland set distance and duration records, with a 500-kg payload, in an F-5L at 466 miles, and 7 hours 35 minutes 54 seconds.
- Lt. Robert L. Fuller set distance and duration marks, with a 1,000-kg payload, in a DT-2 at 205.2 miles, and 2 hours 45 minutes 9 seconds.

7 JUNE • Planes and pilots of Aircraft Squadrons, Battle Fleet continued their assault on the record books with eight new world marks for Class C seaplanes:

- Lt. Earl B. Brix set an altitude record of 10,850 feet for planes carrying a 250-kg useful load in a DT-2 torpedo

bomber.

- Lt. Robert L. Fuller set an altitude record of 8,438 feet for planes carrying a 500-kg load in an F-5L patrol plane.
- Ens. Edward E. Dolecek set an altitude record of 7,979 feet for planes, with a 1,000-kg load, in an F-5L.
- Lt. Cecil F. Harper set the altitude record of 13,898 feet for planes, with “no useful load,” in a DT-2.
- Lt. Henry T. Stanley set an altitude record of 5,682 feet in an F-5L, with a 1,500-kg load and the duration mark at 2 hours 18 minutes.
- Lt. Herman E. Halland set an altitude record of 4,885 feet in an F-5L, with a 2,000-kg load and a duration record of 51 minutes.

12 JUNE • Pilot Lt. j.g. Mainrad A. Schur set three world records for Class C seaplanes in a DT-2 torpedo bomber powered by a Liberty engine at San Diego, Calif.: a duration mark of 11 hours 16 minutes 59 seconds; distance mark of 792.25 miles; and speed of 70.49 mph for 1,000 km.

13 JUNE • Pilot Lt. Ralph A. Ofstie set world speed records for Class C seaplanes for 100 and 200 km in a TS-1 seaplane equipped with a Lawrence J-1 engine with speeds of 121.95 and 121.14 mph, respectively, at San Diego, Calif.

13 JUNE • Following a demonstration at a flying exhibition to civil and military dignitaries near Washington, D.C., *Langley* (CV 1) moored at the Washington Navy Yard where President Warren G. Harding boarded the ship, marking the first presidential visit to a U.S. carrier.

5 JULY • Chief of Naval Operations Adm. Edward W. Eberle directed the selection of a destroyer undergoing overhaul for a trial installation of a catapult and a seaplane. Four days later Commander Scouting Fleet Vice Adm. John D. McDonald assigned the destroyer *Charles Ausburn* (DD 294) while the ship finished an overhaul at the Philadelphia Navy Yard, Pa. The destroyer completed the installation of the catapult before her bridge on 23 August and sailed to Hampton Roads, Va., where between 29 and 31 August she received a TS-1 seaplane, BuNo A-6300. Operational experience revealed that the seaplane impacted the destroyer's visibility during navigation; the guy-wires and support structure for the fly-off rails restricted the arc of the forward 4-inch gun off the bow; and the wings extended beyond the ship and twice received damage during mooring. The seaplane and catapult were removed from *Charles Ausburn* at Philadelphia over 20 to 29 December, and skipper Lt. Cmdr. Frank C. McCord recommended to the fleet that future installations on board destroyers be located between their No. 4 stacks and mainmasts.

21 JULY • The Bureau of Aeronautics established a policy of assigning experimental airplanes to fleet squadrons for operational evaluation before adopting them as service types.

13 AUGUST • The establishment of Naval Aviation Reserve Units at Ft. Hamilton, N.Y., and at Squantum, Mass., marked constructive action toward building an effective aviation branch of the Naval Reserve Force.

23 AUGUST • The light cruiser *Detroit* (CL 8) received the first UO-1 observation biplane, BuNo A-6551, to operate from one of the ten *Omaha* (CL 4)-class scout cruisers. The delivery marked the introduction of routine float plane operations from cruisers.



Lt. David Rittenhouse wins the 1923 Schneider Trophy in a CR-3 seaplane converted from the CR-2 racer.

4 SEPTEMBER • The rigid airship *Shenandoah* (ZR 1) made her first flight, Capt. Frank R. McCrary commanding, at NAS Lakehurst, N.J.

28 SEPTEMBER • Pilots Lt. David Rittenhouse and Lt. Rutledge Irvine won first and second place in the international seaplane race for the Schneider Trophy in two CR-3 seaplanes equipped with D-12 engines at Cowes, England. Their victory established a new world record for seaplanes with a speed of 169.89 mph for 200 km. Rittenhouse placed first at 177.38 mph and Irvine second with 173.46 mph.

6 OCTOBER • Navy planes swept the Pulitzer Trophy Race at St. Louis, Mo., taking the first four places all at faster speeds than the previous year's winning time. Both first and second place bettered the world's speed mark. Pilot Lt. Alford J. Williams set the new records for 100 and 200 km in an R2C-1 racer, BuNo A-6692, at 243.812 and 243.673 mph, respectively.

15 OCTOBER • Aircraft Nos 2-F-7, 2-F-9, and 2-F-11 of VF-2, Lt. Forrest P. Sherman commanding, took off from NAS San Diego, Calif., for San Francisco, Calif., to participate in an American Legion convention. 2-F-7 crashed en route at Mojave but a working party returned the plane in a truck three days later, which enabled sailors to subsequently salvage the aircraft. On 16 October, Aircraft Nos 2-F-2, 2-F-5, and 2-F-12 of VF-2, Lt. E. H. Barkelew commanding, departed for San Francisco via Bakersfield.



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1923 Pulitzer Trophy Air Race winner Lt. Alford J. Williams takes off in his R2C-1 racer.

These flights necessitated long journeys over alternating deserts and mountains. All of the planes returned by 23 October 1923.

2 NOVEMBER • Pilot Lt. Harold J. Brow established a world speed record in an R2C-1 racer equipped with a D-12 engine at Mitchel Field on Long Island, N.Y., averaging 259.47 mph in four flights over the 3-km course.

4 NOVEMBER • Pilot Lt. Alford J. Williams raised the world speed record to 266.59 mph in an R2C-1 racer equipped with a D-12 engine at Mitchel Field, N.Y., bettering the record set two days before by Lt. Harold J. Brow.



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Lt. Alford J. Williams stands alongside his winning R2C-1 racer at the 1923 Pulitzer Trophy Air Race.

1924

5 NOVEMBER • The submarine *S-1* (SS 105), Lt. Powel M. Rhea commanding, carried out a series of tests designed to show the feasibility of stowing and launching a seaplane on board a submarine at Hampton Roads, Va. Lt. Cmdr. Virgil C. Griffin supervised a crew from *Langley* (CV 1) that cooperated with *S-1* by removing a disassembled MS-1 from a tank on board the submarine, assembling the plane, and launching it by submerging the boat.

6 NOVEMBER • Pilot Lt. Alford J. Williams climbed in an R2C-1 racer to 5,000 feet in a minute, bettering the best previously reported climb of 2,000 feet in the same time.

12 NOVEMBER • The battleship *Mississippi* (BB 41) received the first UO-1 observation biplane to operate routinely from battleships, BuNo A-6605.

16 NOVEMBER • The Bureau of Aeronautics directed that all planes attached to vessels of the fleet were to be overhauled once every six months.

3 DECEMBER • Chief of Naval Operations Adm. Edward W. Eberle approved the establishment of VS-3 as a special service squadron for the purpose of developing long-distance scouting planes, Lt. Cmdr. Charles P. Mason commanding, at NAS Anacostia, D.C.

7 DECEMBER • The Bureau of Aeronautics established a new designation system for catapults whereby a type letter indicated the energy sources—"A" for compressed air, "P" for powder, and "F" for flywheels—while Mark numbers indicated major design modifications. Under this system the compressed air, turntable catapult demonstrated at the Naval Aircraft Factory, Philadelphia, Pa., and installed on board the battleship *Maryland* (BB 46) received the designation type A, Mark I, and the device on board *Langley* (CV 1) of catapult type A, Mark III. The Navy subsequently extended this designation system with modification to include other energy sources, notably the type letter "H" for hydraulic catapults.

JANUARY • During the winter the Battle Fleet, Scouting Fleet, and Control Force carried out tactical exercises for Fleet Problems II, III, and IV en route to Panama and from those waters to the point of mobilization at Culebra Island, P.R. During Fleet Problem III, VF-2 reported to Commanding Officer 6th Composite Group, Army Air Service, screened VO-2, and strafed opposing force Marines who simulated an opposed landing to seize the Panama Canal.

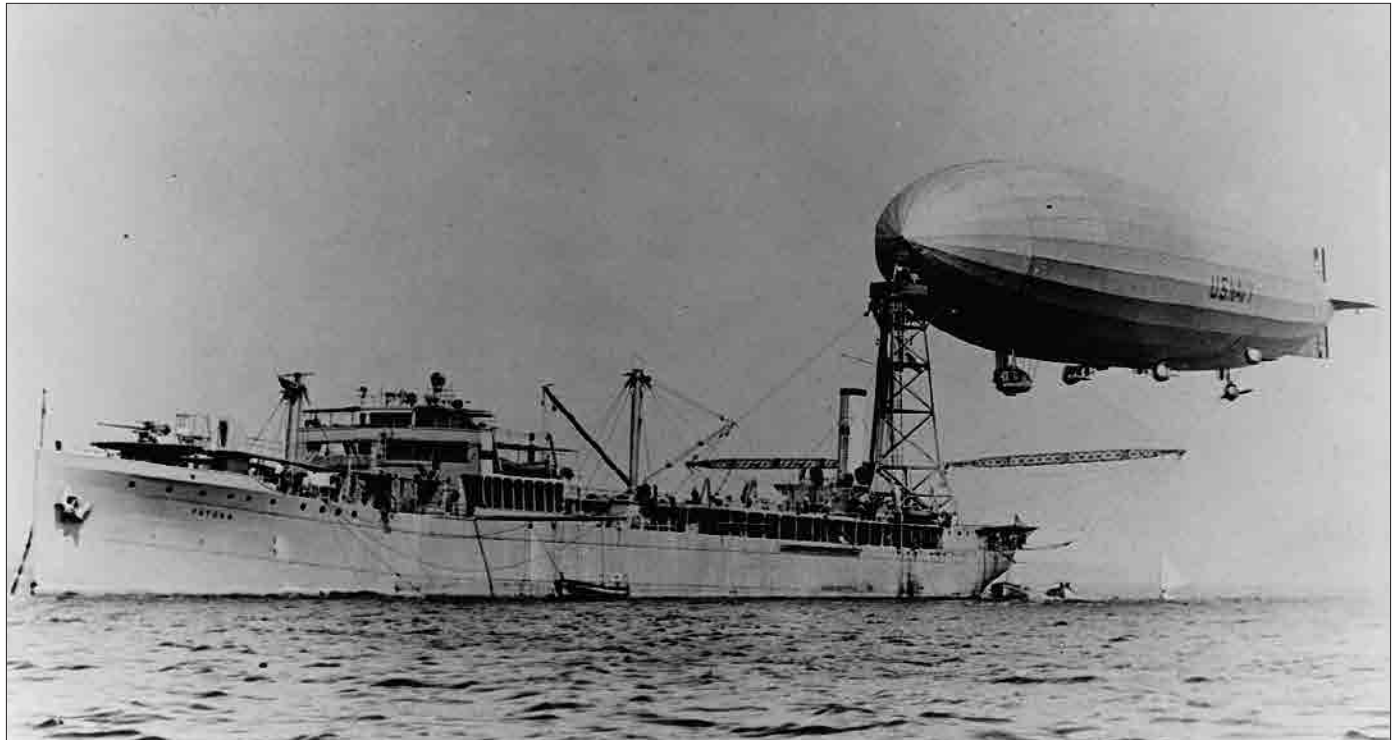
3 JANUARY • VT-20, Lt. Cmdr. George D. Murray commanding, embarked the cargo ship *Vega* (AK 17), which sailed from San Diego, Calif., for the Philippines. Upon arrival VT-20 operated from the tender *Ajax* (AG 15) as the first air detachment of the Asiatic Fleet.

16 JANUARY • A storm ripped the rigid airship *Shenandoah* (ZR 1) away from her mooring mast at NAS Lakehurst, N.J. Only some of the crew were on board and, despite their efforts, the airship drifted over New York City later that evening, where onlookers below reported observing the airship's red and green warning lights dimly through the clouds. Cmdr. M. R. Pierce returned the ship as the storm subsided.

25 JANUARY • VF-2 embarked the collier *Jason* (AC 12) and sailed from Coco Solo in the Panama Canal Zone for Culebra Island, P.R. Disembarking there on 2 February, the squadron operated from an improvised camp at Coontz Field subsequently (informally) designated Camp Robison.

4 FEBRUARY • The Bureau of Aeronautics directed naval aviation squadrons to discontinue the practice of striping or camouflaging aircraft and instructed them to paint all aircraft by 1 July with the prescribed naval gray, except the stretched fabric on the wing and tail and some aluminum fuselage surfaces. In one exception all squadrons of a station, force, or fleet could uniformly paint the upper wing chrome yellow or another color to increase visibility in case of a forced landing.

26 FEBRUARY • VS-3 received authorization to fly one division of Curtiss CS seaplane torpedo bombers from NAS Anacostia, D.C., to NAS Miami, Fla., and NAS Key West, Fla., and back to conduct service tests under actual operating conditions.



19-N-9670

Airship *Shenandoah* (ZR 1) and oiler *Patoka* (AO 9) accomplish the first use of a mooring mast on board a ship, 8 August 1924.

8 MARCH • Pilot Lt. L. V. Grant won the race for the Curtiss Marine Trophy in a VE-7 fighter at an average speed of 116.1 mph in Miami, Fla.

21 MARCH • The Bureau of Aeronautics directed the use of service parachutes by all sailors and Marines on all flights.

21 APRIL • The Bureau of Aeronautics requested that the Bureau of Steam Engineering investigate the development of a single-wave radio sending and receiving set suitable for installation in fighting planes, with a 20-mile sending radius and powered by a small battery- or engine-driven generator.

2 MAY • Pilot Lt. W. M. Dillion and gunnery officer Lt. Stanton H. Wooster launched by catapult in a DT torpedo bomber carrying a dummy torpedo from *Langley* (CV 1) at anchor in the bay off Pensacola, Fla.

19 JUNE • The Bureau of Ordnance issued a contract for the development of an antiaircraft director for shipboard fire control to the Ford Instrument Co.

22 JUNE • Pilot Lt. Frank W. Wead and gunnery officer Lt. John D. Price set five world records for class C seaplanes

in a CS-2 with a Wright T-3 Tornado engine over a two-day period at NAS Anacostia, D.C.: one for distance, with 963.123 miles; one for duration, with 13 hours 23 minutes 15 seconds; and three for speed, attaining 73.41 mph for 500 km, 74.27 mph for 1,000 km, and 74.17 mph for 1,500 km.

24 JUNE • The Bureau of Aeronautics issued a technical order prescribing the external color of naval aircraft. The overall color was to be aluminum enamel with clear varnish on wooden spars and struts. Naval yellow enamel was to be used on the top surfaces of upper wings of training planes and yellow or other high visibility color could similarly be applied to all aircraft of any station, force, or fleet.

11 JULY • Pilot Lt. Frank W. Wead and gunnery officer Lt. John D. Price broke world records for Class C seaplanes in a CS-2 equipped with a Tornado engine over two days at NAS Anacostia, D.C., with new marks for a distance of 994.19 miles and a duration of 14 hours 53 minutes 44 seconds.

8 AUGUST • The rigid airship *Shenandoah* (ZR 1) secured to the mooring mast of the oiler *Patoka* (AO 9) while underway in Narragansett Bay, R.I. *Shenandoah* remained moored to *Patoka* during the ship's passage to anchor

off Jamestown, R.I., and cast off the following day. This achievement marked the first use of a mooring mast erected on board ships to facilitate airship operations with the fleet.

11 AUGUST • Observation planes from the light cruiser *Raleigh* (CL 7) took off from the water near the Arctic Circle on the first of several reconnaissance flights over the Greenland coast from Angmagsalik to Cape Farewell. The aircraft intended to locate suitable emergency landing areas for Army aircraft crossing the Atlantic via Iceland on the last leg of a round-the-world flight.

15 AUGUST • In the first use of rigid airships with the fleet, *Shenandoah* (ZR 1) lifted off from NAS Lakehurst, N.J., to take part in a Scouting Fleet problem 300 miles at sea. *Shenandoah* discovered the “enemy” fleet, but heavy rains compelled her early retirement to base. The airship returned to Lakehurst on 17 August after 40 hours in the air.

1 SEPTEMBER • The first parachute school in the Navy opened to train enlisted men in the care, operation, maintenance, and testing of parachutes at NAS Lakehurst, N.J.

15 SEPTEMBER • An N-9 training seaplane equipped with radio control and without a human pilot on board conducted a 40-minute flight at the Naval Proving Ground, Dahlgren, Va. Although the aircraft sank from damage sustained while landing, this test demonstrated the practicability of radio control of aircraft.

18 SEPTEMBER • The repair ship *Medusa* (AR 1) was commissioned at the Navy Yard Puget Sound, Bremerton, Wash., Capt. R. T. Menner commanding. A section of VO-2 consisting of 2 officers and 20 enlisted men served as a ship-plane repair detail to support the operations of VO-1—both of which operated ashore.

7 OCTOBER • The rigid airship *Shenandoah* (ZR 1), Lt. Cmdr. Zachary Lansdowne commanding, began a round-trip transcontinental cruise from NAS Lakehurst, N.J. The airship’s voyage included stops at Fort Worth, Texas, San Diego, Calif., and a stay of 11 days on the West Coast, including a flight to Camp Lewis at Tacoma, Wash. The airship returned to Lakehurst on 25 October having covered 9,317 miles in 258 hours of flight.

10 OCTOBER • Lt. Andrew Crinkley and Lt. Rossmore D. Lyon landed a CS-2 seaplane at Quantico, Va., following a continuous flight from NAS Anacostia, D.C., of 20 hours 28 minutes and 1,460 miles. The flight exceeded world records for endurance and distance but was not officially timed and therefore not an official record.

12 OCTOBER • The rigid airship designated ZR-3 lifted off from Friedrichshafen, Germany, under the command of Dr. Hugo Eckener, and with prospective skipper Capt. George W. Steele Jr. on board. The airship flew more than 5,000 miles in 81 hours and arrived on 15 October at NAS Lakehurst, N.J. The oiler *Patoka* (AO 9) and the light cruisers *Detroit* (CL 8) and *Milwaukee* (CL 5) sailed into the Atlantic to provide ZR-3 with weather reports and forecasts. The airship was subsequently named *Los Angeles*.

25 OCTOBER • Following the withdrawal of all foreign entrants from the Schneider Cup Race scheduled at Bayshore Park, Md., the United States agreed to cancel the race rather than to attain victory by a flyaway. The Navy instead staged a series of record attempts in which the scheduled contestants and other naval aircraft put 17 world records in the book for Class C seaplanes: Lt. George T. Cuddihy broke a world speed record of almost two years standing in a CR-3 racing seaplane powered by a D-12 engine with 188.078 mph. Lt. Ralph A. Ofstie broke world speed records for 100, 200, and 500 km in a CR-3 with marks of 178.25 mph for both the 100 and 200, and 161.14 mph for the 500. Lt. George R. Henderson set four records for speed over 100 and 200 km, with loads of 250 and 500 kg, in a PN-7 flying boat equipped with two Wright T-2 engines at 78.507 mph; and four records, with a useful load of 1,000 kg, with a speed of 78.507 mph for both 100 and 200 km, a distance record of 248.55 miles, and a duration record of 5 hours 28 minutes 43 seconds. Lt. Osborne B. Hardison set world records for speed over 100 km in a PN-7, and for distance, with a useful load of 1,500 kg, at 68.4 mph and 62.137 miles, and three more, with a useful load of 2,000 kg, in speed over 100 kilometers of 68.4 mph, distance 62.137 miles, and duration 1 hour 49 minutes 11.9 seconds.

11 NOVEMBER • Pilot Lt. Dixie Kiefer completed a successful night catapult launch in a UO-1 observation biplane from the battleship *California* (BB 44) at anchor at San Diego, Calif. Searchlights trained about 1,000 yards ahead aided the launch.

14 NOVEMBER • The chiefs of the Bureau of Aeronautics and the Bureau of Medicine and Surgery agreed on qualifications for flight surgeons that included a three-month course at the Army's school of aviation medicine and three months of satisfactory service with a naval aviation command before receiving the designation. The requirement that qualified medical officers make flights in aircraft was limited to emergencies and the desire of the officers.

17 NOVEMBER • *Langley* (CV 1) ended more than two years in experimental status upon reporting to the Battle Fleet as the first operational aircraft carrier in the U.S. Navy. On 1 December *Langley* became the flagship of Aircraft Squadrons, Battle Fleet.

25 NOVEMBER • First Lady Grace A. Coolidge christened the rigid airship designated ZR-3 as *Los Angeles*, Capt. George W. Steele Jr. commanding, at NAS Anacostia, D.C.

13 DECEMBER • The all-metal NM-1 biplane flew at the Naval Aircraft Factory, Philadelphia, Pa. The Navy designed and built the plane to develop metal construction for naval airplanes, and intended the type for Marine Corps expeditionary use.

14 DECEMBER • Pilot Lt. L. C. Hayden and passenger Lt. William M. Fellers launched in an MO-1 observation plane via a powder catapult from a forward turret of the battleship *Mississippi* (BB 41) at the Navy Yard Puget Sound, Bremerton, Wash. Following this demonstration the Navy began wide-scale use of powder catapults on board battleships and cruisers.

1925

17 JANUARY • A special board headed by Chief of Naval Operations Adm. Edward W. Eberle submitted its report to Secretary of the Navy Curtiss D. Wilbur. The secretary had appointed the board on 23 September 1924 to consider recent developments in aviation, and to recommend a policy for the development of the Navy in its various branches. The members of the board devoted most of their discussion to the importance of battleships, but their recommendations gave prominence to aviation, including construction of

carriers up to treaty limits, expeditious completion of *Lexington* (CV 2) and *Saratoga* (CV 3), and laying down of a new 23,000-ton carrier; introduction of a progressive aircraft building program to ensure a complete complement of modern planes for the fleet; expansion of aviation offerings at the Naval Academy and assignment of all qualified academy graduates to aviator or observer training following two years of sea duty; and establishment of a defined policy governing assignment of officers to aviation.

22 JANUARY • VF-2 began landing practice on board *Langley* (CV 1) off San Diego, Calif. This marked the introduction to the fleet of the first command trained to operate as a squadron from a carrier, and the beginning of *Langley's* operations as a ship of Aircraft Squadrons, Battle Fleet.

2 MARCH • Fleet Problem V off the coast of Southern California became the first problem to incorporate aircraft carriers. The small size of *Langley* (CV 1) and the inexperience of the ship's crew in aircraft handling restricted its operations to sending no more than ten planes aloft simultaneously to scout in advance of the "Black" fleet movement to Guadalupe Island. *Langley* once launched ten planes in 13 minutes but the carrier's limited performance convinced Commander in Chief U.S. Fleet Adm. Robert E. Coontz to recommend the rapid completion of *Lexington* (CV 2) and *Saratoga* (CV 3). The admiral advocated the introduction of steps to develop planes of greater durability, dependability, and radius, and the further improvement of catapult and recovery gear. Coontz also reported that experience now permitted routine catapulting of planes from battleships and cruisers. The problem concluded on 11 March.

11 MARCH • NAS Anacostia, D.C., reported arrangements for routine aerological sounding flights to an altitude of 10,000 feet to obtain weather data and to test upper-air sounding equipment. These flights began in mid-April; the following February the schedule extended to weekend and holiday flights, and the altitude increased to 15,000 feet.

13 MARCH • Rear Adm. William A. Moffett was appointed for a second tour as chief of the Bureau of Aeronautics.

2 APRIL • Pilot Lt. Cmdr. Charles P. Mason and passenger

Lt. Braxton Rhodes demonstrated the feasibility of using flush-deck catapults to launch landplanes when they catapulted in a DT-2 torpedo bomber from *Langley* (CV 1) while the carrier lay moored at NAS San Diego, Calif.

8 APRIL • Lt. John D. Price of VF-1 made the first planned night landing on board a U.S. aircraft carrier when he landed on *Langley* (CV 1) at sea off San Diego, Calif. Lts. Delbert L. Conley, Adolphus W. Gorton, and Rossmore D. Lyon followed shortly thereafter. (An accidental landing occurred on the night of 5 February 1924 when Lt. Harold J. Brow stalled while practicing night approaches.)

8 APRIL • Almost two years following the abolition of a special aviation uniform, the Navy authorized new forestry green uniforms for winter and khaki for summer for naval aviators, observers, and other officers on duty that involved flying. Although the design received minor modifications in later years, the entire service adopted the khaki uniform in 1941.

1 MAY • Lt. Clarence H. Schildhauer and Lt. James R. Kyle broke the world endurance record for Class C seaplanes during a test flight in a PN-9, BuNo A-6878, at Philadelphia, Pa. The Naval Aircraft Factory there manufactured the metal-hulled flying boat equipped with two Packard engines. The plane remained in the air into the next day for a total time of 28 hours 35 minutes 27 seconds.

5 MAY • Secretary of the Navy Curtiss D. Wilbur approved the reorganization of certain departments at the Naval Academy as required to make aviation an integral part of the curriculum. His decision established a program that began with the Class of 1926, in which all midshipmen received three months of special ground and flight instruction, and additional instruction as necessary to qualify graduates as aviators or observers during the first two years after graduation.

29 MAY • The Bureau of Aeronautics issued a directive modifying the standard color of naval aircraft. The hulls and floats of seaplanes were to be painted Navy gray; the



Cmdr. John Rodgers attempts to fly a PN-9 flying boat from San Francisco to Honolulu but completes the voyage 450 miles under sail, 31 August–10 September 1925.

wings, fuselages, landing gear, etc., aluminum color; and the top surface of upper wings, stabilizers, and elevators, orange-yellow.

17 JUNE • The MacMillan Expedition departed from Boston, Mass., to accomplish aerial exploration of the area of northern Greenland. The Naval Air Detail, Lt. Cmdr. Richard E. Byrd Jr. commanding, sailed with three Loening amphibians on board the destroyer *Peary* (DD 340). The civilian research ship *Bowdoin* joined *Peary* off Wiscasset, Maine. Following a 3,000-mile voyage the expedition reached Etah in northern Greenland on 1 August, and the aerial explorers covered 30,000 square miles before the end of the month.

1 JULY • When a law enacted on 28 February became effective on this date, the Naval Aviation Reserve began to organize into ten squadrons of four divisions each. Authorized squadron complements for each of three scouting and three bombing squadrons were established at 40 officers and 130 enlisted men, and for each of four fighting squadrons at 18 officers and 20 enlisted men.

31 AUGUST • Pilot Cmdr. John Rodgers, copilot Lt. Byron J. Connell, and a crew of three attempted to fly the metal hulled PN-9 flying boat, BuNo A-6878, equipped with two Packard engines, from San Francisco, Calif., to Honolulu,



Cmdr. John Rodgers and his crew receive a traditional Hawaiian greeting at Kauai after their harrowing crossing.

Territory of Hawaii. Lack of fuel, however, forced the plane down shortly after 1600 on 1 September. Despite an extensive air and sea search, Rodgers and his crew remained lost at sea for ten days, but they rigged sail from the wing fabric and set course for the island of Kauai. The PN-9 covered about 450 miles under sail when the submarine R-4 (SS 81) sighted the flying boat on 10 September barely ten miles from the goal of the voyage. The Fédération Aéronautique Internationale accepted the 1,841.12 statute miles that had been flown until the landing as a new world airline distance record for Class C seaplanes. The record remained unbeaten for almost five years.

3 SEPTEMBER • A severe squall tore the rigid airship *Shenandoah* (ZR 1) apart as she flew over Byesville, Ohio, en route from NAS Lakehurst, N.J., to Scott Field, Ill. The control car and aft section of the hull fell directly to the ground, but navigation officer Cmdr. Charles E. Rosendahl and six crewmembers manning the forward section free-

ballooned for an hour before they landed 12 miles from the scene of the crash. Fourteen men died, including skipper Lt. Cmdr. Zachary Lansdowne, and 29 survived the ordeal.

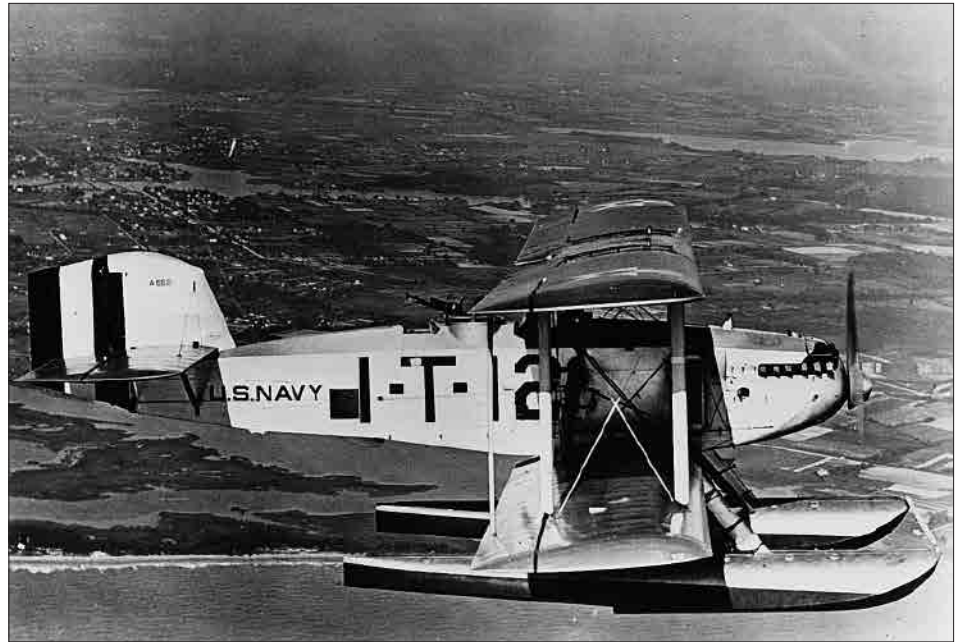
29 SEPTEMBER • Chief of Naval Operations Adm. Edward W. Eberle directed the training of all heavier-than-air naval aviators in the operation of landplanes if they were not already qualified as such.

3 OCTOBER • In view of the need for an accumulation of upper air data for improved weather forecasting, the Bureau of Aeronautics requested that aircraft squadron flagships take upper air soundings twice a day when at sea.

5 OCTOBER • VJ-1B, Lt. John F. Moloney commanding, was formed from VS-2B at NAS San Diego, Calif. This first of the Navy's utility squadrons received assignment to Aircraft Squadrons, Battle Fleet.

26 OCTOBER • During the Schneider Trophy Race at Bay Shore Park, Md., engine trouble forced the two Navy entries flown by Lt. George T. Cuddihy and Lt. Ralph A. Ofstie from the race during the last lap.

27 OCTOBER • The Bureau of Aeronautics reported the use of oleo shock-absorbing landing gear on FB-1 fighters, NB-1 trainers, SC-2 torpedo bombers, UO-1 observation biplanes, and new bombing planes under construction by the Naval Aircraft Factory, Philadelphia, Pa., and by the Douglas and Boeing companies.



An SC-1 scout bomber and torpedo plane.

30 NOVEMBER • The President's Aircraft Board, known as the Morrow Board after its senior member, submitted its report to President Calvin Coolidge. On the basis of views expressed in extended hearings by prominent civilian and military leaders, the board made recommendations on the aviation industry and military aviation that influenced a number of legislative actions taken during the following months. Its recommendations against a separate air force and in favor of representation for aviation in operational commands and high-level administrative offices, and its recognition of the need for long-range procurement and standard replacement schedules, were among the items of special interest to the Navy.

14 DECEMBER • The Lampert Committee filed its report. The House of Representatives had established this committee as the Select Committee of Inquiry into the Operations of the U.S. Air Services on 24 March 1924. The review favored establishment of a Department of National Defense and an adequate representation of aviation in the high military councils. Expressing particular concern over the state of the aircraft industry, the report recommended the government cease competing to produce aircraft, their engines, and their accessories; abolish the competitive bidding requirement in favor of other restrictions that promote the government's best interests; expend for new flying equipment \$10 million annually in both the War and the Navy departments; and implement a five-year construction and procurement program.

18 DECEMBER • The competitive trials of Consolidated, Curtiss, and Huff-Daland aircraft designed as land, sea gunnery, and training planes ended at NAS Anacostia, D.C. These trials led to the procurement of the Consolidated NY series of training planes used into the 1930s.

1926

1 MARCH • The combined U.S. Fleet participated in a joint Army-Navy exercise that included Fleet Problem VI in the Panamanian and Caribbean areas through 15 March.

21 APRIL • Secretary of the Navy Curtiss D. Wilbur directed that beginning with the Class of 1926 all Naval Academy graduates were to complete a 25-hour course on flight instruction during their first year of sea duty. To provide for this instruction, the Navy would establish flight schools at NAS Hampton Roads, Va., and NAS San Diego, Calif.

9 MAY • Pilot Lt. Cmdr. Richard E. Byrd Jr. and Aviation Pilot Floyd E. Bennett made the first flight over the North Pole in Fokker trimotor *Josephine Ford*. After circling the Pole, they returned to base at Kings Bay, Spitzbergen, Norway, completing the round trip in 15.5 hours.



460634

A D-12 engine powers this F6C-1 fighter, which later became the prototype F6C-4.

14 MAY • Lt. Thomas P. Jeter won the Curtiss Marine Trophy Race held over the Potomac River off Hains Point, D.C., in an F6C-1 Hawk, with a speed of 130.94 mph.

6 JUNE • The last elements of the Alaskan Aerial Survey Expedition, Lt. Ben H. Wyatt commanding, departed Seattle, Wash., for Alaska. The mission comprised the tender *Gannet* (AM 41), three OL amphibians, and the barge *YF-88*, which housed a photo lab. The expedition, performed in cooperation with the Department of the Interior to conduct early aerial mapping of Alaska, continued through September.

16 JUNE • The Bureau of Aeronautics reported that the emergency barricade on board *Langley* (CV 1) had successfully prevented landing aircraft from crashing into planes parked on the flight deck during landing operations in Californian waters on 16 June.

24 JUNE • Congress approved an act implementing the recommendations of the President's Aircraft Board, known

as the Morrow Board after its senior member. The act authorized the assignment of naval aviators to command aviation stations, schools, and tactical flight units as well as naval aviators or naval aviation observers to command aircraft carriers and tenders; the creation of the office of an assistant secretary of the Navy to foster naval aeronautics; the establishment of a five-year aircraft program to increase the number on hand to 1,000 useful planes; and the requirement that the number of enlisted pilots was to comprise not less than 30 percent of the total number of pilots on active duty in the Navy. The law became effective on 1 July.

2 JULY • Congress authorized the Distinguished Flying Cross as an award for acts of heroism or extraordinary achievement in aerial flight by any member of the armed services, including the National Guard and the Reserves, retroactive to 6 April 1917.

10 JULY • Edward P. Warner took the oath of office as the first Assistant Secretary of the Navy for Aeronautics.

28 JULY • The submarine *S-1*, (SS 105) Lt. Charles B. Momsen commanding, surfaced and launched Lt. Dolph C. Allen in a Cox-Klemin XS-2 seaplane. The submarine also recovered the aircraft, secured the XS-2 in a tank affixed to the deck, and submerged, completing the first cycle of operations in a series of tests investigating the feasibility of basing planes on board submarines.



Edward P. Warner becomes the first Assistant Secretary of the Navy for Aeronautics, 10 July 1926.

9 AUGUST • In a day of tests to determine the speed of handling aircraft at sea, planes of VF-1 completed 127 landings on board *Langley* (CV 1) off southern California. This experience allowed the squadron to land 12 planes in 21 minutes under the emergency conditions encountered when the ship ran into a heavy mist on a later date.

18 AUGUST • The Navy let a contract to the Aircraft Development Corp., of Detroit, Mich., for a metal-clad airship designated ZMC-2. The descriptive term “metal-clad” resulted from the fact that a gas-tight stressed-aluminum skin covered the lightly framed hull. The design also had to be pressure-rigid in that positive internal gas pressure maintained the shape of the hull.

27 AUGUST • While attempting to land at the Philadelphia Navy Yard after a flight from NAS Anacostia, D.C., pilot Cmdr. John Rodgers (Naval Aviator No. 2) and aircrewman AMM1 Samuel J. Schultz crashed in a VE-9 biplane, BuNo A-6470, in the Delaware River near the dock of the Naval Aircraft Factory. Sailors extricated Rodgers from the wreck and took him to a hospital, but he died from his injuries. Schultz survived but sustained serious injuries.

22 OCTOBER • In a display of tactics developed by VF-2, a flight of F6C-2 carrier-based fighters, Lt. Cmdr. Frank D. Wagner commanding, simulated an attack on the heavy

ships of the Pacific Fleet as they sortied from San Pedro, Calif. The Hawks conducted almost vertical dives from 12,000 feet at the preappointed time of which the fleet had been forewarned, but nonetheless achieved complete surprise. The general consensus among observers was that the tactic proved operationally effective. This became the first fleet demonstration of dive bombing. Although VF-2 had independently initiated this demonstration, VF-5 on the East Coast was simultaneously developing similar tactics, indicating the obvious nature of the solution to the problem of effective bomb delivery.

13 NOVEMBER • Lt. Christian F. Schilt, USMC, took second place in the Schneider Cup Race in an R3C-2 racing seaplane at Hampton Roads, Va., with an average speed of 231.363 mph. Schilt’s achievement marked the final Navy participation in international racing competition.

19 NOVEMBER • The battleship *Maryland* (BB 46) conducted experimental firing of the Mark XIX antiaircraft fire control system. Developed by the Ford Instrument Co., the system incorporated a stabilized line of sight to aid in tracking approaching aircraft.

13 DECEMBER • Commander Aircraft Squadrons, Battle Fleet Rear Adm. Joseph M. Reeves reported on the results of the first dive-bombing exercise, known as “light bombing,” conducted in a formal fleet gunnery competition. One Marine Corps and two Navy fighter squadrons, along with three Navy observation squadrons,



Lt. Dolph C. Allen launches XS-2 seaplane from the submarine *S-1* (SS 105), 28 July 1926.

participated. The Marine and Navy fighters separately made 45-degree dives and dropped 25-pound fragmentation bombs. The observation squadrons simulated attacks from 1,000 feet. A flight of F6C and FB-5 biplanes of VF-2, Lt. Cmdr. Frank D. Wagner commanding, scored 19 hits with 45 bombs on a 100-by-45 foot target. The uses visualized for this tactic included disabling or demolishing flight decks, destroying enemy aircraft in flight, attacking exposed people on ships or ashore, and assailing light surface craft and submarines.

1927

1 JANUARY • A flight test section was established as a separate department at NAS Anacostia, D.C., Lt. George R. Henderson in charge.

1 JANUARY • VF-2 was established at NAS San Diego, Calif., Lt. Cmdr. James M. Shoemaker commanding. Four naval aviators and ten aviation pilots manned the squadron to test the feasibility of using enlisted pilots in fleet squadrons.

18 JANUARY • Lt. Cmdr. John R. Poppen, MC, reported for duty in charge of the Aviation Section of the Naval Medical School in Washington, D.C. For the next three months the school devoted all of its resources to intensive instruction in aviation medicine. This marked the beginning of flight surgeon training in the Navy as well as the end of an interservice agreement, in effect since 1922, by which Navy medical officers trained at the Army's flight surgeon school.

2 MARCH • Just prior to Fleet Problem VII the Army and Navy engaged in a joint exercise to test the U.S. defenses of the Panama Canal. During the simulation ships bombarded the Pacific side of the canal, and aircraft bombed the Miraflores Locks. Evaluators noted that the exercises confirmed their opinion that ships alone could not knock out the canal but could do so in combination with aerial attacks. These findings called for greater defense of the canal from attacks from above. The exercise concluded on 5 March.

9 MARCH • During Fleet Problem VII conducted in the Caribbean through 14 March, sailors and Marines gained further experience in carrier operations. The Bureau of

Aeronautics reported that the exercises revealed that ships should be allowed great latitude in maneuvering, that carriers need to provide constant protection against air attack, and that Commander Aircraft Squadrons must be allowed wide freedom of action in employing planes.

9 MARCH • The Navy purchased a JR-1 trimotor from the Ford Motor Co. as its first passenger transport following a demonstration at NAS Anacostia, D.C.

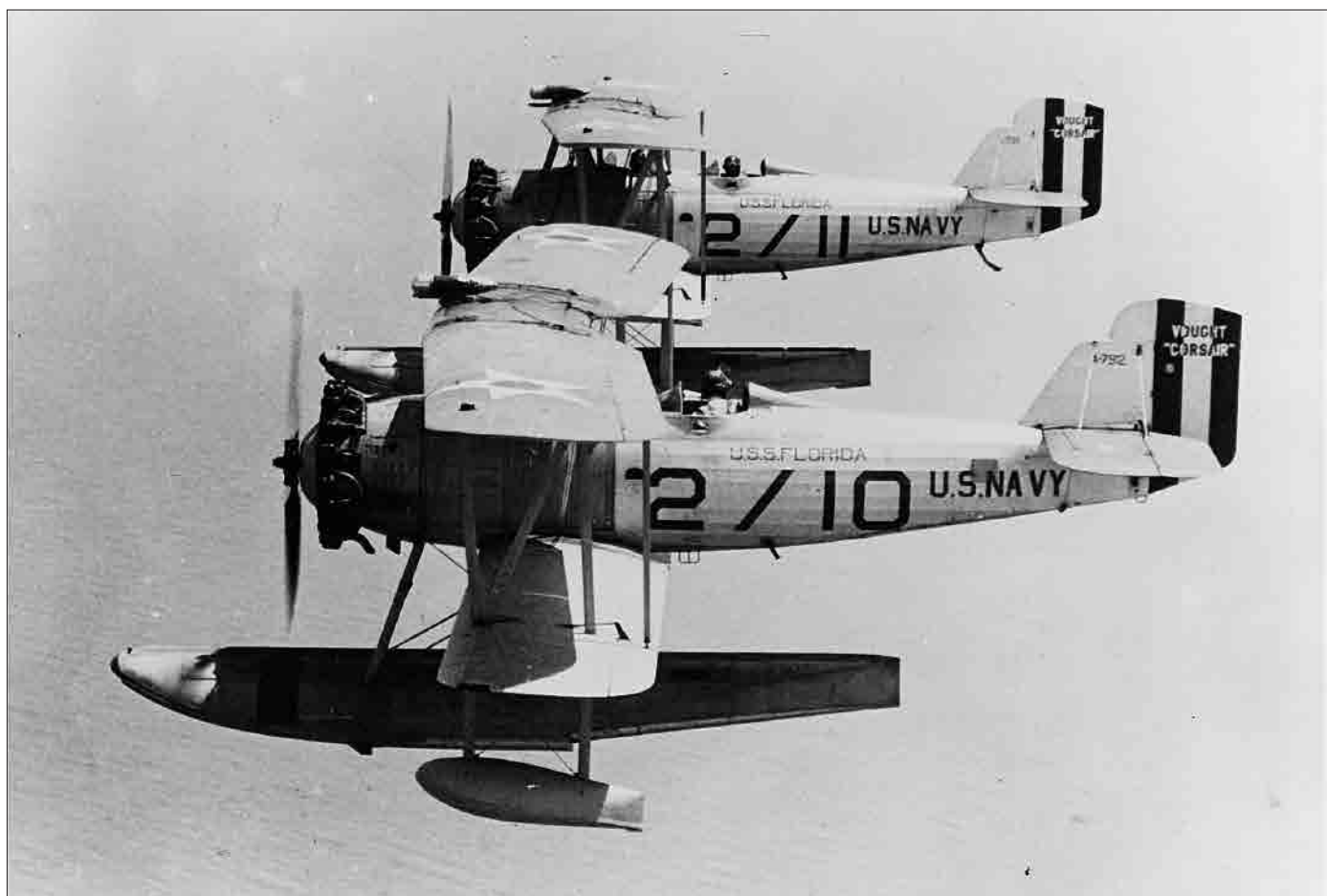
31 MARCH • Pilot Lt. j.g. William T. Rassieur, copilot Cmdr. Robert W. Cabaniss (Naval Aviator No. 36) and the commanding officer of the aircraft tender *Aroostook* (CM 3), with crewmembers Lt. Martin B. Stonestreet, ACMM C. Vincent, RM1 J. R. Roe, and AAM2 E. W. Oliver, crashed in a PN-9 flying boat, BuNo A-6878, at NS Guantánamo Bay, Cuba. The PN-9 took off in a moderate swell during the morning watch but encountered a cross wind and heavy seas while flying off the northwestern tip of Navassa Island. The wind carried away the plane's tail and it crashed nose down, caught fire, and sank. Cabaniss died, and the other men all sustained varying degrees of injuries, including burns. On 9 July 1941 the Navy dedicated Cabaniss Field in his honor at NAS Corpus Christi, Texas.

14 APRIL • Lt. George R. Henderson broke the world altitude record for Class C seaplanes, with a 500-kg useful load, reaching 22,178 feet in an O2U Corsair equipped with a Pratt & Whitney Wasp engine over Washington, D.C.

23 APRIL • Lt. Steven W. Callaway set a new 100-km world speed record for Class C seaplanes, with a 500-kg useful load, in an O2U Corsair at 147.263 mph at NAS Hampton Roads, Va.

30 APRIL • Lt. James D. Barner broke the 500-km world speed record for Class C seaplanes carrying a useful load of 500 kg in an O2U Corsair with a speed of 136.023 mph at NAS Hampton Roads, Va.

5 MAY • Lt. Carleton C. Champion took off in the Wright XF3W Apache equipped with a Pratt & Whitney Wasp engine and National Advisory Committee for Aeronautics supercharger from NAS Hampton Roads, Va., and climbed to an altitude of 33,455 feet, breaking the existing world record for Class C seaplanes by better than 3,000 feet.



O2U-1 Corsairs observe for battleship *Florida* (BB 30).

21 MAY • Lt. Rutledge Irvine established a world record for Class C Seaplanes for 1,000 km in an O2U Corsair with a speed of 130.932 mph above NAS Hampton Roads, Va.

23 MAY • A major advance in the transition from wooden to metal aircraft structures resulted from a report that the Naval Aircraft Factory, Philadelphia, Pa., submitted on this date. Researchers discovered that the application of anodic coatings decreased the corrosion of aluminum by salt water, hitherto a serious obstacle to the use of aluminum alloys on naval aircraft.

27 MAY • Chief of Naval Operations Adm. Edward W. Eberle ordered the Commander in Chief, Battle Fleet, to conduct tests to evaluate effectiveness of dive bombing against moving targets. VF-5S carried out the tests in late summer and early fall, the results of which generated wide discussion of the need for special planes and units and led directly to the development of equipment and adoption of the tactic as a standard method of attack.

1 JULY • A new system of squadron designation became effective providing, in addition to the standard class designation letters and identification number, a suffix letter to indicate the fleet, force, or unit to which the squadron served. Under this system VF-1 of Battle Force became VF-1B.

1 JULY • The practice of sending Naval Reserve aviation officers to one year of training duty with the fleet following graduation from NAS Pensacola, Fla., began with the assignment of the first group of 50 newly commissioned ensigns.

4 JULY • Lt. Carleton C. Champion reached 37,995 feet in the XF3W Apache over NAS Anacostia, D.C., breaking the world altitude record for Class C seaplanes that he had established two months earlier. This achievement exceeded any altitude previously reached by heavier-than-air planes.

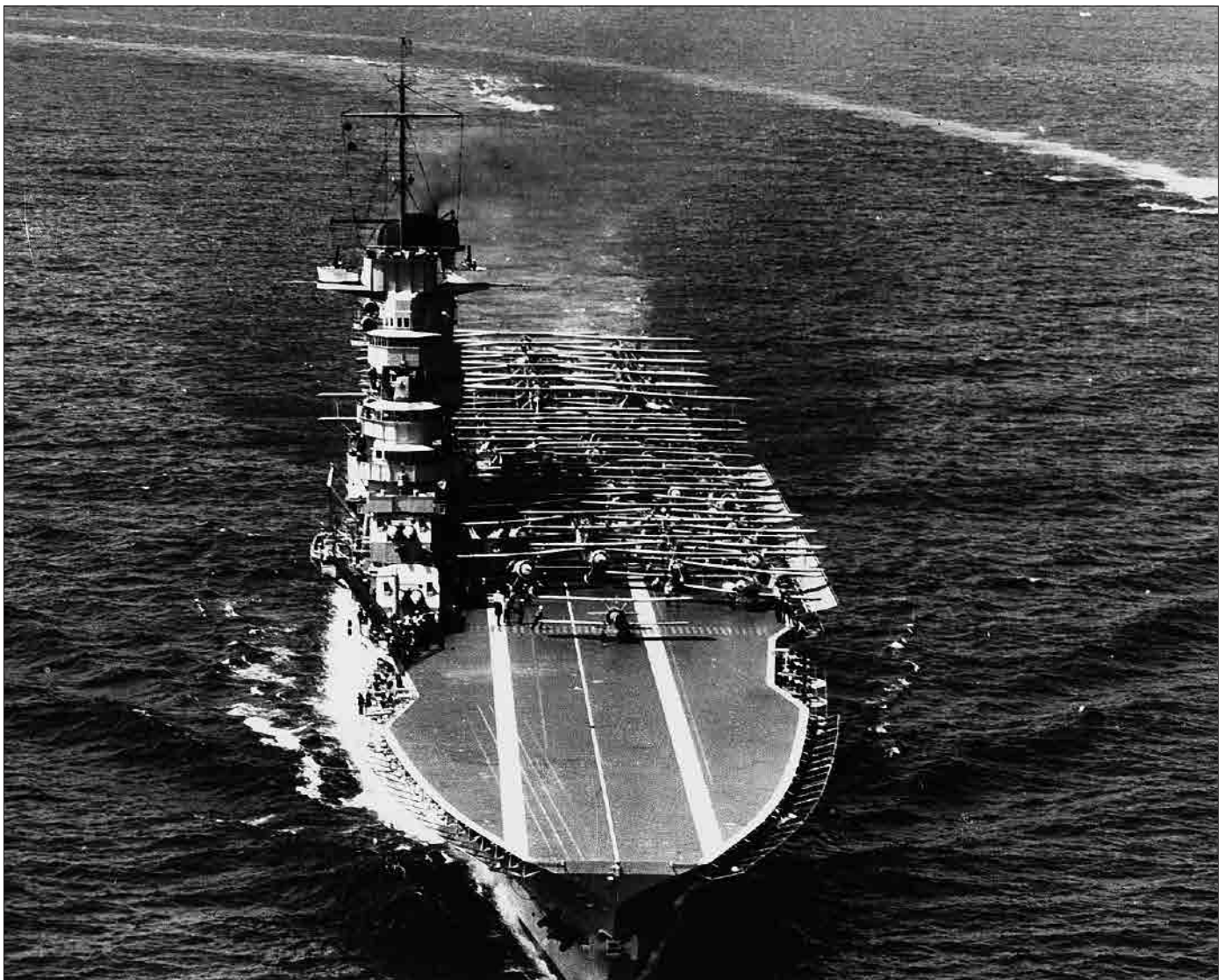


5370

An RR-5 trimotor transport assigned to NAS Anacostia, D.C.

8 JULY • Pilot Lt. Byron J. Connell and copilot and naval aviation pilot S. R. Pope set new world duration and distance records for Class C seaplanes, with a useful load of 2,000 kg, and a new world duration record with a 1,000-kg load, on the same flight from NAS San Diego, Calif. in a PN-10 flying boat equipped with two Packard engines. The flight logged 11 hours 7 minutes 18 seconds in the air and a distance of 947.705 miles.

15 JULY • Maj. Ross E. Rowell, USMC, led a flight of five DH-4B-1 biplanes of VO-7M in a strafing and dive-bombing attack against bandits surrounding a garrison of 41 U.S. Marines and 48 Nicaraguan National Guardsmen at Ocotal, Nicaragua. The planes dove in sequence in approximately



1027066

Saratoga (CV 3) launches her planes.

50-degree dives from 1,000 feet, and dropped 17-pound fragmentation bombs from as low as 300 feet. The de Havillands broke up the attackers in less than an hour. The bandits lost 40 to 80 men, while the Marines lost one killed and one wounded, and the Nicaraguan guardsmen suffered three wounded and four captured. Aircraft from other nations had accomplished diving attacks during WWI and the Marines used similar techniques in Haiti in 1919, however, the Navy and Marine Corps recognize these organized dive-bombing and low-altitude attacks at Ocotol as the first made in direct support of ground troops.

25 JULY • Lt. Carleton C. Champion reached 38,419 feet in the Wright Apache rigged as a landplane above NAS Anacostia, D.C., establishing a new world record that stood for two years.

16 AUGUST • Pilot Lt. Byron J. Connell and copilot Lt. Herbert C. Rodd broke three world records for Class C seaplanes during two days of flights in a PN-10 flying boat with two Packard engines over San Diego, Calif.—distance; distance with a 500-kg load; and duration with a 500-kg load. They flew a total of 1,569 miles and spent 20 hours 45 minutes 40 seconds in the air.

18 AUGUST • Pilot Lt. Byron J. Connell and copilot Lt. Herbert C. Rodd took off in a PN-10 flying boat from NAS San Diego, Calif., with a useful load of 7,726 pounds, and climbed to 2,000 meters to break the world record for the greatest payload carried to that altitude to date by a Class C seaplane.

25 AUGUST • A blast of cold air raised the stern of *Los Angeles* (ZR 3) on her moorings at NAS Lakehurst, N.J., until the rigid airship stood on her nose. The craft then slowly settled back down 180 degrees from the original position. Twenty-five men rode the craft over the mooring mast during the extraordinary incident, but *Los Angeles* did not suffer appreciable damage.

16 NOVEMBER • *Saratoga* (CV 3) was commissioned at Camden, N.J., Capt. Harry E. Yarnell commanding. The former battlecruiser was the first carrier and fifth ship of the Navy to bear the name. *Saratoga's* heavy displacement enabled the operation of a large air group of 80 to 90 planes and thus allowed for a mix of fighters, scouts, and bombers as needed for missions. Designers, however, retained four twin

8-inch gun turrets fore and aft of the bridge that limited the space for aircraft, fuel, and stores.

2 DECEMBER • The first F2B-1 fighter to serve in squadron inventory arrived at VF-1B, and the squadron subsequently operated from *Saratoga* (CV 3). The planes contributed to fighter development with their air-cooled radial engines and tubular steel frames.

14 DECEMBER • *Lexington* (CV 2) was commissioned at Quincy, Mass., Capt. Albert W. Marshall commanding, as the first carrier and fourth ship of the Navy to carry the name.

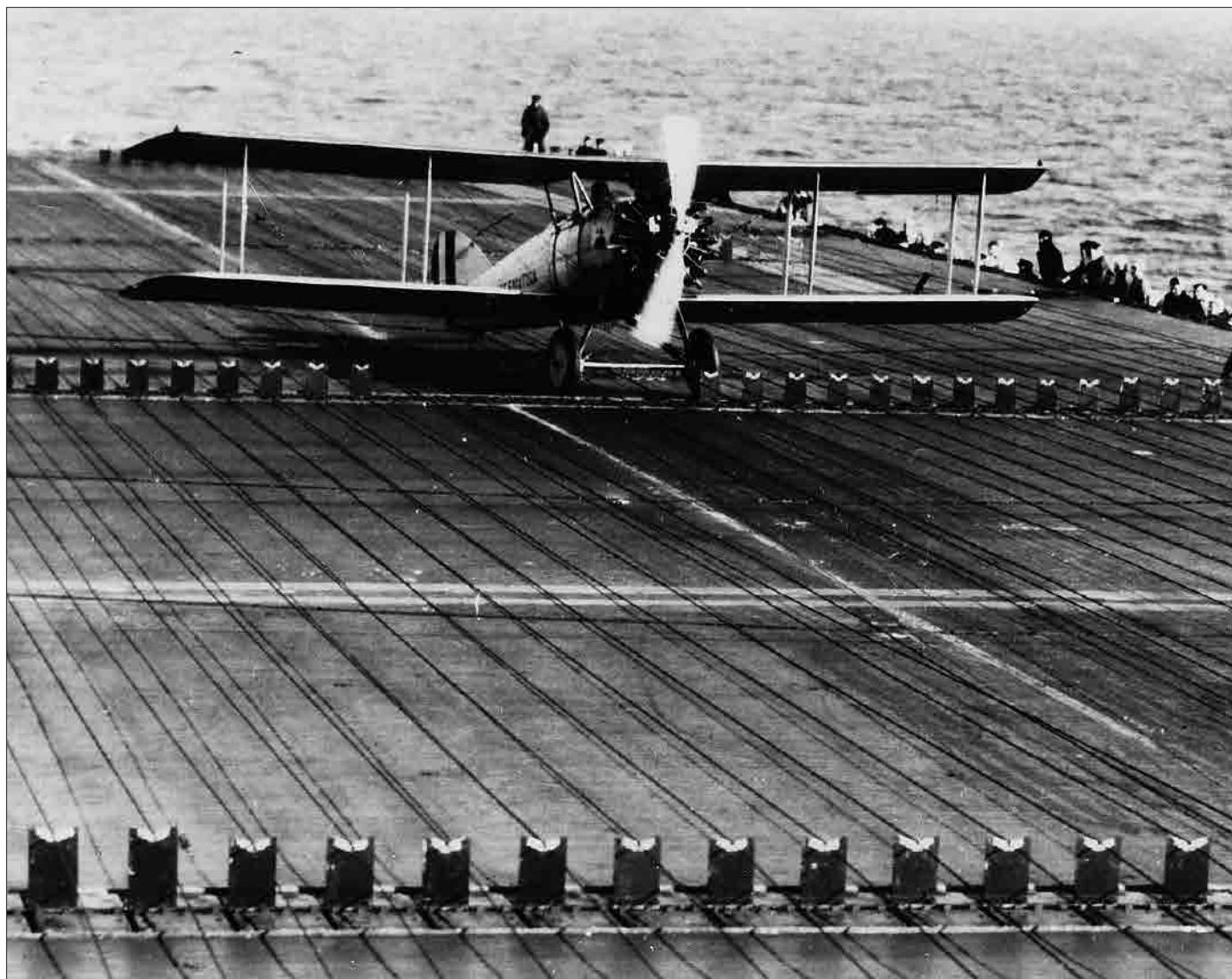
1928

5 JANUARY • Lt. Alfred M. Pride made the first takeoff and landing in a UO-1 observation biplane on board *Lexington* (CV 2), as the ship moved from the Fore River Plant to the Boston Navy Yard, Mass.

6 JANUARY • Nicaraguan rebels drove two separate columns of Marines to the village of Quilahi. Pilot 1st Lt. Christian F. Schilt, USMC, of VO-7M, voluntarily made the first of 11 flights in which he landed an O2U-1 Corsair observation biplane on a crude airstrip the Marines created. Through 8 January, Schilt flew in Marines and supplies while under fire, and evacuated 2 wounded officers and 14 enlisted men one or two casualties at a time. Schilt subsequently received the Medal of Honor.



1st Lt. Christian F. Schilt, USMC, receives the Medal of Honor for his heroism under fire in Nicaragua.



424479

A UO-1 observation biplane similar to the one that first landed on board *Saratoga* lands on the ship.

11 JANUARY • Air Officer Cmdr. Marc A. Mitscher made the first takeoff and landing in a UO-1 observation biplane on board *Saratoga* (CV 3).

27 JANUARY • The rigid airship *Los Angeles* (ZR 3) landed on board *Saratoga* (CV 3) at sea off Newport, R.I. The airship remained on board long enough to transfer passengers and take on fuel, water, and supplies.

1 FEBRUARY • Joint Army-Navy nomenclature for aircraft engines became effective whereby standard type names were assigned to engines based upon the cubic inches of piston displacement to the nearest ten. Under this scheme, the V-type Curtiss D-12 engine received the standard type name

Curtiss V-1150, and the air-cooled radial J-5 Whirlwind became the Wright R-790.

27 FEBRUARY • Pilot Cmdr. Theodore G. Ellyson (Naval Aviator No. 1) and crewmembers Lt. Cmdr. Hugo Schmidt and Lt. Roger S. Ransehausen died when their XOL-7 observation amphibian, BuNo A-7335, crashed into the Chesapeake Bay while en route from NAS Hampton Roads, Va., to Annapolis, Md. Portions of the amphibian's tail and wing drifted onto a beach several days later. The aviation pioneer had received the Navy Cross for his service with submarine chasers in WWI, and the destroyer *Ellyson* (DD 454, later DMS 19) was named in his honor.

28 FEBRUARY • The Navy issued an order limiting the application of standard type names for aircraft engines to air-cooled engines of recent design. This order abolished, for example, the standard type name Curtiss V-1150 and reassigned this engine its earlier D-12 designation. On the other hand, the designation Wright R-790 was retained with provisions for use of R-790-A to indicate a major modification; earlier models of this engine kept the old designations, J-2, J-3, and J-4.

28 FEBRUARY • A contract for the XPY-1 flying boat was issued to the Consolidated Aircraft Corp. This aircraft was designed for alternate installation of two or three engines. The initial configurations of this first large monoplane flying boat procured by the Navy evolved into the PBY Catalina.

2 MARCH • During a flight from New York to the Panama Canal, the rigid airship *Los Angeles* (ZR 3) attempted to moor at NAS Lakehurst, N.J., but heavy wind gusts snapped her mooring lines. Commanding Officer Lt. Cmdr. Charles E. Rosendahl attempted to maneuver the airship, but a snow squall buffeted the craft and Rosendahl ordered men to release the landing lines. The ship rose skyward carrying four sailor line handlers to the control car hundreds of feet into the air. Rosendahl called all stop for the engines, and crewmembers pulled the four sailors into the car without injuries.

18 APRIL • Naval aviation gained limited experience in carrier operations and in scouting patrols during Fleet Problem VIII in Pacific waters between San Francisco, Calif., and the Hawaiian Islands. *Langley* (CV 1) took part with a lengthened flight deck and altered arresting gear, and in combination with her crew's improved expertise in aircraft handling operated 42 planes—30 fighter and 12 observation types. The aircraft tenders *Aroostook* (CM 3) and *Gannet* (AM 41) also took part. The Bureau of Aeronautics reported that "little could be expected from a problem in which air operations were so limited and where the air forces available were so small." The problem concluded on 28 April.

3 MAY • Pilot Lt. Arthur Gavin and copilot Lt. Zeus Soucek set the world duration record for Class C seaplanes in a PN-12, BuNo A-7384, equipped with two Wright Cyclone engines in a two-day flight of 36 hours 1 minute that culminated over Philadelphia, Pa.

11 MAY • An Act of Congress provided that duty performed by officers assigned to airships, which required them to make regular and frequent aerial flights, could be certified by the Secretary of the Navy as service equivalent to sea duty.

19 MAY • Maj. Charles A. Lutz, USMC, won the Curtiss Marine Trophy Race in an F6C-3 Hawk at NAS Anacostia, D.C., with a speed of 157.6 mph over the 100-mile course.

25 MAY • Lt. Arthur Gavin and copilot Lt. Zeus Soucek set world marks for Class C seaplanes, with a 1,000-kg useful load, in a PN-12, BuNo A-7384, over two days: speed over 2,000 km at 80.288 mph; distance at 1,243.20 miles; and duration at 17 hours 55 minutes 13.6 seconds.

12 JUNE • *Lexington* (CV 2) anchored in Lahaina Roads, Territory of Hawaii, at the end of a speed run from San Pedro, Calif., to Honolulu that broke all existing records for the distance, with an elapsed time of 72 hours 34 minutes.

26 JUNE • Lt. Arthur Gavin set a world altitude record of 15,426 feet in a PN-12, BuNo A-7384, at Philadelphia, Pa., for Class C seaplanes, with a payload of 2,000 kg.

27 JUNE • Lt. Arthur Gavin made a world record altitude flight for Class C seaplanes in a PN-12, BuNo A-7384, equipped with two 525-hp Pratt & Whitney engines, to 19,593 feet at Philadelphia, Pa., with a useful load of 1,000 kg.

30 JUNE • The Navy issued a contract to the Martin Co. for development of the XT5M-1 "diving bomber," which evolved in later production versions into BM-1s. These



Lexington (CV 2) anchors off Diamond Head, Hawaii.

aircraft and the similar XT2N-1 from the Naval Aircraft Factory, Philadelphia, Pa., became the first dive bombers designed to drop 1,000-pound bombs.

11 JULY • Pilot Lt. Adolphus W. Gorton and copilot BMC Earl E. Reber set five world records for Class C seaplanes in a PN-12, BuNo A-7384, equipped with two 525-hp Pratt & Whitney engines, at Philadelphia, Pa., over two days: distance and speed for 2,000 km, with both 1,000- and 2,000-kg loads, at 1,336 miles and 81.043 mph; and a duration of 16 hours 39 minutes, with a 2,000-kg load.

25 JULY • The Bureau of Aeronautics authorized the removal of bow and stern catapults on *Langley* (CV 1) because the ship had not operated either for three years.

6 OCTOBER • The Navy let contracts for the 6.5 million-cubic-foot rigid airships ZRS-4 and ZRS-5, subsequently christened *Akron* and *Macon*, respectively, to the Goodyear Zeppelin Corp., Akron, Ohio.

14 DECEMBER • The shipment of 14 fighting-plane radio telephone sets, operating on a frequency of 3,000 to 4,000 kilocycles and featuring an engine-driven generator, to VB-2B on board *Saratoga* initiated service tests. This equipment was designed at NAS Anacostia, D.C., and manufactured at the Washington Navy Yard, D.C., to provide early evaluation of radio equipment in single-seat aircraft.

1929

16 JANUARY • Experience in night flying became a requirement for all heavier-than-air naval aviators and naval aviation pilots. Chief of Naval Operations Adm. Charles F. Hughes ordered that, by 1 July 1930, each qualified aviator must pilot a plane for 10 hours at night and make at least 20 landings, and that student aviators meet the same requirement during the first year of their initial assignment.

21 JANUARY • The Naval Proving Ground at Dahlgren, Va., recommended the acceptance of three prototypes of the production version of the Mark XI Norden bombsight, and reported that on the first trial two of the three sights had placed a bomb within 25 feet of the target.

23 JANUARY • The participation of *Lexington* (CV 2) and *Saratoga* (CV 3) in Fleet Problem IX attached to opposing forces introduced new elements into fleet operations, including *Saratoga's* employment to achieve the theoretical destruction of the Panama Canal. The aircraft tenders *Wright* (AV 1), *Sandpiper* (AM 51), and *Teal* (AM 23) operated near Bahía Honda in Cuba in support of planes that flew from NAS Hampton Roads, Va. The aircraft tender *Aroostook* (CM 3) relieved *Langley* (CV 1), which was delayed by yard work, as part of the train that supported *Saratoga*. On the morning of 26 January, *Saratoga* launched 69 planes that arrived over the Miraflores and Pedro Miguel Locks undetected shortly after dawn and destroyed the locks without opposition. The Bureau of Aeronautics noted that the losses incurred drove home the necessity of providing carriers with “maximum escort protection.” The concussion from the gunfire of the battleships and light cruisers repeatedly rendered their planes inoperable. Observers noted the concentration of naval airpower in a handful of ships that confirmed the need for small carriers to supplement larger fleet types. The problem concluded on 27 January.

1 MARCH • Secretary of the Navy Curtiss D. Wilbur directed the designation of 33 officers of the Construction Corps and one officer of the line for engineering duty only. As the exigencies of the Navy permitted and the needs of the Bureau of Aeronautics required, the additional naval constructors and EDO officers were to be assigned to duty in the aeronautical organization.

1 MARCH • The Navy changed the indoctrination courses at NAS Hampton Roads, Va., and NAS San Diego, Calif., to emphasize flight familiarization and determine aptitude, open only to those meeting the physical requirements for aviators. This effort sought to increase the proportion of officers completing the flight training course at NAS Pensacola, Fla., and thereby reduce per capita training expense.

13 MARCH • Rear Adm. William A. Moffett was appointed for a third consecutive tour as chief of the Bureau of Aeronautics.

9 APRIL • Evaluators confirmed the feasibility of abandoning fore-and-aft wire arresting gear during operations on board *Langley* (CV 1). Together with similar operations on board *Saratoga* (CV 3) later in the month,

their conclusions culminated a year of experimental development on the landing platform at NAS Hampton Roads, Va., and led Secretary of the Navy Charles F. Adams to authorize the removal of the wires in September.

4 MAY • Lt. Thomas G. W. Settle and Ens. Wilfred Bushnell won the National Elimination Balloon Race during a two-day flight from Pitt Stadium in Pittsburgh, Pa., to Savage Harbor on Prince Edward Island, Canada. The balloon won the Litchfield Trophy, qualified for the International Race held later in the year, and established world distance records for balloons in three categories from 1,601 to 4,000 cubic meters' capacity, with a flight of 952 miles.

8 MAY • The Bureau of Aeronautics announced the policy of providing all carrier planes with brakes and wheel-type tail skids following successful tests of a T4M-1 torpedo plane so equipped on board *Langley* (CV 1).

8 MAY • Pilot Lt. Apollo Soucek set a new world record for Class C landplanes, reaching 39,140 feet in the XF3W Apache equipped with a 425-hp Pratt & Whitney Wasp engine over NAS Anacostia, D.C.

10 MAY • Lt. Alford J. Williams received the Distinguished Flying Cross from Secretary of the Navy Charles F. Adams for extraordinary achievement in aerial flight. Williams had studied the action of aircraft in violent maneuvers and inverted flight, and developed and applied principles of operation, which contributed directly to flight safety and aircraft performance test accuracy.

25 MAY • Pilot Lt. William G. Tomlinson won the race for the Curtiss Marine Trophy held at NAS Anacostia, D.C., in the XF7C-1 Seahawk, BuNo A-7653, with a speed of 162.52 mph.

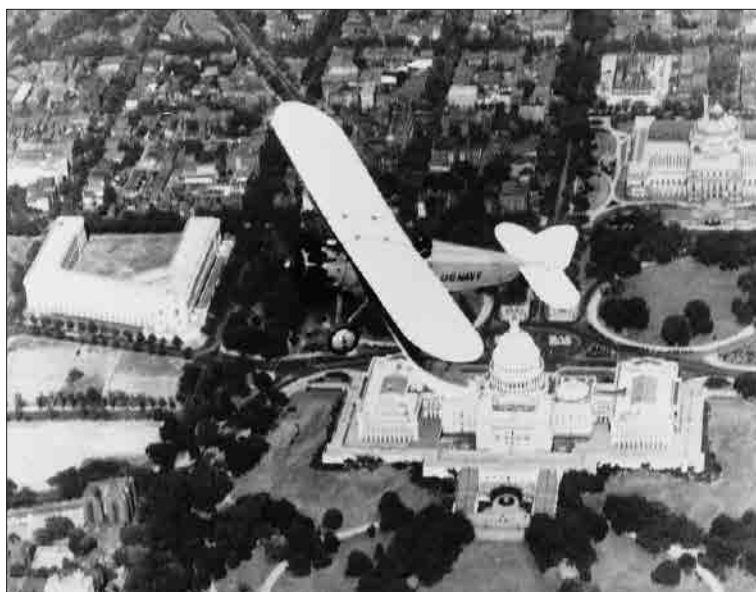
4 JUNE • Pilot Lt. Apollo Soucek set the new world altitude mark for Class C seaplanes in the XF3W Apache at 38,560 feet.

11 JUNE • A conference at the Bureau of Standards established general standards for shielding aircraft engine ignition, which were essential to long-range radio reception. Navy representatives included Lt. Cmdr. Allen I. Price from the Bureau of Aeronautics, and

civilians C. B. Mirick and L. A. Hyland from Naval Research Laboratory. A naval radio group attached to the Bureau of Standards had developed basic techniques for shielding airborne radios from ignition interference at the close of WWI, which permitted some remarkable radio reception. Although limited use of ignition shielding had been made throughout the 1920s, the results appeared generally indifferent in that adequate shielding had brought with it undue cost in terms of aircraft maintenance or degradation of plane performance. At this conference spokesmen for aircraft, engine, and radio fields and for magneto, sparkplug, and cable specialties considered each other's problems in order to develop practical shielding standards. Later, the 1932 edition of the *General Specification for the Design and Construction of Airplanes for the United States Navy* included a requirement for ignition shielding.

9 AUGUST • The metal-clad 200,000-cubic-foot airship ZMC-2 built by Aircraft Development Corp. made its first flight at Grosse Ile Airport in Detroit, Mich. This airship subsequently served for several years for training purposes at NAS Lakehurst, N.J.

20 AUGUST • Pilot Lt. Adolphus W. Gorton in a specially equipped UO-1 observation biplane made several successful hook-ons to the trapeze of the rigid airship *Los Angeles* (ZR 3) over NAS Lakehurst, N.J. Gorton's earlier attempts on 3 July had been foiled when the hook failed to operate after making contact with the trapeze.



Lt. Apollo Soucek sets a new world altitude record in the XF3W Apache over Washington, D.C., 8 May 1929.



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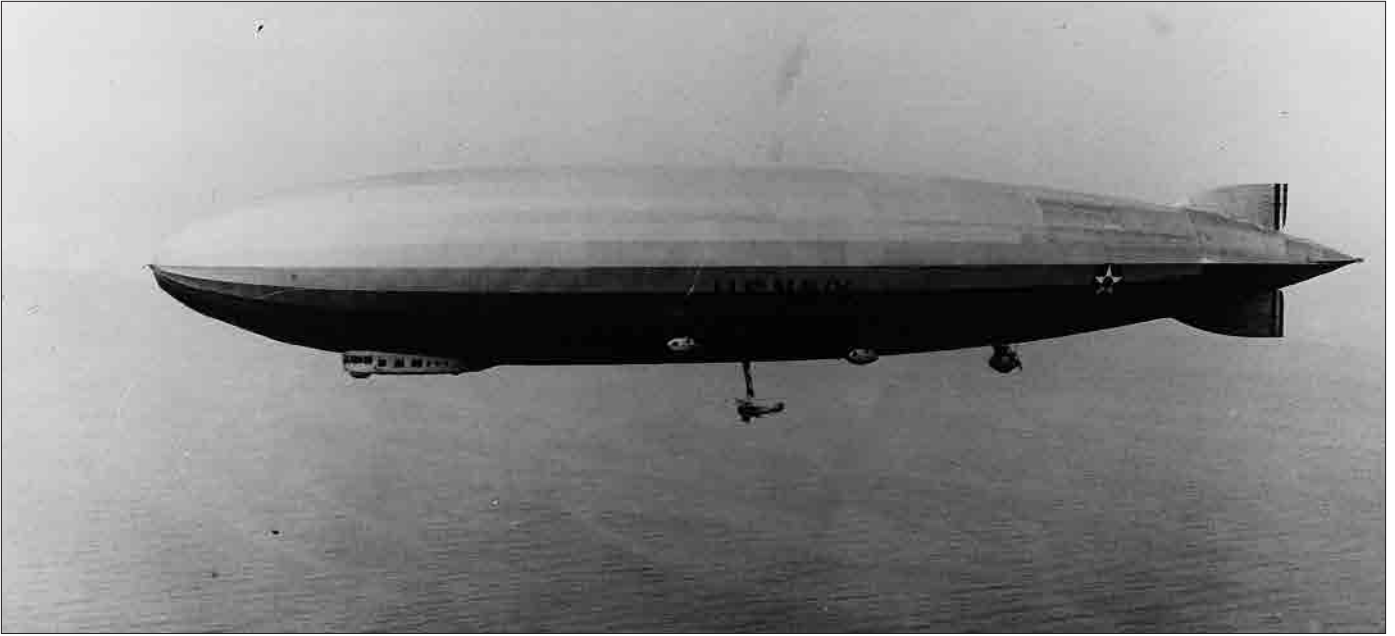
Metal-clad airship ZMC-2 joins the fleet in 1929.

SEPTEMBER • Secretary of the Navy Charles F. Adams authorized the removal of the fore-and-aft wires and associated equipment from carriers. *Langley* (CV 1) became the first carrier to complete this work, during an overhaul at Puget Sound Navy Yard from 13 November 1929 to 24 January 1930.

29 NOVEMBER • Commander and navigator Cmdr. Richard E. Byrd Jr., civilian pilot Bernt Balchen, civilian copilot and radio operator Harold June, and photographer Capt. Ashley C. McKinley, USA, made the first flight over the South Pole in a Ford 4-AT trimotor named *Floyd Bennett*. The plane took off from Little America on McMurdo Sound at 1529 on 28 November, reached the pole at 0114 on this date, stopped briefly for fuel at Axel Heiberg Glacier, and returned to Little America at 1008.

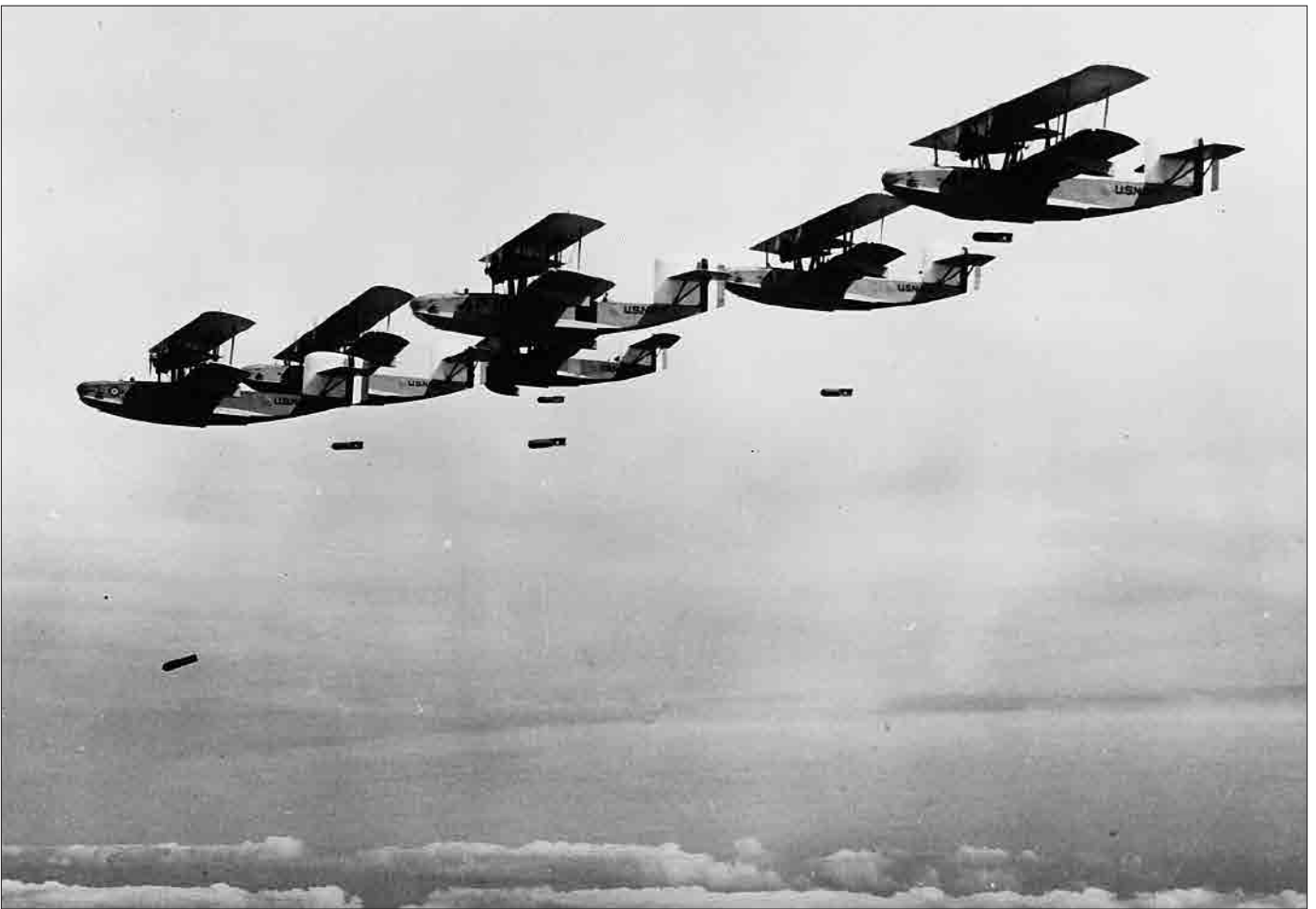
18 DECEMBER • *Lexington* (CV 2), one of a small number of naval ships equipped with turboelectric power plants, sailed from Bremerton, Wash., to a specially dredged berth at Tacoma, Wash., to alleviate the city's shortage of hydroelectric power following a severe drought. The carrier supplied 4,251,160 kilowatt-hours of energy through 16 January.

27 DECEMBER • Based upon scores obtained with the new Norden gyro-stabilized Mk XI bombsight during fleet exercises, the Bureau of Ordnance reported that the device gave about 40 percent more hits than earlier bombsights.



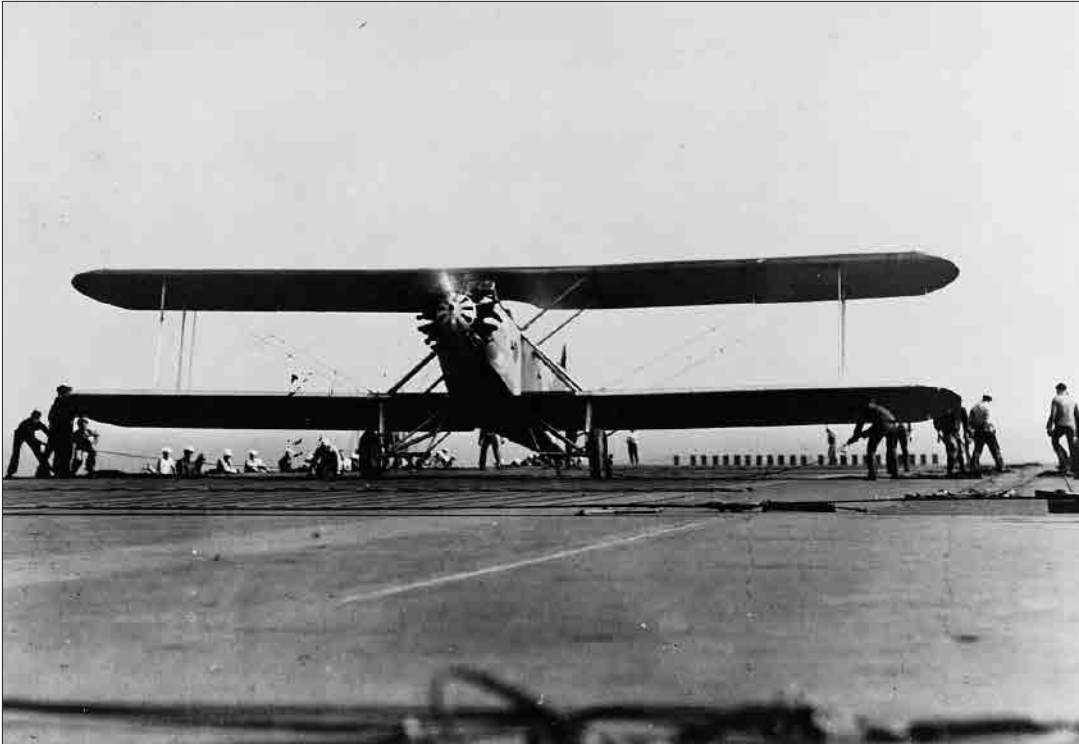
461642

Lt. Adolphus W. Gorton, flying a UO-1 observation biplane, hooks on to rigid airship *Los Angeles* (ZR 3), 20 August 1929.



184590

PD-1 patrol planes demonstrate high-altitude horizontal bombing.



426932

Sailors release a T4M-1 torpedo plane from arresting gear on board *Langley* (CV 1)—the fiddle bridges in the background support the fore and aft wires.



426947

A trio of F4B carrier-borne fighters of VF-1B.