

The Great Depression

1930–1939

The 1930s began quietly with an international treaty that extended previous agreements to reduce naval armaments. As the years passed the peace dissipated, however, and the nations moved inexorably toward global war.

In the United States, the period began with the stock market crash of October 1929, culminating in the Great Depression. Business declined, and unemployment staggered the nation. These circumstances slowed the expansion of naval aviation, aircraft inventory barely sufficed to equip operating commands, and research and development programs suffered. The fleet drastically curtailed operations. When the Republic struggled to recover prosperity through the initiation of public works, money became available for more naval aircraft, new ships, and modernization of naval air stations. Slowly, an upward swing began.

In spite of the hardships the fleet made gains in aviation technology. As engineers and aircraft manufacturers produced more reliable products and aviation equipment, aircraft performance rose. Better and smaller radios, more accurate bombsights, forced induction power plants, controllable-pitch propellers, efficient retractable landing gear, and folding wings all improved aircraft performance, making the airplanes better weapons.

The Navy installed hydraulic arresting gear and catapults on board aircraft carriers and developed better recovery procedures for battleship and cruiser observation planes. Pioneers demonstrated the feasibility of instrument flight ashore and at sea. Dependable radio-controlled planes were put to practical use as targets for antiaircraft guns. Engineers and designers learned more about the value of a streamlined, clean design.

Entire squadrons had begun to turn in the record performances once accomplished by individual pilots. Tactical innovations of the 1920s became fleet doctrine.

Three new aircraft carriers enabled the Navy to equip peacetime forces with a respectable seagoing air arm. As it acquired broader respect, naval aviation achieved prominence in both fleet organization and operations and became a truly integrated element of naval power.

Serious setbacks occurred in the field of lighter-than-air, and the crashes of airships *Akron* (ZRS 4) and *Macon* (ZRS 5) sounded the death knell of the Navy's rigid airship program. In spite of favorable reports from investigating committees, continued German successes, and repeated testaments to the value of these airships in specialized operations, the service gradually struck them from its inventory. By association, nonrigid airships almost followed the rigid airships into oblivion.

As the decade drew to a close the ominous rumblings of war echoing across the seas grew louder. The Navy expanded its pilot training program and designed and laid down new ships; aircraft on the drawing boards or rising into the air would soon operate from their decks. The United States proclaimed neutrality as WWII erupted, but the fleet patrolled the seas under conditions that approached war.

1930

29 JANUARY • A Bureau of Aeronautics report revealed that hydraulic arresting gear, a type that eventually proved capable of great refinement to absorb the energy of heavy aircraft landing at high speeds, was under development at NAS Hampton Roads, Va.

31 JANUARY • Lt. Ralph S. Barnaby made a successful air-to-ground flight in a glider from rigid airship *Los Angeles* (ZR 3) at an altitude of 3,000 feet over NAS Lakehurst, N.J.

7 FEBRUARY • The Bureau of Aeronautics initiated action to develop a means of recovering seaplanes by ships



The XF5B-1, the Navy's first monoplane designed for carrier operations.

underway when it requested that the Naval Aircraft Factory, Philadelphia, Pa., study the problem and work up designs for a system able to recover O2U-3 Corsairs.

14 FEBRUARY • The first monoplane designed for carrier operations, a Boeing Model 205 fighter later purchased by the Navy and designated XF5B-1, arrived for testing at NAS Anacostia, D.C. The Board of Inspection and Survey later reported adversely on the XF5B-1's landing, takeoff, and high-altitude characteristics, but recommended developing the aircraft further to facilitate a rational comparison of monoplane and biplane types.

15 FEBRUARY • The design of retractable landing gear, particularly attractive for its promise to improve performance in fighting planes, had progressed to the point that the Naval Aircraft Factory, Philadelphia, Pa., received authorization to construct working models to establish the practicability of various retracting mechanisms.

10 MARCH • Despite adverse weather during Fleet Problem X in the Caribbean, commanders employed light forces and aircraft in search operation exercises and practiced

maneuvers to gain tactical superiority over "enemy" forces. Carriers *Lexington* (CV 2), *Saratoga* (CV 3), and *Langley* (CV 1) and aircraft tenders *Aroostook* (CM 3) and *Wright* (AV 1) participated. The exercises underscored how suddenly airpower could reverse engagements by enabling a fleet to achieve long-range gunnery superiority, enhance the strength of light forces, and assure that torpedo planes could attack the enemy. Observers recognized the shortcomings of the scouting planes in the inventory. In addition, failures in differentiating friend and foe led ships to shoot at friendly planes, and cruiser gunfire damaged *Langley*. The problem concluded on 15 March.

21 MARCH • The XT5M-1, the first prototype dive bomber designed to deliver a 1,000-pound bomb, met its strength and performance requirements in diving tests.

14 APRIL • Carriers *Lexington* (CV 2), *Saratoga* (CV 3), and *Langley* (CV 1) and aircraft tenders *Wright* (AV 1) and *Sandpiper* (AM 51) took part in Fleet Problem XI in the Caribbean. The problem focused on scouting and on concentrating dispersed forces, as well as studied how concentrated forces attacked dispersed opponents.

Unfavorable weather and visibility complicated the exercise. Light cruiser *Richmond* (CL 9) briefly fired her 6-inch guns at *Lexington* on 16 April. The umpire ruled that the shots knocked out six planes on the flight deck and evaluated the failure of *Lexington's* other aircraft to lay smoke as a serious tactical omission. Two nights later "Black" battleships *Tennessee* (BB 43) and *West Virginia* (BB 48) mistakenly identified their carrier *Saratoga* as "Blue" *Lexington* and opened fire at her from a range of 9,000 yards with their respective 14- and 16-inch guns. The umpire subsequently ruled *Saratoga* out of action, but not before her planes dropped eleven 1,000-pound bombs on Blue battleships from an altitude of 10,000 feet before the problem ended on 18 April.

Experience from Fleet Problem X the preceding month and in this exercise led the Bureau of Aeronautics to call for the establishment of several "semi-permanent task groups [each] consisting of carrier, cruisers and destroyers," the equipping of all airplanes with radios, the development of "proper type" scouting planes, the growth of scouting squadrons to 18 aircraft, and an increase in the value of extreme long-range patrol planes.

21 APRIL • The Bureau of Navigation issued a circular letter directing that no more enlisted applicants be recommended for pilot training. When men already in the system or under instruction completed their course in early 1932, this order caused a temporary lull in enlisted pilot training.

22 APRIL • The signatories of the Washington Naval Treaty signed an additional accord at London, England, which carried forward the general limitations of the earlier agreement and provided for further reductions of naval armaments. The signatories broadened the definition of aircraft carriers to include ships of any tonnage designed primarily for aircraft operations; agreed that the installation of landing-on or flying-off platforms on warships designed and used primarily for other purposes were not to make such ships aircraft carriers; and stated no capital ships in existence on 1 April 1930 were to be fitted with such platforms or decks.

31 MAY • Capt. Arthur H. Page Jr., USMC, won the last annual Curtiss Marine Trophy Race for service seaplanes in an F6C-3 Hawk, with a speed of 164.08 mph over the Potomac River at NAS Anacostia, D.C.

4 JUNE • On the first anniversary of the pilot's seaplane altitude record, Lt. Apollo Soucek reached a new height of 43,166 feet in a Wright F3W-1 Apache landplane equipped with a Pratt & Whitney 450-hp engine over NAS Anacostia, D.C., regaining the world altitude record he had held briefly the previous year.

21 JULY • Capt. Arthur H. Page Jr., USMC, from a sealed hooded cockpit of an O2U Corsair completed an instrument flight of about 1,000 miles from Omaha, Neb., to NAS Anacostia, D.C., via Chicago, Ill., and Cleveland, Ohio—the longest blind flight to date. 1st Lt. Vernon M. Guymon, USMC, acted as safety pilot and took over the controls only for the landings after Page brought the plane over the fields at 200 feet.

1 SEPTEMBER • Capt. Arthur H. Page Jr., USMC, comprised the only military entry in the race for the Thompson Trophy in Chicago. The pilot gained and increased an early lead in an XF6C-6 Hawk, but on the 17th of 20 laps Page crashed—in all likelihood from carbon monoxide poisoning—and later died.

5 NOVEMBER • The director of the Naval Research Laboratory reported that researchers Leo C. Young and L. A. Hyland had detected an airplane flying overhead during experiments in the directional effects of radio. Their success led to the formal establishment of a project at the laboratory for "Detection of Enemy Vessels and Aircraft by Radio."



Capt. Arthur H. Page Jr., USMC, left, and 1st Lt. Vernon M. Guymon, USMC, complete the longest blind flight to date, 21 July 1930.

28 NOVEMBER • Chief of Naval Operations Adm. William V. Pratt issued a naval air policy effective on 1 April 1931 that reorganized naval aviation and established it as an integral part of the Navy under Commander in Chief, U.S. Fleet. Adm. Pratt's guidelines stressed fleet mobility and offensive action to protect against invasion from overseas; assigned the development of the offensive power of the fleet, including advanced base forces, as the primary task of naval aviation; and relegated participation in coastal defense to secondary status. The policy also directed fleet operation of air stations in strategic naval operating areas; only stations necessary for training, test, aircraft repairs, and support functions were to be maintained by shore commands.

2 DECEMBER • Seaplane tender *Aroostook* (CM 3), one utility squadron, and two patrol squadrons of the Battle Fleet reported for duty to Commander Base Force, providing that command with its first aviation organization.

1931

8 JANUARY • The completion of tests at the Naval Proving Ground, Dahlgren, Va., ensured the further development of dive-bombing equipment and tactics. The evaluators discovered that displacing gear eliminated the recently encountered danger of bombs colliding with releasing airplanes.

9 JANUARY • Chief of Naval Operations Adm. William V. Pratt and Army Chief of Staff Gen. Douglas A. MacArthur announced an agreement on the division of their respective air forces' responsibilities for coast defense. The terms of the agreement concentrated naval aviation with mobile operations of the fleet while recognizing the primacy of the Army Air Corps, the land-based air arm of the Army, in the defense of coasts and overseas possessions.

22 JANUARY • The Navy ordered its first rotary-wing aircraft, an XOP-1 autogiro, from Pitcairn Aircraft Co.

15 FEBRUARY • Carriers *Langley* (CV 1), *Lexington* (CV 2), and *Saratoga* (CV 3) together with aircraft tenders *Wright* (AV 1), *Patoka* (AO 9), and *Swan* (AM 34) fought across the Eastern Pacific toward Panamanian waters during Fleet

Problem XII, practicing strategic scouting, the employment of carriers and light cruisers, the defense of a coastline, and the attack and defense of a convoy.

The problem pitted one fleet strong in aircraft and weak in battleships against another fleet with reverse strengths. Rigid airship *Los Angeles* (ZR 3) took part in her first problem as a scout, but her "extreme vulnerability" generated controversy. Aircraft checked but did not stop the battleship fleet advance, and despite inferior air support, the battleship fleet defeated the carrier fleet. The limitations of carriers became apparent when their aircraft expended half of their fuel and ammunition in just two days. In addition, many heavy cruisers lacked sufficient stability for catapult and recovery operations. The problem concluded on 21 February.

25 FEBRUARY • The Bureau of Aeronautics issued a new pilot training syllabus, which added advanced seaplane training courses and reinstated bombing and torpedo courses and observation and gunnery courses that were dropped in November 1929. These changes expanded the regular flight course to 258.75 hours or, for those also taking advanced combat, to 282.75 hours. The new syllabus also expanded the ground school course to 386.5 hours, with a short course in photography among the additions.

2 MARCH • The Bureau of Aeronautics awarded a contract for two variable-pitch propellers, suitable for use on combat aircraft, to Hamilton Standard Propeller Co., initiating development of a propeller type the Navy would later adopt and which would help aircraft engines realize their full potential during WWII.

3 MARCH • The Bureau of Aeronautics approved a recommendation of two officers from the postgraduate aeronautical engineering group for study at the California Institute of Technology. As a result, the Navy's practice of assigning postgraduate students to civilian institutions broadened to permit greater specialization, and for the next three academic years students received assignments to either Massachusetts Institute of Technology to study aircraft engines or CalTech to study aircraft structures.

31 MARCH • *Lexington* (CV 2) sailed from NS Guantánamo Bay, Cuba, to Nicaraguan waters to help Marines, hospital ship *Relief* (AH 1), and other vessels assist



Marine expeditionary aircraft at Marine Corps Field Quantico, Va., 1931.

victims of an earthquake that demolished much of Managua, Nicaragua. Early the next afternoon, *Lexington* inaugurated carrier relief operations when she launched five aircraft carrying medical teams, supplies, and provisions to the stricken capital.

1 APRIL • The U.S. Fleet was reorganized into Battle, Scouting, Submarine, and Base Forces. Effective on this date, General Order No. 211 of 10 December 1930 provided for the appointment of dedicated commanders for aircraft and for each type of ship. Aviation type commands in the Battle, Scouting, and Base Forces were designated Commander Aircraft [name of force].

2 APRIL • Grumman received a contract for a prototype XFF-1 two-seat fighter, BuNo A-8878. This plane marked the first naval aircraft to incorporate retractable landing gear

for the purpose of reducing aerodynamic drag and thereby increasing performance.

9 APRIL • Glenn L. Martin Co. received a contract for 12 BM-1s. These planes were further developments of the XTSM-1 and the first dive bombers capable of attacking with heavy (1,000-pound) bombs procured in sufficient numbers to equip a naval squadron.

1 JUNE • The Bureau of Aeronautics issued new specifications for aircraft markings that directed use of 20 inch-wide colored bands around the fuselage of section leader planes, assigning royal red, white, true blue, black, willow green, and lemon yellow for sections 1 through 6 respectively. The same order permitted use of distinguishing colors on the empennage whenever two or more squadrons of the same class operated together.



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A BM-1 dive bomber carrying a 1,000-pound bomb.



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C. J. Faulkner lands an XOP-1 autogiro at NAS Anacostia, D.C., 1 June 1931.

1 JUNE • After civilian test pilot C. J. Faulkner arrived at NAS Anacostia, D.C., in an XOP-1 autogiro, Assistant Secretary of the Navy for Aeronautics David S. Ingalls and Assistant Chief of the Bureau of Aeronautics Capt. John H. Towers completed a 30-minute evaluation flight in the plane.

1 JULY • NAS Coco Solo, Panama Canal Zone, and NAS Pearl Harbor, Territory of Hawaii, were redesignated Fleet Air Bases (FABs) to conform with their transfer to the U.S. Fleet and their function of providing mobile air units for fleet operations.

19 JULY • Lts. Thomas G. W. Settle and Wilfred Bushnell received the Litchfield Trophy—awarded to the aeronauts who stayed aloft for the greatest number of hours—when they won the National Elimination Balloon Race in Akron,

Ohio, with a distance of 195 miles overnight to Marilla, N.Y., qualifying them for the subsequent international race.

8 AUGUST • Lou Hoover, the wife of President Herbert C. Hoover, christened rigid airship *Akron* (ZRS 4) at the Goodyear-Zeppelin Corp., Akron, Ohio.

10 SEPTEMBER • Chief of the Bureau of Aeronautics Rear Adm. William A. Moffett directed the expedition of the variable-pitch propeller test and evaluation program. The admiral noted that in recent tests at NAS Anacostia, D.C., a variable-pitch propeller on an F6C-4 Hawk had provided a 20 percent reduction in takeoff run and a slight increase in maximum speed.

23 SEPTEMBER • Pilot Lt. Alfred M. Pride and passenger Capt. Kenneth Whiting completed three landings and takeoffs in an XOP-1 autogiro on board *Langley* (CV 1) while the carrier was underway, marking the first such onboard autogiro operations at sea.

23 SEPTEMBER • Rigid airship *Akron* (ZRS 4) made her first trial flight around the Cleveland, Ohio area. The 112 passengers included Secretary of the Navy Charles F. Adams and Chief of the Bureau of Aeronautics Rear Adm. William A. Moffett.

26 SEPTEMBER • The keel for *Ranger* (CV 4), the first U.S. Navy ship designed and constructed as a carrier, was laid at the Newport News Shipbuilding and Dry Dock Co., Va.

30 SEPTEMBER • The Bureau of Aeronautics reported that it was conducting studies for catapulting landplanes on wheels. The investigators visualized the installation of powder catapults on hangar decks. The technology was expanded to include the use of compressed air to launch a plane, and by the end of 1932 the Naval Aircraft Factory, Philadelphia, Pa., used this method to successfully launch an O2U-3 Corsair.

7 OCTOBER • Aircraft obtained 50 percent hits with the newly developed Norden Mk XV bombsight in a bombing demonstration conducted from an altitude of 5,000 feet against an anchored target ship *Pittsburgh* (CA 4), compared to slightly more than 20 percent hits with the earlier Mk XI model.

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Lt. Alfred M. Pride and Capt. Kenneth Whiting complete the first XOP-1 autogiro operations on board *Langley* (CV 1), 23 September 1931.

7 OCTOBER • Evaluation of experimental K-class airship K-1 began at NAS Lakehurst, N.J. K-1 featured an enclosed all-metal car and a 320,000-cubic-foot envelope that made her the largest nonrigid airship designed especially for the Navy until that time.

27 OCTOBER • Rigid airship *Akron* (ZRS 4) was commissioned at NAS Lakehurst, N.J., Lt. Cmdr. Charles E. Rosendahl commanding.

2 NOVEMBER • VS-14M and VS-15M, embarked on board *Saratoga* (CV 3) and *Lexington* (CV 2), respectively, began operations as an integral part of Aircraft, Battle Force, and as the first Marine aviation squadrons assigned to carriers. They served as such until late 1934. From then until 1941 other Marine squadrons maintained some carrier proficiency through periodic operations afloat and field carrier landing practice ashore.

3 NOVEMBER • Rigid airship *Akron* (ZRS 4) made a ten-hour flight out of NAS Lakehurst, N.J. She set a new record for the largest number of individuals carried into the air by a single craft—207.

9 DECEMBER • *Langley* (CV 1) completed nine days of operations off the New England coast in which sailors tested the cold-weather operating capabilities of carrier deck gear and aircraft as well as the effectiveness of protective flight clothing.

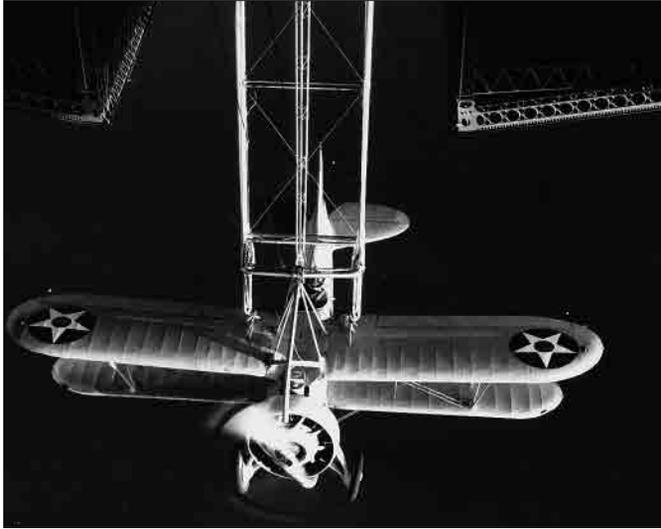
9 JANUARY • Rigid airship *Akron* (ZRS 4) operated with the Scouting Fleet off the Carolinas and northeast of the Bahamas. The airship deployed without her planes because the trapeze had not been installed and the vessel's aircraft storage facilities remained incomplete.

22 FEBRUARY • Rigid airship *Akron* (ZRS 4) incurred damage while being towed from her hangar. The ensuing repairs caused her to miss Fleet Problem XIII.

7 MARCH • Planners envisioned Fleet Problem XIII off the West Coast as the first step in an overseas campaign in which an advanced force moved from a concentration point to a first objective. *Langley* (CV 1), *Lexington* (CV 2), and *Saratoga* (CV 3) took part in the problem, which included scouting and tracking, convoy attack and defense, and attrition attacks by aircraft, light vessels, and submarines. Repairs delayed rigid airship *Akron* (ZRS 4) from participating. Planes from "Blue" carrier *Saratoga* and FAB Pearl Harbor bombed "Black" submarine *Narwhal* (SS 167), rendering her out of action on 10 March, after which *Argonaut* (SM 1) took over command of the Black submarine division. Blue aircraft subsequently sank submarines *Barracuda* (SS 163) and *Bonita* (SS 165). Observers called for increased antiaircraft measures against dive bombers, including .50-caliber shipboard machine guns and six to eight additional carriers to project forces overseas. Evaluators also noted the vulnerability of submarines to aerial attack and the need for better flotation gear on board battleship and cruiser planes. The problem concluded on 18 March.

24 MARCH • The Army Air Corps responded to enthusiastic reports from its observers at the Mk XV Norden bombsight trials against *Pittsburgh* (CA 4) in October 1931. The corps requested that the Navy provide the service with 25 Mk XV sights, marking the Army's first commitment to the Navy-developed sight that became so essential to the high-altitude precision bombing in WWII.

2 APRIL • Torpedo Squadron 5A (ex-VT-20) sailed from the Philippines on board seaplane tender *Jason* (AV 2) for NAS San Diego, Calif. When VS-8A, the single squadron remaining in the area, was disestablished the following June, aviation in the Asiatic Fleet was reduced to the observation aircraft on board cruisers.



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Akron (ZRS 4) hoists an F9C-2 Sparrowhawk into the rigid airship's hangar.

2 MAY • The Bureau of Aeronautics directed the installation of hydraulic cylinder-type arresting gear on board *Langley* (CV 1) to replace the weight-type gear. This decision resulted from operational experience with two sets of hydraulic gear installed on board *Langley* in June and September 1931.

8 MAY • Rigid airship *Akron* (ZRS 4) flew across the country from NAS Lakehurst, N.J., arriving on 11 May at Camp Kearny, San Diego, Calif. *Akron* embarked the prototype XF9C-1 Sparrowhawk and an N2Y-1 trainer during the voyage.

18 MAY • With enough qualified students to fill several classes at Pensacola, Fla., the Bureau of Navigation approved a request by the Bureau of Aeronautics to discontinue the practice of waiving the two-year sea duty requirement instituted in 1930. In effect, this marked the beginning of almost a year in which no new prospective aviators enrolled.

1 JUNE • President Herbert C. Hoover accepted the resignation of Assistant Secretary of the Navy for Aeronautics David S. Ingalls. The service announced that it was suspending the appointment of a successor as a cost-saving measure. The office remained vacant until 1941.

1 JUNE • Rigid airship *Akron* (ZRS 4) took part in her second exercise with the Scouting Fleet off the California coast. The airship twice located and tracked the enemy, but

seaplanes shot *Akron* down. Commander Scouting Force cited rigid airship vulnerabilities and recommended against further expenditures for the craft.

30 JUNE • *Los Angeles* (ZR 3) was decommissioned for fiscal reasons at NAS Lakehurst, N.J., after eight years of service and more than 5,000 hours in the air.

1 JULY • An amending act became effective that reduced the requirement for the Navy's share of enlisted pilots from 30 percent to 20 percent. The restrictive nature of the requirement was modified to include an exception for when, in the opinion of the Secretary of the Navy, it proved impracticable to obtain the required number of enlisted pilots.

28 JULY • The Bureau of Aeronautics allocated funds to the Bureau of Medicine and Surgery for research into the physiological effects of high acceleration and deceleration that pilots encountered in dive bombing and other violent maneuvers. Lt. Cmdr. John R. Poppen, MC, performed the pioneer research under the direction of Dr. C. K. Drinker at Harvard University School of Public Health, Mass. The results of their studies pointed to the need for anti-G or anti-blackout equipment.

15 AUGUST • NAS Hampton Roads, Va., was redesignated NAS Norfolk, Va.

25 SEPTEMBER • Lts. Thomas G. W. Settle and Wilfred Bushnell won the International Balloon Race at Basel, Switzerland, in a two-day flight that ended on the Polish-Latvian border near Vilna, Poland. Settle and Bushnell established a new world distance record of 963.123 miles for balloons in three categories of volume.

10 NOVEMBER • The Navy issued its first production order for radio equipment suitable for installation in single-seat fighters, with a contract for 125 sets of GF-1 radios to the Aviation Radio Corp.

22 NOVEMBER • Following tests of an XOP-1 with the 2d Marine Brigade in Nicaragua, Maj. Francis P. Mulcahy, USMC, reported the autogiro's chief value in expeditionary duty as inspecting small fields for landing areas, evacuating casualties, and ferrying officers and noncommissioned officers.

1933

4 JANUARY • The Postgraduate School Council approved a new plan for postgraduate work that combined the existing programs for specialists and for the general line and extended the aeronautical engineering program to three years. All of the officers selected for postgraduate work commenced with one year in the School of the Line. Those men who demonstrated ability and interest in an advanced technical specialty studied a second year in that area; in the third year, they detached to civilian institutions for work, leading to master of science degrees in most instances.

25 JANUARY • The Bureau of Navigation announced it would resume assigning naval officers to flight training at NAS Pensacola, Fla., in May or June—almost a year after the last group had received assignments.

10 FEBRUARY • Fleet Problem XIV began off the West Coast to train the fleet for the complex mission of escorting an expeditionary force overseas while enemy forces threatened to raid an outlying possession. The problem consisted of tracking, organizing the coast for defense, repelling a carrier raid, and practicing carrier air group

tactics. Both sides achieved surprise attacks. Aircraft from *Saratoga* (CV 3) bombed an oil refinery at Venice, an oil field at El Segundo, and docks at Long Beach, Calif., without encountering antiaircraft fire, but opposing planes surprised and damaged the ship. Overnight on 15–16 February the clouds thickened, precluding flying operations. *Lexington* (CV 2) lost contact with her cruisers and made speed to reach a launching point during the morning watch, but two battleships surprised and sank the carrier from a range of 4,500 yards. The evaluation succinctly summarized the episode: “The LEXINGTON had not launched a plane.”

Lessons learned included the “crying” need for planes capable of better performance and the “great handicap” that the slow speeds of patrol, bomber, and torpedo aircraft were causing; the necessity for carriers to attain the treaty strength of three 18,000-ton ships; the superiority of cruisers over destroyers as plane guards; and the need to improve communication procedures and the system of identification.

16 FEBRUARY • President Herbert C. Hoover presented the Distinguished Flying Cross to Col. Nathan D. Ely, USA (Ret.), awarded posthumously to Ely’s son Eugene B. Ely for extraordinary achievement as a pioneer aviator and for significant contribution to the development of naval



The XF11C-3, later redesignated the XBF2C-1.



F9C-2 Sparrowhawks return to their mothership, the rigid airship *Macon* (ZRS 5). Her hangar bay could accommodate five of the little fighters.

aviation as a civilian. The younger Ely had demonstrated the feasibility of operating aircraft from ships in 1910 and 1911.

4 MARCH • Rigid airship *Akron* (ZRS 4) flew over the inauguration ceremonies for President Franklin D. Roosevelt in Washington, D.C.

10 MARCH • Navy ships, including *Langley* (CV 1), provided aid to the victims of an earthquake that occurred in Long Beach, Calif. Many buildings without reinforced masonry walls collapsed and at least 120 people perished.

11 MARCH • Mrs. William A. Moffett, the wife of the Chief of the Bureau of Aeronautics, christened the rigid airship *Macon* (ZRS 5) in Akron, Ohio. *Macon* was the last such airship procured for the Navy.

1 APRIL • Fleet aviation was reorganized and divided between two principal commands: carriers and their aircraft were assigned to Battle Force; tender-based aviation squadrons and FABs Pearl Harbor, Territory of Hawaii, and Coco Solo, Panama Canal Zone, to Base Force. Each of the two commanders exercised type functions within his force. Commander Aircraft, Battle Force, served as type commander for all fleet aircraft, and the reorganization abolished Aircraft, Scouting Force.

4 APRIL • Rigid airship *Akron* (ZRS 4), with Chief of the Bureau of Aeronautics Rear Adm. William A. Moffett embarked, lifted from NAS Lakehurst, N.J., at 1830 to assist

in calibrating radio direction finders along the Atlantic coast. Skipper Cmdr. Frank C. McCord left the airship's F9C-2 Sparrowhawks behind. *Akron* encountered fog and then thunderstorms as she neared New York. McCord attempted to elude the storms and then brought her about, but a downdraft violently thrust the ship into the sea at about 0300 on 5 April off Barnegat Light, N.J. The survivors attempted to escape through the fabric fuselage, but the airship lost power and lights when she crashed, and the men who straggled from the wreckage in the darkness faced the cold Atlantic without life vests. Passing German tanker *Phoebus* rescued Cmdr. Herbert V. Wiley and two crewmen but Moffett, McCord, and 71 other sailors perished. The Navy struck *Akron* on 30 April.

18 APRIL • Pilot Lt. George A. Ott and passenger Lt. j.g. Bruce A. Van Voorhis in an O2U Corsair made the first operational test of a device later called the Plane Trap, installed on battleship *Maryland* (BB 46). Lt. Lisle J. Maxson had proposed the device, which consisted of a V-shaped float attached to the stern by a system of struts that permitted the float to ride in the water at an even depth. A seaplane taxied toward the float pushing a knobbed probe on the nose of its pontoon into the V-float, which engaged the probe and held the seaplane in position for hoisting on board. The success of the mechanism led to proposals to install the same gear on five additional battleships.

21 APRIL • *Macon* (ZRS 5) made her first flight. The rigid airship executed preliminary turning and climbing trials as well as a speed run in which she reached 70 knots.

29 APRIL • The Bureau of Aeronautics recommended that postgraduate instruction in aerology resume. Classes had been suspended since 1929. By year's end the bureau completed arrangements for a two-year course at the postgraduate school and a third year at a civilian university.

13 JUNE • The Bureau of Aeronautics issued a contract for the development of special radio equipment for making blind landings on board carriers to the Washington Institute of Technology.

16 JUNE • Under the terms of the National Industrial Recovery Act, President Franklin D. Roosevelt allotted \$238 million to the Navy for new ship construction, including two aircraft carriers. In less than two months

contracts were awarded for the Navy's fifth and sixth carrier, which were commissioned as *Yorktown* (CV 5) and *Enterprise* (CV 6), respectively.

22 JUNE • An underway recovery device proposed by Lt. George A. Ott on board battleship *Maryland* (BB 46) was tested off Point Fermin, Calif. The device resembled a cargo net fitted with a wood spreader at its forward edge and canvas underneath which, when towed by the ship, rode the surface forward and remained slightly submerged aft so that seaplanes taxied on and caught the net with a hook on the bottom of its pontoon. Recovery over the stern succeeded on the first attempt. Sailors then attempted an alongside recovery, which was necessary for ships with cranes amidships. With the net trailing from a boom, a seaplane again caught the net but then swung into the ship and crumpled its wing. In spite of the partial failure, the possibilities of the plane net were apparent and later adjustments corrected deficiencies.

23 JUNE • Rigid airship *Macon* (ZRS 5) was commissioned at Akron, Ohio, Cmdr. Alger H. Dresel commanding.

7 JULY • Rigid airship *Macon* (ZRS 5) received her planes on board for the first time, while underway over Long Island Sound. Lt. D. Ward Harrigan tested the trapeze with an N2Y-1 trainer, and then together with Lt. j.g. Frederick N. Kivette checked the apparatus with heavier F9C-2 Sparrowhawks.

8 AUGUST • Commander Aircraft, Battle Force, requested



A trio of F9C-2 Sparrowhawks fitted with airship hook-on gear.



An F4B-4 fighter.

authority to use variable-pitch propellers on six F4B-4 fighters of VF-3, based on board *Langley* (CV 1), and on one F4B-4 of VF-1, operating from *Saratoga* (CV 3), during forthcoming exercises. This request stemmed from the successful trials VF-3 had conducted on board *Langley* and marked the Navy's initial acceptance of variable-pitch propellers.

9 AUGUST • Commander Battle Force, commenting on tests of the plane net made by battleship *Maryland* (BB 46), pointed out that construction of the net and pontoon hook were well within the capacity of the ship's company and directed that all battleships under his command experiment with, and attempt to develop, techniques for underway recoveries.

2 SEPTEMBER • Lt. Cmdr. Thomas G. W. Settle and Lt. Charles H. Kendall took second place in the Gordon Bennett International Balloon Race at Chicago, Ill., with a distance of 776 miles into 4 September. Their 51 hours in the air set new world records for duration in three categories of volume.

7 SEPTEMBER • A flight of six P2Y-1 flying boats, Lt. Cmdr. Herman E. Halland of VP-5F commanding, flew nonstop from NAS Norfolk, Va., to FAB Coco Solo, Panama Canal Zone, into 8 September, completing a record distance formation flight of 2,059 miles in 25 hours 19 minutes.

12 OCTOBER • Rigid airship *Macon* (ZRS 5) departed NAS Lakehurst, N.J., for her new home on the West Coast at NAS Sunnyvale, Calif. The airship followed the Atlantic coast down to Macon, Ga., and turned westward over the southern route. The craft arrived at Sunnyvale on the afternoon of 15 October, completing the 2,500-mile nonstop flight in approximately 70 hours. *Macon* embarked a single N2Y-1 trainer for the voyage.

17 OCTOBER • In order to prevent a pilot shortage as a result of the curtailment in naval aviator training, the Bureau of Navigation approved a request by the Bureau of Aeronautics to authorize additional instruction for specially recommended students who had failed to qualify on their first attempt or whose training had been interrupted. The next month a requalification course for naval aviators and naval aviation pilots who had been on non-flying duty was also authorized.

24 OCTOBER • Initiating development of its anti-blackout equipment, the Navy authorized the Naval Aircraft Factory, Philadelphia, Pa., to develop and manufacture a special abdominal belt according to the specifications prepared by Lt. Cmdr. John R. Poppen, MC, for use by pilots in dive bombing and other violent maneuvers.

28 OCTOBER • A contract was issued to Consolidated Aircraft for the XP3Y-1, which marked the initiation of Navy-sponsored development of the PBY Catalina series of flying boats.

14 NOVEMBER • Rigid airship *Macon* (ZRS 5) participated in fleet exercises. During Exercise D the following day cruiser antiaircraft guns shot the airship down. Thirty-six fighters subsequently downed *Macon* a second time.

17 NOVEMBER • The sum of \$7.5 million was allotted to the Navy from National Industrial Recovery Act funds for the procurement of new aircraft and equipment. The decision permitted the Bureau of Aeronautics to maintain its 1,000-plane program, to equip operating aircraft with modern navigation instruments and radios, and to make other improvements in naval aircraft and accessories not possible under the annual appropriation.

20 NOVEMBER • Lt. Cmdr. Thomas G. W. Settle and Maj. Chester L. Fordney, USMC, set a global altitude record of 61,237 feet in a 600,000-cubic-foot free balloon flying into the stratosphere from Akron, Ohio, and landing near Bridgeton, N.J.

20 DECEMBER • To organize the aviation element of the newly formed Fleet Marine Force, Aircraft Squadrons East Coast Expeditionary Forces was redesignated Aircraft One, Fleet Marine Force and Aircraft Squadrons West Coast Expeditionary Forces became Aircraft Two, Fleet Marine Force.

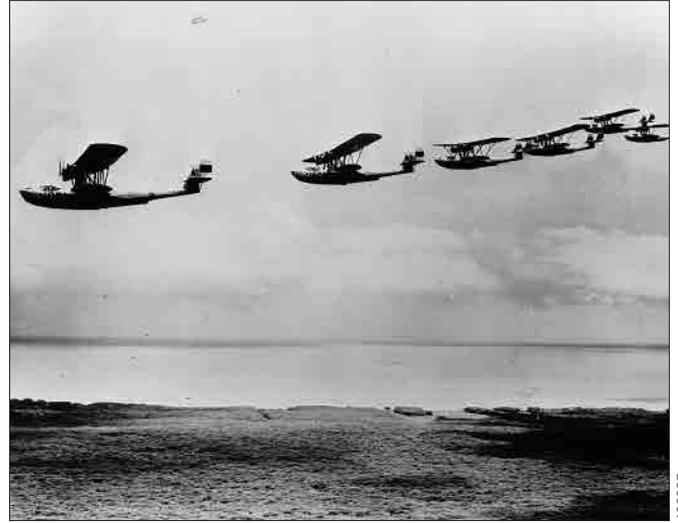
1934

3 JANUARY • Rigid airship *Macon* (ZRS 5) took part in fleet exercises. The following night she flew over the “enemy” fleet with all her lights lit; antiaircraft guns promptly shot the airship down. On 5 January fighters downed *Macon* a second time.

10 JANUARY • A group of six P2Y-1 flying boats, Lt. Cmdr. Knefler McGinnis of VP-10F commanding, made a nonstop formation flight from San Francisco, Calif., to FAB Pearl Harbor, Territory of Hawaii, into the next day, in 24 hours 35 minutes. Their accomplishment bettered the best previous time for the crossing, exceeded the distance of previous mass flights, and broke a nine-day-old Class C seaplane world record for distance in a straight line with a new mark of 2,399 miles.

14 MARCH • Dr. A. Hoyt Taylor, head of the Radio Division, Naval Research Laboratory, authorized the development of pulse radar (as later known) to detect ships and aircraft. Project researcher Leo C. Young had proposed the basic concept involving special sending, receiving, and display equipment—all mounted in close proximity. This equipment was to send out pulses of radio energy of a few microseconds in duration separated by time intervals tens to thousands of times longer than the duration of a pulse. Reception of an echo was to indicate a target; time of travel to the target and back, the distance; and directional sending or receiving antenna, the bearing. Compared to the beat in a continuous radio wave technique under development at NRL for nearly four years, the pulse technique promised much greater utility because it was to provide range and bearing as well as detection, and because the entire apparatus could be installed on board a single ship. Researchers based the feasibility of the pulse technique on new developments by the radio industry, including the cathode ray tube, high-power transmitting tubes, and special receiving tubes.

27 MARCH • An act of Congress, approved by President Franklin D. Roosevelt and popularly known as the Vinson-Trammell Act after the two members of Congress who sponsored the measure, Carl Vinson (D-Ga.) and Park Trammell (D-Fla.), established the composition of the Navy at the limits prescribed by the Washington Naval Treaty of 1922 and the London Naval Treaty of 1930. The act authorized the President to procure naval aircraft for ships



Six P2Y-1 flying boats complete a nonstop formation flight from San Francisco, Calif., to Pearl Harbor, Territory of Hawaii, 11 January 1934.

and naval purposes in numbers commensurate with a treaty Navy and authorized construction of, among other ships, an aircraft carrier of about 15,000 tons. The fleet comprised 65 percent of its allotted treaty strength at the time of the act’s approval; the Japanese, by comparison, had built to 95 percent of their ratios. The treaty designers intended the act to enable U.S. naval strength to expand to these limits within eight years. The bill also provided that not less than 10 percent of the authorized aircraft and engines were to be manufactured in government plants. Under the act, the carrier subsequently named *Wasp* (CV 7) was laid down in 1936.

19 APRIL • Three separate exercises designed to enhance realism comprised Fleet Problem XV in the Caribbean and in Panamanian waters. Aircraft sank *Saratoga* (CV 3) and put *Lexington* (CV 2) out of action. On 6 May six FF-1 fighters from *Lexington* shot down rigid airship *Macon* (ZRS 5)—though she transmitted a sighting report of the carrier. The increased complexity and duration of the fleet problems led umpires to initiate periodic recesses to rest crews. Observers noted the liability of airships in fleet operations and counterbalanced their great cost, slow speed, and vulnerability unfavorably with their value as scouts. The lessons learned included the utility of small carriers in recovering battleship- and cruiser-based planes, the inefficiency of battleship and cruiser plane handling, the necessity of carrier planes capable of carrying 500- and 1,000-pound bombs, and the need for improved aircraft tenders to replace the slow and poorly equipped ships in service. The exercise concluded on 12 May.

1934 continued

20 APRIL • Rigid airship *Macon* (ZRS 5) made a transcontinental flight from Moffett Field, Calif., to Opa-Locka, Fla. The airship encountered severe turbulence en route that caused diagonal and intersecting girders to buckle,

but the crew accomplished temporary repairs and continued. *Macon's* planes flew cross country independently. *Macon* returned to Moffett Field on 16 May.

28 APRIL • The equipment and techniques of alongside recovery by plane net had developed to the point that Commander Cruisers, Battle Force, issued a directive describing the method that each ship of his command was to use. The success of the method was such that the only plane trap in use, that on board battleship *Maryland* (BB 46), was removed in June, and underway recovery of seaplanes by battleships and cruisers soon became routine.

1 MAY • Lt. Frank Akers made a hooded landing in an OJ-2 observation biplane at College Park, Md., in the first demonstration of the blind landing system intended for carrier use and under development by the Washington Institute of Technology. In subsequent flights Akers took off under a hood from NAS Anacostia, D.C., and landed at College Park without assistance.



1061485

An FF-1 fighter, the first naval aircraft to incorporate retractable landing gear.



428440

Ranger (CV 4), the first Navy ship designed and constructed as a carrier.

22 MAY • The Navy ordered its first single-engine NS-1 biplane trainers from Stearman Aircraft Co., Wichita, Kan.

4 JUNE • *Ranger* (CV 4), the first U.S. ship built from the keel up as a carrier, was commissioned at Pier 7 at NOB Norfolk, Va., Capt. Arthur L. Bristol commanding.

21 JUNE • *Ranger* (CV 4) Air Officer Lt. Cmdr. Arthur C. Davis and MMC H. E. Wallace of the carrier's V-2 division made the first takeoff and landing on board the ship in an O3U-3 Corsair, BuNo 9318. *Ranger* completed normal operations, including the recovery of aircraft over her stern, and then went full speed astern, with aircraft landing using her bow arresting gear. The ship anchored overnight off Virginia Beach, Va., continued flight operations the next day, and hosted a brief visit by Chief of the Bureau of Aeronautics Rear Adm. Ernest J. King. *Ranger* was the first U.S. carrier equipped with bow and stern arresting gear.

30 JUNE • The Navy awarded a contract to Douglas for the XTBD-1 torpedo bomber.

18 JULY • Fourteen Class of 1933 Naval Academy graduates reported to NAS Pensacola, Fla., for special training toward qualification as naval aviators. Their route to designation in January 1935 was circuitous—they received an honorable discharge upon graduation from the academy because of a lack of vacancies in the Navy, enrolled and trained as Flying Cadets in the Army Air Corps, accepted a commission in either the Navy or Marine Corps, and, finally, completed the Pensacola course.

19 JULY • Pilots Lt. Harold B. Miller and Lt. j.g. Frederick N. Kivette launched from the trapeze of rigid airship *Macon* (ZRS 5) in F9C-2 Sparrowhawks without their wheel landing gear and discovered heavy cruisers *Houston* (CA 30) and *New Orleans* (CA 32) when the ships sailed from Panama to the Hawaiian Islands via Clipperton Island. Miller and Kivette dropped bags of newspapers and magazines onto *Houston's* deck for embarked President Franklin D. Roosevelt. Because of the improved performance of the aircraft on this first flight without landing gear, it became *Macon's* standard operating procedure to fly planes from the trapeze in this configuration.

1 AUGUST • Lts. j.g. Charles H. Kendall and Howard T. Orville completed a 206.4-mile flight from Birmingham, Ala.,



A TBD-1 Devastator torpedo bomber.

to Commerce, Ga., to win the National Elimination Balloon Race and qualify for the international race.

8 AUGUST • During a training flight over the area of San Francisco–Oakland Bay, Calif., rigid airship *Macon* (ZRS 5) streamed her spy-basket in the first attempt since rigid airship *Akron* (ZRS 4) had performed an aborted test in 1932. Crewmembers initially lowered the basket empty; its instability and poor performance validated their caution.

1 NOVEMBER • The Naval Aircraft Factory, Philadelphia, Pa., received authorization to manufacture and test a Type H Mk I flush-deck hydraulic catapult. Planners intended it to launch landplanes from aircraft carriers. This type, the initial step in the Navy's development of hydraulic catapults, proved capable of extensive refinement and eventually attained acceptance as a primary carrier launch system.

7 NOVEMBER • During training with the fleet, rigid airship *Macon* (ZRS 5) sent her planes ahead as scouts, which spotted and shadowed *Saratoga* (CV 3) for several hours. The airship returned to Moffett Field, Calif., two days later.

1934 continued

15 NOVEMBER • Plans to install hydraulic flush-deck catapults on board carriers were formalized in a Bureau of Aeronautics request that *Enterprise* (CV 6) and *Yorktown* (CV 5) reserve space for two bow catapults (each) on their flight decks, and one athwartships on their hangar decks.



1063784

The XBT-1 heavy dive bomber, which preceded the SBD Dauntless.

18 NOVEMBER • The Navy issued a contract to Northrop Corp. for the two-seat XBT-1 scout and dive bomber.

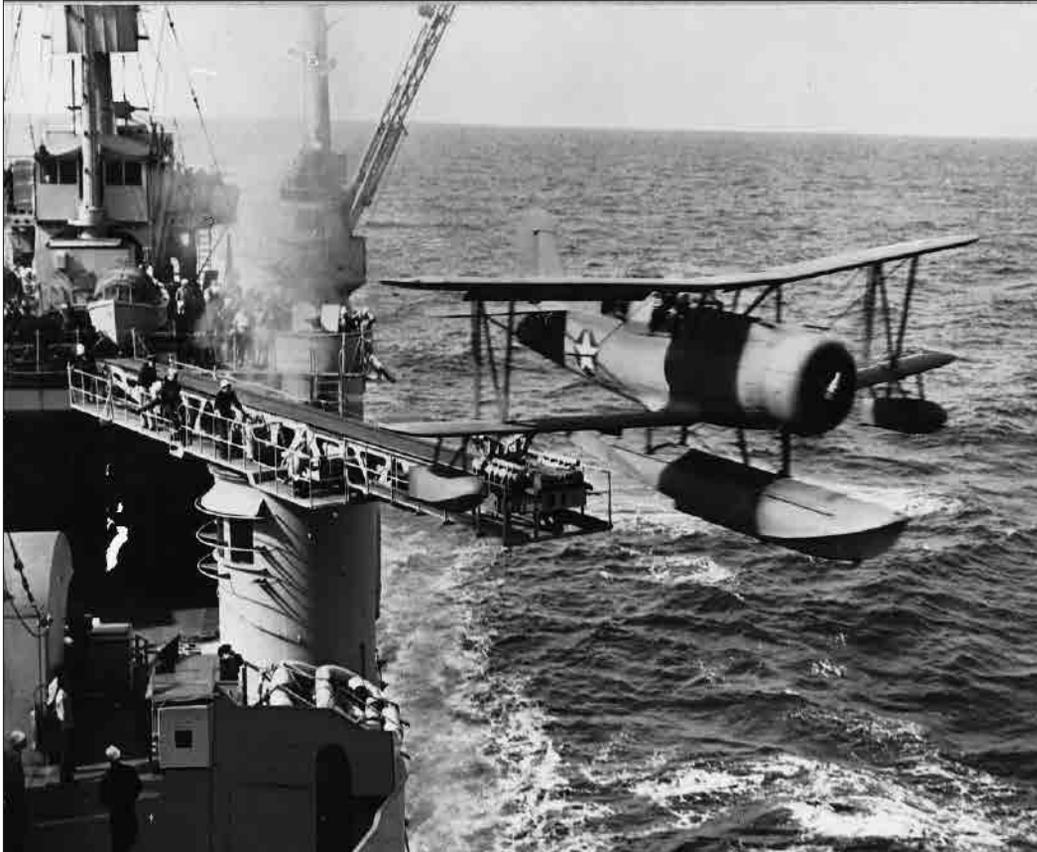
5 DECEMBER • Rigid airship *Macon* (ZRS 5) flew from Moffett Field, Calif., to take part in a minor tactical training exercise. Two days later her planes spotted and tracked *Lexington* (CV 2), but dive bombers from the carrier shot the airship down. The exercise suspended on 8 December when a pair of planes failed to return to light cruiser *Cincinnati* (CL 6). *Macon* found the aircraft and hovered over the scene until ships arrived to rescue the pilots.

14 DECEMBER • The reinflation of rigid airship *Los Angeles* (ZR 3) after nearly three years in decommissioned status enabled her to become airborne in the hangar at NAS Lakehurst, N.J. Although *Los Angeles* did not fly again, she continued in use as a test and experimental ship for another five years and was stricken on 29 October 1939. Sailors subsequently dismantled the airship in seven weeks.



488706

The cameraman in an SU-1 Corsair scout takes an oblique photograph, 13 December 1934.



41601

An SOC-1 Seagull observation seaplane launches from the catapult of a heavy cruiser.

15 DECEMBER • Secretary of the Navy Claude A. Swanson approved the acceptance of the XO3C-1 single-engine biplane observation seaplane, which was later redesignated XSOC-1.

21 DECEMBER • The flight tests for NS-1 Kaydet biplane trainers concluded at NAS Anacostia, D.C.

1935

2 JANUARY • Rigid airship *Macon* (ZRS 5) conducted visibility tests with carrier *Lexington* (CV 2) to determine how easily ships could sight the airship and who would discover whom first—airships or ships. Judges considered the test a draw. The airship returned the next day to Moffett Field, Calif.

5 JANUARY • The Bureau of Navigation stated that Lt. Cmdr. John R. Poppen, MC, was to be ordered to the Naval Dispensary at the Philadelphia Navy Yard, Pa., with additional duty at the Naval Aircraft Factory in that city to

observe pilots, conduct their annual physical examinations, and work on hygienic and physiological aspects of research and development projects. Poppen's orders marked the first assignment of a flight surgeon to the factory other than as part of a specific mission.

14 JANUARY • While *Ranger* (CV 4) completed post-trial repairs and alterations at the Norfolk Navy Yard, Va., some of her squadrons made the first of a series of cross-country flights from Norfolk to Hartford, Conn., and Buffalo, N.Y., to test carrier aircraft, special equipment, and flight clothing under the exacting conditions

they could encounter in cold weather. The squadrons completed the tests on 2 February, and the lessons learned were used to prepare for experiments on board *Ranger* the next winter.

22 JANUARY • The Federal Aviation Commission, appointed by President Franklin D. Roosevelt as provided in the Air Mail Act of 12 June 1934, submitted a report that in essence set forth a broad policy covering all phases of aviation and the relation of the government thereto. A major share of its recommendations referred to commercial and civil aviation, but some had implications for military aviation: expansion and close coordination of experimental and development work by the National Advisory Committee for Aeronautics, larger appropriations to support the Reserve organizations, and assignment of officers with special engineering ability and industrial experience to continuous related duty.

9 FEBRUARY • The XN3N-1 prototype of the Canary primary trainer was ordered from the Naval Aircraft Factory, Philadelphia, Pa.



An XN3N-2 "Yellow Peril" trainer built at the Naval Aircraft Factory, Philadelphia, Pa.

11 FEBRUARY • Cmdr. Herbert V. Wiley, commanding rigid airship *Macon* (ZRS 5), imaginatively sent four of her planes on a sortie up to 225 miles distant during a fleet exercise off the Santa Barbara Islands, Calif. The following day the airship came about to return to Moffett Field, Calif., but encountered fog off Cape San Martin.

Wiley turned away from the coast to avoid the fog, but the airship passed through a rainstorm. A severe gust of wind struck *Macon* at about 1705 and carried away her unreinforced upper fin, causing a structural failure. The damage worsened and the loss of gas from the after gas cells placed her at an extreme angle of trim, bow up. The helmsman reported that the wheel felt slack in his hands. Crewmembers dropped excessive ballast and *Macon* shot over pressure height where her automatic gas valves opened, which blew away the small margin of lift that remained.

Twenty-four minutes later *Macon* crashed and sank off Point Sur. Two of the 83 men on board died, and the ship took four of her F9C-2 Sparrowhawks to the bottom. *Macon* was the fourth rigid airship lost, and her fall signaled the demise of the type in the Navy. On 26 February Secretary of the Navy Claude A. Swanson informed all bureaus and divisions of the Chief of Naval Operations that *Macon* had been stricken.

19 FEBRUARY • The initial F2F-1 arrived at VF-2B as the first single-seat Navy fighter with an enclosed cockpit to serve in squadron inventory.

12 MARCH • The Navy issued a contract to Pitcairn Aircraft Co. to remove the fixed wings from an XOP-1 autogiro, thereby converting it to an XOP-2 as the service's first heavier-than-air craft without fixed wings.

15 APRIL • Passage of the Aviation Cadet Act created the grade of Aviation Cadet in the Navy and Marine Corps Reserves. The act set up a new program for pilot training in which qualified college graduates between the ages of 18 and 28 were to be eligible for one year of flight instruction, benefits of pay, and uniform gratuities and insurance. Following three additional years on active duty they were to be commissioned as ensigns or second lieutenants, paid a bonus of \$1,500, and returned to inactive duty as members of the Reserves. The program provided many of the aviators who manned cockpits during WWII.

29 APRIL • The five phases of Fleet Problem XVI covered a vast area from the Aleutian Islands to Midway, Territory of Hawaii, and the eastern Pacific. Patrol and Marine aircraft took the major aerial role during landing exercises when combined forces launched a strategic offensive against the enemy. Severe weather hampered the operations in Alaskan waters. During her first fleet problem *Ranger* (CV 4) joined *Langley* (CV 1), *Lexington* (CV 2), and *Saratoga* (CV 3) in the main body of the "White" fleet. The slowness of sending patrols on 30 April enabled "Black" submarine *Bonita* (SS 165) to close within 500 yards and fire six torpedoes at *Ranger* as she recovered planes, and for *Barracuda* (SS 163) to fire four torpedoes from 1,900 yards. Planes pursued the submarines, and a dive bomber caught *Bonita* on the surface and made a pass before she submerged, but the ease with which the boats penetrated the screen boded poorly for the ships. Patrol squadrons marred by casualties subsequently made a mass flight from FAB Pearl Harbor via French Frigate Shoals. The exercise concluded on 10 June.

1 MAY • The Bureau of Navigation issued a new pilot training syllabus that required about 300 hours of flight instruction and 465 hours of ground school in a total time of one year. The new course did not differentiate between student naval aviators and student aviation pilots but specified 90 additional hours of indoctrination courses for reservists.

5 JUNE • An act of Congress authorized the designation of specially qualified officers for the performance of



One of three Douglas RD-2 Dolphins built for the Navy as VIP transports painted in Navy Blue.

aeronautical engineering duty only. Secretary of the Navy Claude A. Swanson appointed a board in September to select the first officers for this designation, and his subsequent approval of the board's report brought about the assignment of 11 officers of the line and 33 members of the Construction Corps to this category.

20 JULY • The first class of Aviation Cadets to report for flight training convened at NAS Pensacola, Fla. Elliott M. West became the first of the group to become a naval aviator when he was designated Naval Aviator No. 4,854 on 12 June 1936.

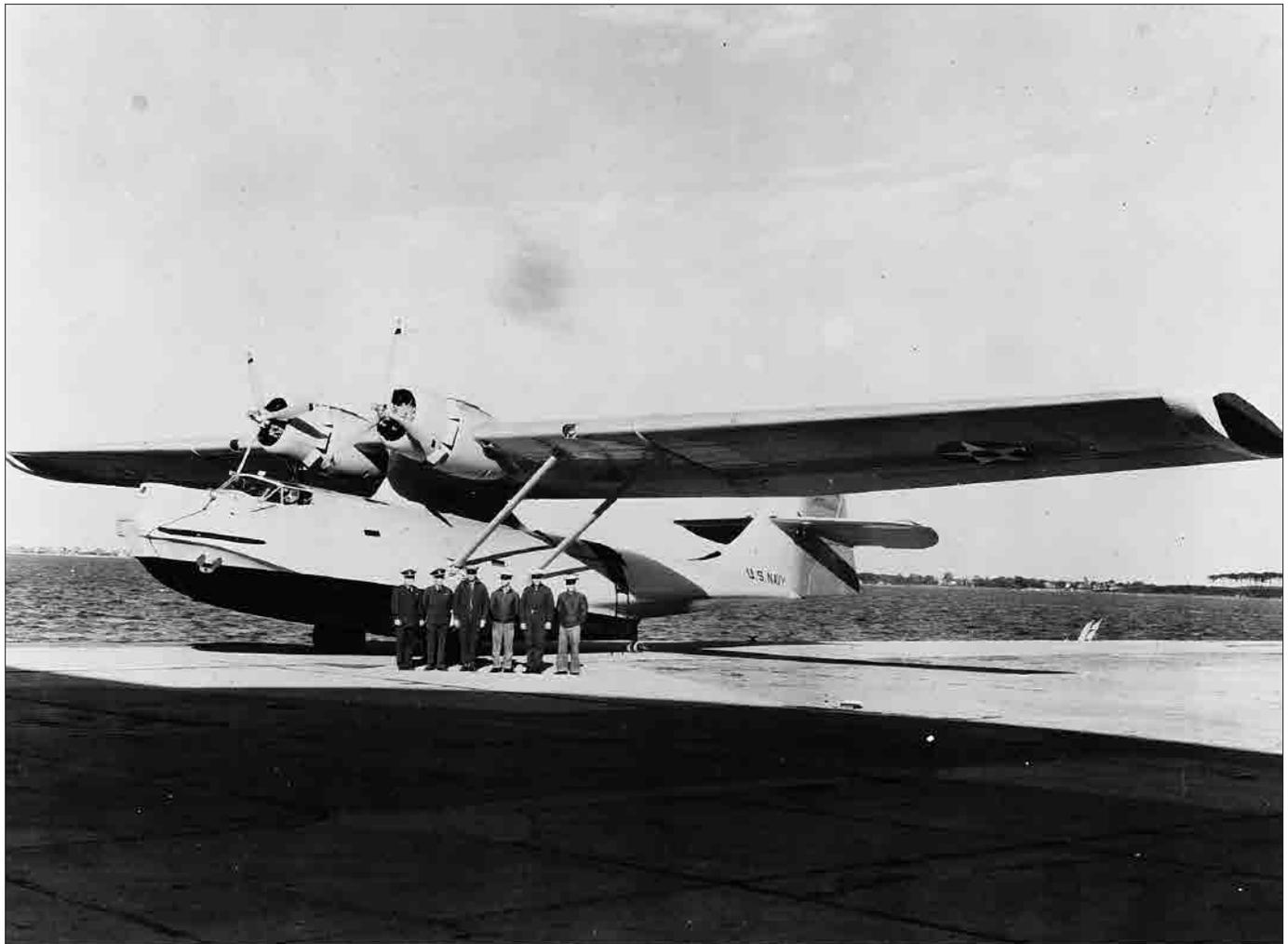
30 JULY • Lt. Frank Akers made the first blind landing on board a carrier in an OJ-2 observation biplane with a hooded cockpit. Akers took off from NAS San Diego, Calif., located *Langley* (CV 1) underway in an unknown position, and landed on board catching the number four arresting wire. Akers subsequently received the Distinguished Flying Cross.

2 SEPTEMBER • A storm known locally as the "Labor Day Hurricane" devastated the middle Florida Keys, killing

at least 423 people, including 258 WWI veterans working on the Federal Emergency Relief Administration Overseas Highway. The hurricane caused additional damage along the Florida panhandle and through Georgia and the Carolinas. Lt. Clemmer, USCG, had dropped more than 100 message blocks from a Coast Guard PJ-1 Flying Lifeboat to warn



NAS Anacostia, foreground, and the Army's Bolling Field, D.C., prior to the Navy's acquisition of the airfield.



1063771

The XP3Y-1—the prototype Catalina—sets a 3,443-mile record when, under the command of Lt. Cmdr. Knefler McGinnis, shown here with his crew, it lands in Alameda, Calif., on 15 October 1935 after taking off from the Panama Canal Zone.

people of the approaching tempest. Five additional Coast Guard planes flying from CGASs Miami and St. Petersburg in Florida searched for survivors, directed patrol boats toward victims, and carried the injured and recovered bodies to Miami. During one flight Clemmer flew 16 victims to Miami for treatment—the largest number of people carried in that type of plane to date.

26 SEPTEMBER • President Franklin D. Roosevelt approved an Army-Navy proposal for the transfer of air station properties, culminating several years of study and discussion of the joint use of aviation facilities in certain areas. By this approval and a subsequent executive order, the Army agreed to turn the following over to the Navy: Bolling Field at NAS Anacostia, D.C.; Luke Field on Ford Island, Oahu, Hawaiian Islands; and Rockwell Field on North Island, Calif.

The Navy agreed to turn over to the Army NAS Sunnyvale, Calif. In this exchange, both parties understood the Army's intention to construct new fields at Bolling (adjoining its previous location) and on Oahu (Hickam Field).

5 OCTOBER • The first G-class airship G-1 arrived at NAS Lakehurst, N.J. The Navy used it, formerly *Defender* of the Goodyear Corporation's commercial fleet of advertising and passenger airships, for training purposes.

14 OCTOBER • Pilot Lt. Cmdr. Knefler McGinnis, Lt. j.g. James K. Averill, naval aviation pilot Thomas P. Wilkinson, and a crew of three completed a flight in the XP3Y-1 patrol plane, powered with two 825-hp Pratt & Whitney engines, from Cristobal Harbor in the Panama Canal Zone to Alameda, Calif., in 34 hours 45 minutes into 15 October.



A late version of the F2A Buffalo, the type that became the Navy's first production monoplane.

They established new world records for Class C seaplanes of 3,281.383 miles airline distance and 3,443.255 miles broken line distance.

15 NOVEMBER • The chief of the Bureau of Aeronautics approved recommendations from a fighter design competition and thereby initiated development of the XF4F-1 biplane and the XF2A-1 monoplane. Although it included subsequent changes and modifications, this developmental sequence provided prototypes of the Navy's first-line fighters in use when the United States entered WWII.

9 DECEMBER • During a second naval disarmament conference in London, England (the first was held in 1930), the Japanese naval delegation walked out following the Americans' refusal to grant the Imperial Japanese Navy parity

with the U.S. Navy. The final agreement on 25 March 1936 between the Americans, British, and French—also rejected by the Italians—proved ineffective and spelled the last attempt at disarmament treaties before WWII.

1936

20 JANUARY • The Bureau of Engineering acted on a request from the Bureau of Aeronautics to initiate naval support to the Bureau of Standards for the development of radio meteorographs. These instruments—later renamed radiosondes—were attached to small free balloons and sent aloft to measure pressure, temperature, and humidity of the upper atmosphere, and to transmit this information to ground stations for weather forecasting and flight planning.



1061653

An SBU-1 dive bomber.

22 JANUARY • The nine *Lapwing* (AM 1)-class minesweepers were redesignated small seaplane tenders (AVP).

22 JANUARY • *Ranger* (CV 4), with the Cold Weather Test Detachment and 16 Army, Marine, and civilian observers embarked, arrived in Cook Inlet, Alaska. The detachment comprised six F2F-1 single-seat fighters, three BF2C-1 Goshawks, six BG-1 dive bombers, three SBU-1 dive bombers, three O3U-3 Corsairs, and two JF-1 Ducks. The expedition studied the effects of cold weather on operating efficiency and determined what materials and improvements were necessary to increase carrier capabilities under extreme weather conditions. The next day a “williwaw”—strong, gusty winds that blow down from the mountains and glaciers through passes leading to the water—swept across *Ranger*’s anchorage in the inner arm of Kachemak Bay. The winds reached gale force and stranded a party ashore. *Ranger* encountered additional foul weather and endured a “local squall of considerable violence” on 27 January; snow and icing hindered operations. On 11 February the ship came about for North Island, Calif.

18 MARCH • The XN3N-1 prototype of the “Yellow Peril” primary trainer completed flight testing at NAS Pensacola, Fla.

1 APRIL • The Marine Corps Aviation Section, which had been set up independently under the Commandant of the Marine Corps in the previous year, was established as a division. The officer in charge received the title Director of Aviation, and as such continued to serve in the dual capacity of advisor to the commandant on aviation and head of the Marine

Corps organization in the Bureau of Aeronautics, under an arrangement that had been in effect since the establishment of that bureau.

27 APRIL • Fleet Problem XVII consisted of a five-phase exercise to meet a surprise offensive by an enemy fleet at a time when the U.S. Fleet had divided. The forces involved included two carriers to either side and ranged from the West Coast to Panama, and the western coast of Central America. Participants included carriers *Langley* (CV 1), *Lexington* (CV 2), *Saratoga* (CV 3), and *Ranger* (CV 4). Patrol squadrons played a significant role, supported by seaplane tenders *Wright* (AV 1), *Gannet* (AVP 8), *Lapwing* (AVP 1), *Sandpiper* (AVP 9), *Teal* (AVP 5), and *Thrush* (AVP 3). Lessons learned included the requirement for the installation of automatic pilots in all planes, the improvement of optical equipment for patrol planes, and the ineffectiveness of aircraft tenders. The problem concluded on 6 June.

28 APRIL • Researchers R. C. Guthrie and Robert M. Page of the Naval Research Laboratory began testing a laboratory



465883

Langley (AV 3) following her conversion to a seaplane carrier, including the removal of the forward flight deck.

model of a pulsed radio wave detection device (pulse radar). At one point Guthrie and Page detected planes at distances of up to 25 miles.

6 MAY • Construction of a facility, later named the David W. Taylor Model Basin, was authorized by legislation that provided buildings and appliances for use by the Bureau of Construction and Repair in determining vessel and aircraft shapes and forms.

11 JUNE • In an effort to adapt commercial airplane maintenance techniques to naval use, the Bureau of Aeronautics authorized Commander Aircraft, Base Force, to provide patrol squadrons an extra aircraft as a rotating spare to replace squadron planes undergoing maintenance inspections.

1 JULY • Gunboat *Erie* (PG 50) was commissioned at New York Navy Yard, N.Y., Cmdr. E. W. Hanson commanding. Together with her sister ship *Charleston* (PG 51), commissioned the following week, these gunboats each operated a mix of an average of one to two SOC-1, -2, and -3 Seagulls at times into 1943.

10 JULY • The chief of the Bureau of Aeronautics approved a program of improvements to the XF4F-1 and XF2A-1 fighters under development by Grumman and Brewster, respectively.

21 JULY • Lt. Cmdr. Delmer S. Fahrney received orders to report to the chief of the Bureau of Aeronautics and the director of the Naval Research Laboratory in connection with an experimental project. This marked the implementation of a May recommendation by the Chief of Naval Operations to obtain radio-controlled aircraft for use as aerial targets. In a subsequent report, Fahrney proposed a procedure for developing radio-controlled target planes and also recognized the feasibility of using such aircraft as guided missiles.

23 JULY • The Navy awarded a contract to Consolidated Aircraft for the XPB2Y-1 four-engine flying boat. This aircraft had been selected for development as a result of a design competition held late the previous year.

7 AUGUST • The Bureau of Navigation approved a change in the flight syllabus that emphasized instrument flying. A new instrument flying unit consequently formed at NAS

Pensacola, Fla. The new course, inserted between the service seaplane and fighter courses, included six hours in Link trainers, nine hours of modified acrobatics in NS aircraft, and two hours of radio-range flying under the hood.

19 AUGUST • Pilot Lt. Boynton L. Braun and aircrewman Chief Aviation Ordnanceman W. B. Marvelle completed test bombing in a T4M-1 torpedo bomber scout against submarine *ex-R-8* (SS 85) off the Virginia Capes. Braun and Marvelle flew at an altitude of 2,500 feet and dropped twelve 100-pound bombs over a two-day period, obtaining four near-misses, with a cumulative effect that caused the submarine to sink.

15 SEPTEMBER • Carrier *Langley* (CV 1) detached from Battle Force for duty as a seaplane tender to Commander Aircraft, Base Force. Following a brief period of operation she entered the yard for conversion. The ship emerged early in 1937 with the forward part of her flight deck removed and was redesignated AV 3 on 21 April of that year.

18 SEPTEMBER • Squadron 40-T, Rear Adm. Arthur P. Fairfield commanding, sailed for Spanish waters to evacuate Americans trapped in the fighting during the Spanish Civil War, which had begun in Spanish Morocco on 17 July. At times ships equipped with aircraft, including *Omaha* (CL 4)–class light cruisers, operated with the squadron.

1937

14 JANUARY • Heavy rains generated widespread flooding along the Ohio and Great Miami rivers that devastated the Mississippi River Basin. The flooding killed at least 200 people and rendered more than 230,000 homeless in Louisville, Ky. On 24 January multiple gasoline tanks exploded and spread fires in the area of Cincinnati, Ohio. The Coast Guard reported that 1,848 Coast Guardsmen operating 11 planes and 351 boats rescued 839 people “from imminent peril” and “transported to safety” a total of 67,613 people. The Coast Guardsmen also saved livestock, helped restore communications, carried the mail, and assisted in controlling looting.

27 FEBRUARY • The Secretaries of the War and Navy Departments approved the expansion of the Working Committee of the Aeronautical Board and the extension of

its functions to include work in aeronautical standardization. By this decision, interservice efforts in standardization changed from a part-time program of annual conferences to one employing a full-time joint staff of officers and civilians.

15 MARCH • The Bureau of Aeronautics assigned distinguishing colors to aircraft carriers for use as tail markings by all squadrons on board, thereby changing the existing practice of assigning colors to squadrons and eliminating confusion when squadrons transferred between carriers.

4 MAY • During the nine phases of Fleet Problem XVIII an enemy fleet attempted to establish an advance base in the Hawaiian Islands. The problem included a simulated attack on facilities on Oahu. *Lexington* (CV 2) of the Northern Force launched a strike against Wheeler Field (Army Air Corps). *Saratoga* (CV 3) of the Oahu Bombardment Force sent her planes against coastal guns between Pearl Harbor and Diamond Head. *Ranger* (CV 4) of the Hilo Force sent her aircraft against the Pearl Harbor Navy Yard. In addition, “Black” carriers *Lexington* and *Saratoga* and “White” *Ranger* launched strikes against each other. This problem enabled the fleet to assess whether to employ carriers with the main body or as a detached asset and to gain “valuable data” on aircraft-hunting submarines. As a result, the Navy recommended using small carriers to take over scouting and spotting duties. The problem concluded on 9 May.

21 JUNE • Twelve PBY-1 Catalinas of VP-3, Lt. Robert W. Morse commanding, completed a nonstop, 3,292-mile flight overnight in 27 hours 58 minutes from San Diego, Calif., to Coco Solo in the Panama Canal Zone.

30 JUNE • The Navy issued a contract to the Martin Co. for the XPBM-1 two-engine flying boat patrol plane. The aircraft became the prototype in the PBM Mariner series of flying boats used during and after WWII.

1 JULY • The Navy revised its system of aircraft squadron designation numbers. Carrier squadrons were numbered according to the hull numbers of their carriers; battleship and cruiser squadrons, the same numbers as their ship divisions; Marine squadrons, according to their aircraft groups; and patrol squadrons, serially without regard to assignments. The change also abolished the use of suffix letters to indicate organizational assignment, except for Naval



An SB2U-1 Vindicator readies to take off from *Saratoga* (CV 3).

District and Reserve squadrons, and interposed the M for Marine squadrons between the V prefix and mission letters.

2 JULY • The Navy agreed to accept Army airships and lighter-than-air equipment. The transfer included airships TC-13 and TC-14, which flew antisubmarine patrols during the early stages of WWII.

3 JULY • Pilot Amelia Earhart (Putnam) and navigator Fred J. Noonan disappeared in a Lockheed 10E Electra, NR-16020, while attempting to reach Howland Island from Lae, New Guinea. Commander in Chief, U.S. Fleet Adm. Arthur J. Hepburn dispatched *Lexington* (CV 2), Capt. Leigh Noyes

commanding, to coordinate the search. An air group from *Lexington*, *Saratoga* (CV 3), and *Ranger* (CV 4) embarked on board *Lexington*: ten BG-1 dive bombers of VB-4 (*Ranger*), eleven SBU-1 dive bombers of VS-2 (*Lexington*), nine SBU-1s of VS-3 (*Saratoga*), fourteen SBU-1s of VS-41 (*Ranger*), nine SU-4 Corsairs of VS-42 (*Ranger*), nine BM-2 biplanes of VT-2 (*Lexington*), and one O3U-3 Corsair of *Lexington* Utility.

4 JULY • *Lexington* (CV 2) sailed from Coronado Roads and initiated the search for Amelia Earhart and Fred J. Noonan from about 100 miles north of Howland Island on the morning of 13 July. The weather worsened

to squall conditions when *Lexington* began the search. Despite several days of winds stronger than expected, the planes passed through or around squalls. Men also contended with equatorial heat. The afternoon flight on 14 July (unintentionally) started at 00° and 180°. The hunt covered 151,556 square miles but failed to locate Earhart and Noonan. Noyes concluded, however, that “the search made was efficient and that the areas covered were the most probable ones, based on the facts and information available.” *Lexington* came about during the first dog watch on 18 July.

15 JULY • The Ship Experimental Unit, responsible for the development and testing of equipment and techniques for carrier landings, began operating at the Naval Aircraft Factory, Philadelphia, Pa. Officers and men transferred to the unit from NAS Norfolk, Va., where this function had been performed since 1921.

6 AUGUST • The Navy issued a contract to Goodyear Corp. for two new nonrigid airships, L-1 for training purposes and K-2 for coastal patrols.

9 AUGUST • Contractor demonstration flights of the XOZ-1 rotary-wing aircraft, which included a water takeoff, were completed at the Naval Aircraft Factory, Philadelphia, Pa. Pennsylvania Aircraft Corp. had modified the craft from an N2Y-1 trainer into an experimental gyroplane by installing a new engine and a rotary wing with cyclic control.

9 SEPTEMBER • The XPBS-1 four-engine monoplane flying boat made its first flight. Sikorsky constructed this aircraft as a long-range patrol plane and it later served as a transport.

30 SEPTEMBER • *Yorktown* (CV 5) was commissioned at NOB Norfolk, Va., Capt. Ernest D. McWhorter commanding.

1 OCTOBER • Patrol aviation with its associated tenders was transferred from Base Force to Aircraft, Scouting Force, which was reestablished effective on this date. With the change, five patrol wings numbered 1 through 5 were established as separate administrative commands over their assigned squadrons.

17 DECEMBER • The Navy accepted the XPTBH-2 twin-float seaplane designed for patrol and torpedo attack from

Hall Aluminum Aircraft Co., Inc. This was the last twin-float torpedo plane developed for the service.

23 DECEMBER • A JH-1 drone successfully made radio-controlled flight at CGAS Cape May, N.J. The drone took off and landed via a land-based radio set, but control shifted for flight maneuvers to an airborne TG-2.

1938

2 FEBRUARY • Two PBV-2 Catalinas collided in the dark: BuNo 0462, manned by Lt. Elmer G. Cooper, Naval Aviation Observer E. J. Koch, AMCM M. J. Fitzmaurice, AMM1 G. G. Griffin, AMM2s J. E. Walton and W. P. Landgreber, and ARM2 J. Rawles; and BuNo 0463, manned by Lt. Carlton B. Hutchins, AMCMs V. O. Hatfield, D. B. McKay, and M. W. Woodruff, AMM1 J. G. Niedzwiecki, ARM1 J. H. Hester, and AMM2 L. S. Carpenter. The collision occurred when a formation of nine planes on a bombing training run from *Langley* (AV 3) entered a cloud bank without warning. Both Catalinas crashed, burned, and sank within two hours. Hutchins remained at the controls of his flying boat to enable McKay, Hatfield, and Carpenter to escape with injuries and posthumously received the Medal of Honor. All the men on board the other Catalina died.

16 MARCH • Severe weather hampered the 12 phases of Fleet Problem XIX in the Northern Pacific between Alaska and the Hawaiian Islands. The problem emphasized air attacks against enemy shores by several carriers approaching at high speed from separate directions, and the development of fast carrier task forces. During Phase One 36 patrol bombers flew more than 1,000 miles from San Diego, Calif., and bombed several ships, including *Lexington* (CV 2), destroying the planes spotted on her flight deck and damaging the deck beyond repair.

In Phase Five the “Blue” fleet attacked the Hawaiian Islands, which were defended by the “Red” fleet, and mined approaches. An epidemic of tonsillitis on board *Lexington* deleted her from flight operations and *Saratoga* fulfilled the role of *Lexington*. *Saratoga* (CV 3) attacked at 0450 on 29 March from a position about 100 miles north of Oahu, having masked her approach by sailing on the easterly side of a weather front. *Saratoga*’s reconnaissance



Enterprise (CV 6) en route to Pearl Harbor with the planes of her air group arrayed on the flight deck, 8 October 1939.

aircraft spotted light cruiser *Richmond* (CL 9) north of Lahaina Roads, and her attack group bombed FAB Pearl Harbor, Wailupe Radio Station, and Hickam and Wheeler Fields (Army Air Corps), recovering on board by 0835. The carrier launched a second strike that morning against the ships and facilities at Lahaina, but the defenders retaliated and lightly damaged *Saratoga*. The problem concluded on 27 April.

21 APRIL • The delivery of the XF2A-1 to the Langley Memorial Aeronautical Laboratory of the National Advisory Committee for Aeronautics initiated full-scale wind tunnel tests on decreasing aerodynamic drag to increase speed. These tests, recommended by Cmdr. Walter S. Diehl, indicated a potential increase in the speed of the XF2A-1 of 31 mph over the 277 mph already achieved. The data led the Army and the Navy to aim to decrease drag when designing other high-performance aircraft.

12 MAY • *Enterprise* (CV 6) was commissioned at Newport News, Va., Capt. Newton H. White commanding.

17 MAY • Congress passed the Naval Expansion Act, which provided for a 20 percent increase in active naval vessels. Among the provisions for naval aviation the act authorized an increase in the total tonnage of underage naval vessels, amounting to 40,000 tons for aircraft carriers, and also authorized the president to increase the number of naval aircraft to “not less than” 3,000. The carriers built as a result were laid down in 1939 and 1941 and named *Hornet* (CV 8) and *Essex* (CV 9), respectively.

1 JUNE • Researchers initiated the routine use of radiosondes (or radio meteorographs) to obtain data on weather conditions in the upper atmosphere at NAS Anacostia, D.C. By year’s end, *Lexington* (CV 2) and battleship *California* (BB 44) received modifications to use radiosondes.

1938 continued

8 JUNE • After more than two years of evaluation by fleet squadrons and naval shore activities, the anti-blackout or abdominal belt for use by pilots in dive bombing and other violent maneuvers returned to developmental status, with a finding by Commander Aircraft, Battle Force, that the belt's advantages did not offset its disadvantages.

8 JUNE • Secretary of the Navy Claude A. Swanson established a policy limiting the provisions for maintenance of aircraft on board carriers and aircraft tenders to those required for upkeep and minor repairs.

1 JULY • Chief of Naval Operations Adm. William D. Leahy authorized new command billets entitled Commander Carrier Air Group, and carrier squadrons organized into groups designated by the name of the carriers to which they were assigned.

23 AUGUST • The Navy issued a contract to Martin for the XPB2M-1 four-engine flying boat. Initially intended as a patrol plane, this craft was later converted to the PB2M-1R Mars transport and served as a prototype for the JRM series of flying boats.

24 AUGUST • In the first U.S. use of a drone target aircraft in antiaircraft exercises, *Ranger* (CV 4) fired upon a radio-controlled JH-1 making a simulated horizontal bombing attack. This event heralded a new departure in antiaircraft practice and indicated the usefulness of radio-controlled aircraft as training devices in the fleet.

14 SEPTEMBER • A radio-controlled N2C-2 target drone engaged in a simulated dive-bombing attack against mobile target/gunnery training ship *Utah* (AG 16) during test firing of her antiaircraft batteries. Observers viewed this as the first demonstration of air-to-surface missiles, and proponents of guided missile development subsequently cited the test as an example of the weapons' efficacy.

15 OCTOBER • The Bureau of Aeronautics issued a new specification prescribing color for naval aircraft. Trainers were to be finished in orange-yellow overall with aluminum-colored floats or landing gear. (The color of service aircraft remained essentially as prescribed in 1925, aluminum overall with orange-yellow on wing and tail surfaces visible from above.)



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Nonrigid airship K-2, the prototype for the airships of WWII.

2 NOVEMBER • A revision of the pilot training syllabus instituted minor adjustments in the flight program and changes of greater significance in the ground program. Additions included a special course for flight surgeons, celestial navigation for enlisted students, and game board problems as a practical approach to instruction in scouting and search.

1 DECEMBER • The Hepburn Board, appointed by Secretary of the Navy Claude A. Swanson in accordance with the Naval Expansion Act of 17 May and named after its senior

member Rear Adm. Arthur J. Hepburn, reported on its survey of aviation shore establishments. The board recognized the demands that were to be met if the approach of war precipitated a great expansion, and that the existing shore stations “had failed to keep pace with the requirements of the number of planes authorized by the act of 1936.”

The principal considerations that determined the locations of shore establishments included the total number of planes to be maintained, the requirements of training, and strategic considerations. The board recommended enlarging 11 stations and building 16 new ones, including Oahu (Kaneohe Bay), Midway Island, Wake Island, Guam, and five other Pacific Islands. The facilities at San Diego, Calif., were to be expanded to accommodate four carrier groups; those at FAB Pearl Harbor, Territory of Hawaii, to support two carrier groups.

9 DECEMBER • Battleship *New York* (BB 34) received prototype shipboard radar designed by the Naval Research Laboratory.

16 DECEMBER • Airship K-2 arrived for trials at NAS Lakehurst, N.J. She was the archetype for the WWII K-class patrol airships, of which the Navy was to procure 135.

1939

20 FEBRUARY • Fleet Problem XX ranged the Caribbean and the northeast coast of South America and included *Enterprise* (CV 6) and *Yorktown* (CV 5) for the first time. The problem tested the use of planes and carriers in a convoy escort, the coordination of antisubmarine measures between aircraft and destroyers, and the trial of evasive tactics against attacking planes and submarines. Controversy arose over the efficacy of patrol planes taking part in attacks on carriers and other ships instead of adhering to their principal role as scouts. Evaluators also recommended fast battleships to supplement cruisers in carrier task forces. The problem concluded on 27 February.



Lexington (CV 2) leads, right to left, *Ranger* (CV 4), *Yorktown* (CV 5), and *Enterprise* (CV 6) from Limon Bay, Panama Canal Zone, 19 January 1939.

27 MARCH • Following the successful experimental refueling of patrol planes by submarine *Nautilus* (SS 168), Commander in Chief, U.S. Fleet, directed that Submarine Division 4 and Patrol Wing 2 were to conduct refueling tests at frequent intervals and carry out an advanced base problem each quarter to develop the possibilities for refueling patrol planes under a variety of conditions.

7 APRIL • The Navy ordered an amphibian version of PBV Catalina flying boats from Consolidated Aircraft. This was the prototype for the Navy’s first successful amphibian patrol plane procured by the service, the PBV-5A.

15 MAY • The Navy issued a contract to Curtiss-Wright for the XSB2C-1 dive bomber, thereby completing action on a 1938 design competition. The month before, Brewster received a contract for the XSB2A-1. As part of the mobilization in ensuing years, large production orders were placed for both bombers, but serious managerial and developmental problems eventually contributed to discarding SB2A Buccaneers and prolonged preoperational development of SB2C Helldivers.

27 MAY • The first Marine Aviator, Lt. Col. Alfred A. Cunningham, died at his home in Sarasota, Fla. Cunningham had reported for flight training at Annapolis, Md., on 22 May



A Marine SBC-4 Helldiver dive bomber.

1912, a day subsequently celebrated as the birthday of Marine Corps aviation. During WWI Cunningham organized and commanded the first Marine aviation command, was among the men who proposed operations, and was later assigned to the Northern Bombing Group to lead its Day Wing. During the postwar period he served as the first administrative head of Marine Corps aviation and then commanded the First Air Squadron in Santo Domingo.

13 JUNE • *Saratoga* (CV 3) and oiler *Kanawha* (AO 1) completed a two-day underway refueling evaluation off southern California, confirming the feasibility of refueling carriers at sea.

13 JUNE • The revised Aviation Cadet Act of 1935 provided for the immediate commissioning as ensigns or second lieutenants of all cadets on active service and for the future commissioning of others upon completion of flight training. The law also extended the service limitation to seven years following training, of which the first four were to be required, and provided for promotion to the next higher grade on the basis of examination after three years of service. The bonus payment upon release to inactive duty was reduced, but aviation cadets already serving in the fleet would choose either to remain on the old pay scale with the \$1,500 bonus, or accept commissioned pay and the new \$500 discharge payment.

1 JULY • The Navy adopted a standard system of numbering patrol squadrons in reference to patrol wings, by which the first digit of a squadron designation number became the same as the wing to which the squadron was attached.

1 JULY • By Executive Order the Aeronautical Board, Joint Board, Joint Economy Board, and Munitions Board commenced functioning under the direction and supervision of the president as commander in chief of the Army and Navy. These boards all previously functioned by understanding between the Secretaries of War and Navy.

13 JULY • The Chief of Naval Operations authorized a Fleet Air Tactical Unit to provide research and advisory activities related to operational use of new aircraft.

4 AUGUST • *Enterprise* (CV 6) and *Yorktown* (CV 5) launched SBC-3 Helldivers and O3U-3 Corsairs from flight deck and hangar deck catapults in the first practical demonstration of launching planes from carriers by means of hydraulic flush-deck catapults. The event also marked the first demonstrations of catapulting aircraft from hangar decks.

24 AUGUST • The acting Secretary of the Navy approved the detailing of a medical officer to the Bureau of Aeronautics to establish an aviation medical research unit.

30 AUGUST • Lt. Cmdr. Thurston B. Clark made 11 landings and takeoffs in a twin-engine XJO-3 equipped with tricycle landing gear while operating with *Lexington* (CV 2) off Coronado Roads, Calif. Clark demonstrated the basic adaptability of twin-engine aircraft and of tricycle landing gear to carrier operations.

5 SEPTEMBER • President Franklin D. Roosevelt proclaimed the neutrality of the United States in WWII and directed the Navy to organize the Neutrality Patrol. In compliance, the Chief of Naval Operations ordered Commander Atlantic Squadron to establish combined air and ship reconnaissance of the sea approaches to the United States and the West Indies to report and track belligerent air, surface, or underwater threats in the area. The first ships sailed to enforce the patrol the following day.

8 SEPTEMBER • President Franklin D. Roosevelt proclaimed a limited national emergency and directed

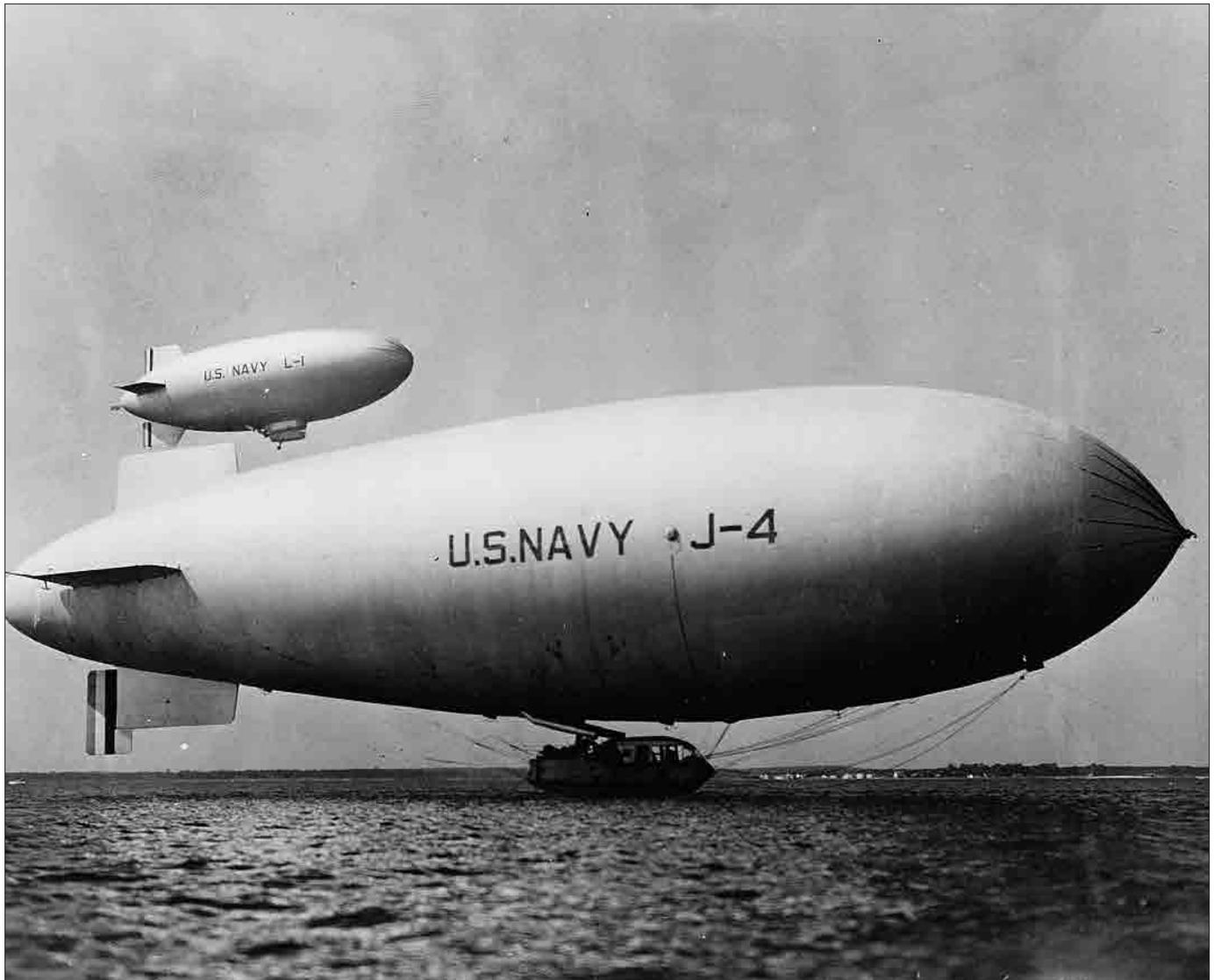
measures to strengthen national defenses within the limits of peacetime authorizations, including an increase in the Navy's enlisted strength from 110,813 to 145,000 and the recall of retired officers, enlisted men, and nurses.

11 SEPTEMBER • In the first redeployment of patrol squadrons for the Neutrality Patrol, PBY-3 Catalinas of VP-33 transferred from the Panama Canal Zone to NS Guantánamo Bay, Cuba, for operations over the Caribbean. Two days later PBY-1s of VP-51 arrived at San Juan, P.R., from Norfolk, Va., to patrol the southern approaches to the Caribbean through the Lesser Antilles.

14 SEPTEMBER • The principal Atlantic Squadron naval aviation commands deployed for the Neutrality Patrol were PBY-2 Catalinas of VP-54 and minesweeper (seaplane tender) *Owl* (AM 2) from Narragansett Bay, R.I.; P2Y-2 flying boats of VP-52 and -53 from Chesapeake Bay; and PBY-3s of VP-33 and PBY-1s of VP-51, together with small seaplane tenders *Gannet* (AVP 8), *Lapwing* (AVP 1), and *Thrush* (AVP 3), in the Caribbean. *Ranger* (CV 4), with VB-4, VF-4, and VS-41 and -42 embarked, formed the core of a reserve striking force at Hampton Roads, Va.

21 SEPTEMBER • Fourteen PBY-4s of VP-21 took off from Pearl Harbor in the Territory of Hawaii for the Philippines via Midway, Wake—where seaplane tender *Childs* (AVD 1) provided support—and Guam. The squadron encountered a typhoon between Guam and the Philippines but arrived in Manila on 25 September as the first patrol unit in the Asiatic Fleet since 1932. Meanwhile, *Langley* (AV 3), the only “carrier” (she had been converted into a seaplane tender) in the Asiatic Fleet, reached Manila the preceding day. The following June VP-26 flew to Sangley Point, also in the Philippines, traded its reconditioned PBY-4s with those of VP-21 and returned to the Hawaiian Islands to overhaul VP-21's Catalinas. The squadron returned the aircraft to the Philippines in December 1940 and joined with VP-21 to form the nucleus of Patrol Wing 10. VP-21 and -26 were redesignated 101 and 102, respectively, before the Japanese attack on Pearl Harbor.

28 SEPTEMBER • The establishment of the Hawaiian Detachment, U.S. Fleet, including *Enterprise* (CV 6), expanded the naval presence at Pearl Harbor, Territory of Hawaii, to counter Japanese aggression during the Second



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The airships J-4 and L-1 conduct training exercises at Barnegat Bay, N.J., c.1939.

Sino-Japanese War. The detachment sailed for Pearl Harbor on 5 October.

1 OCTOBER • In order to expand pilot training immediately, Naval Air Training Base Pensacola, Fla., set up a program of concentrated instruction that reduced the training period from 12 to 6 months. The new program provided a primary course in landplanes and a basic phase in service landplanes and instrument flying for all students. It also restricted advanced program students to specialization in observation planes, carrier aircraft, or patrol and utility aircraft. Ground school was similarly compressed from 33 to 18 weeks.

14 OCTOBER • The Naval Aircraft Factory, Philadelphia, Pa., received authorization to develop radio control equipment for use in remote-controlled flight testing so test pilots could perform dives, pullouts, and other maneuvers within the aircraft's designed strength without risking their lives.

16 OCTOBER • The Germans dispatched tanker *Emmy Friedrich* from Tampico, Mexico, to deliver refrigerants for magazine cooling systems to the armored ship *Admiral Graf Spee*, which hunted Allied merchantmen across the Atlantic and Indian oceans during this period. Neutrality Patrol ships sailed to trail the tanker, including *Ranger* (CV 4). British light cruiser *Orion* and Canadian destroyer *Saguenay* located the blockade runner in the Yucatán Channel, and on 24 October



463883

By the end of the decade, the rotund F3F biplane with fabric-covered wings was decidedly obsolete. First delivered to the Navy in 1936, all were phased out of squadron service by the end of 1941. The Marines of VMF-2 flew this F3F-2 variant, February 1938.

British light cruiser *Caradoc* intercepted *Emmy Friedrich*, but the Germans scuttled the ship to avoid her capture.

23 OCTOBER • Chief of Naval Operations Adm. Harold R. Stark directed the modification of decommissioned and Reserve destroyer *Noa* (DD 343) to operate the XSOC-1 or SON-1 Seagull. *Noa* underwent the removal of her aft torpedo tubes and the fitting of a seaplane before her aft deckhouse at the Philadelphia Navy Yard, Pa. She was recommissioned on 1 April 1940 and nine days later the XSOC-1, BuNo 9413, was assigned to the destroyer, and on 10 May an SOC-1 arrived on board. While anchored for seaplane handling trials on 15 May at Harbor of Refuge, Del., *Noa* hoisted Lt. George L. Heap and the XSOC-1 over the side to make an emergency flight to transfer a sick seaman from *Noa* to the Naval Hospital in Philadelphia. Heap accomplished additional underway takeoffs and, on 20 May *Noa* commanding officer Cmdr. Ernest S. L. Goodwin reported to navy yard CO Capt. Rufus W. Mathewson on the success of these operations. Mathewson forwarded Goodwin's conclusions to CNO, and the report influenced Secretary of the Navy Charles Edison to direct, on 27 May 1940, the outfitting of six destroyers of the DD-445 class with planes, catapults, and plane handling gear.

4 NOVEMBER • President Franklin D. Roosevelt signed the Neutrality Act into law. The measure repealed the arms embargo, prohibited U.S. vessels from entering combat zones, and established a National Munitions Control Board. The chief executive also declared the waters surrounding the British Isles a combat zone.

1 DECEMBER • Ens. Albert L. Terwilleger was designated a Master Horizontal Bomber, becoming the first naval aviator in a fleet squadron to so qualify.

8 DECEMBER • To effect a higher degree of coordination in research, the Secretary of the Navy directed the Bureau of Aeronautics and Ordnance (acting separately) and the Bureau of Engineering and Construction and Repair (acting as one unit) to designate an officer to head a section in their respective bureaus devoted to science and technology, act as a liaison officer with the Naval Research Laboratory, and serve as a member of the Navy Department Council for Research. The same order transferred the research and invention duties performed in the Office of the Chief of Naval Operations to the secretary's office and placed them under the administration of the director of the laboratory.

1939 continued

20 DECEMBER • The Navy issued a contract to Consolidated Aircraft for 200 PBV Catalina-type aircraft to support an increase in patrol plane squadrons that resulted from Neutrality Patrol requirements. The contract comprised the largest single U.S. order for naval aircraft since the end of WWI.