

# World War II

## 1940–1945

**T**hirty years after the Navy had acquired its first airplane, and only 19 years after it had acquired its first aircraft carrier, Naval Aviation faced the supreme test of war. When it was called upon to carry the fight to the enemy, it not only carried out its tasks, but forged ahead to become the very backbone of fleet striking power.

If it had not already been shown in combat before the United States entered the war, all doubts as to the potency of naval air power were removed by the infamous, yet skillfully executed attack on Pearl Harbor, when Japanese carrier aircraft in one swift stroke eliminated a major portion of the Navy's heavy surface power. That our own forces had the kernel of a similar potential was demonstrated on a much smaller scale as carrier forces struck the first retaliatory blows.

The geographic position of the United States put it squarely between two wars that had little in common. Air operations on the Atlantic side, except for participation in three amphibious operations, were essentially a blockade and a campaign to protect ships delivering raw materials to our factories and war munitions and reinforcements to our Allies. In the Pacific, it was a matter of stopping an enemy advance which, in a few short months, had spread over all the western and parts of the south and central Pacific, and then carrying out the bitterly contested task of driving him homeward across the broad expanse of an island-dotted sea.

The country was hardly ready for either campaign. The Navy and Marine Corps air arms could muster only 7 large and 1 small aircraft carriers, 5 patrol wings and 2 Marine aircraft wings, 5,900 pilots and 21,678 enlisted men, 5,233 aircraft of all types including trainers, and a few advanced air bases. But aided by its distance from the enemy and fortunate in its industrial power, the United States built the ships, planes and equipment. Its military forces trained the land, sea and air forces that ultimately beat down the enemy, drove them from strategically located bases, cut off their raw materials, and placed the allied forces in position to launch final air and amphibious offensives. These offensives were made unnecessary as the

awesome destructive power of the atom was released upon Hiroshima and Nagasaki.

For the first time in history, naval engagements were fought entirely in the air without opposing surface forces sighting each other. New words and phrases entered the aviator's lexicon; words like air support, hunter-killer, JATO, CIC, CAP, bogie, scramble and splash. Radar pierced the night and gave new eyes to the fleet; advances in technology, particularly in electronics, improved the defense and added power to the offense. The scientist contributed directly to the war effort in both the development of specialized equipment and in the application of scientific principles to operational tactics. Logistics took on new importance. Refueling and replenishment at sea were developed to a high art and increased the mobility and staying power of fleet forces.

In the course of the war, Navy and Marine pilots destroyed over 15,000 enemy aircraft in the air and on



*Exploding depth charge and line of splashes from machinegun bullets bring the end of German submarine 44360*

the ground, sank 174 Japanese warships, including 13 submarines, totaling 746,000 tons, sank 447 Japanese merchant ships totaling 1,600,000 tons and, in the Atlantic, destroyed 63 German U-boats. (In combination with other agents, Navy and Marine air helped sink another 157,000 tons of war and 200,000 tons of merchant ships and another six Japanese and 20 German submarines.) It was a creditable record, but the Navy's air arm did not play an entirely independent role. It operated as it had developed, as an integral part of naval forces, contributing its full share to the power of the fleet and to the achievement of its mission in controlling the sea.

Many have said that World War II witnessed the full development of aviation, but generalities are often misleading. Many of the opinions expressed before the war on the effect of air power on naval operations were shown up as misconceived, if not false, theories. The bombing tests of the 1920s proved to some that navies were obsolete and that no ship could again operate within the range of land-based air, but carrier task force operations in the war gave little credence to such conclusions. Advocates of independent air power questioned both the possibility and the usefulness of close air support for troops, but such support was proven not only possible but indispensable. Those who questioned the importance of the airplane to navies were equally off the mark. The disappointment of naval officers who visualized decisive fleet engagements in the tradition of Trafalgar and Jutland was no doubt as great as that of the air power theorists who had seen their predictions go awry. By test of war it had become exceedingly clear that neither an Army nor a Navy could either survive or achieve an objective in war without first achieving air superiority. It had also become clear that neither could exert as much force by itself as it could with the aid of air striking power. Aviation had indeed come of age.

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**4 January** Project Baker was established in Patrol Wing 1 for the purpose of conducting experiments with blind landing equipment.

**15 February** Commander-in-Chief, U.S. Fleet (COMINCH), noting that reports on air operations in the European War stressed the need of reducing aircraft vulnerability, recommended that naval aircraft be equipped with leak-proof or self-sealing fuel tanks and with armor for pilots and observers. Although the Bureaus of Aeronautics and Ordnance had been investigating these forms of protection for two years, this formal statement of need gave added impetus and accelerated procurement and installation of both armor and self-sealing fuel tanks.

**24 February** The Bureau of Aeronautics issued a contract for television equipment, including camera, transmitter, and receiver, that was capable of airborne operation. Such equipment promised to be useful both in transmitting instrument readings obtained from radio-controlled structural flight tests, and in providing target and guidance information necessary should radio-controlled aircraft be converted to offensive weapons.

**27 February** Development of the "Flying Flapjack," a fighter aircraft with an almost circular wing, was initiated with notice of a contract award to Vought-Sikorsky Aircraft for the design of the V-173—a full-scale flying model (as distinguished from a military prototype). This design, based upon the research of a former NACA engineer, Charles H. Zimmerman, was attractive because it promised to combine a high speed of near 500 mph with a very low takeoff speed.

**29 February** The Bureau of Aeronautics initiated action that led to a contract with Professor H. O. Croft at the University of Iowa, to investigate the possibilities of a turbojet propulsion unit for aircraft.

**19 March** To assist in the identification of U.S. aircraft on the Neutrality Patrol, Fleet activities were authorized to apply additional National Star Insignia on the sides of the fuselage or hull of aircraft so employed.

**22 March** Development of guided missiles was initiated at the Naval Aircraft Factory with the establishment of a project for adapting radio controls to a torpedo-carrying TG-2 airplane.

**23 April** Commander Donald Royce was designated to represent the Navy on an Army Air Corps Evaluation Board for rotary-wing aircraft. This board was established incidental to legislation directing the War Department to undertake governmental development of rotary-wing aircraft.

**25 April** *Wasp* was commissioned at Boston, Mass., Captain John W. Reeves, Jr., commanding.

**20 May** The Commanding Officer of the destroyer *Noa* (DD 343) reported on successful operations conducted off the Delaware Capes in which an XSOC-1, piloted by Lieutenant George L. Heap, was hoisted over the side for takeoff and was recovered by the ship while underway. As an epilogue to preliminary operations conducted at anchor on 15 May, Lieutenant

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Heap made an emergency flight transferring a stricken seaman from *Noa* in Harbor of Refuge, Del., to the Naval Hospital, Philadelphia, Pa.

**27 May** The Secretary of the Navy directed that six destroyers of the DD 445-class be equipped with catapult, plane, and plane handling equipment. DDs 476-481, *Pringle*, *Stanly*, *Hutchins*, *Stevens*, *Halford*, and *Leutze*, were selected subsequently. Shortcomings in the plane hoisting gear led to removal of the aviation equipment from the first three ships prior to their joining the fleet in early 1943. In October 1943, after limited aircraft operations by *Stevens* and *Halford*, aviation equipment was ordered removed from them and plans for its installation on *Leutze* were canceled.

**14 June** The Naval Expansion Act included authorization for an increase in aircraft carrier tonnage of 79,500 tons over the limits set 17 May 1938, and a revision of authorized aircraft strength to 4,500 useful airplanes.

**15 June** Congress revised its previous action and set the aircraft ceiling at 10,000 useful airplanes, including 850 for the Naval Reserve, and not more than 48 useful airships.

**25 June** The Aeronautical Engineering Duty Only (AEDO) designation was abolished and all men appointed to that special duty were designated for Engineering Duty Only (EDO).

**25 June** The Chief of Naval Operations promulgated plans for an expanded flight training program calling for the assignment of 150 students per month beginning 1 July, and a regular increase to an entry rate of 300 per month within a year.

**27 June** The president established a National Defense Research Committee to correlate and support scientific research on the mechanisms and devices of war. Among its members were officers of the War and Navy Departments appointed by the respective Secretaries. Although research on the problems of flight was specifically excluded from its functions, this organization made substantial contributions in various fields of importance to Naval Aviation, including airborne radar.

**14 July** The initial meeting of what became the National Defense Research Committee's Division 14, or Radar Division, was attended by Alfred L. Loomis, Ralph Bowen, E. L. Bowles and Hugh H. Willis. In this

and subsequent meetings with other scientists, this group defined its mission as "to obtain the most effective military application of microwaves in minimum time." In carrying out this mission, Division 14 developed airborne radar used in the Navy for aircraft interception, airborne early warning and other more specialized applications.

**19 July** Authorization for a further expansion of the Navy provided an increase of 200,000 tons in the aircraft carrier limits set the previous month, and a new aircraft ceiling of 15,000 useful planes. The act also allowed further increases in aircraft strength on presidential approval.

**5 August** The Chief Of Naval Operations established general ground rules for exchange of scientific and technical information with a British mission, generally known as the Tizard Mission after its senior member Sir Henry Tizard. In general, free exchange of information was expected on matters concerning aviation, including the field later called radar. The degree of exchange actually achieved surpassed expectations so that the coming of the Tizard Mission served as a benchmark in the interchange of scientific and technical information regarding World War II weaponry.

**12 August** The Bureau of Ordnance requested informally that the National Defense Research Committee sponsor development, on a priority basis, of proximity fuzes with particular emphasis on anti-aircraft use. Such fuzes had been under consideration for some time and the decision to undertake development followed receipt from the Tizard Mission of reports of British progress.

**17 August** Section T (so called for its Chairman, Dr. Merle A. Tuve) of Division A, National Defense Research Committee, was established to examine the feasibility of various approaches to developing a proximity fuze. Eight days later, a contract was issued to the Department of Terrestrial Magnetism, Carnegie Institution of Washington, for the research that culminated in the radio VT fuze for anti-aircraft guns and both radio and photoelectric VT fuzes for bombs and rockets.

**29 August** The exchange with the British Tizard Mission of scientific and technical information concerning radar began at a conference attended by Sir Henry Tizard, two of his associates, and representatives of the U.S. Army and Navy including Lieutenant John A. Moreno of the Bureau of Aeronautics. The initial conference dealt primarily with the British techniques for detecting German bombers but touched

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upon means of identifying friendly aircraft. In follow-on meetings, British developments of shipboard and airborne radar were also discussed. A British disclosure growing out of this exchange of particular importance for airborne radar application was the cavity magnetron, a tube capable of generating high power radio waves of a few centimeters in length.

**2 September** In exchange for 50 four-stack destroyers, Great Britain, by formal agreement ceded to the United States for a period of 99 years, sites for naval and air bases in the Bahamas, Jamaica, St. Lucia, Trinidad, Antigua, and British Guiana, and extended similar rights freely and without consideration for bases in Bermuda and Newfoundland. Acquisition of these sites advanced our sea frontiers several hundred miles and provided bases from which naval ships and aircraft could cover strategically important sea approaches to our coast and to the Panama Canal.

**3 October** The Chief of Naval Operations requested the Naval Attaché in London to obtain samples of a variety of British radio echo equipment (radar), including aircraft installations for interception (AI), surface vessel detection (ASV) and aircraft identification (IFF).

**5 October** The Secretary of the Navy placed all divisions and aviation squadrons of the Organized Reserve on short notice for call to active duty and granted authority to call Fleet Reservists as necessary. On the 24th, the Bureau of Navigation announced plans for mobilizing the aviation squadrons, which called for one third to be ordered to active duty by 7 November and all by 1 January 1941.

**9 October** The Secretary of the Navy approved a recommendation by the General Board, that 24 of the authorized submarines be equipped to carry aviation gasoline for delivery to seaplanes on the water. This was in addition to *Nautilus* (SS 168) which had demonstrated her ability to refuel patrol planes and had conducted a successful test dive to 300 feet with aviation gasoline aboard; and to *Narwhal* (SC 1) and *Argonaut* (SF 7) which were being altered to carry 19,000 gallons of aviation gasoline each.

**11 October** The Technical Aide to the Secretary of the Navy, Rear Admiral Harold G. Bowen, proposed a program for development of radio ranging equipment (radar) which formed the basis for the Navy's pre-war development program. In addition to identification equipment and ship-based radar, this program included an airborne radar for surface search.

**23 October** Within the Atlantic Squadron, an administrative command was set up for carrier aviation entitled, "Aircraft, Atlantic Squadron."

**24 October** An administrative command for patrol aviation in the Atlantic Squadron was set up under the title, "Patrol Wings, Atlantic Squadron."

**28 October** The Chief of Naval Operations reported that aircraft with some form of armor and fuel protection were just beginning to go into service use, and that within a year all fleet aircraft, except those assigned Patrol Wing 2, would have such protection.

**1 November** A reorganization of the fleet changed the administrative organization of aviation by dividing the forces between two oceans. This was the beginning of the independent development of forces according to strategic requirements. In the Atlantic, aviation was transferred from Scouting Force to Patrol Force, which was formed in place of the Atlantic Squadron as a fleet command parallel to Scouting Force, and set up under Commander, Aircraft Patrol Force and Commander, Patrol Wings Patrol Force. In the Pacific, Patrol Wings remained attached to Scouting Force under the combined command Commander, Patrol Wings U.S. Fleet and Commander, Aircraft Scouting Force.

**11 November** The first general meeting of the Radiation Laboratory was held at the Massachusetts Institute of Technology (MIT). The Radiation Laboratory, as principal scientific and developmental agency of Division 14 of NDRC, was to become instrumental in many aspects of airborne radar development.

**15 November** The seaplane tender *Curtiss*, first of two ships of her class, was commissioned at Philadelphia, Pa., Commander Samuel P. Ginder commanding.

**15 November** Naval air operations began from Bermuda. First to operate were the planes of Patrol Squadron 54 based on *George E. Badger* (DD 196).

**16 November** The Bureau of Aeronautics established a catapult procurement program for *Essex* class carriers. One flight deck catapult and one athwartships hangar deck catapult were to be installed on each of 11 carriers.

**18 November** The Chief of Naval Operations authorized use of the abbreviation, "RADAR," in unclassified correspondence and conversation and directed that

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the phrase, Radio Detection and Ranging Equipment, be used in lieu of terms such as Radio Ranging Equipment, Radio Detection Equipment, Radio Echo Equipment, or Pulse Radio Equipment.

**30 December** The Bureau of Aeronautics directed that fleet aircraft be painted in non-specular colors. Ship-based aircraft were to be light gray all over; patrol planes were to be light gray except for surfaces seen from above which were to be blue gray.

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**1 February** The Atlantic and Pacific Fleets were established, completing the division begun the previous November and changing the titles of aviation commands in the Atlantic Fleet to "Aircraft, Atlantic Fleet" and "Patrol Wings, Atlantic Fleet." No change was made in the Pacific Fleet aviation organization at this time.

**10 February** As an initial step in training patrol plane pilots to make blind landings, using radio instrument landing equipment which was being procured for all patrol aircraft and their bases, a one-month course of instruction began under Project Baker. This was attended by one pilot from each of 13 squadrons; by one radioman from each of five patrol wings; and by two radiomen from each of five Naval Air Stations.

**26 February** An extensive modification of aircraft markings added National Star Insignia to both sides of the fuselage or hull and eliminated those on the upper right and lower left wings; discontinued the use of colored tail markings, fuselage bands and cowl markings; made removal of vertical red, white and blue rudder stripes mandatory; and changed the color of all markings, except the National Insignia, to those of least contrast to the background.

**1 March** Support Force, Atlantic Fleet, was established for operations on the convoy routes across the North Atlantic. Its component patrol squadrons were placed under a Patrol Wing established at the same time.

**11 March** The president was empowered by an act of Congress to provide goods and services to those nations whose defense he deemed vital to the defense of the United States, thus initiating a Lend-Lease program under which large quantities of the munitions and implements of war were delivered to our allies. *Archer* (BAVG 1) was transferred on 17 November

1941, as the first of 38 escort carriers transferred to the United Kingdom during the war.

**17 March** The Chief of the Bureau of Aeronautics approved a proposal for establishing a special NACA committee to review promptly the status of jet propulsion and recommend plans for its application to flight and assisted takeoff.

**28 March** The Commanding Officer of *Yorktown* after five months operational experience with the CXAM radar, reported that aircraft had been tracked at a distance of 100 miles and recommended that friendly aircraft be equipped with electronic identification devices and carriers be equipped with separate and complete facilities for tracking and plotting all radar targets.

**19 April** Development of a Guided Glider Bomb (Glomb) was initiated at the Naval Aircraft Factory. The Glomb was designed to be towed long distances by a powered aircraft, released in the vicinity of the target, and guided by radio control in its attack. It was equipped with a television camera to transmit a view of the target to the control plane.

**20 April** The first successful test of electronic components of a radio-proximity fuze was made at a farm in Vienna, Va., as a radio oscillator, or sonde, which had been fired from a 37-mm pack howitzer, made radio transmissions during its flight. The demonstration, that radio tubes and batteries could be constructed sufficiently rugged to withstand firing from a gun, led Section T of the National Defense Research Committee to concentrate upon the radio-proximity fuze for anti-aircraft guns.

**26 April** The Naval Aircraft Factory project officer reported that an unmanned O3U-6 airplane under radio control had been successfully flight-tested beyond the safe bounds of piloted flight and that the information thus obtained had been of great value in overcoming flutter encountered at various speeds and accelerations.

**28 April** *Pocomoke*, first of two seaplane tenders of her class, was commissioned at Portsmouth, Va., Commander John D. Price commanding.

**30 April** In an initial step towards establishing a glider development program, the Naval Aircraft Factory was requested to undertake preliminary design of a personnel and equipment transport glider. As work progressed and requirements were further clarified, development was initiated for 12- and 24-place

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amphibian gliders to be constructed of wood or plastic by firms not already engaged in building military aircraft.

**30 April** Commanding Officer, NAS Lakehurst, N.J., directed that the metal-clad airship, ZMC-2, be salvaged and the car complete with engines, instruments and appurtenances be assigned to the Lighter-Than-Air Ground School at Lakehurst. The ZMC-2, completed in August 1929, had been flown over 2,250 hours.

**2 May** Fleet Air Photographic Unit, Pacific, was established under Commander, Aircraft Battle Force, preceding by one day the establishment of a similar unit in the Atlantic Fleet under Commander, Patrol Wings Atlantic.

**3 May** Project Roger was established at the Naval Aircraft Factory to install and test airborne radar equipment. Its principal assignment involved support of the Radiation Laboratory at the Massachusetts Institute of Technology and the Naval Research Laboratory in various radar applications including search and blind bombing and in radio control of aircraft.

**8 May** The establishment of Aviation Repair Units 1 and 2 was directed to provide a nucleus of aircraft repair and maintenance personnel ready for overseas deployment as advanced bases were established.

**10 May** The Naval Aircraft Factory reported that it was negotiating with the Radio Corporation of America for the development of a radio altimeter suitable for use in radio-controlled assault drones.

**15 May** The seaplane tender *Albemarle* arrived at Argentia, Newfoundland, to establish a base for Patrol Wing, Support Force operations and to prepare for the imminent arrival of VP-52, the first squadron to fly patrols over the North Atlantic convoy routes.

**21 May** The Bureau of Aeronautics requested the Engineering Experiment Station, Annapolis, Md., to undertake development of a liquid-fueled assisted takeoff unit for use on patrol planes. This marked the Navy's entry into the field that later came to be called jet assisted takeoff (JATO), and was the Navy's first



*Launching a PBM Mariner, a dramatic demonstration of the utility of newly developed jet-assisted takeoff (JATO) 415346*

development program, other than jet exhaust from reciprocating engines, directed towards utilizing jet reaction for aircraft propulsion.

**27 May** The president proclaimed that an unlimited national emergency confronted the country, requiring that its military, naval, air, and civilian defenses be put on the basis of readiness to repel any and all acts or threats of aggression directed toward any part of the Western Hemisphere.

**2 June** *Long Island*, first escort carrier of the U.S. Navy, was commissioned at Newport News, Va., Commander Donald B. Duncan commanding. Originally designated AVG 1, *Long Island* was a flush-



*Long Island, first escort carrier of the U.S. Navy, was converted from the cargo ship Mormacmail 26567*

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deck carrier converted in 67 working days from the cargo ship *Mormacmail*.

**4 June** The Naval Aircraft Factory reported that development of airborne television had progressed to the point that signals transmitted by this means could be used to alter the course of the transmitting plane.

**11 June** An Aircraft Armament Unit was formed at NAS Norfolk, Va., with Lieutenant Commander William V. Davis as Officer-in-Charge, to test and evaluate armament installations of increasing complexity.

**28 June** To strengthen the provisions for utilizing science in war, the president created the Office of Scientific Research and Development and included in its organization the National Defense Research Committee and a newly established Committee on Medical Research.

**30 June** Turboprop engine development was initiated as a joint Army-Navy project, with a Navy contract to Northrop Aircraft for the design of an aircraft gas turbine developing 2,500-hp at a weight of less than 3,215 pounds.

**1 July** The first landing, takeoff, and catapult launching from an escort carrier were made aboard *Long Island*, by Lieutenant Commander William D. Anderson, commanding officer of VS-201.

**1 July** The Test, Acceptance and Indoctrination Units that had been established at San Diego, Calif., and Norfolk, Va., in May to fit out new patrol aircraft and to indoctrinate new crews in their use, were expanded and set up as separate commands. The San Diego Unit, which retained its original name, was placed under Commander, Aircraft Scouting Force, and the Norfolk unit became Operational Training Squadron under Commander, Patrol Wings Atlantic.

**1 July** Patrol Wing, Support Force, was redesignated and established as Patrol Wing 7, Captain Henry M. Mullinix commanding.

**3 July** The Seaplane tender *Barnegat*, first of 26 ships of her class, was commissioned at Bremerton, Wash., Commander Felix L. Baker commanding.

**4 July** Planes of Patrol Squadron 72, based on *Goldsborough* (DD 188), flew protective patrols from Reykjavik, Iceland, until the 17th, to cover the arrival of Marine Corps garrison units from the United States.

**7 July** The First Marine Aircraft Wing, composed of a Headquarters Squadron and Marine Air Group 1, was organized at Quantico, Va., under command of Lieutenant Colonel Louis E. Woods. It was the first of its type in the Marine Corps and the first of five wings organized during the war period.

**8 July** Patrol Wing 8 was established at Norfolk, Va., Commander John D. Price commanding.

**12 July** The Naval Research Laboratory was transferred from the Office of the Secretary of the Navy to the cognizance of the Bureau of Ships, and a Naval Research and Development Board was established in the Office of the Secretary of the Navy composed of representatives of the Chief of Naval Operations and the Bureaus of Aeronautics, Ordnance, Ships, and Yards and Docks, and led by a civilian scientist with the title Coordinator of Research and Development. Dr. Jerome C. Hunsaker served as coordinator until December when he was relieved by Rear Admiral Julius A. Furer.

**17 July** The organization for development of proximity fuzes was realigned so that Section T could devote its entire effort to radio-proximity fuzes for anti-aircraft projectiles. Responsibility for photoelectric and radio fuzes for bombs and rockets was transferred to Section E of the National Defense Research Committee at the National Bureau of Standards.

**18 July** Commander James V. Carney, Senior Support Force Staff Officer, reported that British type ASV radar has been installed in one PBY-5 each of VP-71, VP-72, and VP-73 and two PBM-1s of VP-74. Initial installation of identification equipment (IFF) was made about the same time. In mid-September radar was issued for five additional PBM-1s of VP-74 and one PBY-5 of VP-71, and shortly thereafter for other aircraft in Patrol Wing 7 squadrons. Thereby the Wing became the first operational unit of the U.S. Navy to be supplied with radar-equipped aircraft. Its squadrons operated from Norfolk, Va., Quonset Point, R.I., and advanced bases on Greenland, Newfoundland and Iceland during the last months of the neutrality patrol.

**18 July** Aviation was given representation on the highest of the Army and Navy boards as membership of the Joint Board was revised to include the Deputy Chief of Staff for Air and the Chief of the Bureau of Aeronautics.

**21 July** The requirement that all students assigned to the carrier-plane phase of flight training be given time in each of the three basic aircraft types was abolished,

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and the practice of assigning students to specialized training in either fighters, scout bombers or torpedo planes began.

**25 July** Thirty P-40s and three primary training planes of the 33rd Pursuit Squadron, Army Air Forces, were loaded aboard *Wasp* at Norfolk, Va., for transport to Reykjavik, Iceland.

**28 July** To establish a continuing organization for training flight crews, the Chief of Naval Operations directed that action be taken as expeditiously as practicable to provide additional gunnery and tactical training in the pilot training program; to establish within the Atlantic and Pacific Fleets at Norfolk, Va., and San Diego, Calif.; Advanced Carrier Training groups to indoctrinate newly designated Naval Aviators in the operation of current model carrier aircraft; and to assign a number of patrol squadrons in each fleet the primary task of providing familiarization, indoctrination, advanced gunnery and tactical training for new flight crews.

**28 July** The Operational Training Squadron of the Atlantic Fleet, and the Test, Acceptance and Indoctrination Unit of the Pacific Fleet were redesignated Transition Training Squadron, Atlantic and Pacific, respectively.

**29 July** The Secretary of the Navy approved the installation of a Radar Plot aboard carriers as “the brain of the organization” protecting the fleet from air attack. The first installation was planned for the island structure of *Hornet*.

**1 August** A Microwave (AI-10) radar developed by the Radiation Laboratory and featuring a Plan Position Indicator (PPI) was given its initial airborne test in the XJO-3 at Boston Airport. During the test flights, which continued through 16 October, Radiation Laboratory scientists operated the radar and devised modifications while naval personnel from Project Roger (usually Chief Aviation Pilot C. L. Kullberg) piloted the aircraft. During the tests, surface vessels were detected at ranges up to 40 miles; radar-guided approaches against simulated enemy aircraft were achieved at ranges up to 3.5 miles. Operational radars which were developed from this equipment were capable of searching a circular area and included the ASG for K-type airships and the AN/APS-2 for patrol planes.

**1 August** The Bureau of Aeronautics requested the Naval Research Laboratory to develop radar guidance

equipment for assault drones, both to relay target information to a control operator and to serve as automatic homing equipment. This marked the initiation of radar applications to guided missiles.

**6 August** Patrol Squadrons 73 and 74 initiated routine air patrols from Reykjavik, Iceland, over North Atlantic convoy routes.

**6 August** In recognition of the radical change which radar was causing in the method of using fighters to protect the fleet, the Chief of Naval Operations issued a “Tentative Doctrine for Fighter Direction from Aircraft Carriers” and directed that carriers and other ships equipped with radar immediately organize fighter direction centers.

**7 August** The Chief, Bureau of Aeronautics issued a preliminary plan for installing radar in naval aircraft. Long range search radar (British ASV or American ASA) was to be installed in patrol planes. Short range search radar (British Mk II ASV modified for Fleet Air Arm or American ASB) was to be installed in one torpedo plane in each section commencing with the TBF while space needed for search radar was to be reserved in new scout-dive-bombers and scout-observation planes. Interception equipment, when available, would be installed in some F4Us and a British AI Mk IV radar was being installed in an SBD with a view to its use as an interim interceptor. The plan also included installation of appropriate radio altimeters in patrol and torpedo planes, and recognition equipment in all service airplanes.

**5 September** Artemus L. Gates, Naval Aviator No. 65 and member of the First Yale Unit of World War I, took the oath of office as Assistant Secretary of the Navy for Aeronautics; the first to hold the office since the resignation of David S. Ingalls in 1932.

**9 September** The Bureau of Aeronautics requested the National Defense Research Committee and the Naval Research Laboratory to develop an interceptor radar suitable for installation in single engine, single seat fighters such as the F4U.

**1 October** The Aviation Supply Office was established at Philadelphia, Pa., under the joint cognizance of the Bureau of Aeronautics and the Bureau of Supplies and Accounts, to provide centralized control over the procurement and distribution of all aeronautical materials regularly maintained in the general stock.

**8 October** Organizational provision for guided missiles was made in the fleet by the establishment of



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“Special Project Dog” in Utility Squadron 5, to test and operate radio-controlled offensive weapons and to train personnel in their use. VJ-5 was also directed to develop a radio-controlled fighter plane—“aerial ram” or “aerial torpedo”—to be flown into enemy bomber formations and exploded.

**13 October** The Bureau of Aeronautics directed that all fleet aircraft be painted non-specular light gray except for surfaces seen above which were to be blue-gray. In late December, this color scheme was extended to shore-based airplanes except trainers.

**20 October** *Hornet* was commissioned at Norfolk, Va., Captain Marc A. Mitscher commanding.

**21 October** In tests with MAD gear (Magnetic Airborne Detector), a PBY from NAS Quonset Point, R.I., located the submarine S-48. The tests were carried out in cooperation with the National Defense Research Committee.

**29 October** Patrol Squadron 82 received the first of a planned full complement of PBO-1s at NAS Norfolk, Va. Assignment of these aircraft, actually destined for the British and painted with British markings, was the beginning of what became an extensive use of land

planes by patrol squadrons during the war and, although it was not yet apparent, was the first move toward the eventual elimination of the flying boat from patrol aviation.

**1 November** By Executive Order, the president directed that, until further orders the Coast Guard operate as a part of the Navy subject to the orders of the Secretary of the Navy.

**18 November** Doctor L. A. DuBridge of the Radiation Laboratory reported that the initial design of a 3-cm aircraft intercept radar was completed.

**26 November** *Kitty Hawk*, first of two aircraft ferries, was commissioned, Commander C. E. Rogers commanding.

**1 December** Patrol Wing 9 began forming at Quonset Point, R.I., with Lieutenant Commander Thomas U. Sisson as prospective commanding officer.

**7 December** Japanese carrier aircraft launched a devastating attack on ships at Pearl Harbor, Hawaii, and on the military and air installations in the area. The three aircraft carriers of the Pacific Fleet were not present. *Saratoga*, just out of overhaul, was moored at San Diego, Calif. *Lexington* was at sea about 425 miles southeast of Midway toward which she was



*Pearl Harbor Sunday morning, December 7, 1941; aircraft burning from attack by Japanese Carrier-based air 19948*

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*Enterprise, known as "The Big E" was in almost continuous action during World War II 704377*

headed to deliver a Marine Scout Bombing Squadron. *Enterprise* was also at sea about 200 miles west of Pearl Harbor, returning from Wake Island after delivering a Marine Fighter Squadron there. Her Scouting Squadron 6, launched early in the morning to land at Ewa Airfield, Hawaii, arrived during the attack and engaged enemy aircraft.

**9 December** The Secretary of the Navy authorized the Bureau of Ships to contract with the RCA Manufacturing Company for a service test quantity of 25 sets of ASB airborne search radar. This radar had been developed by the Naval Research Laboratory (under the designation XAT) for installation in dive bombers and torpedo planes.

**10 December** Aircraft from *Enterprise* attacked and sank the Japanese submarine I-70 in waters north of the Hawaiian Islands. This was one of the submarines

used to scout the Hawaiian area in connection with the Pearl Harbor attack and was the first Japanese combatant ship sunk by United States aircraft during World War II.

**10 December** Antisubmarine patrols over the South Atlantic were initiated by Patrol Squadron 52, equipped with Catalinas operating from Natal, Brazil.

**12 December** The Naval Air Transport Service (NATS) was established under the Chief of Naval Operations to provide rapid air delivery of critical equipment, spare parts, and specialist personnel to naval activities and fleet forces all over the world.

**14 December** Patrol Wing 10 departed Cavite and, with its two patrol squadrons and four seaplane tenders, began withdrawal from the Philippines. Before reaching Australia it operated from various bases along

1941—Continued

the way, including Balikpapan, Soerabaja, and Ambon in the Netherlands East Indies.

**15 December** Patrol Wing 8 transferred from Norfolk, Va., to Alameda, Calif., for duty on the west coast.

**16 December** The Secretary of the Navy approved an expansion of the pilot training program from the existing schedule of assigning 800 students per month to one calling for 2,500 per month thereby leading to a production of 20,000 pilots annually by mid-1943.

**17 December** The Naval Research Laboratory reported that flight tests in a PBY of radar utilizing a duplexing antenna switch had been conducted with satisfactory results. The duplexing switch made it possible to use a single antenna for both transmission of the radar pulse and reception of its echo; thereby, the necessity for cumbersome “yagi” antenna no longer existed, a factor which contributed substantially to the reliability, and hence the effectiveness, of World War II airborne radar.

**17 December** Seventeen SB2U-3 Vindicators of VMSB-231, led by a PBY of Patrol Wing 1, arrived at Midway Island from Oahu, Hawaii, completing the longest mass flight by single-engine aircraft then on record in 9 hours, 45 minutes. It was the same squadron that was en route to Midway on 7 December aboard *Lexington* when reports of the attack on Pearl Harbor forced the carrier to turn back short of her goal.

**18 December** Two-plane detachments from Patrol Wings 1 and 2, based in Hawaii, began scouting patrols from Johnston Island.

**18 December** Following an operational loss of an American Volunteer Group (Flying Tigers) aircraft and the ensuing confrontation between the pilot, Eriksen Shilling, and a group of Chinese, “blood chits” were developed. The Flying Tigers were a U.S. volunteer group formed by Major General Claire L. Chennault for operations in the China-Burma-India theater. The first blood chits were printed on silk by Chinese Intelligence and stitched on the back of the American’s flight jackets. It showed the flag and promised a reward for assisting the bearer. The message was printed in several languages. Blood chits were later used by the fast carrier groups in the Pacific during World War II, in the Korean and Vietnam wars and in Desert Storm. Another item similar to blood

chits was the “Barter Kit.” It was issued during the Cuban Missile Crisis and Vietnam and included gold coins, watches, etc. . . . to barter for assistance if downed.

**25 December** Two-plane detachments from squadrons at Pearl Harbor and Kaneohe, Hawaii, began patrols from Palmyra Island, a principal staging base to the South Pacific.

## 1942

**2 January** The first organized lighter-than-air units of World War II, Airship Patrol Group 1, Commander George H. Mills commanding, and Airship Squadron 12, Lieutenant Commander Raymond F. Tyler commanding, were established at NAS Lakehurst, N.J.

**5 January** A change in regulations, covering display of National Insignia on aircraft, returned the star to the upper right and lower left wing surfaces and revised rudder striping to 13 red and white horizontal stripes.

**7 January** Expansion of Naval Aviation to 27,500 useful planes was approved by the president.

**11 January** *Saratoga*, while operating at sea 500 miles southwest of Oahu, Hawaii, was hit by a submarine torpedo and forced to retire for repairs.

**11 January** Patrol Squadron 22, with PBY-5 Catalinas, joined Patrol Wing 10 at Ambon, the first aviation reinforcements from the Central Pacific to reach southwest Pacific Forces opposing the Japanese advance through the Netherlands East Indies.

**14 January** The formation of four Carrier Aircraft Service Units (CASU) from four small Service Units, previously established in the Hawaiian area, was approved.

**16 January** To protect the advance of Task Force 8 for its strike against the Marshall and Gilbert Islands, planes of Patrol Squadron 23 began daily searches of the waters between their temporary base at Canton Island and Suva in the Fijis. These were the first combat patrols by aircraft in the South Pacific.

**23 January** The first naval aircraft to operate in the Samoan Islands, OS2Us of VS-1-D14, arrived with Marine Corps reinforcements from San Diego, Calif.

**29 January** Five-inch projectiles containing radio-proximity fuzes were test fired at the Naval Proving Ground, Dahlgren, Va., and 52 percent of the fuzes

1942—Continued

functioned satisfactorily by proximity to water at the end of a 5-mile trajectory. This performance, obtained with samples selected to simulate a production lot, confirmed that the radio-proximity fuze would greatly increase the effectiveness of anti-aircraft batteries and led to immediate small scale production of the fuze.

**30 January** The Secretary of the Navy authorized a glider program for the Marine Corps consisting of small and large types in sufficient numbers for the training and transportation of two battalions of 900 men each.

**1 February** The Secretary of the Navy announced that all prospective Naval Aviators would begin their training with a three months' course emphasizing physical conditioning and conducted by Pre-Flight Schools to be established at universities in different parts of the country. The training began at the Universities of North Carolina and Iowa in May, the University of Georgia and St. Mary's College, Calif., in June, and at Del Monte, Calif., in January 1943.

**1 February** First U.S. Carrier Offensive—Task Forces 8 (Vice Admiral William F. Halsey) and 17 (Rear Admiral Frank J. Fletcher), built around the carriers *Enterprise* and *Yorktown*, bombed and bombarded enemy installations on the islands of Wotje, Kwajalein,



Attacking Japanese torpedo plane is shot down by antiaircraft fire from carriers raiding Marshall Islands 201986

Jaluit, Makin, and Mili in the Marshall and Gilbert Islands.

**12 February** The Chief of Naval Operations promulgated an advanced base program using the code names "Lion" and "Cub" to designate major and minor bases, and in July added "Oaks" and "Acorns" for aviation bases. This was the beginning of a concept of functional components which developed as the war progressed and which provided planners and commanders with a means of ordering standardized units of personnel, equipment, and material to meet any special need in any area, in much the same manner as ordering from a mail-order catalogue.

**16 February** A Navy developed Air-Track blind landing system was in daily use in Iceland for landing flying boats. Other blind-landing systems were in various phases of development, and work on the Ground Controlled Approach system had progressed to the point that Navy personnel had made talk-down landings at the East Boston (Commonwealth) Airport, Mass.

**17 February** Commander-in-Chief, U.S. Fleet authorized removal of aircraft hangar deck catapults from *Wasp*, *Yorktown*, *Enterprise* and *Hornet*.

**21 February** The seaplane tender *Curtiss* and Patrol Squadron 14 arrived at Noumea, New Caledonia, to begin operations from what became a principal Navy base in the South Pacific during the first year of the war.

**23 February** The Bureau of Aeronautics outlined a comprehensive program which became the basis for the wartime expansion of pilot training. In place of the existing 7-months course, the new program required eleven and one half months for pilots of single or twin-engine aircraft and twelve and one half months for four-engine pilots; and was divided into three months at Induction Centers, three months in Primary, three and one half months in Intermediate and two or three months in Operational Training, depending on type aircraft used.

**24 February** First Wake Island Raid—A striking force, (Vice Admiral William F. Halsey) composed of the carrier *Enterprise* with cruiser and destroyer screen, attacked Wake Island.

**26 February** The Navy's Coordinator of Research and Development requested the National Defense Research Committee to develop an expendable radio sonobuoy for use by lighter-than-air craft in antisubmarine warfare.

1942—Continued

**27 February** The seaplane tender *Langley*, formerly first carrier of the U.S. Navy, was sunk by enemy air attack 74 miles from her destination while ferrying 32 AAF P-40s to Tjilatjap, Java.

**1 March** Carrier Replacement Air Group 9 was established at NAS Norfolk, Va., under command of Commander William D. Anderson. It was the first numbered Air Group in the Navy and marked the end of the practice of naming air groups for the carriers to which they were assigned.

**1 March** Ensign William Tepuni, USNR, piloting a Lockheed Hudson, PBO, of VP-82 based at Argentia, Newfoundland, attacked and sank the U-656 southwest of Newfoundland—the first German submarine sunk by U.S. forces in World War II.

**2 March** Regularly scheduled operations by the Naval Air Transport Service were inaugurated with an R4D flight from Norfolk, Va., to Squantum, Mass.

**4 March** First Raid on Marcus—*Enterprise*, as part of Task Force 16 (Vice Admiral William F. Halsey), moved to within 1,000 miles of Japan to launch air attacks on Marcus Island.

**7 March** Patrol Wing 10 completed withdrawal from the Philippines and the Netherlands East Indies, and established headquarters in Perth, Australia, for patrol operations along the west coast of Australia.

**7 March** The practicability of using a radio sonobuoy in aerial anti-submarine warfare was demonstrated in an exercise conducted off New London, Conn., by the K-5 blimp and the S-20 submarine. The buoy could detect the sound of the submerged submarine's propellers at distances up to three miles, and radio reception aboard the blimp was satisfactory up to five miles.

**8 March** Inshore Patrol Squadron VS-2-D14, which had arrived at Bora Bora, on 17 February, inaugurated air operations from the Society Islands.

**9 March** VR-1, the first of 13 VR squadrons established under the Naval Air Transport Service during World War II, was established at Norfolk, Va., Commander Cyril K. Wildman commanding.

**10 March** A carrier air strike, launched from *Lexington* and *Yorktown* in the Gulf of Papua, flew over the 15,000-foot Owen Stanley Mountains on

the tip of New Guinea to hit Japanese shipping engaged in landing troops and supplies at Lae and Salamaua. One converted light cruiser, a large minesweeper, and a cargo ship were sunk and other ships damaged.

**10 March** A contract with the Office of Scientific Research and Development became effective whereby Johns Hopkins University agreed to operate a laboratory which became known as the Applied Physics Laboratory. This was one of several important steps in the transition of the radio-proximity fuze from development to large scale production. Other steps taken within the next 6 weeks included the organizational transfer of Section T from the National Defense Research Committee directly to the Office of Scientific Research and Development and the relocation of most of the Section T staff from the Carnegie Institution of Washington to the Applied Physics Laboratory at Silver Spring, Md.

**26 March** Unity of command over Navy and Army air units operating over the sea to protect shipping and conduct antisubmarine warfare was vested in the Navy.

**29 March** The forward echelon of Marine Fighter Squadron 212 arrived at Efate to construct an air strip from which the squadron initiated operations in the New Hebrides on 27 May.

**6 April** The administrative command Aircraft, Atlantic Fleet, was redesignated Carriers, Atlantic Fleet.

**7 April** To provide aviation maintenance men with special training required to support air operations at advanced bases, Aircraft Repair Units 1 and 2 were merged to form the Advanced Base Aviation Training Unit (ABATU) at Norfolk, Va.

**9 April** A radio controlled TG-2 drone, directed by control pilot Lieutenant Moulton B. Taylor of Project Fox, made a torpedo attack on *Aaron Ward* (DD 483) steaming at 15 knots in Narragansett Bay. Taylor utilized a view of the target obtained by a television camera mounted in the drone, and directed the attack so that the torpedo was released about 300 feet directly astern of the target and passed under it.

**10 April** A reorganization of the Pacific Fleet abolished the Battle and Scouting Forces and set up new type commands for ships and aviation. With the change, titles of the aviation type commands became Carriers, Pacific, and Patrol Wings, Pacific.

1942—Continued

*Hornet*  
with B-25  
bombers on  
board  
enroute to  
launching  
point for  
the first  
Tokyo raid,  
1942  
1061486



**18 April** Raid on Tokyo—From a position at sea 668 miles from Tokyo, the carrier *Hornet* launched 16 B-25s of the 17th AAF Air Group led by Lieutenant Colonel Jimmy H. Doolittle, USA, for the first attack on the Japanese homeland. *Hornet* sortied from Alameda, Calif., 2 April, made rendezvous with *Enterprise* and other ships of Task Force 16 (Vice Admiral William F. Halsey) north of the Hawaiian Islands, and proceeded across the Pacific to the launching point without making port.

**18 April** A Night Fighter Development Unit was established to be located at NAS Quonset Point, R.I. This unit, originally named Project Argus was renamed Project Affirm to avoid confusion with the electronic element (Argus Unit) of an advanced base. Project Affirm's official purpose was development and test of night fighter equipment for Navy and Marine Corps aircraft; in addition it developed tactics and trained officers and men for early night fighter squadrons and as night fighter directors.

**19 April** Two tests of the feasibility of utilizing drone aircraft as guided missiles were conducted in Chesapeake Bay. In one, Utility Squadron VJ-5, utilizing visual direction, crash-dived a BG-1 drone into the water beyond its target, the wreck of *San Marcos* and a live bomb exploder in the drone failed to detonate. The second and more successful test was conducted by Project Fox from CAA intermediate field, Lively, Va., using a BG-2 drone equipped with a television camera to provide a view of the target. Flying in a control plane 11 miles distant, Lieutenant Moulton B. Taylor directed the drone's crash-dive into a raft being towed at a speed of eight knots.

**20 April** *Wasp* on special ferry duty out of Glasgow, Scotland, entered the Mediterranean and launched 47 RAF Spitfires to Malta. When the operation was duplicated on 9 May, it was the occasion for Winston Churchill's message, "Who says a Wasp cannot sting twice?"

**24 April** A new specification for color of naval aircraft went into effect. The color of service aircraft remained non-specular light gray with non-specular blue-gray on surfaces visible from above. Advanced trainers were to be finished in glossy aircraft gray with glossy orange yellow on wing and aileron surfaces visible from above while primary trainers were to be finished glossy orange-yellow with gray landing gear.

**30 April** The Air Operational Training Command was established with headquarters at Jacksonville, Fla. Four days later the Naval Air Stations at Jacksonville, Miami, Fla., Key West, Fla., and Banana River, Fla., and their satellite fields were assigned to the new command.

**4–8 May** Battle of Coral Sea—In the first naval engagement in history fought without opposing ships making contact, United States carrier forces stopped a Japanese attempt to land at Port Moresby, Papua, New Guinea, by turning back the covering carrier force. Task Force 17 (Rear Admiral Frank J. Fletcher) with the carrier *Yorktown*, bombed Japanese transports engaged in landing troops in Tulagi Harbor, damaging several and sinking one destroyer (4 May); joined other Allied naval units including Task Force 11 (Rear Admiral Aubrey W. Fitch) with the carrier *Lexington* south of the Louisiades (5 May); and after stationing an attack

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*U. S. dive bombers attack the Japanese aircraft carrier Shokaku during the battle of the Coral Sea, May 1942 17422*

group in the probable track of the enemy transports, moved northward in search of the enemy covering force. Carrier aircraft located and sank the light carrier *Shoho* covering a convoy (7 May), while Japanese aircraft hit the separately operating attack group and sank one destroyer and one fleet tanker. The next day the Japanese covering force was located and taken under air attack, which damaged the carrier *Shokaku*. Almost simultaneously enemy carrier aircraft attacked Task Force 17, scoring hits which damaged *Yorktown* and set off uncontrollable fires on *Lexington*, as a result of which she was abandoned and was sunk (8 May). Although the score favored the Japanese, they retired from action and their occupation of Port Moresby by sea was deferred and finally abandoned.

**10 May** The possibility of increasing the range of small aircraft, by operating them as towed gliders, was demonstrated at the Naval Aircraft Factory when Lieutenant Commanders William H. McClure and Robert W. Denbo hooked their F4Fs to tow lines streamed behind a twin-engined BD (Army A-20), cut their engines and were towed for an hour at 180 knots at 7,000 feet.

**10 May** *Ranger*, on a transatlantic ferry trip, reached a position off the African Gold Coast and launched 60 P-40 Warhawks of the Army Air Force to Accra, from which point they were flown in a series of hops to Karachi, India, for operations with the 10th AAF. This was the first of four ferry trips made by *Ranger* to deliver AAF fighters across the Atlantic, the subsequent launches being accomplished on 19 July 1942, 19 January 1943, and 24 February 1943.

**10 May** VS-4-D14 (Inshore Patrol Squadron) arrived in the Tonga Islands with the base construction and garrison convoy and set up facilities to conduct anti-submarine patrols from Nukualofa Harbor on Tongatabu.

**11 May** The president ordered that an Air Medal be established for award to any person who, while serving in any capacity in or with the Army, Navy, Marine Corps, or Coast Guard after 8 September 1939, distinguishes or has distinguished himself by meritorious achievement while participating in aerial flight.

**15 May** The design of the National Star Insignia was revised by eliminating the red disc in the center of the star, and use of horizontal red and white rudder striping was discontinued.

**15 May** The Chief of Naval Operations ordered that an Assistant Chief of Naval Operations (Air) be established to deal with aviation matters directly under the Vice Chief of Naval Operations and that the Chief of the Bureau of Aeronautics fill the new office as additional duty. In complying with a further provision of the order that such readjustment of functions be made as would serve the interest of the order, the Vice Chief of Naval Operations subsequently concentrated the aviation functions already being performed in his office into a new Division of Aviation. The office was abolished in mid-June 1942.

**15 May** A VR-2 flight from Alameda, Calif., to Honolulu, Hawaii, the first transoceanic flight by NATS aircraft, initiated air transport service in the Pacific.

**20 May** Rear Admiral John S. McCain reported for duty as Commander, Aircraft, South Pacific, a new command established to direct the operations of tender and shore-based aviation in the South Pacific area.

**26 May** The feasibility of jet-assisted takeoff was demonstrated in a successful flight test of a Brewster F2A-3, piloted by Lieutenant (jg) C. Fink Fischer, at NAS Anacostia, D.C., using five British anti-aircraft solid propellant rocket motors. The reduction in takeoff distance was 49 percent.

**27 May** The transfer of Patrol Wing 4 from Seattle, Wash., to the North Pacific began with the arrival of Commander, Kodiak, Alaska.

**3–4 June** In an attempt to divert forces from the Midway area, a Japanese carrier force launched small raids on Dutch Harbor, Aleutian Islands, hitting twice on the third and once on the fourth and doing consid-

1942—Continued

erable damage to installations ashore. PBVs located the carriers on the fourth but attacks by 11th AAF bombers were unsuccessful.

**3–6 June** The Battle of Midway—A strong Japanese thrust in the Central Pacific to occupy Midway Island, was led by a four-carrier Mobile Force, supported by heavy units of the Main Body (First Fleet) and covered by a diversionary carrier raid on Dutch Harbor in the Aleutians. This attack was met by a greatly outnumbered United States carrier force composed of Task Force 17 (Rear Admiral Frank J. Fletcher) with *Yorktown*, and Task Force 16 (Rear Admiral R. A. Spruance) with *Hornet* and *Enterprise*, and by Navy, Marine Corps, and Army air units based on Midway. Planes from Midway located and attacked ships of the Japanese Occupation Force 600 miles to the west (3 June), and of the Mobile Force (4 June) as it sent its aircraft against defensive installations on Midway. Concentrating on the destruction of Midway air forces and diverted by their torpedo, horizontal, and dive bombing attacks, the Japanese carriers were caught unprepared for the carrier air attack which began at 0930 with the heroic but unsuccessful effort of Torpedo Squadron 8, and were hit in full force at 1030 when dive bombers hit and sank the carriers *Akagi*, *Kaga*, and *Soryu*. A Japanese counter attack at noon and another 2 hours later, damaged *Yorktown* with bombs and torpedoes so severely that she was abandoned. In the late afternoon, U.S. carrier air hit the Mobile Force again, sinking *Hiryu*, the fourth and last of the Japanese carriers in action. With control of the air irretrievably lost, the Japanese retired under the attack of Midway-based aircraft (5 June) and of carrier air (6 June) in which the heavy cruiser *Mikuma* was sunk and the *Mogami*



Formation of Grumman TBF Avengers 417667

severely damaged. Japanese losses totaled two heavy and two light carriers, one heavy cruiser, 258 aircraft, and a large percentage of their experienced carrier pilots. United States losses were 40 shore-based and 92 carrier aircraft, the destroyer *Hammann* (DD 412) and the carrier *Yorktown*, which sank 6 and 7 June respectively, the result of a single submarine attack. The decisive defeat administered to the Japanese put an end to their successful offensive and effectively turned the tide of the Pacific War.



1942—Continued

**4 June** The TBF Grumman Avenger flown by pilots of a shore-based element of Torpedo Squadron 8, began its combat career with attacks on the Japanese Fleet during the Battle of Midway.

**10 June** Patrol planes of Patrol Wing 4 discovered the presence of the enemy on Kiska and Attu, Aleutian Islands—the first news of Japanese landings that had taken place on the 7th.

**10 June** A formal organization, Project Sail, was established at NAS Quonset Point, R.I., for airborne testing and associated work on Magnetic Airborne Detectors (MAD gear). This device was being developed to detect submarines by the change that they induced in the earth's magnetic field. Principal developmental efforts were being carried out by the Naval Ordnance Laboratory and the National Defense Research Committee. In view of the promising results of early trials made with airships and an Army B-18, 200 sets of MAD gear were then being procured.

**11–13 June** PBY Catalinas, operating from the sea-plane tender *Gillis* in Nazan Bay, Atka Island, hit ships and enemy positions on Kiska, Aleutian Islands, in an intense 48-hour attack which exhausted the gasoline and bomb supply aboard *Gillis*, but was not successful in driving the Japanese from the island.

**13 June** Long Range Navigation Equipment (LORAN), was given its first airborne test. The receiver was mounted in the K-2 airship and, in a flight from NAS Lakehurst, N.J., accurately determined position when the airship was over various identifiable objects. The test culminated with the first LORAN homing from a distance 50 to 75 miles offshore during which the LORAN operator, Dr. J. A. Pierce, gave instructions to the airship's commanding officer which brought them over the shoreline near Lakehurst on a course that caused the commanding officer to remark, "We weren't [just] headed for the hangar. We were headed for the middle of the hangar." The success of these tests led to immediate action to obtain operational LORAN equipment.

**15 June** *Copahee*, Captain John G. Farrell commanding, was commissioned at Puget Sound Navy Yard, first of 10 escort carriers of the Bogue Class converted from Maritime Commission hulls.

**16 June** Congress authorized an increase in the airship strength of the Navy to 200 lighter-than-air craft.

**17 June** The development of Pelican, an antisubmarine guided missile, was undertaken by the National Defense Research Committee with Bureau of Ordnance sponsorship. This device consisted of a glide bomb which could automatically home on a radar beam reflected from the target.

**17 June** Following the abolition of the newly created office of the Assistant Chief of Naval Operations (Air), the earlier order establishing an aviation organization in the Office of the Chief of Naval Operations was revised to the extent that the Director of the Aviation Division became responsible directly to the Vice Chief of Naval Operations.

**17 June** A contract was awarded to Goodyear for the design and construction of a prototype model M scouting and patrol airship with 50 percent greater range and volume (625,000 cu. ft.) than the K Class. Four model M airships were procured and placed in service during World War II.

**25 June** Preliminary investigation of early warning radar had proceeded to the point that the Coordinator for Research and Development requested development be initiated of airborne early warning radar including automatic airborne relay and associated shipboard processing and display equipment. Interest in early warning radar had arisen when Admiral Ernest J. King remarked to Dr. Vannevar Bush, head of the Office of Scientific Research and Development, that Navy ships need to see over the hill, i.e. beyond the line of sight.

**26 June** Scheduled Naval Air Transport Service operations between the west coast and Alaska were initiated by VR-2.

**27 June** The Naval Aircraft Factory (NAF) was directed to participate in the development of high altitude pressure suits with particular emphasis upon testing existing types and obtaining information so that they could be tailored and fitted for use in flight. The Navy thus joined the Army which had sponsored earlier work on pressure suits. The NAF expanded its endeavors in the field of high altitude equipment which then included design of a pressure cabin airplane and construction of an altitude test chamber.

**29 June** Following an inspection of Igor I. Sikorsky's VS-300 helicopter on 26 June, Lieutenant Commander Frank A. Erickson, USCG, recommended that helicopters be obtained for antisubmarine convoy duty and life-saving.

1942—Continued

**3 July** In the first successful firing of an American rocket from a plane in flight, Lieutenant Commander James H. Hean, Gunnery Officer of Transition Training Squadron, Pacific Fleet, fired a retro-rocket from a PBY-5A in flight at Goldstone Lake, Calif. The rocket, designed to be fired aft with a velocity equal to the forward velocity of the airplane, and thus to fall verti-



*PBY-5A, amphibious version of the Catalina flying boat, carries retro-rockets for antisubmarine warfare 700504*

cally, was designed at the California Institute of Technology. Following successful tests, the retro-rocket became a weapon complementary to the magnetic airborne detector with Patrol Squadron 63 receiving the first service installation in February 1943.

**7 July** An agreement was reached between the Army and Navy, which provided that the Army would deliver to the Navy a specified number of B-24 Liberators, B-25 Mitchells, and B-34 Venturas to meet the Navy's requirement for long range landplanes. Also, the Navy would relinquish its production cognizance of the Boeing Renton plant to the Army for expanded B-29 production and limit its orders for PBYs to avoid interference with B-24 production.

**12 July** Patrol Wings were reorganized to increase the mobility and flexibility of patrol aviation. Headquarters Squadrons were authorized for each wing to furnish administrative and maintenance services to attached squadrons. Geographic areas of responsibility were assigned to each wing, and permanent assignment of squadrons was abolished in favor of assignment as the situation required.

**19 July** The seaplane tender *Casco* established an advanced base in Nazan Bay, Atka, Aleutian Islands, to support seaplane operations against Kiska, which

included antishipping search, bombing of enemy positions, and cover for surface force bombardments.

**24 July** The Bureau of Aeronautics issued a Planning Directive calling for procurement of four Sikorsky helicopters for study and development by Navy and Coast Guard aviation forces.

**1 August** A J4F Widgeon, piloted by Ensign Henry C. White of Coast Guard Squadron 212, based at Houma, La., scored the first Coast Guard kill of an enemy submarine with the sinking of the German U-166 off the passes of the Mississippi.

**7 August** Marine Aircraft Wings, Pacific was organized at San Diego, Calif., under command of Major General Ross E. Rowell for the administrative control and logistic support of Marine Corps aviation units assigned to the Pacific Fleet. In September 1944, this command was renamed Aircraft, Fleet Marine Force, Pacific.

**7 August 1942–9 February 1943** Capture of Guadalcanal—Air support for the U.S. Marines' first amphibious landing of World War II was provided by three carriers of Air Support Force (Rear Admiral Leigh Noyes), and by Navy, Marine, and Army units of Aircraft, South Pacific (Rear Admiral John S. McCain) operating from bases on New Caledonia and in the New Hebrides. Carrier forces withdrew from direct support (9 Aug) but remained in the area to give overall support to the campaign during which they participated in several of the naval engagements fought over the island. *Saratoga* sank the Japanese light carrier *Ryujō* in the Battle of the Eastern Solomons (23–25 Aug); *Enterprise* was hit by carrier-based bombers (24 Aug) and forced to retire; *Saratoga* was damaged by a submarine torpedo (31 Aug) and forced to retire; and *Wasp* was sunk by a submarine (15 Sep) while escorting a troop convoy to Guadalcanal. *Hornet*, in Task Group 17 (Rear Admiral George D. Murray), hit targets in the Buin-Tonolei-Faisi area (5 Oct); attacked beached Japanese transports and supply dumps on Guadalcanal; destroyed a concentration of seaplanes at Rekata Bay (16 Oct); and, with *Enterprise*, fought in the Battle of Santa Cruz (26–27 Oct) in which she was sunk by air attack. In final carrier actions of the campaign, *Enterprise* took part in the last stages of the Naval Battle for Guadalcanal (12–15 Nov), assisting in sinking 89,000 tons of war and cargo ships, and in the Battle of Rennel Island (29–30 Jan) in which two escort carriers also participated. Ashore, air forces in great variety provided direct support. Navy patrol squadrons flew search, rescue, and offensive missions from sheltered coves and harbors. Marine Fighter

1942—Continued



*Escort carriers taking station to provide amphibious troops with close air support during an invasion 1053753*



*An SBD over Enterprise, Saratoga in the background, 1942*

1942—Continued

Squadron 223 and Scout Bombing Squadron 232, delivered by the escort carrier *Long Island*, initiated operations from Henderson Field on Guadalcanal (20 Aug) and were joined within a week by AAF fighter elements and dive bombers from *Enterprise*, and by other elements as the campaign progressed. Until the island was secure (9 Feb), these forces flew interceptor patrols, offensive missions against shipping, and close air support for the Marines and for Army troops relieving them (13 Oct). Marine air units carrying the major air support burden accounted for 427 enemy aircraft during the campaign.

**10 August** The headquarters of Patrol Wing 3 shifted within the Canal Zone from NAS Coco Solo to Albrook Field for closer coordination with the Army Air Force Command in the defense of the Panama Canal.

**12 August** *Cleveland* (CL 55), operating in the Chesapeake Bay, demonstrated effectiveness of the radio-proximity fuze against aircraft by destroying three radio-controlled drones with four proximity bursts fired from her five inch guns. This successful demonstration led to mass production of the fuze.

**12 August** *Wolverine* (IX 64) was commissioned at Buffalo, N.Y, Commander George R. Fairlamb commanding. This ship and *Sable* (IX 81), commissioned the following May, were Great Lakes excursion ships converted for aviation training and as such they operated for the remainder of the war on the inland waters of Lake Michigan. They provided flight decks upon which hundreds of Student Naval Aviators qualified for carrier landings and many flight deck crews received their first practical experience in handling aircraft aboard ship.

**13 August** Commander-in-Chief, U.S. Fleet directed that an Aircraft Experimental and Developmental Squadron be established about 30 September 1942 at NAS Anacostia, D.C. This squadron, which replaced the Fleet Air Tactical Unit, was to conduct experiments with new aircraft and equipment in order to determine their practical application and tactical employment.

**15 August** Patrol Wing 11 was established at Norfolk, Va., Commander Stanley J. Michael commanding. Five days later the Wing moved to San Juan, P.R., for operations under the Caribbean Sea Frontier.

**20 August** The designation of escort carriers was changed from AVG to ACV.

**24 August** *Santee*, Captain William D. Sample commanding, was placed in commission at the Norfolk Navy Yard, Va.; the first of four escort carriers of the Sangamon Class converted from Cimarron Class fleet oilers.

**30 August** The occupation of Adak, Alaska, by Army forces and the establishment of an advanced seaplane base there by the tender *Teal*, put North Pacific forces within 250 miles of occupied Kiska and in a position to maintain a close watch over enemy



*A PBY Catalina flying over the Aleutians near Adak 405443*

shipping lanes to that island and to Attu, Aleutian Islands. The tender *Casco*, conducting support operations from Nazan Bay, was damaged by a submarine torpedo and temporarily beached.

**1 September** U.S. Naval Air Forces, Pacific, Rear Admiral Aubrey W. Fitch commanding, was established for the administrative control of all air and air service units under the Commander-in-Chief, Pacific (CINCPAC), replacing the offices of Commander, Carriers Pacific, and Commander, Patrol Wings Pacific. The subordinate commands Fleet Air West Coast, Fleet Air Seattle, and Fleet Air Alameda were established at the same time.

**6 September** The first Naval Air Transport Service flight to Argentia, Newfoundland, marked the beginning of air transport expansion along the eastern seaboard that during the month extended briefly to Iceland and reached southward to the Canal Zone and Rio de Janeiro, Brazil.

**7 September** Air Transport Squadron 2, based at Alameda, Calif., established a detachment at Pearl Harbor, Hawaii, and began a survey flight to the South Pacific as a preliminary to establishing routes between San Francisco, Calif., and Brisbane, Australia.

1942—Continued

**16 September** Patrol Wing 12 was established at Key West, Fla., Captain William G. Tomlinson commanding, for operations under the Gulf Sea Frontier.

**19 September** Commander, Patrol Wing 1 departed Kaneohe, Hawaii, for the South Pacific to direct the operations of patrol squadrons already in the area. Headquarters were first established at Noumea, New Caledonia, and subsequently at Espiritu Santo, Guadalcanal, and Munda.

**1 October** Airship Patrol Group 3, Captain Scott E. Peck commanding, was established at Moffett Field, Calif., to serve as the administrative command for airship squadrons operating on the west coast.

**1 October** Three functional training commands were established for Air Technical Training, Air Primary Training, and Air Intermediate Training, with headquarters initially at Chicago, Ill., Kansas City, Mo., and Pensacola, Fla., respectively.

**12 October** Naval Air Centers Hampton Roads, Va., San Diego, Calif., Seattle, Wash., and Hawaiian Islands, and Naval Air Training Centers Pensacola, Fla., and Corpus Christi, Tex., were established to consolidate under single commands the complex of Naval Aviation facilities that had become operational in the vicinity of certain large air stations.

**15 October** Patrol Wing 14, Captain William M. McDade commanding, was established at San Diego, Calif., for operations under the Western Sea Frontier and for duties concerned with equipping, forming, and establishing patrol squadrons.

**17 October** Inshore Patrol Squadrons (VS), engaged in coastal antisubmarine reconnaissance and convoy duty under the Sea Frontiers, were transferred to Patrol Wings for administrative control.

**19 October** The initial installation and deployment of the ASB-3 airborne search radar was reported. This radar, developed by the Naval Research Laboratory for carrier based aircraft, had been installed in five TBF-1s by NAS New York, N.Y., and five SBD-3s by NAS San Pedro, Calif. One aircraft of each type was assigned to Air Group Eleven (*Saratoga*) and the others shipped to Pearl Harbor, Hawaii. Remaining sets on the initial contract for 25 were to be used for spare parts and training.

**22 October** Westinghouse Electric and Manufacturing Company, by amendment to a design study contract,

was authorized to construct two 19A axial flow turbojet powerplants. Thereby, fabrication was initiated of the first jet engine of wholly American design.

**28 October** Procurement of the expendable radio sonobuoy for use in antisubmarine warfare was initiated as the Commander-in-Chief, U.S. Fleet directed the Bureau of Ships to procure 1,000 sonobuoys and 100 associated receivers.

**31 October** Air Transport Squadrons Pacific was established over the NATS squadrons based in the Pacific and those on the west coast flying the mainland to Hawaii routes.

**1 November** Patrol Wings were redesignated Fleet Air Wings, and to permit the organization of patrol aviation on the task force principle, the practice of assigning a standard number of squadrons to each Wing was changed to provide for the assignment of any and all types of aircraft required by the Wing to perform its mission in its particular area.

**1 November** Airship Patrol Group 1 at NAS Lakehurst, N.J., was redesignated Fleet Airship Group 1.

**2 November** NAS Patuxent River, Md., was established to serve as a facility for testing experimental airplanes, equipment and material, and as a NATS base.

**2 November** Fleet Air Wing 6, Captain Douglas P. Johnson commanding was established at NAS Seattle, Wash.

**8–11 November** Invasion of North Africa—Carrier aircraft from *Ranger* and escort carriers *Sangamon*, *Suwannee*, and *Santee* of Task Group 34.2 (Rear Admiral Ernest D. McWhorter) of the Western Naval Task Force, covered the landings of Army troops near Casablanca, Morocco, (8 Nov) and supported their operation ashore until opposing French forces capitulated (11 Nov). The escort carrier *Chenango* accompanied assault forces to the area and launched her load of 78 AAF P-40s (10–11 Nov) for operations from the field at Port Lyautey, Morocco.

**13 November** Patrol Squadron 73 arrived at Port Lyautey, Morocco, from Iceland via Bally Kelly, Ireland, and Lyncham, England. Supported by the seaplane tender *Barneget*, the squadron began antisubmarine operations from French Morocco over the western Mediterranean, the Strait of Gibraltar, and its approaches. Patrol Squadron 92 also arrived at Port Lyautey on the same day via Cuba, Brazil, Ascension Island, and West Africa.

1942—Continued

**16 November** Naval Aviation's first night fighter squadron, VMF(N)-531, was established at MCAS Cherry Point, N.C., with Lieutenant Colonel Frank H. Schwable in command. After initial training with SNJs and SB2A-4s, the squadron was assigned twin-engined PV-1 aircraft equipped with British Mark IV type radar.

**23 November** The VS-173, a full-scale model of a fighter aircraft with an almost circular wing, made its first flight at the Vought-Sikorsky plant, Stratford, Conn. A military version of this aircraft, the XF5U-1, was constructed later but never flown.

**1 December** Fleet Air Wing 15, Captain George A. Seitz commanding, was established at Norfolk, Va., for operations under the Moroccan Sea Frontier.

**1 December** Fleet Airship Wing 30, Captain George H. Mills commanding, was established at NAS Lakehurst, N.J., to administer Atlantic Fleet Airship Groups and their component squadrons.

**1 December** Airship Patrol Group 3 at NAS Moffett Field, Calif., was redesignated Fleet Airship Wing 31.

**26 December** The Chief of Naval Operations approved the merger of the Service Force Aviation Repair Unit and Advanced Cruiser Aircraft Training Unit, established in October 1941 and June 1942 respectively, to form a Scout Observation Service Unit (SOSU) with a mission to maintain battleship and cruiser aircraft and to indoctrinate pilots in their specialized operations. This SOSU, the first of three established during World War II was established 1 January 1943.

**27 December** *Santee*, first of 11 escort carriers assigned to Hunter-Killer duty, sortied Norfolk with Air Group 29 on board for free-roving antisubmarine and anti-raider operations in the South Atlantic.

**31 December** After pointing out that the need for airborne radar was so apparent and urgent that peacetime methods of procurement and fleet introduction could not be followed, the Chief of the Bureau of Aeronautics requested the Naval Research Laboratory to continue to provide personnel capable of assisting fleet units in the operation and maintenance of radar equipment until a special group of trained personnel could be assembled for that purpose. This special group developed within a few months into the Airborne Coordination Group which

provided trained civilian electronics specialists to fleet units throughout the war and into the postwar period.

**31 December** *Essex*, Captain Donald B. Duncan commanding, was placed in operating status at Norfolk, Va.; the first of 17 ships of her class commissioned during World War II.

## 1943

**1 January** Naval Reserve Aviation Bases (NRAB) engaged in Primary Flight Training in all parts of the country were redesignated Naval Air Stations (NAS) without change of mission. This was the end of the NRABs except for Anacostia, D.C., which was abolished on 7 July 1943, and Squantum, Mass., which became an NAS on 1 September 1943.

**1 January** Air Force, Atlantic Fleet, was established, Rear Admiral Alva D. Bernhard commanding, to provide administrative, material, and logistic services for Atlantic Fleet aviation in place of the former separate commands Fleet Air Wings, Atlantic, and Carriers, Atlantic, which were abolished. By the same order Fleet Air, Quonset, was established as a subordinate command.

**1 January** Ground Controlled Approach equipment (GCA) was called into emergency use for the first time when a snowstorm closed down the field at NAS Quonset Point, R.I., a half hour before a flight of PBYS was due to arrive. The GCA crew located the incoming aircraft on their search radar, and using the control tower as a relay station, "talked" one of them into position for a contact landing. This recovery was made only 9 days after the first successful experimental demonstration of GCA.

**5 January** The first combat use of a proximity fuzed projectile occurred when *Helena* (CL 50) off the south coast of Guadalcanal, destroyed an attacking Japanese dive bomber with the second salvo from her 5-inch guns.

**7 January** A change in the pilot training program was implemented by the opening of Flight Preparatory Schools in 20 colleges and universities in all parts of the country. Under the new program, students began their training at these schools with three months of academic work fundamental to ground school subjects, then proceeded to War Training Service courses conducted by the Civil Aeronautics Administration at universities for two months training in ground subjects and elementary flight under civilian instructors; then to

1943—Continued

the Pre-Flight Schools for three months of physical conditioning; and finally to Navy flight training beginning at one of the Primary Training Bases.

**7 January** Development of the first naval aircraft to be equipped with a turbojet engine was initiated with the issuance of a Letter of Intent to McDonnell Aircraft Corporation for engineering, development, and tooling for two VF airplanes. Two Westinghouse 19-B turbojet engines were later specified and the aircraft was designated XFD-1. It became the prototype for the FH-1 Phantom jet fighter.

**10 January** Fleet Air Wing 15 headquarters was transferred from Norfolk, Va., to Port Lyautey, French Morocco, to direct patrol plane operations in the Mediterranean and Gibraltar Strait area.

**12 January** The Chief of Naval Air Operational Training directed that aircraft operating from stations under his command be marked for identification purposes with letters and numerals in three groups separated by a dash. The first group provided a letter identification of the station, the second a letter identifying the unit type and the third the number of the aircraft in the unit. The order also provided that when more than one unit was on board a station, a number be added to the station letter. Thus J2-F-22 identified the aircraft as from Jacksonville, Fla., OTU #2 Fighter Training Unit, plane number 22.

**14 January** *Independence*, Captain George R. Fairlamb, Jr., commanding, was placed in commission at Philadelphia, Pa.; the first of nine light carriers of her class constructed on Cleveland Class cruiser hulls.

**15 January** Captain Spencer "Seth" H. Warner, Head of the Flight Statistics Desk of the Bureau of Aeronautics, introduced Grampaw Pettibone, in the *BuAer News Letter*. Pettibone, a cartoon character drawn by Lieutenant Robert Osborn, was produced as a safety feature in the hope of cutting down on pilot-error accidents. Gramps went on to become famous through the postwar decades as Osborn, after leaving the Navy, continued to contribute his character to *Naval Aviation News* magazine.

**17 January** Following tests conducted at NAS San Diego, Calif., by six experienced pilots flying F4U-1s, the commanding officer of VF-12, Commander Joseph C. Clifton, reported that anti-blackout suits raised their tolerance to accelerations encountered in gunnery run and other maneuvers by three to four Gs.

**1 February** Bombing Squadron, VB-127, was established at NAS Deland, Fla., with Lieutenant Commander William K. Gentner in command. The squadron was equipped with PV-1 Venturas and, although not the first land plane patrol squadron in the Navy, was the first to have the VB designation.

**1 February** A new specification prescribing color and marking of naval aircraft became effective. A basic camouflage color scheme was provided for use on fleet aircraft which consisted of semigloss sea blue on surfaces viewed from above and non-specular insignia white on surfaces viewed from below. The terminology "basic non-camouflage" and "maximum visibility" were introduced for the color schemes described in April 1942, and used on intermediate and primary trainers.

**1 February** Regulations governing display of National Insignia on aircraft were again revised by the order to remove those on the upper right and lower left wing surfaces.

**11 February** A contract was issued to the Ryan Aeronautical Corporation for the XFR-1 fighter. This aircraft incorporated a conventional reciprocating engine for use in normal operations and the turbojet for use as a booster during takeoffs and maximum performance flights. Development and production were handled on a crash basis to equip escort carrier squadrons at the earliest possible date. However, numerous bugs were encountered which prevented the FR-1's assignment to combat.

**11 February** The Vought F4U Corsair was flown on a combat mission for the first time when 12 planes of VMF-124 based on Guadalcanal escorted a PB2Y Dumbo to Vella Lavella to pick up downed pilots. The flight was uneventful. Its first combat action came two days later when pilots from the same squadron ran into air opposition while escorting PB4Ys of VP-51 on a daylight strike against enemy shipping in the Kahili area of Bougainville.

**13 February** The Naval Air Transport Service was reorganized and the establishment of Wings was directed for the Atlantic and west coast squadrons.

**15 February** Commander-in-Chief, U.S. Fleet assigned responsibility for sea-going development of helicopters and their operation in convoys to the Coast Guard and directed that tests be carried out to determine if helicopters operating from merchant ships would be of value in combating submarines.

1943—Continued



*The landing signal officer bringing in a F4U 41221*

**16 February** Fleet Air Wing 16, Captain R. D. Lyon commanding, was established at Norfolk, Va.

**17 February** Lighter-than-air operations over the Caribbean were initiated from Edinburgh Field, Trinidad, by the K-17 of Airship Patrol Squadron 51.

**19 February** A Letter of Intent was issued to Vega Airplane Company for two XP2V-1 patrol planes, thereby initiating development of the P2V Neptune series of land-based patrol aircraft.

**21 February–1 November** Advance up the Solomons Chain—In a series of amphibious operations, directly and indirectly supported by Marine Corps, Navy and Army units of Aircraft, South Pacific, and Aircraft, Solomons, Central Pacific Forces moved from Guadalcanal up the Solomon Islands towards the Japanese naval base at Rabaul. Begin-

ning with the unopposed landing in the Russells (21 Feb), these forces leapfrogged through the islands establishing bases and airfields as they went. Moving into Segi of the New Georgia Group (21 Jun), through Rendova, Onavisi, Wickham Anchorage, Kiriwini and Woodlark (30 Jun), Viru (2 Jul), Zanana (2 Jul), Rice Anchorage (5 Jul), Vella Lavella (15 Aug), Arundel (27 Aug), and Treasury Islands (27 Oct), they reached Bougainville where landings on Cape Torokina were additionally supported by carrier air strikes (1, 2 Nov) on the Buka-Bonis airfields.

**24 February** The Naval Photographic Science Laboratory was established at NAS Anacostia, D.C., under the direction of the Bureau of Aeronautics to provide photographic services to the Navy and to develop equipment and techniques suitable for fleet use.



1943—Continued

**1 March** Air Transport Squadrons, West Coast, was established at NAAS Oakland, Calif., with control over all NATS squadrons west of the Mississippi except those on the mainland to Honolulu, Hawaii, run.

**1 March** A revision of the squadron designation system changed Inshore Patrol Squadrons to Scouting Squadrons (VS), Escort Fighting Squadrons (VGF) to Fighting Squadrons (VF), Escort Scouting Squadrons (VGS) to Composite Squadrons (VC) and Patrol Squadrons (VP) operating land type aircraft to Bombing Squadrons (VB). This revision also redesignated carrier Scouting Squadrons (VS) as VB and VC and as a result the types of squadrons on *Essex* Class carriers was reduced to three. In spite of this change, the aircraft complement of their Air Groups remained at its previous level of 21 VF, 36 VSB and 18 VTB.

**1 March** Fleet Airship Group 2, Captain Walter E. Zimmerman commanding, was established at NAS Richmond, Fla., and placed in charge of lighter-than-air operations in the Gulf Sea Frontier.

**4 March** Changes to the characteristics of *Essex* Class carriers were authorized by the Secretary of the Navy, including installation of a Combat Information Center (CIC) and Fighter Director Station, additional anti-aircraft batteries, and a second flight deck catapult in lieu of one athwartships on the hangar deck.

**5 March** *Bogue*, with VC-9 on board, joined Task Group 24.4 at Argentia, Newfoundland, and began the escort of convoys to mid-ocean and return. Although *Santee* had previously operated on hunter-killer duty, *Bogue* was the center of the first of the hunter-killer groups assigned to convoy escort.

**15 March** Fleet Air Wing 4 headquarters moved westward on the Aleutian chain from Kodiak to Adak, Alaska.

**20 March** Forty-two Navy and Marine Corps Avengers, on a night flight from Henderson Field, mined Kahili Harbor, Bougainville. A coordinated attack on Kahili airfield by AAF heavy bombers contributed to the success of this, the first aerial mining mission in the South Pacific.

**23 March** The Training Task Force Command was established with headquarters at NAS Clinton, Okla., to form, outfit and train special units for the operational employment of assault drone aircraft.



*Rocket weapons, being installed on a plane 468849*

**29 March** Tests of forward firing rockets projectiles from naval aircraft were completed at the Naval Proving Ground, Dahlgren, Va., using an SB2A-4 aircraft.

**29 March** Air Transport Squadrons, Atlantic, was commissioned at Norfolk, Va., to supervise and direct operations of NATS squadrons based on the Atlantic seaboard.

**1 April** Aircraft Antisubmarine Development Detachment, Commander Aurelius B. Vosseller in command, was established at NAS Quonset Point, R.I., under Air Force, Atlantic Fleet, to develop tactical training programs and techniques that would make full use of newly developed countermeasures equipment.

**1 April** The first Navy night fighter squadron, VF(N)-75, was established at Quonset Point, R.I., Commander William J. Widhelm, commanding.

**4 April** The Naval Aircraft Factory reported that, in tests of an automatic flying device for use on towed gliders, the LNT-1 had been towed automatically without assistance from the safety pilot.

**14 April** Fleet Air Wing 16 transferred from Norfolk, Va., to Natal, Brazil, to direct patrol plane antisubmarine operations under the Fourth Fleet in the South Atlantic.

1943—Continued

**21 April** Captain Frederick M. Trapnell made a flight in the Bell XP-59A jet Airacomet at Muroc, Calif.—the first jet flight by a U.S. Naval Aviator.

**3 May** Air Transport Squadron 1 (VR-1), based at Norfolk, Va., extended the area of its operations with a flight to Prestwick, Scotland, via Reykjavik, Iceland. This was the first R5D operation in the Naval Air Transport Service.

**4 May** The first regular patrols began from Amchitka, Aleutian Islands, extending the search coverage by Fleet Air Wing 4 beyond Attu toward the Kurile Islands.

**4 May** To expedite the evaluation of the helicopter in antisubmarine operations, the Commander-in-Chief, U.S. Fleet directed that a “joint board” be formed with representatives of the Commander-in-Chief, U.S. Fleet; the Bureau of Aeronautics; the Coast Guard; the British Admiralty and the Royal Air Forces. The resulting Combined Board for the Evaluation of the Ship-Based Helicopter in Antisubmarine Warfare was later expanded to include representatives of the Army Air Forces, the War Shipping Administration and the National Advisory Committee for Aeronautics.

**7 May** Navy representatives witnessed landing trials of the XR-4 helicopter aboard the merchant tanker *Bunker Hill* in a demonstration sponsored by the Maritime Commission and conducted in Long Island Sound. The pilot, Colonel R. F. Gregory, AAF, made about 15 flights, and in some of these flights he landed on the water before returning to the platform on the deck of the ship.

**11–30 May** Occupation of Attu—Air support for the landing of Army troops (11 May) and for their operations ashore was provided by Navy and Marine units on the escort carrier *Nassau* (11–20 May), and by the Navy and Army units of North Pacific Force (11–20 May). This was the first use of CVE based aircraft in air support in the Pacific and the debut of a Support Air Commander afloat. His team consisted of three officers and a radioman and his post was a card table aboard *Pennsylvania* (BB 38). Colonel W. O. Eareckson, USA, an experienced Aleutian pilot, was in command of the unit.

**15 May** The Naval Airship Training Command was established at Lakehurst, N.J., to administer and direct lighter-than-air training programs at the Naval Air Centers, Lakehurst and Moffett Field, Calif., and to direct the Experimental and Flight Test Department at Lakehurst.

**18 May** The program for the use of gliders as transports for Marine Corps combat troops was canceled, thereby returning the Navy’s glider development to an experimental basis.

**22 May** Grumman Avengers of VC-9, based on *Bogue*, attacked and sank the German submarine U-569 in the middle north Atlantic scoring the first sinking of the war by escort carriers on hunter-killer patrol.

**24 May** Special Project Unit Cast was organized at NAS Squantum, Mass., to provide, under Bureau of Aeronautics direction, the services required to flight test the electronics equipment being developed at the Radiation and Radio Research Laboratories.

**7 June** The establishment of NAF Attu, within 1 week of its capture from the Japanese, brought Fleet Air Wing 4 bases to the tip of the Aleutian chain, nearly 1,000 miles from the Alaskan mainland and 750 miles from Japanese territory in the Kuriles.

**7 June** Commander-in-Chief, U.S. Fleet established a project for airborne test, by Commander, Fleet Air, West Coast, of high velocity, “forward shooting” rockets. These rockets, which had nearly double the velocity of those tested earlier at Dahlgren, Va., had been developed by a rocket section, led by Dr. C. C. Lauritsen, at the California Institute of Technology under National Defense Research Committee auspices and with Navy support. This test project, which was established in part on the basis of reports of effectiveness in service of a similar British rocket, completed its first airborne firing from a TBF of a British rocket on 14 July and of the CalTech round on 20 August. The results of these tests were so favorable that operational squadrons in both the Atlantic and Pacific Fleets were equipped with forward firing rockets before the end of the year.

**10 June** Lieutenant Commander Frank A. Erickson, USCG, proposed that helicopters be developed for antisubmarine warfare, “not as a killer craft but as the eyes and ears of the convoy escorts.” To this end he recommended that helicopters be equipped with radar and dunking sonar.

**15 June** President Franklin D. Roosevelt approved a ceiling of 31,447 useful planes for the Navy.

**28 June** A change in the design of the National Star Insignia added white rectangles on the left and right sides of the blue circular field to form a horizontal bar, and a red border stripe around the entire design. The following September, Insignia Blue was substituted for the red.

1943—Continued

**29 June** NAS Patuxent River, Md., began functioning as an aircraft test organization with the arrival of the Flight Test unit from NAS Anacostia, D.C.

**29 June** Elements of VP-101 arrived at Brisbane from Perth, Australia, thereby extending the patrol coverage of Fleet Air Wing 10 to the east coast of Australia and marking the beginning of a northward advance of patrol operations toward the Papuan Peninsula of New Guinea.

**5 July** The first turbojet engine developed for the Navy, the Westinghouse I9A, completed its 100-hour endurance test.

**8 July** *Casablanca*, first of her class and first escort carrier designed and built as such, was placed in commission at Astoria, Oreg., Captain Steven W. Callaway commanding.

**14 July** The Secretary of the Navy issued a General Order forming the Naval Air Material Center, consisting of the separate commands of the Naval Aircraft Factory, the Naval Aircraft Modification Unit, the Naval Air Experimental Station and the Naval Auxiliary Air Station. This action, effective 20 July, consolidated in distinct activities the production, modification, experimental, and air station facilities of the former Naval Aircraft Factory organization.

**15 July** New designations for carriers were established which limited the previous broadly applied CV symbol to *Saratoga*, *Enterprise* and carriers of *Essex* Class, and added CVB (Aircraft Carriers, Large) for the 45,000 ton class being built and CVL (Aircraft Carriers, Small) for the 10,000 ton class built on light cruiser hulls. The same directive reclassified escort carriers as combatant ships and changed their symbol from ACV to CVE.

**15 July** The airship organization of the U.S. Fleet was modified. Fleet Airship Wings 30 and 31 were redesignated Fleet Airships, Atlantic, and Pacific respectively. Airship Patrol Groups became Airship Wings. Airship Patrol Squadrons became Blimp Squadrons, and the addition of two more wings and the establishment of Blimp Headquarters Squadrons in each wing was authorized.

**18 July** The airship K-74, while on night patrol off the Florida coast, attacked a surfaced U-boat and in the gun duel which followed was hit and brought down—the only airship lost to enemy action in World War II. The German submarine, U-134, was damaged

enough to force her return to base, and after surviving two other attacks on the way, was finally sunk by British bombers in the Bay of Biscay.

**19 July** The Naval Aircraft Factory was authorized to develop the Gorgon, an aerial ram or air-to-air missile powered by a turbojet engine and equipped with radio controls and a homing device. The Gorgon was later expanded into a broad program embracing turbojet, ramjet, pulsejet, and rocket power; straight wing, swept wing, and canard (tail first) air frames; and visual, television, heat-homing, and three types of radar guidance for use as air-to-air, air-to-surface and surface-to-surface guided missiles and as target drones.

**22 July** Since there had been no operational need for arresting gear and related equipment for landing over the bow of aircraft carriers, the Vice Chief of Naval Operations approved its removal.

**23 July** Patrol Squadron 63, the first U.S. Navy squadron to operate from Great Britain in World War II, arrived at Pembroke Dock, England, to assist in the antisubmarine patrol over the Bay of Biscay.

**2 August** Fleet Airship Wings 4 and 5, Captain Walter E. Zimmerman and Commander John D. Reppy commanding, were established at Maceio, Brazil, and Edinburgh Field, Trinidad, for antisubmarine and convoy patrols in the South Atlantic and southern approaches to the Caribbean.

**4 August** The Chief of Naval Air Intermediate Training directed that Aviation Safety Boards be established at each training center under his command.

**5 August** COMINCH directed the use of Fleet Air Wing commanders in subordinate commands of Sea Frontiers and suggested their assignment as Deputy Chiefs of Staff for Air.

**15 August** The arrival of Aircraft Experimental and Development Squadron (later Tactical Test) from NAS Anacostia, D.C., to NAS Patuxent River, Md., completed the transfer of aircraft test activities.

**15 August** The landing of U.S. Army and Canadian troops on Kiska, Aleutian Islands, by a Naval Task Force made the first use in the Pacific of Air Liaison Parties (ALP) with forces ashore. Although the enemy had deserted the island, the landing provided opportunity to prove that the principle of the ALP was sound and that rapid and reliable voice communications between front line commanders and the Support Air Control Unit afloat were possible.

1943—Continued



*K-class airship on escort duty in Atlantic protects a convoy of merchantmen against German submarines 428465*

**18 August** To give Naval Aviation authority commensurate with its World War II responsibility, the Secretary of the Navy established the Office of the Deputy Chief of Naval Operations (Air), charging it with responsibility for “the preparation, readiness and logistic support of the naval aeronautic operating forces.” By other orders issued the same day, five divisions were transferred from the Bureau of Aeronautics to form the nucleus of the new office and Vice Admiral John S. McCain took command as the first DCNO (Air).

**21 August** Headquarters, Fleet Air Wing 7 was established at Plymouth, England, to direct patrol plane operations against submarines in the Bay of Biscay, the English Channel and the southwest approaches to England.

**29 August** The formation of combat units for the employment of assault drone aircraft began within the Training Task Force Command as the first of three Special Task Air Groups was established. The component squadrons, designated VK, began establishing on 23 October.



*VAdm. John S. McCain, USN 236837*

1943—Continued



*Essex and Independence class carriers, the fast carrier task forces were built around ships of these types 301754*

**30 August** Second Strike on Marcus—Task Force 15 (Rear Admiral Charles A. Pownall), built around *Essex*, the new *Yorktown* and *Independence* launched nine strike groups in a day-long attack on Japanese installations on Marcus Island, the first strikes by *Essex* and *Independence* Class carriers, and the first combat use of the Grumman F6F Hellcat.

**1 September** Two light carriers of Task Group 11.2 (Rear Admiral Arthur W. Radford) and Navy patrol bombers from Canton Island furnished day and night air cover for naval units landing occupation forces on Baker Island, east of the Gilberts.

**15 September** Fleet Air Wing 17, Commodore Thomas S. Combs commanding, was established at



*Grumman F6F Hellcat laden with rockets and droppable fuel tank taking off from Hancock 259064*

1943—Continued

Brisbane, Australia, for operations in the Southwest Pacific area.

**15 September** French Patrol Squadron 1 (VFP-1), manned by “Fighting French” naval personnel trained under U.S. Navy control, was established at NAS Norfolk, Va.

**18 September** A three-carrier task force (Rear Admiral Charles A. Pownall), attacked Tarawa, Makin, and Abemama Atolls in the Gilbert Islands.

**18 September** Training was assigned as a primary mission to Fleet Air Wing 5 at Norfolk, Va., and Fleet Air Wing 9 assumed responsibility for all patrol plane operations in the Eastern Sea Frontier.

**27 September** The beginning of airship operations in the South Atlantic was marked by the arrival of the K-84, of Blimp Squadron 41, at Fortaleza, Brazil.

**30 September** An advance detachment of Bombing Squadron 107, equipped with PB4Y Liberators, arrived

at Ascension Island to join AAF units on antisubmarine barriers and sweeps across the narrows of the South Atlantic.

**1 October** Air Force, Atlantic Fleet, was reorganized and Fleet Air, Norfolk, and Fleet Airships, Atlantic, were established as additional subordinate commands.

**1 October** The authorized complement of fighters in *Essex* Class carrier air groups was raised, increasing the total aircraft normally on board to 36 VF, 36 VB and 18 VT. The authorized complement for CVL groups was established at the same time as 12 VF, 9 VB and 9 VT and revised in November 1943 to 24 VF and 9 VT and remained at that level through the war.

**4 October** In conjunction with her duties in protecting North Atlantic convoy routes to Russia, *Ranger* launched two strikes against German shipping in Norway—one in and around Bodo Harbor; the other along the coast from Alter Fjord to Kunna Head.

**5 October** Coast Guard Patrol Squadron 6 was established at Argentia, Newfoundland, Commander



*PB4Y-1 Liberator, a long-range patrol plane 65159*

1943—Continued

D. B. MacDiarmid, USCG, commanding, to take over the rescue duties being performed by naval aircraft in Greenland and Labrador.

**5–6 October** Second Wake Raid—Task Force 14 (Rear Admiral Alfred E. Montgomery), composed of six new carriers, seven cruisers, and 24 destroyers, making it the largest carrier task force yet assembled, bombed and bombarded Japanese installations on Wake Island. In the course of the two-day strike, ship handling techniques for a multicarrier force, devised by Rear Admiral Frederick C. Sherman's staff on the basis of experience in the South Pacific, were tested under combat conditions. Lessons learned from operating the carriers as a single group of six, as two groups of three, and as three groups of two, provided the basis for many tactics which later characterized carrier task force operations.

**6 October** The Naval Airship Training Command at Lakehurst, N.J., was redesignated the Naval Airship Training and Experimental Command.

**12 October** The Bureau of Ordnance established a production program for 3,000 Pelican guided missiles at a delivery rate of 300 a month.

**16 October** The Navy accepted its first helicopter, a Sikorsky YR-4B (HNS-1), at Bridgeport, Connecticut, following a 60 minute acceptance test flight by Lieutenant Commander Frank A. Erickson, USCG.



*Coastguardsmen test capability of Navy's first helicopter, HNS-1, for air-sea rescue at NAS New York 1061902*

**31 October** Lieutenant Hugh D. O'Neil of VF(N)-75, operating from Munda, New Georgia, destroyed a Betty during a night attack off Vella Lavella, the first kill by a radar-equipped night fighter of the Pacific Fleet. Major Thomas E. Hicks and Technical Sergeant Gleason from VMF(N)-531 provided ground-based fighter direction.

**1 November** A detachment of Bombing Squadron 145, equipped with Venturas, began operations from Fernando Noronha Island, extending the area of Fleet Air Wing 16 antisubmarine patrols over the South Atlantic toward Ascension Island.

**1 November** First Rabaul Strike—A two-carrier task force (Rear Admiral Frederick C. Sherman) delivered an air attack on the naval base at Rabaul damaging several warships of the Japanese Second Fleet.

**8 November** The Chief of Naval Operations directed that Aviation Safety Boards, similar to those in the Intermediate Training Command, be established in the Primary and Operational Training Commands.

**8 November** The Naval Ordnance Test Station, Inyokern, California, was established for research, development and testing weapons and to provide primary training in their use. It initially supported the California Institute of Technology which, through the Office of Scientific Research and Development, was undertaking the development and testing of rockets, propellants and launchers.

**11 November** Second Rabaul Strike—Three heavy and two light carriers organized in two carrier task forces (Rear Admirals Frederick C. Sherman and Alfred E. Montgomery), hit Japanese naval shipping at Rabaul sinking one destroyer and damaging ships, including two cruisers. In this attack SB2C Curtiss Helldivers were used in combat for the first time.

**13–19 November** Army and Navy aircraft of Task Force 57 (Rear Admiral John H. Hoover), based on islands of the Ellice, Phoenix, and Samoan Groups and on Baker Island, conducted long-range night bombing attacks on Japanese bases in the Gilbert and Marshall Islands as a preliminary to the invasion of the Gilberts.

**18–26 November** Occupation of the Gilbert Islands—Six heavy and five light carriers of Task Force 50 (Rear Admiral Charles A. Pownall) opened the campaign to capture the Gilberts with a two-day air attack on airfields and defensive installations in the islands (18–19 Nov), covered the landings of Marines and

1943—  
Continued

*Flight deck crew preparing to release SB2C from arresting gear and clear the deck for approaching aircraft*  
469432



Army troops on Tarawa and Makin Atolls (20 Nov) and on Abemama (21 Nov), and supported their operations ashore (21–24 Nov). Eight escort carriers, operating with the Attack Forces, covered the approach of assault shipping (10–18 Nov), flew antisubmarine and combat air patrols in the area, and close support missions on call (19–24 Nov). After the islands were secure (24 Nov), one carrier group remained in the area for another week as a protective measure. The first unit of the garrison air force, VF-1, took off from escort carriers *Barnes* and *Nassau* (25 Nov) and landed on Tarawa airstrip. One escort carrier, *Liscome Bay* was lost (24 Nov) to submarine attack, and the light carrier *Independence* was damaged (20 Nov) by air

attack. The first attempts at night interception from carriers were made during the campaign by a team of two Hellcats and one radar-equipped Avenger operating from *Enterprise* and led by the Air Group Commander, Lieutenant Commander Edward H. (Butch) O'Hare. In operation the fighters flew wing on the Avenger and after being vectored to the vicinity of the enemy aircraft by the ship's fighter director relied on the Avenger's radar to get within visual range. On the first occasion (24 Nov) no intercepts were made but on the second (26 Nov) the enemy was engaged in the first aerial battle of its type which so disrupted the attack that the flight was credited with saving the task group from damage.



*O'Hare, Ace and night fighter 1061488*



1943—Continued

**27 November** The first of the Martin Mars flying boats was delivered to VR-8 at NAS Patuxent River, Md.

**30 November** On her first operational assignment, the Martin Mars, in the hands of Lieutenant Commander W. E. Coney and crew of 16, took off from Patuxent River, Md., carrying 13,000 pounds of cargo that was delivered at Natal, Brazil, in a nonstop flight of 4,375 miles and of 28 hours 25 minutes duration.

**30 November** A department of Aviation Medicine and Physiological Research was authorized at the Naval Air Material Center, to study physiological factors particularly as related to design of high speed and high altitude aircraft.

**1 December** Aircraft, Central Pacific, Rear Admiral John H. Hoover commanding, was established under Commander, Central Pacific, for operational control of defense forces and shore-based air forces in the area.

**1 December** The Naval Air Ferry Command was established as a Wing of the Naval Air Transport Service. It assumed the functions previously performed

by Aircraft Delivery Units in ferrying new aircraft from contractor plants and modification centers to embarkation points for ultimate delivery to the fleet.

**4 December** At the close of the Gilberts Campaign, two groups of Task Force 50 (Rear Admiral Charles A. Pownall), composed of four heavy and two light carriers and screening ships, bombed airfields and shipping at Wotje and Kwajalein Atolls in the Marshall Islands.

**8 December** A striking force of two carriers, six battleships, and 12 destroyers bombed and bombarded enemy installations on Nauru, to the west of the Gilberts.

**15 December** Observation Fighter Squadron 1 (VOF-1), first of three of its type brought into existence during World War II, was established at Atlantic City, N.J., with Lieutenant Commander William F. Bringle in command.

**17 December** Commander, Aircraft, Solomons, joined in the air campaign to reduce the Japanese Naval Base at Rabaul with a fighter sweep of Navy, Marine Corps, and New Zealand planes led by Marine ace Major Gregory Boyington. Intensive follow-up attacks through February 1944 assisted in the establish-



*Marine's top ace, Pappy Boyington, reads an order to pilots of his fighter squadron in the South Pacific 1061487*

1943—Continued

ment of encircling allied bases. Rabaul remained under air attack until the war's end, the last strike being delivered by Marine Corps PBJs on 9 August 1945.

**18 December** On the basis of his belief that tests indicated the practicability of ship-based helicopters, the Chief of Naval Operations separated the pilot training from test and development functions in the helicopter program. He directed that, effective 1 January 1944, a helicopter pilot training program be conducted by the U.S. Coast Guard at Floyd Bennett Field, N.Y., under the direction of the Deputy Chief of Naval Operations (Air).

**20 December** The Naval Air Training Command was established at Pensacola, Fla., to coordinate and direct, under the Chief of Naval Operations, all Naval Aviation training in the activities of the Primary, Intermediate, and Operational Training Commands.

**20 December** Two Catalinas of Patrol Squadron 43, at Attu, flew the first Navy photo reconnaissance and bombing mission over the Kuriles.

**20 December** Commander Frank A. Erickson, USCG, reported that Coast Guard Air Station, Floyd Bennett Field, N.Y., had experimented with a helicopter used as an airborne ambulance. An HNS-1 helicopter made flights carrying, in addition to its normal crew of a pilot and a mechanic, a weight of 200 pounds in a stretcher suspended approximately 4 feet beneath the float landing gear. In further demonstrations early the following year, the stretcher was attached to the side of the fuselage and landings were made at the steps of the dispensary.

**25 December** Aircraft from a two-carrier task group (Rear Admiral Frederick C. Sherman) attacked shipping at Kavieng, New Ireland, as a covering operation for landings by the Marines in the Borgen Bay area of New Britain on the following day.

**31 December** Fleet Air Wing 17 departed Australia and set up headquarters at Samarai on the tip of the Papuan Peninsula of New Guinea.

## 1944

**3 January** Helicopter Mercy Mission—Commander Frank A. Erickson, USCG, flying an HNS-1 helicopter, made an emergency delivery of 40 units of blood plasma from lower Manhattan Island, N.Y., to Sandy Hook,

N.J., where the plasma was administered to survivors of an explosion on the destroyer *Turner* (DD 648). In this, the first helicopter lifesaving operation, Commander Erickson took off from Floyd Bennett Field, N.Y., flew to Battery Park on Manhattan Island to pick up the plasma and then to Sandy Hook. The flight was made through snow squalls and sleet which grounded all other types of aircraft.

**11 January** The first U.S. attack with forward-firing rockets was made against a German U-boat by two TBF-1Cs of Composite Squadron 58 from the escort carrier *Block Island*.

**16 January** Lieutenant (jg) S. R. Graham, USCG, while en route from New York, N.Y., to Liverpool, England, in the British freighter *Daghestan* made a 30 minute flight in an R-4B (HNS-1) from the ship's 60 by 80-foot flight deck. Weather during the mid-winter crossing of the North Atlantic permitted only two additional flights and, as a result, the sponsoring Combined Board for Evaluation of the Ship-based Helicopter in antisubmarine warfare concluded that the helicopter's capability should be developed in coastal waters until models with improved performance became available.

**18 January** Catalinas of VP-63, based at Port Lyautey, Morocco, began barrier patrols of the Strait of Gibraltar and its approaches with Magnetic Airborne Detection (MAD) gear and effectively closed the strait to enemy U-boats during daylight hours until the end of the war.

**29 January–22 February** Occupation of the Marshall Islands—Six heavy and six light carriers, in four groups of Task Force 58 (Rear Admiral Marc A. Mitscher), opened the campaign to capture the Marshalls (29 Jan) with heavy air attacks on Maloelap, Kwajalein, and Wotje. On the first day the defending enemy air forces were eliminated and complete control of the air was maintained by carrier aircraft during the entire operation. Eight escort carriers, attached to the Attack Forces of the Joint Expeditionary Force, arrived in the area early the morning of D-day. Aircraft from the carriers flew cover and antisubmarine patrols for attack shipping and assisted two fast carrier groups, providing air support for landings on Kwajalein and Majuro Atolls (31 Jan), Roi and Namur (1 Feb), and for operations ashore. The AGC command ship, used for the first time during this campaign, provided greatly improved physical facilities for the Support Air Commander. Here, the Support Air Commander first assumed control of Target Combat Air Patrol, previously vested in carrier units, and a

1944—Continued

Force Fighter Director on his staff coordinated fighter direction. Two fast carrier groups to the west kept Eniwetok Atoll neutralized until the initial objectives were achieved. Their early achievement permitted the second phase of the campaign, Seizure of Eniwetok, earlier than the planned date of 10 May. The landings (17 Feb) and the ground action were



*Adm. Marc Mitscher*

supported by aircraft from one fast carrier group and one escort carrier group. Covering operations were provided by the First Strike on Truk (17-18 Feb), carried out by the Truk Striking Force (Vice Admiral R. A. Spruance), built around three fast carrier groups. In a two-day attack, the carriers launched 1,250 combat sorties against this key naval base and exploded the myth of its impregnability with 400 tons of bombs and torpedoes, sinking 37 war and merchant ships aggregating 200,000 tons and doing heavy damage to base installations. In this action the first night bombing attack in the history of U.S. carrier aviation was carried out by VT-10 from *Enterprise* with 12 radar equipped TBF-1Cs. The attack, delivered at low level, scored several direct hits on ships in the harbor. In a brief enemy air attack on the same night, *Intrepid* was hit by an aerial torpedo. For the campaign, night fighter detachments of VF(N)-76 and VF(N)-101 (assigned F6F-3s and F4U-2s equipped with AIA radar) were assigned to five carriers and, while not widely used, were on occasion vectored against enemy night raiders.

**30 January** To effect the neutralization of Wake Island during the Marshalls operation, two squadrons of Coronados from Midway Island made the first of four night bombing attacks. Repetitions of the 2,000-mile round trip mission were completed on 4, 8, and 9 February.

**2 February** The last of the World War II ceilings for Navy aircraft, calling for an increase to 37,735 useful planes, was approved by the president.



*Invasion of the Marshalls. Japanese airstrip at Engebi burning after attack by U.S. carrier based planes 221248*

1944—Continued



*Loading torpedoes on SB2C for strike on ships 1053796*

**3 February** Flight Safety Bulletin No. 1 was issued jointly by the Deputy Chief of Naval Operations (Air) and the Chief of the Bureau of Aeronautics, announcing their intention to issue consecutively numbered bulletins concerning the safe operation of naval aircraft.

**4 February** In a test of refueling operations with *Altamaha* off San Diego, Calif., the K-29 of Blimp Squadron 31 made the first carrier landing by a non-rigid airship.

**4 February** The first photo reconnaissance of Truk was made by two PB4Ys of VMD-254 on a 12-hour night flight from the Solomon Islands. Cloud cover prevented complete coverage but the information acquired was useful in planning the carrier strike which hit later in the month.

**15 February** A new command, Forward Area, Central Pacific (Rear Admiral John H. Hoover), was established to control the operations of shorebased air forces and naval forces assigned to the Ellice, Gilbert, and Marshall Islands.

**20 February** On completion of the strike on Truk, a small unit composed of *Enterprise*, one cruiser, and

six destroyers (Rear Admiral John W. Reeves) separated from the main force and launched two air strikes on Jaluit.

**23 February** Two carrier groups of Task Force 58 (Rear Admiral Marc A. Mitscher), after successfully fending off a series of determined enemy air attacks during the night, hit targets on Saipan, Tinian, Rota, and Guam for the dual purpose of reducing enemy air strength in the Marianas and to gather photo intelligence for the impending invasion. The combined efforts of pilots and antiaircraft gunners accounted for 67 enemy aircraft shot down and 101 destroyed on the ground.

**24 February** The first detection of a submerged enemy submarine by the use of MAD gear was made by Catalinas of VP-63, on a MAD barrier patrol of the approaches to the Strait of Gibraltar. They attacked the U-761 with retro-rockets, and with the assistance of two ships and aircraft from two other squadrons, sank it.

**4 March** A reduction in flight training was visualized as the total outputs for 1944, 1945, and 1946 were fixed at 20,500, 15,000 and 10,000 pilots respectively.

1944—Continued

**6 March** A new specification for color of naval aircraft went into effect. The basic camouflage scheme, used with fleet aircraft, was modified slightly to provide for use of non-specular sea blue on upper fuselage surfaces; airfoil surfaces visible from above remained semigloss sea blue and other surfaces visible from below, semigloss insignia white. A new basic non-camouflage color scheme, all aluminum, was specified for general use on aircraft not in the combat theater. The maximum visibility color scheme used on primary trainers became glossy orange yellow overall.

**15 March** The twin-engined North American Mitchell, PBJ, was taken into combat for the first time in its naval career in an attack on Rabaul by pilots of Marine Bombing Squadron 413.

**18 March** Task Group 50.10 (Rear Admiral Willis A. Lee), composed of *Lexington*, two battleships, and a destroyer screen, bombed and bombarded bypassed Mili in the Marshalls.

**20 March** Two escort carriers provided cover and airspot for the battleship and destroyer bombardment of Kavieng and nearby airfields in a covering action for the occupation of Emirau.

**22 March** A new specification for color of fighter aircraft went into effect. It directed that fighters be painted glossy sea blue on all exposed surfaces.

**26 March** Corsairs of VMF-113 from Engebi flew the first fighter escort for AAF B-25s on the 360 mile bombing mission against Ponape, and were so effective in destroying enemy interceptors that later missions over the island were unmolested.

**27 March** *Saratoga* (Captain John H. Cassady) and three destroyers, assigned to temporary duty with the Royal Navy, joined the British Eastern Fleet in the Indian Ocean approximately 1,000 miles south of Ceylon.

**30 March–1 April** Strikes on the Western Carolines—In an operation designed to eliminate opposition to the landings at Hollandia and to gather photo intelligence for future campaigns, a strong Fifth Fleet force, built around Task Force 58 (Vice Admiral Marc A. Mitscher) with 11 carriers, launched a series of attacks on Palau, Yap, Ulithi, and Woleai, and shipping in the area. Aerial mining of Palau Harbor by Torpedo Squadrons 2, 8, and 16, was the first such mission by carrier aircraft and the first large scale daylight mining operation of the Pacific war. The attacks accounted for

157 enemy aircraft destroyed, 28 ships of 108,000 tons sunk, and denial of the harbor to the enemy for an estimated 6 weeks.

**15 April** Air-Sea Rescue Squadrons (VH) were formed in the Pacific Fleet to provide rescue and emergency services as necessary in the forward areas. Prior to this time the rescue function was performed as an additional duty by regularly operating patrol squadrons.

**16 April** Carrier Transport Squadron, Pacific, was established for administrative and operational control over escort carriers assigned to deliver aircraft, spare parts, and aviation personnel in direct support of Pacific Fleet Operations.

**18 April** In preparation for the campaign to occupy the Marianas, photo-equipped Liberators of VD-3 obtained complete coverage of Saipan, Tinian, and Aguijan Islands. For the 13-hour flight from Eniwetok and return, B-24s of the AAF flew escort for the photo planes and bombed the islands in a diversionary action. This was the first mission by shore-based aircraft over the Marianas.

**19 April** *Saratoga*, operating with the British Eastern Fleet, participated in the carrier strike on enemy installations at Sabang in the Netherlands East Indies.

**21–24 April** Landings at Hollandia—Task Force 58 (Vice Admiral Marc A. Mitscher) supported the landings of Southwest Pacific Forces in the Hollandia-Aitape section of the north New Guinea coast. The force of five heavy and seven light carriers organized in three groups, launched preliminary strikes on airfields around Hollandia and at Wakde and Sawar (21 April), covered the landings (22 April) at Aitape, Tanahmerah Bay, and Humboldt Bay, and supported troop movements ashore (23–24 April). Eight escort carriers of Task Force 78 (Rear Admiral Ralph E. Davison) flew cover and antisubmarine patrols over ships of the Attack Group during the approach and provided support for the amphibious assault at Aitape. Carrier aircraft accounted for the destruction of 30 enemy aircraft in the air and 103 on the ground.

**23 April** VR-3 operated the first regularly scheduled NATS transcontinental hospital flight between Washington, D.C., and March Field, Calif.

**26 April** Headquarters of Fleet Air Wing 4 was established on Attu, western most island of the Aleutians.

1944—Continued

**29 April–1 May** Second Carrier Strike on Truk—Task Force 58 (Vice Admiral Marc A. Mitscher), returning to Majuro from the Hollandia operation, launched a 2-day attack on enemy installations and supply dumps at Truk. In addition to damage ashore, three small ships were sunk and 145 enemy aircraft destroyed. Task Group 58.1 (Rear Admiral Joseph J. Clark), detached from the main force on the second day, flew protective cover for a cruiser bombardment of Satawan, and on 1 May supported bombardment of Ponape with air cover and bombing and strafing attacks.

**1 May** The command Aircraft, Central Pacific, was dissolved and its functions assumed by Commander, Marshalls Sub-Area.

**4 May** A board headed by Rear Admiral Arthur W. Radford and known by his name, submitted a report that had a direct effect on aviation planning during the latter part of the war and, with modifications to fit the needs of peacetime, extended its influence long after the war. The Integrated Aeronautic Program for Maintenance, Material and Supply, which evolved from its recommendations, was essentially a plan involving the assignment of new planes to combat units; return of aircraft to the United States for reconditioning and reassignment after specified combat tours; the retirement of second tour aircraft before maintenance became costly; and the support of the aeronautical organization through the use of factors and allowances for pools, pipelines, and reconditioning kept realistic by frequent appraisal.

**8 May** The seaplane tender *Kenneth Whiting*, first of four ships of the class, was commissioned at Tacoma, Wash., Commander Raymond R. Lyons in command.

**8 May** Commander, Naval Forces, Northwest African Waters, approved the assignment of nine Naval Aviators from Cruiser Scouting Squadron 8 (VCS-8) to the 111th Tactical Reconnaissance Squadron (TRS) of the 12th Army Air Force for flight training and combat operations in North American P-51C Mustangs. Previous combat experience with Curtiss SOC Seagulls and Vought OS2U Kingfishers being used in air spotting and reconnaissance missions proved both types were vulnerable to enemy fighters and antiaircraft fire. The higher performance of fighters such as the P-51 was expected to result in a reduction of casualties on these missions. A total of 11 Naval Aviators participated in combat operations from the cockpits of P-51s while assigned to the 111th TRS in support of the cam-

paign in Italy and the invasion of southern France. On 2 September 1944 all Naval Aviators assigned to the 111th returned to their ships, ending a four month long association between the 111th TRS and VCS-8.

**13 May** To distinguish between fixed and rotary wing heavier-than-air craft, the helicopter class designation VH plus a mission letter (i.e. VHO for observation and VHN for training) was abolished and helicopters were established as a separate type designated H. The previous mission letters thus became classes designated O, N, and R for observation, training and transport respectively.

**13 May** To meet the needs of the fleet for aviation personnel trained in the use of electronics countermeasures equipment, the Chief of Naval Operations directed that on 1 June, or as soon thereafter as practicable, the Chief of Naval Air Technical Training establish a school to be known as Special Projects School for Air, located initially at NAAS San Clemente Island, Calif.

**15 May** The first of 16 special transatlantic flights was made by NATS aircraft to the United Kingdom to deliver 165,000 pounds of minesweeping gear essential to the safety of assault shipping during the Normandy invasion. The delivery was successfully completed 23 May.

**17 May** The Bureau of Aeronautics authorized CGAS Floyd Bennett Field, N.Y., to collaborate with the Sperry Gyroscope Company in making an automatic pilot installation in a HNS-1 helicopter.



*An OS2U Kingfisher is taxied onto the plane net for an underway recovery by a cruiser 299540*

1944—Continued

**17 May** *Saratoga* participated in the carrier air strike of the British Eastern Fleet on the Japanese base at Soerabaja, Java.

**19–20 May** Third Raid on Marcus—Planes from a three-carrier task force (Rear Admiral Alfred E. Montgomery) hit Marcus with a predawn fighter sweep and strafed and bombed the island for two consecutive days.

**23 May** Third Wake Raid—Carrier Task Group 58.6 (Rear Admiral Alfred E. Montgomery) shifted from Marcus to hit Wake with five composite bombing, strafing and rocket strikes.

**29 May** The only U.S. carrier lost in the Atlantic, *Block Island*, was torpedoed and sunk by a German U-boat while engaged in hunter-killer operations in the Azores area.

**31 May** Commander, Training Task Force was directed to establish on 1 June, within his command at NAS Traverse City, Mich., a detachment to be known as Special Weapons Test and Tactical Evaluation Unit to conduct such tests of special weapons and other air-borne equipment as were assigned.

**1 June** Airships of ZP-14, assigned to antisubmarine operations around Gibraltar, completed the first crossing of the Atlantic by non-rigid airships. The flight began 29 May from South Weymouth, Mass., and ended at Port Lyautey, French Morocco, covering a distance of 3,145 nautical miles in 58 hours. Including time for stop overs at Argentia, Newfoundland, and the Azores, the airships moved their area of operations across the Atlantic in 80 hours.

**1 June** Air Transport Squadron 9 (VR-9) was formed at Patuxent River, Md., and VR-12 at Honolulu, Hawaii, to function as headquarters and maintenance squadrons for their respective commands, NATS Atlantic and NATS Pacific.

*Airships of ZP-14 from South Weymouth arrive Port Lyautey, Morocco, for ASW patrols over Gibraltar*  
232195



1944—Continued

**4 June** Off Cape Blanco, Africa, a hunter-killer group (Captain Daniel V. Gallery), composed of the escort carrier *Guadalcanal*, with VC-8 aboard, and five destroyer escorts, carried out a determined attack on the German submarine U-505, forcing it to surface. Boats from the destroyer escort *Pillsbury* (DD 133) and the carrier reached the submarine before scuttling charges could accomplish their purpose and the U.S. Navy found itself with a prize of war.

**5 June** The Deputy Chief of Naval Operations (Air) reported that Aviation Safety Boards, established in one large command, had in one-quarter of operation reduced the fatal accident rate by 47 percent. He directed the establishment of similar boards in other commands outside of advanced combat areas and the appointment of a flight safety officer in each squadron.

**6 June** Allied Invasion of Normandy—Seventeen Naval Aviators taken from aviation units on battleships and cruisers were assigned to bombardment duty as part of VCS-7. They operated with units of the British Fleet Air Arm and Royal Air Force, flying gunfire spotting missions in RAF Spitfires over the Normandy beaches from D-Day until 26 June.

**11 June–10 August** Occupation of the Marianas—Task Force 58 (Vice Admiral Marc A. Mitscher), built around seven heavy and eight light carriers, opened the campaign to occupy the Marianas Islands with a

late afternoon fighter sweep (11 Jun) that destroyed one-third of the defending air force. In bombing and strafing attacks on shore installations and on shipping in the immediate area on succeeding days, this force prepared the way for the amphibious assault of Saipan (15 Jun), supported operations ashore with daily offensive missions, kept the area isolated with attacks on airfields and shipping in the Bonin and Volcano Islands to the north (15–16, 24 Jun, 3–4 Jul, 4–5 Aug), and successfully defended the operation against an attack by major fleet forces in the Battle of the Philippine Sea (19–20 Jun). On the first day (19 Jun) TF 58 repelled a day-long air attack from carriers and shore bases, destroying 402 enemy planes, and the next day (20 Jun) launched an air attack late in the afternoon on the retreating Japanese Fleet, sinking the carrier *Hiyo* and two fleet oilers.

Air cover for assault and close air support for operations ashore was provided by aircraft from an initial force of 11 escort carriers attached to Attack Forces. A Navy seaplane squadron VP-16, moved into the area (16 Jun) and began operations from the open sea. Garrison aircraft were ferried in by escort carriers to operate from captured airfields. First to arrive were Marine observation planes of VMO-4 (17 Jun), AAF P-47's (22 Jun), and Marine Corps Night Fighter Squadron 532 (12 Jul). After organized resistance ended on Saipan (9 Jul), troops landed on Guam (21 Jul) and on Tinian (24 Jul).

As the campaign neared successful completion, three groups of Task Force 58 left the area temporarily for strikes on the Western Carolines (25–28 Jul). Palau, Yap, Ulithi and other islands were taken under attack



*A Japanese plane shot down during an attack on the escort carrier Kitkun Bay, Marianas Campaign 238363*



1944—Continued

while photographic planes obtained intelligence of enemy defenses. This done, the groups steamed north for the fourth side of the campaign on the Bonins and Volcanoes. By the time Guam was secure (10 Aug), carrier aircraft had accounted for 110,000 tons of enemy shipping sunk and 1,223 aircraft destroyed. In this campaign, groups of the fast carrier force retired in turn to advanced fleet bases for brief periods of rest and replenishment, thus initiating a practice that became standard operating procedure during all future extended periods of action.

**12 June** In the first deployment of a guided missile unit into a combat theater, elements of Special Task Air Group 1 arrived in the Russell Islands in the South Pacific.

**24 June** The Chief of Naval Operations promulgated plans which provided for a drastic reduction in the pilot training program. This required the transfer of some students already in Pre-Flight, and prior stages of training and the retention of enough to maintain a course in Pre-Flight schools expanded to 25 weeks. The program of “deselection” and voluntary withdrawal of surplus students was instituted by the Chief of Naval Air Training early in the next month. The resulting reductions were directly responsible for the discontinuance of the War Training Service Program in August, closing the Flight Preparatory Schools in September and the release of training stations which began in September.

**26 June** Seaplane tender *Currituck*, first of four ships of her class, was commissioned at Philadelphia, Pa., Captain William A. Evans commanding.

**29 June** The Parachute Experimental Division was established at Lakehurst, N.J., for research, development, and testing of parachutes and survival gear.

**29 June** Carrier Air Groups were standardized for all commands under the following designations: CVBG, large carrier air group; CVG, medium carrier air group; CVLG, light carrier air group; CVEG, escort carrier air group (*Sangamon* class); and VC, escort carrier air group (*Long Island*, *Charger*, *Bogue*, and *Casablanca* class).

**30 June** The Naval Aircraft Modification Unit of the Naval Air Material Center, Philadelphia, Pa., was relocated at Johnsville, Pa., where facilities for intensified efforts in guided missile development and quantity modification of service airplanes were available.

**6 July** A Special Air Unit was formed under Commander, Air Force, Atlantic Fleet (COMAIRLANT), with Commander James A. Smith, Officer-in-Charge, for transfer without delay to Commander, Fleet Air Wing 7 in Europe. This unit was to attack German V-1 and V-2 launching sites with PB4Y-1s converted to assault drones.

**6 July** The Bureau of Aeronautics authorized Douglas to proceed with the design and manufacture of 15 XBT2D airplanes. The single-seat divebomber and torpedoplane thus initiated, was designed jointly by BuAer and Douglas engineers. Through subsequent development and model redesignation, these aircraft became the prototypes for the AD Skyraider series of attack planes.

**14 July** To achieve economy of effort and unity of purpose by coordinating all safety functions through a central organization, a Flight Safety Council was established by the joint action of the Deputy Chief of Naval Operations (Air) and the Chief of the Bureau of Aeronautics, to plan, coordinate, and execute flight safety programs.

**14 July** PB4Y Liberators of VB-109, based at Saipan, made the first strike on Iwo Jima by shore-based planes.

**27 July** Fleet Air Wing 17 headquarters moved to Manus in the Admiralty Islands.

**29 July** In the first successful test of the Pelican guided missile, conducted 44 miles offshore from NAS New York, N.Y., two of the four launched against the target ship *James Longstreet* were hits.

**29 July** A detachment of Liberators of Bombing Squadron 114 from Port Lyautey, Morocco, was established under British command at Lajes Airfield in the Azores Islands for antisubmarine operations.

**31 July** The Accelerated Field Service Test Unit at Patuxent River, Md., was redesignated Service Test and established as a separate department.

**5 August** The Fast Carrier Task Force was reorganized into First and Second Fast Carrier Task Forces, Pacific, commanded respectively by Vice Admiral Marc A. Mitscher and Vice Admiral John S. McCain.

**7 August** Carrier Division 11 was established at Pearl Harbor, Hawaii, Rear Admiral Matthias B. Gardner commanding. This division, composed of carriers *Saratoga* and *Ranger*, was the first in the U.S. Navy specifically established for night operations.

1944—Continued

**10 August** Naval Air Bases commands were established within each Naval District, the Training Command, and for Marine Corps Bases, and were charged with the military direction and administrative coordination of matters affecting the development and operational readiness of aviation facilities in their respective areas.

**10 August** The operating aircraft complement of Carrier Air Groups was revised to 54 VF, 24 VB and 18 VT with the provision that four night fighters and two photo planes be included among the 54 VF.

**11 August** An electric powered rescue hoist was installed on an HNS-1 helicopter at CGAS Floyd Bennett Field, N.Y. During the ensuing four day test period, in which flights were conducted over Jamaica Bay, the feasibility of rescuing personnel from the water and of transferring personnel and equipment to and from underway boats was demonstrated. Six weeks later, a hydraulic hoist, which overcame basic disadvantages of the electric hoist, was installed and successfully tested, leading to its adoption for service use.

**11 August** Dr. M. F. Bates of the Sperry Gyroscope Company submitted a brief report of the trial installation and flight test of a helicopter automatic pilot (cyclic pitch control) in an HNS-1 at CGAS Floyd Bennett Field, N.Y.

**15-29 August** Landings in Southern France—Two United States and seven British escort carriers of the Naval Attack Force (Rear Admiral T. H. Troubridge, RN) supplied defensive fighter cover over the shipping area, spotted for naval gunfire, flew close support missions, made destructive attacks on enemy concentrations and lines of communication and otherwise assisted Allied troops landing between Toulon and Cannes, France, and advancing up the Rhone Valley.

**20-23 August** The nonrigid airship K-111, under command of Lieutenant Commander Frederick N. Klein, operating in conjunction with the Escort Carrier *Makassar Strait* off San Diego, Calif., demonstrated the feasibility of refueling and replenishing airships from aircraft carriers. In this operation of 72.5 hours duration, the airship's crew was relieved every 12 hours and its engines were operated continuously. In one evolution, the airship remained on deck for 32 minutes.

**24 August** The first night carrier air group, CVLG(N)-43, was established at Charlestown, R.I. Its component squadrons VF(N)-43 and VT(N)-43, the lat-

ter the first of the night torpedo squadrons, were established the same day.

**24 August** Fleet Air Wing 10 moved forward from Perth, Australia, to Los Negros in the Admiralty Islands, to support the advance of Southwest Pacific Forces on the Philippines.

**31 August-30 September** Occupation of Palau and Morotai—Simultaneous landings by Central and Southwest Pacific Forces were preceded by wide-flung operations of four carrier groups of Task Force 38 (Vice Admiral Marc A. Mitscher), which committed only part of its strength in direct support and operated principally in covering action. TG 38.4 (Rear Admiral Ralph E. Davison) opened the campaign with attacks on the Bonin and Volcano Islands (31 Aug-2 Sep). The entire Fast Carrier Force hit the Palau area (6-8 Sep), leaving TG 38.4 to maintain the neutralization of Palau, and moved against the Philippines with fighter sweeps over Mindanao airfields (9-10 Sep) and strikes in the Visayas (12-14 Sep). Here TG 38.1 (Vice Admiral John S. McCain) separated to hit Mindanao (14 Sep) and to support landing on Morotai by Southwest Pacific Forces (15 Sep). The landings were preceded by bombing and strafing attacks and were supported (15-16 Sep) by TG 38.1 aircraft and additionally by six escort carriers of TG 77.1 (Rear Admiral Thomas L. Sprague). Landings on Peleliu by Central Pacific Forces (15 Sep) were preceded by preliminary carrier air attacks (12-14 Sep) from TG 38.4 and from four CVEs of Carrier Unit One (Rear Admiral William D. Sample). Continued support was given by the same fast carrier group (15-18 Sep) and until the end of the month by a total of 10 escort carriers operating in TG 32.7 (Rear Admiral Ralph A. Ofstie). Carrier air support was also provided for landings on Agaur (17 Sep), Ulithi (23 Sep), and the shore-to-shore movement from Peleliu to Ngesebus (28 Sep) support for the latter including strikes by Marine Corps land-based units from Peleliu, the first of which, VMF(N)-541, had arrived 24 September. Following the action at Morotai, TG 38.1 rejoined the main body of Fast Carriers which then launched strikes on airfields and shipping around Manila (21-22 Sep) and hit airfields, military installations, and shipping in the central Philippines (24 Sep) before retiring. In this month of action, carrier planes destroyed 893 enemy aircraft and sank 67 war and merchant ships totalling 224,000 tons.

Enemy weakness in the central Philippines, uncovered by carrier air action, changed plans for reentry into the Philippines, shifting the assault point from southern Mindanao to Leyte and advancing the assault date from mid-November to 20 October.

1944—Continued



*Fire spreads from napalm dropped by Marine fighter flying air support during Peleliu invasion USMC 97976*

**1 September** Project Bumblebee (as it was later known) came into being as the Bureau of Ordnance reported that a group of scientists from Section T of the Office of Scientific Research and Development were investigating the practicability of developing a jet-propelled, guided, anti-aircraft weapon. Upon completion of the preliminary investigation, a developmental program was approved in December by the Chief of Naval Operations. In order to concentrate upon the guided missile phase of the anti-aircraft problem, the OSRD and Applied Physics Laboratory of Johns Hopkins University, completed withdrawal, also in December, from the proximity fuze program which thus came completely under the Bureau of Ordnance.

**3 September** Lieutenant Ralph Spaulding of Special Air Unit, Fleet Air Wing 7, flew a torpex-laden drone Liberator from an airfield at Feresfield, England, set radio control and parachuted to ground. Ensign James M. Simpson, controlling the Liberator's flight from a PV, sought to hit submarine pens on Helgoland Island; however, he lost view of the plane in a rain shower during the final alignment and relying only upon the drone's television picture of the terrain hit the barracks and industrial area of an airfield on nearby Dune Island.

**3 September** Fourth Wake Raid—A strike group of one carrier, with cruisers and destroyers, hit enemy positions on Wake.

**6 September** A contract was awarded to McDonnell Aircraft Corporation for development of the Gargoyle, or LBD-1, a radio controlled low-wing gliding bomb fitted with a rocket booster and designed for launching from carrier-based dive-bombers and torpedo planes against enemy ships.

**6 September** As the scope of the aviation safety program was enlarged, a Flight Safety Section was established in the Office of the Deputy Chief of Naval Operations (Air), and was assigned the direction and supervision of the aviation safety program.

**9 September** Fleet Air Wing 17 moved forward to the Schouten Islands to direct patrol plane operations supporting the occupation of Morotai by Southwest Pacific Forces.

**11 September** Commander, Fleet Air Wing 1, based on *Hamlin*, transferred from Espiritu Santo in the South Pacific to Guam to direct the operations of patrol squadrons in the Central Pacific.

**18 September** The Pelican guided missile production program was terminated and the project returned to a developmental status. Despite reasonable success during the preceding six weeks, this decision was made because of tactical, logistic and technical problems involved in its use.

1944—Continued

**27 September** Guided missiles were used in the Pacific, as Special Task Air Group 1, from its base on Stirling in the Treasury Islands, began a combat demonstration of the TDR assault drone. The drones had been delivered to the Russell Islands by surface shipping and flown 45 miles to bases in the Northern Solomons where they were stripped for pilotless flight and armed with bombs of up to 2,000 pounds. For combat against heavily defended targets, a control operator in an accompanying TBM guided the drone by radio and directed the final assault by means of a picture received from a television camera mounted in the drone. In the initial attack, against anti-aircraft emplacements in a beached merchant ship defending Kahili airstrip on South Bougainville, two out of four TDRs struck the target ship.

**1 October** Patrol Squadrons (VP) and multi-engine bombing squadrons (VB) were renamed and redesignated patrol bombing squadrons (VPB).

**7 October** A new Bureau of Aeronautics color specification went into effect which provided seven different color schemes for aircraft depending upon design and use. The most basic change was the use of glossy sea blue all over on carrier based aircraft and on seaplane transports, trainers and utility aircraft. The basic non-specular camouflage color scheme, semigloss blue above and nonspecular white below, was to be applied to patrol and patrol bombing types and to helicopters. For antisubmarine warfare, two special camouflage schemes—gray on top and sides and white on bottom, or white all over—were prescribed with the selection dependent upon prevailing weather conditions (this had been used by COMNAVAIRLANT since 19 July 1943). All aluminum was to be used on landplane transports and trainers and landplane and amphibian utility aircraft. Orange-yellow was to be used upon target-towing aircraft and primary trainers. Another new scheme, glossy red, was specified for target drones.

**7 October** Provision was made for the optional use by tactical commanders of special identification markings on combat aircraft, such markings preferably to be applied with temporary paint.

**10 October–30 November** Occupation of Leyte—The opening blow of the campaign was struck (10 Oct) by Task Force 38 (Vice Admiral Marc A. Mitscher) against airfields on Okinawa and the Ryukyus. This force, built around 17 carriers hit airfields on northern Luzon (11 and 14 Oct), on Formosa (12–14 Oct), and

in the Manila area (15 Oct), destroying 438 enemy aircraft in the air and 366 on the ground in 5 strike days. These and other strikes concentrated on reinforcement staging areas and effectively cleared the air for the landing (20 Oct) of Southwest Pacific Army troops on Leyte. Fast carrier support of the ground campaign was supplemented (18–23 Oct) by the action of 18 CVEs organized in three elements under TG 77.4 (Rear Admiral Thomas L. Sprague).

A major disruptive effort by the Japanese Fleet was opposed by the Fast Carrier Force of the Third Fleet (Vice Admiral William F. Halsey) and by surface and air elements of the Seventh Fleet (Vice Admiral Thomas C. Kinkaid) in three related actions of The Battle for Leyte Gulf (23–26 Oct). As the Japanese Fleet, in three elements identified as Southern, Central, and Northern Forces, converged on Leyte Gulf from as many directions, Fast Carrier Force aircraft (24 Oct) hit the Southern Force in the Sulu Sea, attacked the Central Force in the Sibuyan Sea, sinking the 63,000 ton battleship *Musashi* and a destroyer, and was itself under air attack resulting in the loss of *Princeton*. Seventh Fleet surface elements turned back the Southern Force in a brief intensive action before daylight in the Battle of Surigao Strait (25 Oct), sinking two battleships and three destroyers. The Japanese Central Force made a night passage through San Bernardino Strait and at daylight took under fire six escort carriers and screen of TG 77.4, and was opposed by a combined air and ship action in the Battle Off Samar (25 Oct), in which *Gambier Bay*, two destroyers, and one destroyer escort were sunk by enemy gunfire and three Japanese heavy cruisers were sunk by carrier air. At the same time the Fast Carrier Force met the Northern Force in the Battle Off Cape Engano, sinking the heavy carrier *Zuikaku* and light



Attack on Japanese cruiser, Battle for Leyte Gulf 47012

1944—Continued

carriers *Chiyoda*, *Zuiho*, and *Chitose*, the latter with the assistance of cruiser gunfire. Off Leyte, Kamikaze pilots, in the first planned suicide attacks of the war, hit the escort carriers, sinking *St. Lo* and damaging *Sangamon*, *Suwannee* (AO 33), *Santee*, *White Plains*, *Kalinin Bay*, and *Kitkun Bay*. As remnants of the Japanese Fleet limped homeward through the Central Philippines, (26–27 Oct) carrier aircraft sank a light cruiser and four destroyers, to bring Japanese battle losses to 26 major combatant ships totaling over 300,000 tons.

Direct air support in the Leyte-Samar area was assumed by Allied Air based at Tacloban (27 Oct) and 2 days later the escort carriers retired. Later one group operated at sea to protect convoys from the Admiralties



*Kamikaze barely misses the carrier Sangamon 700580*



*Navy Ace, David McCampbell 258198*

against air and submarine attack (19–28 Nov) and another group performed the same services (14–23 Nov) for convoys from Ulithi. The Fast Carrier Force also continued support for 2 days attacking airfields on Luzon and in the Visayas (27–28 Oct), shipping near Cebu (28 Oct), and Luzon airfields and shipping in Manila Bay (29 Oct). In supporting operations during October, carrier aircraft destroyed 1,046 enemy aircraft.

Requirements for continued carrier air support for the campaign caused cancellation of a planned Fast

1944—Continued

Carrier Strike on Tokyo, and Task Force 38 (now under Vice Admiral John S. McCain) sortied from Ulithi to hit Luzon and Mindoro airfields and strike shipping in Manila Bay (5–6 Nov), sinking a heavy cruiser and other ships; hit a reinforcement convoy of four transports and five destroyers in Ormoc Bay (11 Nov) sinking all but one destroyer; shifted to Luzon and the Manila area (13–14 Nov) and sank a light cruiser, four destroyers, and 20 merchant and auxiliary ships; hit the same areas again (19 and 25 Nov), sinking another heavy cruiser and several auxiliaries; and wound up the month's operations with an aerial score of 770 enemy aircraft destroyed. During these actions, the force was under several Kamikaze attacks which damaged the carriers *Intrepid* (29 Oct), *Franklin* and *Belleau Wood* (30 Oct), *Lexington* (5 Nov), *Essex*, *Intrepid*, and *Cabot* (25 Nov)—two seriously enough to require Navy Yard repairs.

**14 October** The Amphibious Forces Training Command, Pacific, was directed to form mobile Air Support Training Units to train Carrier Air Groups and Marine Corps squadrons in the technique of close air support operations.

**17 October** Commander, Fleet Air Wing 10, on *Currituck*, arrived in Philippine waters and directed

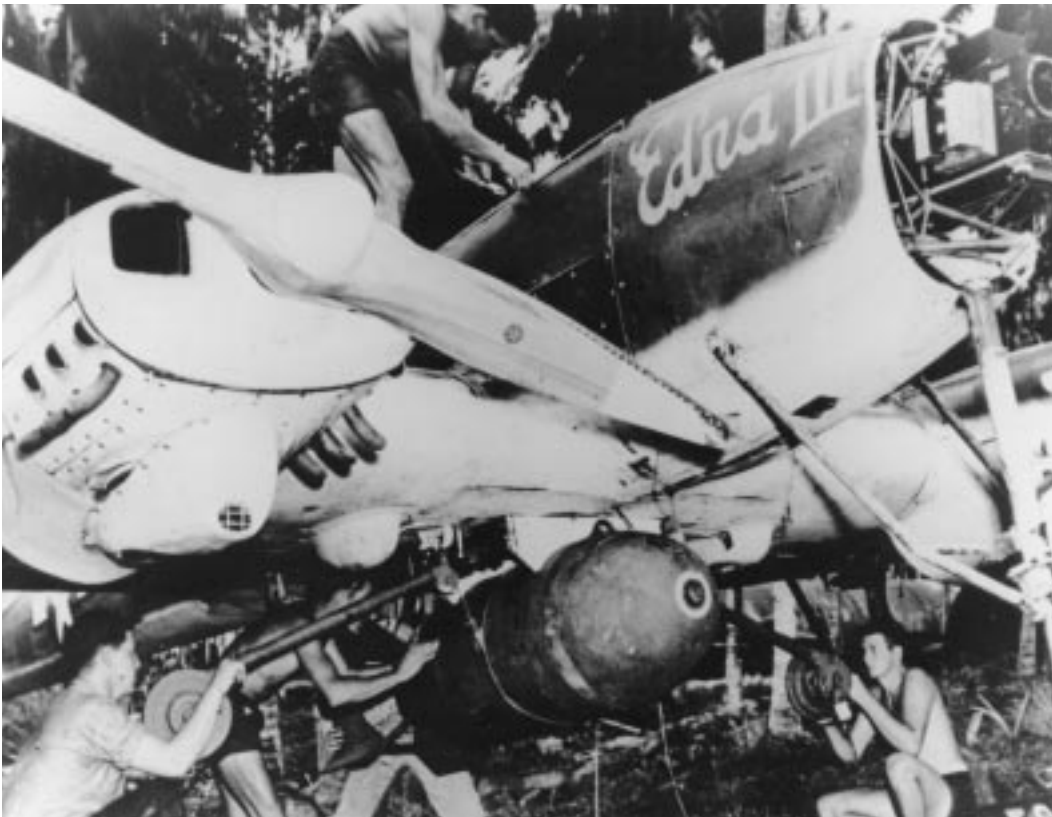
patrol plane operations in support of the occupation of Leyte.

**19 October** Commander, Fleet Air Wing 17 moved to Morotai, N.E.I., to support Southwest Pacific operations against the Philippines.

**21 October** A new command, Marine Carrier Air Groups, was established under Aircraft, Fleet Marine Force, Pacific to direct the formation and training of Marine Corps squadrons destined to operate from air support escort carriers. Current plans called for the formation of six Marine Carrier Air Groups, each composed of a fighter and a torpedo squadron, four of them to be assigned to escort carriers and two to function as replacement and training groups.

**25 October** In recognition of the difference in functions performed, Carrier Aircraft Service Units and Patrol Aircraft Service Units, operating at advanced bases, were redesignated Combat Aircraft Service Units (Forward), short title CASU(F), while those in the continental United States and Hawaii retained the original title.

**26 October** The last attack in a month long demonstration of the TDR assault drone was made by Special Task Air Group, thereby concluding the first use of the guided missile in the Pacific. During the demonstration a total of 46 drones were expended, of which 29



*TDR-1, assault drone, being prepared for attack 1053775*

1944—Continued

reached the target areas: two attacked a lighthouse on Cape St. George, New Ireland, making one hit which demolished the structure; nine attacked anti-aircraft emplacements on beached ships achieving six direct hits and two near misses; and 18 attacked other targets in the Shortlands and Rabaul areas making 11 hits.

**6 November** Recognition of the future importance of turbojet and turboprop powerplants led the Bureau of Aeronautics to request the Naval Air Material Center to study requirements for a laboratory to develop and test gas-turbine powerplants. This initiated action which led to the establishment of the Naval Air Turbine Test Station, Trenton, N.J.

**17 November** The Bureau of Aeronautics reported that technical studies were underway to determine the feasibility of launching an adaptation of the JB-2, a U.S. Army version of the German V-1 Buzz Bomb, from escort carriers for attacks on enemy surface vessels and shore targets. Modifications visualized included installation of radio controls and a radar beacon. As subsequently developed, this became the Loon.

**23 November** Training Task Force Command was dissolved and its facilities, personnel and equipment reallocated.

**27 November** *Commencement Bay*, first of her class built from the last U.S. escort carrier design, was commissioned at Tacoma, Wash., Captain Roscoe L. Bowman commanding.

**29 November** The changing character of the war was reflected in a revision of the aircraft complement of *Essex* Class Carrier Air Groups to 73 VF, 15 VB and 15 VT. The fighter complement was to be filled by two squadrons of 36 planes each plus one for the Air Group Commander and to include four VF(N), two VF(P) and two VF(E). The change to the new figures was gradual, beginning with the assignment of Marine fighter squadrons in December and continued with the establishment of VBF squadrons the following month.

**30 November** Fleet Air Wing 10 headquarters became shore based on Jinamoc Island in the Philippines.

**1 December** Electronics Tactical Training Unit was established at NAS Willow Grove, Pa., to train personnel of the Airborne Coordinating Group as instructors in the operation of all newer types of airborne elec-

tronics apparatus including search, navigation, identification, and ordnance radar.

**7 December** *Chourre* was commissioned as the first aviation repair ship of the U.S. Navy, Captain Andrew H. Bergeson commanding.

**11 December** The steady decline in U-boat activity in the Caribbean during the year permitted a reduction of blimp operations over the southern approaches, and Fleet Airship Wing 5 at Trinidad was disestablished.

**12 December** Three Evacuation Squadrons (VE) were established in the Pacific from Air Sea Rescue Squadron elements already providing evacuation services.

**13 December** Escort Carrier Force, Pacific (Rear Admiral Calvin T. Durgin), was established for administrative control over all escort carriers operating in the Pacific, excepting those assigned to training and transport duty.

**14–16 December** Support of the Landings on Mindoro—Six escort carriers of Task Unit 77.12.1 (Rear Admiral Felix B. Stump) and Marine Corps shore-based air flew cover for the passage of transport and assault shipping through the Visayas (12–14 Dec). The escort carriers provided direct support for landings by Army troops (15 Dec) and in the assault area (16–17 Dec). On the night of D-day Navy seaplanes joined with operations from Mangarin Bay. The covering support of Task Force 38 (Vice Admiral John S. McCain), with seven heavy and six light carriers, began with fighter sweeps over Luzon airfields (14 Dec) and continued with successive combat air patrols relieved on station, which spread an aerial blanket over Luzon (14–16 Dec) and effectively pinned down all enemy aircraft on the island and accounted for a major share of the 341 enemy aircraft destroyed in the brief campaign.

**18 December** Third Fleet units, refueling east of the Philippines, were overtaken by an unusually severe typhoon which formed nearby. Three destroyers capsized in the high seas and several ships were damaged, including four light carriers of Task Force 38 and four escort carriers of the replenishment group.

**28 December** Marine Corps Fighter Squadrons 124 and 213, the first to operate from fast carriers in combat, reported for their first tour of carrier duty aboard *Essex* in Ulithi.

**30 December** The specification on aircraft color was amended to provide that patrol and patrol bombing

1944—Continued

landplanes received a color scheme that was in general similar to that prescribed for carrier based airplanes. Specifically, the patrol and patrol bombers were to be painted semigloss sea blue on top and bottom surfaces of wings and on all horizontal tail surfaces; other tail surfaces and the fuselage were to be non-specular sea blue.

## 1945

**1 January** Carrier Training Squadron, Pacific, composed of two carrier divisions, was established in the Pacific Fleet to provide operational control over carriers employed in training Carrier Air Groups out of Pearl Harbor and San Diego.

**2 January** Eighteen Fighter Bomber Squadrons (VBF) were established within existing Carrier Air Groups to adjust their composition to the needs of changed combat requirements in the Pacific.

**2 January** Headquarters, Fleet Air Wing 17, based on *Tangier*, directed patrol plane support of the Lingayen Gulf operations from San Pedro Bay.

**3–22 January** Invasion of Luzon—Southwest Pacific Force operations against Luzon were directly supported by Seventh Fleet escort carriers in Task Group 77.4 (Rear Admiral Calvin T. Durgin) and indirectly by the fast carriers in Task Force 38 (Vice Admiral John S. McCain) of Third Fleet and Central Pacific Forces. Task Group 77.4, with 17 escort carriers, covered the approach of the Luzon Attack Force against serious enemy air opposition from Kamikaze pilots which sank *Ommaney Bay* (4 Jan), and damaged several ships including escort carriers *Manila Bay* and *Savo Island* (5 Jan). It conducted preliminary strikes in the assault area (7–9 Jan), covered the landings in Lingayen Gulf (9 Jan), and supported the inland advance of troops ashore (9–17 Jan). Among the ships damaged by Kamikaze pilots opposing the landings were the escort carriers *Kadashan Bay* and *Kitkun Bay* (8 Jan), and *Salamaua* (13 Jan). Task Force 38, with seven heavy and four light carriers in three groups and one heavy and one light carrier in a night group, and accompanied by a Replenishment Group with one hunter-killer and seven escort carriers, concentrated on the destruction of enemy air power and air installations in surrounding areas. In spite of almost continuous bad weather which hampered flight operations during the entire month, this force launched offensive strikes on Formosa and the Ryukyus (3–4 Jan), a two day attack on Luzon (6–7 Jan) and on

fields in the Formosa-Pescadores-Ryukyus area (9 Jan), destroying over 100 enemy aircraft and sinking 40,000 tons of merchant and small combatant ships in one week of preliminary action. During the night (9–10 Jan) Task Force 38 made a high-speed run through Luzon Strait followed by the Replenishment Group which passed through Balintang Channel, for Operations in the South China Sea (9–20 Jan). Strikes (12 Jan), over 420 miles of the Indo-China coast, reached south to Saigon and caught ships in the harbor and in coastal convoys with devastating results, sinking 12 tankers, 20 passenger and cargo vessels and numerous small combatant ships, totaling 149,000 tons. Moving northward to evade a typhoon, the force hit targets at Hong Kong, the China Coast, and Formosa (15 Jan) and next day concentrated on the Hong Kong area damaging enemy shore installations and sinking another 62,000 tons of shipping. As inclement weather persisted, the force left the South China Sea with an after dark run through Balintang Channel (20 Jan) and hit Formosa, the Pescadores, and Okinawa against enemy air opposition which damaged *Ticonderoga* and *Langley* (20 Jan) and repeated the attack in the Ryukyus the next day to finish off three weeks of action with an aerial score of over 600 enemy aircraft destroyed and 325,000 tons of enemy shipping sunk.

**11 January** The Bureau of Ordnance assigned the first task on Project Bumblebee to the Applied Physics Laboratory, thus formally establishing the program for development of a ram-jet powered, guided, anti-aircraft weapon from which the Talos, Terrier, and Tartar missiles eventually emerged.

**29–31 January** Six escort carriers of Task Group 77.4 (Rear Admiral William D. Sample) provided air cover and support for landings by Army troops at San Antonio near Subic Bay (29 Jan), on Grande Island in the same area (30 Jan) and at Nasugbu, south of the entrance to Manila Bay (31 Jan).

**6 February** The Chief of Naval Operations directed that, following a period of training at NAS Kaneohe Bay, Hawaii, VPB Squadrons 109, 123, and 124 of Fleet Air Wing 2 be equipped to employ the SWOD Mark 9 (Bat) glide bomb in combat.

**15 February** The West Coast Wing of the Naval Air Transport Service was disestablished and its squadrons reassigned to the Pacific and Atlantic Wings.

**16 February–16 March** Capture of Iwo Jima—The Marine Corps assault of 19 February was preceded and supported by two separate carrier elements of the Central Pacific Force. The first of these was Task Force



1945—Continued

58 under Vice Admiral Marc A. Mitscher, the second was Task Group 52.2 under Rear Admiral Calvin T. Durgin. On 16–17 February Mitscher moved against Japan with nine heavy and five light carriers in four groups, and two heavy carriers in a night group. Carrier aircraft hit Japanese air bases in the Tokyo plains. From 19 to 23 February, his forces supported Marine Corps landings and operations on Iwo Jima and flew neutralization strikes against the Bonins. On 25 February, he returned for a second strike on Tokyo. On 1 March he struck at Okinawa and the Ryukyus and then retired to Ulithi, leaving in his wake 648 enemy aircraft destroyed and 30,000 tons of merchant shipping sunk.

Task Group 52.2 began the campaign with nine escort carriers; it was later augmented by two more escort carriers and one night CV. On 16–18 February, Admiral Durgin carried out air strikes on Iwo Jima's shore defenses to reduce their resistance to the impending Marine Corps landing. From 19 February to 11 March he flew missions in direct support of Marine Corps ground operations and neutralized airstrips in the Bonins.

In counter attacks, the Japanese were not entirely unsuccessful. On 21 February a Kamikaze raid upon Task Group 52 sank the escort carrier *Bismarck Sea*, seriously damaged *Saratoga*, and did minor damage to *Lunga Point*. But new air defense elements in the U.S. Fleet were functional and noteworthy; they included the altitude-determining radar on LSTs and a Night Fighter Director in the Air Support Commander's organization.

Other U.S. operations deserve mention. Task Group 50.5, under Commodore Dixwell Ketcham, was based in the Marianas. The Group's shore-based aircraft conducted shipping reconnaissance and air-sea rescue between Japan and Iwo Jima. They also flew offensive screens for carrier raids and expeditionary forces. Similar operations were carried out by patrol planes of Fleet Air Wing 1 from tenders anchored in the lee of Iwo Jima (28 Feb–8 Mar). Marine Corps Observation Squadrons 4 and 5, which arrived on CVEs and on LSTs equipped with Brodie gear, began operations from Iwo Jima airfields on 27 February. Army fighters were flown in from Saipan on 6 March, and Marine Corps Torpedo Squadron 242 arrived on 8 March; they flew day and night combat air patrols and provided all air support upon the departure of the last CVEs on 11 March. Iwo Jima was secured on 16 March.

**19 February** Commander, Fleet Air Wing 1 went to sea aboard *Hamlin* to direct patrol squadrons in support of the Iwo Jima campaign and remained in the area until the island was secure.

**26 February** Headquarters, Fleet Air Wing 17 was established ashore at Clark Field on Luzon.

**3 March** The Naval Air Transport Service was reorganized and established as a Fleet Command with headquarters at NAAS Oakland, Calif., to operate under the immediate direction of COMINCH and CNO.

**3 March** The Naval Air Technical Training Command was incorporated into the Naval Air Training Command.

**7 March** Commanding Officer, CGAS Floyd Bennett Field, N.Y., reported that a dunking sonar suspended from an XHOS-1 helicopter had been tested successfully.

**7 March** The tandem rotor XHRP-X transport helicopter, built under Navy contract by P-V Engineering Forum made its first flight at the contractor's plant at Sharon Hill, Pa., with Frank N. Piasecki as pilot and George N. Towson as copilot.

**8 March** A rocket powered Gorgon air-to-air missile was launched from a PBY-5A and achieved an estimated speed of 550 mph in its first powered test flight, conducted off Cape May, N.J., under the direction of Lieutenant Commander Moulton B. Taylor.

**17 March** Responsibility for evacuating wounded personnel was assigned to the Naval Air Transport Service.

**18 March–21 June** The Okinawa Campaign—The last and, for naval forces, the most violent of the major amphibious campaigns of World War II was supported by three separately operating carrier forces, by tender-based patrol squadrons, by Marine and Army air units based in the immediate area and by Army and Navy air units based in other areas. On 28 May a change in overall command from the Fifth Fleet (Admiral R. A. Spruance) to the Third Fleet (Admiral William F. Halsey) took place, which changed all task number designations from the 50s to the 30s. (In this account, first designations are used throughout.)

The fast carriers of Task Force 58 (Vice Admiral Marc A. Mitscher) began the attack. With an original strength of 10 heavy and six light carriers, this force launched neutralization strikes on Kyushu, Japan (18–22 Mar), destroying 482 enemy aircraft by air attack and another 46 by ship's gunfire, and began pre-assault strikes on Okinawa (23 Mar). During these preliminaries, Kamikaze pilots, employing conventional aircraft, bombs, and Baka flying bombs (first observed on 21 Mar) retaliated with attacks which seri-

1945—Continued



*Marine F4U in rocket attack on Okinawa USMC 129356*

ously damaged the carrier *Franklin* and scored hits on four others. For the next three months the fast carrier force operated continuously in a 60-mile-square area northeast of Okinawa and within 350 miles of Japan, from which position it neutralized Amami Gunto airfields, furnished close air support for ground operations, intercepted enemy air raids, and on occasion moved northward to hit airfields on Kyushu.

Task Group 52.1 (Rear Admiral C. T. Durgin), originally 18 escort carriers strong, conducted pre-assault strikes and supported the occupation of Kerama Retto (25-26 Mar), joined in the pre-assault strikes on Okinawa (27-29 Mar) and, from a fairly restricted operating area southeast of the island, supported the landings and flew daily close support for operations ashore until the island was secure (21 Jun). The arrival



*A Japanese bomber, hit by anti-aircraft guns while attacking an Essex class carrier; leaves a trail of fire 313866*

1945—Continued

in May of two CVEs with Marine Carrier Air Groups on board marked the combat debut in Marine Air Support carriers.

Task Force 57 (Vice Admiral H. B. Rawlings, RN), a British task force built around four carriers equipped with armored flight decks, operated south of Okinawa (26 Mar–20 Apr and 3–25 May), from which position it neutralized airfields on Sakishima Gunto and Formosa, and intercepted air raids headed for the assault area. Subject to frequent suicide attacks, all four carriers took hits in the course of their action, but all remained operational.

Patrol squadrons of Fleet Air Wing 1, based on seaplane tenders at Kerama Retto, conducted long-range antishipping search over the East China Sea to protect assault forces from enemy surface force interference, flew antisubmarine patrols in the immediate area, and provided air-sea rescue services for carrier operations from D minus 1 day to the end of the campaign.

Army and Marine Corps troops landed on the western shores (1 Apr) against light opposition, established a firm beachhead, and captured Yontan airfield the same day. Supporting shore-based air moved in behind the landings led by the OY-1 spotting planes (3 Apr). As ground opposition stiffened, Marine Corps elements of the Tactical Air Force began local air defense patrols (7 Apr) and shortly started their close air support mission. A Navy landplane patrol squadron joined forces ashore (22 Apr) and extended the range of seaplane search operations, and an Army fighter squadron began operations from Ie Shima (13 May).

Strong Japanese air opposition developed (6 Apr) in the first of a series of mass suicide attacks involving some 400 aircraft. In seven mass raids, interspersed with smaller scattered ones, during the critical period (6 Apr–28 May), the Japanese expended some 1,500 aircraft, principally against naval forces supporting the campaign. In the three month's struggle against the humanly guided missiles of the Kamikaze force, the U.S. Navy took the heaviest punishment in its history. Although Task Force 58 lost no carriers during the campaign, one light and eight heavy carriers were hit: *Enterprise*, *Intrepid*, *Yorktown* (18 Mar), *Franklin*, *Wasp* (19 Mar), *San Jacinto* (6 Apr), *Hancock* (7 Apr) *Enterprise*, *Essex*, (11 Apr) *Intrepid* (16 Apr) *Bunker Hill* (11 May), and *Enterprise* (14 May). Three escort carriers of Task Force 52, *Wake Island* (3 Apr), *Sangamon* (4 May), and *Natoma Bay* (6 Jun), were also damaged.

Opposition from Japanese naval surface forces was brief and ineffective. A task force made up of *Yamato*, the world's largest battleship, one light cruiser, and eight destroyers, took part in what was to be the last

sortie by the Japanese Navy and was beaten decisively by carrier aircraft in the Battle of the East China Sea (7 Apr). Only four Japanese destroyers survived the encounter.

Carrier air support was on a larger and more extensive scale than any previous amphibious campaign. Fast and escort carrier planes flew over 40,000 action sorties, destroyed 2,516 enemy aircraft, and blasted enemy positions with 8,500 tons of bombs and 50,000 rockets. Marine Corps squadrons ashore destroyed another 506 Japanese aircraft and expended 1,800 tons of bombs and 15,865 rockets on close air support missions. Task Force 58's time on the line (18 Mar–10 Jun) was surpassed by the escort carriers (24 Mar–21 Jun), but of several records for continuous operations in an active combat area that were marked up by the carriers during the campaign, the most outstanding was logged by *Essex*, with 79 consecutive days.

**21 March** The development of a rocket-powered surface-to-air guided missile, was initiated as the Bureau of Aeronautics awarded a contract for 100 experimental Larks to the Ranger Engine Division of Fairchild.

**26 March** Commander, Fleet Air Wing 1, based on *Hamlin*, arrived at Kerama Retto to direct the operations of patrol squadrons assigned to support the assault and capture of Okinawa.

**14 April** Commander, Fleet Air Wing 10, arrived at Puerto Princessa, Palawan, to direct patrol plane operations against the shipping in the South China Sea and along the Indo-China coast.

**23 April** PB4Ys of Patrol Bombing Squadron 109 launched two Bat glide bombs against the enemy shipping in Balikpapan Harbor, Borneo, in the first



*Bat*, WWII automatic homing Navy missile 701606

1945—Continued

combat employment of the only automatic homing bomb to be used in World War II.

**1 May** CVBG-74, the first large Carrier Air Group in the U.S. Navy, was established at NAAF Otis Field, Mass., for duty on *Midway*.

**2 May** First Helicopter Rescue—Lieutenant August Kleisch, USCG, flying a HNS-1 helicopter rescued 11 Canadian airmen that were marooned in northern Labrador about 125 miles from Goose Bay.

**4 May** Fleet Air Wing 18, Rear Admiral Marshall R. Greer commanding, was established at Guam to take over the operational responsibilities in the Marianas area, previously held by Fleet Air Wing 1.

**8 May** V-E Day—The president proclaimed the end of the war in Europe.

**9 May** U-249, the first German submarine to surrender after the cessation of hostilities in Europe, raised the black surrender flag to a PB4Y of Fleet Air Wing 7 near the Scilly Islands off Lands End, England.

**10 May** In a crash program to counter the Japanese Baka (suicide) bomb, the Naval Aircraft Modification Unit was authorized to develop Little Joe, a ship-to-air guided missile powered with a standard JATO unit.

**19 May** The Office of Research and Inventions was established in the Office of the Secretary of the Navy to coordinate, and from time to time to disseminate to all bureaus full information with respect to all naval research, experimental, test and developmental activities and to supervise and administer all Navy Department action relating to patents, inventions, trademarks, copyrights, royalty payments, and similar matters. By this order, the Naval Research Laboratory and the Special Devices Division of the Bureau of Aeronautics were transferred to the newly established office.

**5 June** Cognizant commands and offices were informed of plans, permitted by the cessation of hostilities in Europe, for the future employment of Atlantic patrol aviation which called for the disestablishing of four Wings and 23 Patrol, five Inshore Patrol, and seven Composite Squadrons, and for the redeployment of seven Patrol Squadrons to the Pacific.

**10 June** After the close of hostilities in Europe, Fleet Air Wing 15 departed from Port Lyautey, Morocco, for Norfolk, Va.

**13 June** A ramjet engine produced power in supersonic flight in a test conducted by the Applied Physics Laboratory at Island Beach, N.J. The ramjet unit was launched by a booster of four 5-inch high velocity aircraft rockets and achieved a range of 11,000 yards, nearly double that of similarly launched, cold units.

**15 June** Fleet Airship Wing 2 at Richmond, Fla., was disestablished.

**15 June** Experimental Squadrons XV-200 and XV-25 were established at Brunswick, Maine, to provide, under the direct operational control of COMINCH, flight facilities for evaluating and testing tactics, procedure, and equipment for use in special defense tasks particularly those concerned with defense against the Kamikaze.

**16 June** Naval Air Test Center, Patuxent River, Md., was established to be responsible for aviation test functions formerly assigned to NAS Patuxent River.

**20 June** Fifth Wake Raid—Three carriers of Task Group 12.4 (Rear Admiral Ralph E. Jennings) launched five strikes against enemy positions on Wake Island.

**27 June** Fleet Air Wing 16 was disestablished at Recife, Brazil.

**30 June–3 July** Landings at Balikpapan—Marine Corps and Navy squadrons, aboard three escort carriers of Task Group 78.4 (Rear Admiral William D. Sample), provided close air support, local combat air patrol, and strikes on military installations, in support of landings by Australian troops (1 Jul) at Balikpapan, Borneo.

**10 July–15 August** Carrier operations against Japan—Task Force 38 (Vice Admiral John S. McCain), initially composed of 14 carriers and augmented by one other later in the period, operated against the Japanese homeland in a series of air strikes on airfields, war and merchant shipping, naval bases and military installations from Kyushu in the south to Hokkaido in the north. The force was a part of Third Fleet under Admiral William F. Halsey, who was in overall command. Operations were supported by a replenishment group and an antisubmarine group, both with escort carriers in their complement, and were supplemented (after 16 Jul) by operations of British Carrier Task Force 37 (Vice Admiral H. B. Rawlings, RN) composed of four carriers and a screen. The attack began with heavy air strikes on airfields in the Tokyo plains area (10 Jul), shifted to airfields and shipping in the northern Honshu-Hokkaido area (14-

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15 Jul), and returned to Tokyo targets (17 Jul) and naval shipping at Yokosuka (18 Jul). The attack hit Inland Sea shipping in the Kure area and airfields on northern Kyushu (24 Jul), swept up the Sea to the Osaka area and to Nagoya (25 Jul), and then repeated the sweep (25, 28 and 30 Jul). After moving southward (1 Aug) to evade a typhoon, the force moved northward to clear the Hiroshima area for the atomic bomb drop and hit the Honshu-Hokkaido area (9-10 Aug), and Tokyo (13 Aug). On 15 August at 0635, when

Admiral Halsey sent a message to his forces announcing the end of hostilities and ordering the cessation of offensive air operations, the first carrier strike of the day had already hit Tokyo and the second was approaching the coastline as it was recalled.

In this final carrier action of World War II, carrier aircraft destroyed 1,223 enemy aircraft of which over 1,000 were on the ground, and sank 23 war and 48 merchant ships totaling 285,000 tons.

**13 July** Captain Ralph S. Barnaby, commanding the Johnsville Naval Aircraft Modification Unit, reported



*Planes of the Third Fleet attack camouflaged carriers in assault on Japanese naval base at Kure, July 1945 490162*

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that the LBD-1, or Gargoyle, air-to-surface missile, in a series of 14 test flights including two at service weight, had made five satisfactory runs, thereby demonstrating that it was potentially capable of carrying out its mission.

**14 July** Fleet Air Wing 12 was disestablished at Key West, Fla.

**14 July** Commander, Fleet Air Wing 7, embarked on *Albemarle* at Avonmouth, England, for transfer of headquarters to the United States at Norfolk, Va.

**14 July** Commander, Fleet Air Wing 1, aboard *Norton Sound* set up his command base in Chimu Wan, Okinawa, and directed patrol plane operations over the East China Sea, the Yellow Sea, and the coastal waters of Japan from that location until the end of the war.

**15 July** Fleet Airship Wing 4 at Recife, Brazil, was disestablished.

**18 July** Sixth Wake Raid—*Wasp* returned to action after battle repairs and overhaul at Puget Sound, Wash., launched air strikes against targets on Wake.

**19 July** Fleet Air Wing 9 was disestablished at NAS New York, N.Y.

**20 July** Little Joe, a rocket-propelled surface-to-air missile, made two successful flights at Applied Physics Laboratory (Johns Hopkins University) test station at Island Beach, N.J.

**20 July** Fleet Airborne Electronics Training Units (FAETU) were established in the Atlantic and Pacific Fleets to train airborne early warning crews in the theory, operation and maintenance of their equipment.

**24 July** Marine Corps pilots, operating from the escort carrier *Vella Gulf*, attacked Japanese positions on Pagan Island in the Marianas, and two days later hit Rota in the same island group.

**28 July** Fleet Air Wing 15 was disestablished at Norfolk, Va.

**1 August** Seventh Wake Raid—Task Group 12.3, composed of one carrier, one battleship and destroyer screen, bombed and bombarded Wake.

**4 August** Fleet Air Wing 7 was disestablished at Norfolk, Va.

**6 August** Eighth Wake Raid—*Intrepid*, while en route from Pearl Harbor, Hawaii, to join forces off Japan, bombed buildings and gun positions on Wake Island.

**6 August** Escort carriers from TG 95.3 (Rear Admiral Calvin T. Durgin), covering a cruiser force operating in the East China Sea, launched strikes on shipping in the harbor at Tinghai, China.

**9 August** Naval Aviator Commander Frederick L. Ashworth, USN, participated in the delivery of the second atomic bomb. The weapon was released by a B-29 over Nagasaki, Japan. Ashworth had supervised and coordinated the field tests of the atomic bomb.

**14 August** Japan accepted the terms of unconditional surrender and on the same day, which was the 15th in the Western Pacific, hostilities ceased.

**21 August** The Asiatic Wing, Naval Air Transport Service, was established at NAS Oakland, Calif., Captain Carl F. Luethi in command, to operate and maintain air transport support of establishments and units in the Western Pacific and Asiatic theaters. Early in September, Wing headquarters was established on Samar in the Philippines, and on 15 November transferred to NAB Agana, Guam.

**2 September** The formal surrender of Japan, on board *Missouri* (BB 63) in Tokyo Bay, marked V-J Day and the end of World War II.

**10 September** *Midway*, first of the 45,000 ton class aircraft carriers, was placed in commission at Newport News, Va., with Captain Joseph F. Bolger in command.

**3 October** As the initial attempt to establish an earth satellite program, the Bureau of Aeronautics established a committee to evaluate the feasibility of space rocketry.

**10 October** The Office of Chief of Naval Operations was reorganized and four new Deputy Chiefs were set up for Personnel, Administration, Operations and Logistics on the same level as the existing Deputy Chief of Naval Operations (Air). The reorganization, which was by direction of the Secretary of the Navy and in accord with Executive Order, abolished Commander-in-Chief, U.S. Fleet, and transferred command of the operating forces to the Chief of Naval Operations.

**17 October** A type designation letter K for pilotless aircraft was added to the basic designation system,

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replacing the previous Class designation VK. Classes A, G and S within the type were assigned for pilotless aircraft intended for attack against aircraft, ground targets, and ships respectively.

**29 October** The Committee to Evaluate the Feasibility of Space Rocketry recommended that detailed studies be made to determine the feasibility of an Earth Satellite Vehicle. This led the Bureau of Aeronautics to issue contracts to one university and three companies for theoretical study, and preliminary design of a launch vehicle and for determining by actual test the specific impulse of high energy fuels including liquid hydrogen-oxygen.

**1 November** The Naval Air Training Command was reorganized with headquarters at NAS Pensacola, Fla., and the following subordinate commands: Naval Air Advanced Training, Naval Air Basic Training, Naval Air Technical Training, and a newly formed Naval Air Reserve Training. By this change the titles Naval Air Operational Training and Naval Air Intermediate

Training ceased to exist and the facilities of the former Naval Air Primary Training Command were incorporated into Basic Training or absorbed by the Reserve Program.

**5 November** Ensign Jake C. West, with VF-41 embarked on *Wake Island* for carrier qualifications with the FR-1, lost power on the forward radial engine of his FR-1 shortly after take-off, forcing him to start his aft jet engine. He returned to the ship and made a successful landing, the first jet landing aboard a carrier.

**29 November** The Special Weapons Test and Tactical Evaluation Unit was redesignated Pilotless Aircraft Unit and in the next month was transferred to MCAS Mojave, Calif., and directed to operate detachments at NAF Point Mugu, Calif., as necessary.

**1 December** Fleet Air Wing 6 was disestablished at NAS Whidbey Island, Wash.

**28 December** The president directed that the Coast Guard be transferred from the Navy and returned to the jurisdiction of the Treasury Department.



*Marine fighters on Henderson Field. This airbase was vitally important during the Guadalcanal Campaign 45345*



*PV-1, Medium range land-based patrol plane 41693*

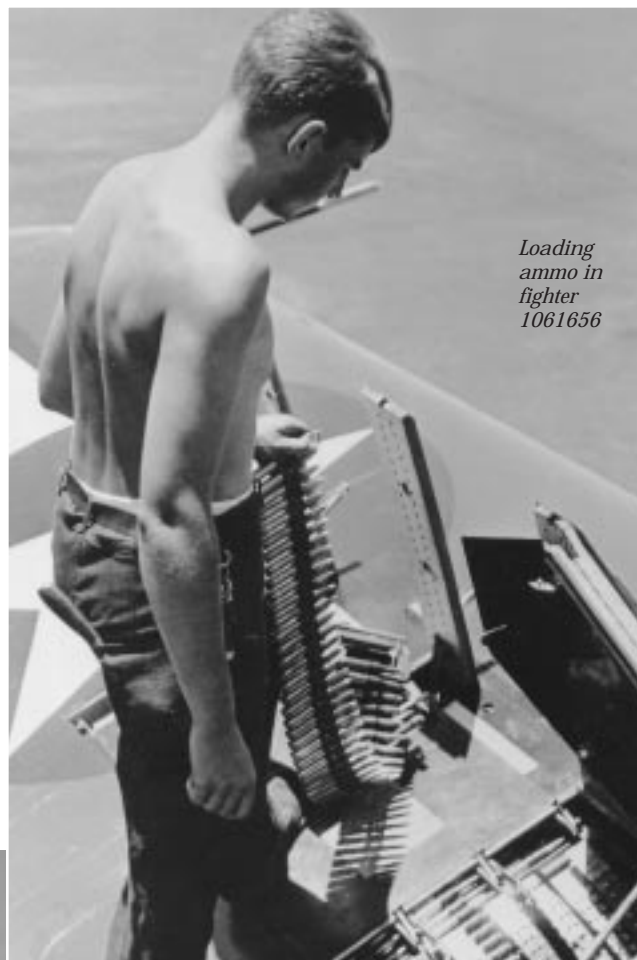


*Hoisting PBM Mariner aboard tender. Normal servicing was performed from boats 428461*





*Bombs on plane frame carrier 1053797*



*Loading  
ammo in  
fighter  
1061656*



*Navy night fighters, a flight of F6F Hellcats painted black 407243*



*Navy Ace C. E. Harriss receives DFC from ADM Mitscher 297413*



*USMC Ace Joe Foss tells how one almost got away 35197*



*Fighter direction team for combat air patrol 428460*

*The fleet at Ulithi with fast carriers Wasp, Yorktown, Hornet, Hancock and Ticonderoga anchored in a row 294129*

