

*A History of
Sea-Air Aviation*

*Wings Over
The
Ocean*

part fourteen

By John M. Lindley

After Midway the U.S. Navy wartime carrier construction program had four dimensions. It had its existing fleet carriers *Saratoga*, *Enterprise* and

Ranger (in the Atlantic). There were the existing escort carriers and the new ones, under construction or being converted from merchant hulls. Nine light cruiser hulls were also being converted to light carriers (10,000 tons). Lastly new fleet carriers were under construction. These new carriers were of two types: the *Essex*-class (27,000 tons) and the larger *Midway*-class (45,000 tons), three of which were begun during the war. (When she joined the fleet at the end of 1945, *USS Midway* (CVB-41) was 986 feet long, had a maximum speed of 33 knots, had 184 antiaircraft weapons and carried 137 aircraft.) The magnitude of this carrier building program was so great that between December 31, 1942, and

mid-June 1943, the U.S. Navy commissioned nine fast carriers, one more than it had at the beginning of the war. By the end of the Pacific war, the Navy had 28 fast carriers in commission.

These fast fleet carriers were not the only new weapons that the U.S. Navy had in late 1943. The Grumman Aircraft Company had produced the F6F, the first fighter that could out-climb and outmaneuver the Japanese *Zero*. The *Hellcat* had a heavier engine and greater firepower than the *Zero* and also had armor protection for the pilot and fuel tanks. Moreover, its self-sealing fuel tanks nullified the effects of bullet punctures. Besides the F6F, the U.S. military research and devel-



opment programs had produced a multi-channel, very high frequency radio for improved fighter-direction communications and improved surface-and-air-search radar equipment. Navy anti-aircraft gunners got the new proximity fuze (VT) for 5-inch .38 caliber naval gun shells and improved 20 and 40mm anti-aircraft guns. The VT fuze was a real breakthrough because it caused anti-aircraft shells to explode by radio signal when they were in the vicinity of an enemy aircraft. Navy gunners no longer had to get direct hits on Japanese planes to bring them down.

In addition to these defensive weapons, there were also new offensive weapons. The Chance Vought F4U

Corsair fighter and the Curtiss Wright SB2C *Helldiver* dive bomber joined the fleet. The Marines found the *Corsair* (maximum speed 417 miles per hour) particularly valuable for close air support missions. It was adapted for carrier use in April 1944. The *Helldiver* began to replace the older *Dauntless* in late 1943. It could carry up to 2,650 pounds of bombs or one torpedo. New weapons for fighter aircraft were also becoming available in 1943. Among these were 20mm cannon, napalm bombs and aerial rockets.

The fast carrier came to maturity as a ship type with the arrival of the *Essex*-class carriers in the fleet in 1943. USS *Essex* (CV-9) displaced 27,100 tons, carried four squadrons of

airplanes (90 to 100) and could steam at speeds in excess of 30 knots. Ships of this class carried 150 officers and 2,550 men as well as their embarked air groups. *Independence*-class light carriers also joined the fleet in 1943. They displaced only 10,000 tons and carried 24 fighters and 9 torpedo bombers. Their maximum speed was 32 knots.

The job of a fast carrier was to take the naval war to the Japanese warships, aircraft, merchant marine and island bases. In the Navy's words, the fast carriers "were primarily an offensive weapon used to gain control of vast sea areas and to destroy enemy forces which threatened friendly fleets or amphibious operations." The task



Left to right: Wasp, Yorktown, Hornet, Hancock, Ticonderoga. Lexington is far left near the horizon.

force, with its high cruising speed, maneuverability and operational efficiency in combination with the offensive punch of its air squadrons, was definitely up to carrying out this assignment. In addition to this offensive force, each carrier had anti-aircraft batteries of 20 and 40mm and 5-inch .38-caliber guns which fired in conjunction with visual and radar fire controls to strike at enemy planes which penetrated the defensive patrols of the carrier's fighters.

On the typical fast carrier, the air arm was always the main battery for offense and defense, but this main battery would have been of little use without the command and communications centers on each flattop. The captain's bridge, located on the forward portion of the carrier island, was the central command post for each carrier. The ship's captain and his watch officers ran the ship from this bridge. One level below the captain's bridge was the flag and signal bridge. On this level the ship's air officer directed flight operations and the admiral, if embarked, directed the task force. Close by the flag bridge lay gunnery control for directing anti-aircraft fire, the radio shack which housed the vessel's communications gear, and air plot which dispensed updated information to pilots and aircrews waiting to take off or already in the air. In the photo lab, also nearby, air intelligence officers analyzed photographs of enemy targets in an effort to assess the damage caused in a raid or to prepare for future raids.

On the captain's bridge, in air plot and in the combat information center (usually located below the flight deck on the galley deck), as well as elsewhere on the ship, radarscopes displayed pictorial information about the disposition of friendly air and surface forces as well as potential enemy bogeys or surface ships. These radars, in combination with reliable radio communications, were essential to fast carrier operations. High speed maneuvers involving numerous surface warships, either by day, by night or in bad weather, became much easier with the aid of radar. With radar every ship in the formation knew exactly where all

the other ships were, regardless of visibility or weather conditions. Radar also helped the fast carrier task force defend itself against enemy air attacks. Long-range air search radar gave warning of impending attack and radar-directed anti-aircraft fire, and fighter interception helped protect the task force against air attack. The U.S. Navy also had an electronic device built into its radars known as IFF (identification friend or foe) which was used to identify incoming planes as friendly or unfriendly. No response to an IFF interrogation meant that the approaching plane could be hostile. Therefore it might be fired on. Sometimes American pilots forgot to switch on their IFF equipment. This sometimes cost them their lives.

When American carriers went on the offensive in the central Pacific in late 1943 and throughout 1944, they were in the process of bringing the tactical organization and operation of the fast carrier task force to maturity. Prior to WW II all the major navies of the world had worked out the techniques for operating airplanes from carriers. The United States was more successful than either Japan or Great Britain in determining how best to utilize the carrier-based airplane in combat. Thus the fast carrier task force emerged as a means of controlling the sea through dominance of the air.

Since the Japanese attack on Pearl Harbor had wiped out a substantial portion of its fleet, the U.S. Navy was forced to fight the battles at Coral Sea, Midway and the Solomons with the task force form of tactical organization. The Navy defined a task force as "an assemblage of naval units of the right type and in sufficient numbers for the accomplishment of an assigned task." In its manner of organization, all elements were thought of "as integral parts of the whole complex required for control of the sea. Each should be used in the manner best suited to its inherent characteristics and all should be formed into a unified operating machine through the task-force system."

This description of the WW II task force implied a subtle change from

pre-war ship tactical organization to scouting and battle fleets. Instead of an organization based upon a hierarchy of power (cruisers to fight destroyers or other cruisers; battleships to fight cruisers or other battleships), there was a new emphasis on organic organization based upon function. No longer were all fleet units subordinated to the all-powerful battleship. For task force operations, the U.S. Navy found it needed a "unified operating machine" because the carrier was *both* a scout and a capital ship due to its aircraft. As long as naval warfare had to be conducted at a gun range of 10 to 15 miles, naval tacticians had organized their fleets so they could bring the greatest possible concentration of fire on an enemy fleet.

The Battles of Coral Sea and Midway showed, in contrast, that the fleet engagements of modern air navies could take place at far greater ranges — as much as 50 to 150 miles. Thus tactical organization based upon gun calibers was obsolete because the key to carrier air battles was concentration of aircraft to produce an overwhelming striking power. U.S. Navy tacticians compared the task force to a building made out of prefabricated units (of a definite number and specified design) which, when put together, formed the whole structure. One clear-cut advantage of the task force organization over the old battle fleet was its adaptability to amphibious operations. The carrier task force was ideally suited to amphibious operations as well as fleet engagements because of its flexibility.

A typical fast carrier task force of the U.S. Navy in WW II was divided into various task groups, each of which had three to six carriers and a sufficient number of escorts to provide an antisubmarine screen, anti-aircraft protection and defense against surface attack. Sometimes a given task group would be used for an independent offensive operation, or it might be detached for refueling and replenishment at sea. Ideally each task group would have four carriers (three CVs and one CVL), two fast battleships or battle cruisers, four heavy or light cruisers and sixteen destroyers. Three

or four of these task groups constituted a fast carrier task force. This kind of multiple carrier organization received its first serious combat test in the Gilbert Islands landings in November 1943 when four task groups formed Rear Admiral Marc A. Mitscher's Task Force 50 (later redesignated alternately as Task Force 58 and 38).

Tested in combat, the fast carrier task force proved its effectiveness as the Navy-Marine Corps amphibious team island-hopped its way across the Central Pacific via the Gilbert, Marshall, Caroline and Marianas Islands. In the Battle of the Philippine Sea (June 19-21, 1944), in the Marianas campaign, the U.S. Navy brought 15 fast carriers, organized into four task groups, to bear on a Japanese Fleet formed around nine fast carriers and land-based aircraft. History has labelled the first day of this battle the Marianas Turkey Shoot because Amer-

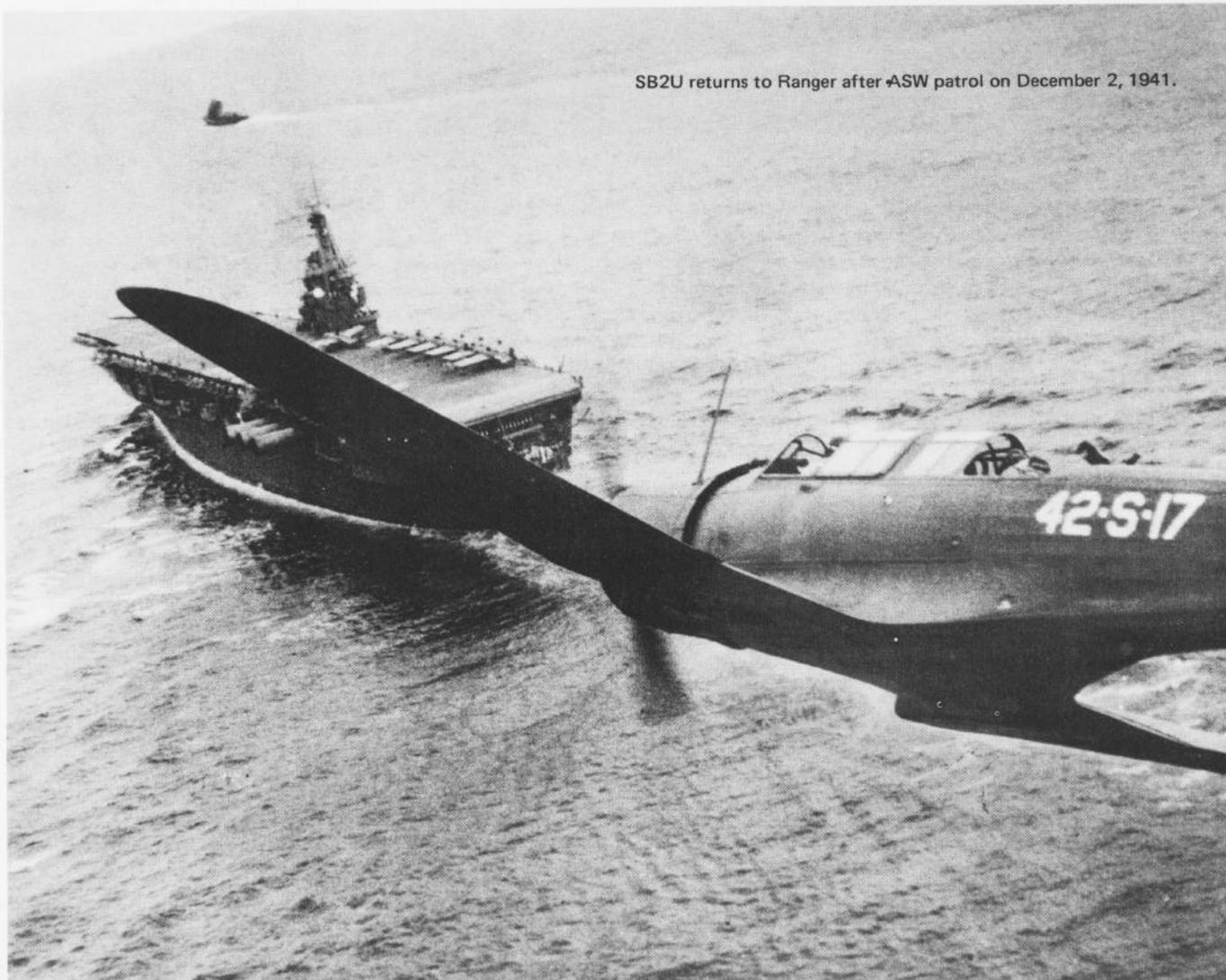
ican planes and submarines scored a decisive victory over Japanese Naval Aviation. On June 19 two U.S. submarines sank two enemy fast carriers while American carrier aircraft shot down 346 Japanese planes. U.S. Navy losses were about 30 aircraft. The next day U.S. carrier planes sank another Japanese flattop and downed 65 more enemy planes.

Those Japanese carriers which remained afloat after the Marianas campaign did not last long. Aircraft from Task Force 38 sank four more Japanese carriers which had almost empty decks because the Japanese had run out of trained pilots in the Battle of Leyte Gulf (October 24-26, 1944). Beginning with Leyte Gulf the Japanese turned increasingly to kamikaze missions in a desperate attempt to stop the fast carriers. By the end of the war all of Japan's 20 aircraft carriers had been sunk; those left afloat after Leyte Gulf became the victims of U.S. Navy

submarines or Allied bombing attacks.

During the drive across the central Pacific in 1943 and 1944, the multiple carrier task force emerged as the most powerful naval weapon up to that time because it brought together an overpowering number of ships, aircraft and pilots in tactical concentration against the enemy. Throughout 1942 and into 1943, U.S. Navy tacticians had struggled with the problems of joint carrier operations. In a sense it was a serious learning period. The Navy's senior commanders were unsure whether fast carriers should be operated as single or multiple carrier task forces. The experience of *Lexington* and *Yorktown* in the Battle of the Coral Sea seemed to support the position favoring carrier concentration. During the battle the two flattops had become separated some distance from each other. This caused their screening escorts to divide spontaneously. Once divided, both carriers were more vulnerable to Japanese

SB2U returns to Ranger after ASW patrol on December 2, 1941.



Task Group 38.3 after strikes against the Japanese in the Philippines. In line: Langley, Ticonderoga, Washington, North Carolina, South Dakota, Sante Fe, Biloxi, Mobile and Oakland.



air attack. Subsequent carrier operations at Midway for both the Japanese and American Navies tended to reinforce the arguments in favor of operating multiple carrier task forces. The arrival of the *Essex*-class carriers and improved radar and antiaircraft guns in 1943 all coincided with the adoption of the doctrine of multiple carrier operations. This formalization of carrier doctrine appeared most prominently in the *Pacific Fleet Tactical Orders* (PAC-10) issued in June 1943 which emphasized the mobility and flexibility of offensive carrier operations but also demanded the concentration of carriers and their supporting screens when under enemy air attack.

Concentration of carriers when under enemy air attack had several advantages. The combined striking power of the carrier's aircraft could defeat decisively an enemy carrier fleet or land-based aircraft as in the Battle of the Philippine Sea. Conversely, the

combined air defense of a multiple carrier task force was more effective with fewer fighters than when each carrier operated alone, and the carriers could provide a greater concentration of antiaircraft fire when under attack. Screening ships also benefited from these new tactics. The carrier escorts suffered less damage than the carriers because the flattops became the primary target.

Carrier air operations in the Pacific were essentially a form of mobile warfare. While land-based aircraft could operate from a base as long as the enemy remained within range, carrier aircraft could take their bases with them. The Pacific Fleet Service Force provided supplies for the fast carrier task forces. Instead of having to return to Hawaii or the continental United States for resupply or repair of battle damage, the fast carrier task forces either resupplied at forward mobile bases (on islands recaptured

from the Japanese) or replenished their food, fuel, ammunition and aviation gas from Service Force ships while underway at sea. At one time Service Squadron Six, for example, consisted of 73 ships, including 7 escort carriers, 29 screening ships and 29 oilers. The effectiveness of these floating logistic bases was particularly apparent in the Okinawa campaign (April to July 1945) when three fast carrier task groups remained at sea for 47, 62 and 77 days, respectively.

Okinawa was the last major amphibious campaign of the Pacific war. The final battle that everyone expected, the assault on Japan itself, never came. Instead, the Japanese surrendered when the air-sea blockade by the Navy's carrier task forces and submarines, in combination with the Army Air Force's strategic bombing of Japan (which included the two atomic bombs) from bases in the Marianas, forced all but a few fanatical Japanese leaders to realize that they had no hope of victory. All combat ended on August 14, 1945, when the news of the Japanese capitulation became certain.

The U.S. Navy had much to celebrate on V-J Day — the end of the war and the great number of lives which were saved by not having to invade Japan. But the Navy could also take pride in the success of two previously untried concepts of warfare: the amphibious doctrine of the Marines and the fast carrier task force of the Navy. Navy carrier commanders had learned in the southwest Pacific battles how to provide effective close air support for amphibious operations. This knowledge, when combined with the tactical superiority of the multiple carrier task force, had proven to be unbeatable in the central Pacific campaigns. When the Allied pincers from the southwest Pacific and the central Pacific converged at Leyte Gulf, the war could be taken directly to the Japanese homeland via Okinawa. Although the conquest of Okinawa was costly in terms of American lives lost, its fall in late June 1945 set the stage for the final act of the Pacific war, the Japanese surrender. *(Continued)*

SBDs on Enterprise after raid on Marcus.

